

# Bronte Beach Village Upgrade

Bronte Beach, Bronte

## Review of Environmental Factors



December 2018



# *Bronte Beach Village Upgrade Bronte Beach, Bronte*

## Review of Environmental Factors

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December 2018

*Prepared by  
Andrew Robinson Planning Services Pty Ltd  
2/182 Old Canterbury Road  
SUMMER HILL NSW 2130  
Ph: 02 9798 0953*

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*‘Bronte is a seaside gem that holds many treasures. The waterfalls, creek and bush support diverse plant and wildlife, appreciated on a stroll or by taking a quiet moment to reflect. The park is vibrant, welcoming, clean and safe. It’s a place to relax with friends and family, picnic, play or relax while enjoying Sydney’s beautiful weather and the impressive view. The beach’s sand, surf and spectacular cliffs provide an immersive natural experience to all who visit. It has the ability to stimulate all of our senses, drawing us into the beauty that is Bronte.’*

*(Extract from part of the Vision Statement in the Bronte Park and Beach Plan of Management, 2017)*

## *Document Review*

Version	Date	Revision Description
1.0	12/11/18	Preliminary Draft Issued for Information
2.0	6/12/18	Final Draft Issued for Review
3.0	20/12/18	Issued for Community Consultation

# 1 Executive Summary

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## The proposal

The Bronte Beach Village Upgrade project aims to significantly improve pedestrian safety and amenity and improve the activation of the commercial precinct of Bronte Beach, while creating an integrated public transport interchange with an expanded safe and accessible pedestrian link between Bronte Park and the commercial precinct. To improve pedestrian safety and amenity, the proposed upgrade works also seek to increase the width of the Bronte Road footpath by providing kerb extensions and improving the arrival experience and accessible link into the park to the north side.

The scope of the proposed upgrade works includes, but is not necessarily limited to, the following:

- Demolition/removal of selected structures/elements including sections of kerb and guttering, driveways, sections of timber Arris rail fencing, timber bollards, sections of masonry wall, sections of concrete footpath and stairs and handrail, concrete median islands, street lights and street furniture (bins, bike racks, bench seats);
- Removal and salvage/storage of parking meters, electrical box, telephone box and mail box;
- Removal of three (3) trees;
- Construction of new sections of kerb and guttering, driveway crossovers, bin storage area, new raised pedestrian crossing, central median islands
- Landscaping works including new trees, mass planting, feature paving and laying of new turf;
- Reinstatement of parking meters, electrical box, telephone box and mail box;
- Installation of new street furniture including bins, bench seats, feature seats, single block seats, bike racks, drinking fountain, bollards and tree grates;
- Installation of new street and public domain lighting including Smart poles, post-top lights and feature uplights;

## Need for the proposal

The Public Domain Improvement Plan 2006 - Local Village Centres, prepared in conjunction with (the former) Waverley Development Control Plan 2006, recognised that pedestrian safety is compromised along the village commercial strip due to outdoor dining dominating the footpath. Pedestrian safety and convenience was also recognised as being compromised at the bus waiting area and by the turning path of buses from the Terminus into Bronte Road.

To address this, the desired future character for the Bronte Beach centre is described as follows in the Public Domain Improvement Plan 2006 - Local Village Centres:

*Retain active character along commercial strip, and balance outdoor dining with pedestrian access and amenity. Improve safety and amenity at pedestrian crossing and bus waiting area.*

*Future plans for upgrading the commercial centre should reference the Bronte Park Plan of Management.*

In order to achieve this future desired character, the Public Domain Improvement Plan nominated the following improvement works:

- 1. Widen footpath to 5 metres to improve amenity and circulation at shops and allow more comfortable integration of pedestrian and dining uses;*
- 2. Improve pedestrian safety by relocating pedestrian crossing away from bus turning area. The exit from bus layover is realigned, and a pedestrian space is formed at the eastern end of the strip;*
- 3. Widen the footpath slightly into the park to make a more generous and comfortable waiting area at bus terminus. Provide seating at edge of the path; and*
- 4. Renovate bus shelter, open up to allow views through to park.*

Due to the requirement to upgrade the entry to the park (item 3 above), a holistic integrated approach is required to ensure the best outcome for the commercial interface, bus interchange and entrance to the park. The project is also supported by the Bronte Park and Beach Plan of Management, with a range of design directions set out in the Actions Plan.

Accordingly, the proposed upgrade works associated with the entry to Bronte Park are consistent with the progressive implementation of the Bronte Park and Beach Plan of Management.

In line with the need for improvements to the Bronte Beach Village identified in the Public Domain Improvement Plan 2006 – Local Village Centre, the upgrade works have been designed and presented for community consultation.

The proposed upgrade works plan to:

- Provide a unique arrival experience for users of Bronte Park and reinforce the connection between park and Village Centre.
- Provide an integrated link that connects the commercial centre with the bus interchange and park interface, creating a meeting place for people between the popular destinations of the beach and café precinct.
- Improve access and wayfinding for all abilities and users of the park.
- Facilitate bus turning and manoeuvres at bus transport interchange.
- Improve the arrival experience for people arriving or departing via Sydney Buses in the interchange zone.
- Improve the public domain at Bronte Local village centre.

## Statutory and planning framework

The *Environmental Planning & Assessment Act, 1979* provides the statutory framework for planning and environmental assessment in NSW. Development consent is required to carry out development and/or works unless they fall within Section 4.1 of the *Environmental Planning & Assessment Act, 1979*.

Section 4.1 of the *Environmental Planning & Assessment Act, 1979* states that if an environmental planning instrument provides that specified development may be carried out without the need for development consent, then a person may carry the development out, in accordance with the instrument, on land to which the provisions apply. Environmental assessment of the development may nevertheless be required under Part 5 of the Act.

Clauses 65, 66, 94 and 97 of *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) apply to the proposed works within Bronte Village and Bronte Park and allow Waverley Council, as a public authority, to undertake the works without the need to obtain development consent.

Notwithstanding, the proposed works that do not require development consent are considered to be an "activity" within the meaning of Section 5.1 of the *Environmental Planning and Assessment Act, 1979* on the basis that subsection 5.1(1)(d) of the EP&A Act defines the *carrying out of a work* as an "activity". Section 5.5 of the *Environmental Planning & Assessment Act, 1979* states a determining authority in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

As such, the proposed works are being assessed under Part 5 of the *Environmental Planning and Assessment Act, 1979* and a Review of Environmental Factors (REF) has been prepared.

## Community and stakeholder consultation

Community and stakeholder consultation was undertaken in November and December 2016 and comprised an on-line survey, a face to face 'Have Your Say' public consultation event and a stakeholder briefing/workshop.

Key information on the project, together with the on-line survey was uploaded to Waverley Council's website on 24 November 2016.

The 'Have Your Say' public consultation event was advertised via a letter box drop in the local area, as well as on social media and in the Wentworth Courier and invited residents to view the draft plans in Bronte Park on Saturday 3 December, 2016, between 9am and midday. Council staff were available during this time to present the proposed upgrade works, answer questions and listen to community feedback. During the public consultation the on-line survey was also available to complete.

Approximately 85 people attended the information stand during the event and 51 surveys were submitted on the day. In addition, 14 surveys were completed on-line, bringing the total submissions received to 65, including all formal responses from the 'Have Your Say' day as well as those who viewed the draft plans and completed the survey independently online. Additionally, 5 written submissions were received by email.

A stakeholder briefing/workshop was held on 6 December 2016 and was attended by six participants. Bronte Village Centre business owners and operators, The Bronte Beach and

Bronte Precinct convenors and representatives of the Bronte Surf Club and Kiosk were invited to attend the briefing session and provide comment. While there was limited attendance from the business owners/operators, a number of residents also attended the briefing. During the workshop the proposed upgrade works were presented and questions and feedback from the stakeholder group was obtained.

While the plan for the proposed upgrade works received general support, some people held a strong opinion regarding changes to the entry to the park. A common reason was because the park should not have further hard landscape works and should be kept natural and green.

Consequently a number of changes were made to the plan, including:

- Removal of the stairs;
- Terracing taken out; and
- The bus stop footpath was made narrower

## Environmental impacts

The main potential environmental impacts associated with the proposed upgrade works at Bronte Village Beach include:

- Acid Sulfate Soils impacts;
- Heritage impacts;
- Traffic and access impacts;
- Noise and vibration impacts;
- Air quality impacts;
- Tree removal and management impacts;
- Visual amenity impacts;
- Waste management and minimisation impacts.

## Justification and conclusion

The proposed upgrade works at Bronte Village and Bronte Park have the potential to result in some minor environmental impacts with respect to acid sulfate soils, heritage, traffic and access, noise and air quality, tree removal and management, visual impacts and waste storage and disposal. Notwithstanding, the safeguards and mitigation measures that are detailed in this Review of Environmental Factors will ameliorate or minimise these expected impacts. The proposal will also realise a number of positive impacts, including an improvement to the streetscape character and public domain amenity, improved legibility of the entry to Bronte Park, and improved pedestrian safety and amenity for the benefit of the wider community. On balance the proposal is considered justified.

The environmental impacts of the proposal are not likely to be significant and therefore it is not necessary for approval to be sought for the proposal under Part 4 of the *Environmental Planning & Assessment Act 1979*. The proposal will not have a substantial impact on any matters of national environmental significance.

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**Appendix B** - Design Drawings (Issue for Tender Revised) package, Group GSA

**Appendix C** - Heritage Impact Statement Bronte Beach Village, City Plan Heritage

**Appendix D** - Bronte Village Streetscape Traffic Study, Bitzios Consulting

**Appendix E** - Bronte Beach Village Comparative Noise Study, Acoustic Logic

**Appendix F** - Bronte Village Upgrade Visual Impact Assessment, Group GSA

**Appendix G** - Bronte Village Upgrade Spill Light Assessment, Lighting, Art + Science

**Appendix H** - Bronte Village Streetscape Upgrade Construction Traffic Management Plan, Bitzios Consulting

**Appendix I** - Bronte Park and Beach Plan of Management, Waverley Council



# 1 Introduction

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## 1.1 Site and proposal identification

The Bronte Beach Village is located on Bronte Road at the lowest point of the Macpherson Street, Bronte Road loop. The terminus for the 379 bus service, which includes the historic (former tram shed) bus pick-up, a bus lay-by and loading areas and the bus drop-off, is located opposite the commercial strip. The bus drop-off is located at No. 465 Bronte Road. The Village centre is characterised by the setting of Bronte Park and beach and has a relaxed atmosphere associated with recreation and leisure. The commercial strip is dominated by cafes and restaurants and together with the park and beach, is well utilised by the local community and also attracts many visitors.

The built form in the Village centre is characterised by a single stretch of two (2) to three (3) storey, mainly interwar, mixed use buildings with retail frontages at ground level under continuous awnings. The upper levels are generally used for residential purposes.

An aerial view depicting the extent of the works area is provided in **Figure 1.3** below:

**Figure 1.3** – Aerial view delineating the approx. area of works at Bronte Beach Village



Source: Group GSA

The Bronte Beach Village Upgrade project aims to significantly improve pedestrian safety and amenity and improve the activation of the commercial precinct of Bronte Beach, while creating an integrated public transport interchange with an expanded safe and accessible pedestrian link between Bronte Park and the commercial precinct. To improve pedestrian safety and amenity, the proposed upgrade works also seek to increase the width of the Bronte Road

footpath by providing kerb extensions and improving the arrival experience and accessible link into the park to the north side.

## 1.2 Purpose of the report

This Review of Environmental Factors has been prepared by Andrew Robinson Planning Services Pty Ltd (ARPS) on behalf of Waverley Council, under instruction from Group GSA Pty Ltd. For the purposes of the proposed works, Waverley Council is the proponent and the determining authority under Part 5 of the *Environmental Planning and Assessment Act, 1979*.

The purpose of the Review of Environmental Factors is to describe the proposed works, to document the likely impacts of the proposed works on the environment, and to detail any necessary safeguards and mitigation measures to be implemented in order to reduce or avoid potential environmental impacts as a result of the proposed works.

The description of the proposed upgrade works to Bronte Beach Village and the associated environmental impacts has been undertaken in context of Clause 228 of the *Environmental Planning and Assessment Regulation 2000*, the *Environmental Planning & Assessment Act, 1979* and other relevant environmental legislation including the Commonwealth's *Environment Protection and Biodiversity Conservation Act, 1999*. In doing so, the Review of Environmental Factors helps to fulfil the requirements of Section 5.5 of the *Environmental Planning & Assessment Act, 1979* that Waverley Council examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

## 1.3 Structure of the REF

The REF is divided into the following sections:

- Introduction (Section 1) – introduces the proposal and purpose of the report;
- Need for the proposal (Section 2) – provides a description of the need for the project;
- Description of the proposal (Section 3) – provides a detailed description of the proposed works;
- Statutory and planning framework (Section 4) – provides information on the statutory and policy requirements for the proposed works;
- Community and stakeholder consultation (Section 5) – provides information on the stakeholder / community consultation that has been undertaken;
- Environmental assessment (Section 6) – describes the existing environment and potential environmental impacts, and identifies the corresponding impact safeguards and environmental management/mitigation measures;
- Environmental management (Section 7) – summarises the proposed safeguards and environmental management/mitigation measures associated with the works;
- Conclusion (Section 8) – provides justification for the proposed works and concluding remarks as to whether the adverse environmental impacts are balanced or outweighed by the beneficial effects of the proposal;

- Certification (Section 9) – certifies that the Review of Environmental Factors provides a true and fair review of the proposal in relation to its potential effects on the environment;
- References (Section 10) – contains a list of the documents used in the preparation of the Review of Environmental Factors; and
- Appendices – contains an assessment of the potential environmental impacts of the proposal in the context of Clause 228 of the *Environmental Planning and Assessment Regulation 2000* and the matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act, 1999*, as well as copies of the technical/specialist reports that have informed this Review of Environmental Factors.

## 2 Need for the proposal

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### 2.1 Strategic need for the proposal

The Public Domain Improvement Plan 2006 - Local Village Centres, prepared in conjunction with (the former) Waverley Development Control Plan 2006, recognised that pedestrian safety is compromised along the village commercial strip due to outdoor dining dominating the footpath. Pedestrian safety and convenience was also recognised as being compromised at the bus waiting area and by the turning path of buses from the Terminus into Bronte Road.

To address this, the desired future character for the Bronte Beach centre is described as follows in the Public Domain Improvement Plan 2006 - Local Village Centres:

*Retain active character along commercial strip, and balance outdoor dining with pedestrian access and amenity. Improve safety and amenity at pedestrian crossing and bus waiting area.*

*Future plans for upgrading the commercial centre should reference the Bronte Park Plan of Management.*

In order to achieve this future desired character, the Public Domain Improvement Plan nominated the following improvement works:

5. *Widen footpath to 5 metres to improve amenity and circulation at shops and allow more comfortable integration of pedestrian and dining uses;*
6. *Improve pedestrian safety by relocating pedestrian crossing away from bus turning area. The exit from bus layover is realigned, and a pedestrian space is formed at the eastern end of the strip;*
7. *Widen the footpath slightly into the park to make a more generous and comfortable waiting area at bus terminus. Provide seating at edge of the path; and*
8. *Renovate bus shelter, open up to allow views through to park.*

The upgrade works are now being brought to fruition. Due to the requirement to upgrade the entry to the park (item 3 above), a holistic integrated approach is required to ensure the best outcome for the commercial interface, bus interchange and entrance to the park. The project is also supported by the Bronte Park and Beach Plan of Management, with a range of design directions set out in the Actions Plan.

Accordingly, the proposed upgrade works associated with the entry to Bronte Park are consistent with the progressive implementation of the Bronte Park and Beach Plan of Management.

The proposed upgrade works plan to:

- Provide a unique arrival experience for users of Bronte Park and reinforce the connection between park and Village Centre.

- Provide an integrated link that connects the commercial centre with the bus interchange and park interface, creating a meeting place for people between the popular destinations of the beach and café precinct.
- Improve access and wayfinding for all abilities and users of the park.
- Facilitate bus turning and manoeuvres at bus transport interchange.
- Improve the arrival experience for people arriving or departing via Sydney Buses in the interchange zone.
- Improve the public domain at Bronte Local village centre.

## 3 Description of the proposal

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### 3.1 The proposal

The Bronte Beach Village Upgrade project aims to significantly improve pedestrian safety and amenity and improve the activation of the commercial precinct of Bronte Beach, while creating an integrated public transport interchange with an expanded safe and accessible pedestrian link between Bronte Park and the commercial precinct. To improve pedestrian safety and amenity, the proposed upgrade works also seek to increase the width of the Bronte Road footpath by providing kerb extensions and improving the arrival experience and accessible link into the park to the north side.

The scope of the proposed upgrade works includes, but is not necessarily limited to, the following:

#### Demolition

- Demolition/removal of selected structures/elements including sections of kerb and guttering, driveways, sections of timber Arris rail fencing, timber bollards, sections of masonry wall, sections of concrete footpath and stairs and handrail, concrete median islands, street lights and street furniture (bins, bike racks, bench seats);
- Removal and salvage/storage of parking meters, electrical box, telephone box and mail box;

#### Tree Removal

- Removal of three (3) trees (2 x *Cocos palms* & a *Leptospermum*);

#### Construction/Installation Works

- Construction of new sections of kerb and guttering, driveway crossovers, bin storage area, new raised pedestrian crossing, central median islands;
- Reinstatement of parking meters, electrical box, telephone box and mail box;
- Installation of new and reinstatement of salvaged fencing;
- Installation of new street furniture including bins, bench seats, feature seats, single block seats, bike racks, drinking fountain, bollards and tree grates;
- Installation of new street and public domain lighting including Smart poles, post-top lights and feature up-lights;

#### Landscaping Works

- Landscaping works including new trees, mass planting, feature paving and laying of new turf.

Details of the proposed works are provided in the Bronte Village Centre Upgrade drawing package (Issue for Tender Revised) prepared by Group GSA, in consultation with Bitzios

Consulting and C & M Consulting Engineers, as listed below and provided at **Appendix B** of this REF:

Drawing No./ Document Ref.	Issue	Description/Title
L0000	D	Cover Sheet
L1001	D	Demolition Plan – Sheet 1
L1002	D	Demolition Plan – Sheet 2
L1003	D	Demolition Plan – Sheet 3
L1101	C	Existing Infrastructure Plan – Sheet 1
L1102	C	Existing Infrastructure Plan – Sheet 2
L1103	C	Existing Infrastructure Plan – Sheet 3
L2000	C	Landscape Schedules
L2001	D	General Arrangement Plan – Sheet 1
L2002	D	General Arrangement Plan – Sheet 2
L2003	D	General Arrangement Plan – Sheet 3
L2101	D	Furniture and Fixtures – Sheet 1
L2102	C	Furniture and Fixtures – Sheet 2
L2103	C	Furniture and Fixtures – Sheet 3
L3001	D	Grading and Drainage Plan – Sheet 1
L3002	D	Grading and Drainage Plan – Sheet 2
L3003	D	Grading and Drainage Plan – Sheet 3
L5001	C	Planting Plan – Sheet 1
L5002	C	Planting Plan – Sheet 2
L6001	C	Sections and Elevations – Sheet 1
L6002	C	Sections and Elevations – Sheet 2
L6003	C	Sections and Elevations – Sheet 3
L6004	C	Sections and Elevations – Sheet 4
L7001	C	Landscape Detail – Softscape
L7002	C	Landscape Detail – Softscape
L7003	C	Landscape Detail – Finishes
L7004	C	Landscape Detail – Walls and Edging
L7005	C	Landscape Detail – Furniture
L7006	C	Landscape Detail – Furniture
L7007	C	Landscape Detail – Furniture
L7008	B	Landscape Detail – Handrail and Balustrade
L7009	C	Landscape Detail – Fixtures

## 3.2 Construction Activities

### 3.2.1 Work methodology

Prior to the commencement of any work, 'construction zones' will need to be established around the perimeters of the work sites within the Bronte Road reserve, bus terminus and Bronte Park. The final details of the construction methodology are still under consideration and therefore were not available at the time of preparation of this Review of Environmental Factors. However, prior to any works commencing, the pedestrian and traffic management controls and other environmental controls recommended in this Review of Environmental Factors will need to be implemented.

Construction activities will vary throughout the works period, however are anticipated to include (but not be limited to):

- Removal and disposal of redundant elements;
- Removal and storage of elements to be salvaged and re-instated;
- Formwork and concreting work;
- Road resurfacing;
- Carpentry;
- Painting and linemarking;
- Installation of new and salvaged fencing, street furniture and lighting etc;
- Landscaping, including planting, turfing and paving etc.

### 3.2.2 Plant and equipment

The plant and equipment that will be required for the works will vary throughout the ongoing stages of the work activities. Typical equipment and plant will generally include (but not be limited to) the following:

- Construction and/or earthmoving equipment including bobcats, rollers, crane etc;
- Various trucks and trade vehicles;
- Various powered and unpowered hand tools.

During the course of the works various forms of environmental control equipment such as silt fences / socks, rubbish skips etc will be required.

### 3.2.3 Waste management

All waste material will need to be either removed from the site immediately following demolition or stored on site in skip bins (or similar) and either recycled or disposed of at a licensed waste management facility.

### 3.2.4 Source of materials

Wherever possible, materials of construction should be sourced locally.

### 3.2.5 Traffic management and access

Where and when necessary, traffic and pedestrian management measures will need to be put into place prior to the commencement of works in order to provide a safe environment for road users, cyclists and pedestrians, maintain access to commercial premises and manage access to the work site/s.

All changes to the existing traffic, cyclist and pedestrian conditions in the vicinity of the works area/s will need to be accompanied by appropriate signage etc to notify users of the temporary arrangements.

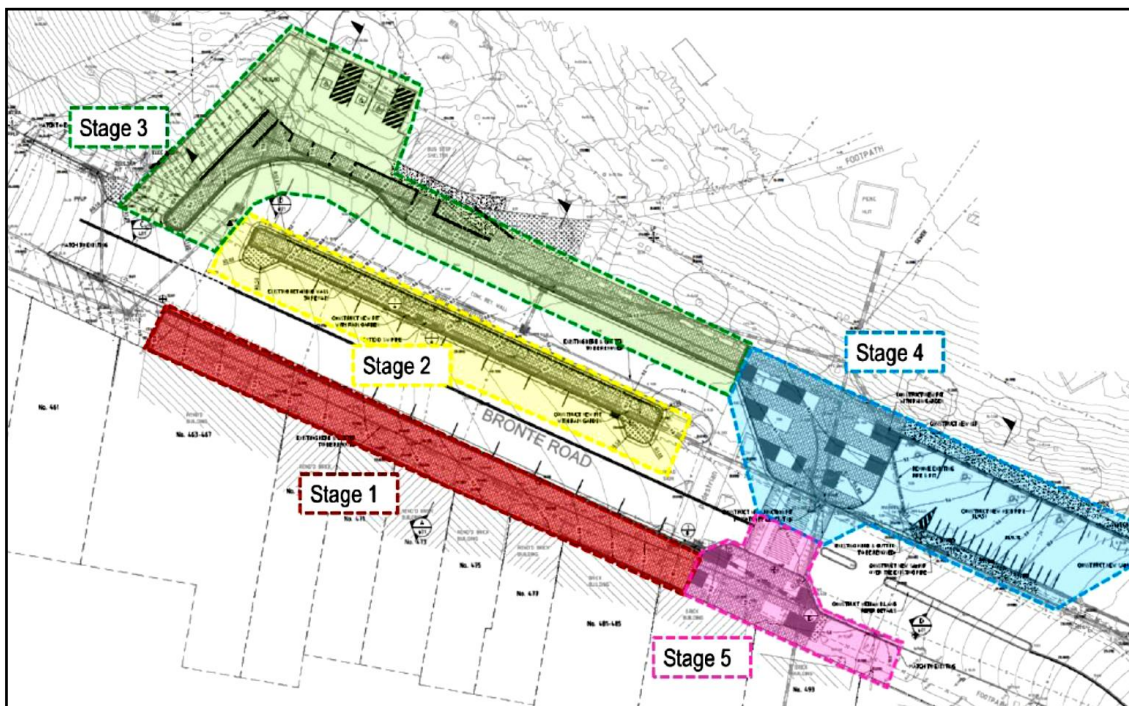
Bitzios Consulting has prepared a Traffic Construction Management Plan (CTMP) (**Appendix**



H) that details the traffic management measures and other related measures to be implemented during the works period in order to minimise impacts on traffic, cyclists and pedestrians. The CTMP acknowledges that the contractor/s will need to prepare more specific CTMPs for the works, but the Bitzios Consulting CTMP will form a template for contractors to use in formulating their traffic management measures.

The CTMP nominates an indicative staging of the proposed works based on the anticipated implications on traffic management and public transport in the area. However, the CTMP acknowledges that the staging is subject to change by either Waverley Council and/or the contractors. The five (5) indicative stages are illustrated in **Figure 3.1** below, extracted from the Bitzios Consulting CTMP:

**Figure 3.1 – Indicative Staging of Works**



Source: Bitzios Consulting CTMP, May 2018

The description of the indicative staging in the CTMP is reproduced below:

**Stage 1: Reconstruction of Southern Kerb**

*This stage involves street scaping upgrades of the southern side of Bronte Road along shop frontages, including:*

- *realignment of existing kerbside; and*
- *repaving of the surface.*

**Stage 2: Reconstruction of Northern Kerb and Bus Terminus (South)**

*This stage involves the reconstruction of the southern side Bronte Bus Terminus and the northern kerbside of Bronte Road.*

*This work includes:*

- *realignment of kerb on the southern side of the terminus;*
- *re-alignment of kerb on the northern side of Bronte Road;*
- *landscaping;*
- *surface repaving on the northern side of Bronte Road; and*
- *modification to the bus terminus entrance.*

### **Stage 3: Reconstruction of Bus Terminus (North)**

*This stage involves the reconstruction of the northern side of Bronte Bus Terminus. This work includes:*

- *realignment of northern kerb within the bus terminus;*
- *construction of cantilevered structure;*
- *modifications to bus terminus entry;*
- *modifications to lower car park; and*
- *surface repaving.*

### **Stage 4: Construction of Bus Terminus Exit and Pedestrian Crossing (north)**

*This stage involves the construction of the bus terminus exit (kerb build out) and initial construction of the raised crossing. This work involves:*

- *realignment of kerb at the terminus exit (kerb build out);*
- *modifications to the Calga Place entrance and footpath;*
- *construction of the northern side of the new crossing (raised platform);*
- *surface repaving; and*
- *landscaping.*

### **Stage 5: Construction of Crossing (south)**

*This stage involves the construction of the remainder of the raised crossing and tying in to Stage 1 works. This work includes:*

- *construction of southern side of raised platform;*
- *tie in raised platform with kerb build out; and*
- *surface repaving.*

## **3.3 Public utility adjustment**

It is unlikely that there will be any requirement for adjustment to the existing water or sewer infrastructure as a consequence of the proposed upgrade works. It is proposed to install a new electrical Master Switchboard in a separate storage area next to the proposed bin storage enclosures. However, this is not expected to have any significant impact on the capacity of the existing electrical infrastructure.

## 4 Statutory and planning framework

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The *Environmental Planning & Assessment Act, 1979* provides the statutory framework for planning and environmental assessment in NSW. It contains two parts that impose requirements for planning approval:

- Part 4 generally provides for the control of local ‘development’ that requires development consent from local council.
- Part 5 provides for the control of ‘activities’ that do not require development consent and are undertaken or approved by a determining authority.

The applicable approval process under the *Environmental Planning & Assessment Act, 1979* is generally determined by reference to the relevant environmental planning instruments and other statutory planning instruments and controls. These include *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP), the *Environment Protection and Biodiversity Conservation Act 1999*, other relevant State Environmental Planning Policies (SEPPs) and local environmental plans (LEPs).

Development consent is required to carry out development and/or works unless they fall within Section 4.1 of the *Environmental Planning & Assessment Act, 1979*.

Section 4.1 of the *Environmental Planning & Assessment Act, 1979* states that if an environmental planning instrument provides that specified development may be carried out without the need for development consent, then a person may carry the development out, in accordance with the instrument, on land to which the provisions apply. Environmental assessment of the development may nevertheless be required under Part 5 of the Act.

*State Environmental Planning Policy (Infrastructure) 2007* is the environmental planning instrument under which the proposed Bronte Beach Village Upgrade works may be carried out either as *exempt development*, or *development without consent*. Further discussion on the provisions of the Infrastructure SEPP is provided at 4.2 below.

Notwithstanding, those works that do not require development consent are considered to be an “activity” within the meaning of Section 5.1 of the *Environmental Planning and Assessment Act 1979* on the basis that subclause 5.1(1)(d) of the *Environmental Planning & Assessment Act, 1979* defines the *carrying out of a work* as an “activity”.

Section 5.1(1) of the *Environmental Planning & Assessment Act, 1979* defines an “activity” as being:

- (a) the use of land, and
- (b) the subdivision of land, and
- (c) the erection of a building, and
- (d) the carrying out of a works, and
- (e) the demolition of a building or work, and
- (f) any other act, matter or thing referred to in Section 26 that is prescribed by the regulations for the purposes of this definition,

*but does not include:*

- (g) any act, matter or thing for which development consent under Part 4 is required or has been obtained, or
- (h) any act matter or thing that is prohibited under an environmental planning instrument, or
- (i) exempt development, or
- (j) development carried out in compliance with an order under Division 2A of Part 6, or
- (k) any development of a class or description that is prescribed by the regulations for the purposes of this definition.

The proposal involves the use of land, the demolition of a work and the carrying out of works and is therefore an “activity” for the purposes of Part 5.

A determining authority is defined in Section 5.1 of the Act as “a Minister or public authority and, in relation to any activity, means the Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the activity to be carried out”.

The term ‘public authority’ is defined in Section 1.4 of the *Environmental Planning & Assessment Act, 1979* as follows:

- (a) a public or local authority constituted by or under an Act;
- (b) a government Department;
- (c) a statutory body representing the Crown;
- (d) a chief executive officer within the meaning of the *Public Sector Management Act 1988* (including a Director General);
- (e) a statutory State owned corporation (and its subsidiaries) within the meaning of the *State Owned Corporations Act 1989*;
- (f) a chief executive officer of a corporation or subsidiary referred to in paragraph (e); or
- (g) a person prescribed by the regulations for the purposes of this definition.

Waverley Council is a public authority constituted under the *Local Government Act 1993*. Accordingly, as the works will be undertaken either by or on behalf of the public authority, Council is deemed to be the determining authority for the proposed upgrade works at Bronte Beach Village in accordance with Part 5 of the Act.

Section 5.5 of the *Environmental Planning & Assessment Act, 1979* states a determining authority in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

## 4.1 State Legislation

### 4.1.1 Environmental Planning & Assessment Act 1979

Section 5.1 of Part 5 of the *Environmental Planning & Assessment Act, 1979* relates to the duty to consider environmental impact and subclause (1) states:

*(1) For the purpose of attaining the objects of this Act relating to the protection and enhancement of the environment, a determining authority in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.*

#### 4.1.1.1 Crime Prevention Through Environmental Design (CPTED)

Crime Prevention through Environmental Design (CPTED) is an important inter-agency crime prevention program that reduces crime opportunity through effective planning, urban design and place management. The NSW Police Service program, known as Safer by Design is based on the principles of CPTED.

The Department of Planning & Environment (then PlanningNSW) released guidelines under (the former) Section 79C of the Environmental Planning and Assessment Act 1979 which were prepared to assist councils in identifying crime risk and minimise opportunities for crime through appropriate assessment of development proposals.

The Guidelines uses Crime Prevention through Environmental Design (CPTED) which is a crime prevention strategy and focuses on reducing the opportunities for crime through the planning, design and structure of the built environment.

Predatory offenders often make cost-benefit assessment of potential victims and locations before committing crime. CPTED aims to create the reality (or perception) that the costs of committing crime are greater than the likely benefits.

This is achieved through the creation of environmental and social conditions that:

- Maximise the risk to offenders through increasing the likelihood of detection and challenge;
- Maximise the effort require to commit an offence;
- Minimise the actual and perceived benefits of crime (removing, minimising or concealing crime attractors and rewards); and
- Minimise the opportunity to facilitate inappropriate behaviour and excuse making opportunities (removing conditions that encourage/facilitate the rationalisation of inappropriate behaviour).

Part B of the Guidelines sets out four principles to be used in the assessment of development applications to minimise the opportunity for crime. Each of the strategies aim to create the perception or reality of 'capable guardianship'. The four (4) principles and how they relate to the proposed upgrade works are discussed below:

#### Surveillance

People feel safe in public areas when they can see and interact with others, particularly people connected with that space, such as shopkeepers or adjoining residents. Criminals are often deterred from committing crime in places that are well supervised.

Providing effective surveillance of areas within and surrounding a site can assist in reducing

the attractiveness of crime targets. Surveillance of an area can be achieved through both natural and technical means.

Passive surveillance, where people can see what others are doing, creates a sense of safety within an environment and provides opportunities for interaction between individuals. This and high levels of passive surveillance, deters offenders from committing crime.

The orientation of the existing buildings and the high levels of activation along the footpath due to the predominance of footpath dining provides high levels of casual surveillance over the public domain, discouraging opportunities for criminal activity. The proposed landscape treatments have been designed in cognisance of the need to maintain good levels of passive surveillance and allow safe movement of pedestrians into and around the site.

Public domain lighting improvements (including new Smart Pole lighting) will be installed to satisfy the relevant Australian Standards and provide a high degree of lighting throughout the public domain.

### Access Control

By clearly defining areas accessible to the public and providing physical and symbolic barriers to attract and channel the movement of people, it will be difficult for offenders to reach victims and opportunity to commit crime will be minimised.

Access control treatments restrict, channel and encourage people and vehicles into, out of and around buildings and/or spaces.

Natural access controls includes the tactical use of design measures including building configuration; formal and informal pathways, landscaping, fencing and gardens.

The proposed widening of the footpath to provide improved amenity for (outdoor) diners and pedestrians and the provision of a new raised pedestrian crossing to direct pedestrians to a designated crossing point over Bronte Road will improve pedestrian safety, reduce pedestrian/vehicle conflict and limit opportunities for anti-social behaviour (i.e. conflict between pedestrians and diners/pedestrians and drivers/cyclists).

### Territorial Reinforcement

Defining what is public and private territory assists in determining the function of a space and the appropriate behaviour within a space. This definition enhances the informal security presence within and around a site. Territorial reinforcement is achieved through the creation of a 'sphere of influence' around a building or space by utilizing physical designs such as 'pavement treatments, landscaping and signage that enable users of a building or an area to develop a sense of proprietorship over it.

Community ownership of public space sends positive signals to the community. Places that feel owned and cared for are more likely to be used, enjoyed and revisited. People who have guardianship or ownership of areas are more likely to provide effective supervision and to intervene in crime than passing strangers and criminals rarely commit crime in areas where the risk of detection and challenge are high. Effective guardians are often ordinary people who are spatially 'connected' to a place and feel an association with, or responsibility for it.

In this regard, the shopkeepers and residents of Bronte Beach Village take pride in the village and have a sense of proprietorship over it. The proposed upgrade works are intended to improve the current level of amenity for both the local people and visitors to the area and will

reinforce the 'sphere of influence' and sense of guardianship over the public realm.

### Space Management

Neglected and/or poorly maintained buildings and/or areas are often more susceptible to criminal activities such as vandalism.

Space management involves the formal supervision, control and care of the development. All space, even well planned and well-designed areas need to be effectively used and maintained to maximise community safety. Places that are infrequently used are commonly abused. There is a high correlation between urban decay, fear of crime and avoidance behaviour.

Management of Bronte Road, the footpath areas, bus terminus and Bronte Park will promote the message that both the community and pedestrians respect this environment. Through the appropriate coordination of the site, maintaining the building and surrounds, repairing vandalism as it occurs and retaining and improving when needed pedestrian facilities including lighting, will ensure that the space is appropriately utilised and well cared for.

Waverley Council is responsible for the management and maintenance of the public domain (roads and footpaths) in Bronte Beach Village, as well as Bronte Park and the area appears to be well maintained.

#### 4.1.2 State Environmental Planning Policy (Infrastructure) 2007

*State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) aims to facilitate the effective delivery of infrastructure across the State and in particular, by identifying the environmental assessment category into which different types of infrastructure and services development fall. The provisions of the ISEPP prevail over any provisions within a local environmental plan that relate to the development of infrastructure facilities identified in the ISEPP.

### Works within Bronte Beach Village – Bronte Road reserve

Division 17 of the ISEPP relates to Roads and traffic and Subdivision 1 of Division 17 (clauses 93 to 97) deals with road infrastructure facilities.

Clause 94 of the ISEPP permits development on any land for the purpose of a 'road' or 'road infrastructure facilities' to be carried out by or on behalf of a public authority without consent. Under the definitions at Clause 93 of the ISEPP, 'road infrastructure facilities' include a range of facilities such as *tunnels, ventilation shafts, emergency accessways, vehicle or pedestrian bridges, causeways, road-ferries, retaining walls, toll plazas, toll booths, security systems, bus lanes, transit lanes, transitways, transitway stations, rest areas and road related areas* (within the meaning of the *Road Transport Act 2013*).

The definition of 'road related area' within Section 3 of the *Road Transport Act 2013* includes:

....(b) a footpath or nature strip adjacent to a road, or ....

Having regard to the above, the Bronte Road footpath is defined as a *road related area* under the *Road Transport Act 2013* and therefore is defined as a 'road infrastructure facility'.

Road infrastructure facilities also include associated public transport facilities for roads used to convey passengers by means of regular bus services, bus layovers that are integrated or associated with roads (whether or not the roads are used to convey passengers by means of regular bus services and bus stops and bus shelters).

As such, the bus terminus is also defined as a 'road infrastructure facility'.

Clause 97 of the SEPP sets out a range of purposes (activities) that is exempt development if it is carried out by or on behalf of a public authority in connection with a road or road infrastructure facilities and complies with clause 20 of the SEPP. Subclause 97(1) is reproduced below (emphasis added):

(a), (b) *(Repealed)*

(c) **erection, installation, maintenance, reconstruction or replacement of any of the following, and any associated landscaping works:**

(i) *security fencing with a height above ground level (existing) of not more than 3.2m,*

(ii) *safety barriers or systems, including Jersey barriers,*

(iii) **directional, safety or other advisory signs relating to road works or the use of existing road infrastructure facilities,**

(iv) **pedestrian and cyclist facilities (such as footpaths, street lighting, kerb adjustments and ramps, pedestrian fences, refuges, holding rails, and bollards),**

(v) *slope stability works that are required for safety reasons and minor road safety improvements,*

(vi) *minor road pavement or shoulder work (such as patching, grading, re-sheeting, sealing and re-sealing),*

(vii) **street furniture (such as seats, bins and directional signs) and any associated kerb construction, access paths and ramps, lighting and signage that complies with AS:1428.2 and the Disability Standards,**

(viii) *removal from or addition to existing traffic lights of items such as signal displays, loops or buttons,*

(ix) *roadside facilities and rest areas, if the development does not involve the installation of toilets and involves no greater disturbance to the ground or vegetation than necessary,*

(x) **street lighting, if any replacement involves the replacement of existing materials with similar materials only and if the lighting minimises light spill and artificial sky glow in accordance with AS/NZS 1158:2007, Lighting for Roads and Public Spaces,**

(xi) *pavement and road surface markings (such as bus lane markings), lane delineators, electric pavement lights, detection loops and traffic counters,*

(xii) **kerb and guttering,**

(xiii) *culverts, drains and other works to improve the quality or control of stormwater runoff,*

(d) *repair or replacement of lighting, mechanical systems, electrical equipment or air monitoring equipment, replacement of screening of overhead bridges and removal of*



*graffiti or debris,*

- (e) *emergency works to protect a road or road infrastructure facilities, the environment or the public, but only if they involve no greater disturbance to soil or vegetation than necessary,*
- (f) **upgrading or maintenance of landscaping**, or vegetation management (such as weed spraying, slashing and pruning), that:
  - (i) *does not involve construction works, and*
  - (ii) *involves the replacement (if any) of existing materials with similar materials only,*
- (g) *installation, replacement or maintenance of temporary structures (such as temporary bus stops, bus shelters or signs) that are associated with alternative transport arrangements necessitated by road works or road maintenance or repair and that are removed as soon as practicable,*
- (h) *(Repealed)*

The construction / installation works associated with the Bronte Beach Village Upgrade works within the Bronte Road reserve will therefore fall within the criteria under subclauses 97(1)(c)(iii), (iv),(vii), (x), (xii) and (f) of the ISEPP. As such, the proposed works constitute exempt development under the provisions of the ISEPP and therefore do not require assessment under either Part 4 or Part 5 of the *Environmental Planning & Assessment Act 1979*.

#### Works within Bronte Park

Division 12 of the ISEPP relates to Parks and other public reserves and allows Waverley Council, as a public authority, to undertake the Bronte Beach Village Upgrade works within Bronte Park without the need to obtain development consent under Part 4 of the *Environmental Planning & Assessment Act, 1979*.

A discussion in the provisions of Division 12 of the ISEPP is provided below:

Clause 64 of the ISEPP provides the following definition of a public reserve:

**public reserve** *has the same meaning as it has in the Local Government Act, 1993, but does not include a Crown reserve that is dedicated or reserved for a public cemetery.*

The *Local Government Act, 1993* defines a public reserve as follows:

**public reserve** means:

- (a) *a public park, or*
- (b) *any land conveyed or transferred to the council under section 340A of the Local Government Act, 1919, or*
- (c) *any land dedicated or taken to be dedicated as a public reserve under section 340C or 340D of the Local Government Act, 1919, or*
- (d) *any land dedicated or taken to be dedicated under section 49 or 50, or*

- (e) any land vested in the council, and declared to be a public reserve, under section 37AAA of the Crown Lands Consolidation Act, 1913, or
- (f) any land vested in the council, and declared to be a public reserve, under section 76 of the Crown Lands Act, 1989, or
- (g) a Crown reserve that is dedicated or reserved:
  - (i) for public recreation or for a public cemetery, or
  - (ii) for a purpose that is declared to be a purpose that falls within the scope of this definition by means of an order published in the Gazette by the Minister administering the Crown Lands Act, 1989, being a Crown reserve in respect of which a council has been appointed as manager of a reserve trust for the reserve or for which no reserve trust has been established, or
- (h) land declared to be a public reserve and placed under the control of a council under section 52 of the State Roads Act, 1986, or
- (i) land dedicated as a public reserve and placed under the control of a council under section 159 of the Roads Act, 1993, and includes a public reserve of which a council has the control under section 344 of the Local Government Act, 1919 (repealed) or section 48, but does not include a common.

As illustrated in Figure 4.1 below, the land on which Bronte Park is located is partly Crown Land owned by the NSW Department of Lands and partly owned by Waverley Council. The park is part of a Crown Reserve that was dedicated for public recreation in 1887, following the purchase of land in 1886 from the Ebsworth family to create Bronte Park and the Bronte baths. Therefore, having regard to item (g) in the above definition, Bronte Park is classified as a public reserve.

**Figure 4.1 – Ownership of Bronte Park**



Source: Bronte Park and Beach Plan of Management, 2017

Clause 65 of the ISEPP sets out what development for the purpose of parks and other public reserves is permitted without consent.

The relevant provisions of the ISEPP are reproduced (emphasis added) below:

**65(2) Development for any purpose may be carried out without consent:**

*(a) on Trust lands within the meaning of the Centennial Park and Moore Park Trust Act 1983, by or on behalf of the Centennial Park and Moore Park Trust, or*

*(b) on trust lands within the meaning of the Parramatta Park Trust Act 2001, by or on behalf of the Parramatta Park Trust, or*

*(c) (Repealed)*

***(d) in the case of land that is a reserve within the meaning of Part 5 of the Crown Lands Act 1989, by or on behalf of the Director-General of the Department of Lands, a trustee of the reserve or (if appointed under that Act to manage the reserve) the Ministerial Corporation constituted under that Act or an administrator,***

***if the development is for the purposes of implementing a plan of management adopted for the land under the Act referred to above in relation to the land.***

The area of Bronte Park where the upgrade works are to be undertaken is part of a Crown reserve within the meaning of the *Crown Lands Act, 1989*. The Bronte Park Reserve Trust has care of the park and is managed by Waverley Council. All of the upgrade works are to be carried out by or on behalf of Waverley Council on behalf of the Bronte Park Reserve Trust, as reserve trustee.

The proposed works to the entry to Bronte Park are consistent with a number of the key actions identified in the Action Plan within the Bronte Park and Beach Plan of Management, including, but not limited to:

- The provision of accessible compliant pathways;
- The provision of accessible parking spaces;
- The upgrade of stairways in the main access routes into the park;
- Provision of a range of seating options;
- Consolidating a bin storage area and pick-up location, potentially near the bus interchange to minimise garbage trucks in the park.

This satisfies the requirement of (d) and therefore, development for any purpose may be carried out without consent, provided it is for the purposes of implementing a Plan of Management adopted for the land.

## Demolition Works

The proposed demolition works can be carried out without consent on the basis that as defined at Section 1.5 of the *Environmental Planning & Assessment Act 1979*, 'development' includes *the demolition of a building or work*.

Notwithstanding, the proposed upgrade works are considered to be an "activity" within the meaning of Section 5.1 of the *Environmental Planning & Assessment Act 1979* on the basis that Section 5.1(1)(d) of the *Environmental Planning & Assessment Act 1979* defines the *carrying out of a work* as an "activity". Section 5.5 of the *Environmental Planning & Assessment Act 1979* states a determining authority in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity. As such, the proposed upgrade works are being assessed under Part 5 of the *Environmental Planning & Assessment Act 1979* and this Review of Environmental Factors (REF) has been prepared.

Clauses 13 to 17 in Part 2 of the ISEPP contain provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. Table 4-1 below outlines the issues to be considered when determining whether consultation is required, and their applicability to this proposal.

**Table 4-1: Requirements for consultation under the Infrastructure SEPP**

Issue		Consultation Required?
Clause 13 - Consultation with Councils – impacts on Council related infrastructure or services		
1(a)	Will the development have a substantial impact on Council stormwater services?	No.
1(b)	Is the development likely to generate traffic to an extent that will constrain the capacity of the road system?	No.
1(c)	Does the development involve connection to, and a substantial impact on a sewerage system?	No.
1(d)	Does the development involve connection to, and use of a substantial volume of water from a council-owned water supply system?	No.
1(e)	Does the development involve the installation of a temporary structure on, or the enclosing of, a council-managed / controlled public place that is likely to cause disruption to pedestrian or vehicular traffic that is not minor or inconsequential?	No. There will be temporary minor disruption to public and vehicular access to parts of Bronte Beach Village and the main pedestrian entry to Bronte Park during the works period. However, as Council is the proponent for the works, there is no need for consultation.
1(f)	Does the development involve excavation that is not minor or inconsequential of the surface of, or a footpath adjacent to, a road for which council is the roads authority?	No.

Clause 14 - Consultation with Councils – impacts on local heritage		
1(a)	Is the development likely to have an impact that is not minor or inconsequential on a local heritage item or a heritage conservation area?	No. Bronte Park (including the Tram Terminus Shed) forms part of the Bronte Park Landscape Conservation Area (C29), No. 473 Bronte Road (Bogey Hole Café) is a local heritage item (I279) and Bronte Ocean Pool is a local heritage item (I280). However, a Heritage Impact Statement has been prepared to assess the potential impacts of the works on the Landscape Conservation Areas and heritage items in the vicinity of the Village centre and on the site, concluding that the works will have a moderate but acceptable impact overall. Notwithstanding, as Council is the proponent for the works, there is no need for consultation.
Clause 15 - Consultation with Councils – impacts on flood liable land		
2	Is the development on flood liable land and will it change flood patterns other than to a minor extent?	No.
Clause 16 - Consultation with public authorities other than Councils		
2(a)	Is the development adjacent to land reserved under the <i>National Parks and Wildlife Act 1974</i> ?	No.
2(b)	The development is adjacent to a marine park declared under the <i>Marine Parks Act 1997</i> ?	No.
2(c)	Is the development adjacent to an aquatic reserve declared under the <i>Fisheries Management Act 1994</i> ?	No.
2(d)	Is the development within the foreshore area within the meaning of the <i>Sydney Harbour Foreshore Authority Act 1998</i> ?	No.
2(e)	Does the development comprise a fixed or floating structure in or over navigable waters?	No.
2(f)	Is the development for the purposes of an educational establishment, health services facility, correctional centre or group home, or for residential purposes, in an area that is bush fire prone land?	No.

Having regard to the table above, there is no requirement for consultation under the ISEPP.

#### 4.1.3 State Environmental Planning Policy No. 55 – Remediation of Land

*State Environmental Planning Policy No. 55 – Remediation of Land* provides for a consistent State-wide planning approach to the remediation of contaminated land.

The objectives of *State Environmental Planning Policy No. 55* are to:

- *Provide for a state wide planning approach to the remediation of contaminated land; and*
- *Promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.*

Clause 7(1) of *State Environmental Planning Policy No. 55* states that:

A consent authority must not consent to the carrying out of any development on land unless:

- (a) *it has considered whether the land is contaminated, and*
- (b) *if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
- (c) *if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

Although the Bronte Beach Village Upgrade works do not require consent under Part 4 of the *Environmental Planning & Assessment Act, 1979*, the issue of contamination is a relevant consideration in order to ensure that any works requiring disturbance to the surface of the public domain are undertaken in a manner that protects the health of workers and members of the public. However, there is no evidence to suggest that the land on which the works are to be carried out is contaminated. Further, due to the limited requirement for any excavation / disturbance of the existing ground surface levels, the potential risk from contamination is considered negligible.

## 4.2 Local Environmental Plans

### 4.2.1 Waverley Local Environmental Plan 2012

The land within the Bronte Beach Village, including Bronte Road, is primarily zoned B1 Local Centre under *Waverley Local Environmental Plan 2012*. However, the B1 zoning is 'bookended' by land zoned R2 Low Density Residential. The area that comprises the bus interchange is zoned SP2 – Infrastructure (Passenger Transport Facility) and Bronte Park is zoned RE1 Public Recreation. As such, the works area is subject to four (4) separate land use zones.

Ordinarily, development consent under Part 4 of the *Environmental Planning & Assessment Act 1979* would be required prior to undertaking the proposed works.

Notwithstanding, as identified at Clause 1.9 of the LEP, the provisions of the ISEPP override the provisions of *Waverley Local Environmental Plan 2012* and pursuant to Divisions 12 and 17 of the ISEPP, the works may be carried out as either *development without consent* or *exempt development*.

## 4.3 Commonwealth legislation

### 4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) a referral is required to the Australian Government for proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land.

The *Environment Protection and Biodiversity Conservation Act 1999* nominates any impact on listed threatened species or communities as a matter of national environmental significance (NES).

An assessment of the proposal's impact on matters of national environmental significance and the environment of Commonwealth land has been undertaken and is summarised in **Appendix A** of the REF.

This assessment concluded that there is unlikely to be a significant impact on relevant matters of national environmental significance. Accordingly, the proposal does not require referral to the Commonwealth.

### 4.3.2 Native Title Act, 1993

The Commonwealth Government enacted the *Native Title Act, 1993* in order to formally recognise and protect native title rights in Australia, following the decision of the High Court of Australia in *Mabo & Ors v Queensland (No. 2) (1992) 175 CLR 1* ("*Mabo*"). This Act is the legal recognition of Indigenous Australians' rights and interests in land and waters, according to their own traditional laws and customs.

Although there is a presumption of Native Title in any area where an Aboriginal community or group can establish a traditional or customary connection with that area, there are a number of ways that Native Title is taken to have been extinguished. For example, land that was designated as having freehold title prior to 1 January 1994 extinguishes Native Title, as does any commercial, agricultural, pastoral or residential lease. Further, land that has been utilised for the construction or establishment of public works also extinguishes any Native Title rights and interests for as long as they are used for that purpose.

A search of the Register of Native Title Claims on the National Native Title Tribunal website indicates that there have been no claims made in relation to the land on which Bronte Beach Village and Bronte Park is situated.

As discussed in the Bronte Beach and Park Plan of Management, it is most likely that the Aboriginal people who occupied the land that is now Bronte Park were of the Cadigal clan. There is evidence of middens, art sites, axe grinding grooves and rock engravings along the coastal strip near Bronte. However, there are no documented Aboriginal sites in Bronte Park. Further, no information has been found to suggest that the portion of Bronte Park where the works are to be undertaken holds any significant value for local Aboriginal people.

Further, Bronte Village is a highly modified urban area and the small part of Bronte Park where the works are to be undertaken has undergone significant physical changes over the years including the removal of native flora and fauna, together with changes to the topography of the land.

Given these substantial changes to the land, it is considered that the progressive

implementation of the Bronte Park and Beach Plan of Management is unlikely to conflict with any of the provisions of the *Native Title Act, 1993*.

#### 4.4 Bronte Park and Beach Plan of Management

Bronte Park and Beach is a valuable recreational and landscape resource to the people of the Bronte area and of the wider Eastern Suburbs and Metropolitan regions.

The current Bronte Park and Beach Plan of Management was adopted by Waverley Council in July 2017, in order to promote and regulate the recreational use and maintain the landscape amenity of the park and beach and to satisfy the statutory requirements of the *Crown Lands Act 1989*.

The Plan of Management provides a clear, concise and practical strategic framework for the management of Bronte Park and Beach, to ensure that the ongoing development and maintenance of the park and beach meets the recreational and cultural needs of the community in a sustainable manner.

In doing so, the Plan of Management:

- *satisfies the requirements of the Crown Lands Act 1989 and is consistent with the Objects of the Act, the Principles of Crown Land Management, the notified public purpose (public recreation) and Council's strategic planning and management documents;*
- *sets a Vision for Bronte Park and Beach to guide and direct the management of the park and defines where the Council and community would like the Park to be in the future;*
- *promotes and regulates the recreational use and seeks to maintain the landscape amenity;*
- *ensures the park accommodates a range of general recreational needs and protects and enhances the natural, environmental, historic, social and cultural values of the park;*
- *identifies and addresses the key issues affecting Bronte Park and the beach and provides strategic directions and relevant actions to achieve what is envisioned for the land;*
- *seeks to balance the interests of all users of the land, including the local community, residents, businesses and visitors.*

The Vision Statement for the ongoing management of Bronte Park and Beach is reproduced below:

*"Bronte Park, Beach and Gully is a unique and varied landscape. An oasis hemmed in between sandstone cliffs and a grassy park, it allows visitors to escape the hustle and bustle of the Eastern Suburbs.*

*The natural landscape provides a stunning contrast to the suburban backdrop. The spectacular views of the coast and beach, combined with the close proximity*



*to nature and wildlife, leave a lasting impression on everyone who visits. It embodies all that is Sydney, the perfect balance between the city and the beach.*

*Low-key buildings at Bronte Park, Beach and Gully recede into the landscape of the area and allow the natural beauty of Bronte to shine. The facilities are understated, convenient, comfortable, clean and accessible to all everyone. Best of all, Bronte can be easily accessed by foot, bike, public transport or car.*

*Bronte is a seaside gem that holds many treasures. The waterfalls, creek and bush support diverse plant and wildlife, appreciated on a stroll or by taking a quiet moment to reflect. The park is vibrant, welcoming, clean and safe. It's a place to relax with friends and family, picnic, play or relax while enjoying Sydney's beautiful weather and the impressive view. The beach's sand, surf and spectacular cliffs provide an immersive natural experience to all who visit. It has the ability to stimulate all of our senses, drawing us into the beauty that is Bronte.*

*Bronte is a place for locals and visitors alike. Its unique character is loved by all: from surfers searching for the ultimate wave to families looking for a quiet place for a picnic. It's a place where people can partake in a diverse variety of activities such as walking, swimming, surfing, exercising and relaxing – all against the beautiful backdrop that is Bronte.*

*The community feel a very strong connection to the area and have many personal memories connecting them to the land – from celebrating birthdays and holidays, to participating in sport tournaments or popping down with the family after school on a Friday and enjoying some fish and chips.*

*Bronte is a cared-for and much-loved asset. It's the pride of the community and will be preserved and cherished for many generations to come.”*

A copy of the Bronte Park and Beach Plan of Management is provided at **Appendix I**.

The stated purpose of Bronte Park and Beach Plan of Management is *to ensure that the values of Bronte Park are retained, particularly its environmental, scenic, recreational, heritage, cultural and social values.*

Section 6 of the Plan of Management relates to the Master Plan and Action that provides guidelines for managing the park and beach, including recommended management strategies and actions in order to realise the vision and directions of the Plan of Management.

In relation to the scope of the proposed upgrade works within Bronte Park, it is prudent to examine these works in the context of clause 65(2) of the ISEPP, namely that development for any purpose may be carried out without consent.

The term 'development' is not defined in the ISEPP. However, reference to the definition under Section 1.5 of the *Environmental Planning & Assessment Act, 1979* provides the following definition:

*development means:*

*(a) the use of land, and*

(b) the subdivision of land, and

(c) the erection of a building, and

(d) the carrying out of a work, and

(e) the demolition of a building or work, and

(f) any other act, matter or thing that may be controlled by an environmental planning instrument,

However, development does not include any act, matter or thing excluded (either generally for the purposes of this Act or only for the purposes of specified provisions of this Act).

Accordingly, the scope of the proposed upgrade works comprises *the use of land, the carrying out of a work, and the demolition of a building or work.*

Accordingly, having regard to the above, the proposed upgrade works to be undertaken in Bronte Park as part of this project are consistent with the implementation of the Plan of Management, as they relate to several of the strategies and actions in the Action Plan, as set out below:

Category	Action
A4. Provide a memorable experience for all users by celebrating the site's unique character and scenic qualities	
A4.1	Conserve view corridors from main arrival points to and within the park by ensuring future design and planning considers views.
A4.2	Retain and build on existing materials on-site such as concrete, sandstone, timber and stainless steel.
A5. Ensure materials and finishes are of a high quality, robust and designed to befit the setting	
A5.1	Consider materials that are graffiti resistant.
A5.2	Ensure materials are selected to withstand the coastal environment to minimise corrosion or degradation.
A5.3	Replace furniture and fixtures when they reach the end of their life with Council's preferred palette as identified in the Public Domain Technical Manual, and in keeping with heritage values and plans.
A6. Reinforce the sense of arrival to the site	
A6.1	Review the alignment of pedestrian entrances into the site to ensure they are connected to pedestrian crossings, the Coastal Walk and thoroughfares.
A6.2	Review and where necessary redesign entrances into the park from Bayview Street and Bronte Road to ensure they are welcoming and easily accessible.
B1. Provide easily identified, distinct arrival points into the park and designated pedestrian pathways that allow safe and continuous movement	
B1.4	Entrances from Bronte Road  i. Provide an accessible compliant bus link on the south side of the park  iv. Upgrade the stairs adjacent the heritage shelter with highlighting on step nosing, handrails on both sides and TGSIs, in accordance with Australian Standards, and Disability Discrimination Act.
B2. Provide a hierarchy of pathway networks that link to destination points and facilities	
B2.1	Links to Park and Principle Entrance

	ii. Provide an accessible compliant pathway (preferably no steeper than 1 in 20 slope) from the principal entrance, adjacent to the tram shelter, linking to the main promenade. Minimum width of accessible compliant pathways is 1800mm/1.8 metres, in accordance with Australian Standards.
B2.4	<p>Stairways</p> <p>i. Upgrade stairways in the main access routes into and through the park (see Entrances section)</p> <p>ii. Upgrade primary stairways to be an even surface on treads, and include contrasting step nosing, handrails on both sides of the stairway, and TGSIs to be compliant with Australian Standards.</p> <p>iii. Secondary stairways are to include even surface on treads, highlighting on step nosing and a handrail on both sides. These are stairs that are more likely to be used by residents who are familiar with the area.</p>
D3. Promote environmentally sustainable practices in the management and maintenance of the place	
D3.3	Develop a sustainable waste management plan for the park.
F2. Ensure facilities are well maintained and appropriately serviced	
F2.5	<p>Undertake a waste management study and implement findings with consideration of:</p> <p>i. Rationalising bin locations.</p> <p>ii. Management of green waste.</p> <p>iii. Reducing the frequency of garbage pick-up.</p> <p>iv. Minimising garbage truck vehicles in the park.</p> <p>v. Consolidating a bin storage and pickup location, potentially near the bus interchange.</p>

Therefore, provided that the works are carried out by or on behalf of Council, the works within Bronte Park may be carried out without development consent.

## 4.5 Confirmation of statutory position

All relevant statutory planning instruments have been examined with respect to the proposal.

The proposed upgrade works at Bronte Beach Village have been assessed as being either **exempt development** or **development without consent** under the relevant environmental planning instrument (ISEPP). This position relies on the operation of the ISEPP to remove the otherwise applicable consent requirements.

Accordingly, the proposed works do not require approval under Part 4 of the *Environmental Planning & Assessment Act, 1979*.

Notwithstanding, the proposed works fall within the definition of an ‘activity’ as defined under Section 5.1 of the *Environmental Planning & Assessment Act, 1979* on the basis that subclause 5.1(1)(d) of the *Environmental Planning & Assessment Act, 1979* defines the *carrying out of a work* as an “activity”.

Section 5.5 of the *Environmental Planning & Assessment Act, 1979* states a determining

authority in its consideration of an activity shall, notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

Therefore, as the works are being proposed by a public authority (Waverley Council) and they do not require development consent, they are subject to an environmental impact assessment under Part 5 of the *Environmental Planning & Assessment Act, 1979*.

## 5 Stakeholder and community consultation

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### 5.1 Consultation

Community and stakeholder consultation was undertaken in November and December 2016 and comprised an on-line survey, a face to face 'Have Your Say' public consultation event and a stakeholder briefing/workshop.

Key information on the project, together with the on-line survey was uploaded to Waverley Council's website on 24 November 2016. The survey closed on 23 December 2016.

The 'Have Your Say' public consultation event was advertised via a letter box drop in the local area, as well as on social media and in the Wentworth Courier and invited residents to view the draft plans in Bronte Park on Saturday 3 December, 2016, between 9am and midday. Council staff were available during this time to present the proposed upgrade works, answer questions and listen to community feedback. During the public consultation the on-line survey was also available to complete.

Approximately 85 people attended the information stand during the event and 51 surveys were submitted on the day. In addition, 14 surveys were completed on-line, bringing the total submissions received to 65, including all formal responses from the 'Have Your Say' day as well as those who viewed the draft plans and completed the survey independently online. Additionally, 5 written submissions were received by email.

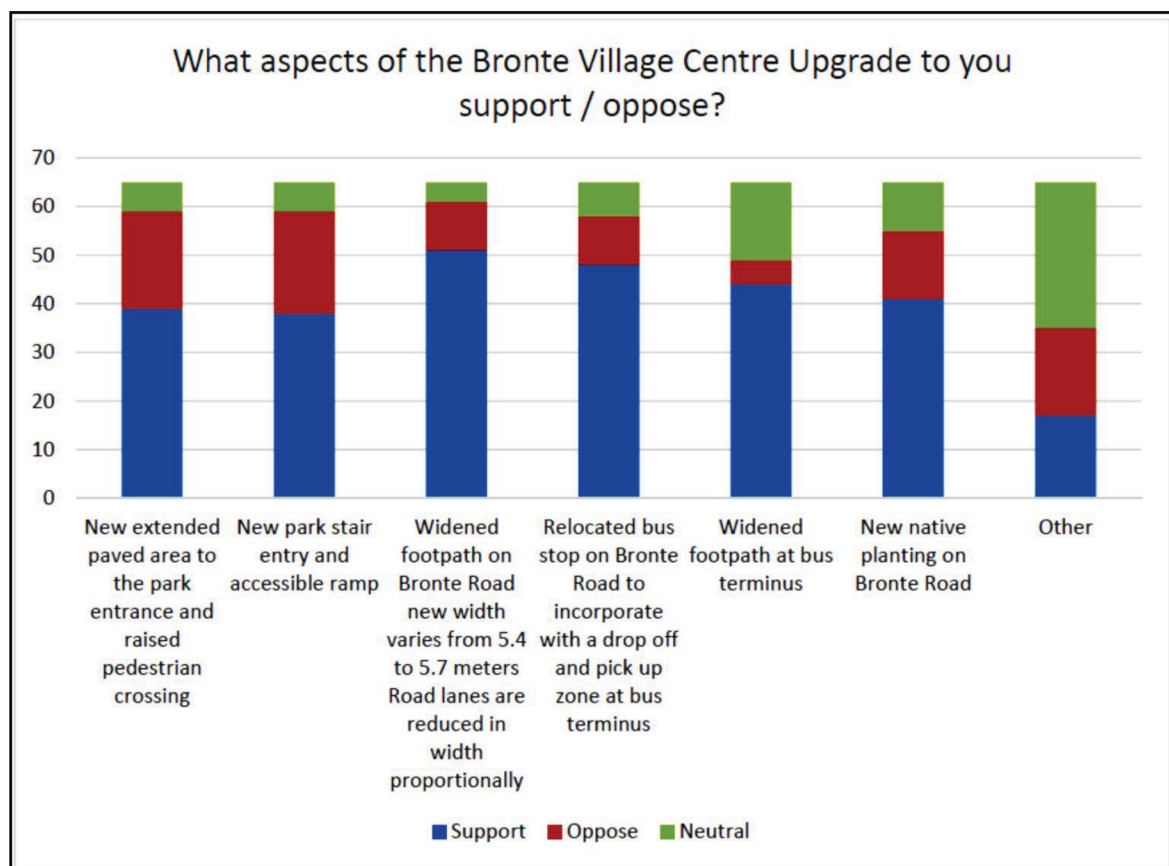
Key findings from the survey include:

- From the response received most people, 74% visit the Village Centre daily or 18% visited weekly.
- Most people visit for over an hour. The results however suggest that a visit to Bronte Park and Beach was included in this time.
- Most visitors, 66% walk to the study area or 22% travel by car.
- All aspects of the draft plan were generally supported.
- The most contentious aspects of the plan were the new paved area to the park entrance and raised crossing with 31% of people completing the survey opposing this proposal and 32% opposition to the new stairs and accessible ramp. Comparatively the new park stair entry and access ramp was supported by 58% of people and the raised crossing and extended paved area was supported by 60%.
- General comments included some concern regarding pedestrian safety over the proximity of the crossing to the Bronte Road hill as busses and bikes are not able to slow down on time. Others generally commented that they wanted Bronte Park to be kept as natural as possible and have minimal intervention.
- When asked what people wanted to see in the future some common responses included;
  - more shade, improved access and keeping the heritage and green natural feel.

- Some people also commented on the commercial nature of the Village Centre and expressed desire for more or less diversity.

In the community consultation summary prepared by Waverley Council, the community feedback was presented graphically and this is reproduced in Figure 5.1 below:

**Figure 5.1 – Graphical representation of Community Consultation Feedback**



A stakeholder briefing/workshop was held on 6 December 2016 and was attended by six participants. Bronte Village Centre business owners and operators, The Bronte Beach and Bronte Precinct convenors and representatives of the Bronte Surf Club and Kiosk were invited to attend the briefing session and provide comment. While there was limited attendance from the business owners/operators, a number of residents also attended the briefing. During the workshop the proposed upgrade works were presented and questions and feedback from the stakeholder group was obtained.

The following points were liked about the proposed plan:

- Relocation of bins from the park to the existing accessible car park.
- Limiting vehicle entry into the park.
- Moving the pedestrian crossing.
- Relocation of the bus set down area.

- Footpath widening.
- Planting and more greening.
- Picnic shelters are unchanged.

The following points were not liked about the proposed plan:

- Terracing on the grassed embankment.
- Increased concrete into the park, need to minimise concrete.
- Planning for the full capacity of visitors as opposed to the majority of regular visitors.
- Managing conflict between loading and unloading in the bus terminus.
- Regulatory demand to manage outdoor seating on Bronte Road (which was not suggested in the draft proposal).

There were divided views on the proposed stair and ramp access location in the park. Participants also suggested that alternative proposals should be presented.

During the stakeholder meeting the following opportunities were identified for the site:

- Need better directional signage.
- Improved toilets.
- Improved coast walk.
- Flashing lights on the pedestrian crossing to provide further traffic calming for bikes, cars and busses.
- Provide access into the park at the bus loading point – as opposed to the pedestrian crossing.
- Emergency service vehicles only to access the park.

While the plan for the proposed upgrade works received general support, some people held a strong opinion regarding changes to the entry to the park. A common reason was because the park should not have further hard landscape works and should be kept natural and green.

Consequently a number of changes were made to the plan, including:

- Removal of the stairs;
- Terracing taken out; and
- The bus stop footpath was made narrower

## 5.2 ISEPP consultation

As identified in Table 4-1 in the previous Chapter, consultation in accordance with the ISEPP is not required.

## 5.3 Government agency involvement

There has been an ongoing process of consultation with Sydney Buses (Eastern Region), RMS, TfNSW and the NSW Police.

## 5.4 Ongoing or future consultation

Business owners, operators, residents and stakeholder groups will be notified of updates on the construction program and will be consulted prior to the commencement of works. In particular, business owners / operators and residents in the Village centre will be consulted to ensure that impacts from construction works are carried out at times that will minimise disruption to businesses and residents.

Further, once works commence, the community should be provided with a contact name and number that they can contact should any complaints wish to be registered.



## 6 Environmental assessment

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This section of the REF provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposal. All aspects of the environment potentially impacted upon by the proposal are considered. This includes consideration of the factors specified in the guideline *Is an EIS required?* (DUAP 1999) as required under Clause 228(1)(b) of the *Environmental Planning and Assessment Regulation 2000*. The factors specified in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000* are also considered at **Appendix A**. Site-specific safeguards and management measures are provided to ameliorate or minimise the identified potential environmental impacts.

### 6.1 Acid sulfate soils

#### 6.1.1 Existing Environment

The Acid Sulfate Soils Map that accompanies Waverley Local Environmental Plan 2012 indicates that the land on which the works are to be carried out is Class 5 Acid Sulfate Soils. There is also an area in the central part of Bronte Park classified as Class 4 Acid Sulfate Soils.

#### 6.1.2 Potential impacts

The proposed works will not require a significant amount of excavation. However, there will be some minor disturbance to the existing ground such that there is the potential for exposure to acid sulfate soils during the course of the works. Although the risk is considered to be low, appropriate management measures need to be adopted in the event that acid sulfate soils are encountered.

#### 6.1.3 Safeguards and management measures

- All excavated material should be considered to be ASS and treated with lime to neutralise the acidity as it is removed from the ground. Keeping the excavated spoil lightly wetted at all times to limit potential oxidation and formation of acidic leachate. The recommended material for treatment is Medium-Fine agricultural lime (aglime) which is slightly alkaline and of low solubility. The aglime should be fine ground (at least <1 mm) calcium carbonate or calcite (limestone or marble).
- Aglime is to be readily available both at the site of excavation and at the location of stockpiles.
- Prior to excavations, weather should be checked and excavation works should not be undertaken unless a continuous forecast of 5 days does not indicate the chance of moderate to heavy rain. All excavations are to be covered once treated to protect against unforeseen weather events.
- The following recommendations outline the best practice methods for the stockpiling of Acid Sulfate Soils and are to be applied. Stockpiles of acid sulfate soils should be located in settings that ensure minimal environmental impact from any acidic leachate produced. The design of stockpile(s) should:
  - establish leachate collection and treatment systems including an impervious pad on which to place the stockpile.

- minimise the surface area exposed to oxidation - consider using some form of artificial capping if storage is for longer than a few weeks.
- minimise the amount of infiltration of water - consider using some form of artificial capping.
- All stockpiles should be bunded and leachate collection and treatment systems should be installed. If an impervious pad has not been established under the stockpile, as a precautionary measure, an apron of fine lime should be applied when stockpiling materials for any length of time.
- Once treatment has been applied and or testing has confirmed the materials do not, or no longer meet the definition of Actual Acid Sulfate Soils the materials are to be disposed of to an appropriately licensed landfill facility with an accompanying Waste Analysis Classification Report, for example Dial A Dump Industries, Eastern Creek. Details of the nature of the materials and the treatment applied is necessary within the body of the report. The waste classification assessment is to be conducted in accordance with NSW DECCW Waster Classification Guidelines 2008. The guidelines (Part 4) states ASS cannot be treated as virgin excavated natural materials (VENM) and that potential and actual ASS must be treated (neutralized) prior to acceptance by a landfill operator.
- Any Acid Sulfate Soil material requiring transport should be loaded directly into sealed trucks and transported. The base of the truck containment should be lined with a layer of lime. The condition of the lime layer should be visually checked regularly, and lime should be replenished if necessary. All vehicles must be covered to proven the loss of ASS material during transport. Wheels and external surfaces of trucks should be cleaned prior to leaving site.

## 6.2 Heritage

### 6.2.1 Existing Environment

The area where the works are to be undertaken is not listed as a heritage item under Schedule 5 of the *Waverley Local Environment Plan 2012*. It is, however, located within close proximity to the following heritage items:

Waverley LEP 2012, Part 1 Heritage items

- Inter-war style building, 473 Bronte Road (Bogey Hole Café), item no. I279
- Recreational facility, Bronte Ocean Pool, item no. I280

Waverley LEP 2012, Part 2 Heritage conservation areas

- Bronte Beach Landscape Conservation Area (C29)
- Gardyne Street Landscape Conservation Area (C45)
- South Bronte Headland Landscape Conservation Area (C59)

It is also noted that the former tram shed (historic bus stop) geographically sits on the external border of the Bronte Beach Landscape (C29) HCA, however the Bronte Park and Beach Plan of Management 2017 states that this is included within the C29 HCA.

As noted in the Heritage Impact Statement prepared by City Plan Heritage... *'The subject site consists of a cutting from Bronte Park originally resumed in 1910-1912 for the purpose of*

*extending the tramline from Bondi Junction to Bronte Beach, and includes an original former tram shed built circa 1912. It also includes the extant retaining wall and steps associated with the development of Bronte Road in an area of steep topography. In addition, the subject site is associated with early 20th century local tourism and development in the area.*

*The subject site comprises an important phase in Bronte's local and cultural development. Prior to the addition of the tramline (the terminus tram shed is within the bounds of the subject site, Bronte was significantly disconnected from other parts of metropolitan Sydney. The introduction of the tramline increased mobility into the area and accessibility to other parts of Sydney and encouraged visitation to Bronte Beach.'*

A copy of the Heritage Impact Statement is provided at **Appendix C** of the REF.

### 6.2.2 Potential impacts

The Heritage Impact Statement notes that the proposed upgrade works will not have any negative or detracting impact on the built-heritage character along the café strip of the Bronte Beach village, acknowledging that no works are being undertaken on the shopfronts. The upgrade to the footpath facilities are considered positive and historical research suggests that these are not original, however they may be on the original footprint. The upgraded concrete footpath and feature paving, proposed seating area, addition of vegetation a drinking fountain, and bicycle racks will have an overall positive effect on the aesthetic value of the area and provide a positive experience to those that visit Bronte Park, Bronte Beach and the village.

However, the Heritage Impact Statement also notes that the site of the proposed works has the potential for archaeological remnants associated with the tramline and terminus between Bondi Junction and Bronte as well as the construction of retaining walls associated with the development of Bronte Road.

The proposed works include the partial demolition of the original retaining wall and small section of the associated post and rail (Arris) fence between Bronte Road and the bus terminus, as well as the removal of the original steps associated with the retaining wall that facilitated pedestrian access between Bronte Road and the former tram shed. The removal of the section of original fencing at the eastern end of the retaining wall to facilitate improved bus manoeuvring has been identified as a negative impact to the integrity of the heritage streetscape. In addition, sections of the existing Arris fencing surrounding the existing accessible parking area and adjacent to the former tram shed are to be removed and salvaged for re-use. Where sections of fencing cannot be replaced with salvaged materials, new sections of fencing will be built with materials that replicate the original.

Notwithstanding, the Heritage Impact Statement concludes that the proposed works would generally result in a moderate, but acceptable heritage impact and are supported, subject to a number of safeguards and management measures, as set out below.

As an additional matter, considering the proposed works involve some degree of excavation, should any unexpected archaeological findings be uncovered during the works, a stop-work provision should be applied, and exposed findings assessed in accordance with the provisions of the NSW *Heritage Act 1977*.

### 6.2.3 Safeguards and management measures

#### Temporary Protection Plan

- Develop a temporary protection plan that identifies the potential risks and outlines measures to reduce the potential for damage to heritage fabric during the works.

### Salvage

- Prior to commencement of the works, a built heritage specialist to identify significant elements for protection and, if necessary storage, for reinstatement as appropriate. Removal of any items to be carried out in accordance with specific salvage methodologies provided by the built heritage specialist.

### Monitoring

- A built heritage specialist is to be on site during all critical processes that require specialist knowledge and methodology. Should any discoveries be made apparent during the absence of the built heritage specialist, they are to be notified immediately and work in that area is to cease.
- The built heritage specialist is to undertake regular inspections to suit the works. Timing and frequency to be agreed with the contractor.
- The built heritage specialist is to monitor the works and ensure that compliance conditions pertaining to heritage fabric are met.
- All new work associated with heritage fabric to be discreetly dated as such.
- All junctions between new and original fabric to be reversible and easily identifiable as such.

### Schedule of Conservation Works

- A built heritage specialist is to develop a schedule of conservation works that identifies the works required to remedy issues identified, as well guide repairs, restoration or reconstruction. The schedule of conservation works should be prepared in accordance with the NSW Office of Environment & Heritage Maintenance Series

### Photographic Archival Recording

- A built heritage specialist is to develop an archival record (before, during and after) of areas implicated by the works in accordance with the Heritage Division of the NSW Office of Environment & Heritage guidelines Photographic recording of Heritage Items Using Film or Digital Capture (2006).

### Heritage Interpretation

- A built heritage specialist is to develop a heritage interpretation plan for the proposed development in accordance with the Heritage Division of the NSW Office of Environment & Heritage publications, Interpreting Heritage Places and Items (2005) and Heritage Interpretation Policy (2005).

### Unexpected Finds Protocol

- If any heritage or Aboriginal cultural materials are discovered, all work is to cease immediately and the NSW Heritage Council, Metropolitan Local Aboriginal Land Council and NSW National Parks and Wildlife Service are to be notified.

## 6.3 Traffic and Pedestrian access

### 6.3.1 Existing Environment

Bronte Beach Village is situated on Bronte Road between Pacific Street and Nelson Avenue.

Bronte Road is a two-way road with one lane in each direction, connecting Bronte Village and Bronte Beach with the surrounding area. It primarily runs in an east-west direction, acting as a collector road to a number of local streets. Kerbside parking is available both sides of Bronte Road. The parking along both sides of Bronte Road and along the western side of Nelson Avenue is time limited to 1P or 2P depending on the season, with 1P restrictions occurring from September to May, and 2P restrictions occurring from June to August. Other parking in the surrounding streets includes ½ hour parking in Pacific Street and 1P or 2P in Gardyne Street and St Thomas Street.

The Bronte Bus Terminus is located on the northern side of Bronte Road and is utilised by the Sydney Buses Route 379 – North Bondi to Bronte via Bondi Junction. There is also a passenger set-down area on the southern side of Bronte Road outside No. 465 Bronte Road. Buses travel in a westerly direction along Bronte Road from Macpherson Street, drop passengers at the set-down stop and then turn into the Terminus, from where passengers are picked-up. Service frequency varies during the week, with approximately eight services an hour during weekday peaks and nine services an hour during the Saturday peak.

At the north-western end of the Bus Terminus, there is a slip road that provides vehicular access to a number of accessible parking spaces that are below the level of the Bus Terminus and within Bronte Park.

At the eastern end of the Bus Terminus, is Calga Place that provides access to the Bronte Cutting Car Parking Area. Calga Place is a narrow one way road that connects Bronte Road and Macpherson Street and provides kerbside parking on both sides of the trafficable lane. It serves as the circulating roadway for the Bronte Cutting Parking Area as well as a pedestrian access as part of the Bondi to Coogee Coastal Walk.

The Bronte Cutting Parking Area is also a seasonal ticket parking area with 1P Ticket Parking between 9am and 8pm from September through to May. The Bronte Cutting car park comprises:

- 140 parking spaces in total, including:
  - 132 general parking spaces;
  - 2 accessible (PWD) parking spaces;
  - 6 Bronte Surf Life Saving permit spaces.

There is currently a 40km/h High Pedestrian Activity Area (HPAA) speed limited in force in Calga Place.

There is an existing pedestrian crossing on Bronte Road, located towards the eastern end of Bronte Beach Village and approximately 15m west of Calga Place. The crossing is an at-grade crossing with kerb ramps on the southern kerb of Bronte Road and northern kerb of Bronte Terminus, with a small refuge/median island on Bronte Road and separating Bronte Road from the Bronte Bus Terminus. The pedestrian crossing crosses two lanes of traffic on Bronte Road and one eastbound lane within the Bus Terminus. Bitzios Consulting have advised that

based on current RMS technical directions, this pedestrian crossing is non-compliant as it traverses more than two lanes of traffic.

The Village centre is heavily pedestrianised, particularly on weekends and during the warmer months. In order to investigate pedestrian activity in the Village centre, Bitzios Consulting undertook a pedestrian survey over 2 days (Thursday 27<sup>th</sup> and Saturday 29<sup>th</sup> September 2018). The observations from this survey are presented in the Bronte Village Streetscape Traffic Study, November 2018, prepared by Bitzios Consulting (**Appendix D**) and are reproduced (in part) below:

*The following was recorded as part of the survey:*

- *Pedestrians using the pedestrian crossing (both directions);*
- *pedestrians crossing (jaywalking) east of the crossing (both directions); and*
- *pedestrians crossing (jaywalking) west of the crossing (both directions).*

*Pedestrian crossing behaviours are summarised as follow:*

- *A majority of pedestrians crossing Bronte Road use the existing pedestrian crossing at the eastern end of Bronte Terminus;*
- *Jaywalking pedestrians volumes are greatest west of the crossing during both Thursday and Saturday survey periods; and*
- *Peak flows of pedestrians (including jaywalkers) reach approximately 300 pedestrians per hour (pph, bidirectional) on the Thursday and 400 pph (bidirectional) during the Saturday.*

Bitzios Consulting indicates that the greater volume of pedestrians crossing Bronte Road west of the crossing may be attributed to the number of food outlets located along this section of Bronte Village, acting as both pedestrian attractors and generators. In addition, the set down bus stop is also located west of the crossing.

Residential developments and parking are located towards the east and are believed to be the source of the few pedestrian movements east of the crossing and therefore experience lower volumes.

### 6.3.2 Potential impacts

Traffic flows along Bronte Road through the Village centre are likely to be affected by the proposed works and traffic flows and/or pedestrian movements in the vicinity of the site will need to be temporarily disrupted or redirected at various times to allow for construction works to occur and/or construction related vehicles and/or equipment to access or leave the work site/s.

Notwithstanding, these impacts would be minimised through the implementation of appropriate traffic / pedestrian control measures in the vicinity of the works.

The bus terminus acts as a turnaround facility for State Transit buses and therefore, buses will need to be provided with an alternative turn around point / facility to maintain bus operations in the event the terminus is fully closed during construction.

The bus stops at Bronte Bus Terminus are expected to experience the most disruption from works.

Pedestrian access must be maintained during the works. Existing disability access, where provided, must be ensured, following the requirements set out in the *Disability Discrimination Act*, and Disability Standards for Accessible Public Transport. Alternative services are to be considered, such as offering connections or pickup services between destinations or bus stops.

Access to the existing loading zone located on the northern kerb of Bronte Road within Bronte Village will be significantly impacted during the construction works.

Bitzios Consulting have prepared a Construction Traffic Management Plan (CTMP) (**Appendix H**) that

### 6.3.3 Safeguards and management measures

- The management of traffic and pedestrians is to be undertaken in accordance with the Bronte Village Streetscape Upgrade Construction Management Plan (CTMP) prepared by Bitzios Consulting, dated May 2018. This requires individual/site specific CTMPs to be prepared by or on behalf of the contractor for each work area.
- Where required, appropriate traffic management measures in Bronte Road and/or the bus terminus, including temporary speed restrictions, precautionary signs, illuminated warning devices and manual and/or electronic traffic control to control access of construction vehicles etc to the work areas will need to be implemented (as necessary) and maintained throughout the works period.
- Any changes to traffic through or around a work site or temporary hazard will require a Traffic Control Plan (TCP) that has been designed and approved by Roads and Maritime Services accredited personnel with the appropriate and current qualification as outlined in Roads and Maritime QA specification G10 Traffic Management Clause 1.5.3.
- A Road Safety Audit (RSA) should be undertaken of the existing road conditions and the TCPs prior to their implementation.
- Pedestrian access must be maintained during the works. Existing disability access, where provided, must be ensured, following the requirements set out in the Disability Discrimination Act, and Disability Standards for Accessible Public Transport. Alternative services are to be considered, such as offering connections or pickup services between destinations or bus stops.
- Pedestrian Management Plans (PMPs) must be created for any redirection of pedestrian movements from existing paths.
- There needs to be continuous access to a loading zone to service the number of retail and commercial properties on Bronte Road. As such, a loading zone is to be provided at a temporary location on Bronte Road during construction.
- Vehicles of workers are to be held off site. There is to be no queuing or vehicle holding outside the work areas. Deliveries and arrival of heavy vehicles is to be timed to ensure that queueing does not occur. Construction vehicles are not to park using on-street parking.

## 6.4 Noise and vibration

### 6.4.1 Existing Environment

The existing noise environment is typical of an established urban area on a main traffic thoroughfare through the Village centre. The main sources of noise in the locality include traffic noise from cars, buses and delivery vehicles, noise from the use/operation of the bus terminus, noise from patrons at the outdoor dining of the various cafes and restaurants, noise from pedestrians and the users of Bronte Park and beach. Background noise will also include ocean/wave noise. Sensitive noise receivers in the area are the various residential flat buildings and shop top housing along the Bronte Road village 'strip'.

It is noted that background noise levels will be lower during the night time period when there will be significantly less traffic noise than would be generated during the daytime peak periods.

### 6.4.2 Potential impacts

There will be some noise impacts associated with the demolition and construction activities. Of greatest significance will be the noise generated by jackhammers or other mechanical equipment associated with the removal of the existing fencing, pavement treatments / kerb and guttering etc and chainsaws and potentially a wood chipper used during the tree removal. However, general construction noise associated with the remainder of works is not likely to cause a significant disturbance. All works are to be scheduled to occur at times that minimise disturbance to the trading of the shops, cafes/restaurants and the amenity of patrons and residents.

In order to make an assessment of the potential acoustic impacts arising from the proposed works and the use of the area following completion of the streetscape upgrade, Acoustic Logic were commissioned to prepare a Comparative Noise Study that provides a comparative review of the existing noise environment and the likely changes as a result of the proposed streetscape upgrade works. A copy of the report is provided at **Appendix E** of the REF.

The Comparative Noise Study provides results of unattended noise surveys conducted over a two week period between the 2nd and the 17th of October 2018, in order to determine the existing noise environment. These monitoring locations were selected as they were both secure for monitoring equipment and would provide noise data representative of the shop top housing residents, which have been identified as the most potentially impacted residents.

The two (2) predominant anticipated sources of additional noise resulting from the streetscape upgrade works are:

- Increased noise from vehicles (particularly buses using the bus terminus exit and entering Bronte Road) braking and accelerating as they travel over the speed hump created by the proposed new raised pedestrian crossing; and
- Additional impacts from pedestrian noise as a result of the increased footpath width.

Although the overall levels of traffic noise are not expected to increase, the combination of the new raised pedestrian crossing and the bus terminus exit is expected to introduce a peak noise source that is likely to impact on sleep disturbance, particularly during the night time period, defined as between 10pm and 7am.

Bus movements servicing Bronte Beach Village present the loudest noise events in the area, in particular during the night time period. The Sydney Buses 379 service from North Bondi to



Bronte Beach is the only route that services Bronte Beach Village. Acoustic Logic reviewed the timetable for this service and determined that the service operates between the hours of 5am – 12am (midnight). As such, peak noise events from buses would have the potential to cause sleep disturbance between the hours of 10pm – 12am and 5am – 7am.

The Acoustic Logic report provides a discussion on the potential impacts of the identified peak noise events and indicates that peak noise events from the introduction of the proposed raised pedestrian crossing speed hump are expected to be lower than that from busses currently servicing the area. The NSW Road Noise Policy provides guidance as to the assessment of peak noise events and the associated impacts on sleep disturbance and identify two (2) factors to consider when assessing the impact of a particular noise source on sleep disturbance. These two (2) factors are an emergence test, or how audible a particular noise source would be above the general noise level in the area, and the internal noise level within a habitable area of a residence.

Based on these factors, Acoustic Logic advises that the expected peak noise levels resulting from the introduction of the raised pedestrian crossing are expected to be within the emergence test and internal noise level limits suggested by the NSW Road Noise Policy as being appropriate. As such, the introduction of the raised pedestrian crossing will not present a significant change to the potential for sleep disturbance from road traffic noise.

The proposed works include a 3m widening of the existing footpath on the south-western side of Bronte Road to better accommodate pedestrian traffic and alleviate the current conflict between pedestrians and the outdoor dining areas. As much of the footpath is occupied by seating for outdoor dining, the pedestrian thoroughfare is generally pushed to the kerbside portion of the footpath. Currently, the footpath is almost completely covered by shop awnings which provides a significant barrier to residents above. As such, although there is not expected to be an increase in the overall volume of pedestrians in the area, the widening of the footpath beyond the extent of the awning line provides the possibility that noise generated by pedestrians will become less screened by the existing awnings to the residences above.

Acoustic Logic has indicated in its report that pedestrian noise is typically transient, and typical noise levels generated by pedestrian traffic is problematic to quantify. As such, for the purpose of the noise assessment, the predicted peak volumes of pedestrian activity were analysed to determine an approximate noise level from pedestrian use of the widened footpath. Acoustic Logic also noted that there are no legislative requirements relating to the control of pedestrian noise impacting any type of development.

Comparing the existing noise levels in the area with the potential impact of pedestrian activities along the proposed widened footpath, Acoustic Logic make the following comments:

- *Predicted noise levels from pedestrian use of the widened footpath are between 6 – 10 dB(A) below those currently incident on the façade from various noise sources in the area (traffic / patron / pedestrian);*
- *For first floor residential apartments, the overall noise environment is not expected to change significantly.*
- *For upper level residential apartments, there could potentially be an increase in overall noise levels of 1 dB(A) during peak pedestrian activity.*

- *An increase in noise level of this amount is generally not perceptible.*
- *Additionally, this increase is typically only expected during peak periods of pedestrian activity (Friday / Saturday / Sunday).*
- *Considering the above, the proposed footpath widening is not expected to significantly impact the existing noise environment for residences above Bronte Beach Village shops.*

The Comparative Noise Study concludes that when the predicted noise levels are compared to the existing noise environment, it is not expected that there will be a significant change to the noise environment.

#### 6.4.3 Safeguards and management measures

- Work is to be restricted to the following working hours and noisy work should be undertaken during less sensitive periods where possible:
  - Monday to Friday – 07:00 to 17:00; and
  - Saturday – 08:00 to 15:00.

No work is to be undertaken on:

- Sundays;
- Saturdays and Sundays that form part of public holiday weekends; and
- Public Holidays.
- Noise from construction activities shall comply with the *Protection of the Environment Operations (Noise Control) Regulation 2008*.
- All plant, machinery and noise generating equipment should be maintained in good working order. Where practical / possible machinery should be fitted with exhaust silencers and / or noise reduction devices.
- Plant and machinery will need to be turned off when not in use.
- The construction noise levels shall not reach or exceed the exposure levels, including peak exposure (140dB[C]) and daily average (85dB[A]), as detailed in Clause 49 of the OH&S Regulation 2001. Work planning and preparation shall be considered to ensure noisy activities are minimised. The control measures developed shall meet the requirements of AS2436 – 1981 – ‘*Guide to Noise Control on Construction, Maintenance and Demolition Sites*’ i.e. localised noise boxes or barriers. Appropriate tools and equipment shall be used to ensure noise levels are reduced and controlled.

## 6.5 Air quality

### 6.5.1 Existing Environment

The air quality at the Bronte Beach Village and adjacent Bronte Park is typical of an established coastal urban environment. The main sources of air pollution are air borne pollutants from vehicle exhausts, as well as dust and debris during periods of high winds.

### 6.5.2 Potential impacts

There is the potential for some adverse air quality impacts as a consequence of the proposed upgrade works such as air borne dust during the removal of the existing pavements / kerb and guttering etc and construction / installation of the upgrade works. Some minor additional air quality impacts may result from the equipment and vehicles being used for works. However, the likely cumulative impact is considered to be negligible.

### 6.5.3 Safeguards and management measures

- Where possible, all construction plant and machinery should be fitted with emission control devices complying with Australian Design Standards.
- All vehicles leaving the site that are carrying waste or other materials are to have their loads covered.
- Plant and machinery will need to be turned off when not in use.
- Any dust generating works should be stopped during periods of high wind.

## 6.6 Tree removal and management

### 6.6.1 Existing Environment

Bronte Park comprises a series of landscaped lawn areas divided by several pathways. Vegetation in the park in the vicinity of the work areas features Norfolk Island pine trees, Cocos palms and Canary Island palms, together with a number of other species.

### 6.6.2 Potential impacts

There are three (3) trees nominated for removal as part of the proposed works, including a Cocos palm and a *Leptospermum* species in Bronte Park and a Cocos palm located in the footpath on the south-western side of Bronte Road that conflicts with the proposed new raised pedestrian crossing. These trees will require a tree permit to be obtained prior to their removal.

There are also a number of trees in the vicinity of the work areas that are to be retained and must be protected from damage during the works period.

### 6.6.3 Safeguards and management measures

- Approval under Council's Tree Preservation Order is to be obtained prior to the removal of the three (3) nominated trees.
- All other trees in the vicinity of the work areas are to be retained and protected throughout the course of the works.

## 6.7 Visual amenity

### 6.7.1 Existing Environment

Bronte Beach Village sits directly south of Bronte Beach and Park and is a good example of modest interwar period buildings that are generally one to two storeys in height and are interspersed with more modern development of up to four storeys. The village creates a coherent built form, maintaining a consistency of scale of buildings and style that are tied together through the use of continuous awnings. The traditional brickwork and rendered and painted building facades create both consistency and variation along the streetscape. There is a predominance of cafes and restaurants in the village, including the heritage listed Bogey

Hole cafe and outdoor dining dominates the brick paved footpath beneath the awnings. The localised visual catchment is a predominantly hard landscape, with the footpath, carparking, expanse of asphalt road and bus terminus dominating the immediate landscape. However, visual relief is provided by Bronte Park and there are excellent views to the park and to the ocean beyond. There are currently no street tree plantings on the 'shop' side of the village strip.

The Village is a compact, traditional retail strip, nestled within a highly urbanised area of predominantly residential development. However, it has a relaxed coastal 'village' character due to its proximity and strong visual connection to Bronte Park and Bronte Beach. The shops occur on one side only within a relatively flat area. It takes advantage of its northerly aspect to enjoy prime views of the park and the dramatic coastline beyond. It is a place focussed on recreation and relaxation. This context creates an open, "laid back" ambience, reinforced by the comings and goings of beachgoers, coastal walkers and park users alike.

Plantings of palms, figs and pines throughout Bronte Park contributes to the landscape character of the wider visual catchment, providing a contrasting shady, green respite to the open, exposed beachfront. Beyond the village, the context is primarily residential of varying scale and densities. A well-patronised publicly accessible walk occurs along the coast connecting to the Bronte Beach promenade.

#### 6.7.2 Potential impacts

The One issue raised in the community feedback to the proposed upgrade works was the potential loss of views towards Bronte Park and the ocean from both the commercial and residential properties within the village as a result of the proposed new palm plantings, particularly in the small pedestrian islands on either side of the proposed new raised pedestrian crossing. A total of 14 Cabbage Tree palms (*Livistona australis*) that reach a mature height of 15m and canopy spread of 3m are proposed to be planted, with 4 spaced equidistantly along the northern edge of Bronte Road, above the bus terminus, a cluster of 7 in the pedestrian plaza on the northern side of the new pedestrian crossing and a cluster of 3 on the southern side of the new pedestrian crossing. It is anticipated that the new palms will achieve a mature height range of between 5 to 10 metres and will create vertical elements within the landscape, highlighting the southern entry point to Bronte Park while creating context, shade and scale. Given the confined nature of the topography, the group of residences occurring above the retail strip will be the most impacted from the proposed palm planting. At the planning stage, specific palms were selected due to their compact canopies, degree of transparency through their foliage and their slow growth rate, which ensure a more predictable visual outcome over time.

In order to inform the REF and provide an empirical assessment of the potential impacts to views, Group GSA has prepared a Visual Impact Assessment utilising fieldwork involving the use of large 1.6m diameter helium filled balloons to replicate indicative tree location and canopy heights and photography of view lines from 26 selected vantage points, using a camera mounted on a drone. The selected view locations are from single private viewpoints and are representative of particular locations. They are not public domain views. The locations were selected so as to consider a variety of private viewpoints from the immediate surrounding residential properties and reflect those properties that would be most affected by the upgrade works. Utilising the balloon locations as a point of reference, various tree heights were modelled ranging from 5 to 10 metres to gain a good understanding of the extent of tree height impacts on viewpoints.

The Visual Impact Assessment adopts a visual impact rating between negligible and high, derived from cross referencing visual sensitivity (the sensitivity of a landscape character zone or view and its capacity to absorb change) with visual magnitude (the scale, form and

character of a development proposal as well as how far the 'obstacle' is from the viewer).

Of the 26 view locations, only 3 were rated as having a high impact, where the modelling of palms at two different heights (5m and 10m) and across all three levels of the corresponding buildings, it was determined that high visual impacts would occur. In all three cases the palm plantings at either height appeared to significantly impact on water views, in particular, the loss of the horizon line where sky meets water as well as obscuring portions of the water. The view loss occurred at Level 1 of No. 483 Bronte Road, when modelled on 5m high palms and at Level 3 of Nos. 479 & 481 Bronte Road, when modelled on 10m high palms. These buildings are located to the immediate north-west of the proposed new pedestrian crossing. It was also determined that the higher palm height (10m) had a more detrimental impact on views than occurred with the impact to Level 1 from 5m high palms. All of the modelled view loss was from residential properties, where a high value is placed on these views that are private in nature and allow for views of the park and water and more broadly, an expanse of water, sky and the horizon.

In contrast, 12 of the 26 views were determined to have negligible view loss, primarily because from each of the 12 vantage points, the canopies of the new palm trees appeared against the backdrop of the park, rather than the water or horizon line, such that the new trees appeared visually contained within Bronte Park, allowing views to the water and beyond to the horizon.

The Visual Impact Assessment concludes (in part) that *the upgrade can be implemented while taking care to minimise visual impacts on immediate residential views by carefully examining heights at which palm planting is implemented.*

The Visual Impact Assessment also acknowledges that it is challenging to propose palm planting in this location without having some degree of impact on existing views while also considering that palms grow over time. Half the locations tested resulted to negligible impact. However there were viewpoints which experienced high to high-moderate impact. Species selection issues were addressed at the planning stage, and the Cabbage Tree palms were selected for the following reasons:

- *Suitability of the species to thrive in a front line coastal location with an ability to withstand salt laden winds and predominantly sandy soils.*
- *Complementary to the existing landscape character, with other palm species evident within Bronte Park.*
- *The relatively slow growing nature of the species (average growth rate of 1 metre per calendar year).*
- *The compact palm head with a reasonable level of transparency to the foliage allowing for views through.*

As such, it becomes a question of achieving an acceptable degree of impact across the range of views. There is potential to further minimise impacts, particularly with respect to the three "high" impact ratings by employing one or more of the suggested mitigation options.

The mitigation options include the following:

- *Review of palm locations.*

- *Further testing of palm heights when planted, possibly utilising a variety of heights to maximise views.*
- *Ongoing Management of palm canopies to maintain compact heads to the palms.*
- *Reduced number of palms.*

A copy of the Visual Impact Assessment is provided at **Appendix F** to this REF.

#### 6.7.3 Safeguards and management measures

- In order to minimise the loss of existing views across Bronte Park and towards the ocean from the village, and in particular the existing views afforded from Level 1 of No. 483 Bronte Road and from Level 3 of Nos. 479 & 481 Bronte Road, the design is to be amended to delete the palm on the left hand side of the new pedestrian crossing on the village side of Bronte Road and the number of palms to be planted in the pedestrian plaza on the park side of the pedestrian crossing is to be reduced from 7 to 5.

### 6.8 Waste management and minimisation

#### 6.8.1 Potential impacts

The construction activities associated with the upgrade works will generate a variety of waste material.

Although considered unlikely, there is the potential for asbestos containing materials to be discovered / disturbed during demolition works. If this occurs, it will need to be handled, stored and removed in accordance with the relevant safe practice standards.

All waste will need to be collected and stored on site in appropriate skips / containers etc and if not to be reused on site, collected and disposed of at a licenced recycling or waste facility.

#### 6.8.2 Safeguards and management measures

- Should any asbestos or asbestos containing material be discovered / disturbed during demolition works, its handling, storage and removal shall be carried out in accordance with the National OH&S Committee – Code of Practice for the management and control of asbestos in the workplace.
- A Waste Management Plan will need to be prepared to detail the procedures for waste minimisation and management, including the likely waste generation, method of on-site collection and storage and details of the intended method of recycling or disposal.
- All areas of the construction site/s will need to be kept free of rubbish and cleaned at the end of each work day.
- The resource management hierarchy principles of the Waste Avoidance and Resource Recovery Act 2001(WARR Act) should be adopted as follows:
  - Avoid unnecessary resource consumption as a priority.
  - Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling, and energy recovery).
  - Disposal is undertaken as a last resort.

## 6.9 Community enquiries and complaints

### 6.9.1 Potential impacts

During the course of construction works there is the potential that affected businesses or other members of the community may wish to make enquiries or complaints in relation to the works.

### 6.9.2 Safeguards and management measures

- A dedicated 'Community Liaison Officer' (Council's Project Manager or representative) should be contactable and available to respond to enquiries and address complaints or other issues during the works period.

## 6.10 Social and economic

### 6.10.1 Potential impacts

There are likely to be positive social and economic impact associated with the upgrade works. The substantial improvement to the amenity, legibility and safety of the pedestrian environment is likely to encourage increased use of the public domain, which in turn may have benefits to local businesses due to increased custom. The provision of a visually attractive and consistent streetscape will improve the visual connection between development and the public domain and may stimulate further redevelopment within the Village centre. The realisation of these social and economic impacts will be consistent with the overarching vision to create a vibrant, safe and attractive urban environment that retains the active character along the commercial strip, balances outdoor dining with pedestrian access and amenity, and improves pedestrian safety and convenience at the Bronte Road bus terminus.

## 6.11 Summary of beneficial effects

The main benefits of the Bronte Beach Village Upgrade include:

- The provision of a visually attractive and consistent streetscape that will improve the visual connection between the Village centre and Bronte Park.
- Improvement to the amenity, legibility and safety of the pedestrian environment that is likely to encourage increased use of the public domain, which in turn may have benefits to local businesses due to increased custom.
- Revitalisation of the Bronte Beach Village centre;

## 6.12 Summary of environmental impacts

The main potential environmental impacts likely to arise during the works include:

- Acid Sulfate Soils impacts;
- Heritage impacts;
- Traffic and access impacts;
- Noise and vibration impacts;
- Tree removal and management impacts;

- Air quality impacts;
- Visual amenity impacts;
- Waste management and minimisation impacts.



## 7 Environmental management

### 7.1 Environmental management plans

Environmental safeguards and management measures outlined in Table 7-1 below will minimise the identified potential adverse environmental impacts of the proposal on the surrounding environment.

A Traffic Construction Environmental Management Plan (TCEMP) has been prepared for the proposed works by Bitzios Consulting and sets out the required traffic management measures to minimise potential traffic and parking impacts. However, a Construction Environmental Management Plan (CEMP) that incorporates all of the mitigation measures and safeguards associated with the other identified potential impacts and other construction management related issues will need to be prepared by the contractor/s prior to the commencement of works. The CEMP will form the framework for establishing how the safeguards and management measures will be implemented and who will be responsible for their implementation. The environmental management of this proposal will need to be in accordance with this plan.

### 7.2 Summary of safeguards and management measures

The environmental safeguards outlined in this document will need to be incorporated into the detailed design and implemented prior to and/or maintained throughout the duration of the works at the Bronte Beach Village. These safeguards are aimed at minimising any potential adverse impacts on the surrounding environment arising from the proposed works. All safeguards described in the REF will also need to be incorporated into the CEMP. These are summarised in Table 7-1.

**Table 7-1: Summary of impact specific environmental safeguards**

No.	Impact	Environmental safeguards & management measures
1	Acid Sulfate Soils	<ul style="list-style-type: none"><li>All excavated material should be considered to be ASS and treated with lime to neutralise the acidity as it is removed from the ground. Keeping the excavated spoil lightly wetted at all times to limit potential oxidation and formation of acidic leachate. The recommended material for treatment is Medium-Fine agricultural lime (aglime) which is slightly alkaline and of low solubility. The aglime should be fine ground (at least &lt;1 mm) calcium carbonate or calcite (limestone or marble).</li><li>Aglime is to be readily available both at the site of excavation and at the location of stockpiles.</li><li>Prior to excavations, weather should be checked and excavation works should not be undertaken unless a continuous forecast of 5 days does not indicate the chance of moderate to heavy rain. All excavations are to be covered once treated to protect against</li></ul>

No.	Impact	Environmental safeguards & management measures
		<p>unforeseen weather events.</p> <ul style="list-style-type: none"> <li>• The following recommendations outline the best practice methods for the stockpiling of Acid Sulfate Soils and are to be applied. Stockpiles of acid sulfate soils should be located in settings that ensure minimal environmental impact from any acidic leachate produced. The design of stockpile(s) should: <ul style="list-style-type: none"> <li>➤ establish leachate collection and treatment systems including an impervious pad on which to place the stockpile.</li> <li>➤ minimise the surface area exposed to oxidation - consider using some form of artificial capping if storage is for longer than a few weeks.</li> <li>➤ minimise the amount of infiltration of water - consider using some form of artificial capping.</li> </ul> </li> <li>• All stockpiles should be bunded and leachate collection and treatment systems should be installed. If an impervious pad has not been established under the stockpile, as a precautionary measure, an apron of fine lime should be applied when stockpiling materials for any length of time.</li> <li>• Once treatment has been applied and or testing has confirmed the materials do not, or no longer meet the definition of Actual Acid Sulfate Soils the materials are to be disposed of to an appropriately licensed landfill facility with an accompanying Waste Analysis Classification Report, for example Dial A Dump Industries, Eastern Creek. Details of the nature of the materials and the treatment applied is necessary within the body of the report. The waste classification assessment is to be conducted in accordance with NSW DECCW Waster Classification Guidelines 2008. The guidelines (Part 4) states ASS cannot be treated as virgin excavated natural materials (VENM) and that potential and actual ASS must be treated (neutralized) prior to acceptance by a landfill operator.</li> <li>• Any Acid Sulfate Soil material requiring transport should be loaded directly into sealed trucks and transported. The base of the truck containment should be lined with a layer of lime. The condition of the lime layer should be visually checked regularly, and lime should be replenished if necessary. All vehicles must be covered to proven the loss of ASS material during transport. Wheels and external surfaces of trucks should be cleaned prior to leaving site.</li> </ul>

No.	Impact	Environmental safeguards & management measures
2	Heritage	<p><u>Temporary Protection Plan</u></p> <ul style="list-style-type: none"> <li>Develop a temporary protection plan that identifies the potential risks and outlines measures to reduce the potential for damage to heritage fabric during the works.</li> </ul> <p><u>Salvage</u></p> <ul style="list-style-type: none"> <li>Prior to commencement of the works, a built heritage specialist to identify significant elements for protection and, if necessary storage, for reinstatement as appropriate. Removal of any items to be carried out in accordance with specific salvage methodologies provided by the built heritage specialist.</li> </ul> <p><u>Monitoring</u></p> <ul style="list-style-type: none"> <li>A built heritage specialist is to be on site during all critical processes that require specialist knowledge and methodology. Should any discoveries be made apparent during the absence of the built heritage specialist, they are to be notified immediately and work in that area is to cease.</li> <li>The built heritage specialist is to undertake regular inspections to suit the works. Timing and frequency to be agreed with the contractor.</li> <li>The built heritage specialist is to monitor the works and ensure that compliance conditions pertaining to heritage fabric are met.</li> <li>All new work associated with heritage fabric to be discreetly dated as such.</li> <li>All junctions between new and original fabric to be reversible and easily identifiable as such.</li> </ul> <p><u>Schedule of Conservation Works</u></p> <ul style="list-style-type: none"> <li>A built heritage specialist is to develop a schedule of conservation works that identifies the works required to remedy issues identified, as well guide repairs, restoration or reconstruction. The schedule of conservation works should be prepared in accordance with the NSW Office of Environment &amp; Heritage Maintenance Series</li> </ul>

No.	Impact	Environmental safeguards & management measures
		<p><u>Photographic Archival Recording</u></p> <ul style="list-style-type: none"> <li>A built heritage specialist is to develop an archival record (before, during and after) of areas implicated by the works in accordance with the Heritage Division of the NSW Office of Environment &amp; Heritage guidelines Photographic recording of Heritage Items Using Film or Digital Capture (2006).</li> </ul> <p><u>Heritage Interpretation</u></p> <ul style="list-style-type: none"> <li>A built heritage specialist is to develop a heritage interpretation plan for the proposed development in accordance with the Heritage Division of the NSW Office of Environment &amp; Heritage publications, Interpreting Heritage Places and Items (2005) and Heritage Interpretation Policy (2005).</li> </ul> <p><u>Unexpected Finds Protocol</u></p> <ul style="list-style-type: none"> <li>If any heritage or Aboriginal cultural materials are discovered, all work is to cease immediately and the NSW Heritage Council, Metropolitan Local Aboriginal Land Council and NSW National Parks and Wildlife Service are to be notified.</li> </ul>
3	Traffic and pedestrian access	<ul style="list-style-type: none"> <li>The management of traffic and pedestrians is to be undertaken in accordance with the Bronte Village Streetscape Upgrade Construction Management Plan (CTMP) prepared by Bitzios Consulting, dated May 2018. This requires individual/site specific CTMPs to be prepared by or on behalf of the contractor for each work area.</li> <li>Where required, appropriate traffic management measures in Bronte Road and/or the bus terminus, including temporary speed restrictions, precautionary signs, illuminated warning devices and manual and/or electronic traffic control to control access of construction vehicles etc to the work areas will need to be implemented (as necessary) and maintained throughout the works period.</li> <li>Any changes to traffic through or around a work site or temporary hazard will require a Traffic Control Plan (TCP) that has been designed and approved by Roads and Maritime Services accredited personnel with the appropriate and current qualification as outlined in Roads and Maritime QA specification G10 Traffic Management Clause 1.5.3.</li> </ul>

No.	Impact	Environmental safeguards & management measures
		<ul style="list-style-type: none"> <li>• A Road Safety Audit (RSA) should be undertaken of the existing road conditions and the TCPs prior to their implementation.</li> <li>• Pedestrian access must be maintained during the works. Existing disability access, where provided, must be ensured, following the requirements set out in the Disability Discrimination Act, and Disability Standards for Accessible Public Transport. Alternative services are to be considered, such as offering connections or pickup services between destinations or bus stops.</li> <li>• Pedestrian Management Plans (PMPs) must be created for any redirection of pedestrian movements from existing paths.</li> <li>• There needs to be continuous access to a loading zone to service the number of retail and commercial properties on Bronte Road. As such, a loading zone is to be provided at a temporary location on Bronte Road during construction.</li> <li>• Vehicles of workers are to be held off site. There is to be no queuing or vehicle holding outside the work areas. Deliveries and arrival of heavy vehicles is to be timed to ensure that queueing does not occur. Construction vehicles are not to park using on-street parking.</li> </ul>
4	Noise & Vibration	<ul style="list-style-type: none"> <li>• Work is to be restricted to the following working hours and noisy work should be undertaken during less sensitive periods where possible: <ul style="list-style-type: none"> <li>▪ Monday to Friday – 07:00 to 17:00; and</li> <li>▪ Saturday – 08:00 to 15:00.</li> </ul> <p>No work is to be undertaken on:</p> <ul style="list-style-type: none"> <li>▪ Sundays;</li> <li>▪ Saturdays and Sundays that form part of public holiday weekends; and</li> <li>▪ Public Holidays.</li> </ul> </li> <li>• Noise from construction activities shall comply with the Protection of the Environment Operations (Noise Control) Regulation 2008.</li> <li>• All plant, machinery and noise generating equipment should be maintained in good working order. Where</li> </ul>

No.	Impact	Environmental safeguards & management measures
		<p>practical / possible machinery should be fitted with exhaust silencers and / or noise reduction devices.</p> <ul style="list-style-type: none"> <li>Plant and machinery will need to be turned off when not in use.</li> <li>The construction noise levels shall not reach or exceed the exposure levels, including peak exposure (140dB[C]) and daily average (85dB[A]), as detailed in Clause 49 of the OH&amp;S Regulation 2001. Work planning and preparation shall be considered to ensure noisy activities are minimised. The control measures developed shall meet the requirements of <i>AS2436 – 1981 – ‘Guide to Noise Control on Construction, Maintenance and Demolition Sites’</i> i.e. localised noise boxes or barriers. Appropriate tools and equipment shall be used to ensure noise levels are reduced and controlled.</li> </ul>
5	Air Quality	<ul style="list-style-type: none"> <li>The Contractor is required to monitor and manage dust / air quality during the works.</li> <li>All plant, machinery and noise generating equipment is to be maintained in good working order and is to be turned off when not in use for prolonged periods.</li> <li>Where possible, all construction plant and machinery should be fitted with emission control devices complying with Australian Design Standards.</li> <li>Plant and machinery will need to be turned off when not in use.</li> <li>Any dust generating works should be stopped during periods of high wind.</li> </ul>
6	Tree Removal and Management	<ul style="list-style-type: none"> <li>Approval under Council’s Tree Preservation Order is to be obtained prior to the removal of the three (3) nominated trees.</li> <li>All other trees in the vicinity of the work areas are to be retained and protected throughout the course of the works.</li> </ul>
7	Visual Amenity	<ul style="list-style-type: none"> <li>All parts of the work areas are to be kept clean and tidy at all times.</li> <li>In order to minimise the loss of existing views across Bronte Park and towards the ocean from the village, and in particular the existing views afforded from Level</li> </ul>

No.	Impact	Environmental safeguards & management measures
		<p>1 of No. 483 Bronte Road and from Level 3 of Nos. 479 &amp; 481 Bronte Road, the design is to be amended to delete the palm on the left hand side of the new pedestrian crossing on the village side of Bronte Road and the number of palms to be planted in the pedestrian plaza on the park side of the pedestrian crossing is to be reduced from 7 to 5.</p>
8	Waste Minimisation and Management	<ul style="list-style-type: none"> <li>• A Waste Management Plan will need to be prepared to detail the procedures for waste minimisation and management, including the likely waste generation, method of on-site collection and storage and details of the intended method of recycling or disposal.</li> <li>• All areas of the site will need to be kept free of rubbish and cleaned at the end of each work day.</li> <li>• The resource management hierarchy principles of the Waste Avoidance and Resource Recovery Act 2001(WARR Act) should be adopted as follows: <ul style="list-style-type: none"> <li>– Avoid unnecessary resource consumption as a priority.</li> <li>– Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling, and energy recovery).</li> <li>– Disposal is undertaken as a last resort.</li> </ul> </li> </ul>
9	Community enquiries and complaints	<ul style="list-style-type: none"> <li>• A dedicated 'Community Liaison Officer' (Council's Project Manager or representative) should be contactable and available to respond to enquiries and address complaints or other issues during the works period.</li> </ul>

## 8 Conclusion

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### 8.1 Justification

The proposed works associated with the Bronte Beach Village Upgrade have the potential to result in some minor environmental impacts with respect to acid sulfate soils, heritage, traffic and pedestrian access, noise and air quality, tree removal and management, visual impacts and waste storage and disposal. Notwithstanding, the safeguards and mitigation measures that are detailed in this Review of Environmental Factors will ameliorate or minimise these expected impacts. The proposal will also realise a number of positive impacts, including the including an improvement to the streetscape character and public domain amenity, improved legibility of the entry to Bronte Park, and improved pedestrian safety and amenity for the benefit of the wider community, . On balance the proposal is considered justified.

The environmental impacts of the proposal are not likely to be significant and therefore it is not necessary for approval to be sought for the proposal under Part 4 of the *Environmental Planning & Assessment Act 1979*. The proposal will not have a substantial impact on any matters of national environmental significance.

### 8.2 Objects of the EP&A Act 1979

Decisions made under the EP&A Act must have regard to the objects of the Act, as set out in Section 1.3. The Objects are:

- (a) *to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,*
- (b) *to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,*
- (c) *to promote the orderly and economic use and development of land,*
- (d) *to promote the delivery and maintenance of affordable housing,*
- (e) *to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,*
- (f) *to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),*
- (g) *to promote good design and amenity of the built environment,*
- (h) *to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,*
- (i) *to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,*
- (j) *to provide increased opportunity for community participation in environmental planning and assessment.*



The proposed Bronte Beach Village Upgrade works are consistent with the objects of the Act, in particular, the outcome following completion of the works represents the proper management of the public domain and promotes the social and welfare of the community by providing improved facilities and amenities at this location, which in turn improves the value of the place.

### 8.3 Ecologically sustainable development

The National Strategy for Ecologically Sustainable Development (NSED) has been formulated to ensure ESD is accounted for in all proposals. There are three core objectives:

- *Enhance the well-being and welfare of individuals and the community by following a path of economic development that safeguards the welfare of future generations;*
- *Provide for equity within and between generations;*
- *Protect biological diversity and maintain essential ecological processes and life-support systems.*

The EP&A Act acknowledges that ecologically sustainable development (ESD) should be considered in the assessment and approval of proposed development.

The proposed Bronte Beach Village Upgrade works that are the subject of this REF have been assessed against the following four principles of ecologically sustainable development (ESD) listed in the *Protection of the Environment Administration Act 1991*:

- *The precautionary principle;*
- *The principle of intergenerational equity;*
- *The principle of biological diversity and ecological integrity; and*
- *The principle of improved valuation of environmental resources.*

A discussion on the degree to which the proposed works comply with these principles is provided below.

#### 8.3.1 Precautionary principle

The precautionary principle states that:

*if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*

*In the application of the precautionary principle, public and private decisions should be guided by:*

- careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
- an assessment of the risk weighted consequences of various options*

A range of investigations have been undertaken in order to inform the preparation of this REF and to ensure that the potential environmental impacts are able to be understood with a high

degree of certainty. The proposal is not likely to result in any substantial environmental impacts. Where the potential for environmental impacts has been identified, a range of safeguards and mitigation measures have been recommended in order to minimise these adverse impacts. No mitigation measures have been deferred due to a lack of scientific certainty. The proposal is therefore considered to be consistent with the precautionary principle.

### 8.3.2 Intergenerational equity

The principle of intergenerational equity states that:

*the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.*

The proposed Bronte Beach Village Upgrade works will not result in any impacts that are likely to adversely impact on the health, diversity or productivity of the environment for the future generations.

### 8.3.3 Conservation of biological diversity and ecological integrity

The principle of biological diversity and ecological integrity states that:

*conservation of biological diversity and ecological integrity should be a fundamental consideration.*

The proposed Bronte Beach Village Upgrade works are unlikely to have a significant impact on biological diversity and ecological integrity. The proposed works are contained within a highly modified environment and will not impact on any endangered flora or fauna, or threaten biological or ecological diversity.

### 8.3.4 Improved valuation, pricing and incentive mechanisms

The principle of improved valuation of environmental resources states that:

*environmental factors should be included in the valuation of assets and services, such as:*

- (i) polluter pays – that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
- (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
- (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

The cost of environmental resources includes those costs that are incurred in order to protect the environment. In this way, any environmental safeguards that are imposed in order to minimise adverse impacts, result in economic costs to the construction and operation of the project. This indicates that the valuation of environmental resources has been assigned.

The implementation of appropriate mitigation measures (as recommended in this REF) where environmental impacts are expected will ensure that the proposed Bronte Beach Village Upgrade works are undertaken with minimal impact on the environment.

## 8.4 Conclusion

The proposed works associated with the Bronte Beach Village Upgrade have been the subject of an assessment under Part 5 of the *Environmental Planning & Assessment Act 1979*. The REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity. The proposed works, as described in the REF, will meet the project objectives but will still result in some minor impacts during construction with respect to acid sulfate soils, heritage, traffic and pedestrian access, noise and air quality, tree removal and management, visual amenity and waste storage and disposal. Notwithstanding, the implementation and effective management of the safeguards and mitigation measures that are detailed in this REF will ameliorate or minimise these expected impacts, such that they will have no more than a minor impact.

The proposal will realise a number of positive impacts, including the including an improvement to the streetscape character and public domain amenity, improved legibility of the entry to Bronte Park, and improved pedestrian safety and amenity for the benefit of the local and wider community. On balance the proposal is considered justified.

The environmental impacts of the proposed works are not likely to be significant and therefore it is not necessary for approval to be sought for the proposal under Part 4 of the *Environmental Planning & Assessment Act 1979*. The proposal will not impact on any matters of national environmental significance.

Having regard to the above, it is concluded that the proposal is not likely to significantly affect the environment within the meaning of Section 5.7 of the *Environmental Planning & Assessment Act 1979*.

## 9 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.



Andrew Robinson MPIA  
Director  
Andrew Robinson Planning Services Pty Ltd  
Date: 20 December 2018

I have examined this review of environmental factors and the certification by Andrew Robinson Planning Services Pty Ltd and accept the review of environmental factors on behalf of Waverley Council.

Signature:

Name:

Position:

Date:

## 10 References

---

The following publications and documents have been used in the preparation of this REF:

Acoustic Logic, 2018, *Bronte Beach Village Comparative Noise Study*

Bitzios Consulting, 2018, *Bronte Village Streetscape Traffic Study*

Bitzios Consulting, 2018, *Bronte Village Streetscape Upgrade CTMP*

City Plan Heritage, 2018, *Heritage Impact Statement – Bronte Beach Village*

Group GSA, 2018, *Bronte Village Upgrade Visual Impact Assessment*

Lighting, Art + Science, 2018, *Bronte Village Upgrade Spill Light Assessment*

Waverley Council website ([www.waverley.nsw.gov.au](http://www.waverley.nsw.gov.au))

Waverley Council, *Waverley Local Environmental Plan 2012*

Waverley Council, 2006, *Public Domain Improvement Plan 2006 – Local Village Centres*

# Appendix A

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Consideration of clause 228(2) factors  
and matters of National environmental  
significance

## Clause 228(2) Checklist

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The factors that need to be taken into consideration when reviewing the likely environmental impact of a proposed activity are listed in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000*. The table below provides a summary of the consideration of these factors.

Factor	Impact
<p><b>a. Any environmental impact on a community?</b></p> <p>Minor environmental impacts may occur during the works period. Notwithstanding, any impacts would be minimised through the implementation of the safeguards described in Table 7-1.</p>	Short term: Negligible
<p><b>b. Any transformation of a locality?</b></p> <p>The proposed upgrade works to the Bronte Beach Village will realise an improvement to the streetscape character and public domain amenity, improved legibility of the entry to Bronte Park, and improved pedestrian safety and amenity. This will benefit the local and wider community and will provide a substantial improvement to the visual quality and accessibility of the Bronte Beach Village.</p>	Long term: Positive
<p><b>c. Any environmental impact on the ecosystems of the locality?</b></p> <p>The proposed upgrade works to the Bronte Beach Village will not have an unreasonable impact on any ecosystems in the locality.</p>	Nil
<p><b>d. Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</b></p> <p>The streetscape upgrade works at Bronte Beach Village will improve the existing pedestrian amenity and aesthetic quality of the village and improve the legibility of the entry to Bronte Park to benefit the local and wider community.</p>	Short Term: Nil  Long Term: Positive
<p><b>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?</b></p> <p>As concluded by the Heritage Impact Statement prepared by City Plan Heritage, the proposed upgrade works to Bronte Beach Village will result in a moderate, but acceptable heritage impact and will not impede the significance of nearby heritage items and the Bronte Beach Landscape (C29) and South Bronte Headland Landscape (C59) Heritage Conservation Areas for present or future generations.</p>	Nil

Factor	Impact
<p><b>f. Any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974)?</b></p> <p>Bronte Beach Village is in an urban environment that has been highly modified and is not known to provide specific habitat for any protected fauna.</p>	Nil
<p><b>g. Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</b></p> <p>Bronte Beach Village is in an urban environment that has been highly modified and is not known to provide specific habitat for any endangered flora or fauna.</p>	Nil
<p><b>h. Any long-term effects on the environment?</b></p> <p>The proposal will not result in any substantial long-term adverse effects on the environment.</p>	Negligible
<p><b>i. Any degradation of the quality of the environment?</b></p> <p>The works will not result in any degradation of the quality of the environment.</p>	Nil
<p><b>j. Any risk to the safety of the environment?</b></p> <p>The proposed works will not generate any risk to the safety of the environment.</p>	Nil
<p><b>k. Any reduction in the range of beneficial uses of the environment?</b></p> <p>There will be no reduction in the range of beneficial uses of the environment as a result of the proposal.</p>	Nil
<p><b>l. Any pollution of the environment?</b></p> <p>There is the potential for some minor noise and air pollution during the works. However, due to the relatively short term nature of the works, these impacts are considered to be negligible and can be suitably ameliorated through appropriate site and environmental management measures.</p>	Short term: Negative



Factor	Impact
<p><b>m. Any environmental problems associated with the disposal of waste?</b></p> <p>The proposed upgrade works will not generate a substantial quantity of waste. However, all waste will need to be appropriately stored, sorted and disposed of / recycled.</p> <p>Where possible, waste material is to be reused / recycled. All waste that is not able to be reused or recycled will need to be collected and disposed of at a licenced waste facility.</p>	Negligible
<p><b>n. Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</b></p> <p>The proposed upgrade works will not place an undue demand on resources that are, or are likely to become in short demand.</p>	Nil
<p><b>o. Any cumulative environmental effect with other existing or likely future activities?</b></p> <p>There will be no cumulative impacts or environmental effects and the proposed upgrade works will realise a generally positive impact on the locality and will deliver a significant public benefit through the provision of an upgraded and improved pedestrian amenity and streetscape appearance at Bronte Beach Village.</p>	Nil

# Matters of National environmental significance

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Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999*, the following matters of National environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian Government Department of the Environment, Water, Heritage and the Arts.

Factor	Impact
<b>a. Any impact on a World Heritage property?</b>  The proposal will not have an impact on a World Heritage property.	Nil
<b>b. Any impact on a National Heritage place?</b>  The proposal will not have an impact on a National Heritage place.	Nil
<b>c. Any impact on a wetland of international importance?</b>  The proposal will not have an impact on a wetland of international importance.	Nil
<b>d. Any impact on a listed threatened species or communities?</b>  The proposal will not have an impact on a threatened species or community.	Nil
<b>e. Any impacts on listed migratory species?</b>  The proposal will not have an impact on a listed migratory species.	Nil
<b>d. Any impact on a Commonwealth marine area?</b>  The proposal will not have an impact on a Commonwealth marine area.	Nil
<b>g. Does the proposal involve a nuclear action (including uranium mining)?</b>  The proposal does not involve a nuclear action.	Nil
<b>Additionally, any impact (direct or indirect) on Commonwealth land?</b>  The proposal will not have an impact (either direct or indirect) on Commonwealth Land.	Nil

# **Appendix B**

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Bronte Beach Village Upgrade - Issue for  
Tender Revised – Drawing Package –  
Group GSA



# BRONTE BEACH VILLAGE UPGRADE

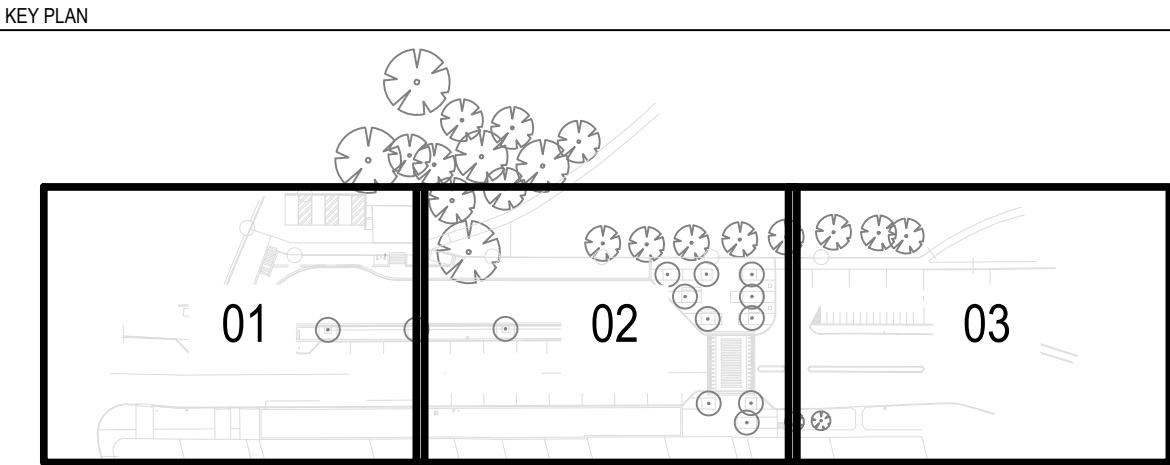
Bronte Beach, Bronte NSW

Issue for Tender



DRAWINGS SCHEDULE	
Cover sheet	L0000
Demolition Plan	L1001
Demolition Plan	L1002
Demolition Plan	L1003
Existing Infrastructure Plan	L1101
Existing Infrastructure Plan	L1102
Existing Infrastructure Plan	L1103
Landscape Schedules	L2000
General Arrangement Plan	L2001
General Arrangement Plan	L2002
General Arrangement Plan	L2003
Furniture and Fixtures	L2101
Furniture and Fixtures	L2102
Furniture and Fixtures	L2103
Grading and Drainage Plan	L3001
Grading and Drainage Plan	L3002
Grading and Drainage Plan	L3003
Planting Schedules	L5000
Planting Plan	L5001
Planting Plan	L5002
Sections and Elevations	L6001
Sections and Elevations	L6002
Sections and Elevations	L6003
Sections and Elevations	L6004
Details	L7001
Details	L7002
Details	L7003
Details	L7004
Details	L7005
Details	L7006
Details	L7007
Details	L7008
Details	L7009
Details	L7010

Amendments	Description	Date
A	50% Issue for Review	12/02/2018
B	75% Issue for Review	16/03/2018
C	Issue for Tender	04/05/2018
D	Issue for Tender Revised	09/05/2018



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022

Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153



Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect  
**GROUP GSA**  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title  
**Bronte Village Centre Upgrade**

Drawing Title  
**COVER SHEET**

Drawing Created (date)	08/02/2018
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	NTS @ A1
Project No.	17005
Drawing No.	L0000
Issue	D

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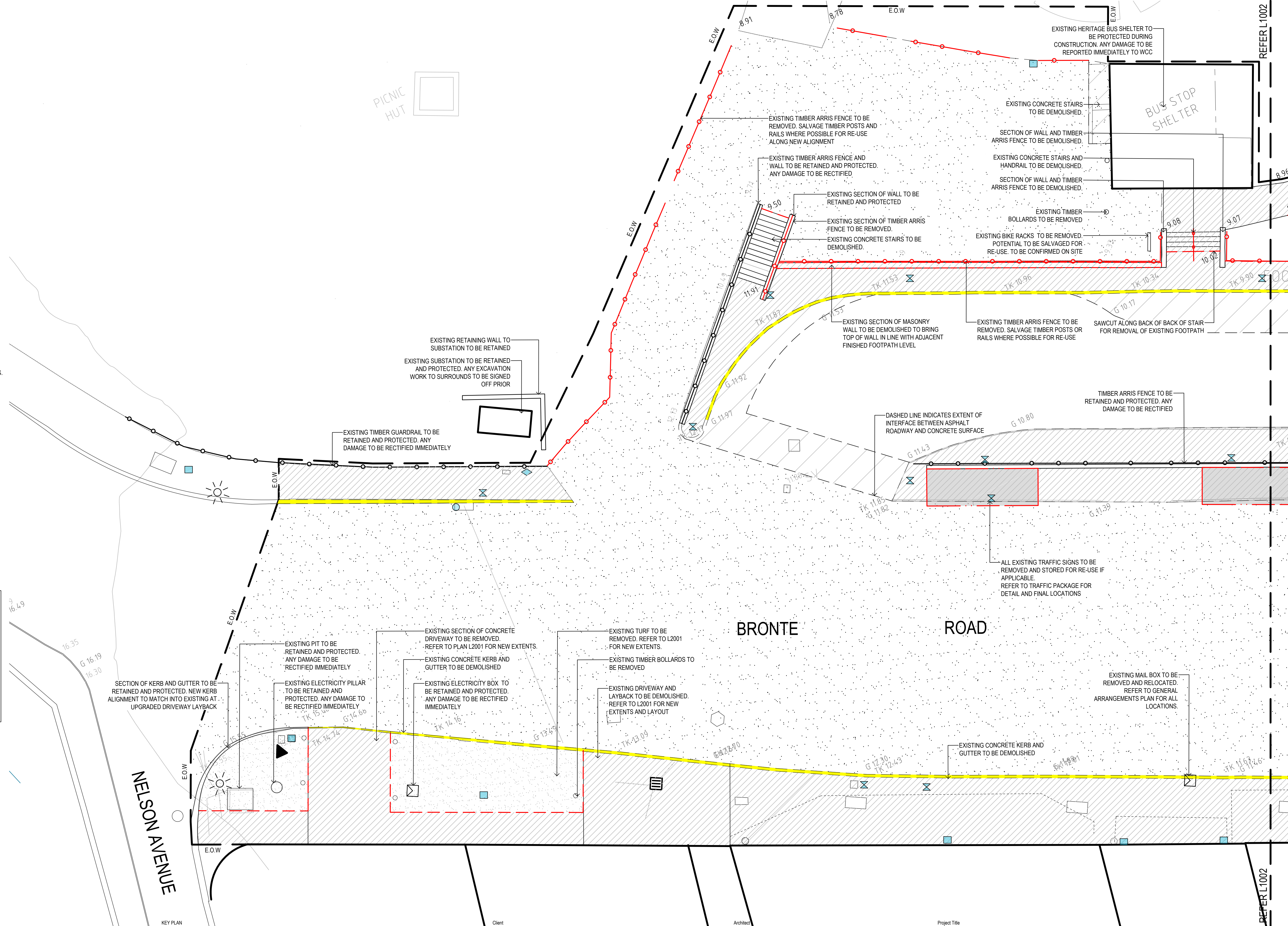
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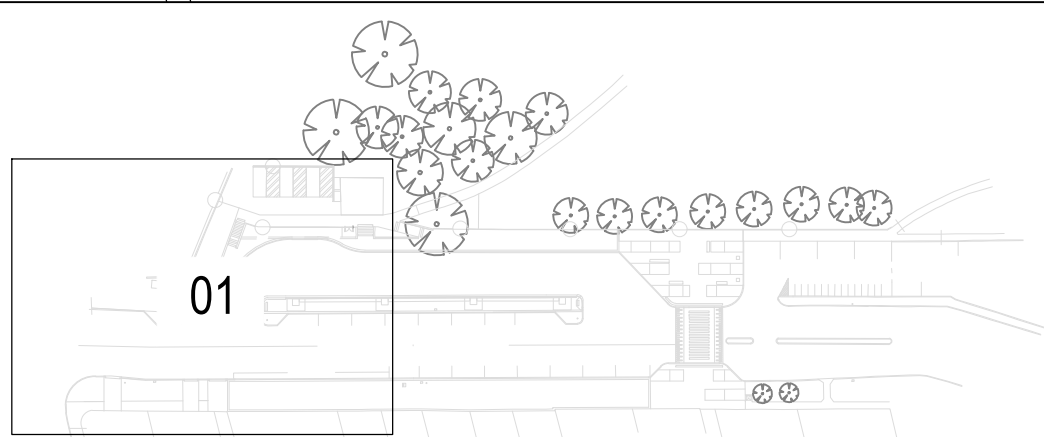
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  - EXTENT OF DEMOLITION
  - EXISTING AWNING LINE
  - EXISTING TREE TO BE RETAINED AND PROTECTED
  - EXISTING TREE - TREE PROTECTION ZONE
  - EXISTING TREE - STRUCTURAL ROOT ZONE
  - EXISTING TREE TO BE REMOVED
  - EXISTING CONCRETE FOOTPATH TO BE RETAINED AND PROTECTED
  - EXISTING TURF VERGE TO BE RETAINED AND PROTECTED
  - EXISTING CONCRETE KERB AND GUTTER TO BE DEMOLISHED
  - EXTENT OF HARDSTAND TO BE REMOVED AND DEMOLISHED
  - CONCRETE LAYER TO BE REMOVED AND DEMOLISHED
  - ASPHALT LAYER TO BE REMOVED AND DEMOLISHED
  - LOCATION OF EXISTING SERVICE PITS. REFER SITE SERVICES SCHEDULE.
  - INDICATIVE LOCATION OF EXISTING SERVICE PITS. REFER SITE SERVICES SCHEDULE.
  - LOCATION OF EXISTING DRAINS. REFER SITE SERVICES SCHEDULE.
  - INDICATIVE LOCATION OF EXISTING DRAINS. REFER SITE SERVICES SCHEDULE.
  - LOCATION OF EXISTING SIGNAGE. REFER TO TRAFFIC ENGINEER PACKAGE FOR FINAL LOCATIONS
  - EXTENTS OF DEMOLITION FOR FUTURE STRATACELL
  - HANDRAIL TO BE RETAINED
  - ARRIS RAIL FENCE RETAINED
  - ARRIS RAIL FENCE TO BE REMOVED. STORE AS DIRECTED FOR POSSIBLE RE-USE

**NOTE:**

- THE LANDSCAPE CONTRACTOR MUST TAKE ALL REASONABLE PRECAUTIONS TO DETERMINE THE LOCATIONS AND PROTECT EXISTING SERVICES BEFORE COMMENCING WORKS. THE LANDSCAPE CONTRACTOR IS TO NOTIFY THE SITE SUPERINTENDENT OF ANY DISCREPANCIES WHICH MAY AFFECT THE FINAL LANDSCAPE WORKS
- REFER TO SITE SERVICES, FURNITURE AND INFRASTRUCTURE SCHEDULE FOR INFORMATION RELATING TO THE TREATMENT OF EXISTING WORKS
- ALL ELEMENTS BEYOND EXTENT OF DEMOLITION, TO BE RETAINED AND PROTECTED UNLESS OTHERWISE DIRECTED
- ALL WORKS DOCUMENTED AS PER SURVEY SUPPLIED BY WAVERLEY COUNCIL
- TO BE READ IN CONJUNCTION WITH LANDSCAPE EXISTING SITE SERVICES SCHEDULE

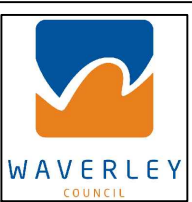


Amendments	Description	Date
A	50% Issue for Review	12/02/2018
B	75% Issue for Review	16/03/2018
C	Issue for Tender	04/05/2018
D	Issue for Tender Revised	09/05/2018



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022

Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153



Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042



Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458

Consultant  
Consultant Company  
Client Details

Project Title  
Bronte Village Centre Upgrade

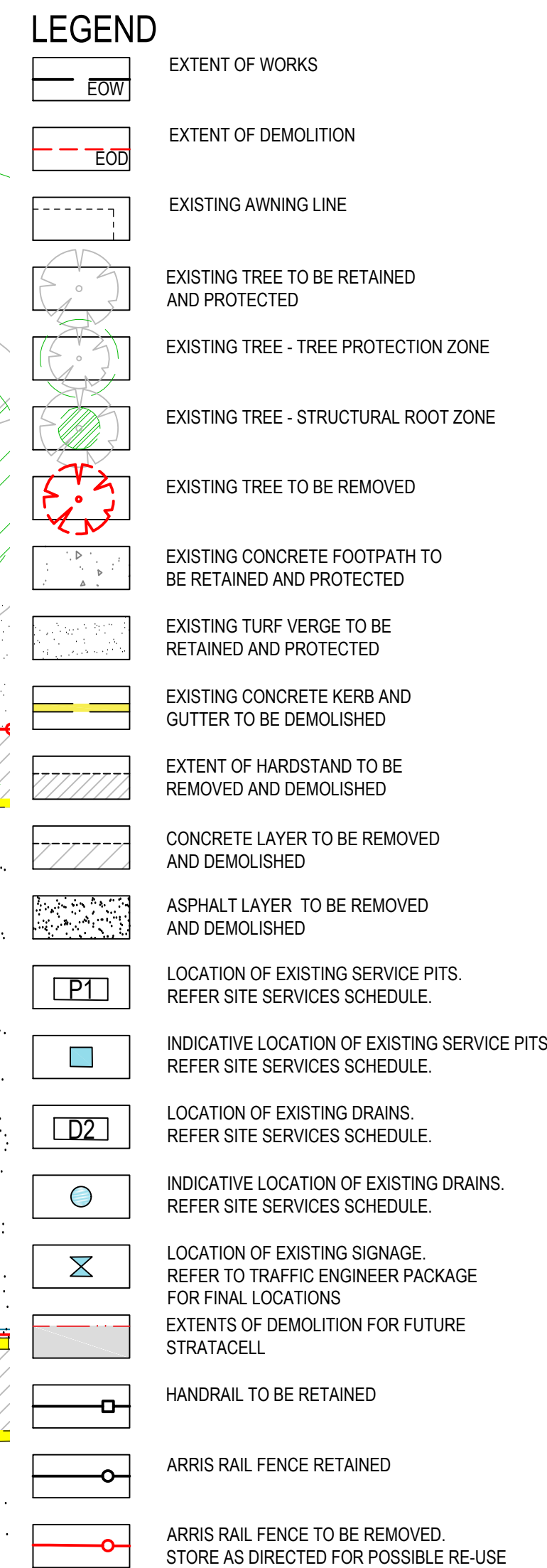
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SHEET 1

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Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1
Project No.	17005
Drawing No.	L1001
Issue	D

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A	50% Issue for Review	12/02/2018
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C	Issue for Tender	04/05/2018
D	Issue for Tender Revised	09/05/2018

02

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

	Consultant
	Consultant Company
T	Client Details

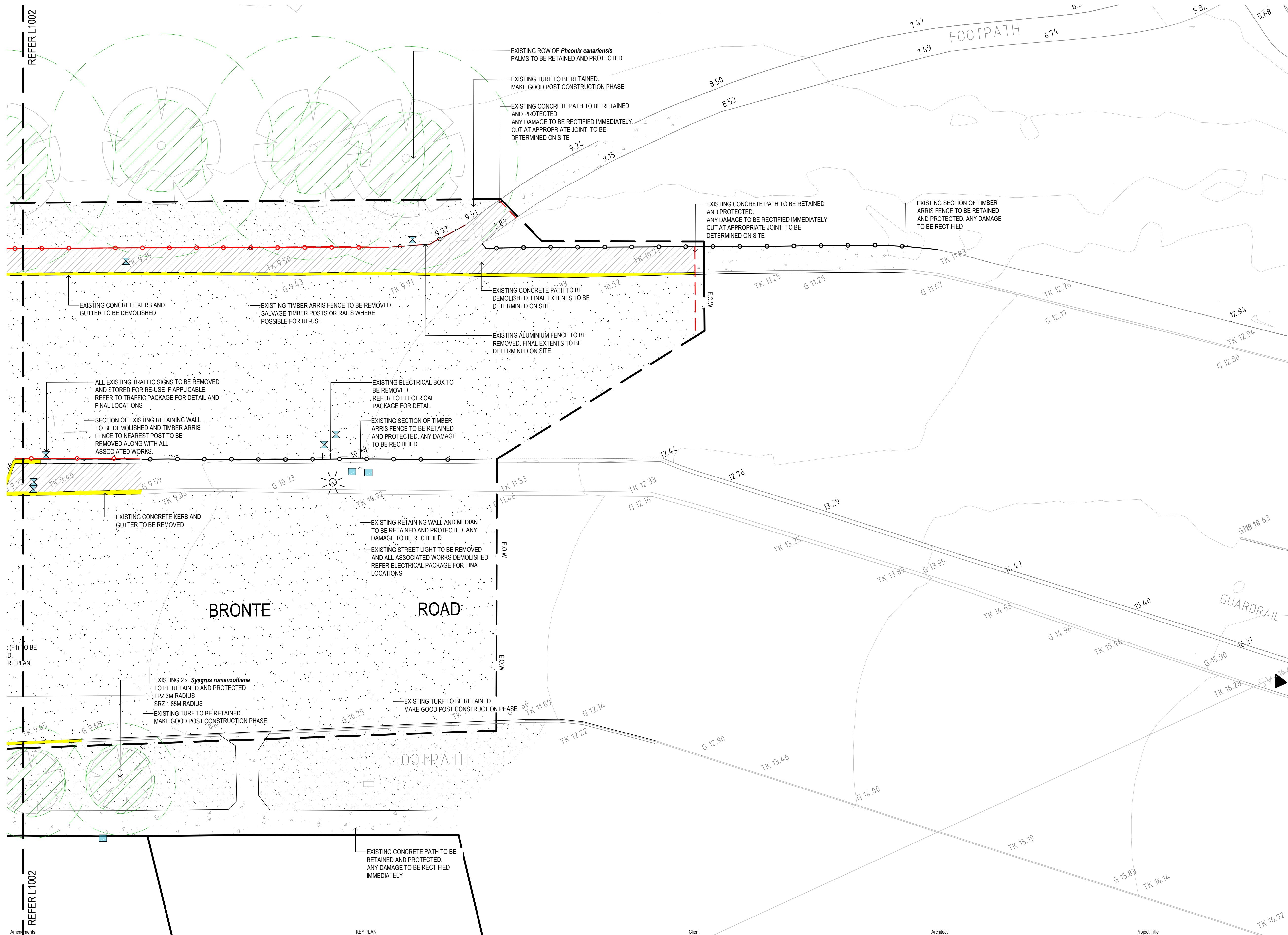
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Drawing Created (by)	LI	
Verified	TF	
Approved	FR	
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17005	L1002	D

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LEGEND

EXTENT OF WORKS

EXTENT OF DEMOLITION

EXISTING AWNING LINE

EXISTING TREE TO BE RETAINED AND PROTECTED

EXISTING TREE - TREE PROTECTION ZONE

EXISTING TREE - STRUCTURAL ROOT ZONE

EXISTING TREE TO BE REMOVED

EXISTING CONCRETE FOOTPATH TO BE RETAINED AND PROTECTED

EXISTING TURF VERGE TO BE RETAINED AND PROTECTED

EXISTING CONCRETE KERB AND GUTTER TO BE DEMOLISHED

EXTENT OF HARDSTAND TO BE REMOVED AND DEMOLISHED

CONCRETE LAYER TO BE REMOVED AND DEMOLISHED

ASPHALT LAYER TO BE REMOVED AND DEMOLISHED

P1

LOCATION OF EXISTING SERVICE PITS. REFER SITE SERVICES SCHEDULE.

INDICATIVE LOCATION OF EXISTING SERVICE PITS. REFER SITE SERVICES SCHEDULE.

D2

LOCATION OF EXISTING DRAINS. REFER SITE SERVICES SCHEDULE.

INDICATIVE LOCATION OF EXISTING DRAINS. REFER SITE SERVICES SCHEDULE.

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HANDRAIL TO BE RETAINED

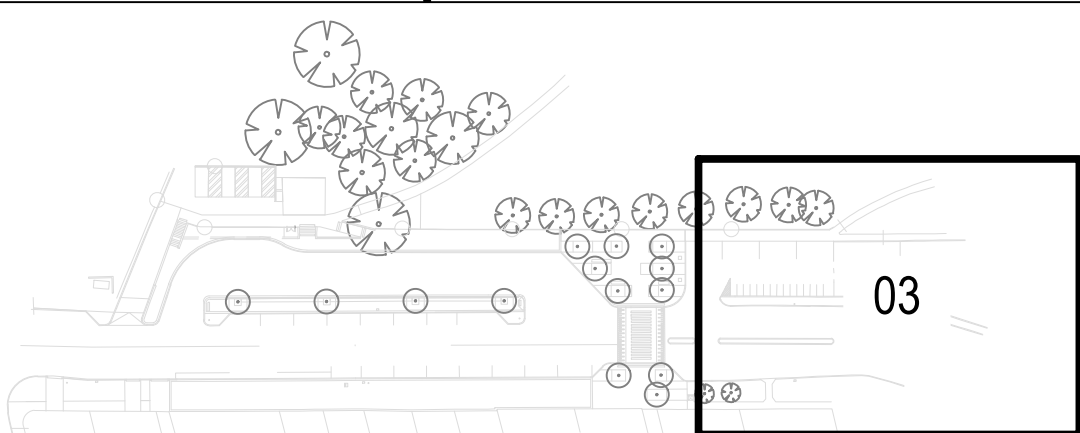
ARRIS RAIL FENCE RETAINED

ARRIS RAIL FENCE TO BE REMOVED. STORE AS DIRECTED FOR POSSIBLE RE-USE

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KEY PLAN



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022

Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153



Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

GROUP GSA

Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458

architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title  
Bronte Village Centre Upgrade

Drawing Title  
DEMOLITION PLAN  
SHEET 3

PRELIMINARY

Drawing Created (date)	09.02.17
Drawing Created (by)	LI
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Scale	1:100 @A1
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Drawing No.	L1003
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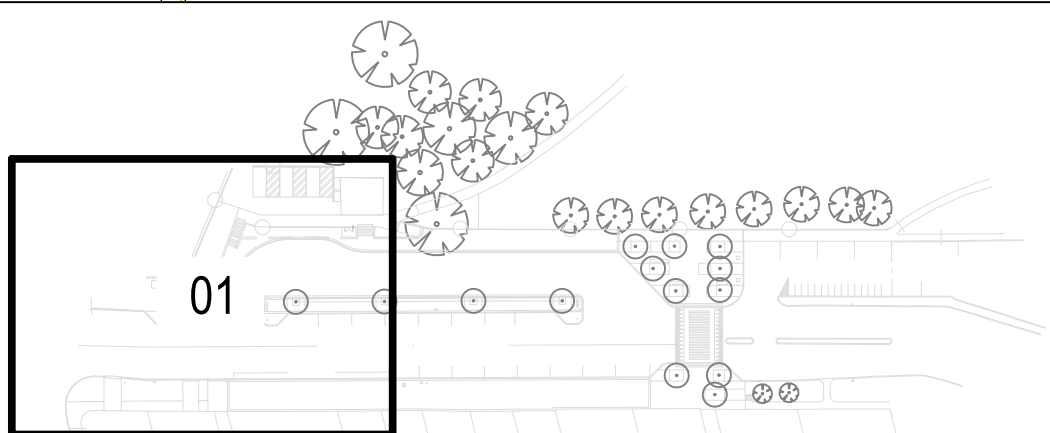
LEGEND

- EXTENT OF WORKS
- EXISTING TREE TO BE RETAINED AND PROTECTED
- EXISTING AWNING LINE
- LOCATION OF EXISTING SERVICE PITS  
REFER SITE SERVICES SCHEDULE
- LOCATION OF EXISTING DRAINS  
REFER SITE SERVICES SCHEDULE
- LOCATION OF EXISTING FURNITURE  
REFER SITE SERVICES SCHEDULE
- LOCATION OF EXISTING LIGHTPOLES  
REFER SITE SERVICES SCHEDULE
- EXISTING SERVICES- WATER
- EXISTING SERVICES- SEWAGE
- EXISTING SERVICES- STORM WATER
- EXISTING SERVICES- ELECTRICAL
- EXISTING SERVICES- COMMUNICATIONS
- EXISTING SERVICES- GAS
- EXISTING ARRIS RAIL FENCE

NOTE:  
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- ALL WORKS DOCUMENTED AS PER SURVEY SUPPLIED BY WAVERLEY COUNCIL

Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

KEY PLAN



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022

Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153



Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

GROUP GSA  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details  
T  
Consultant  
Consultant Company  
Client Details  
T

Project Title  
Bronte Village Centre Upgrade

Drawing Title  
EXISTING INFRASTRUCTURE  
SHEET 1

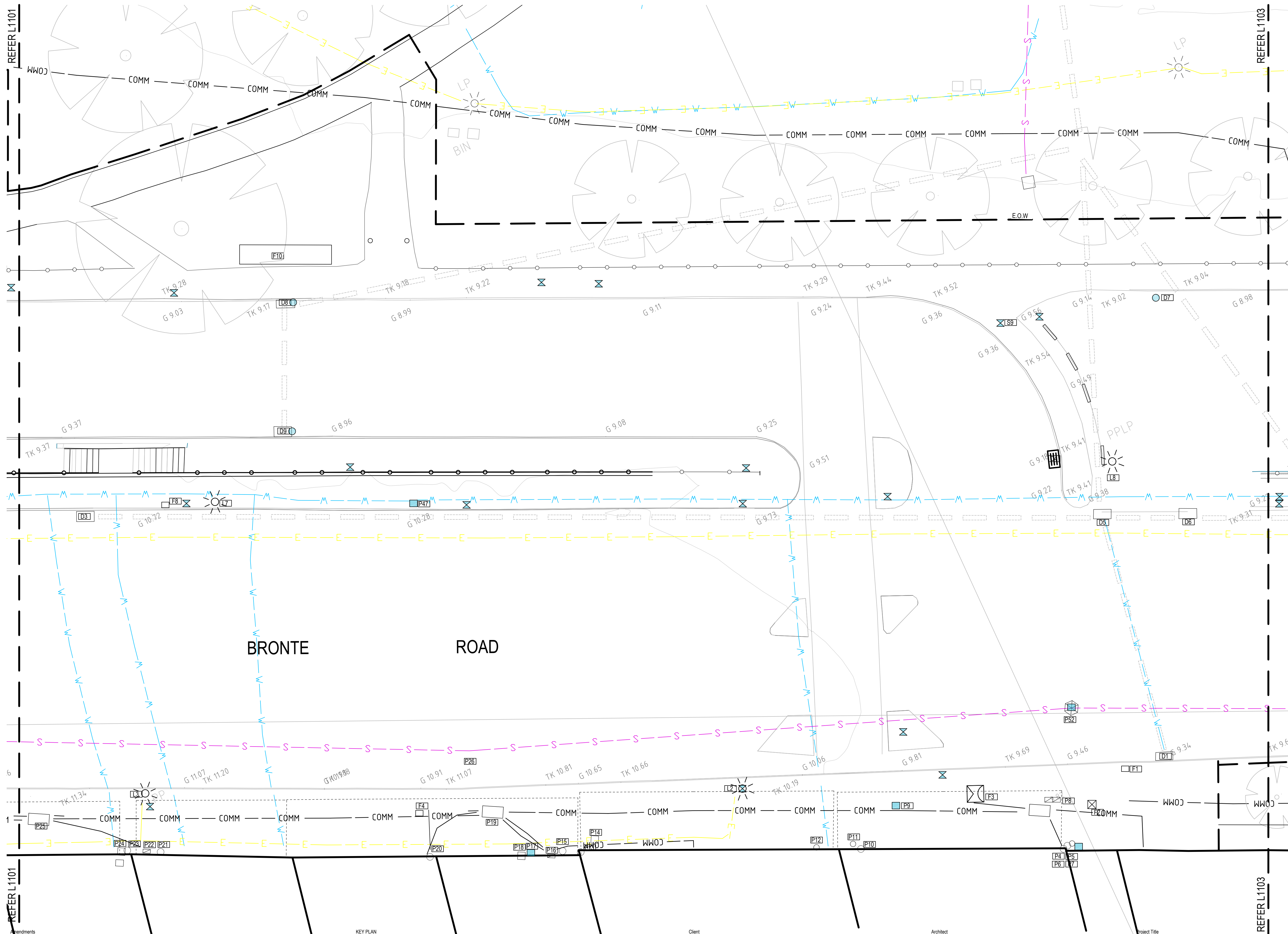
PRELIMINARY

Drawing Created (date)	06.03.2018
Drawing Created (by)	JG
Verified	TF
Approved	FR
Scale	1:100 @A1

Project No.	Drawing No.	Issue
17005	L1101	C

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**LEGEND**

- EOW
- EXISTING TREE TO BE RETAINED AND PROTECTED
- EXISTING AWNING LINE
- P1
- D1
- F1
- L1
- W
- S
- SW
- E
- COM
- GAS
- ARRIS RAIL FENCE

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Revisions	Description	Date
A	75% Issue for Review	6/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

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Client Details

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Client Details

Project Title  
Bronte Village Centre Upgrade

Drawing Title  
EXISTING INFRASTRUCTURE PLAN  
SHEET 2

**PRELIMINARY**

Drawing Created (date)	06/03/2018
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1

Project No.	Drawing No.	Issue
17005	L1102	C

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LEGEND

EXTENT OF WORKS

EXISTING TREE TO BE RETAINED AND PROTECTED

EXISTING AWNING LINE

P1

LOCATION OF EXISTING SERVICE PITS  
REFER SITE SERVICES SCHEDULE

D1

LOCATION OF EXISTING DRAINS.  
REFER SITE SERVICES SCHEDULE.

F1

LOCATION OF EXISTING FURNITURE.  
REFER SITE SERVICES SCHEDULE.

L1

LOCATION OF EXISTING LIGHTPOLES.  
REFER SITE SERVICES SCHEDULE.

W

EXISTING SERVICES- WATER

S

EXISTING SERVICES- SEWAGE

EXISTING SERVICES- STORM WATER

E

EXISTING SERVICES- ELECTRICAL

COMM

EXISTING SERVICES- COMMUNICATIONS

GAS

EXISTING SERVICES- GAS

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Revisions	Description	Date
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B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

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Bondi Junction NSW 2022



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C & M Consulting Engineers  
Suite 26  
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Studio 203  
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Newtown NSW 2042

Architect

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T +612 9361 4144 F +612 9332 3458  
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Client Details

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Client Details

Bronte Village Centre Upgrade

EXISTING INFRASTRUCTURE PLAN  
SHEET 3






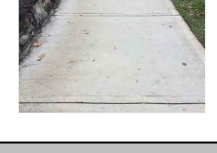




**PRELIMINARY**







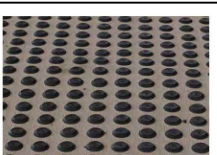


Drawing Created (date)	06.03.2018
Drawing Created (by)	JG
Verified	TF
Approved	FR
Scale	1:100 @A1

Project No.	Drawing No.	Issue
17005	L1103	C

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MATERIALS & FINISHES SCHEDULE										
CODE	DESCRIPTION	IMAGE	LOCATION	SPECIFICATION	(C) COLOUR (F) FINISH	SUPPLIER / MANUFACTURER	DETAIL REF.	ENG / SHOP DRAWINGS REQUIRED	SAMPLES & SAMPLE PANELS REQUIRED FOR APPROVAL	
FINISHES										
P1	Feature Paver - Type 2		Refer plans for location	600 x 300 x 60mm granite unit paver over 40mm depth 1:1 sand:cement slurry mix with 100m depth reinforced concrete base to engineer's specification. Stretcher Bond Pattern	(C)Honey Jasper (F) Exfoliated	Sam the Paving Man	01 / L7003	Y	Y	
P2	Feature Paver - Type 2		Refer plans for location	90 x 90 x 90mm concrete cobblestone, bush hammered with 15mm wide joints with reinforced concrete base to engineer's specification. Stackbond pattern	(C)Honey Jasper (F) Bush Hammered	Sam the Paving Man	03 / L7003	Y	Y	
C01	Pedestrian Grade Concrete Type 1		Refer plans for location	100mm thick reinforced concrete, SL72 centrally placed over 50mm thick sand bedding as per engineers specification	(C) Grey Pigment (F)Broom	Contractor	04 / L7003	Y	Y	
C02	Pedestrian Grade Concrete Type 2		Refer plans for location	100mm thick reinforced concrete, SL72 centrally placed over 50mm thick sand bedding as per engineers specification	(C) Grey Pigment (F)Light Sponge Finish	Contractor	04 / L7003	Y	Y	
C03	Vehicular Grade Coloured Concrete		Refer plans for location	230mm thick reinforced concrete, SL82 placed top and bottom over 50mm thick sand bedding as per engineers specification and WC PDTM	(C) Citrus Cream (F)Broom	Contractor	05 / L7003	Y	Y	
C04	Vehicular Grade Concrete		Refer plans for location	230mm thick reinforced concrete, SL82 placed top and bottom over 50mm thick sand bedding as per engineers specification and WC PDTM	(C) Grey Pigment (F)Broom	CCS Integral	05 / L7003	Y	Y	
WALLS & EDGING										
SE	Steel Edge		Refer plans for location	75 x 6mm x 125 deep 304 stainless steel edging. To finish flush with all adjacent surfaces. Spot weld anchor strips at 500mm centres	304 Marine Grade Stainless Steel	Contractor	05 / L7004	N	Y	
W01	Landscape Wall Type 1		Refer plans for location	250mm wide x varying height reinforced insitu concrete wall with 20mm chamfer to all exposed edges. Finish: Smooth class 2	Natural (Light Grey)	Contractor	03 / L7009	Y	Y	
HANDRAILS & BALLUSTRADE										
B01	Balustrade Type 1		Refer plans for location	100 x 150mm hardwood timber posts @ 1150mm high and 150mm centres with 90 x 90mm Arris top rail and 75 x 100mm Option: 6 x 4mm 316 marine grade stainless steel wire rope between rails	Dulux Weathershield 'Vivid White'	Contractor	L7008	Y	Y	
H01	Handrail Type 1		Refer plans for location	316 Marine grade stainless steel handrail to stair access. Surfaced fixed to landing and to meet AS 1428	316 Marine Grade Stainless Steel	Contractor	PDTM 150	Y	Y	

FURNITURE AND FIXTURES SCHEDULE										
CODE	DESCRIPTION	IMAGE	LOCATION	SPECIFICATION	COLOUR / FINISH	SUPPLIER / MANUFACTURER	DETAIL REF.	ENG / SHOP DRAWINGS REQUIRED	SAMPLES & SAMPLE PANELS REQUIRED FOR APPROVAL	
FURNITURE										
F01	Timber Park Seat		Refer plans for location	Metro Seat' SSD.T3.SS 'AR2' DDA compliant armrest subsurfaced fixed. Battens: Australian Hardwood Frame: Marine Grade Aluminium	Steel Frame: Ferrero Mio - Natural Steel Grey 2 Pak Paint Finish	Town and Park Furniture P: 1300 79 1954	01-02 / L7005	N	Y	
F02 / A + B	Custom Feature Seat		Refer plans for location	Precast concrete base with 316 marine grade electro polished frame and arm rests. 63 x 30mm hardwood timber slats. Length of furniture varies. Refer plans for type	Off form concrete base Natural timber finish	Town and Park Furniture P: 1300 79 1954	01-03 / L7005	Y	Y	
F03	Custom Single Block Seat		Refer plans for location	Precast concrete base with 316 marine grade electro polished frame and arm rests. 63 x 30mm hardwood timber slats	Off form concrete base Natural timber finish	Town and Park Furniture P: 1300 79 1954	04 / L7005	Y	Y	
F04	Bicycle rack		Refer plans for location	BHS.SS.316 stainless steel marine grade electro polished subsurfaced fixed bicycle rack. Existing bike racks to be salvaged and re-used where possible	316 Marine Grade	Town and Park Furniture P: 1300 79 1954	01-02 / L7007	N	Y	
F05	Drinking Fountain		Refer plans for location	Bent leaf drinking fountain with dog bowl and bottle filling station 88658 Dimention: 870H Plumbing: stainless stell with dog bowl and ground grate	316 Marine Grade	Draffin Street Furniture P: 03 9720 1033	03-04 / L7007	N	Y	
F06	Vehicular Grade Bollards		Refer plans for location	SSP150RA stainless steel electro polished subsurfaced fixed bollard F06A - subsurface fixed to concrete footing F06B - subsurface fixed to thickened suspended concrete slab	316 Marine Grade	LEDA Security or approved equal	03-05 / L7006	N	Y	
F07	Bin Enclosure		Refer plans for location	Model: WBE F240 subsurfaced fixed, 316 marine grade stainless steel with custom perforated panel pattern (coastal) Frame: Stainless steel curved roof Fixing: Subsurface fixing	316 Marine Grade	Street Furniture Australia P: 1800 027 799	01-02 / L7006	N	Y	
FIXTURES										
G01	CustomTree Grate		Refer plans for location	29400 Moodie Thermo tree grate (1200 x 1200mm) stainless steel. Fixing: fixed to slab and or existing retaining wall with galvanised steel L bracket. Grate opening off centre - custom made	316 Marine Grade	Moodie or approved equal	L7002	Y	Y	
TC1	Tactiles TGSI		Refer plans for location	Stainless steel warning tactile to be installed to top of all stairs and ramps. TGSI to be installed in accordance with Australian Standard 1428.4.1 and include a slip resistance surface	316 Marine Grade	DTAC or approved similar	N/A	N	Y	
	Stair Nosing		Refer plans for location	Stair nosing type A - nosing profiles to include 50mm wide solid resistant highlighting strips on the tread at the nosing with a minimum luminance contrast of 30% with the tread to comply with AS1428.1	Sparkling Black	DTAC or approved similar	N/A	N	Y	
	Infill Pit Lid		Refer plans for location	Recessed pit lids in cast aluminium. Coordinate with relevant authorities for specific requirements. Paving pattern within lid to match surrounding pavement type and pattern. Refer site services, fumiture and infrastructure schedule	To match adjacent paving	Contractor	01-02 / L7009	Y	Y	
D01	Access Doors		Access door to bin and MSB storage	42 x 19mm spotted gum timber battens over galvanised steel SHS frame. Battens secured to frame with stainless steel self tapping screws. Top of bin enclosure to be covered with FC sheeting secured to galvanised steel frame (to future detail) Access doors to be lockable	Natural finish	Contractor	01 / L7010	Y	Y	

Amendments		
Description	Date	
A 75% Issue for Review	16/03/2018	
B Issue for Tender	04/05/2018	
C Issue for Tender Revised	09/05/2018	

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Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

**GROUP GSA**  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

LANDSCAPE SCHEDULE

**PRELIMINARY**

Drawing Created (date)	13.03.2018
Drawing Created (by)	JG
Verified	TF
Approved	FR
Scale	- @A1

Project No.	Drawing No.	Issue
17005	L2000	C

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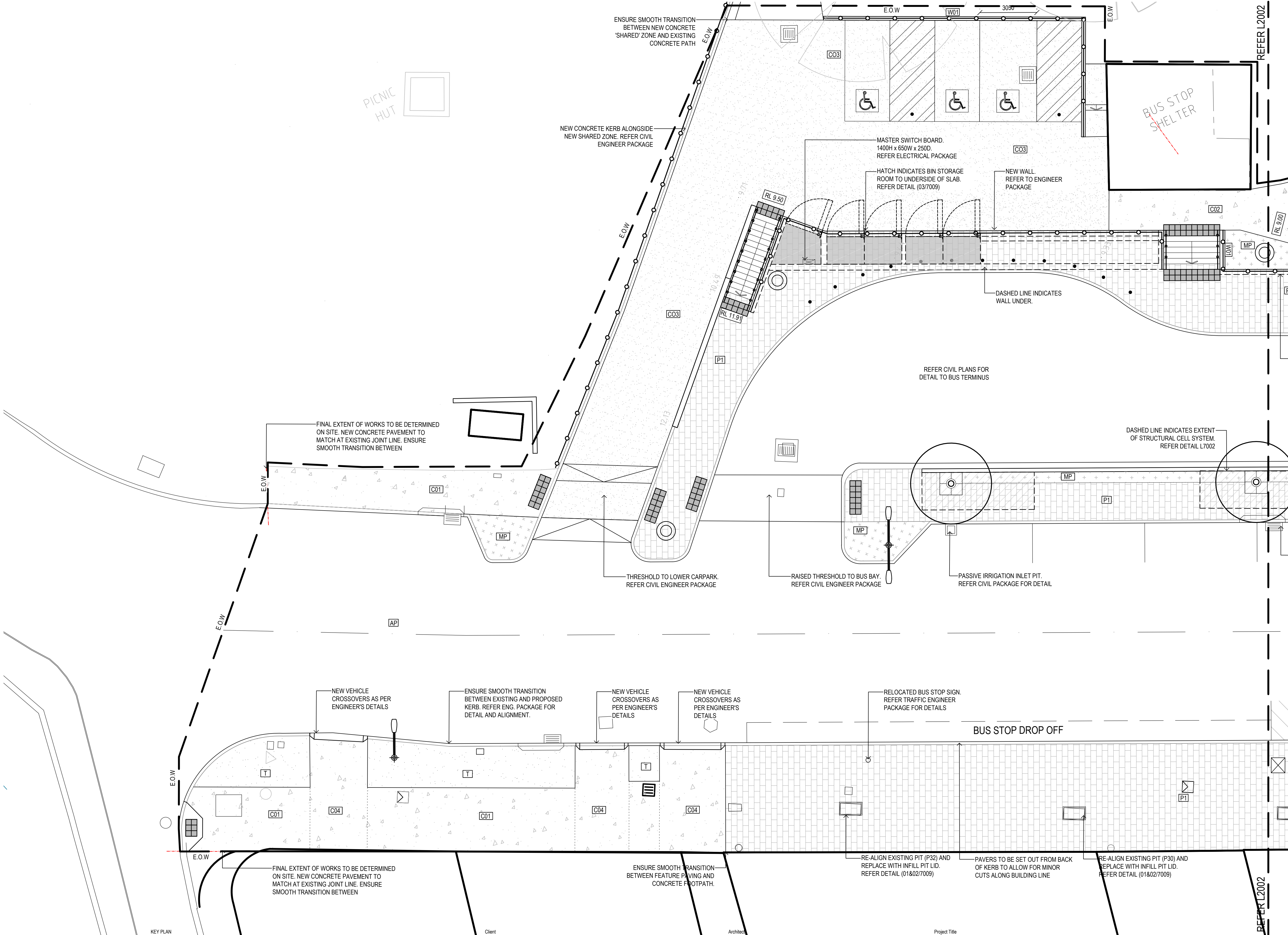


LEGEND

- EXTENT OF WORKS
- EXISTING AWNING LINE
- EXISTING TREE TO BE RETAINED AND PROTECTED
- PROPOSED TREE. REFER PLANTING PLANS AND SCHEDULE
- MASS PLANTING. REFER PLANTING PLANS AND SCHEDULE
- TURF. REFER PLANTING PLANS AND SCHEDULE
- FEATURE PAVER TYPE. REFER SCHEDULE AND DETAILS
- FEATURE PAVER TYPE 2. REFER SCHEDULES AND DETAILS
- PLAIN CONCRETE - PEDESTRIAN. REFER SCHEDULE AND DETAILS
- PLAIN CONCRETE - PEDESTRIAN. REFER SCHEDULE AND DETAILS
- COLOURED CONCRETE - VEHICULAR. REFER SCHEDULE AND DETAILS
- PLAIN CONCRETE - VEHICULAR. REFER SCHEDULE AND DETAILS
- ASPHALT SURFACE. REFER ENGINEER PACKAGE
- PLANTING EDGE. REFER SCHEDULES AND DETAIL
- EXTENTS OF STRATACELL

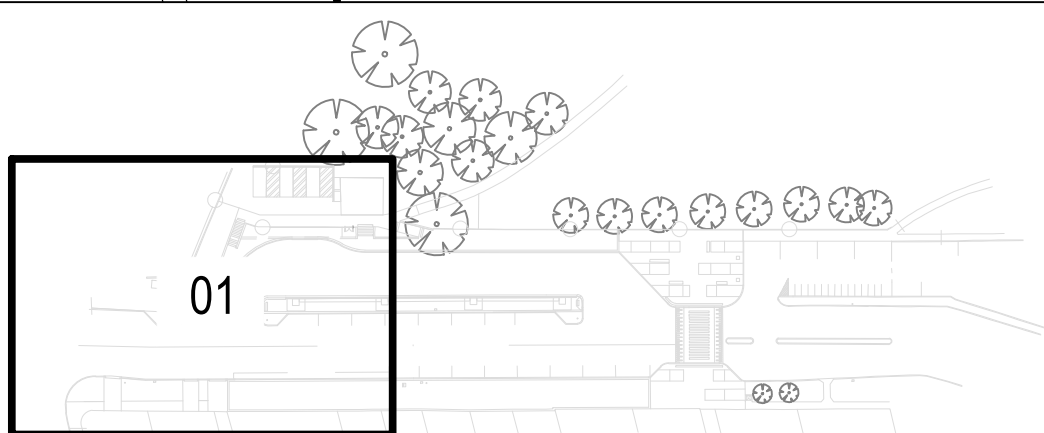
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Amendments	Description	Date
A	50% Issue for Review	12/02/2018
B	75% Issue for Review	16/03/2018
C	Issue for Tender	04/05/2018
D	Issue for Tender Revised	09/05/2018

KEY PLAN



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022

Engineer  
C & M Consulting Engineers  
Suite 26  
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Client Details

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Client Details

Project Title  
Bronte Village Centre Upgrade

Drawing Title  
GENERAL ARRANGEMENT  
SHEET 1

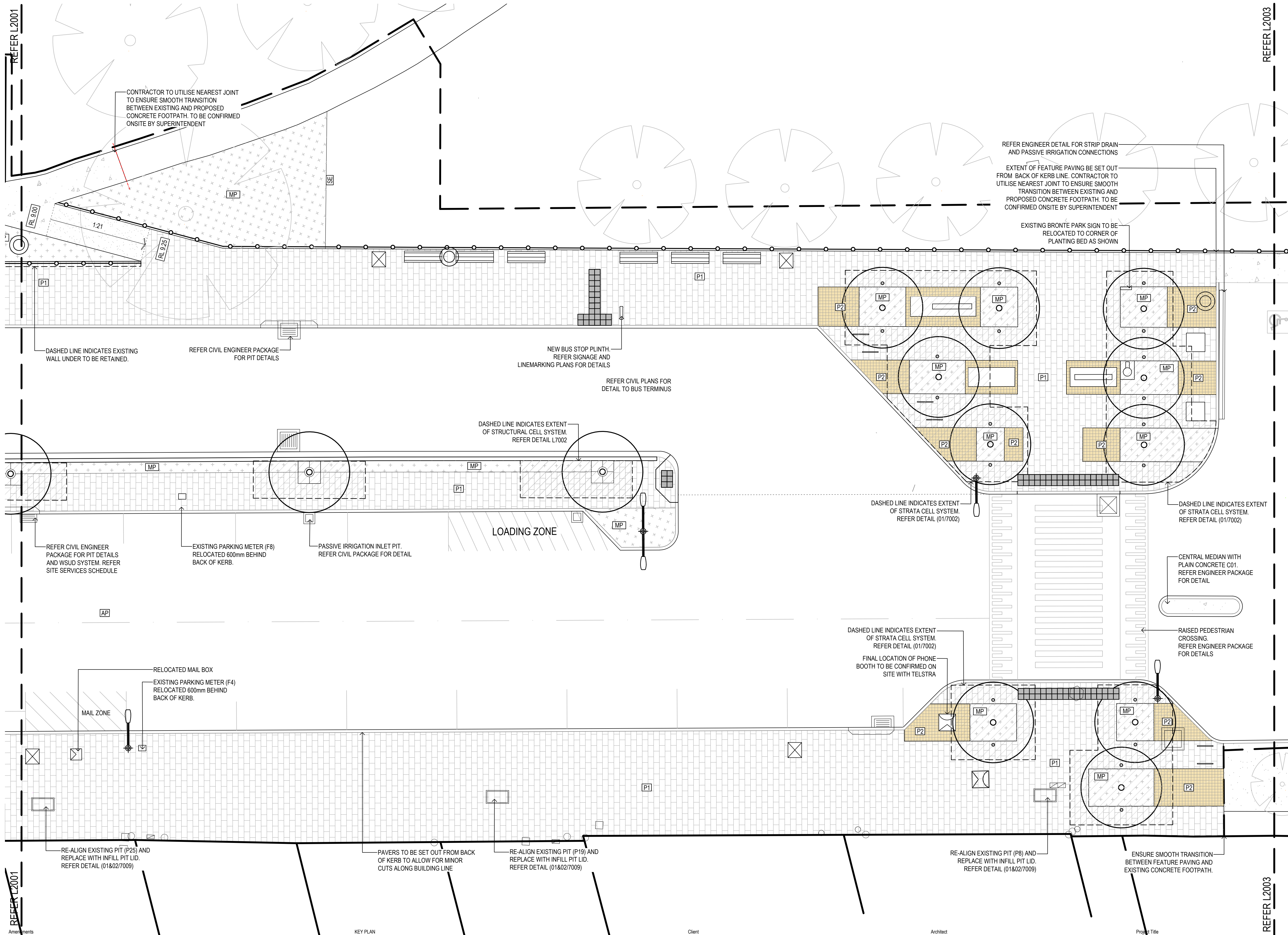
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Drawing Created (date)	09/02/17
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1

Project No.	Drawing No.	Issue
17005	L2001	D

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**LEGEND**

EXTENT OF WORKS

EXISTING AWNING LINE

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PROPOSED TREE. REFER PLANTING PLANS AND SCHEDULE

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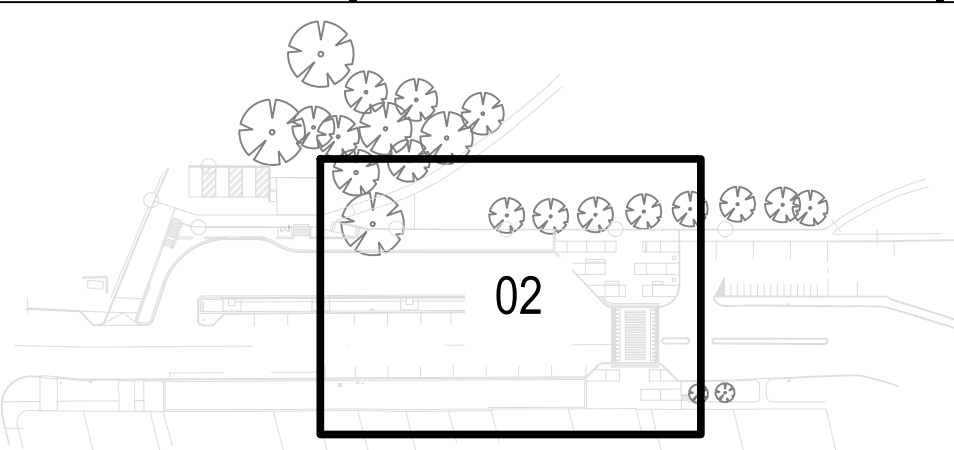
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D	Issue for Tender Revised	09/05/2018

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55 Grafton Street  
Bondi Junction NSW 2022

Engineer  
**C & M Consulting Engineers**  
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architecture interior design urban design landscape  
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**Consultant Company**  
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**Consultant Company**  
Client Details

Project Title  
**Bronte Village Centre Upgrade**

Drawing Title  
**GENERAL ARRANGEMENT  
SHEET 2**

**PRELIMINARY**

Drawing Created (date)	09.02.17
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1
Project No.	17005
Drawing No.	L2002
Issue	D

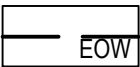
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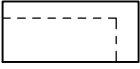


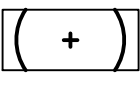



LEGEND

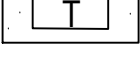
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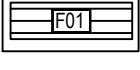
EXTENT OF WORKS
- 

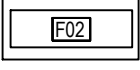
EXISTING TREE TO BE RETAINED AND PROTECTED
- 


EXISTING AWNING LINE
- 

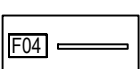
PROPOSED TREE. REFER PLANTING PLANS AND SCHEDULE
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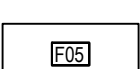
MASS PLANTING. REFER PLANTING PLANS AND SCHEDULE
- 

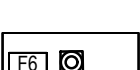
TURF. REFER PLANTING PLANS AND SCHEDULE
- 


F01-TIMBER PARK SEAT. REFER SCHEDULE AND DETAIL
- 

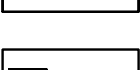
F02- FEATURE SEAT. REFER SCHEDULE AND DETAIL
- 

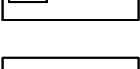
F03- SINGLE BLOCK SEAT. REFER SCHEDULE AND DETAIL
- 

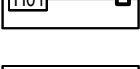
F04- BICYCLE RACK. REFER SCHEDULE
- 


F05- DRINKING FOUNTAIN. REFER SCHEDULE
- 

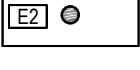
F06- VEHICULAR GRADE BOLLARDS. REFER SCHEDULE
- 


F07- BIN REFER TO SCHEDULE
- 

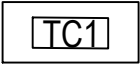
B01- ARRIS TIMBER FENCE. REFER SCHEDULES AND DETAIL
- 

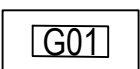
H01- HANDRAIL REFER SCHEDULES AND DETAIL
- 

E1- SMART POLES. REFER ELECTRICAL PACKAGE.
- 

E2- FEATURE UPLIGHTS. REFER ELECTRICAL PACKAGE.
- 

E3- POST TOP LIGHTS. REFER ELECTRICAL PACKAGE.
- 

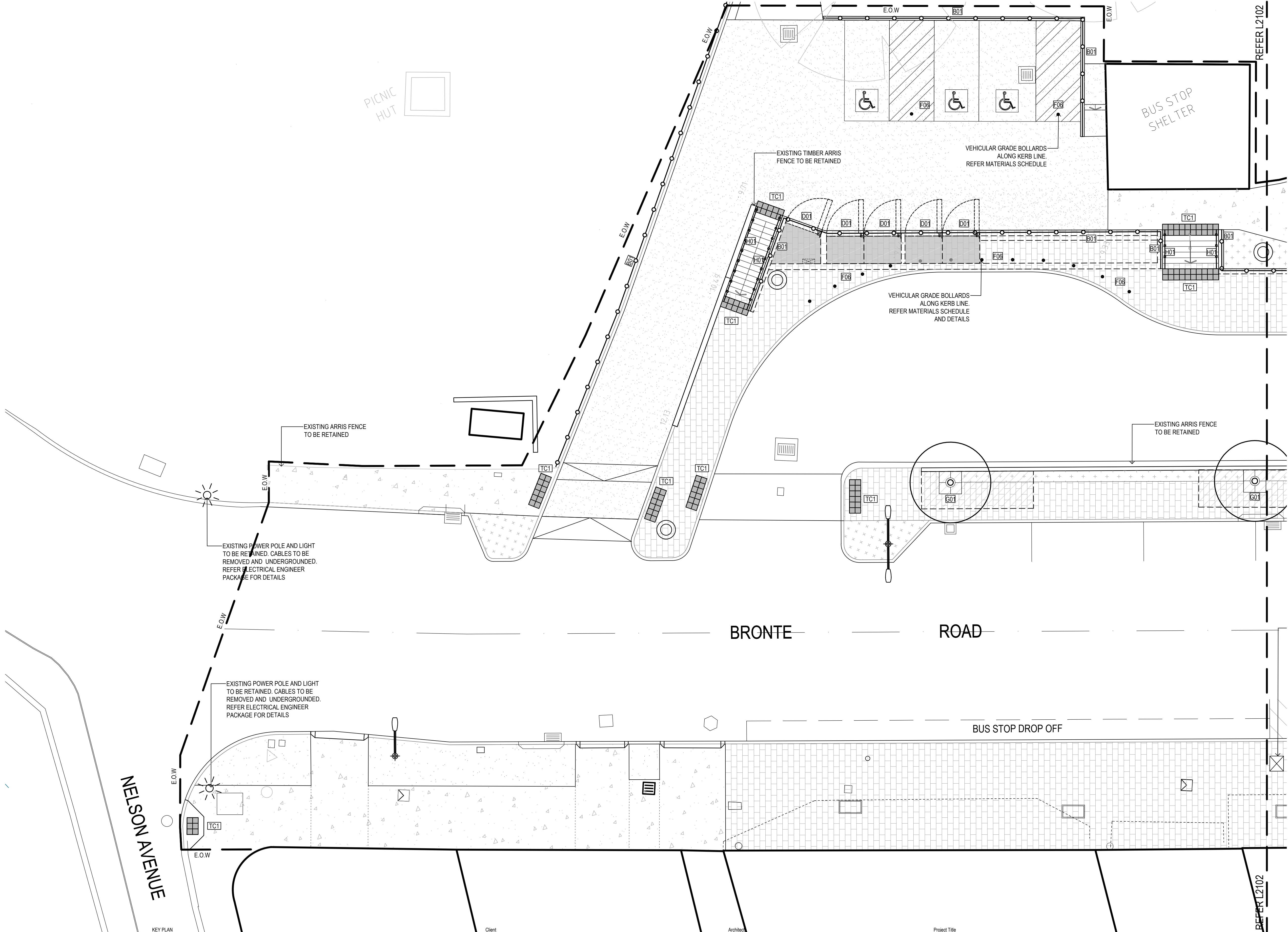
TC1- TACTILES TGS REFER SCHEDULES AND DETAIL
- 

G01- TREE GRATE REFER SCHEDULES AND DETAIL
- 

D01- ACCESS DOOR REFER SCHEDULES AND DETAIL

NOTE:

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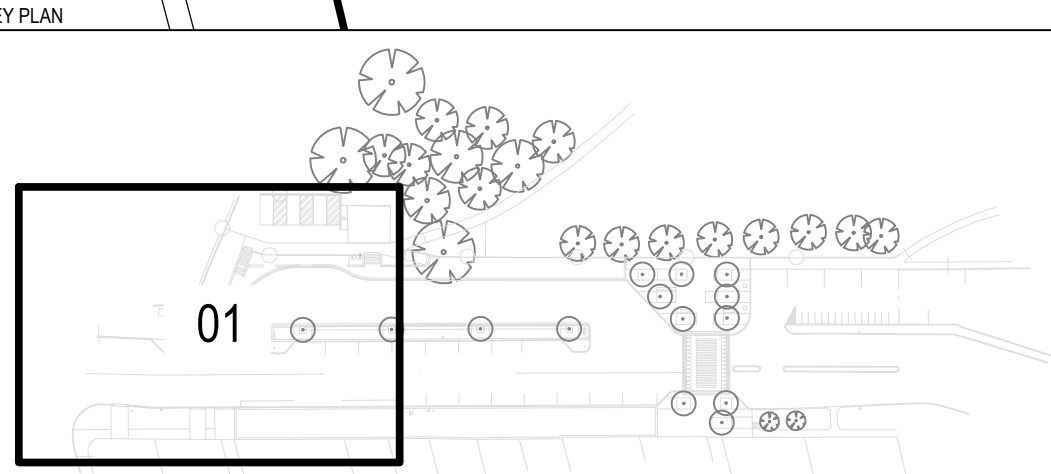


Amendments		
Description	Date	
A 75% Issue for Review	16/03/2018	
B Issue for Tender	04/05/2018	
C Issue for Tender Revised	09/05/2018	

NELSON AVENUE

BRONTE ROAD

BUS STOP DROP OFF



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022

Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153



Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

GROUP GSA  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458

Consultant  
Consultant Company  
Client Details

Project Title  
Bronte Village Centre Upgrade

Drawing Title  
FURNITURE AND FIXTURES  
SHEET 1

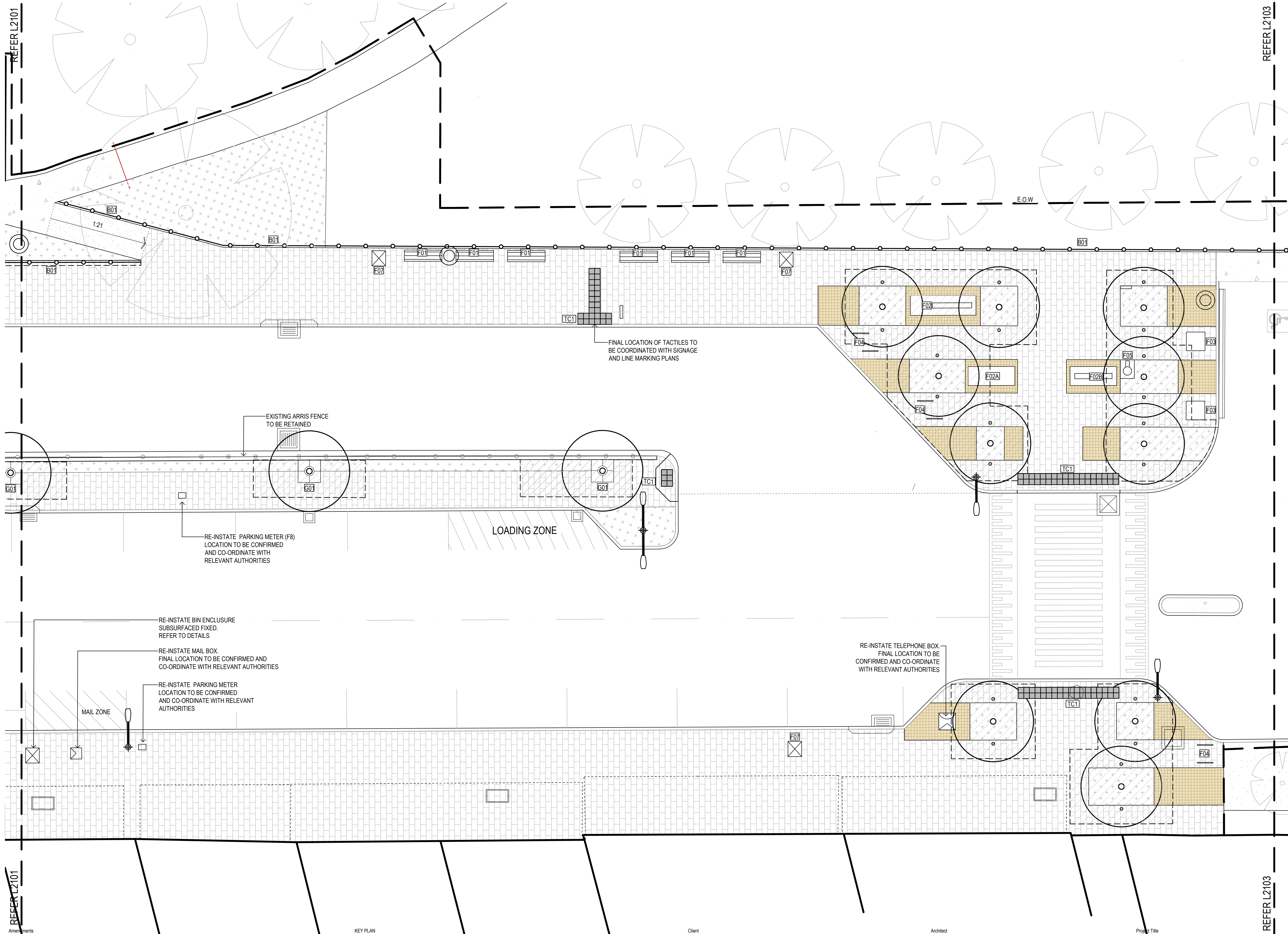
PRELIMINARY

Drawing Created (date)	09/02/17
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1

Project No.	Drawing No.	Issue
17005	L2101	D

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- LEGEND**
- EOW
  - EXISTING TREE TO BE RETAINED AND PROTECTED
  - EXISTING AWNING LINE
  - (+) PROPOSED TREE. REFER PLANTING PLANS AND SCHEDULE
  - MP MASS PLANTING. REFER PLANTING PLANS AND SCHEDULE
  - T TURF. REFER PLANTING PLANS AND SCHEDULE
  - F01 F01-TIMBER PARK SEAT. REFER SCHEDULE AND DETAIL
  - F02 F02- FEATURE SEAT. REFER SCHEDULE AND DETAIL
  - F03 F03- SINGLE BLOCK SEAT. REFER SCHEDULE AND DETAIL
  - F04 F04- BICYCLE RACK. REFER SCHEDULE
  - F05 F05- DRINKING FOUNTAIN. REFER SCHEDULE
  - F06 F06- VEHICULAR GRADE BOLLARDS. REFER SCHEDULE
  - F07 F07- BIN REFER TO SCHEDULE
  - B01 B01- ARRIS TIMBER FENCE. REFER SCHEDULES AND DETAIL
  - H01 H01- HANDRAIL REFER SCHEDULES AND DETAIL
  - E1 E1- SMART POLES. REFER ELECTRICAL PACKAGE.
  - E2 E2- FEATURE UPLIGHTS. REFER ELECTRICAL PACKAGE.
  - E3 E3- POST TOP LIGHTS. REFER ELECTRICAL PACKAGE.
  - TC1 TACTILES TSGI REFER SCHEDULES AND DETAIL
  - G01 TREE GRATE REFER SCHEDULES AND DETAIL
  - D01 ACCESS DOOR REFER SCHEDULES AND DETAIL

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Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

KEY PLAN

Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

**GROUP GSA**  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Project Title  
Bronte Village Centre Upgrade

Drawing Title  
FURNITURE AND FIXTURES  
SHEET 2

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Drawing Created (date)	09.02.17
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1

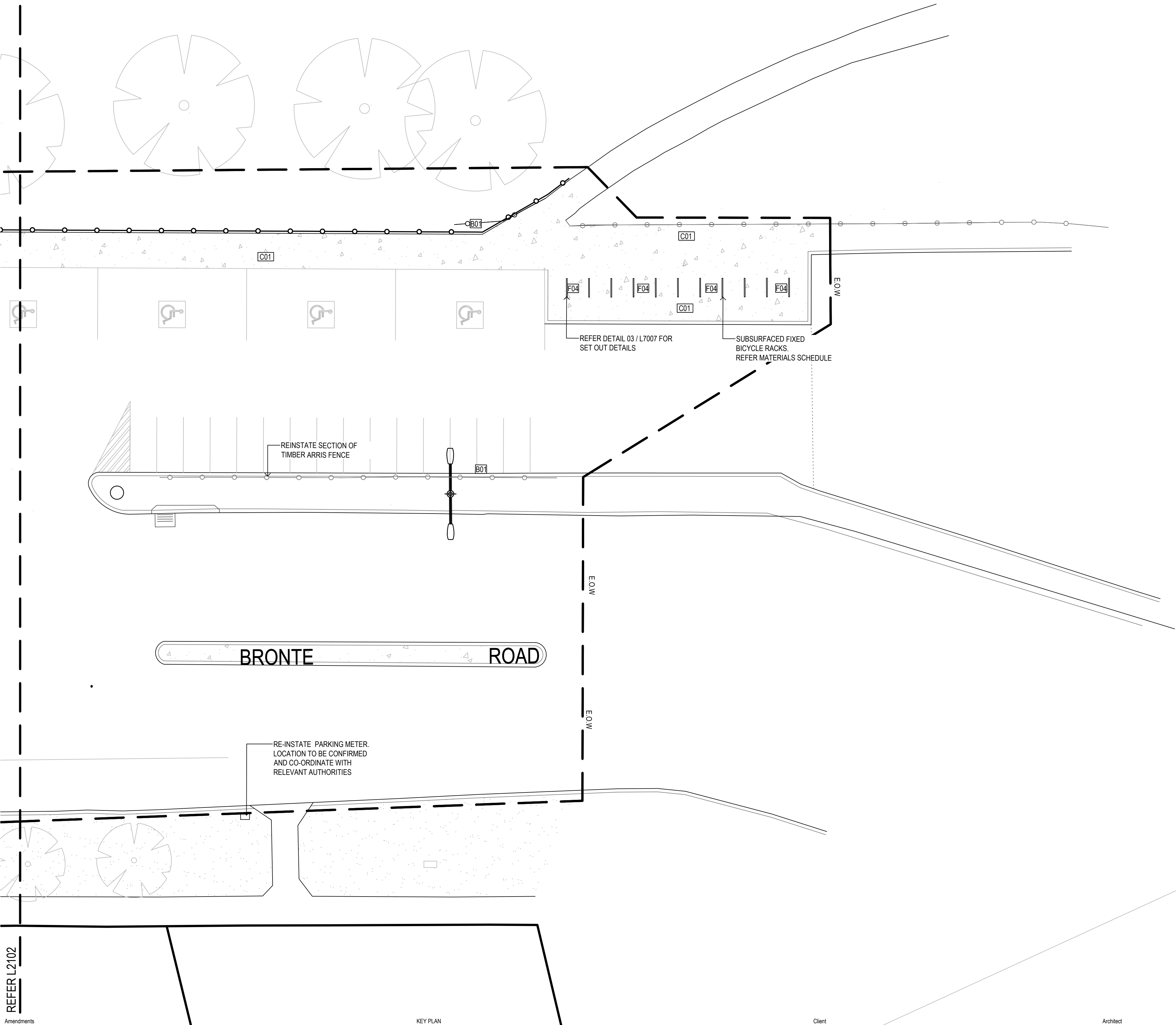
Project No.	Drawing No.	Issue
17005	L2102	C

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**PRELIMINARY**



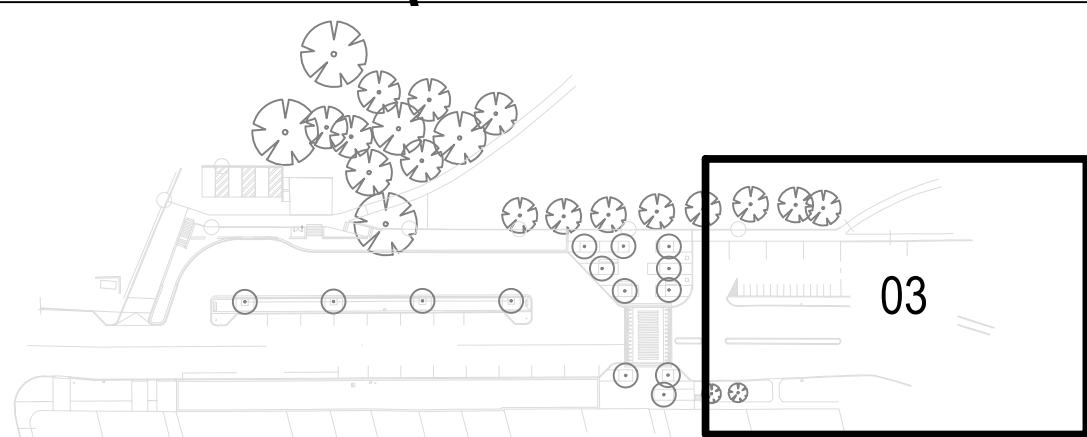
REFER L2102



REFER L2102

Amendments	Description	Date
A	75% Issue for Review	16/02/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

KEY PLAN



## LEGEND

	EXTENT OF WORKS
	EXISTING TREE TO BE RETAINED AND PROTECTED
	EXISTING AWNING LINE
	PROPOSED TREE. REFER PLANTING PLANS AND SCHEDULE
	MASS PLANTING. REFER PLANTING PLANS AND SCHEDULE
	TURF. REFER PLANTING PLANS AND SCHEDULE
	F01-TIMBER PARK SEAT. REFER SCHEDULE AND DETAIL
	F02- FEATURE SEAT. REFER SCHEDULE AND DETAIL
	F03- SINGLE BLOCK SEAT. REFER SCHEDULE AND DETAIL
	F04- BICYCLE RACK. REFER SCHEDULE
	F05- DRINKING FOUNTAIN. REFER SCHEDULE
	F06- VEHICULAR GRADE BOLLARDS. REFER SCHEDULE
	F07- BIN. REFER TO SCHEDULE
	B01- ARRIS TIMBER FENCE. REFER SCHEDULES AND DETAIL
	H01- HANDRAIL. REFER SCHEDULES AND DETAIL
	E1- SMART POLES. REFER ELECTRICAL PACKAGE.
	E2- FEATURE UPLIGHTS. REFER ELECTRICAL PACKAGE.
	E3- POST TOP LIGHTS. REFER ELECTRICAL PACKAGE.
	TACTILES TGS1. REFER SCHEDULES AND DETAIL
	TREE GRATE. REFER SCHEDULES AND DETAIL
	ACCESS DOOR. REFER SCHEDULES AND DETAIL

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Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

**GROUP GSA**  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

FURNITURE AND FIXTURES  
SHEET 3

**PRELIMINARY**

Drawing Created (date)	13/03/2018
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1

Project No.	Drawing No.	Issue
17005	L2103	C

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LEGEND

E.O.W

EXTENT OF WORKS

EXISTING TREE TO BE RETAINED AND PROTECTED

PROPOSED TREE. REFER PLANTING PLANS AND SCHEDULE

EXISTING AWNING LINE

RL+11.20

PROPOSED LEVEL

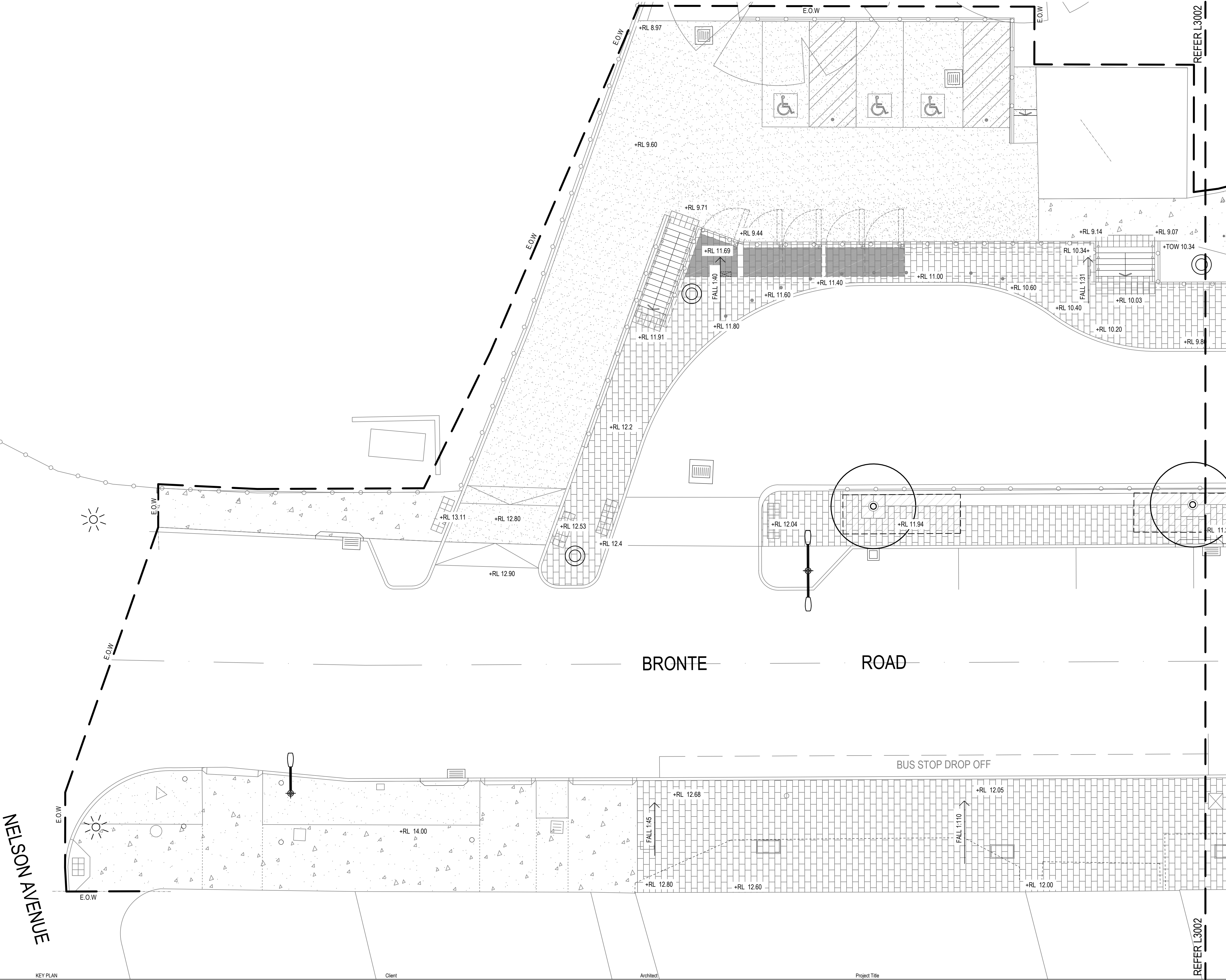
TOW+10.34

TOP OF WALL LEVEL

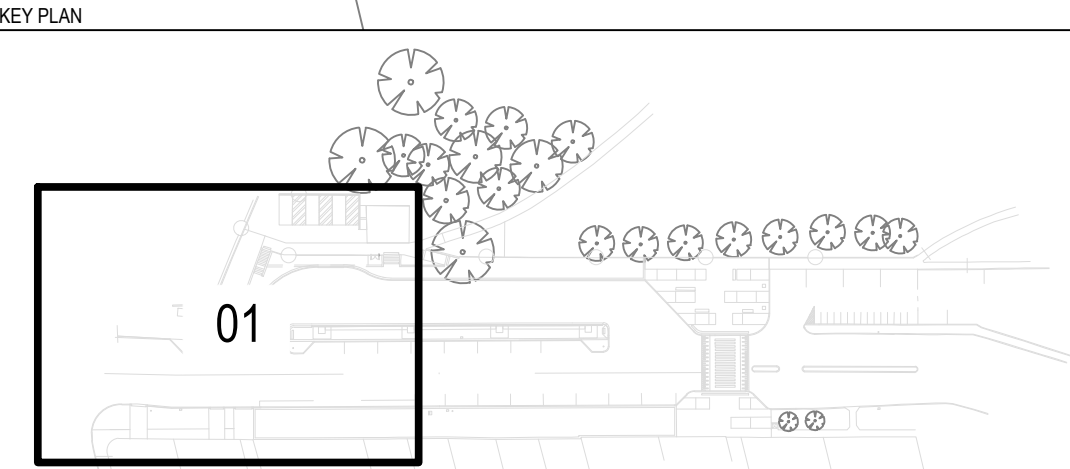
FEATURE PAVER. REFER SCHEDULE AND DETAILS

PLAIN CONCRETE. REFER SCHEDULE AND DETAILS

ASPHALT SURFACE. REFER SCHEDULE AND DETAILS



Amendments	Description	Date
A	50% Issue for Review	12/02/2018
B	75% Issue for Review	16/03/2018
C	Issue for Tender	04/05/2018
D	Issue for Tender Revised	09/05/2018



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022

Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153



Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042



Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Project Title  
Bronte Village Centre Upgrade

Consultant  
Consultant Company  
Client Details

Drawing Title  
LEVELS PLAN  
SHEET 1

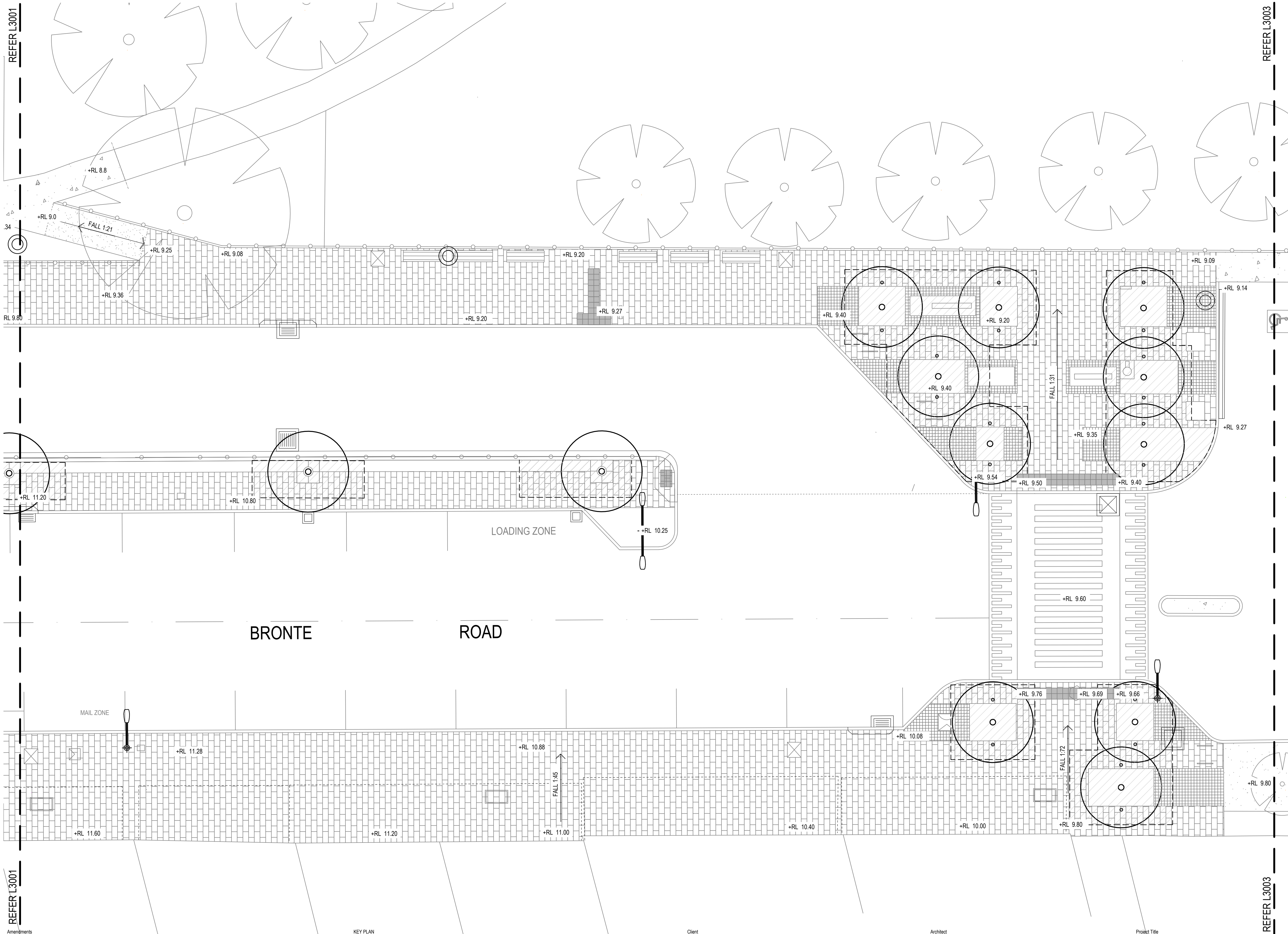
PRELIMINARY

Drawing Created (date)	30/04/2018
Drawing Created (by)	JG
Verified	TF
Approved	FR
Scale	1:100 @A1

Project No.	Drawing No.	Issue
17005	L3001	D

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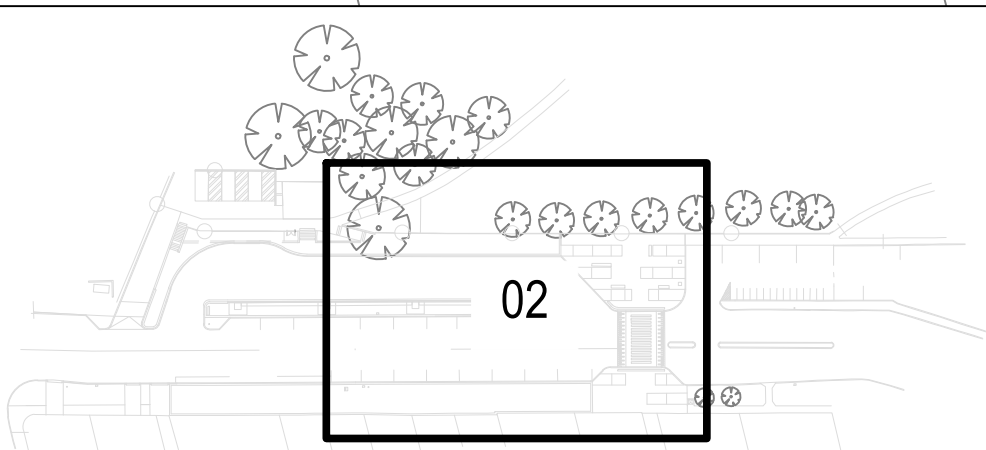




LEGEND	
	EXTENT OF WORKS
	EXISTING TREE TO BE RETAINED AND PROTECTED
	PROPOSED TREE. REFER PLANTING PLANS AND SCHEDULE
	EXISTING AWNING LINE
	PROPOSED LEVEL
	TOP OF WALL LEVEL
	FEATURE PAVER. REFER SCHEDULE AND DETAILS
	PLAIN CONCRETE. REFER SCHEDULE AND DETAILS
	ASPHALT SURFACE. REFER SCHEDULE AND DETAILS

Amendments	
Description	Date
A 50% Issue for Review	12/02/2018
B 75% Issue for Review	16/03/2018
C Issue for Tender	04/05/2018
D Issue for Tender Revised	09/05/2018

KEY PLAN



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022

Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153



Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

**GROUP GSA**  
Group GSA Pty Ltd ABN 76 002 113 779  
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Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title  
LEVELS PLANS  
SHEET 2

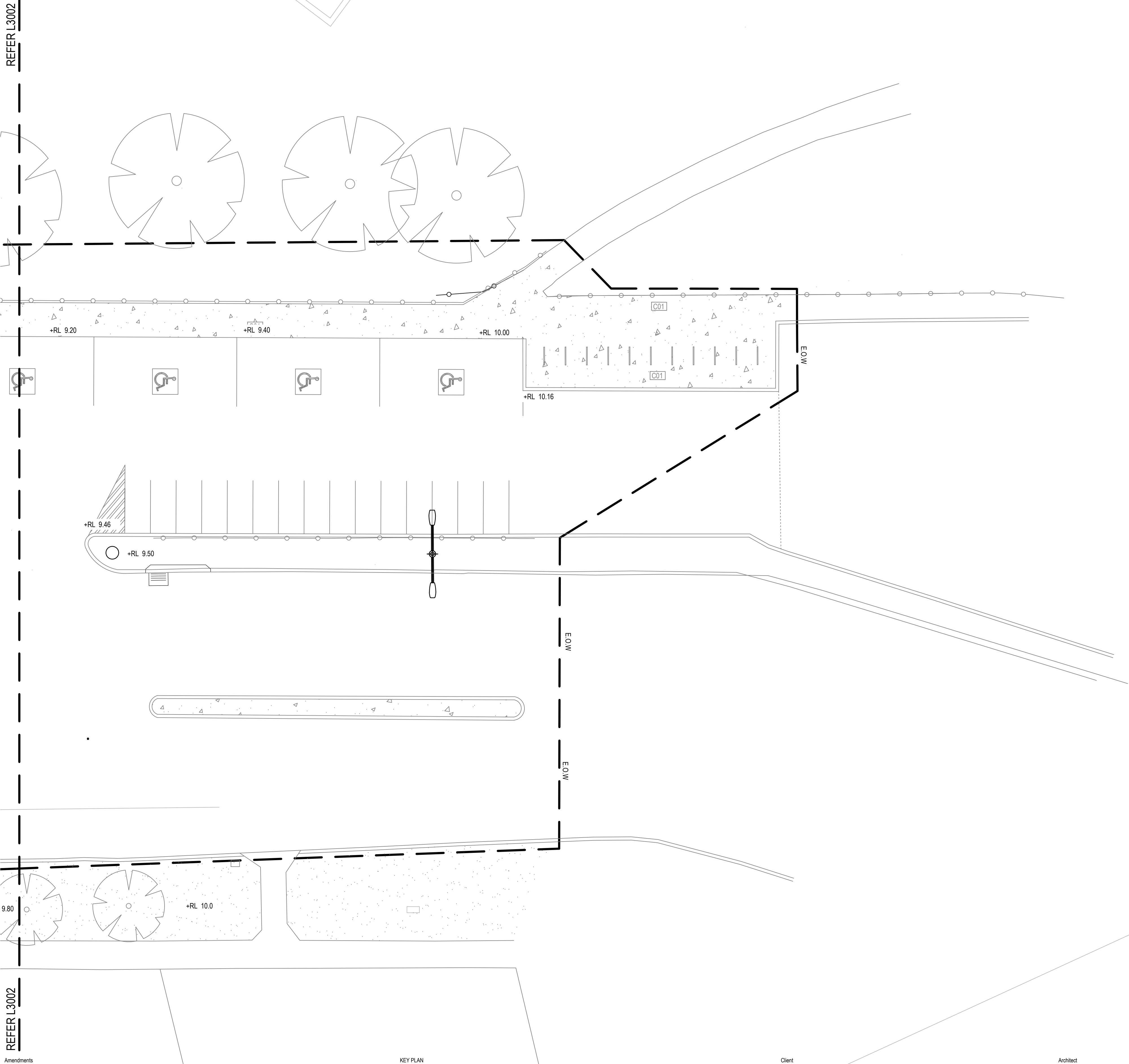
**PRELIMINARY**

Drawing Created (date)	09.02.17
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1

Project No.	Drawing No.	Issue
17005	L3002	D

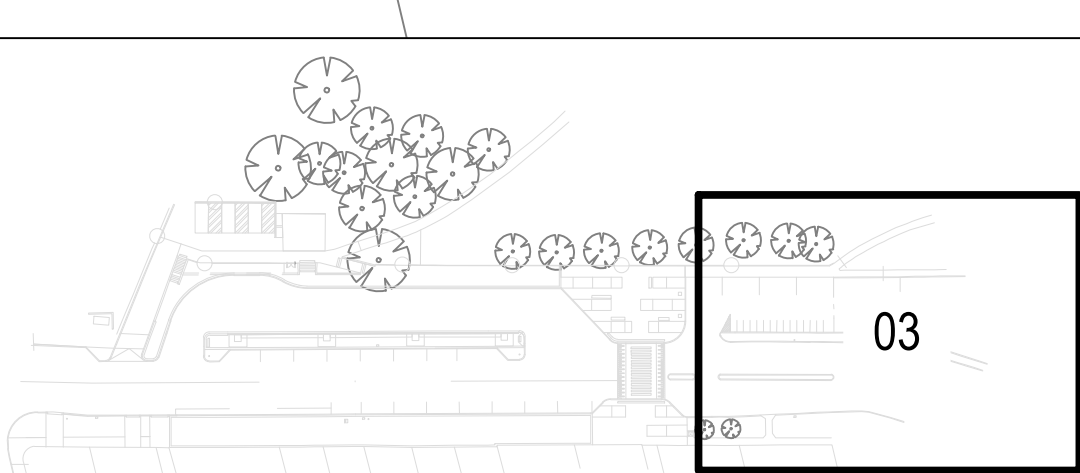
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REFER L3002



REFER L3002

Amendments		KEY PLAN
Description	Date	
A 50% Issue for Review	12/02/2018	
B 75% Issue for Review	16/03/2018	
C Issue for Tender	04/05/2018	
D Issue for Tender Revised	09/05/2018	



LEGEND

	EXTENT OF WORKS
	EXISTING TREE TO BE RETAINED AND PROTECTED
	PROPOSED TREE. REFER PLANTING PLANS AND SCHEDULE
	EXISTING AWNING LINE
	PROPOSED LEVEL
	TOP OF WALL LEVEL
	FEATURE PAVER. REFER SCHEDULE AND DETAILS
	PLAIN CONCRETE. REFER SCHEDULE AND DETAILS
	ASPHALT SURFACE. REFER SCHEDULE AND DETAILS

Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
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Studio 203  
3 Gladstone St  
Newtown NSW 2042

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Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title  
LEVELS PLANS  
SHEET 3

PRELIMINARY

Drawing Created (date)	09/02/17
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1



Project No.	Drawing No.	Issue
17005	L3003	D

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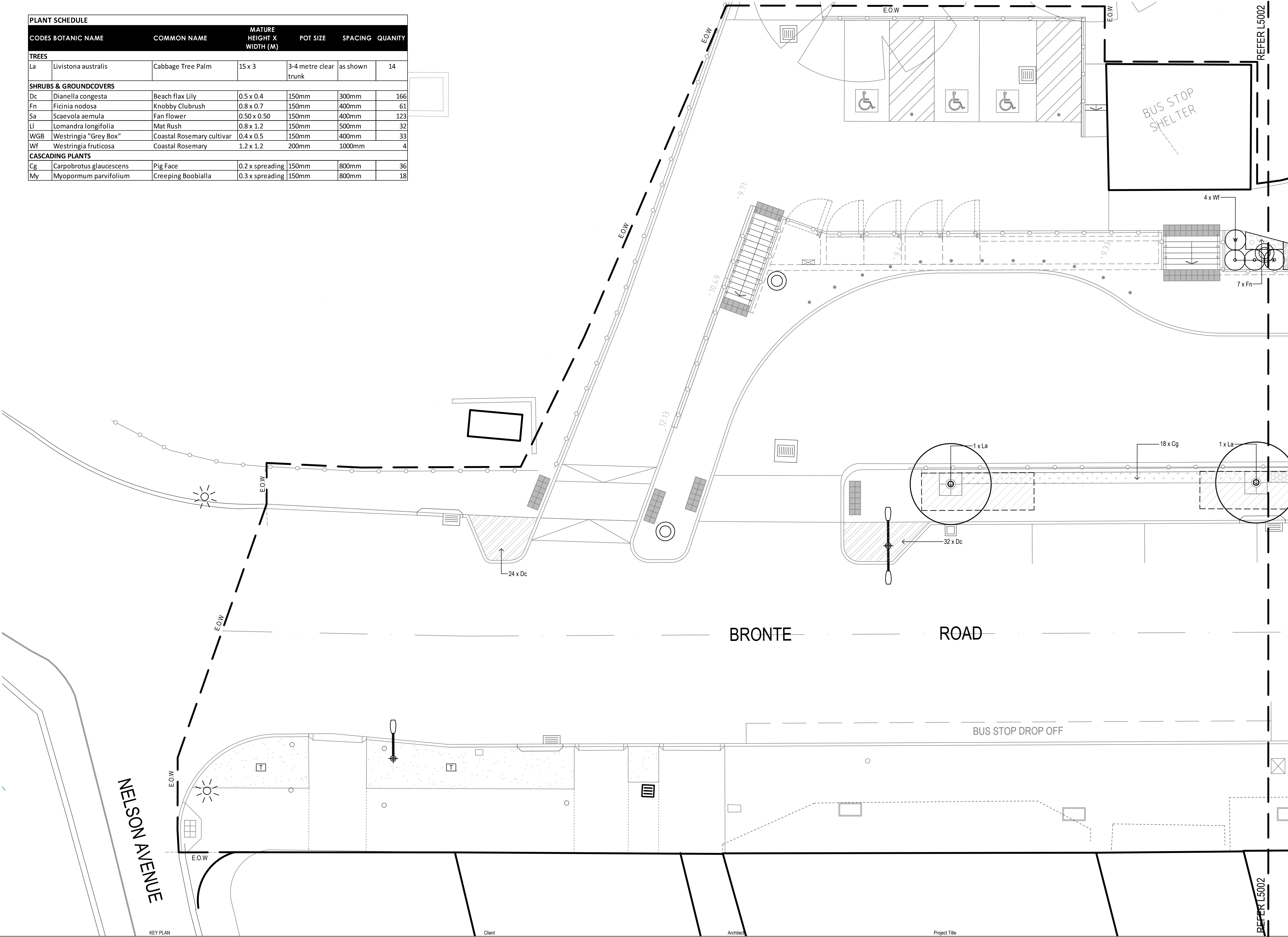


LEGEND

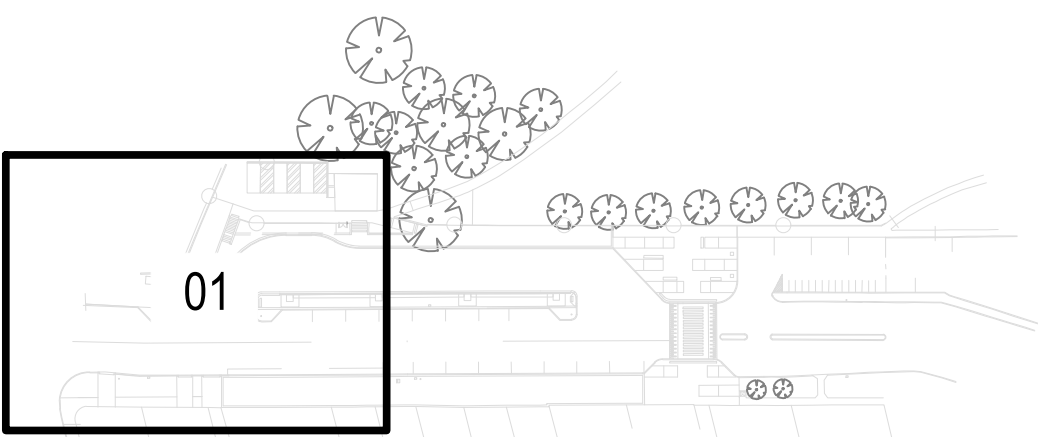
- EXTENT OF WORKS
- EXISTING TREE TO BE RETAINED AND PROTECTED
- EXISTING AWNING LINE
- PROPOSED TREE.  
REFER PLANTING PLANS AND SCHEDULE
- PLANTING AREA.  
REFER PLANTING SCHEDULE L-5100
- EXISTING PLANTING, COUNCIL TO MAKE GOOD.  
REFER SCHEDULE FOR SUGGESTED SPECIES MIX
- MAKE GOOD EXISTING TURF.  
REFER DETAIL 01 / L-7100 AND SCHEDULE L-5100

PLANT SCHEDULE						
CODES	BOTANIC NAME	COMMON NAME	MATURE HEIGHT X WIDTH (M)	POT SIZE	SPACING	QUANTITY
TREES						
La	Livistona australis	Cabbage Tree Palm	15 x 3	3-4 metre clear trunk	as shown	14
SHRUBS & GROUNDCOVERS						
Dc	Dianella congesta	Beach flax Lily	0.5 x 0.4	150mm	300mm	166
Fn	Ficinia nodosa	Knobby Clubrush	0.8 x 0.7	150mm	400mm	61
Sa	Scaevola aemula	Fan flower	0.50 x 0.50	150mm	400mm	123
Li	Lomandra longifolia	Mat Rush	0.8 x 1.2	150mm	500mm	32
WGB	Westringia "Grey Box"	Coastal Rosemary cultivar	0.4 x 0.5	150mm	400mm	33
Wf	Westringia fruticosa	Coastal Rosemary	1.2 x 1.2	200mm	1000mm	4
CASCADING PLANTS						
Cg	Carpobrotus glaucescens	Pig Face	0.2 x spreading	150mm	800mm	36
My	Myoporum parvifolium	Creeping Boobialla	0.3 x spreading	150mm	800mm	18

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Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018



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Engineer  
C & M Consulting Engineers  
Suite 26  
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Consultant  
Consultant Company  
Client Details  
T  
T  
T

Project Title  
Bronte Village Centre Upgrade

Drawing Title  
PLANTING PLAN  
SHEET 1

PRELIMINARY

Drawing Created (date)	15.03.2018
Drawing Created (by)	LI
Verified	TF
Approved	FR
Scale	1:100 @A1

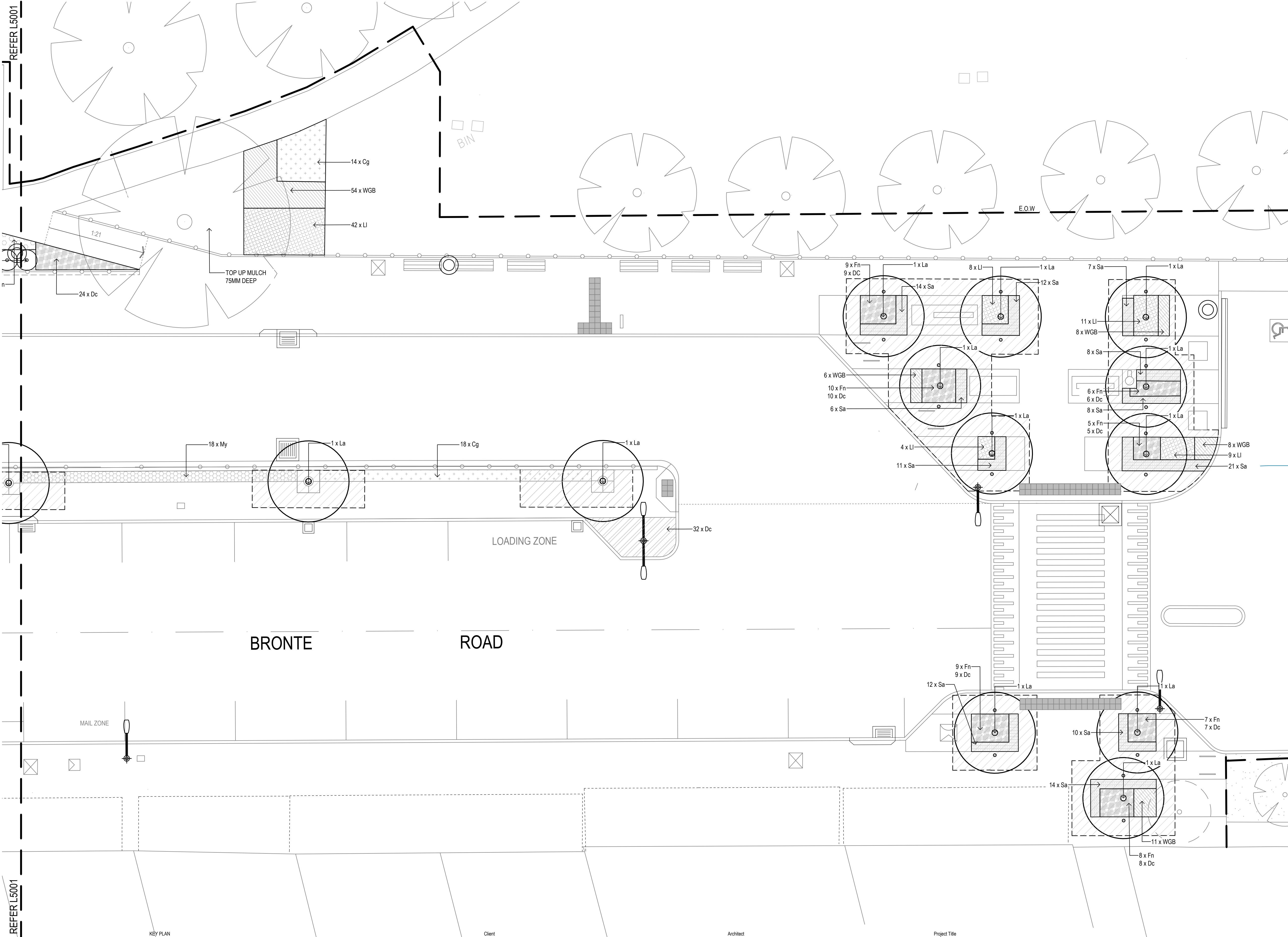
Project No.	Drawing No.	Issue
17005	L5001	C

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- LEGEND**
- EXTENT OF WORKS
  - EXISTING TREE TO BE RETAINED AND PROTECTED
  - EXISTING AWNING LINE
  - PROPOSED TREE. REFER PLANTING PLANS AND SCHEDULE
  - PLANTING AREA. REFER PLANTING SCHEDULE L-5100
  - EXISTING PLANTING, COUNCIL TO MAKE GOOD. REFER SCHEDULE FOR SUGGESTED SPECIES MIX
  - MAKE GOOD EXISTING TURF. REFER DETAIL 01 / L-7100 AND SCHEDULE L-5100

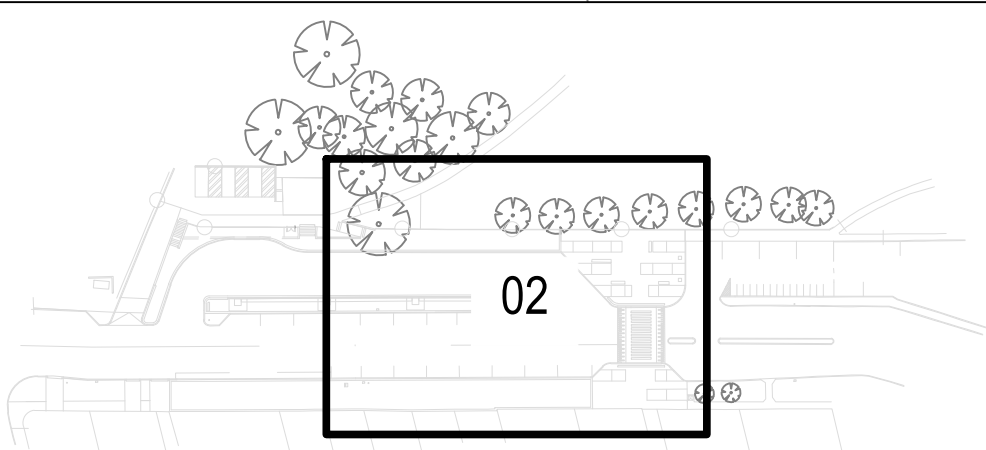
**NOTE:**  
- THE LANDSCAPE CONTRACTOR MUST TAKE ALL REASONABLE PRECAUTIONS TO DETERMINE THE LOCATIONS AND PROTECT EXISTING SERVICES BEFORE COMMENCING WORKS. THE LANDSCAPE CONTRACTOR IS TO NOTIFY THE SITE SUPERINTENDENT OF ANY DISCREPANCIES WHICH MAY AFFECT THE FINAL LANDSCAPE WORKS  
- ALL WORKS DOCUMENTED AS PER SURVEY SUPPLIED BY WAVERLEY COUNCIL



BRONTE ROAD

Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

KEY PLAN



Client  
**Waverley Council**  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
**C & M Consulting Engineers**  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
**Bitzios Consulting**  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

**GROUP GSA**  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Project Title

**Bronte Village Centre Upgrade**

Drawing Title

**PLANTING PLAN  
SHEET 2**

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

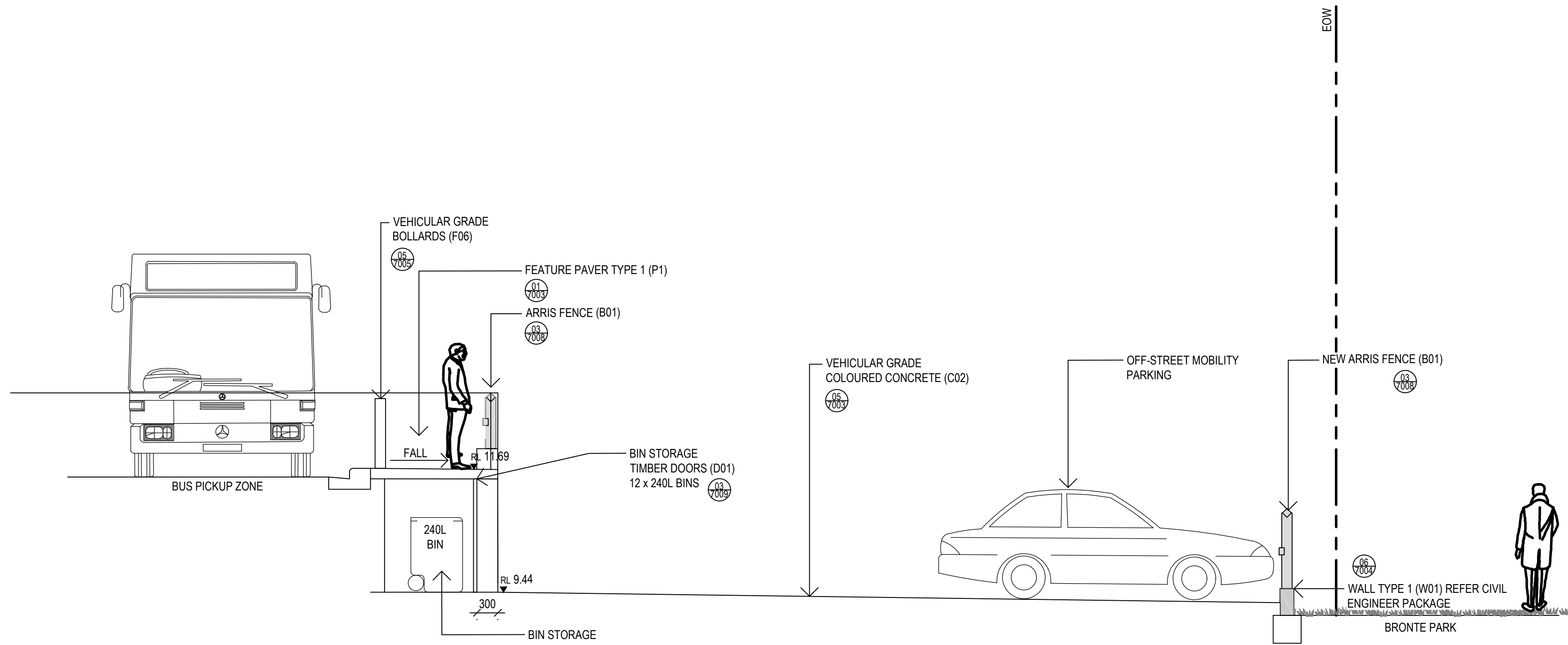
**PRELIMINARY**

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Drawing Created (by)	JG
Verified	TF
Approved	FR
Scale	1:100 @A1

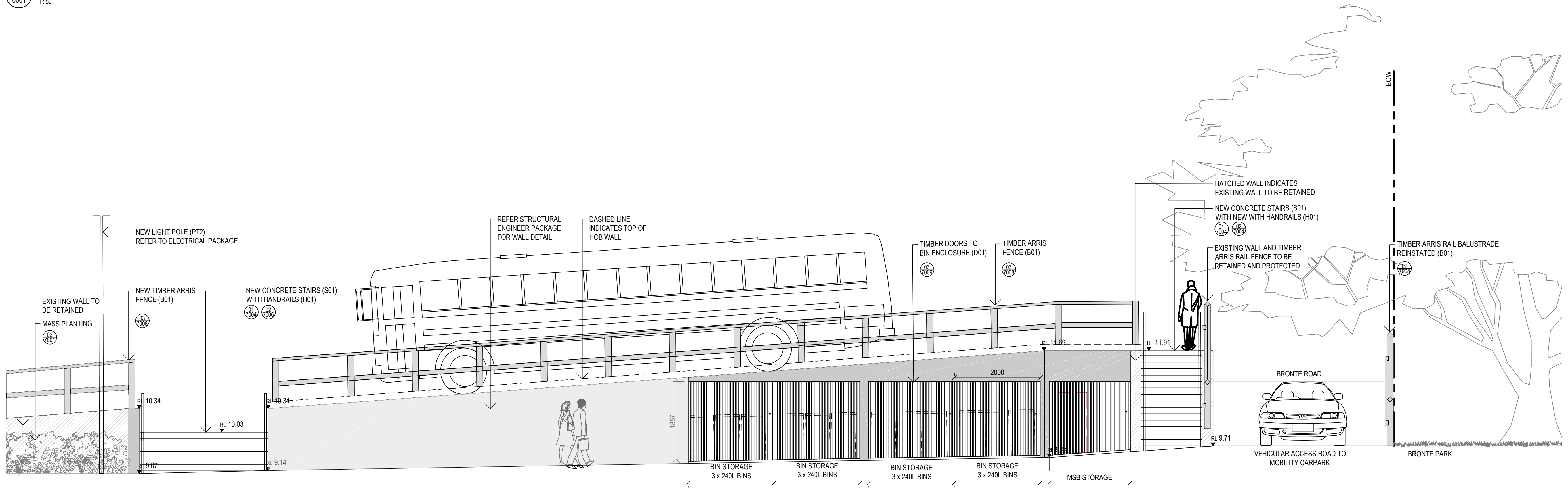
Project No.	Drawing No.	Issue
17005	L5002	C

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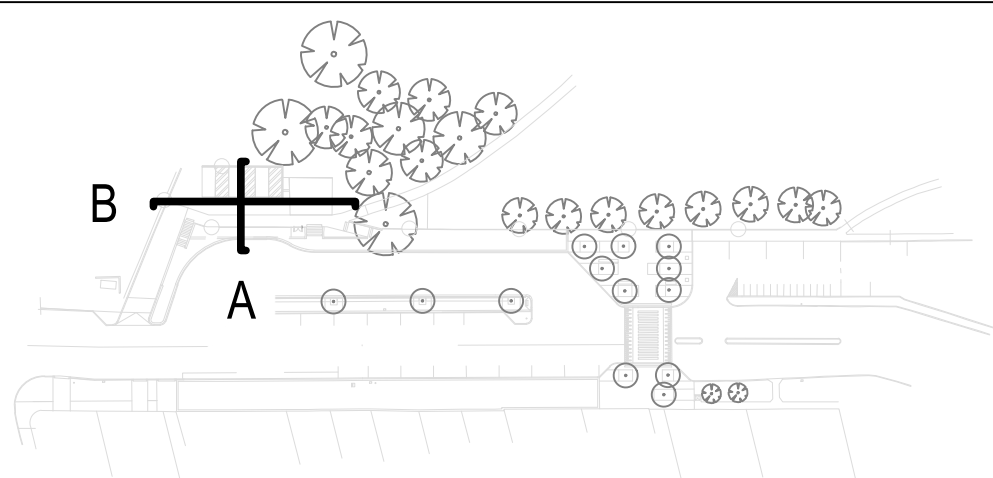
01 A. ELEVATION DISABILITY PARKING  
6001 1:50



02 B. ELEVATION BIN STORAGE  
6001 1:50

Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

KEY PLAN



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

**GROUP GSA**  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

SECTIONS AND ELEVATIONS

**PRELIMINARY**

Drawing Created (date) 14/03/2018

Drawing Created (by) JG

Verified TF

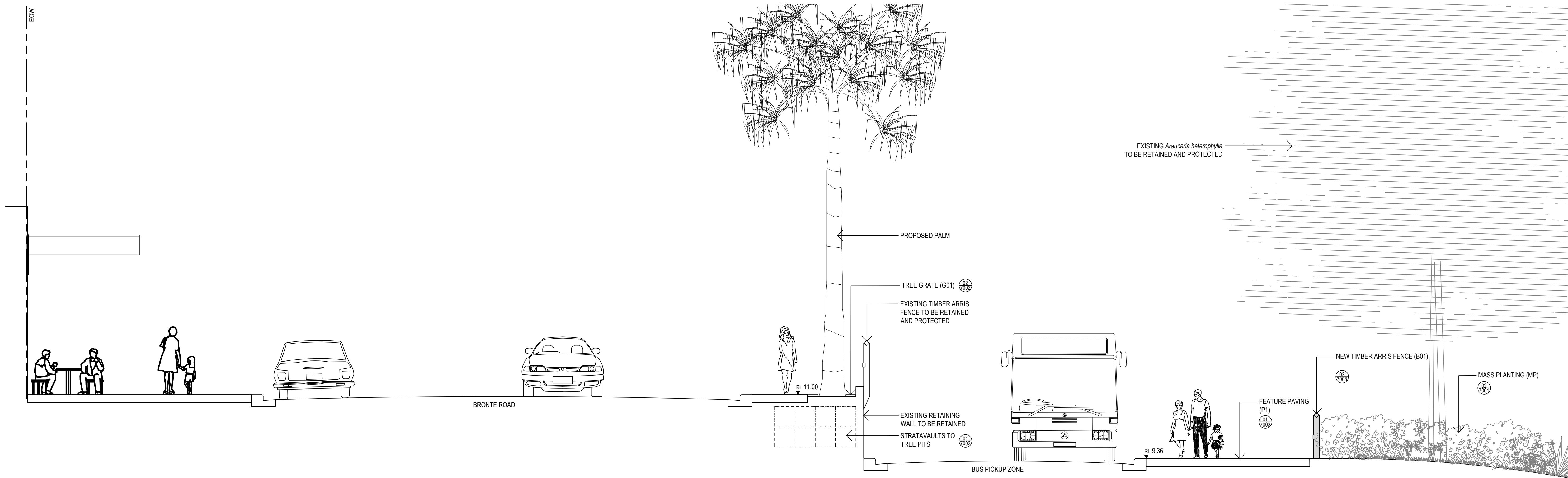
Approved FR

Scale 1:50 @ A1

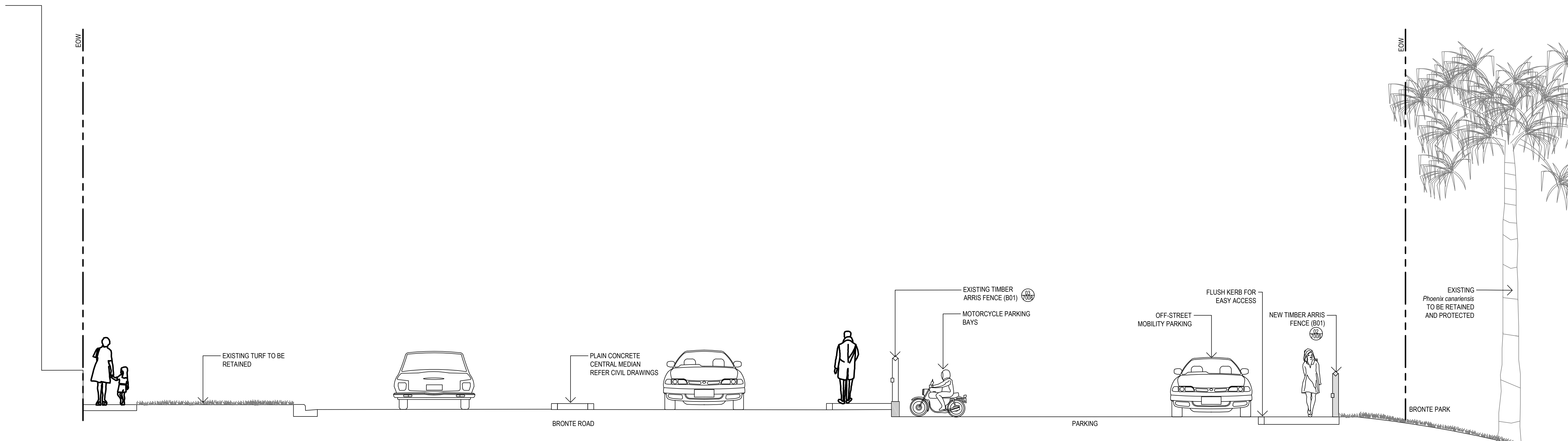
Project No. 17005 Drawing No. L6001 Issue C

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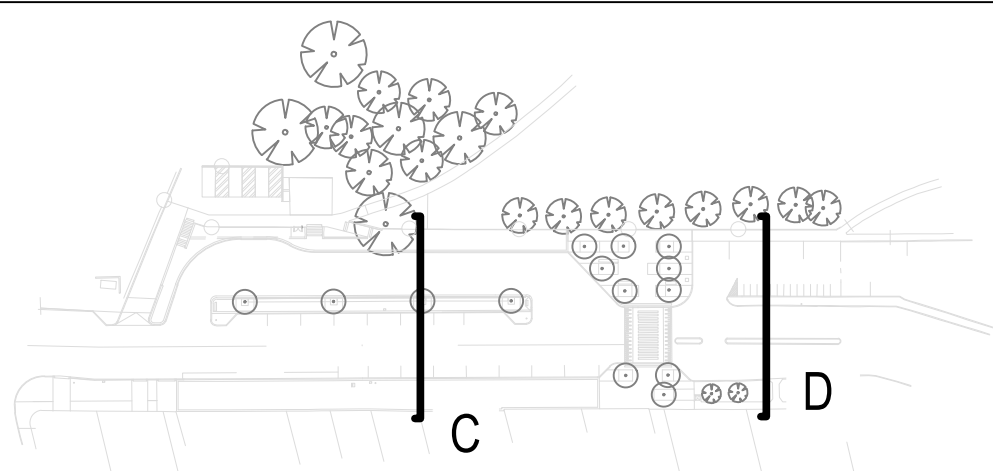
01  
6002  
C. ELEVATION FROM BRONTE ROAD TO BRONTE PARK  
1:50



02  
6002  
D. ELEVATION THROUGH PARKING  
1:50

Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

KEY PLAN



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

**GROUP GSA**  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

SECTIONS AND ELEVATIONS

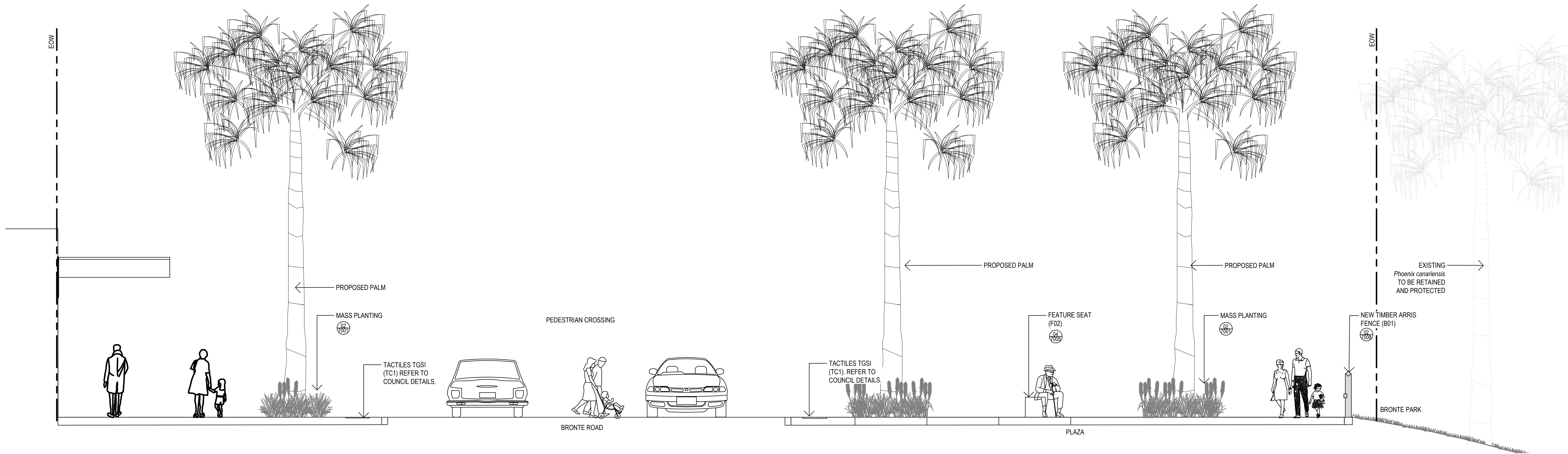
**PRELIMINARY**

Drawing Created (date) 14/03/2018  
Drawing Created (by) JG  
Verified TF  
Approved FR  
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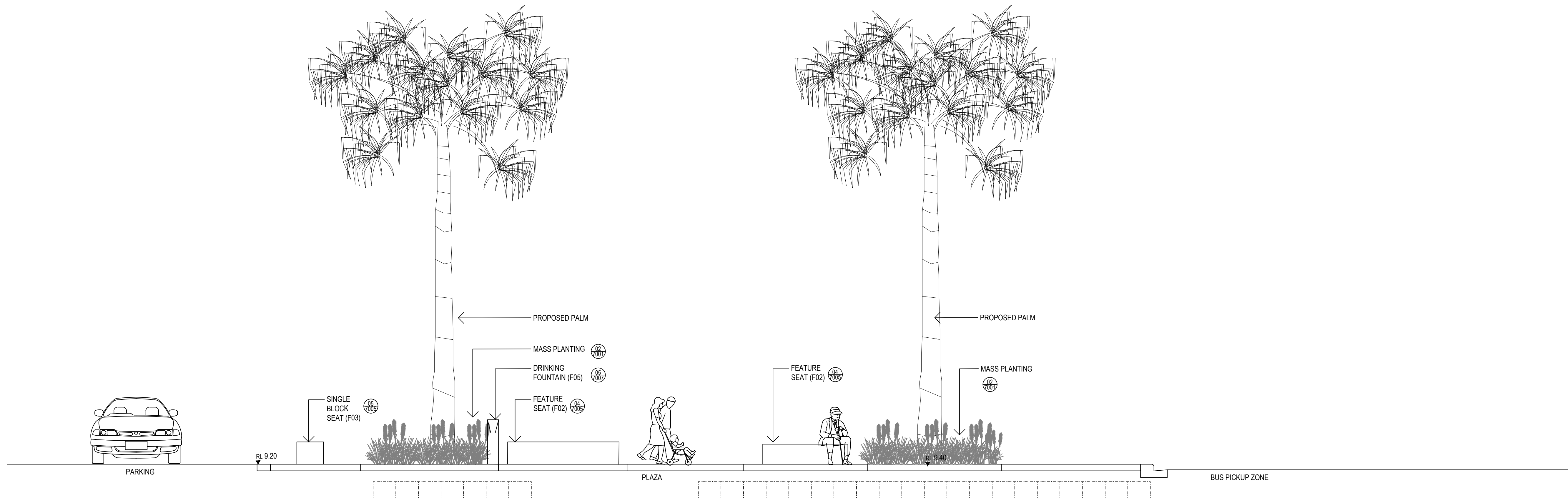
Project No. 17005  
Drawing No. L6002  
Issue C

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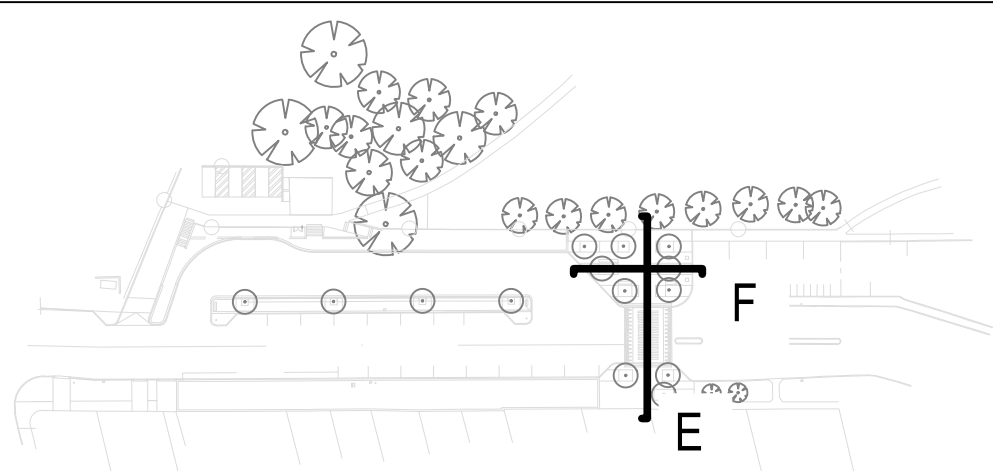
01  
6003  
E. ELEVATION PEDESTRIAN CROSSING TO PLAZA  
1:50



02  
6003  
F. ELEVATION THROUGH PLAZA  
1:50

Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

KEY PLAN



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

**GROUP GSA**  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant	Consultant
Consultant Company	Consultant Company
Client Details	Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

SECTIONS AND ELEVATIONS

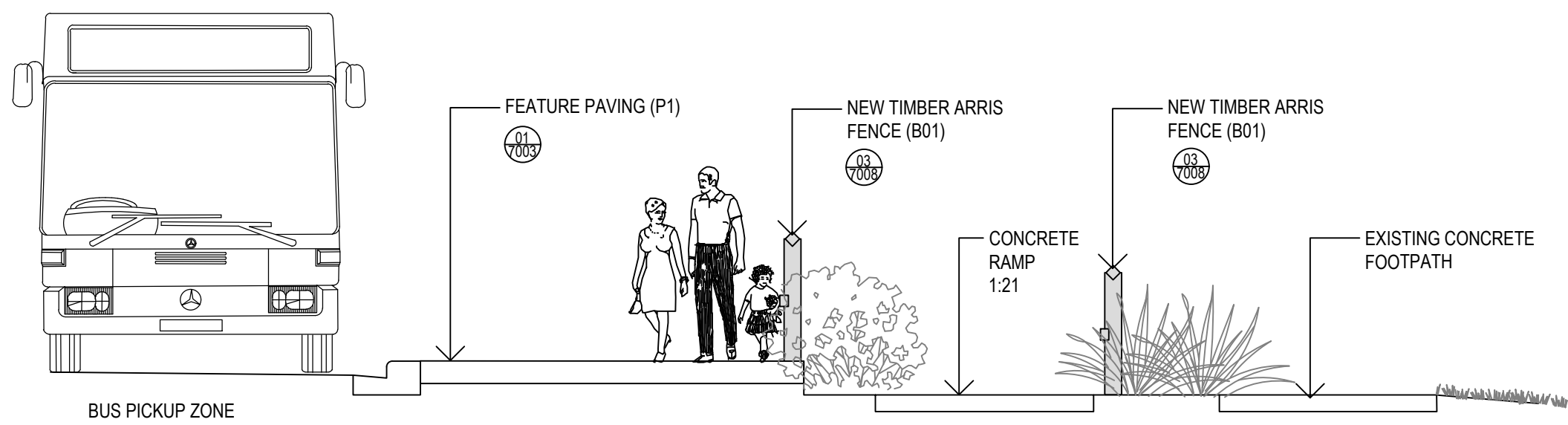
**PRELIMINARY**

Drawing Created (date)	14/03/2018
Drawing Created (by)	JG
Verified	TF
Approved	FR
Scale	1:50 @ A1

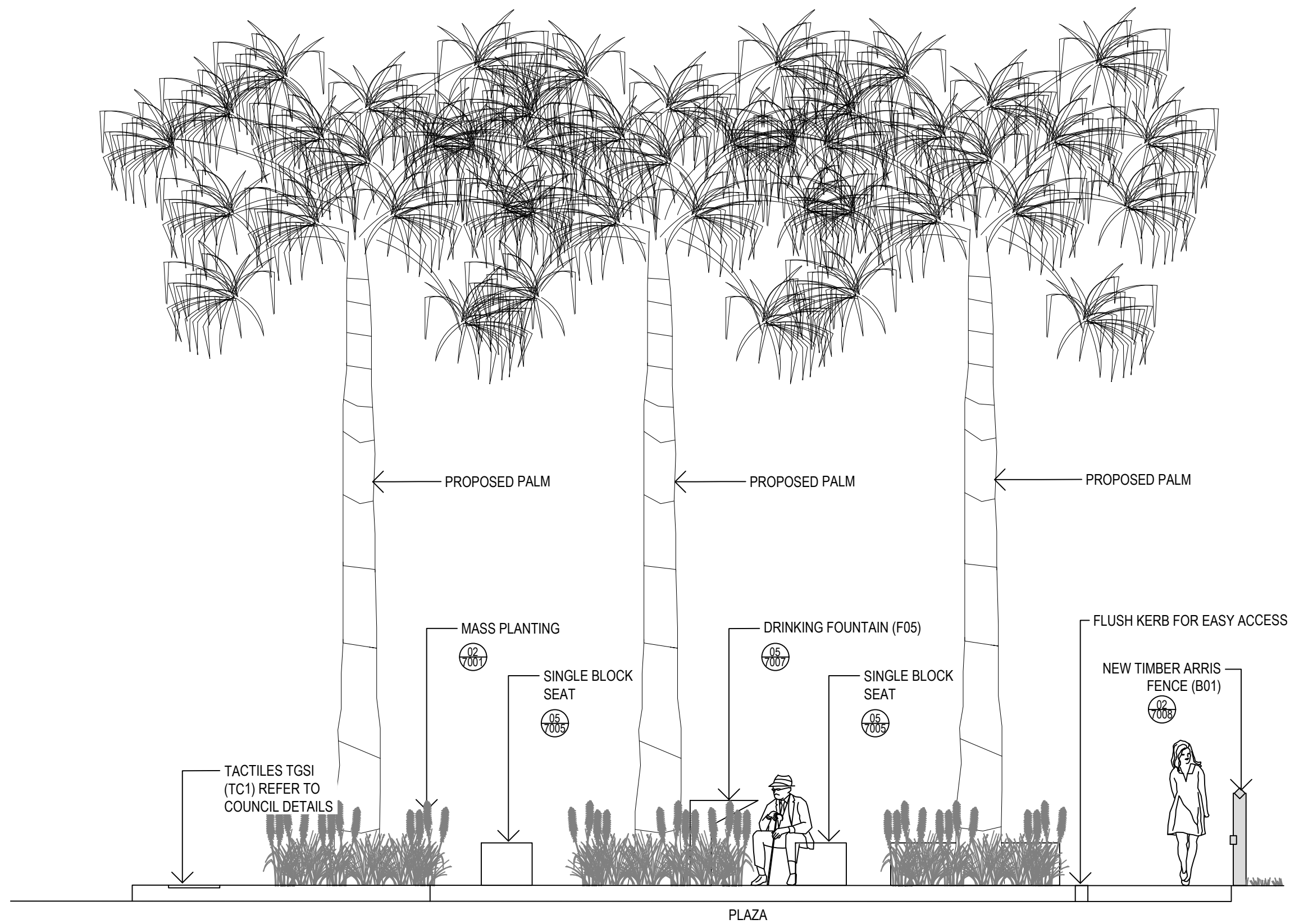
Project No.	Drawing No.	Issue
17005	L6003	C

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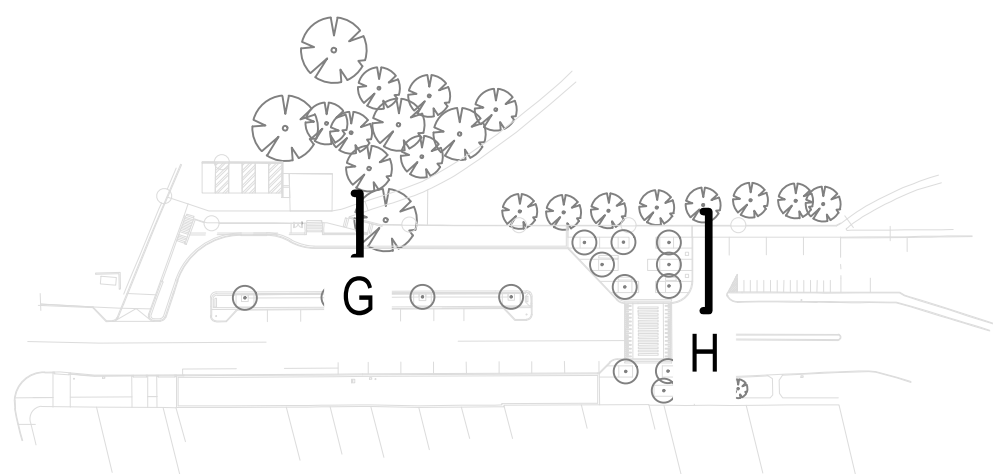
01  
6004  
G. ELEVATION THROUGH BUS PICKUP ZONE  
1:50



02  
6004  
H. ELEVATION FACING PLAZA  
1:50

Amendments	Description	Date
A	95% Issue for Review	2/05/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

KEY PLAN



Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect



Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

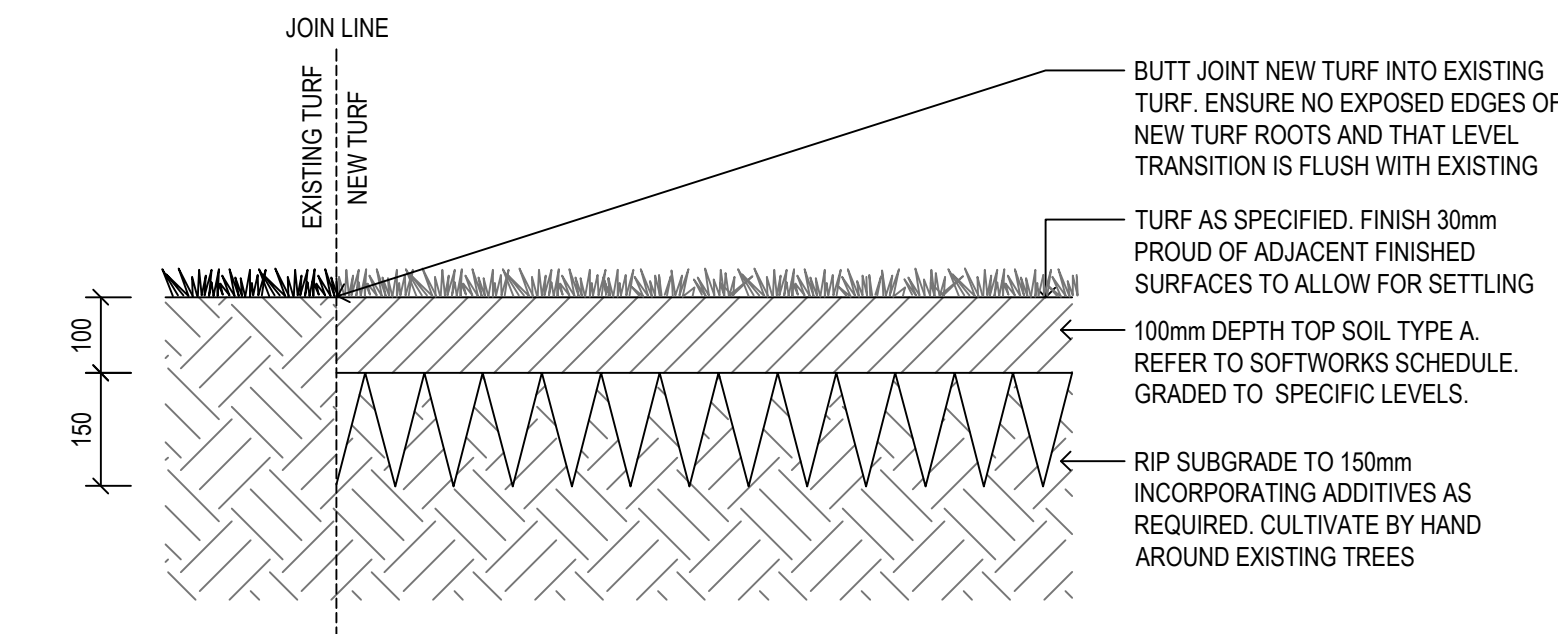
SECTIONS AND ELEVATIONS

PRELIMINARY

Drawing Created (date)	14/03/2018
Drawing Created (by)	JG
Verified	TF
Approved	FR
Scale	1:50 @ A1

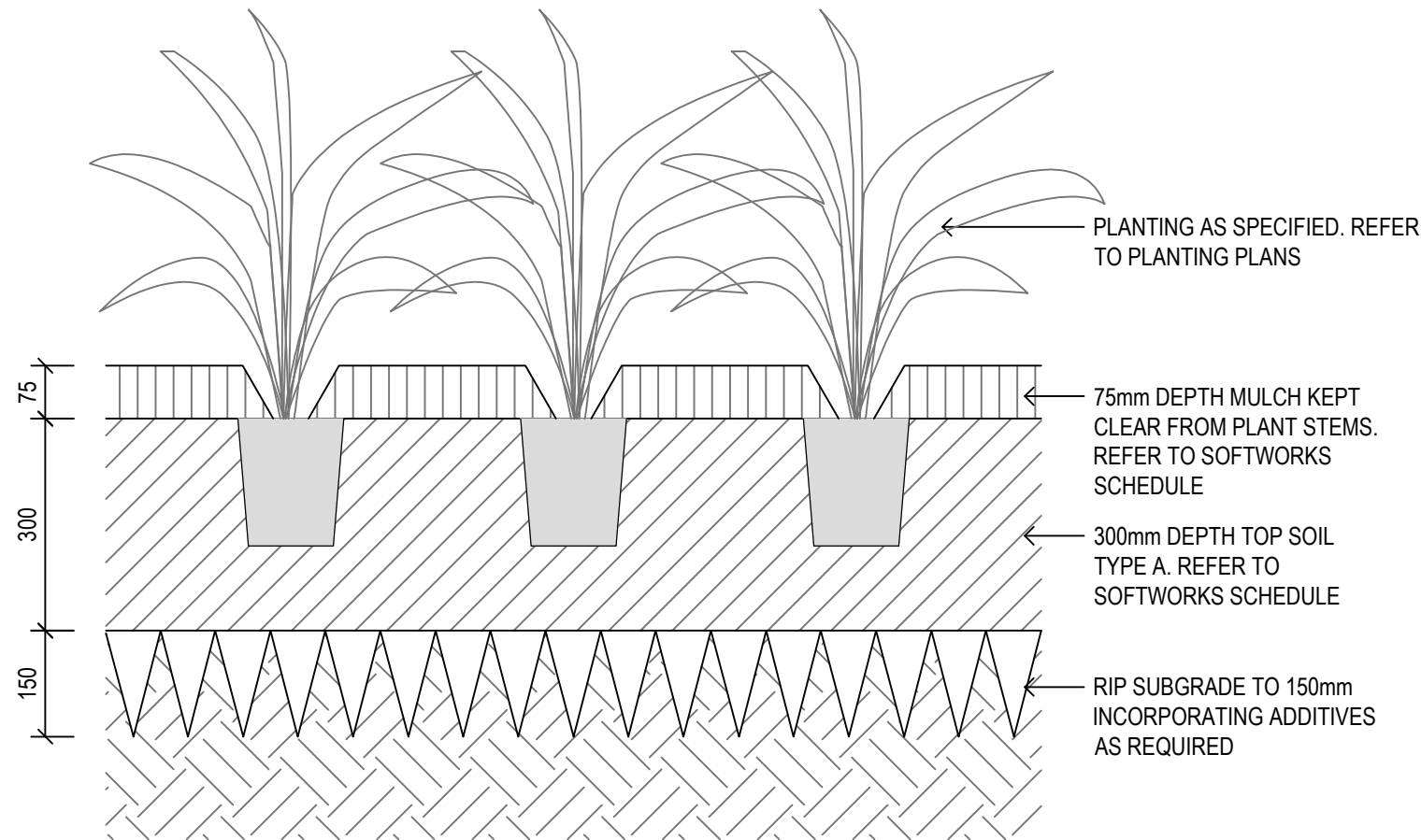
Project No.	Drawing No.	Issue
17005	L6004	C

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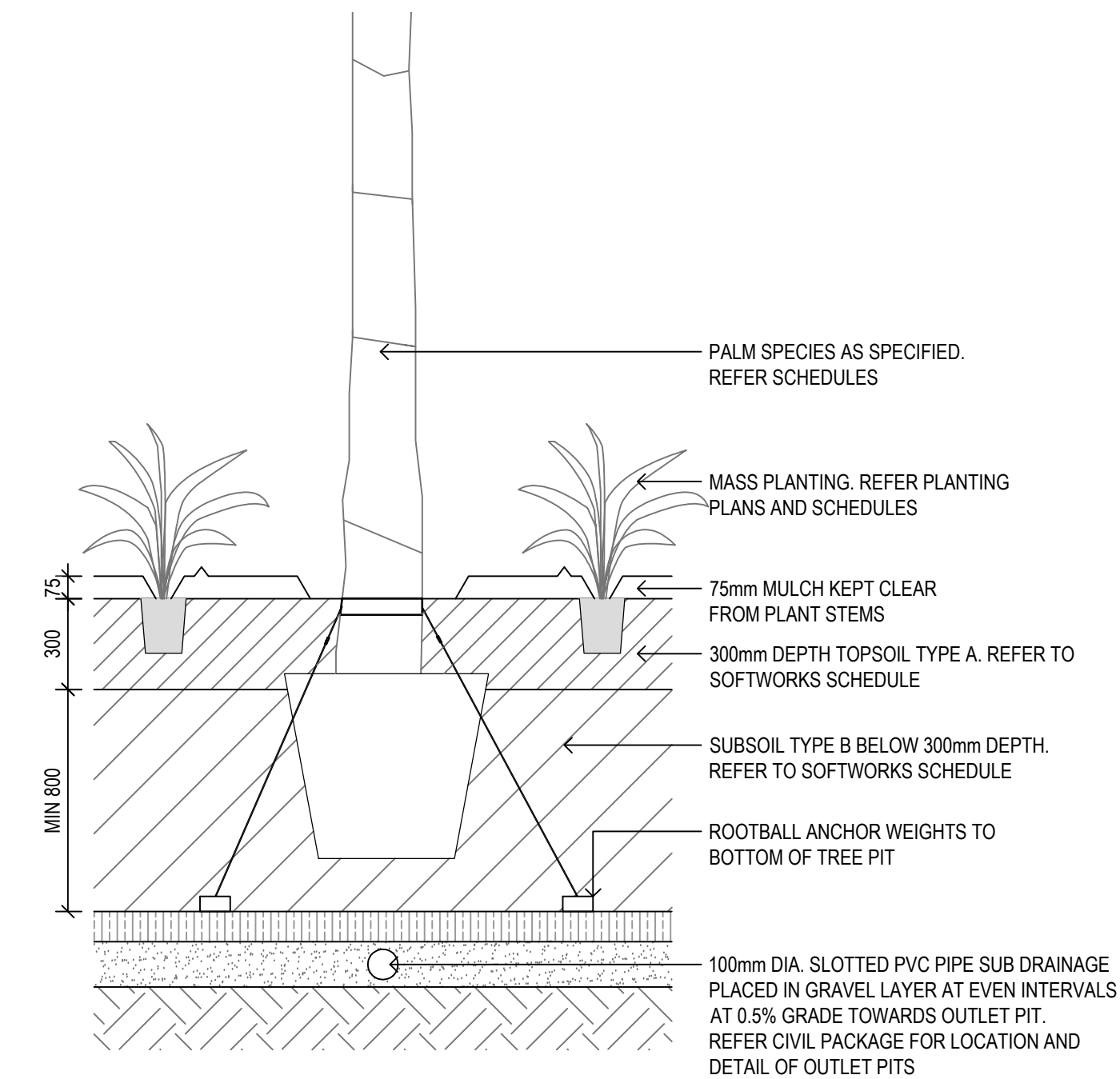
01  
7001 TYPICAL TURF DETAIL

1:10



02  
7001 TYPICAL MASS PLANTING DETAIL

1:10



03  
7001 TYPICAL TREE IN MASS PLANTING DETAIL

1:20

Amendments		
Description	Date	
A 75% Issue for Review	16/03/2018	
B Issue for Tender	04/05/2018	
C Issue for Tender Revised	09/05/2018	

Client	
Waverley Council 55 Grafton Street Bondi Junction NSW 2022	
	
Engineer	
C & M Consulting Engineers Suite 26 11-13 Brookhollow Av Baulkham Hills NSW 2153	
Traffic	
Bitzios Consulting Studio 203 3 Gladstone St Newtown NSW 2042	

WAVERLEY

COUNCIL

Traffic

Bitzies Consulting

Studio 203

3 Gladstone St

Newtown NSW 2042

Architect

GROUP GSA

Group GSA Pty Ltd ABN 76 002 113 779

Level 7, 80 William St East Sydney NSW

Australia 2011    [www.groupgsa.com](http://www.groupgsa.com)

T +612 9361 4144

F +612 9332 3458

architecture interior design urban design landscape

nom architect M. Sheldon 3990

Project Title

Bronte Village Centre Upgrade

Drawing Title

LANDSCAPE DETAIL - SOFTSCAPE

Scale

AS NOTED @A1

Project No.

17005

Drawing No.

L7001

Issue

C

PRELIMINARY

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Consultant

Consultant Company

Client Details

T

T

T

Consultant

Consultant Company

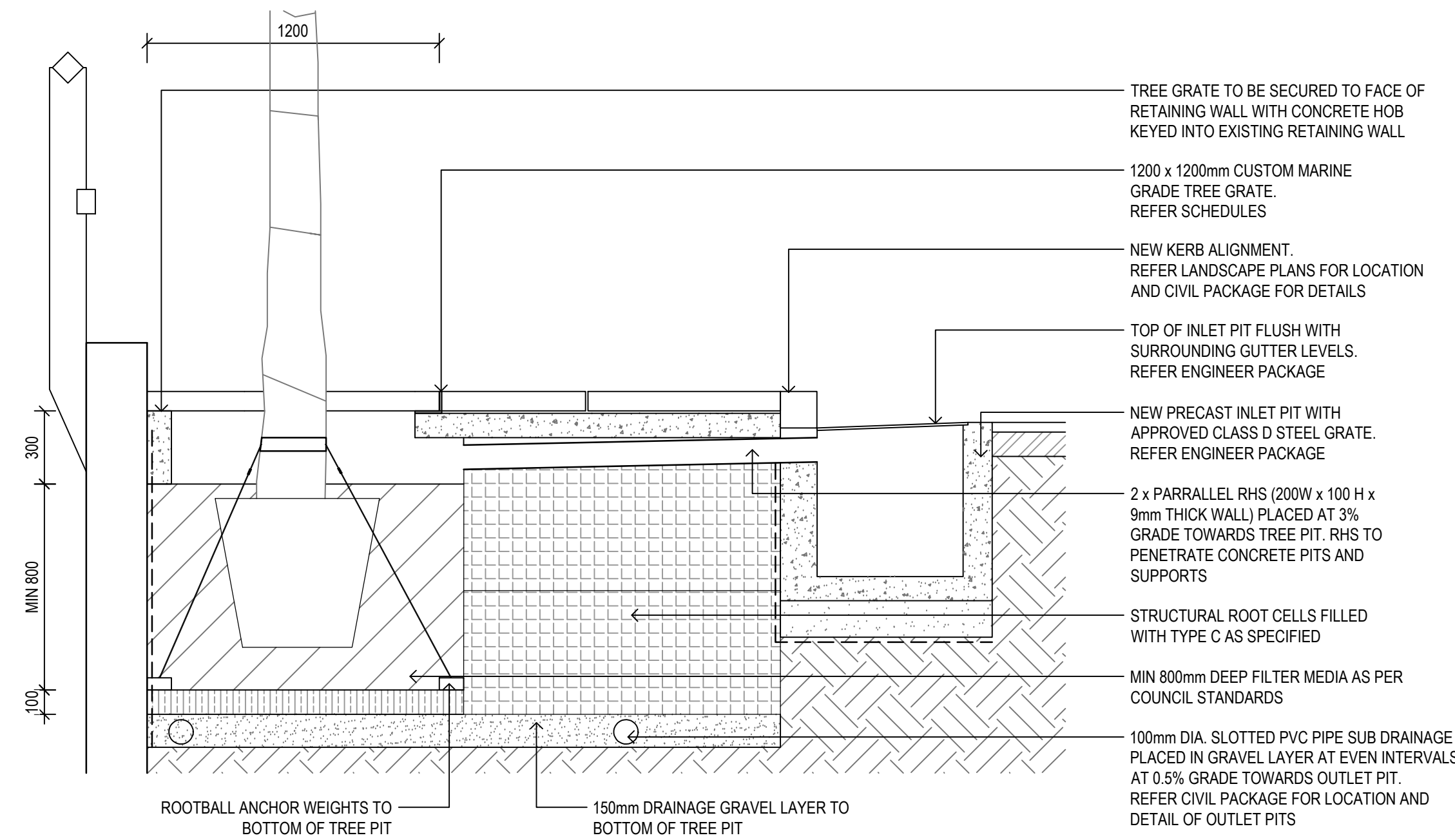
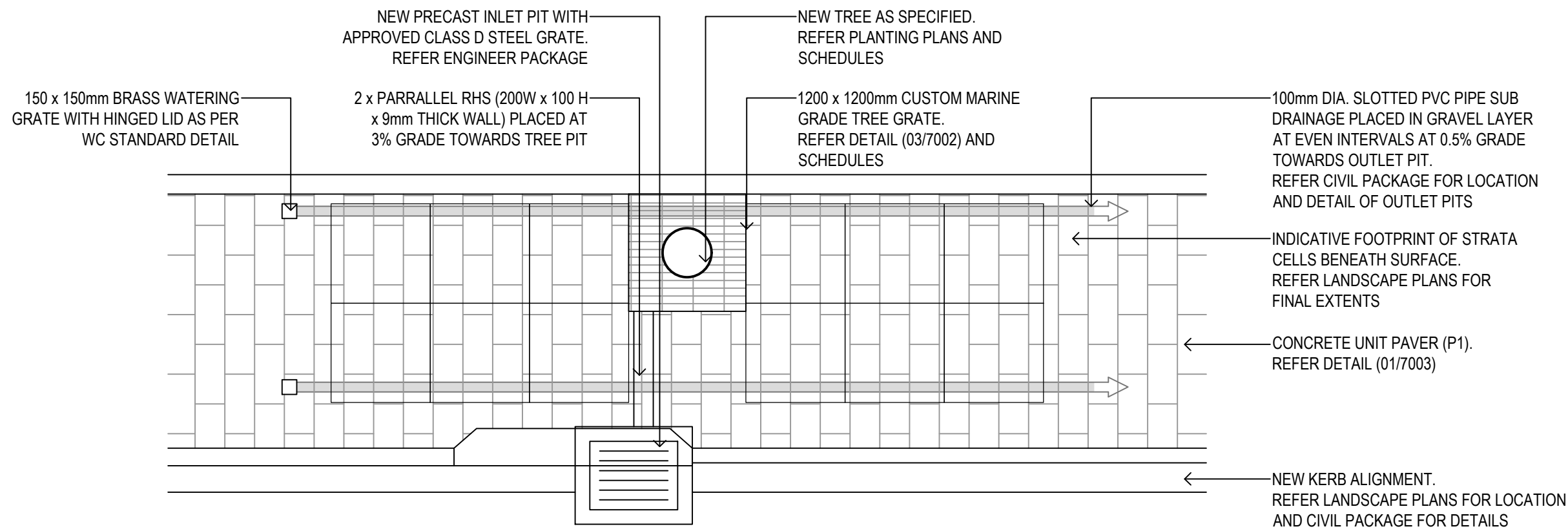
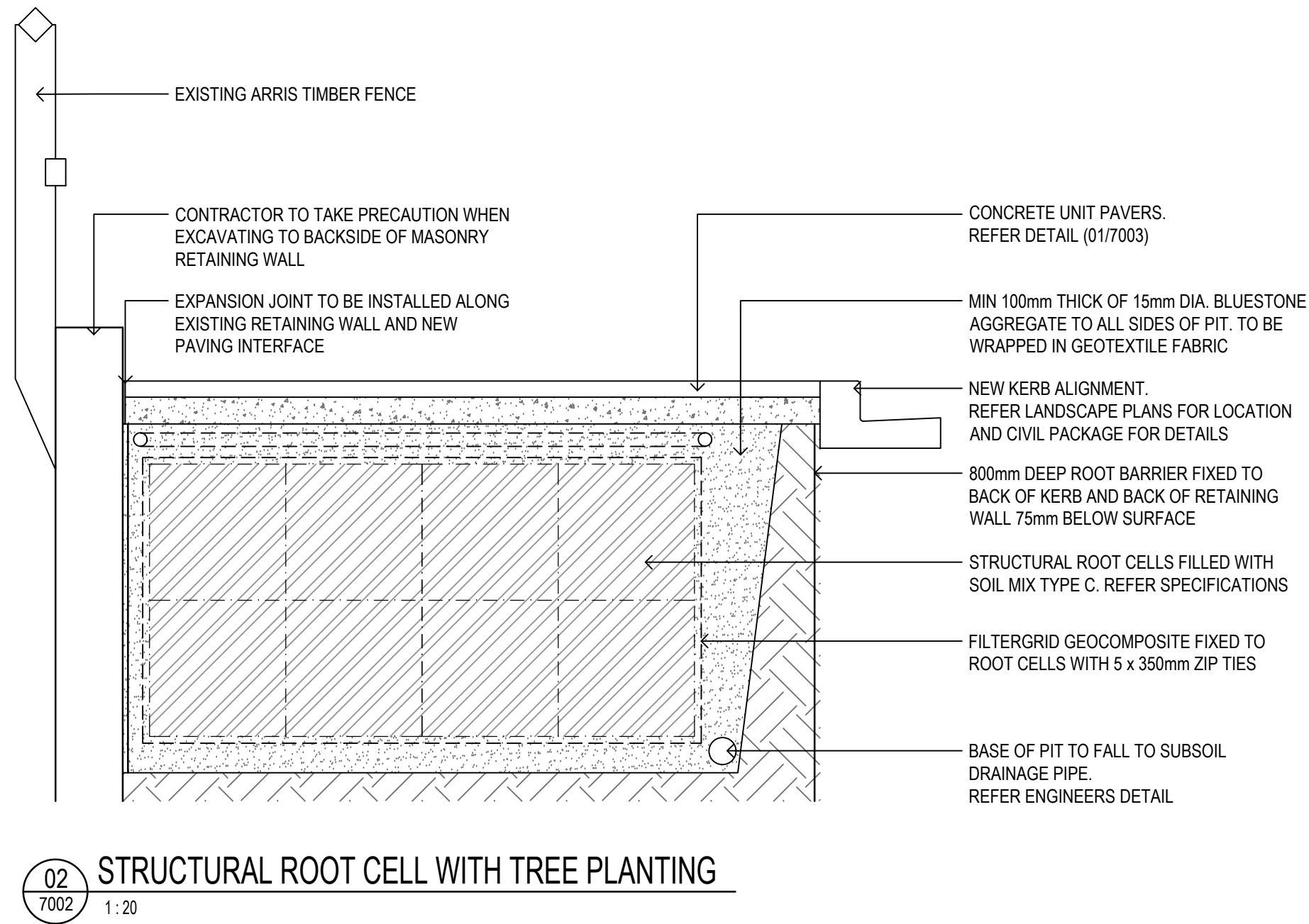
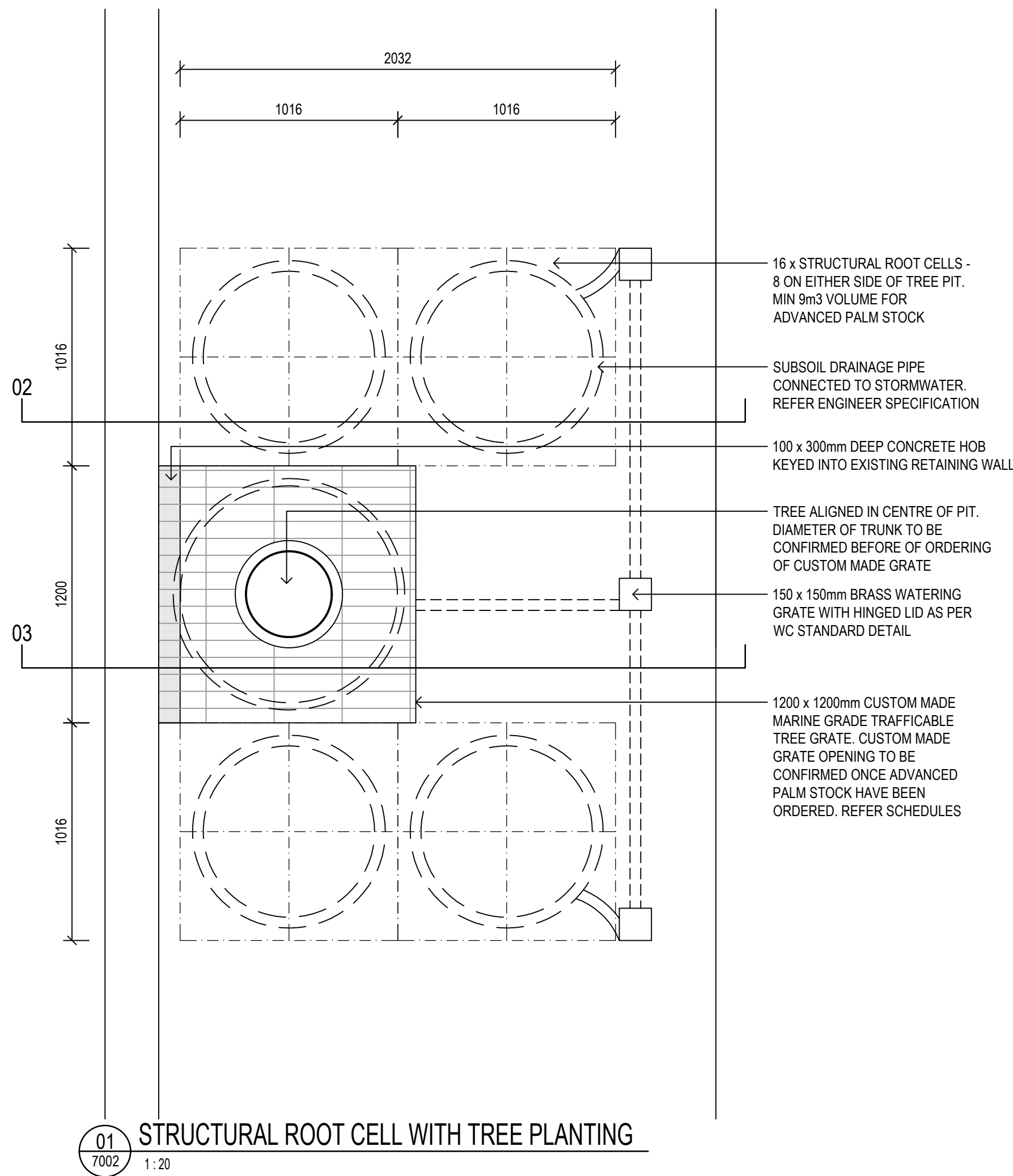
Client Details

T

T

T





Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect



Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458

Consultant  
Consultant Company  
Client Details

architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

LANDSCAPE DETAIL - SOFTSCAPE

Drawing Created (date)

13.03.18

Drawing Created (by)

PY

Verified

TF

Approved

FR

Scale

AS NOTED @A1

Project No.

17005

Drawing No.

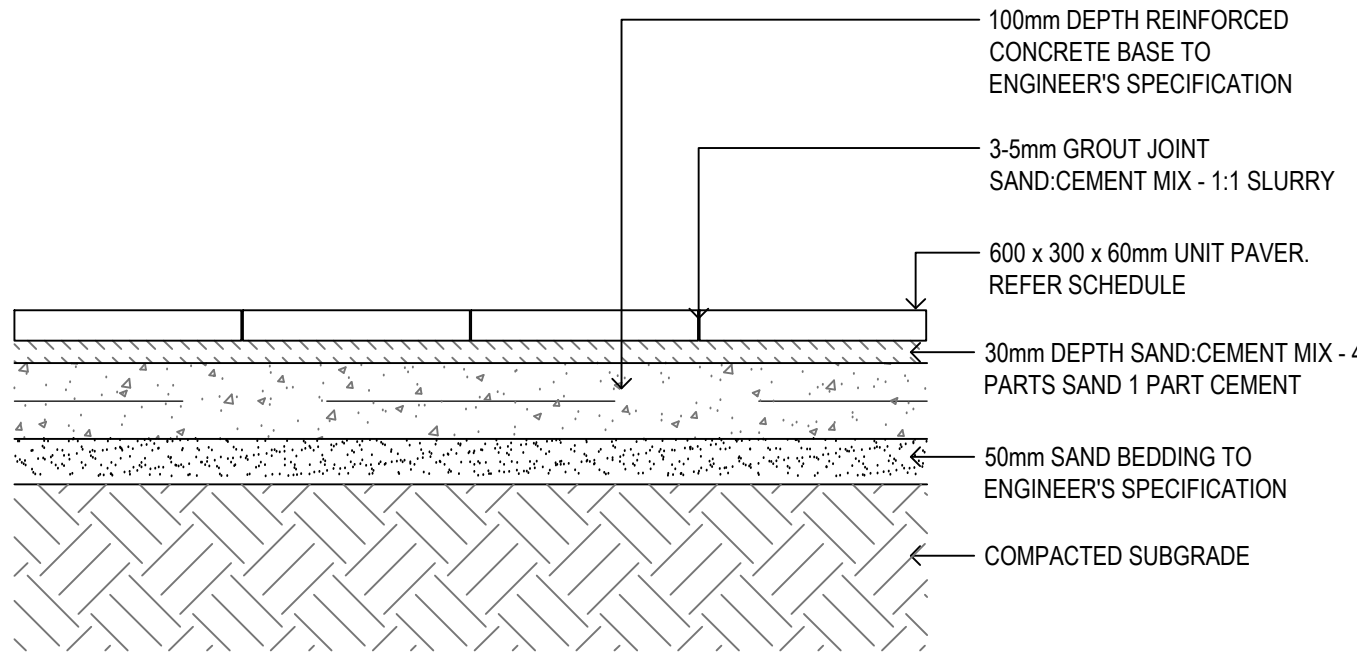
L7002

Issue

C

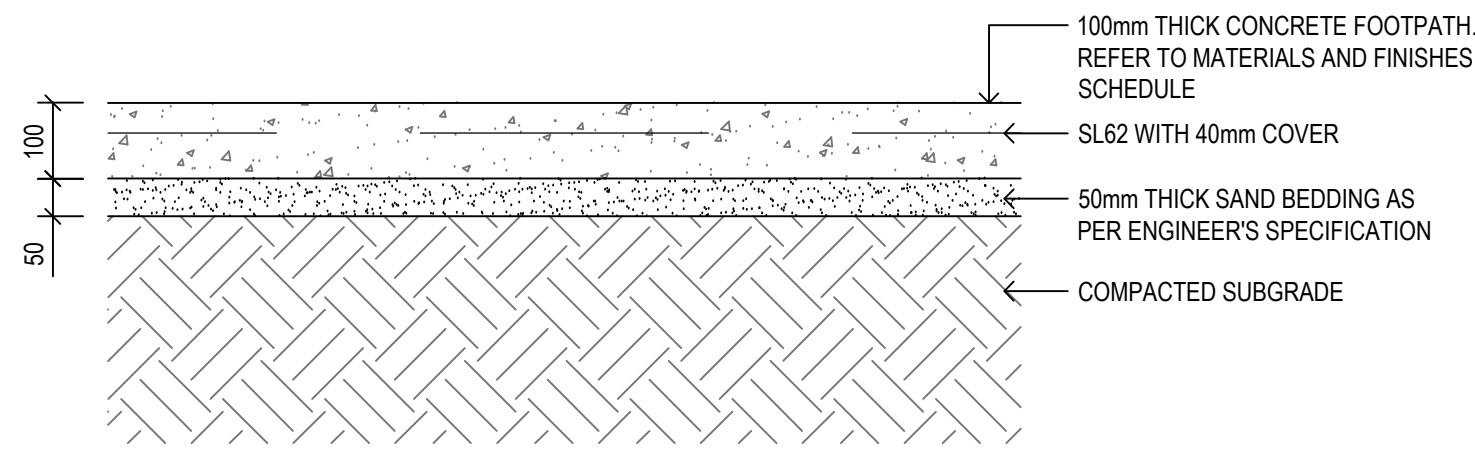
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PRELIMINARY



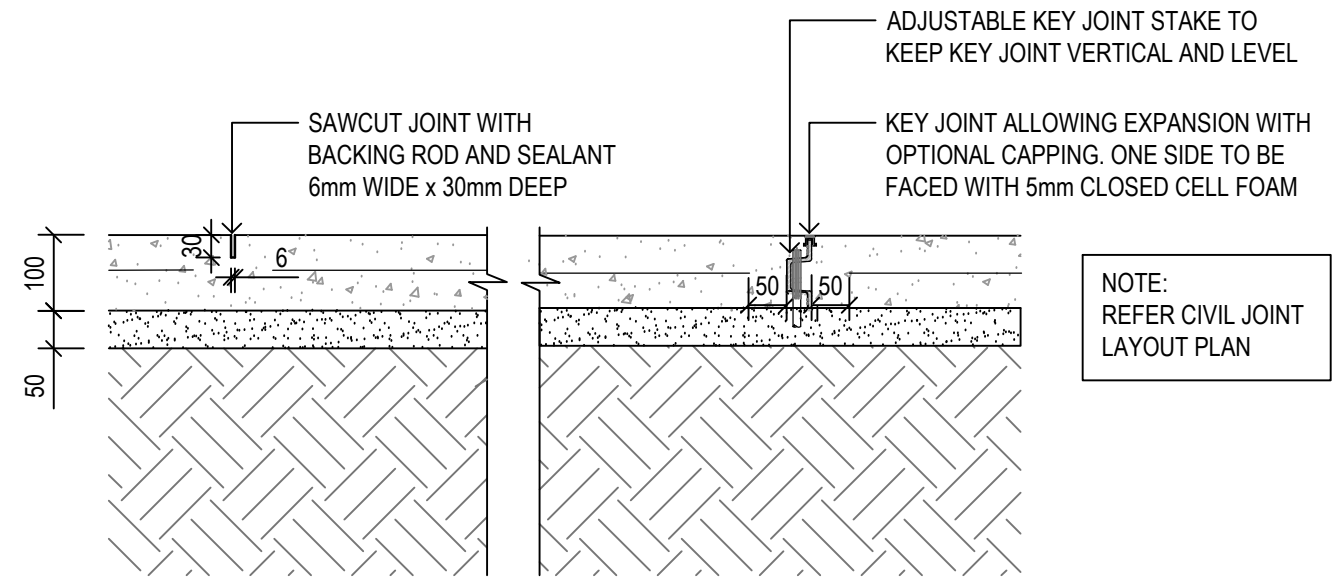
01 TYPICAL FEATURE PAVER - TYPE 1 (P1)

1:10



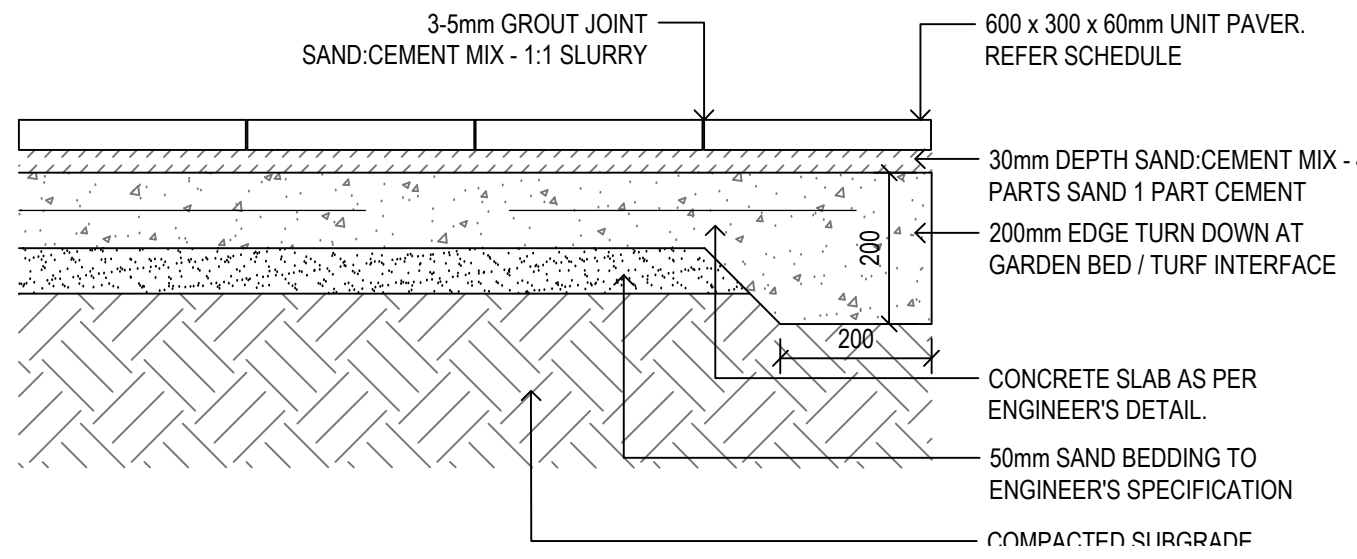
04 PEDESTRIAN GRADE CONCRETE (CO1/CO2)

1:10



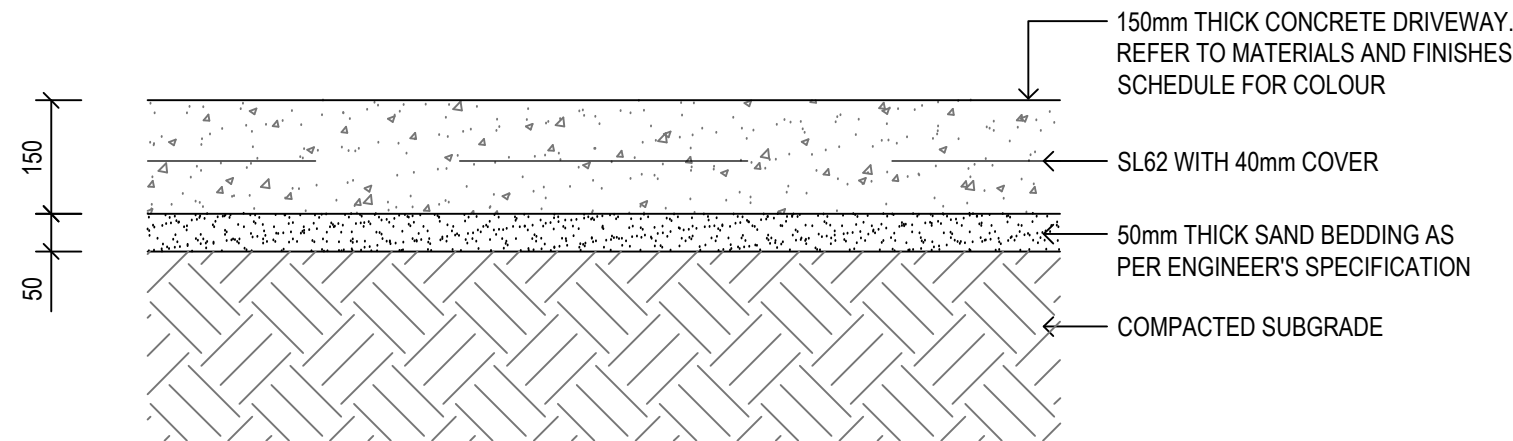
07 CONSTRUCTION AND EXPANSION JOINT

1:10



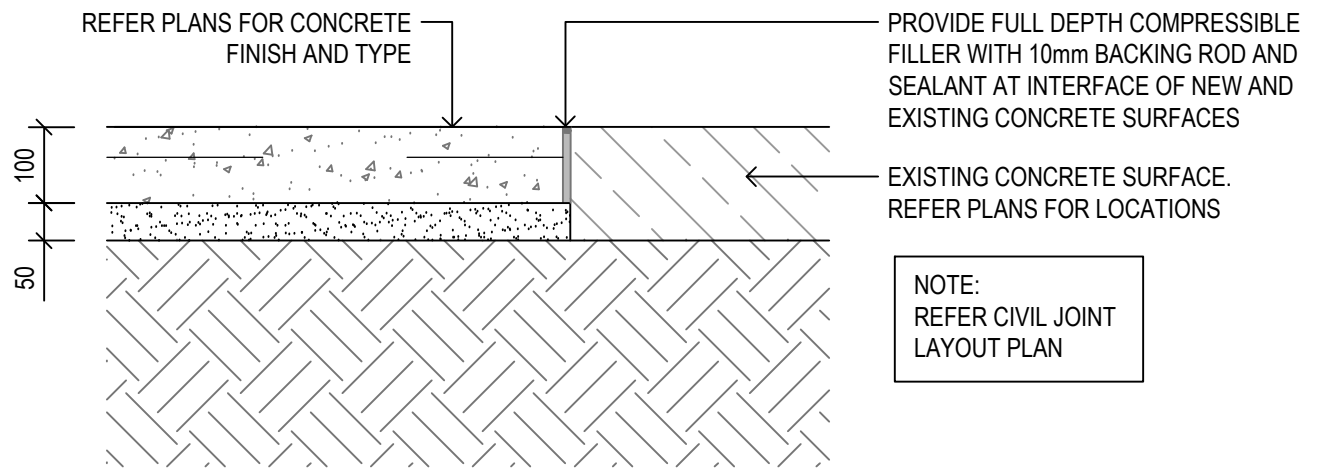
02 THICKENED SLAB EDGE TURNDOWN

1:10



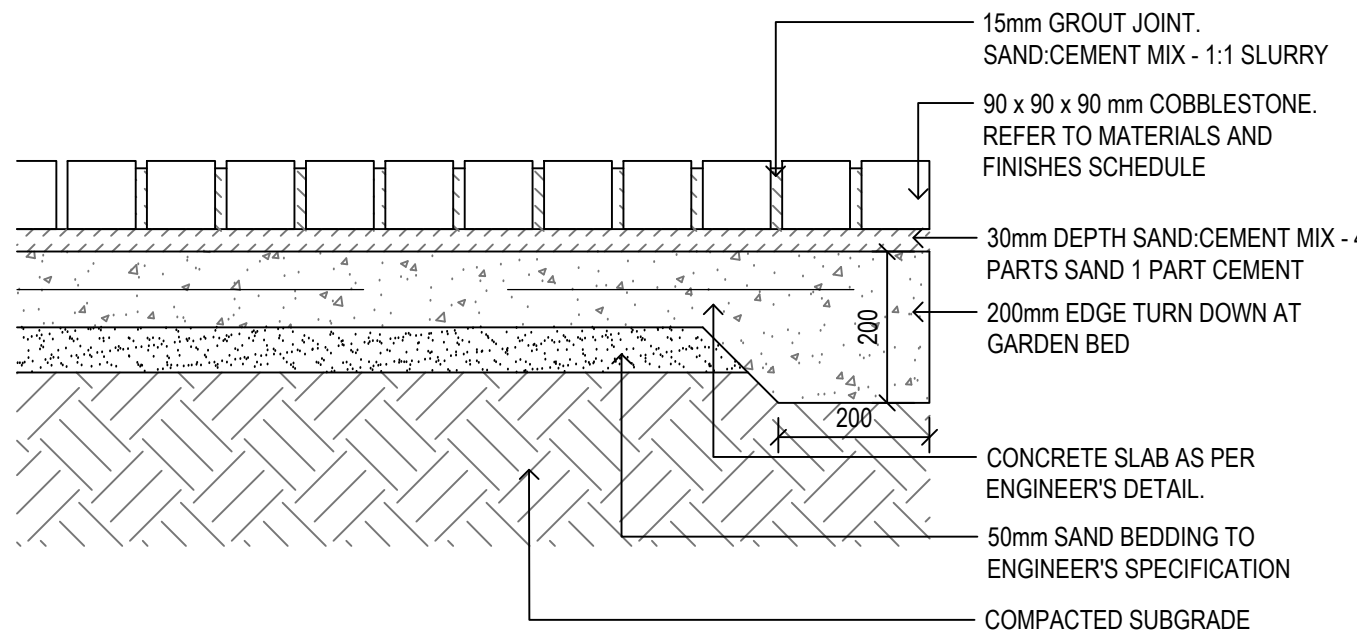
05 VEHICLE GRADE CONCRETE (CO3/CO4)

1:10



08 ISOLATION JOINT

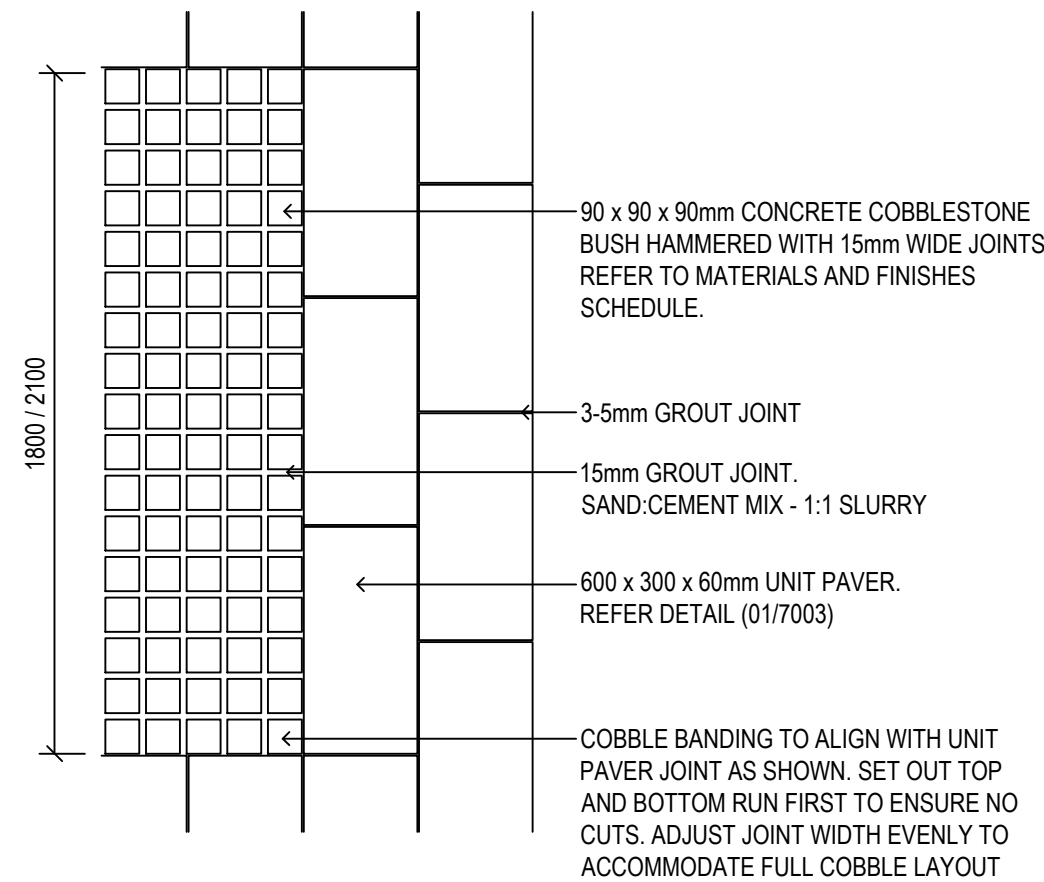
1:10



03 TYPICAL FEATURE PAVER - TYPE 2 (P2)

1:10

COUNCIL DETAIL



06 TYPICAL PAVING SETTS PATTERN

1:20

Amendments		
Description	Date	
A 75% Issue for Review	16/03/2018	
B Issue for Tender	04/05/2018	
C Issue for Tender Revised	09/05/2018	

Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

GROUP GSA  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

LANDSCAPE DETAIL - FINISHES

Drawing Created (date) 13.03.18

Drawing Created (by) PY

Verified TF

Approved FR

Scale AS NOTED @A1

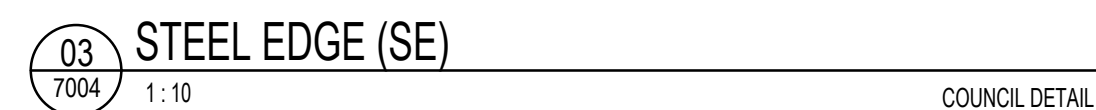
Project No. Drawing No. Issue

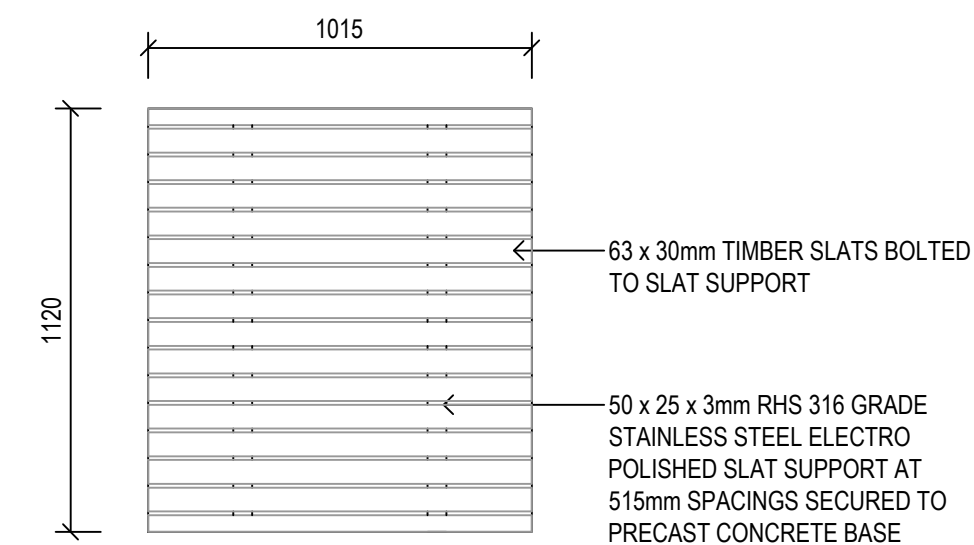
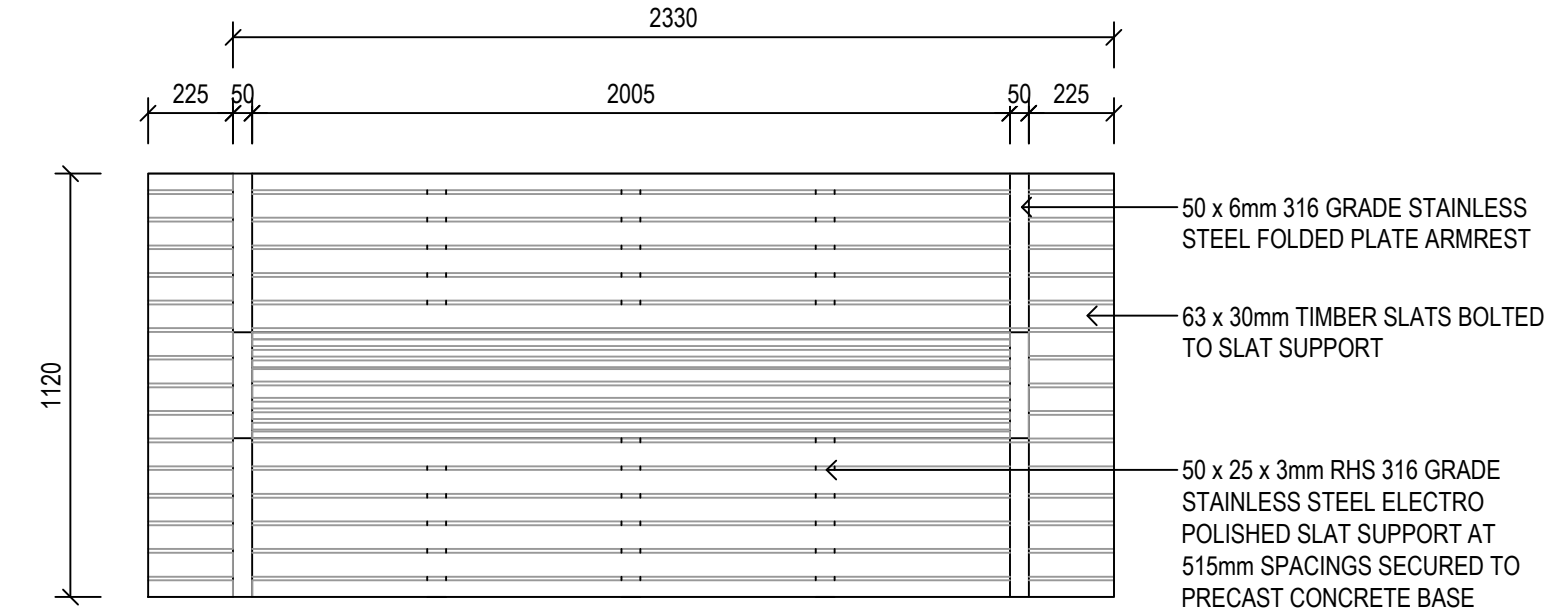
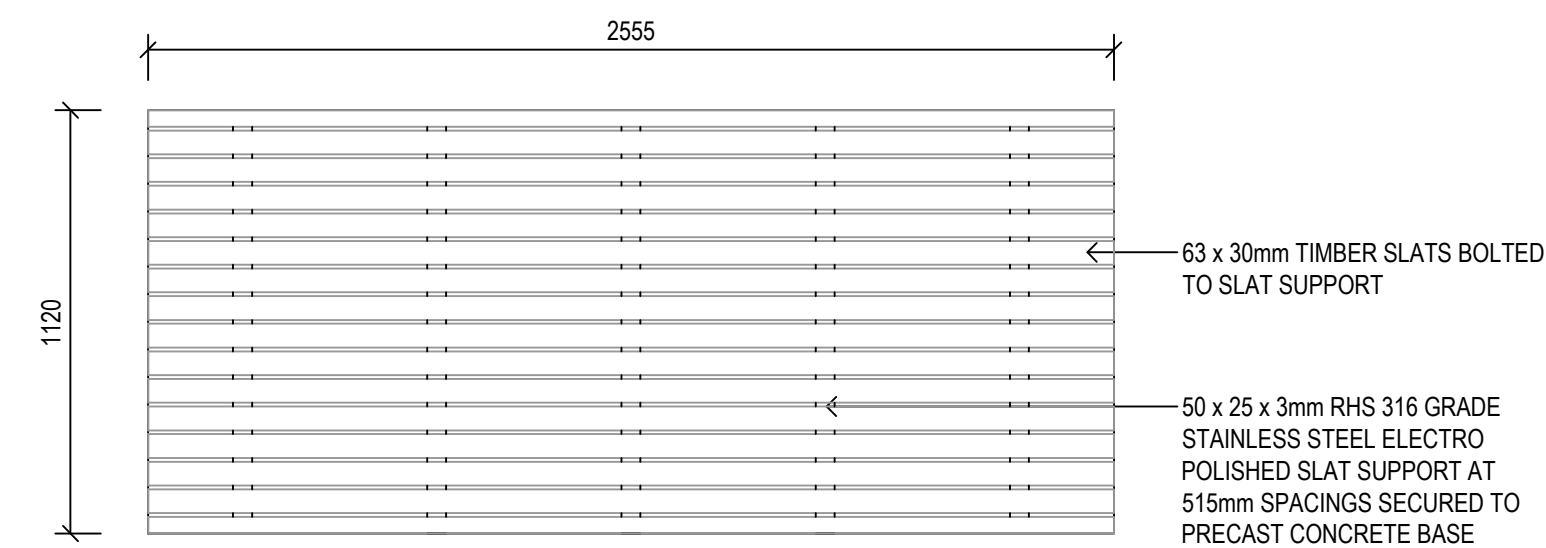
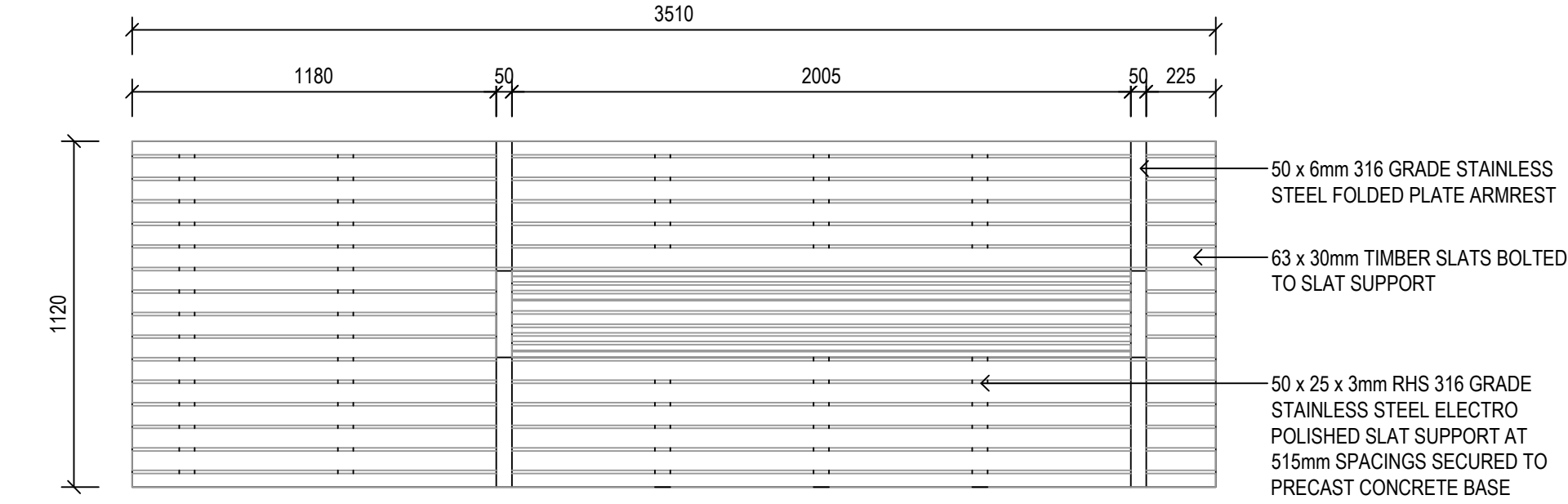
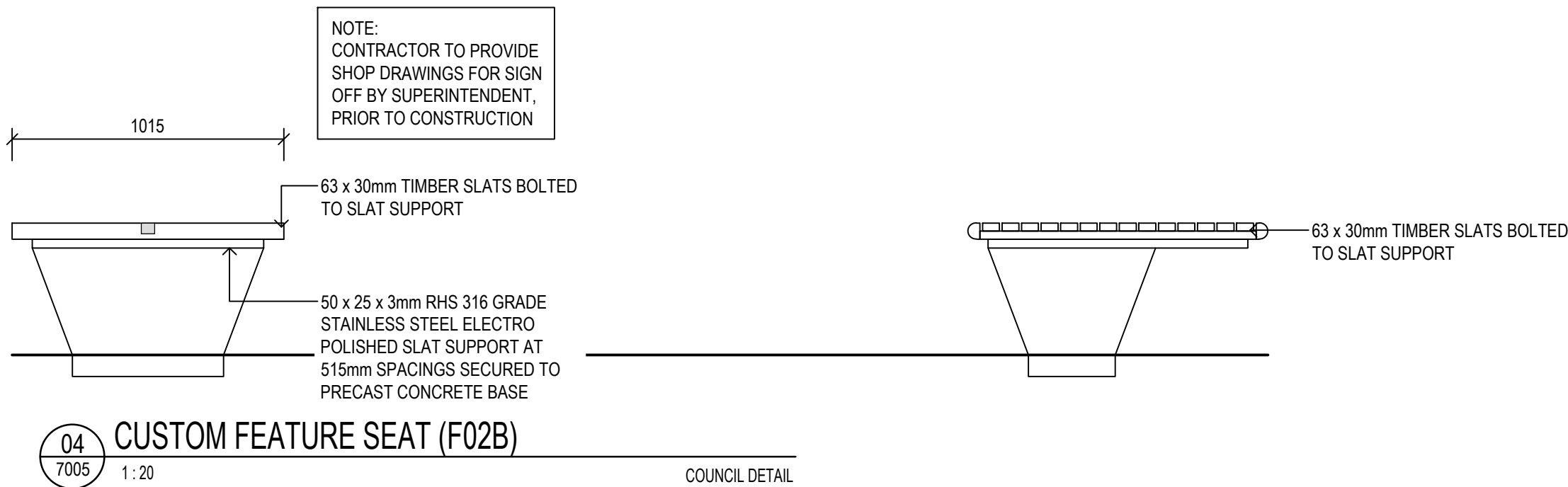
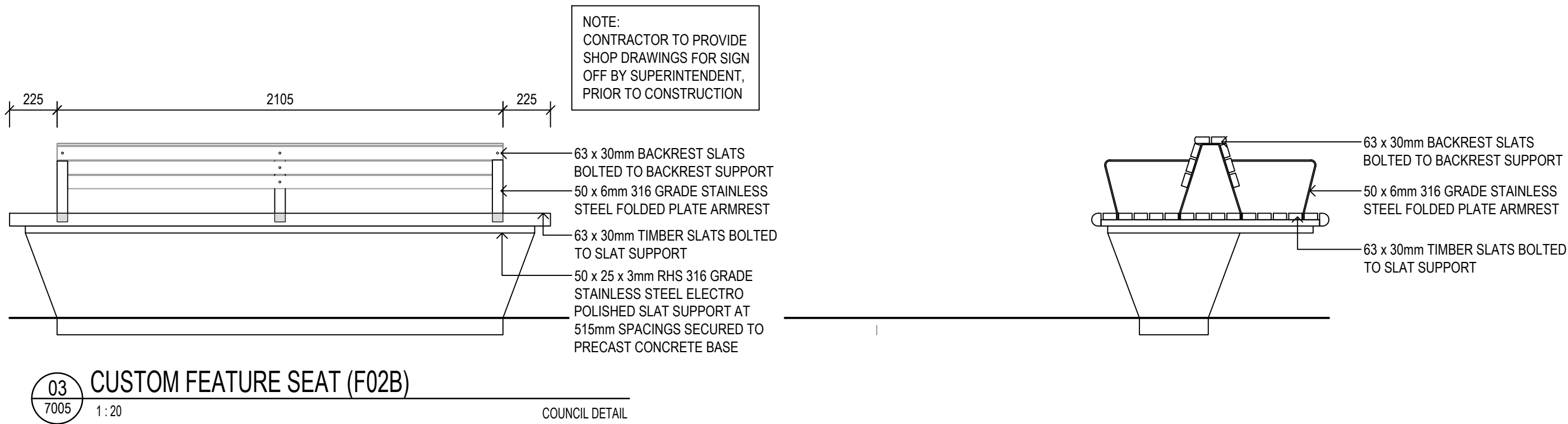
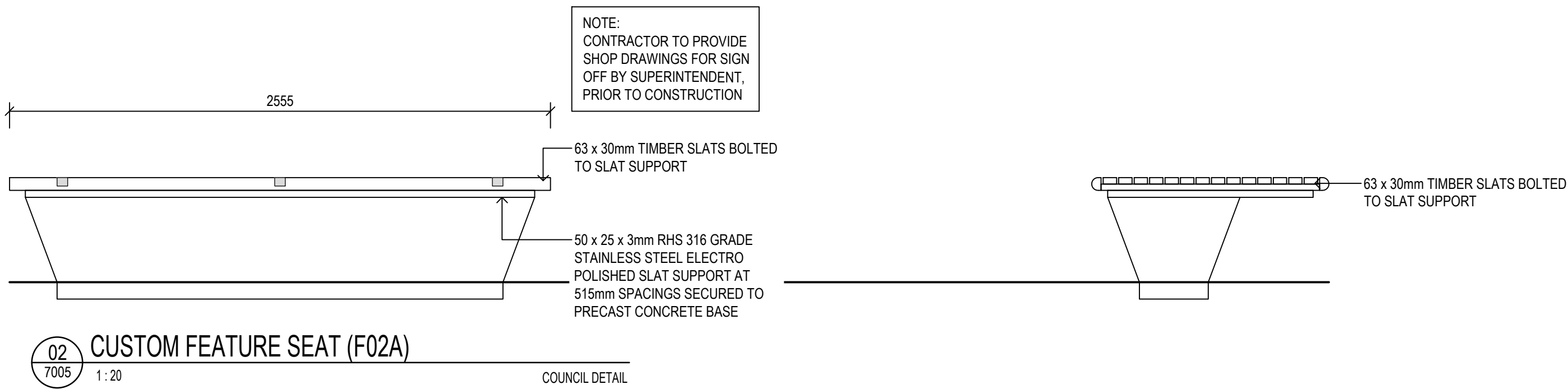
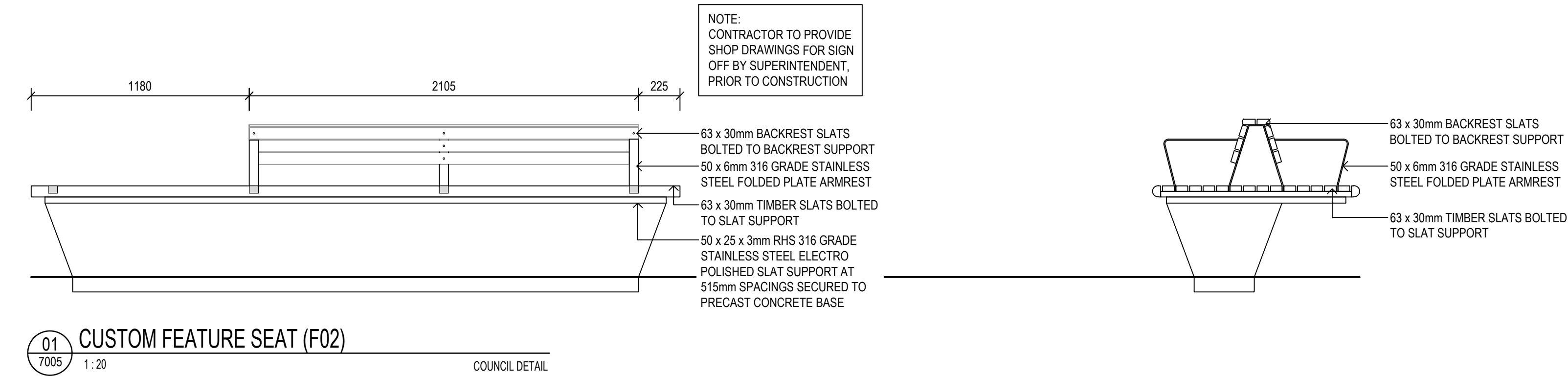
17005 L7003 C

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PRELIMINARY



Amendments		
Description	Date	
A 75% Issue for Review	16/03/2018	
B Issue for Tender	04/05/2018	
C Issue for Tender Revised	09/05/2018	

Client  
**Waverley Council**  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
**C & M Consulting Engineers**  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
**Bitzios Consulting**  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

**GROUP GSA**  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
**Consultant Company**  
Client Details

Consultant  
**Consultant Company**  
Client Details

Project Title

**Bronte Village Centre Upgrade**

Drawing Title

**LANDSCAPE DETAIL - FURNITURE**

Drawing Created (date) 13.03.18

Drawing Created (by) PY

Verified TF

Approved FR

Scale AS NOTED @A1

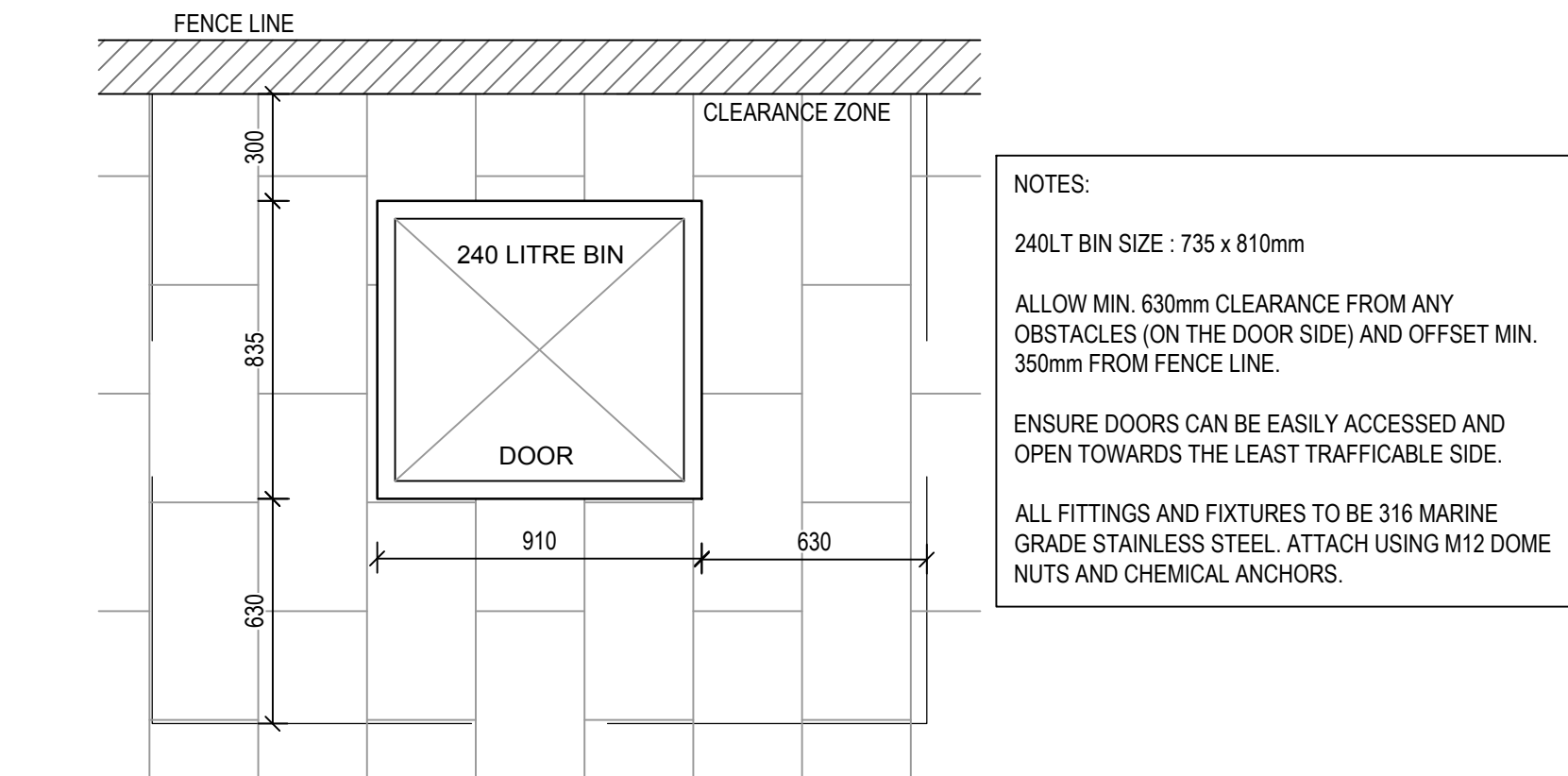
Project No. Drawing No. Issue

**17005 L7005 C**

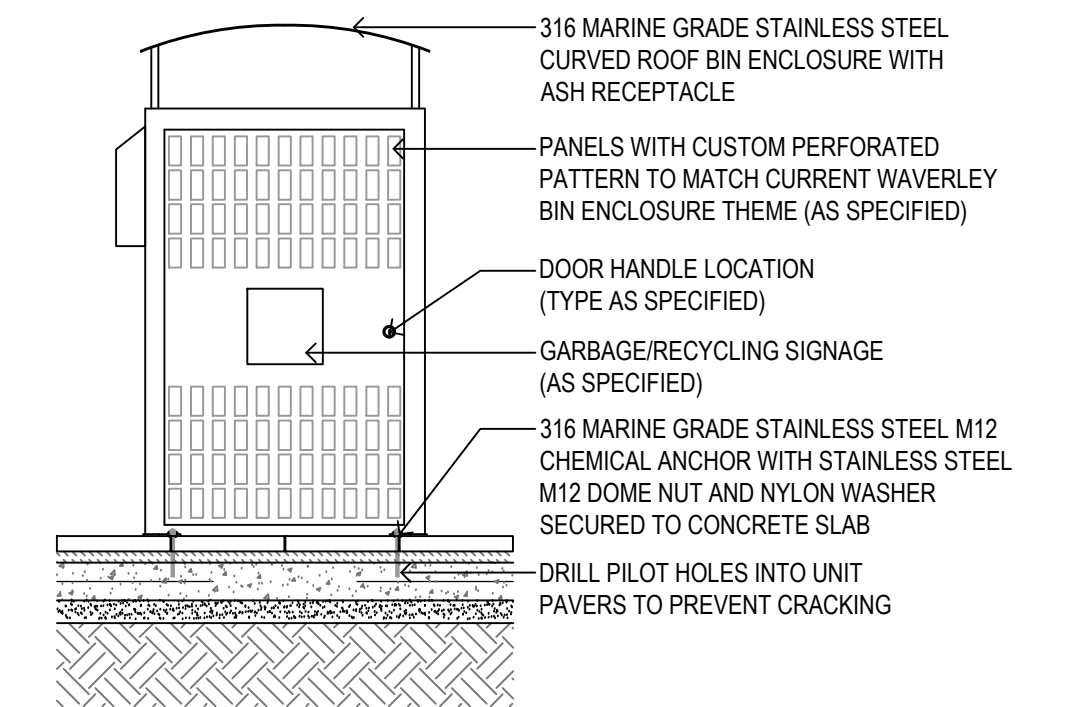
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**PRELIMINARY**

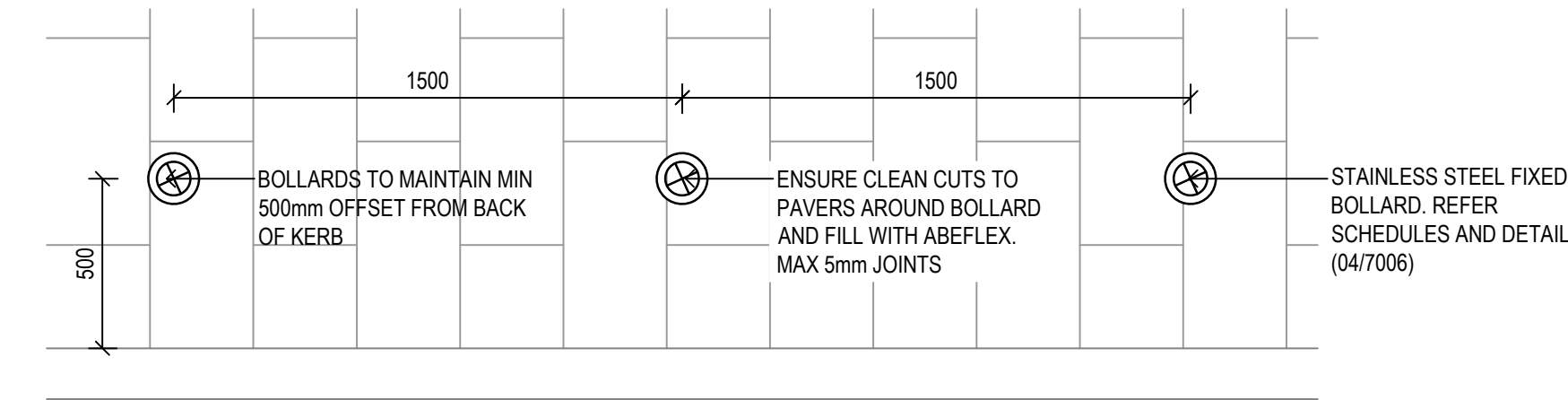




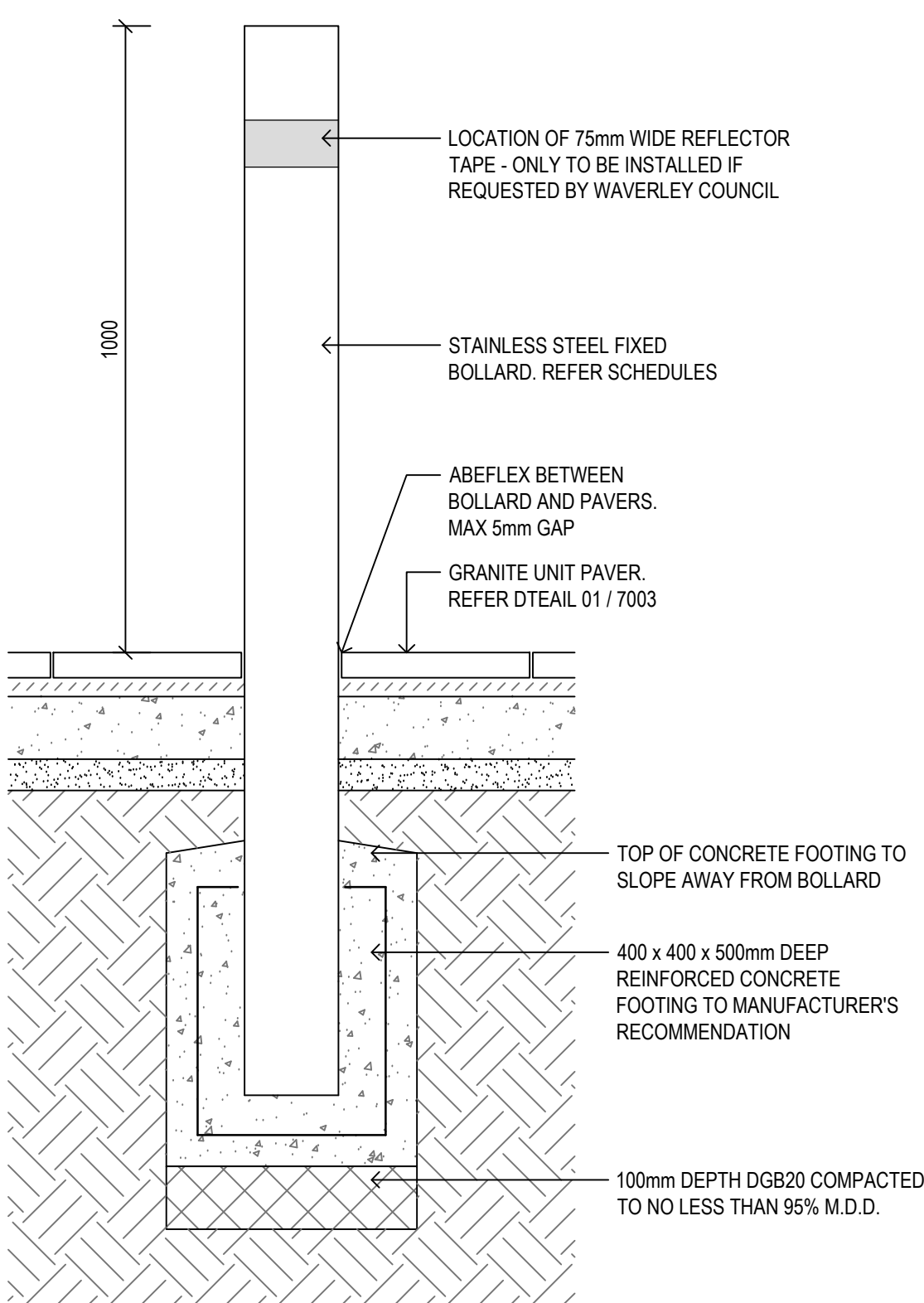
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7006 1:20 COUNCIL DETAIL



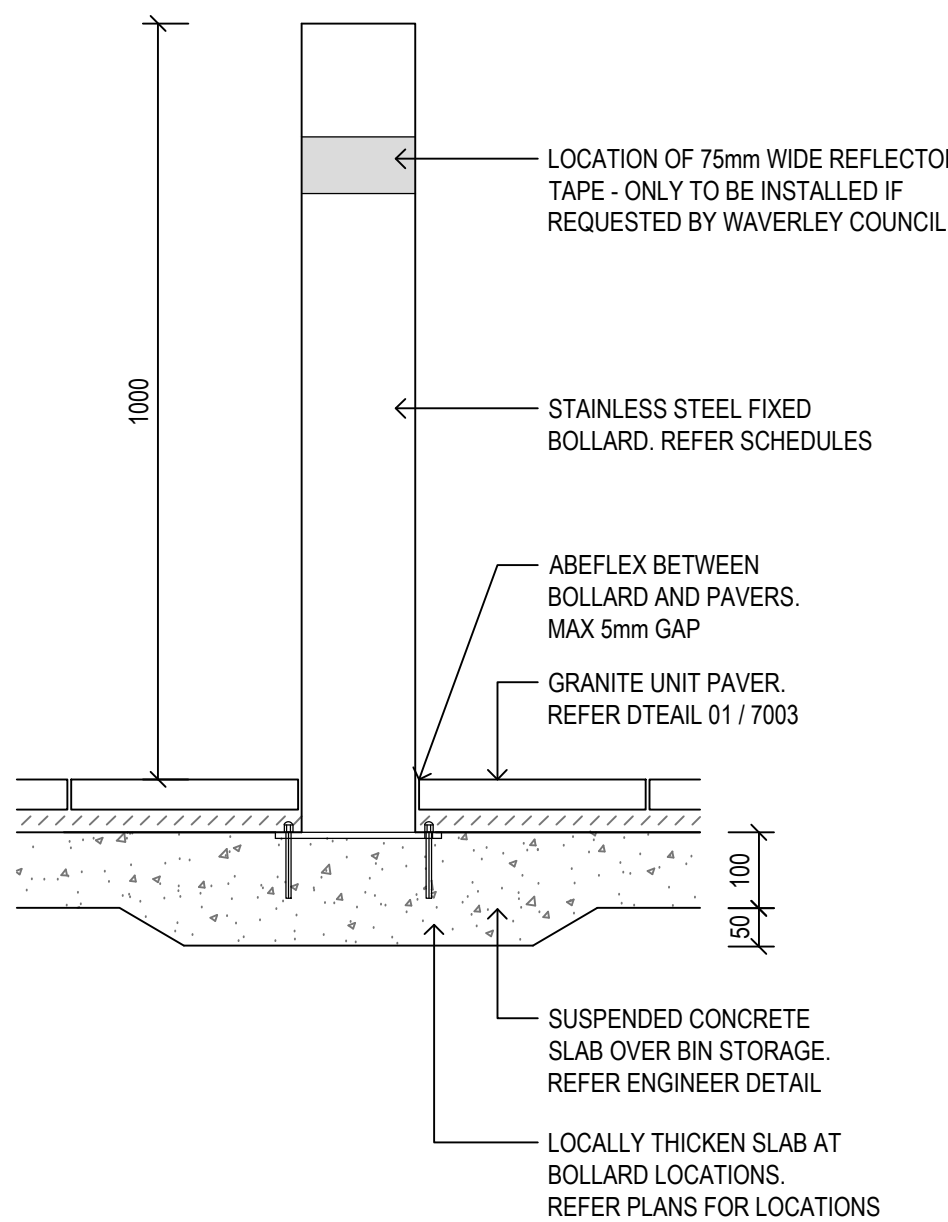
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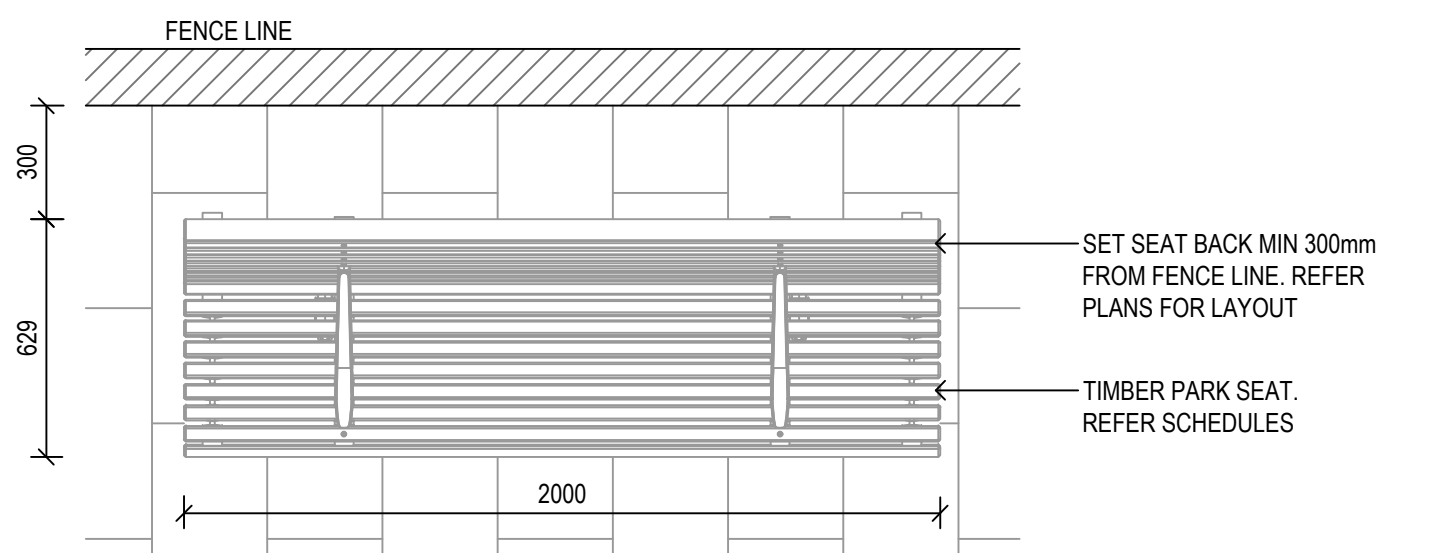
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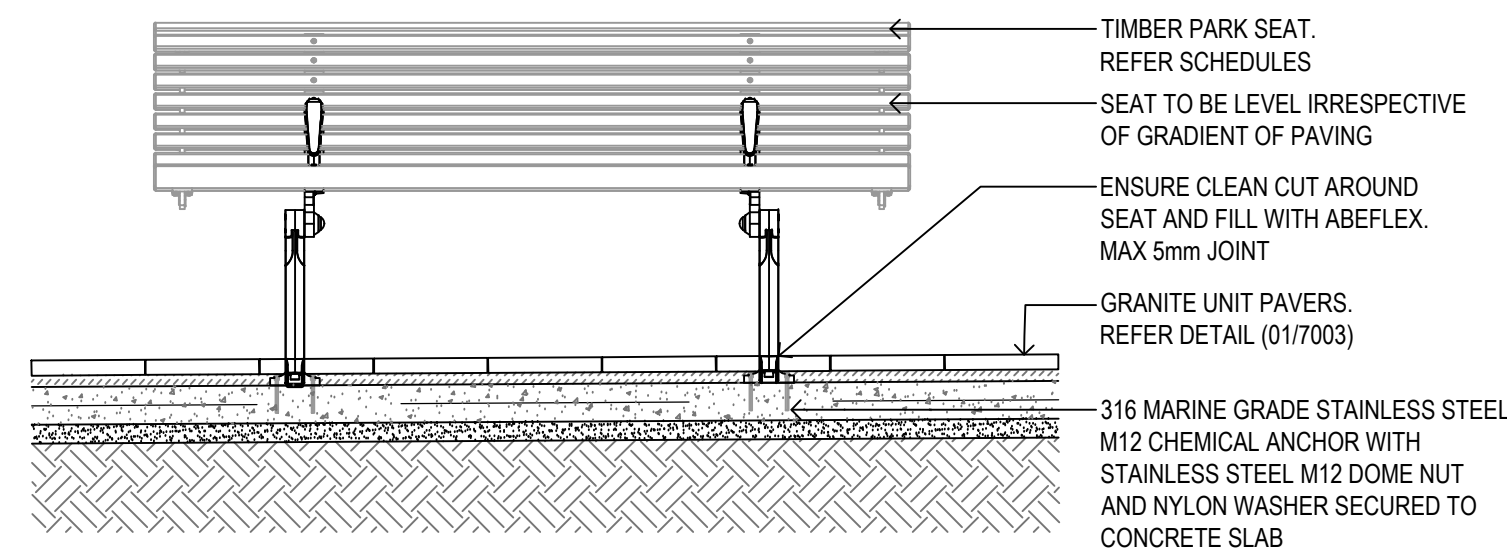
04 VEHICULAR GRADE BOLLARDS (F06) WITH FOOTING  
7006 1:10 COUNCIL DETAIL



05 VEHICULAR GRADE BOLLARDS (F06) WITH PLATE FIXING  
7006 1:10 COUNCIL DETAIL



06 TIMBER PARK SEAT (F01)  
7006 1:20 COUNCIL DETAIL



07 TIMBER PARK SEAT (F01)  
7006 1:20 COUNCIL DETAIL

Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

GROUP GSA  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

LANDSCAPE DETAIL - FURNITURE

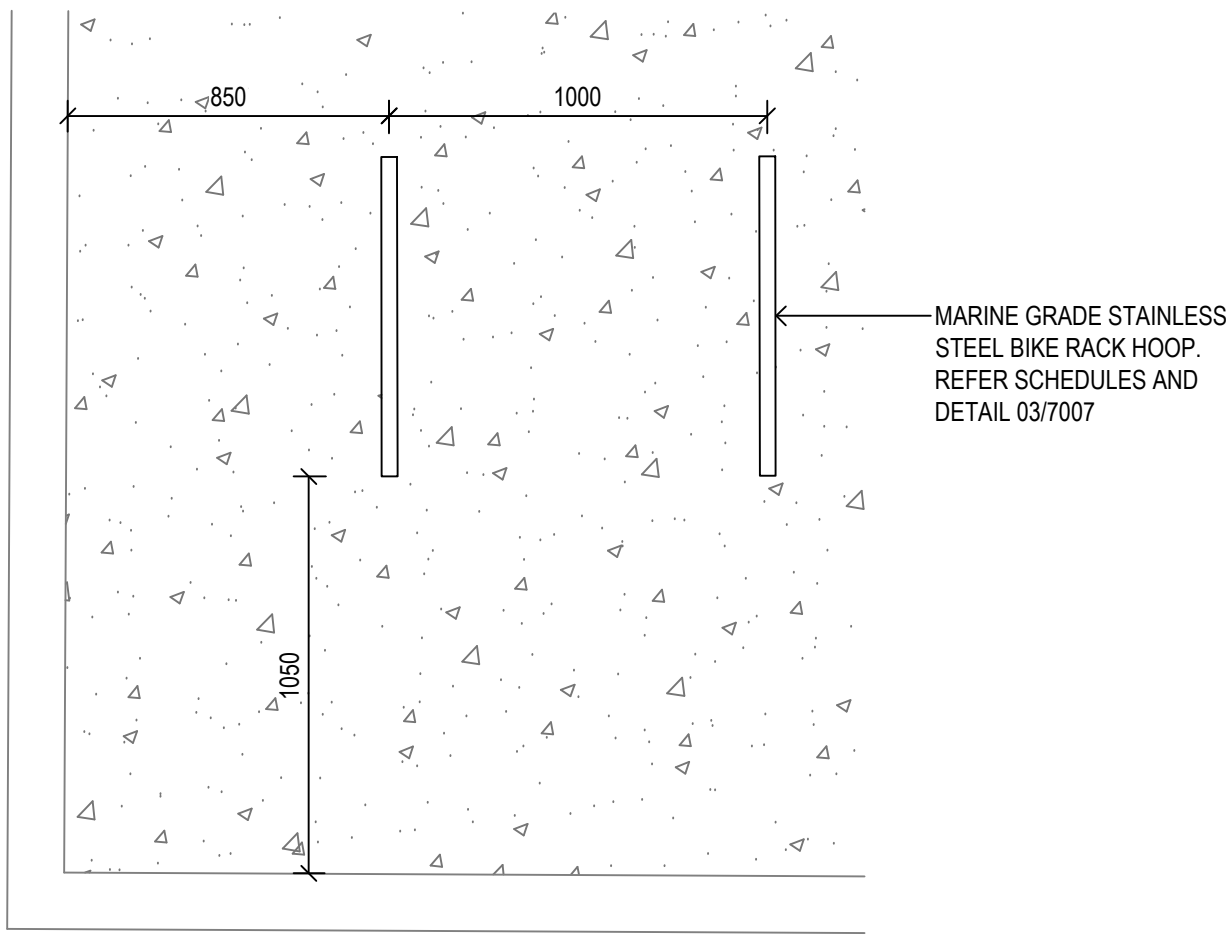
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Verified	TF
Approved	FR
Scale	AS NOTED @A1

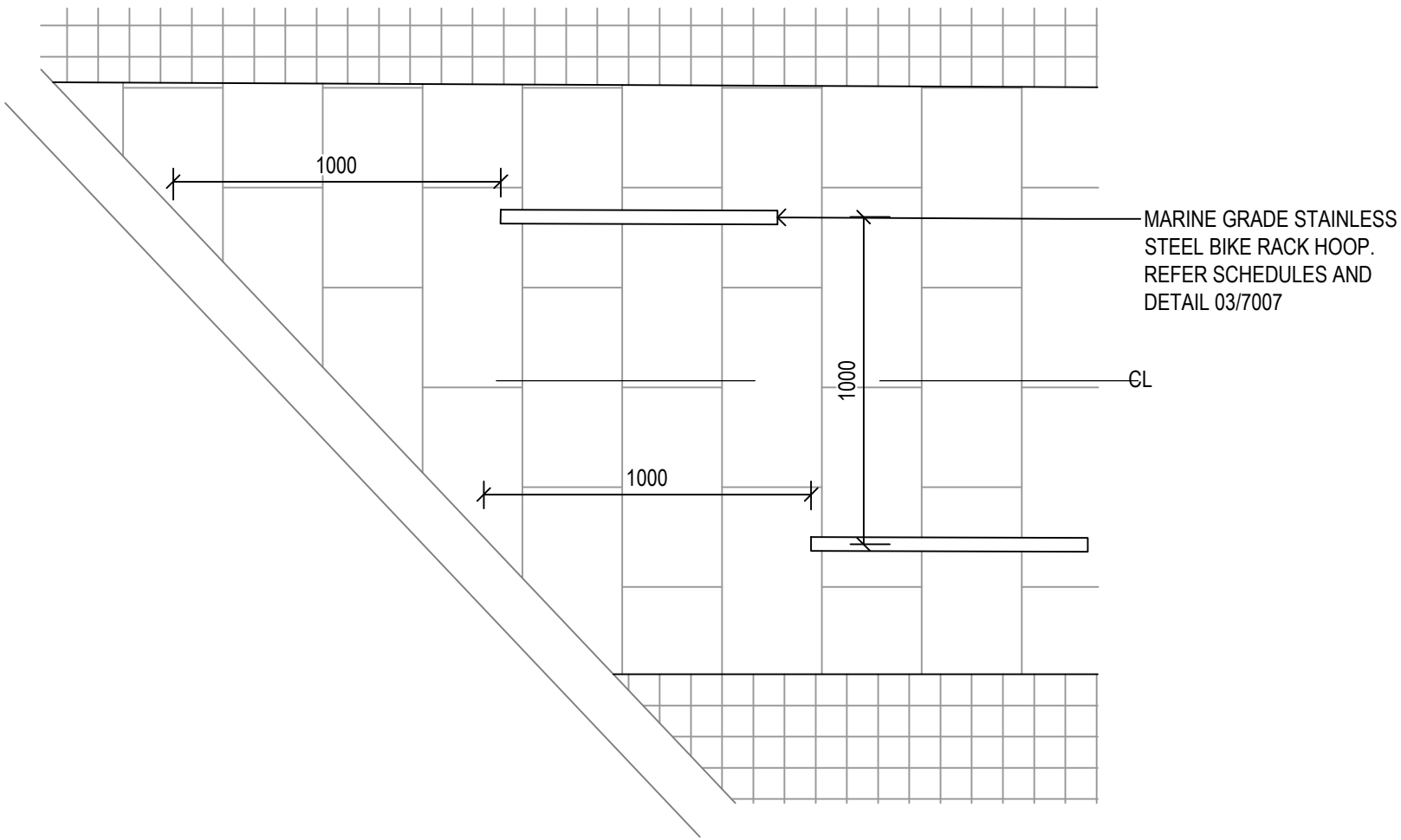
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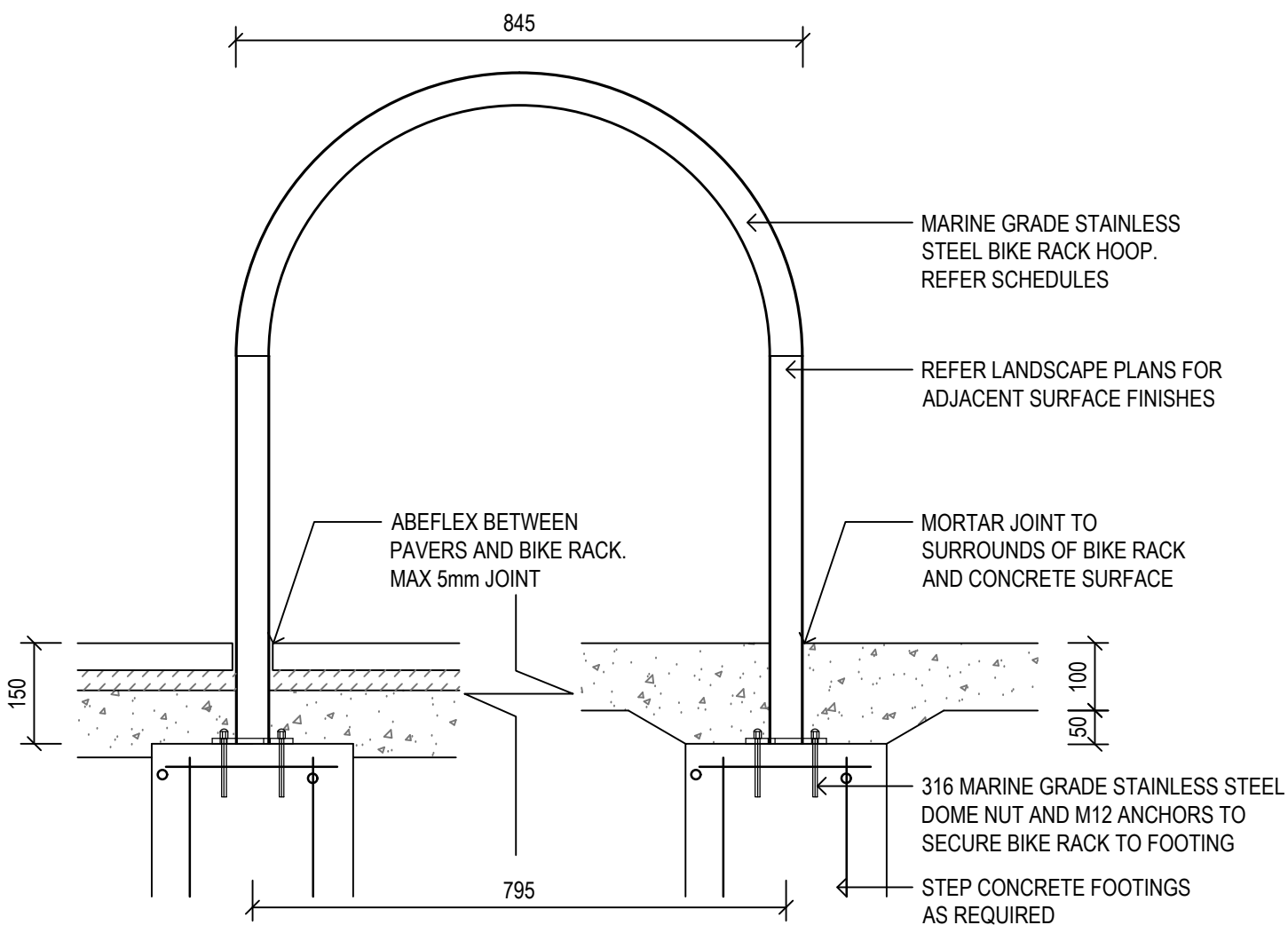




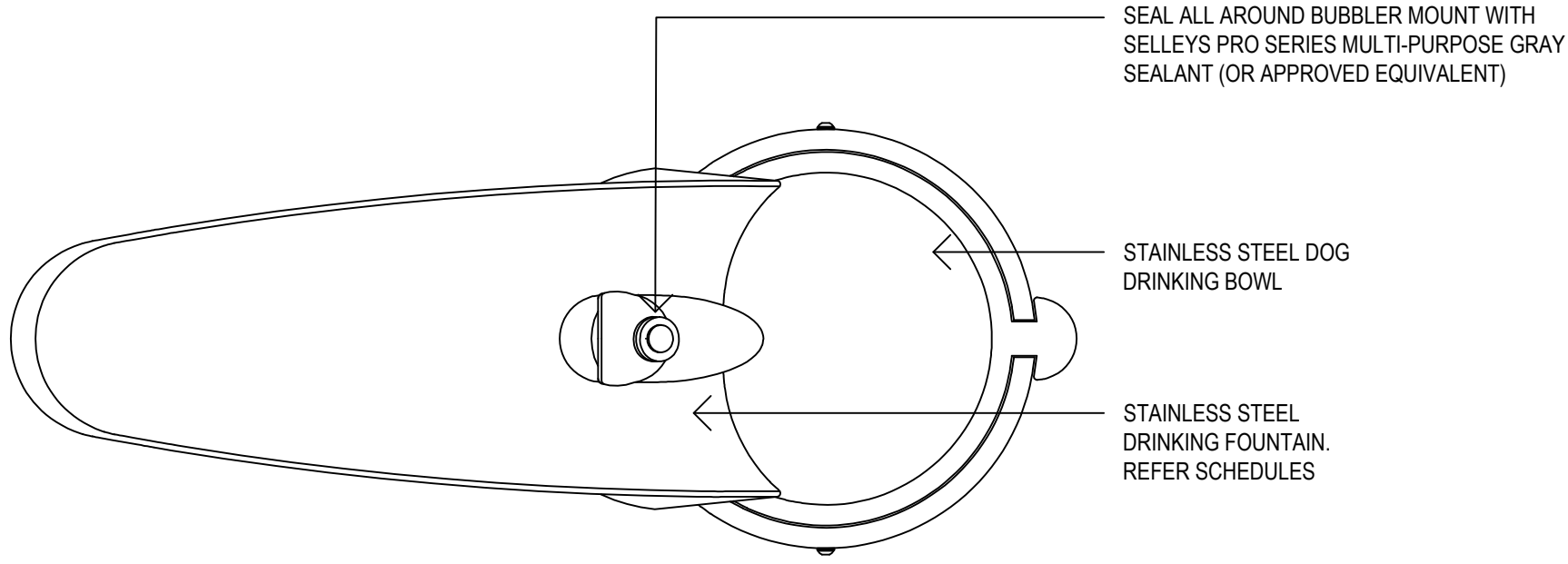
01 BICYCLE RACK (F04) PLAN  
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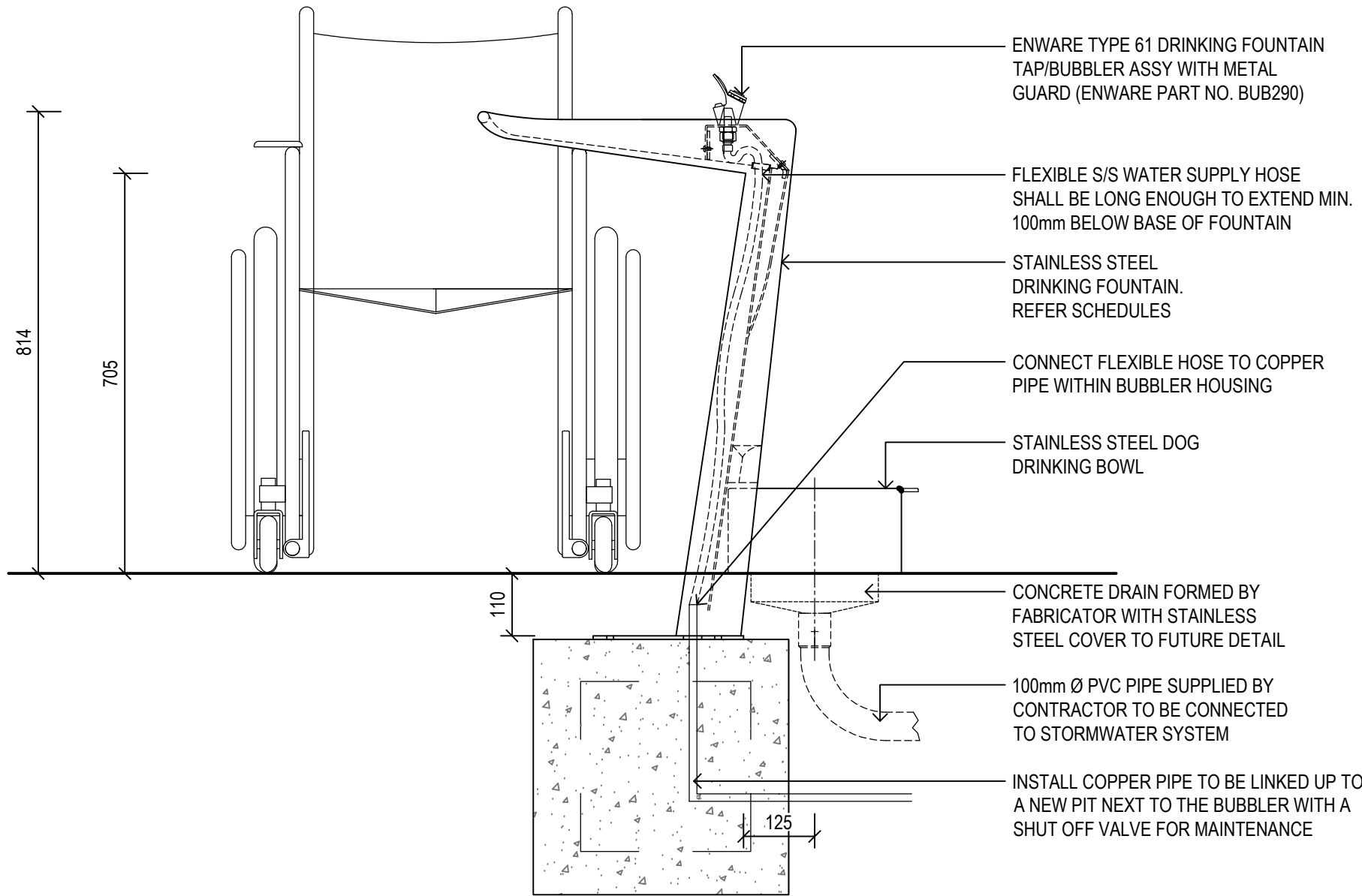
02 BICYCLE RACK (F04)  
1:10 COUNCIL DETAIL



03 BICYCLE RACK (F04) SUBSURFACE MOUNT  
1:5 COUNCIL DETAIL



04 DRINKING FOUNTAIN (F05) PLAN  
1:20 COUNCIL DETAIL



05 DRINKING FOUNTAIN (F05)  
1:5 COUNCIL DETAIL

Amendments	Description	Date
A	75% Issue for Review	16/03/2018
B	Issue for Tender	04/05/2018
C	Issue for Tender Revised	09/05/2018

Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect



Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458

Consultant  
Consultant Company  
Client Details

architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

LANDSCAPE DETAIL - FURNITURE

PRELIMINARY

Drawing Created (date) 13.03.18

Drawing Created (by) PY

Verified TF

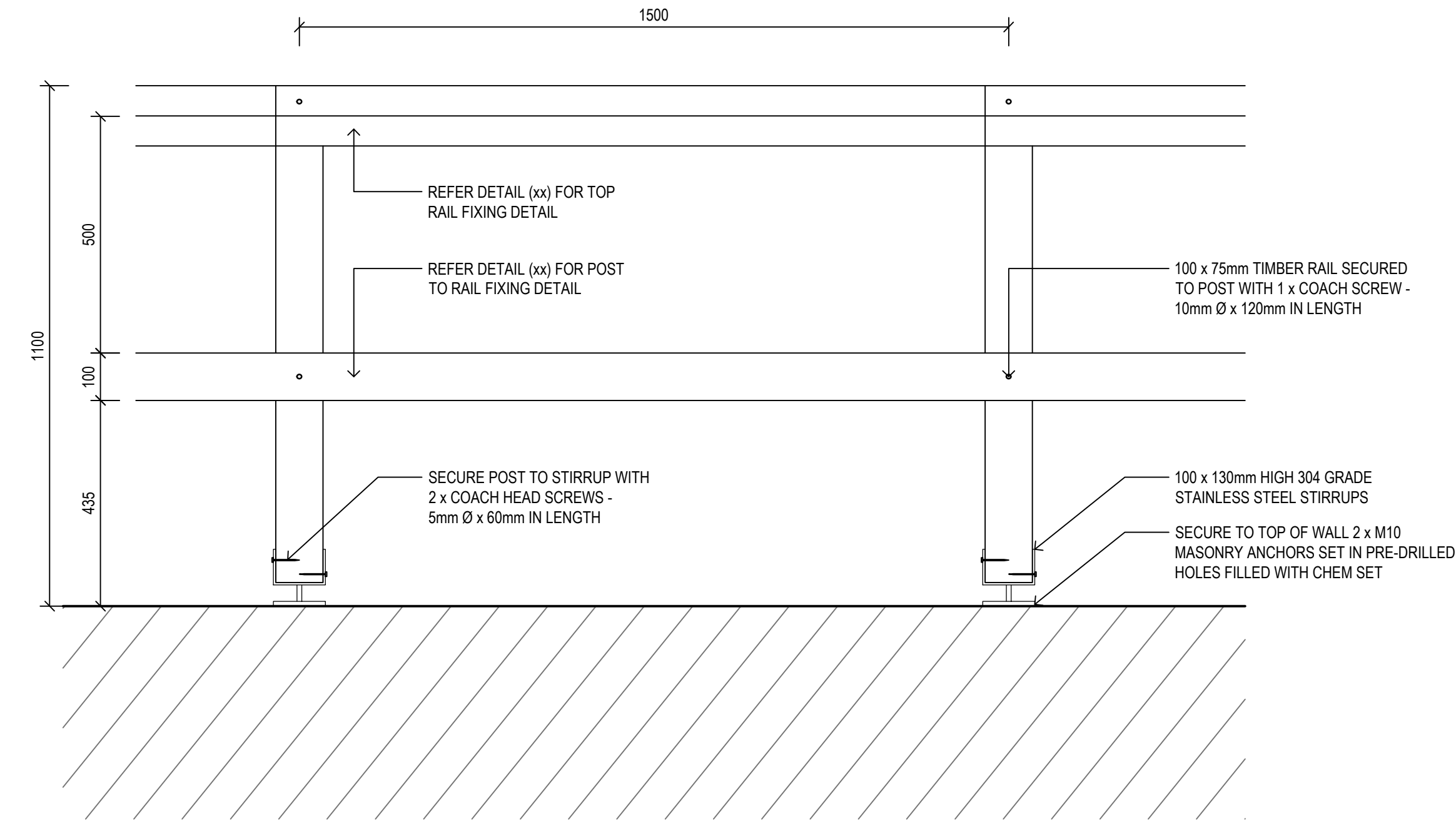
Approved FR

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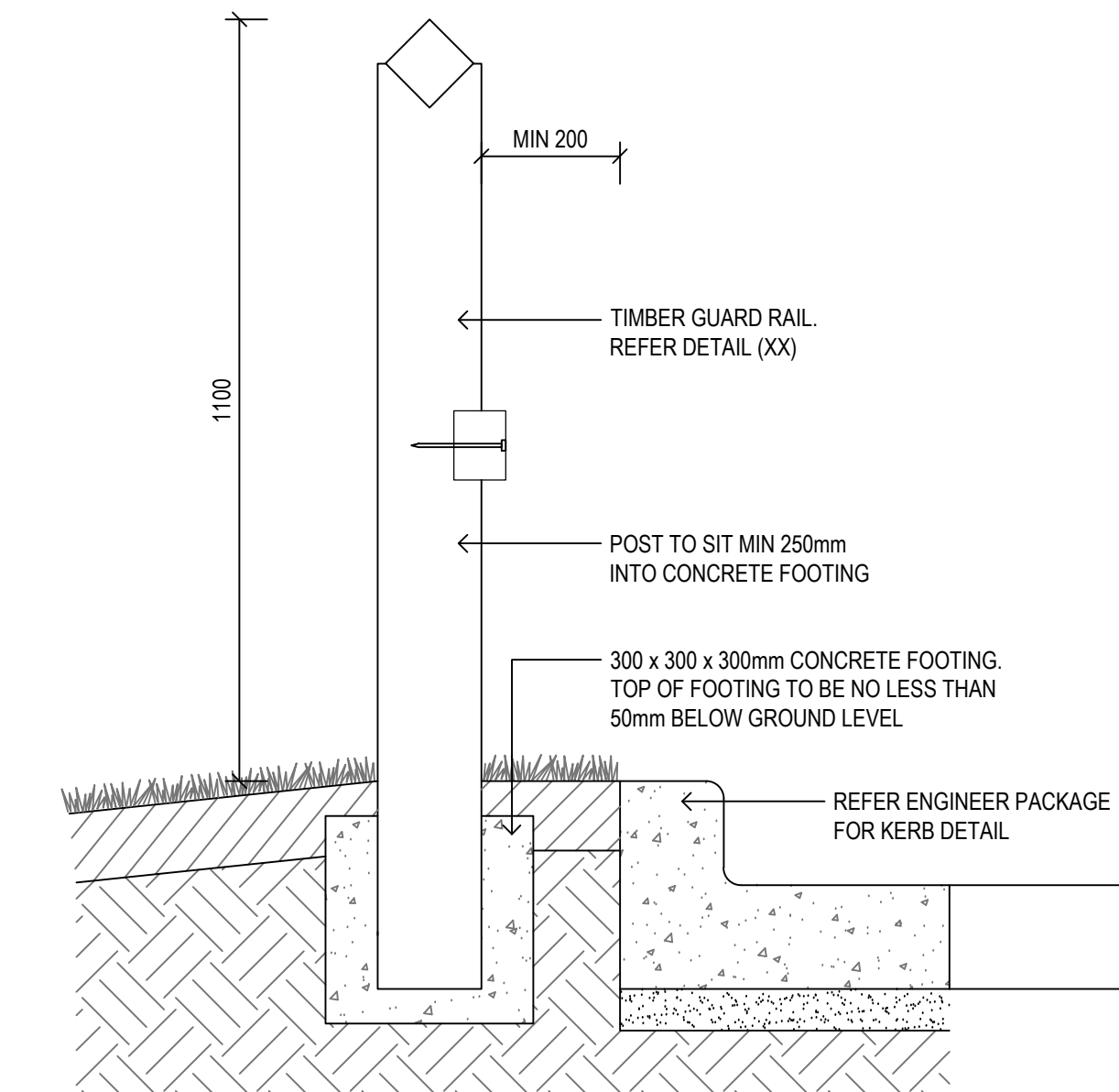
Project No. Drawing No. Issue

17005 L7007 C

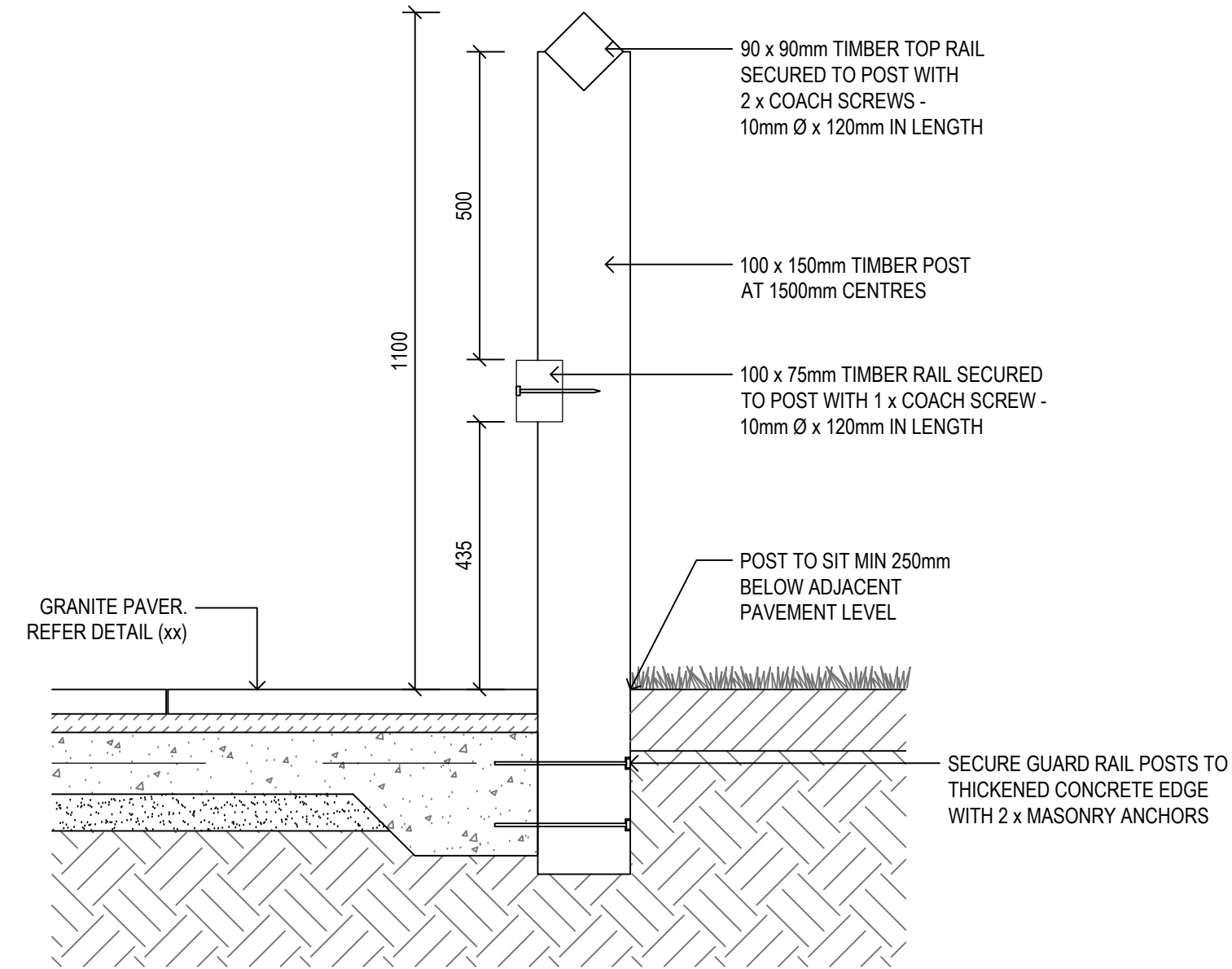
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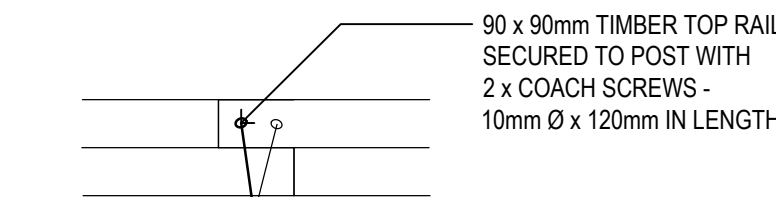
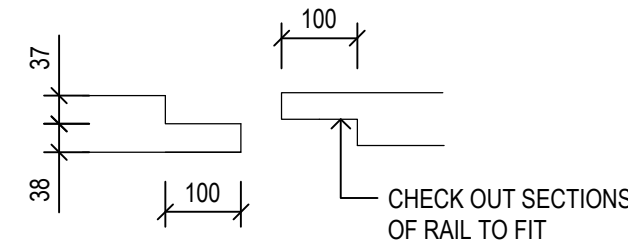
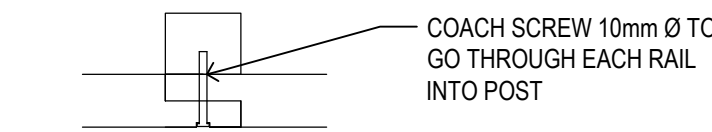
01  
7008  
TIMBER ARRIS FENCE (B01)  
1:20  
TYPICAL DETAIL



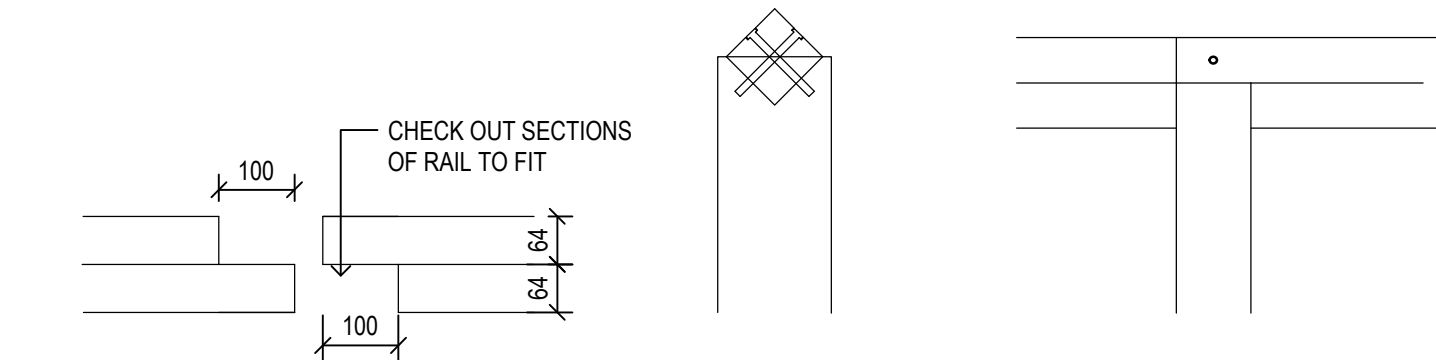
02  
7008  
TIMBER ARRIS FENCE (B01) IN TURF  
1:20  
TYPICAL DETAIL



03  
7008  
TIMBER ARRIS FENCE (B01) IN PAVING  
1:10  
TYPICAL DETAIL



NOTES:  
1. ALL COACH SCREWS TO BE SEATED TO FINISH FLUSH WITH TIMBER SURFACE.  
2. ALL CONNECTION SURFACES, HOLES & SCREW LOCATIONS TO BE FILLED WITH BOG-UP AND SANDED SMOOTH.  
3. TIMBER TO BE AFS, FSC OR PEFC HARDWOOD



04  
7008  
TIMBER ARRIS FENCE (B01) CONNECTIONS  
1:10  
COUNCIL DETAIL

Amendments		
Description	Date	
A 75% Issue for Review	16/03/2018	
B Issue for Tender	4/05/2018	

Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect

GROUP GSA  
Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

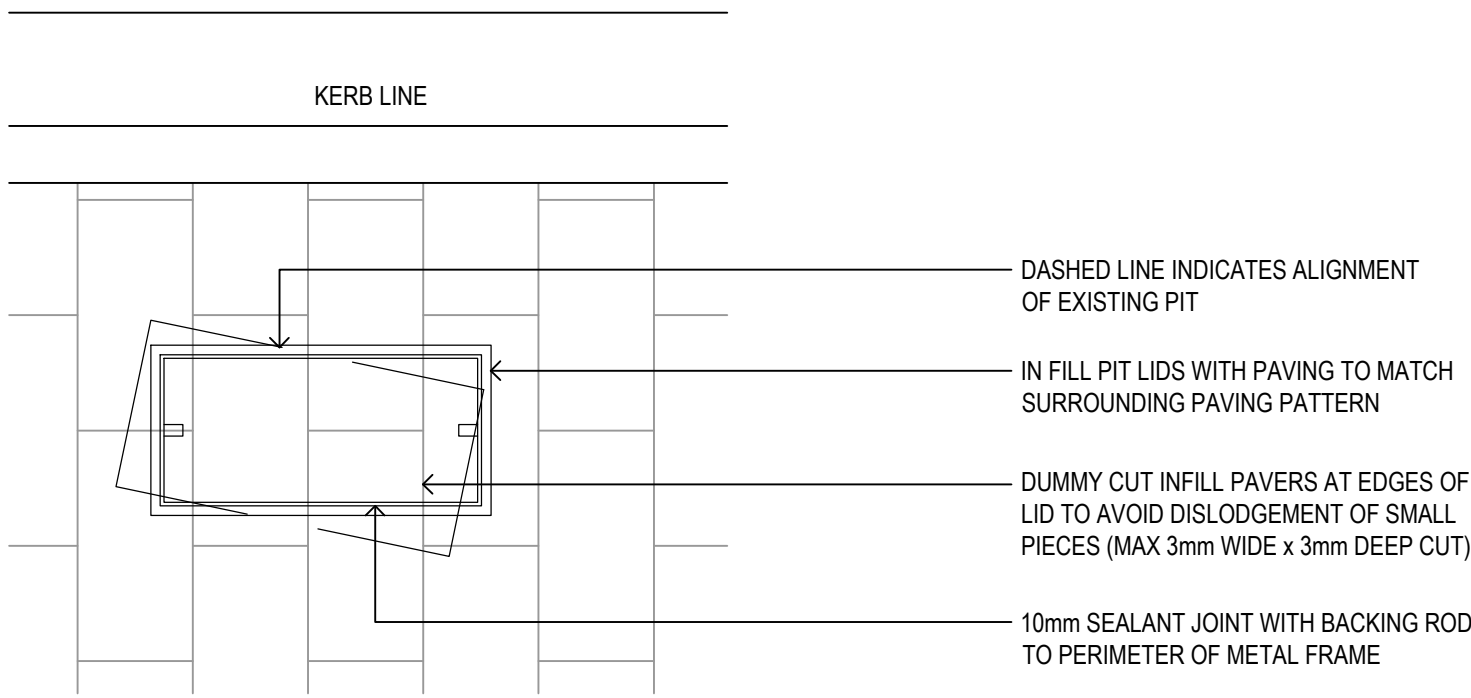
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LANDSCAPE DETAIL -  
HANDRAIL & BALUSTRADE

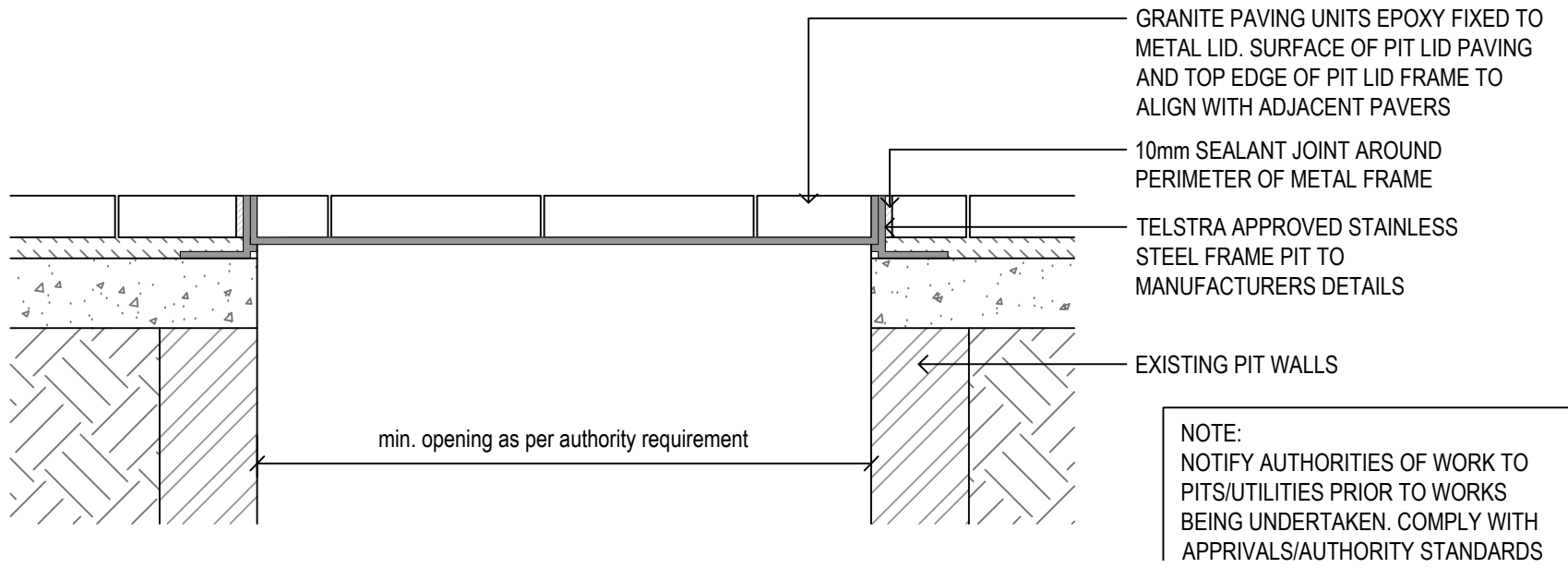
PRELIMINARY

Drawing Created (date)	13.03.18	
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Verified	TF	
Approved	FR	
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17005	L7008	B
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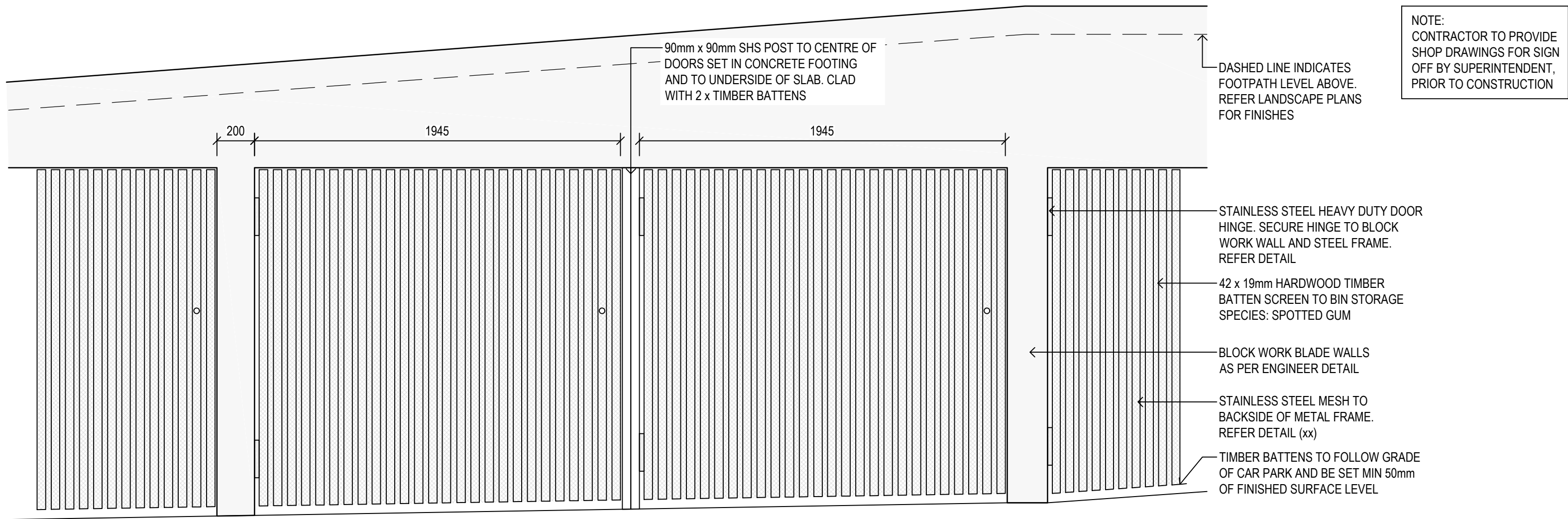




01 INFILL PIT LID  
7009 1:20 TYPICAL PLAN



02 INFILL PIT LID  
7009 1:10 TYPICAL SECTION



03 BIN STORAGE  
7009 1:10

Amendments	
Description	Date
A 75% Issue for Review	16/03/2018
B Issue for Tender	04/05/2018
C Issue for Tender Revised	09/05/2018

Client  
Waverley Council  
55 Grafton Street  
Bondi Junction NSW 2022



Engineer  
C & M Consulting Engineers  
Suite 26  
11-13 Brookhollow Av  
Baulkham Hills NSW 2153

Traffic  
Bitzios Consulting  
Studio 203  
3 Gladstone St  
Newtown NSW 2042

Architect



Group GSA Pty Ltd ABN 76 002 113 779  
Level 7, 80 William St East Sydney NSW  
Australia 2011 www.groupgsa.com  
T +612 9361 4144 F +612 9332 3458  
architecture interior design urban design landscape  
nom architect M. Sheldon 3990

Consultant  
Consultant Company  
Client Details

Consultant  
Consultant Company  
Client Details

Project Title

Bronte Village Centre Upgrade

Drawing Title

LANDSCAPE DETAIL - FIXTURES

PRELIMINARY

Drawing Created (date) 13.03.18

Drawing Created (by) PY

Verified TF

Approved FR

Scale AS NOTED @A1

Project No.

17005

Drawing No.

L7009

Issue

C

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# **Appendix C**

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Heritage Impact Statement - Bronte  
Beach Village – City Plan Heritage






# Heritage Impact Statement

## Bronte Beach Village

Bronte Road, Bronte

Submitted to City of Waverley Council  
On Behalf of Group GSA Pty Ltd

## Report Revision History

Revision	Date Issued	Prepared by	Reviewed by	Verified by
01	2/10/18	<b>Samara Allen</b> <i>Assistant Heritage Consultant</i>	<b>Carole-Lynne Kerrigan</b> <i>Associate Director Heritage</i>	<b>Carole-Lynne Kerrigan</b> <i>Associate Director - Heritage</i> 
02	24/10/2018	<b>Samara Allen</b> <i>Assistant Heritage Consultant</i>	<b>Carole-Lynne Kerrigan</b> <i>Associate Director Heritage</i>	
03 Draft for release	26/10/2018	<b>Samara Allen</b> <i>Assistant Heritage Consultant</i>	<b>Carole-Lynne Kerrigan</b> <i>Associate Director Heritage</i>	
04 Final for release	12/11/2018	<b>Samara Allen</b> <i>Assistant Heritage Consultant</i>	<b>Carole-Lynne Kerrigan</b> <i>Associate Director Heritage</i>	

### CERTIFICATION

This report has been authorised by City Plan Heritage P/L, with input from a number of other expert consultants, on behalf of the client. The accuracy of the information contained herein is to the best of our knowledge not false or misleading. The comments have been based upon information and facts that were correct at the time of writing this report.

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## 1. Introduction

### 1.1 Background

Waverley Council (WC) proposes public domain upgrades of Bronte Road, between Nelson Avenue and Calga Place (subject site) in Bronte Village. In accordance with these works Group GSA Pty Ltd, landscape architects, has developed a landscape proposal in consultation with WC and Bitzios Consulting (traffic). City Plan Heritage (CPH) has been engaged by Group GSA to assess the potential impact these proposed works may have on the known heritage values of the subject site.

This Heritage impact statement (HIS) has been prepared as part of the required assessments to accompany a Development Application (DA) to WC under the *Environmental Planning and Assessment Act 1979*. All recommendations are made in accordance with statutory requirements and cultural heritage best practice.

City Plan Heritage (CPH) was not involved in this process.

### 1.2 Heritage listing

The subject site is not listed as a heritage item in Part 1 of Schedule 5 of the Waverley Local Environment Plan (LEP) 2012. It is, however, located within close proximity to the following heritage items:

#### Environmental Planning and Assessment Act, 1979

##### Waverley LEP 2012, Part 1 Heritage items

- Inter-war style building, 473 Bronte Road (Bogey Hole Café), item no. I279
- Recreational facility, Bronte Ocean Pool, item no. I280

##### Waverley LEP 2012, Part 2 Heritage conservation areas

- Bronte Beach Landscape Conservation Area (C29)
- Gardyne Street Landscape Conservation Area (C45)
- South Bronte Headland Landscape Conservation Area (C59)

Note: The former tram shed (indicated in Figure 1 and Figure 12, and Figure 23 to Figure 25 of Section 2.2) geographically sits on the external border of the Bronte Beach Landscape (C29) HCA, however the 2017 Bronte Park and Beach Plan of Management states that this is included within the C29 HCA.



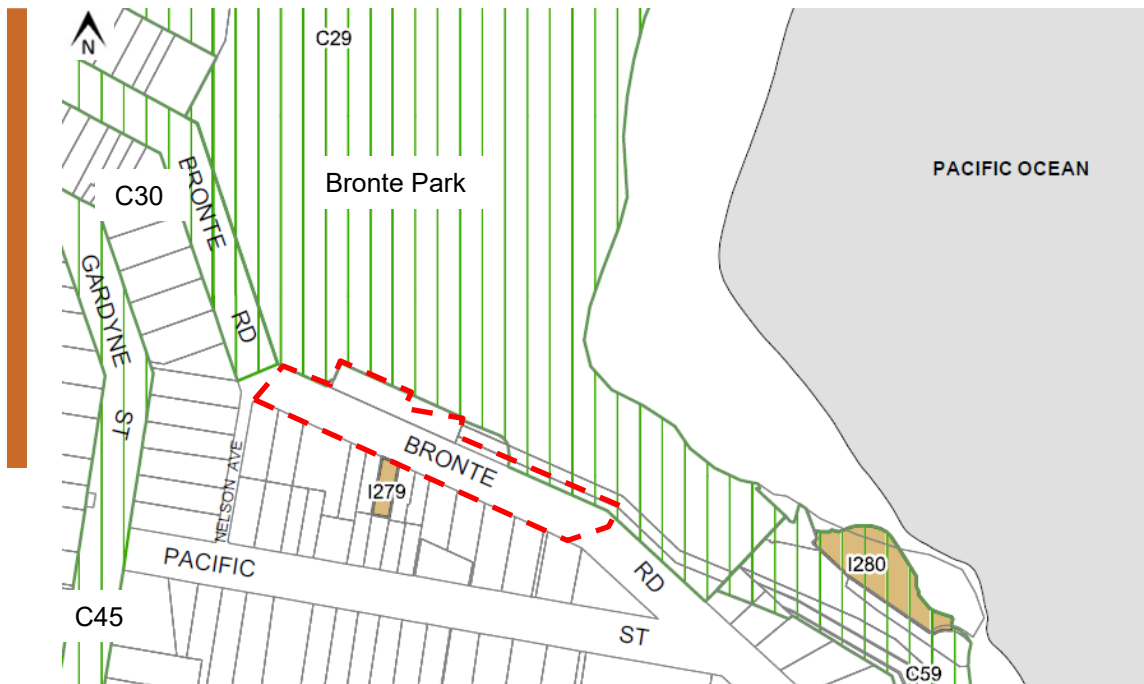


Figure 1: Subject site (circled in red) in relation to listed heritage items (Source: Waverley LEP 2012, Heritage Map 004B).

### 1.3 Site Location

The subject site is located to the south of Bronte Park on the northern side of 459-493 Bronte Road, between Nelson Ave and just east of Calga Place. It includes the tram shed associated with the early tram transportation system between Bondi Junction and Bronte Beach. The subject site is also proximal to Bronte Beach, and is approximately 7km south-east from the Sydney Central Business District (CBD).



Figure 2: Subject site indicated in red. The former tram shed is indicated by the blue star (Source: Group GSA, Cover Sheet L0000 F 19/10/2018).

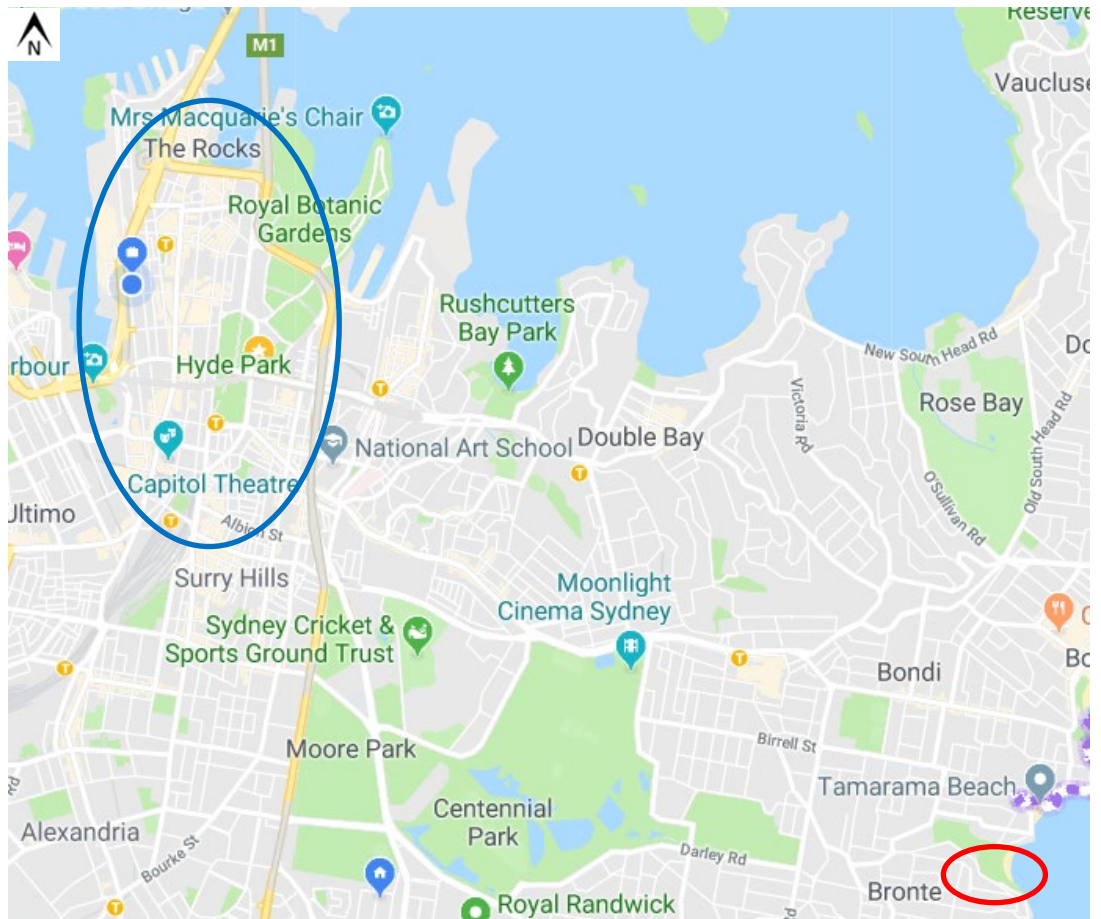


Figure 3: View of subject site (red circle) in relation to distance from Sydney Central Business District (blue circle) (Source: Google Maps, accessed October 2018).

## 1.4 Proposal

WC is currently undergoing a redevelopment of the landscape within the public domain of Bronte Village. Associated with this development are footpath upgrades and remediation; disabled access; new vehicle crossings; relocation of the pedestrian crossing; provision of street furniture and lighting; new plantings and fencing; and demolition. The proposed redevelopment is currently at developed design stage. CPH were not involved in the design process.

This HIS has assessed the following information provided by Group GSA. To aid an understanding of the proposal, relevant plans and photomontages have been included at Figure 4 to Figure 8.

The following drawings were reviewed during production of this report.

Drawing no.	Drawing Title	Revision no.	Date
L0000	Cover Sheet	F	19/10/2018
L1001	Demolition Plan Sheet 1	F	19/10/2018
L1002	Demolition Plan Sheet 2	F	19/10/2018
L1003	Demolition Plan Sheet 3	F	19/10/2018
L1101	Existing Infrastructure Sheet 1	E	19/10/2018
L1102	Existing Infrastructure Sheet 2	E	19/10/2018
L1103	Existing Infrastructure Sheet 3	E	19/10/2018
L2000	Landscape Schedule	E	19/10/2018
L2001	General Arrangement Sheet 1	F	19/10/2018
L2002	General Arrangement Sheet 2	F	19/10/2018
L2003	General Arrangement Sheet 3	F	19/10/2018
L2101	Furniture and Fixtures Sheet 1	E	19/10/2018
L2102	Furniture and Fixture Sheet 2	E	19/10/2018
L2103	Furniture and Fixture Sheet 3	E	19/10/2018
L3001	Levels Plan Sheet 1	F	19/10/2018
L3002	Levels Plan Sheet 2	F	19/10/2018
L3003	Levels Plan Sheet 3	F	19/10/2018
L5001	Planting Plan Sheet 1	E	19/10/2018
L5002	Planting Plan Sheet 2	E	19/10/2018
L6000	Sections and Elevations Location Plan	B	19/10/2018
L6001	Sections and Elevations	E	19/10/2018
L6002	Sections and Elevations	E	19/10/2018
L6003	Sections and Elevations	E	19/10/2018
L6004	Sections and Elevations	E	19/10/2018
L7001	Landscape Detail - Softscape	E	19/10/2018
L7002	Landscape Detail - Softscape	E	19/10/2018
L7003	Landscape Detail - Finishes	E	19/10/2018
L7004	Landscape Detail - Walls & Edging	E	19/10/2018

L7005	Landscape Detail - Furniture	E	19/10/2018
L7006	Landscape Detail - Furniture	E	19/10/2018
L7007	Landscape Detail - Furniture	E	19/10/2018
L7008	Landscape Detail - Handrail & Balustrade	D	19/10/2018
L7009	Landscape Detail - Fixtures	E	19/10/2018

For ease of reference the following figures provide a summary overview of the proposed works.

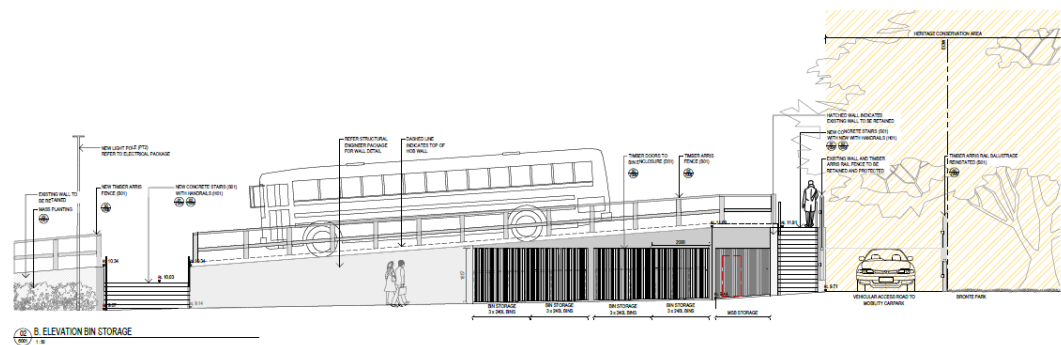


Figure 4: Elevation indicating the relationship between Bronte Park and the raised level bus zone (Source: Group GSA, Sections and Elevations L6001 E 19/10/2018).

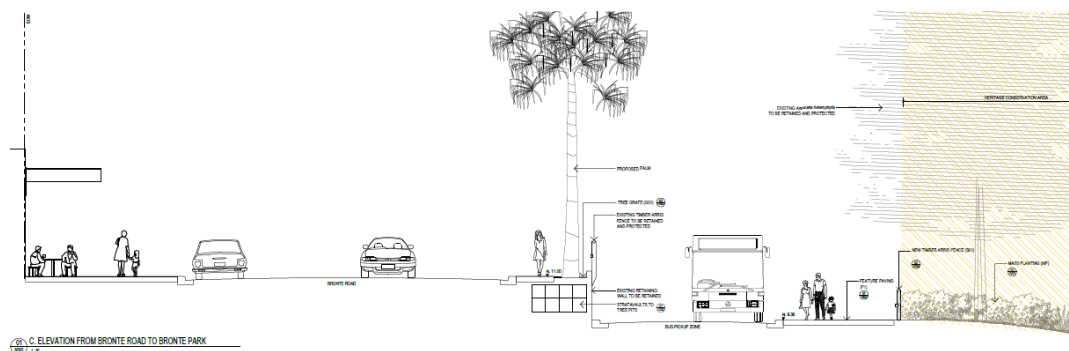


Figure 5: Section indicating café strip to the south and bus zone at a lower level to the north of Bronte Road (Source: Group GSA, Sections and Elevations L6002 E 19/10/2018).





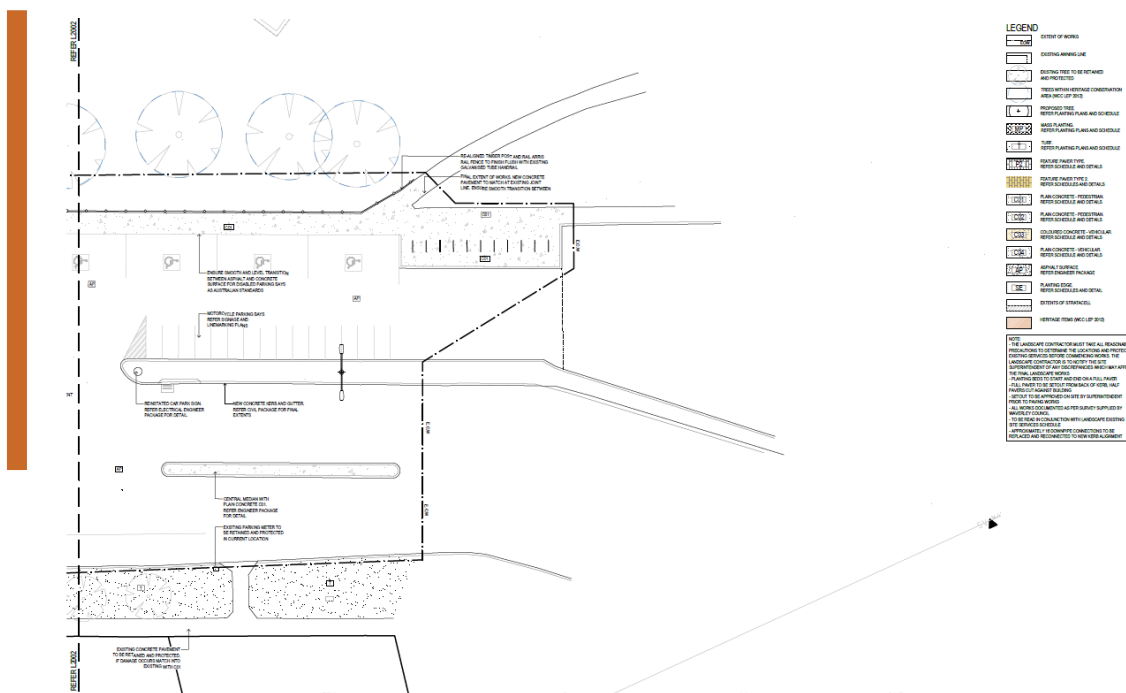


Figure 8: Extract of General Arrangement Sheet 3, showing the extent of the proposed works (Source: Group GSA, General Arrangement Sheet 3, L2003 F 19/10/2018).

## 1.5 Methodology

This Heritage Impact Statement has been prepared in accordance with the *NSW Heritage Manual* 'Statements of Heritage Impacts' and 'Assessing Heritage Significance' guidelines. The philosophy and process adopted is that guided by the Australia ICOMOS *Burra Charter* 2013. The subject proposal has been assessed in relation to the relevant controls and provisions contained within the Waverley LEP 2012, and the Waverley Development Control Plan (DCP) 2012.

Research for this HIS has adopted a two-stepped approach. Step 1 involving a desktop assessment and Step 2 being a site survey. This document provides a findings and recommendations resulting from this approach.

### Step 1

Research into the historical development of the subject site was conducted to provide a thorough understanding of the place and fabric. Further, the Waverley LEP 2012 and the NSW Heritage Register were examined to determine the known heritage values of the subject site.

## Step 2

A survey of the subject site and the context of its setting within Bronte Beach was conducted by Samara Allen (Assistant Heritage Consultant) and Carole-Lynne Kerrigan (Associate Director - Heritage) on 14 September 2018 with the purpose of photographing and understanding the place. All results are presented in Schedule 2.

## 1.6 Author Identification

The following report has been prepared by Samara Allen (Assistant Heritage Consultant). Carole-Lynne Kerrigan (Associate Director - Heritage) has reviewed and endorsed its content.



## 1.7 Constraints and Limitations

- This assessment does not include a heritage landscape assessment.
- This assessment relates to the proposed works and documentation described in Section 1.4. It does not relate to any additional or revised documentation by any party.
- The survey was based on a visual assessment only. Intrusive investigative methods were not used.
- A detailed archaeological assessment including an assessment of Aboriginal cultural heritage values does not form part of the scope of this HIS; neither does it form part of a Section 140 Application for an Excavation Permit or Section 144 Application for an Excavation Variation Permit.

## 2. Site Context and Description

### 2.1 Site Context

The subject site is within the suburb of Bronte situated south-east of the Sydney CBD (see Section 1.3) along coastline, and directly south of Bronte Park and Bronte Beach. Bronte Beach is a fine, small-scale sandy beach bookended to the north and south by rocky outcrops (Figure 10 and Figure 11). It is an unusual example for Sydney as the beach itself is not separated from the associated park by a road (only the wide concrete footpath visible in Figure 10 and Figure 11).

Bronte Park consists of landscaped lawn divided into multiple portions by footpaths with a valley reserve extending west for approximately 1km towards the former grounds of Bronte House (Figure 9 and Figure 10). Bronte House is approximately 350m north-west of the subject site. The valley reserve is generally overgrown and naturalistic in comparison to the park but features heritage items, such as original stone staircases, associated with Bronte House.

Bronte Park features planted Norfolk Island pines predominately in the western section of the park and bordering Bronte Road north-west of the subject site (Figure 9). A series of covered picnic tables are dotted throughout the park (Figure 9 and Figure 11) with a children's playground central to the western portion of the park. The Bronte Surf Life Saving Club (SLSC) building is central within Bronte Park accessible via the footpath that divides the beach from the park (Figure 11). The dividing footpath also leads to the Bronte baths (referred to as 'Bronte Ocean Pool' in the Waverley LEP 2012). The former tram shed<sup>1</sup> is located on land initially within Bronte (Figure 12).

A series of mature Canary Island palms border the footpath in the southern portion of Bronte Park where it abuts the subject site along Bronte Road (Figure 36), and various palms and shrubs line the entrance to Calga place as it ascends towards the cut sandstone former tramway (also known as the 'Calga cutting') (Figure 13). The cutting travels uphill towards the coast and around the corner to continue south (Figure 13). This narrow cutting is now utilised as a road along the coastline towards Calga place and a public carpark (Figure 13).

The area south of the subject site features residential properties, cafés and restaurants (Figure 18, Figure 14, Figure 22, Figure 16) with al fresco dining along the brick paved footpath (Figure 15).

The following images relate to the subject site's current context.

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<sup>1</sup> The former tram shed is located on the boundary of the Bronte Beach Landscape (C29) HCA, however the 2017 Bronte Park and Beach Plan of Management states that this is included within the C29 HCA.





Figure 9: View of Bronte Park featuring sheltered picnic tables and Norfolk Island pines. Note: direction towards Bronte House (red arrow) via hill slope (Source: City Plan Heritage).



Figure 10: View north-east from subject site to Bronte Park and Bronte Beach, featuring sheltered picnic table and concrete inter-war footpath (Source: City Plan Heritage).





Figure 11: View north from subject site towards Bronte Park and Bronte Beach featuring the Bronte Surf Life Saving Club (SLSC) building constructed during the park's inter-war phase of development. (Source: City Plan Heritage).



Figure 12: View of eastern wall of former tram shed within Bronte Park (Source: City Plan Heritage).





Figure 13: View east from the subject site featuring the coastline and the incline of Calga Avenue towards the 'Calga cutting' (shown in red). Note: the road grows narrower as it inclines (Source: City Plan Heritage).



Figure 14: View south-east from within subject site of residential properties east of the café strip (direction of strip indicated in red). (Source: City Plan Heritage).





Figure 15: View west along cafe strip with al fresco dining along the brick paved footpath (Source: City Plan Heritage).



Figure 16: Bogey Hole café (item no. I279) (indicated in red) (Source: City Plan Heritage).





Figure 17: View north towards Bronte Park from Bogey Hole Cafe (item no. I279) (Source: City Plan Heritage).



Figure 18: View south-east from western boundary of the subject site, featuring the café strip (circled in red) and bordering apartment complex 'Corona' (circled in blue) (Source: City Plan Heritage).



Figure 19: View across the subject site towards Bronte Park. The bus zone is indicated in red. (Source: City Plan Heritage).

## 2.2 Site Description

The subject site consists of a portion of Bronte Road south of Bronte Park and Bronte Beach. The portion of Bronte Road implicated by the works runs diagonally from north-west to south-east and includes the entrance to Calga Place. The subject site is comprised of the following key features: accessibility car park, former tram shed, bus zone adjacent to Bronte Road, a portion of Bronte Road, the entry to Calga Place and the fenced dividing footpath between the bus zone and Bronte Road (Figure 3).

Adjacent to Bronte Park, Bronte Road is bordered by post and rail fencing with a diagonal top rail and modified concrete footpaths, concrete kerbs and stormwater channels with metal drainage grates. Street lighting is non-original (Figure 20).

### Accessibility car park

The accessibility car park on the lower ground level adjacent to the entrance to Bronte Park (Figure 30) is entered from Bronte Road directly west of the entrance to the bus zone (Figure 26). To the south of the carpark a concrete wall supports the raised ground level associated with the bus zone. A white painted post and rail fence separates Bronte Park from Bronte Road (Figure 29). The fence is in poor condition and displays areas of previous repair (Figure 29). Ground levels between the tram shed and the footpath have been modified to allow for disabled access (Figure 30).

### Former tram shed

The timber-weatherboard former tram shed with terracotta roof tiles and lean to extension is located in Bronte Park in close proximity to the accessibility carpark (Figure 29, Figure 28, Figure 30 and Figure 23). The tram shed includes an open seated waiting area with a painted timber bench. A glass noticeboard cabinet is fixed to the back wall on either side of the timber bench (Figure 23 and Figure 12). The former tram shed is well kept.

### Bus zone/ former tram terminus

The entrance to the concrete surfaced bus zone features a dip in ground level that rises towards Calga Place in the direction of the coastline (Figure 21 and Figure 22). The bus zone is lined, in part, along the northern boundary with mature Canary Island pines while an original retaining wall with early post and rail fencing forms the southern boundary. The retaining wall includes its original steps that provided pedestrian access between Bronte Road and Bronte Park (Figure 21). A pedestrian crossing is located to the east of the original retaining wall and a raised concrete footpath and kerb with bollards, as bike racks, isolate Calga place from the bus zone

The bus zone has been identified in Section 3.2 as having originally been resumed from Bronte Park for the purpose of accommodating the Bronte tramline, constructed in 1910. Historical images in Section 3.2 (Figure 43 to Figure 48) feature the bus zone during its time as a tram terminus and show that the ground level was more in line with the former tram shed (Figure 23).

### **Bronte Road**

The portion of Bronte Road within the subject site is an approximately 120m stretch of the road which incorporates a section of the above-mentioned pedestrian crossing and associated signage. Bronte Road supports two-way traffic and includes parallel parking on either side.

### **Calga Place**

Calga place is currently separated from the bus zone by a raised concrete footpath and kerb, and bollards that also serve as bicycle racks. Calga Place is accessed via a separate entrance from Bronte Road (Figure 35). It features a narrow, tar-sealed road that inclines toward the east and coast, towards the 'Calga' sandstone cutting identified within the South Bronte Hedland HCA (C59). It is lined on both sides with parallel car parking bays (Figure 35).

### **Café strip**

The southern portion of the subject site includes the residential properties, cafés and restaurants (Figure 21). Many of the cafes and restaurants along the strip utilise the more recently brick paved footpath for al fresco dining opportunities (Figure 21). Towards the western end of the café strip the Bogey Hole Café (item no. I279) is situated and features an atypical building design in comparison to other structures in the immediate vicinity (Figure 22).





Figure 20: View south-east along Bronte Road (subject site), with Bronte Park to the left and cafe strip to the right. The location of the original retaining wall and steps between Bronte Road and the current bus zone is circled in yellow (Source: City Plan Heritage).



Figure 21: View south-east of subject site from southern cafe strip south of Bronte Road (Source: City Plan Heritage).





Figure 22: View north of Bronte Road from Calga Place, south of the subject site. The location of the original retaining wall and steps between Bronte Road and the current bus zone is circled in yellow (Source: City Plan Heritage).



Figure 23: Timber-weatherboard former tram shed with lean to extension, terracotta roof tiles, timber bench, noticeboards and concrete floor. (Source: City Plan Heritage).





Figure 24: View internal of former tram shed. (Source: City Plan Heritage).



Figure 25: Modified ground levels between the tram shed and the footpath to allow for disabled access. (Source: City Plan Heritage).





Figure 26: Entrance ramp to the disabled car park and Bronte Park with post and rail fence with diagonal top rail. Note: The fence to the right-hand side features additional horizontal members. It also forms the western boundary of the subject site (Source: City Plan Heritage).



Figure 27: Post and rail fence indicating condition and evidence of previous repairs (Source: City Plan Heritage).





Figure 28: View from top of concrete steps between the bus zone and Bronte Park towards beach, featuring Norfolk pine trees and sheltered picnic tables. (Source: City Plan Heritage).



Figure 29: View of the accessibility car park to north of the raised bus zone and directly in front of former tram shed (circled in yellow). (Source: City Plan Heritage).





Figure 30: View east across the accessibility carpark featuring towards the former tram shed. The ground falls gradually from the bus zone area towards Bronte Park (Source: City Plan Heritage).



Figure 31: View of concrete steps between the bus zone and the accessibility car park in the area of the accessibility car park entrance ramp (Source: City Plan Heritage).





Figure 32: Pedestrian-crossing between bus zone and cafe strip on southern side of Bronte Road. (Source: City Plan Heritage).



Figure 33: View of potential interpretive feature in concrete footpath, located within bus zone. Note: timber posts indicate entrance to concrete footpath that cuts through Bronte Park (Source: City Plan Heritage).





Figure 34: View of concrete road surface and footpath, and post and rail fence with diagonal top rail bordering bus zone on either side. Note: fencing to northern side of zone features additional members and is elevated (circled in red). (Source: City Plan Heritage).



Figure 35: View of southern half of bus zone featuring pedestrian crossing. Note: concrete footpath curves around towards the south separating the bus zone from entrance to Calga Place (circled in blue). Bronte Road inclines towards the coast (indicated in yellow) (Source: City Plan Heritage).





Figure 36: View from bus zone across towards cafe strip behind the original retaining wall with post and rail fence between (Source: City Plan Heritage).



Figure 37: Views from café strip towards Bronte Beach (Source: City Plan Heritage).



### 3. History

#### 3.1 Aboriginal History

Prior to European exploration, the Waverley and Bronte area was inhabited by the Gadigal (Cadi-gal) Aboriginal group. Evidence of Aboriginal occupation in the Waverley area includes rock carvings depicting various fish species, estimated to be up to 2,000 years old; shell middens; stone tools, and rock shelters.<sup>2</sup>

Prior to European occupation, Bronte Beach was almost twice its present-day size, with a large stretch of sand extending far back to the mouth of Bronte Gully.<sup>3</sup>

#### 3.2 Post-Settlement History

Following the end of free land grants awarded to 'deserving emancipated convicts' and 'soldiers of the Marine Corps' which lasted from 1789 - 1831, architect Mortimer Lewis was first to purchase land in Nelson Bay.<sup>4</sup> Lewis paid £144 for an initial 12 acres including the beach-side flanked by a 'secluded valley'. This bay, despite some conflicting theories, was very likely named after the famous Admiral Lord Horatio Nelson who was later made Duke of Bronte by the King of Naples in 1799.<sup>5</sup>

By the 1830s Mortimer Lewis had purchased much of the land abutting Nelson Bay, totalling approximately 42 acres. The total area was 'roughly triangular... having the beachfront as its base and the apex at the junction of present-day Bronte Road and Murray Street'.<sup>6</sup> Lewis laid plans to build a grand house on the estate and proceeded to lay foundations for the dwelling before being forced to sell due to financial constraints.<sup>7</sup>

In 1842-43, barrister Robert Lowe purchased the house foundations and surrounding land from Lewis for £420.<sup>8</sup> Lowe and his wife completed the construction of the house and were able to move in by 1845, naming the property 'Bronte House' once more after Lord Nelson.<sup>9</sup> It is widely suspected that the name 'Bronte' for the beach and surrounding suburb were derived from Bronte House. The house was completed in an uncommon style for Australian Colonial architecture 'reflecting a romantic and picturesque interpretation of the medieval past', gothic and Georgian in style, much admired at the time.<sup>10</sup> The grounds of Bronte House featured impressive gardens that exploited the natural lay of the land, flowing into what is now Bronte Park.<sup>11</sup> In 1850 due to ill health and increasing homesickness of himself and his wife, Georgiana, Lowe retired his political position in NSW and returned home to England, selling Bronte House in the process.<sup>12</sup>

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<sup>2</sup> Meadows, E., 1999, *Aboriginal History of the Waverley Area*, Reference Department, Waverley Library.

<sup>3</sup> 'Bronte Beach on Nelson Bay', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/\\_data/assets/pdf\\_file/0011/8678/Bronte\\_Beach.pdf](http://www.waverley.nsw.gov.au/_data/assets/pdf_file/0011/8678/Bronte_Beach.pdf)

<sup>4</sup> Vesper, E., 2008, 'Bronte', *The Dictionary of Sydney*, accessed September 2018 via <https://dictionaryofsydney.org/entry/bronte>

<sup>5</sup> Ibid

<sup>6</sup> Ibid

<sup>7</sup> Ibid

<sup>8</sup> Ibid

<sup>9</sup> Pollen, F., 1988, *The Book of Sydney Suburbs*, Angus & Robertson, Sydney.

<sup>10</sup> 'Bronte House', State Heritage Inventory Form, NSW Office of Environment and Heritage, NSW Government, accessed September 2018 via <https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5045208>

<sup>11</sup> 'Bronte Park: Plan of Management', Manidis Roberts, December 2005 prepared in association with Mayne-Wilson & Associates, and Patterson Britton & Partners for Waverley Council, accessed September 2018 via [http://www.waverley.nsw.gov.au/\\_data/assets/pdf\\_file/0012/10227/Bronte\\_Park\\_POM\\_v6\\_2005.pdf](http://www.waverley.nsw.gov.au/_data/assets/pdf_file/0012/10227/Bronte_Park_POM_v6_2005.pdf)

<sup>12</sup> Knight, R.L., 1967, 'Lowe, Robert (1811 - 1892)', originally published in *Australian Dictionary of Biography, Volume 2*, accessed September 2018 via <http://adb.anu.edu.au/biography/lowe-robert-2376>



Figure 38: Bronte Park, sketch by Georgiana Lowe (wife of Robert Lowe) circa 1845-1849 (Source: Waverley Library, Local Studies Collection)



Figure 39: Bronte Beach and Park circa 1912 (Source: Waverley Library, 005\005277).

Bronte House changed ownership more than once before being purchased by the Holdsworth family in 1861. The new Waverley Council, formed in 1859, first petitioned the NSW government in 1863 to resume 14 acres on the Bronte Beachfront for use as a public park.<sup>13</sup> The Ebsworth family purchased and subdivided the lands of Bronte House in 1882.<sup>14</sup>

<sup>13</sup> 'Bronte Park', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/data/assets/pdf\\_file/0005/8681/Bronte\\_Park.pdf](http://www.waverley.nsw.gov.au/data/assets/pdf_file/0005/8681/Bronte_Park.pdf)

<sup>14</sup> 'Bronte House', State Heritage Inventory Form, NSW Office of Environment and Heritage, NSW Government, accessed September 2018 via <https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5045208>

Aspects of what had been part of Bronte House's private gardens, such as the sandstone stairways and bridge over the waterfall were later incorporated into Bronte Park.<sup>15</sup>

Across from Bronte House at the beach, the Waverley Council had set aside £150 in 1883 to build sea baths similar to the ones in construction at Bondi.<sup>16</sup> Land was purchased in 1886 from the Ebsworth family for the creation of Bronte Park, and the park was proclaimed in 1887 with the Bronte baths in construction that same year.<sup>17</sup> The baths opened to the public in 1888.<sup>18</sup>

At first the baths were privately leased and operated. Harry Wylie, a champion diver, leased the baths from 1895 and offered hot sea baths with healing properties that proved very popular at the time.<sup>19</sup>

Between 1891 and 1920 the original road towards Bronte Park in the area of Bronte House was replaced with the current split-level carriageway, footpaths and associated sandstone retaining walls.<sup>20</sup>

The Bronte Surf Life Saving Club was founded in 1903 following a drowning in 1895.<sup>21</sup> As Bronte was an open beach, a dangerous permanent rip tide, nicknamed the 'Bronte Express' by the locals, was responsible for various drownings in the area.<sup>22</sup> The Bronte Swimming Club building was erected in 1904 above the Baths, and facilities such as the pathways, dressing sheds, toilets, picnic shelters and kiosk were provided and upgraded into the inter-war period.<sup>23</sup>

The 'bogey' holes at Bronte were additionally popular bathing places prior to the construction of the Bronte baths. The 'Men's bogey hole' was cleared of rocks in circa 1904, and in 1916 the Bronte Progress Association requested the removal of large rocks from a natural rock shelf to the south of the beach to provide a safe bathing place for women and children. The second bogey hole at Bronte is now considered the most well-known.<sup>24</sup>

In 1910-11 an area to the south of the park was resumed for transport purposes. It was first resumed for a tram terminus utilised by the Sydney tram network after the tramline was extended to Bronte Beach in May 1911. A cutting was made into the sandstone rock along the coastline east of the Bronte tram terminus to combat the steep gradient of Bronte Road, and is now referred to as the 'Calga cutting', 'Bronte cutting' and 'Sandstone cutting'. The significance of the name 'Calga' was not established. The last tram ran to Bronte in 1960 and the transport hub was resumed by Sydney Buses in 1961.<sup>25</sup> The original tram shed

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<sup>15</sup> 'Bronte Park: Plan of Management', Manidis Roberts, December 2005 prepared in association with Mayne-Wilson & Associates, and Patterson Britton & Partners for Waverley Council, accessed September 2018 via [http://www.waverley.nsw.gov.au/data/assets/pdf\\_file/0012/10227/Bronte\\_Park\\_POM\\_v6\\_2005.pdf](http://www.waverley.nsw.gov.au/data/assets/pdf_file/0012/10227/Bronte_Park_POM_v6_2005.pdf)

<sup>16</sup> 'Bronte Baths: A History', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/data/assets/pdf\\_file/0010/8677/Bronte\\_Baths\\_-\\_a\\_history.pdf](http://www.waverley.nsw.gov.au/data/assets/pdf_file/0010/8677/Bronte_Baths_-_a_history.pdf)

<sup>17</sup> 'Bronte Park', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/data/assets/pdf\\_file/0005/8681/Bronte\\_Park.pdf](http://www.waverley.nsw.gov.au/data/assets/pdf_file/0005/8681/Bronte_Park.pdf)

<sup>18</sup> 'Bronte Baths: A History', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/data/assets/pdf\\_file/0010/8677/Bronte\\_Baths\\_-\\_a\\_history.pdf](http://www.waverley.nsw.gov.au/data/assets/pdf_file/0010/8677/Bronte_Baths_-_a_history.pdf)

<sup>19</sup> Ibid

<sup>20</sup> 'Stone Retaining Walls & Street Planting', State Heritage Inventory Form, NSW Office of Environment and Heritage, NSW Government, accessed October 2018 via <https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2620388>

<sup>21</sup> 'About Us', Bronte Surf Life Saving Club 1903, accessed September 2018 via <http://brontesurfclub.com.au/bronte-surf-life-saving-club/about-bronte-surf-club.html>

<sup>22</sup> 'Bronte', Surf Life Saving Sydney, accessed September 2018 via <http://surflifesavingsydney.com.au/club-directory/bronte/>

<sup>23</sup> 'Bronte Park: Plan of Management', Manidis Roberts, December 2005 prepared in association with Mayne-Wilson & Associates, and Patterson Britton & Partners for Waverley Council, accessed September 2018 via [http://www.waverley.nsw.gov.au/data/assets/pdf\\_file/0012/10227/Bronte\\_Park\\_POM\\_v6\\_2005.pdf](http://www.waverley.nsw.gov.au/data/assets/pdf_file/0012/10227/Bronte_Park_POM_v6_2005.pdf)

<sup>24</sup> 'Bronte Beach on Nelson Bay', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/data/assets/pdf\\_file/0011/8678/Bronte\\_Beach.pdf](http://www.waverley.nsw.gov.au/data/assets/pdf_file/0011/8678/Bronte_Beach.pdf)

<sup>25</sup> 'Bronte Park: Plan of Management', Manidis Roberts, December 2005 prepared in association with Mayne-Wilson & Associates, and Patterson Britton & Partners for Waverley Council, accessed September 2018 via [http://www.waverley.nsw.gov.au/data/assets/pdf\\_file/0012/10227/Bronte\\_Park\\_POM\\_v6\\_2005.pdf](http://www.waverley.nsw.gov.au/data/assets/pdf_file/0012/10227/Bronte_Park_POM_v6_2005.pdf)



adjacent to the transport inlet was constructed in 1912 and continues to be used as a bus stop today.<sup>26</sup>

During the war years between 1914 - 1917, the sea wall and promenade were constructed as part of a Bronte Beach improvement scheme.<sup>27</sup> The area of Bronte Beach was essentially halved, with the western side behind the new promenade drained, filled in and turfed to become what is now part of Bronte Park.<sup>28</sup> The smaller beach was advertised as 'exclusive' by 1915, suggesting that its limited size allowed for a more selective and quiet beach particularly in comparison to the growing popularity of nearby Bondi.<sup>29</sup> In 1918 a stormwater drain was constructed at the southern end of the beach to drain water from the Bronte Park, emptying almost straight into the 'bogey hole' increasing the pollution to the area.<sup>30</sup>

The late 1920s-30s period houses were built in large numbers along the cliffs and ridges overlooking the beach, expansion driven by the extension of the tram line.<sup>31</sup> In December 1940 the roads from Oxford Street in Bondi Junction to Pacific Street in Bronte were consolidated and renamed as Bronte Road, previously known as Cowper Street and Nelson Bay Road.<sup>32</sup>

Bronte Park became a popular picnic spot with crowds attracted by the grassy slopes, picnic shelters, ocean breeze and Norfolk pines.<sup>33</sup> Picnics were held frequently in the park featuring activities such as three-legged races, sack races and egg and spoon races. A miniature railway was built in 1947 operating on a 100m circular track at the southern end of the park, running until 1975 when it was sold.<sup>34</sup> Shops began to open in the streets nearby to the beach including milk bars and fish and chip shops, and in 1956 the Council permitted the building and operation of a kiosk within Bronte Park. The kiosk was later destroyed by fire in 1960-61,<sup>35</sup> and in 1962 £14,500 was spent by the Council on improvements to Bronte Beach, including a beachfront painting scheme. Much of the design to the Bronte Park and Beach landscape, plantings and concrete footpaths can be attributed to this period.

The 1970s saw property values rise, partly fuelled by the attraction to the area as a beachside suburb that had seen little commercial development previously,<sup>36</sup> and by the 1990s the café strip featuring al fresco dining was introduced. In 1997 the Bronte baths were given National Trust Heritage Listing.<sup>37</sup> By the early 2000s houses built in the 1920s-30s saw resale value into the millions, the suburbs proximity to Sydney, public transport, schools and sporting facilities yet continued to escape large-scale commercial development. Bronte Beach, Park and surrounding areas have remained essentially the same for over 100 years, remaining as popular as ever for picnics, beach-side activities and recreation year-round. Modern development, when it occurs, replaces deteriorating facilities yet continues to maintain the quiet atmosphere of the area.

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<sup>26</sup> 'Bronte Park: Plan of Management', Manidis Roberts, December 2005 prepared in association with Mayne-Wilson & Associates, and Patterson Britton & Partners for Waverley Council, accessed September 2018 via [http://www.waverley.nsw.gov.au/\\_data/assets/pdf\\_file/0012/10227/Bronte\\_Park\\_POM\\_v6\\_2005.pdf](http://www.waverley.nsw.gov.au/_data/assets/pdf_file/0012/10227/Bronte_Park_POM_v6_2005.pdf)

<sup>27</sup> 'Bronte Beach on Nelson Bay', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/\\_data/assets/pdf\\_file/0011/8678/Bronte\\_Beach.pdf](http://www.waverley.nsw.gov.au/_data/assets/pdf_file/0011/8678/Bronte_Beach.pdf)

<sup>28</sup> 'Bronte Beach on Nelson Bay', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/\\_data/assets/pdf\\_file/0011/8678/Bronte\\_Beach.pdf](http://www.waverley.nsw.gov.au/_data/assets/pdf_file/0011/8678/Bronte_Beach.pdf)

<sup>29</sup> Ibid

<sup>30</sup> Ibid

<sup>31</sup> Vesper, E., 2008, 'Bronte', The Dictionary of Sydney, accessed September 2018 via <https://dictionaryofsydney.org/entry/bronte>

<sup>32</sup> Ibid

<sup>33</sup> 'Bronte Park: A pleasure resort at Nelson Bay', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/\\_data/assets/pdf\\_file/0005/8681/Bronte\\_Park.pdf](http://www.waverley.nsw.gov.au/_data/assets/pdf_file/0005/8681/Bronte_Park.pdf)

<sup>34</sup> Ibid

<sup>35</sup> Vesper, E., 2008, 'Bronte', The Dictionary of Sydney, accessed September 2018 via <https://dictionaryofsydney.org/entry/bronte>

<sup>36</sup> Ibid

<sup>37</sup> 'Beaches and the Coast', Waverley Library, Local History Collection, 2008, accessed September 2018 via [http://www.waverley.nsw.gov.au/\\_data/assets/pdf\\_file/0004/87268/Beaches\\_and\\_the\\_coast.pdf](http://www.waverley.nsw.gov.au/_data/assets/pdf_file/0004/87268/Beaches_and_the_coast.pdf)



Figure 40: Bronte Beach and Park, Boxing Day 1932 (Source: Waverley Image Library, 003/003863)



Figure 41: Aerial view of Bronte Beach and Park, 1943. The extant retaining wall with post and rail fences and steps between Bronte Rd and the bus zone are circled in red (Source: SIX Maps, accessed September 2018)



Figure 42: Bronte Road towards Bronte Park and Bronte Beach circa 1950. Note: 'R' class tram visible, and former tram shed circled in red indicating location of the subject site (Source: Waverley Image Library, 004\004707).



Figure 43: Bronte Beach tram terminus featuring trams and tram stop, circa 1950. The extant retaining wall with post and rail fences and steps between Bronte Rd and the bus zone are circled in red (Source: Waverley Image Library, 001/001895).





Figure 44: Bronte Beach tram terminus and tram shed, circa 1950. Note: ground level of terminus in line with tram shed (Source: Waverley Image Library, 001/001894).

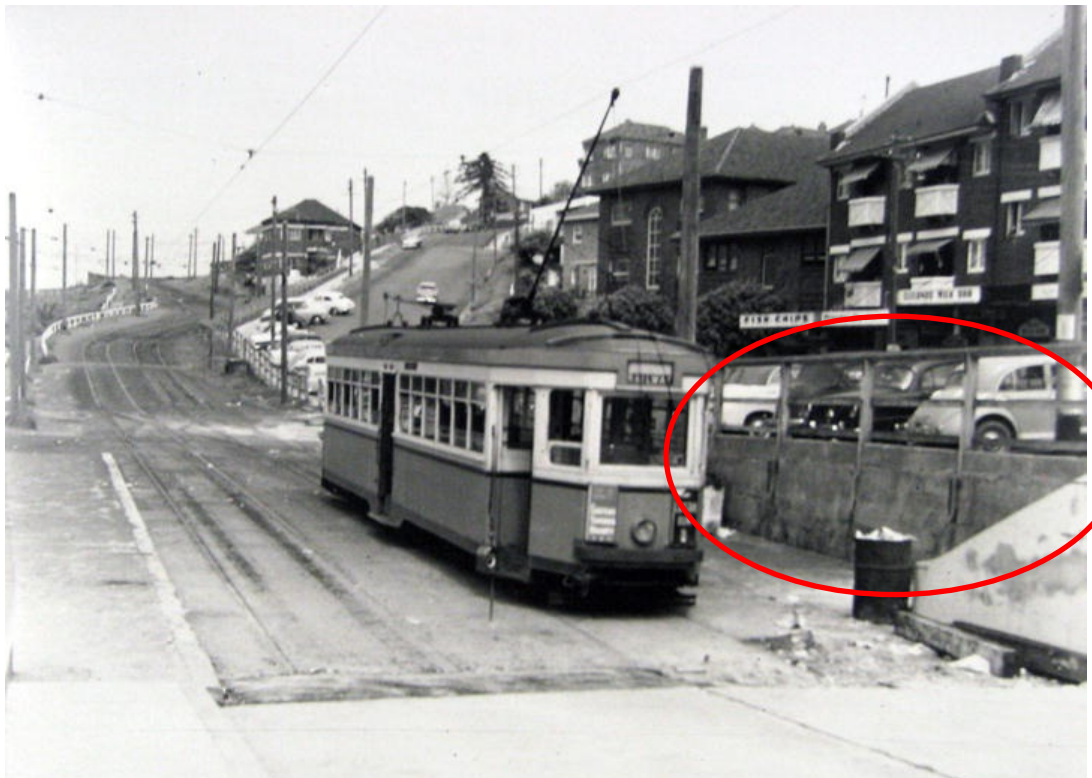


Figure 45: Tram at Bronte Beach terminus, Bronte Road circa 1959. The extant retaining wall with post and rail fences and steps between Bronte Rd and the bus zone are circled in red (Source: Waverley Image Library, 001/001902).



Figure 46: Tramline in Calga cutting en route from Bronte Beach terminus. Bronte Beach and park in the background (Source: Waverley Image Library, 001/001904).

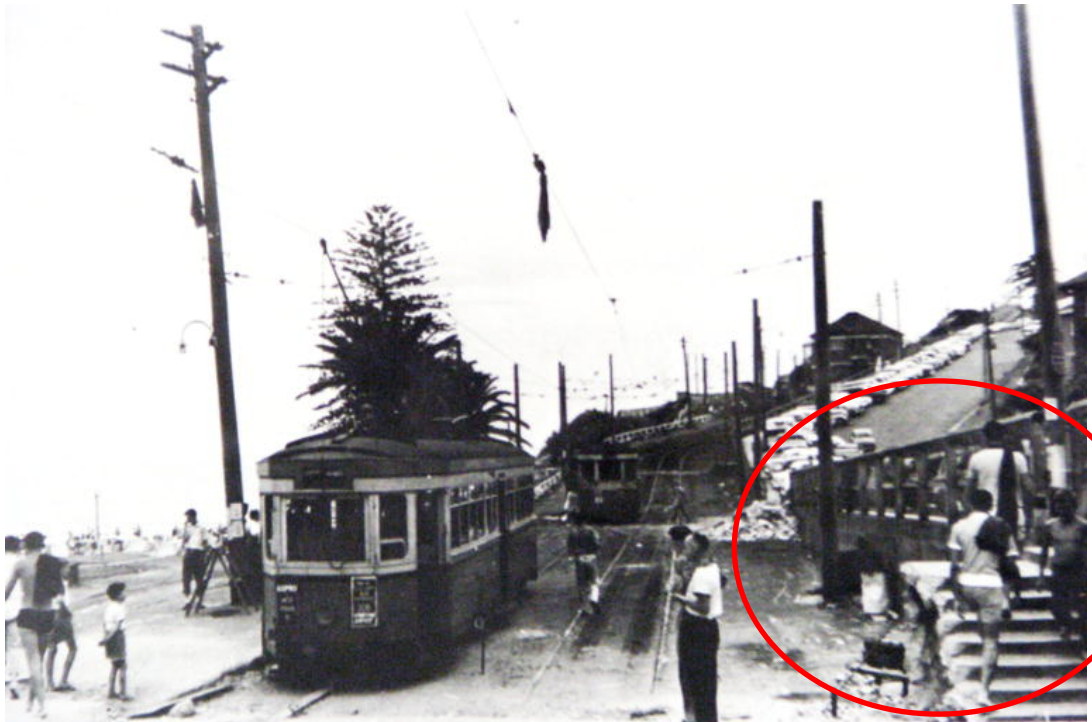


Figure 47: R Class Trams at Bronte Beach Terminus, Bronte Road circa 1960. The extant retaining wall with post and rail fences and steps between Bronte Rd and the bus zone are circled in red (Waverley Image Library, 001/001844).





Figure 48: Bronte Beach tram terminus, Bronte Road circa 1960. Note: ground level of terminus in line with tram shed (Source: Waverley Image Library, 001/001846).



## 4. Assessment of Significance

### 4.1 Assessment of Criteria

The following assessment of significance has been prepared in accordance with the 'Assessing Heritage Significance' guidelines from the *NSW Heritage Manual*.

**a) *an item is important in the course, or pattern, of the local area's cultural or natural history***

The subject site consists of a cutting from Bronte Park originally resumed in 1910-1912 for the purpose of extending the tramline from Bondi Junction to Bronte Beach, and includes an original former tram shed built circa 1912. It also includes the extant retaining wall and steps associated with the development of Bronte Road in an area of steep topography. In addition, the subject site is associated with early 20th century local tourism and development in the area.

The subject site comprises an important phase in Bronte's local and cultural development. Prior to the addition of the tramline (the terminus tram shed is within the bounds of the subject site (see Section 3.2)), Bronte was significantly disconnected from other parts of metropolitan Sydney. The introduction of the tramline increased mobility into the area and accessibility to other parts of Sydney and encouraged visitation to Bronte Beach.

**b) *an item has strong or special associations with the life or works of a person, or group of persons, of importance in the local area's cultural or natural history***

Historical research to date has not identified any strong or special associations with the life or works of a person, or group of persons, of importance in the local area's cultural or natural history.

**c) *an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in the local area***

The subject site is a typical example of a beachside settlement associated with the development of the early road network and later the introduction of trams between 1910 and 1912. The extant original retaining wall and steps is associated with the retaining walls built along Bronte Road that reflect road design and construction methods used as a result of the steep topography.

**d) *an item has strong or special association with a particular community or cultural group in the local area for social, cultural or spiritual reasons***

Historical research to date has not identified any strong or special associations with a particular community or cultural group in the local area for social, cultural or spiritual reasons.

**e) *an item has potential to yield information that will contribute to an understanding of the local area's cultural or natural history***

The subject site has high potential to yield information that will contribute to an understanding of the local area's cultural history. Historical research suggests that excavation would uncover remnants of early Bronte transport infrastructure and contribute to the understanding of the growth of the Bronte Beach landscape.

**f) *an item possesses uncommon, rare or endangered aspects of the local area's cultural or natural history***

The subject site likely retains remnants of the original tramline system installed in Bronte in 1910-1912, which further connected Bronte to the growing Sydney metropolitan. This connection will have made transport to Bronte Park and Beach significantly more accessible and is associated with increased tourism to the area. This increased tourism and traffic into Bronte led to the rise of the café strip, the

addition of facilities to Bronte Park and Bronte Beach, and the general development of the surrounding area.

**g) an item is important in demonstrating the principal characteristics of a class of the local area's**

- **cultural or natural places; or**
- **cultural or natural environments**

The subject site features an original retaining wall and steps associated with the construction of the early road network that was designed in response to the steep topography. It also includes the former tram shed associated with the development of the tramline from Bondi Junction to Bronte in 1910-1912.

## 4.2 Statement of Significance

### 4.2.1 Subject Site

The subject site is significant in its relation to the history of the development of Bronte Village and its associated residential, commercial and retail dwellings, and infrastructure. This includes: the retaining wall and steps associated with the development of the early road network that was designed and constructed in response to the steep topography; the introduction of the tramline between Bondi Junction and Bronte between 1910-1912; the construction of the former tram shed and terminus in 1912; the 1960-61 resumption of the tram terminus as a bus zone; and later modifications to the café strip into the 1990s and 2000s.

The subject site has the potential for archaeological remnants associated with the tramline and terminus between Bondi Junction and Bronte as well as the construction of retaining walls associated with the development of Bronte Road.

### 4.2.2 Bronte Beach and Park

The following statement of significance has been extracted from the State Heritage Inventory SHI) form for the 'Bronte Beach & Park' listed on the Waverley LEP 2012 as 'Bronte Beach Landscape HCA (C29)'.<sup>38</sup>

*The developed park behind the beach is a rare example of a beachside park retaining much of its 1920-1940 period character and layout. It is also unusual for a Sydney beach park not to have its beach and park elements separated by a road. Historical, cultural, natural and scenic value. Important aesthetic and historical associations with "Bronte House". State significance.*

### 4.2.3 Sandstone Cutting - Former Tram Route ('Calga cutting')

The following statement of significance has been extracted from the SHI form for the 'Sandstone Cutting - Former Tram Route' listed in the Waverley LEP 2012 as the 'South Bronte Headland Landscape HCA (C59)'.<sup>39</sup>

*Significant modification to the natural landscape. Rare reminder of Sydney's trams, which were particularly important in providing access to the eastern beaches. Direct evidence of the primary theme of transport. Exposure of natural sandstone of aesthetic and historical interest. Regional significance.*

<sup>38</sup> 'Bronte Beach & Park', State Heritage Inventory form, NSW Government, accessed October 2018 via <https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2620391>

<sup>39</sup> 'Sandstone Cutting - Former Tram Route', State Heritage Inventory form, NSW Government, accessed October 2018 via <https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2620387>

#### **4.2.4 Inter-war style building, 473 Bronte Road (Bogey Hole Café), item no. I279**

No State Heritage Inventory form was located to identify the significance of the Bogey Hole Café, however as detailed in Section 1.2 this has been listed as a heritage item in the Waverley LEP 2012.

Historical research to date has indicated that the significance of the Bogey Hole Café may derived from its original Inter-War style façade and its relation to the major Inter-War development of the Bronte Park and Beach landscape. This extension and development can in turn be attributed to the tourism brought by the introduction of the tramline.



## 5. Heritage Impact Assessment

### 5.1 Statutory Controls

Subject site is located within close proximity to the Bronte Beach Landscape Conservation Area (HAC) (C29), as gazetted under the Waverley Local Environmental Plan 2012, and Waverley Development Control Plan (DCP) 2012.

### 5.2 Waverley Local Environmental Plan (LEP) 2012

The proposal is addressed below in relation to the relevant clauses of the LEP.

#### Part 5.10:

#### Heritage Conservation

#### How this proposal relates to these matters:

##### **(2) Requirement for consent:**

*(a) demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):*

- (i) a heritage item,*
- (ii) an Aboriginal object,*
- (iii) a building, work, relic or tree within a heritage conservation area,*

*(b) altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,*

*(c) disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,*

*(d) disturbing or excavating an Aboriginal place of heritage significance,*

*(e) erecting a building on land:*

- (i) on which a heritage item is located or that is within a heritage conservation area, or*
- (ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,*

*(f) subdividing land:*

- (i) on which a heritage item is located or that is within a heritage conservation area, or*
- (ii) on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.*

The subject site is not identified as a heritage item however it is located directly south of the Bronte Beach Landscape HCA (C29) and directly west of the South Bronte Headland Landscape HCA (C59), and within proximity to a number of heritage items. The proposed works include footpath upgrades and remediation; disabled access; new vehicle crossings; relocation of the pedestrian crossing; provision of street furniture and lighting; and new plantings and fencing.

Due to the proximity of the subject site to both HCAs and heritage items, consent is required under this clause.

##### **(4) Effect of proposed development on heritage significance**

*The consent authority must, before granting consent under this clause in respect of a heritage item or heritage conservation area, consider the effect of the proposed development*

In accordance with this clause, this HIS has given careful consideration to the proposed works and their impact on the significance of the subject site, the HCAs and heritage items located in proximity.

A detailed impact assessment has been

<p><i>on the heritage significance of the item or area concerned. This subclause applies regardless of whether a heritage management document is prepared under subclause (5) or a heritage conservation management plan is submitted under subclause (6).</i></p>	<p>provided under the Waverley DCP 2012 Controls in Section 6.3.</p>
<p><b>(5) Heritage assessment</b></p> <p><i>The consent authority may, before granting consent to any development:</i></p> <p><i>(a) on land on which a heritage item is located, or</i></p> <p><i>(b) on land that is within a heritage conservation area, or</i></p> <p><i>(c) on land that is within the vicinity of land referred to in paragraph (a) or (b),</i></p> <p><i>require a heritage management document to be prepared that assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned.</i></p>	<p>This HIS has been prepared in accordance with this clause due to the subject site's close proximity to registered heritage items and HCAs detailed in Section 2. It follows the methodology in line with the NSW Heritage Manual "Statement of Heritage Impact" and "Assessing Heritage Significance Guidelines".</p>
<p><b>(6) Heritage conservation management plans</b></p> <p><i>The consent authority may require, after considering the heritage significance of a heritage item and the extent of change proposed to it, the submission of a heritage conservation management plan before granting consent under this clause.</i></p>	<p>A Conservation Management Plan (CMP) has not been prepared for the subject site. This HIS has provided sufficient background history and fabric analysis to inform the significance assessment. The subject site is not considered of sufficient significance to warrant the production of a CMP.</p>
<p><b>(7) Archaeological sites</b></p> <p><i>The consent authority must, before granting consent under this clause to the carrying out of development on an archaeological site (other than land listed on the State Heritage Register or to which an interim heritage order under the Heritage Act 1977 applies):</i></p> <p><i>(a) notify the Heritage Council of its intention to grant consent, and</i></p> <p><i>(b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.</i></p>	<p>Whilst a detailed Archaeological Assessment has not been carried out for the site, historical research has indicated the subject site does have the potential for archaeological remnants associated with the tramline and terminus between Bondi Junction and Bronte as well as the construction of retaining walls associated with the development of Bronte Road. However, considering the proposal involves excavation within the bounds of the subject site, should any unexpected archaeological findings be uncovered during construction, a stop-work provision should be applied, and exposed findings assessed in accordance with the provisions of the <i>NSW Heritage Act 1977</i>.</p>
<p><b>(8) Aboriginal places of heritage significance</b></p> <p><i>The consent authority must, before granting consent under this clause to the carrying out of development in an Aboriginal place of heritage significance:</i></p> <p><i>(a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment (which may involve consideration of a heritage impact statement), and</i></p>	<p>Investigation into potential Aboriginal heritage of the subject site is beyond the scope of this report, however, historical research undertaken to date has not indicated the presence of any Aboriginal places of heritage significance within a 50m proximity of the subject site.</p>

*(b) notify the local Aboriginal communities, in writing or in such other manner as may be appropriate, about the application and take into consideration any response received within 28 days after the notice is sent.*

### 5.3 Waverley Development Control Plan (DCP) 2012

The following tables address the relevant DCP.

Part B: General Provisions B9 Heritage	This proposal relates to these matters as follows:
<p><b>9.2 Character</b></p> <p><b>All Development</b></p> <p><i>(a) Development should identify and respect the contributory features and characteristics of the item or the conservation area and incorporate these features into the design.</i></p> <p><i>(b) The established landscape character of the locality including the height of canopy and density of landscaping should be retained.</i></p> <p><i>(c) Development near a heritage item should respect the visual curtilage of the item.</i></p> <p><b>Infill Development</b></p> <p><i>(a) Contemporary design is acceptable in a conservation area where it is sympathetic to, and respects the context of the conservation area and any heritage item in the vicinity.</i></p> <p><i>(b) New buildings adjacent to buildings of historic character or heritage items should be secondary in prominence to the existing streetscape fabric and draw on the predominant pattern of the existing streetscape.</i></p>	<p>As detailed in the sections above, the subject site is not identified as a heritage item on the Waverley LEP 2012, however it is located directly south of the Bronte Beach Landscape HCA (C29) and directly to the west of the South Bronte Headland Landscape HCA (C59), and within proximity to a number of heritage items:</p> <ul style="list-style-type: none"> <li>▪ Inter-war style building, 473 Bronte Road (Bogey Hole Café), item no. I279; and</li> <li>▪ Recreational facility, Bronte Ocean Pool, item no. I280</li> </ul> <p>In addition, the former tram shed located within the subject site has been included within the Bronte Beach Landscape HCA (C29) as stated in the Bronte Park and Beach Plan of Management 2017.</p> <p>The proposed development aims to reinvigorate and update the café strip exterior, former tram shed, seating and aesthetic of the current sidewalks of Bronte Beach Village surrounding Bronte Road. The general layout of the subject site will be maintained but modernise the existing facilities with the inclusion of a disability access ramp, no-slip tactile, new seating and a drinking fountain.</p> <p>The proposed development includes the partial demolition of the original retaining wall and associated post and rail fence between Bronte Road and the bus zone to facilitate bus manoeuvres. The proposed development also requires the removal of the original steps associated with the retaining wall that facilitated pedestrian access between Bronte Road and the former tram shed.</p> <p>The former tram shed can be viewed from the bus zone but is not visible from the café strip due to the change in ground level (Figure 17 and Figure 19). As the works do not include changes to ground levels it is considered that the proposed works respect the visual curtilage of the current streetscape.</p>



	<p>The works include additional tree plantings with wide spacing between the bus zone and Bronte Park ensuring that sight lines to Bronte Park and Bronte Beach are maintained from the development along Bronte Road.</p> <p>The new design aims to invigorate the 1990s upgrade of Bronte Village. The materials proposed for use in the development are contemporary but are sympathetic to the context and values of the HCAs, former tram shed and Bogey Hole Café. Upgraded footpaths will include brick pavers and a raised buffer zone between the bus zone and Calga Place.</p> <p>The addition of new seating, bicycle sheds and a drinking fountain meet the increased needs of the local population and prospective tourism, and contribute to the recreational values of Bronte Park and Bronte Beach.</p> <p>The proposed remediation of the post and rail timber fence will replicate the original, and replaced sections of fencing will be appropriately marked as new.</p> <p>The proposed development to the subject site does not feature the inclusion of new buildings adjacent to the heritage items or HCAs. The development does not include changes to the former tram shed, the Bogey Hole Café or encroach into either HCA (C29) or (C59).</p>
<p><b>9.8 Garden Elements</b></p> <p><b><i>Heritage Items and Contributory Buildings</i></b></p> <p><i>(a) Original and contributing elements of hard and soft landscaping are to be retained on heritage listed sites and where occurring in Conservation Areas.</i></p> <p><i>(b) High walls or fences and unsympathetic garden treatment (e.g. rockeries, dense plantings that are out of character) are discouraged.</i></p> <p><i>(c) New hard and soft landscaping is to be provided with regard to the:</i></p> <p><i>(i) stability of existing significant fabric;</i></p> <p><i>(ii) retention and enhancement of original hard and soft landscaping; and</i></p> <p><i>(iii) character of the site and/or Conservation Area.</i></p>	<p>Two Norfolk pine trees directly east of the former tram shed and one palm tree have been identified for removal. A larger Norfolk pine tree is intended for protection amidst the works. The planting of Norfolk pines and Canary Island palms is considered of significance as it is associated with the development of Bronte Park during the 1920-40 period, and the conservation of the larger pine is considered a positive impact.</p> <p>The retained Norfolk pine is proposed to be surrounded by low level mass planting, with the planting of further palms intended on either side of the footpath and on the island between the bus zone and Bronte Road. These additions will minimally impact on the sight lines to the heritage items and HCAs but increased spacing between them has been considered to reduce this impact.</p> <p>Where trees are planted in close proximity to the original retaining wall between Bronte Road and the bus zone, strata vaults will be installed to contain the root systems (Figure 5).</p> <p>Removed landscape materials and vegetation will not be within either Bronte Beach Landscape (C29) or the South Bronte Headland Landscape (C59) HCA, or contrary to their character.</p>

### **9.10 Fencing and Gates**

#### **Heritage Items and Contributory Buildings**

*(a) Where original fences remain to listed buildings or within Conservation Areas these are to be retained and enhanced by appropriate maintenance and sympathetic landscaping.*

*(b) Planting and maintenance of existing plantings is to avoid tree or plant growth that damages existing fences or gates.*

*(c) Fences and boundary walls employing masonry (principally stone or face brick) construction are not to be rendered, painted or coated with other materials unless the finish is known to be a detail of the original construction.*

*(d) Front fences should not obscure building facades.*

*(e) New fence heights and form should be appropriate to the character of the heritage item or to the conservation area.*

*(f) Where an original fence has been lost, new fencing should try to match the original style.*

*(g) Sandstone fencing, foundations, etc should be retained and sympathetically incorporated into any new additions or alterations. Restoration /repair of slate /stone must be carried out by specialists.*

The subject site features timber post and rail fencing bordering north of subject site and exterior of Bronte Park, between the lower level of the former tram shed and bus zone, and through the centre of the island that bisects the bus zone from Bronte Road.

The majority of existing timber fencing bordering Bronte Park, in the north of the subject site, will be removed during the works and salvaged where possible for re-use. In the instances where the fences are unable to be reinstated they will be replaced with new post and rail timber fences that replicate the original while replaced sections of fencing will be appropriately marked as new.

A section to the east of the post and rail fencing that divides the bus zone and Bronte Road is proposed to be removed to allow for improved bus manoeuvres. This removal of the original fencing has been identified as a negative impact to the integrity of the heritage streetscape.

The proposed works do not include rendering of existing items, and the installation of new fencing is in a sympathetic style to the original fencing removed during the proposed works. The new fencing will not obscure views to either Bronte Beach Landscape (C29) and South Bronte Headland Landscape (C59) HCA or heritage item.

### **9.12 Landscape Conservation Area**

#### **All Development**

*(a) New works in the vicinity of Landscape Conservation Areas and natural settings are to acknowledge the significant character, detail and context of the setting.*

*(b) Any new works must consider the visual and physical impact upon the setting.*

*(c) Any new work should avoid the removal of fabric whether plant material, manmade feature or natural formation and any works likely to cause long or short term impact upon the setting e.g. change in ground water flow, reflected light, illumination of natural planting and stability of natural or manmade features.*

The proposed works will not visually detract from the Bronte Beach Landscape (C29), South Bronte Headland Landscape (C59) HCAs or associated heritage items. The new works will not result in negative long-term or short-term effects within the streetscape. The proposed works do not include the removal of any features integral to the aesthetic significance of the surrounding HCAs or heritage items, or the addition of features that are unsympathetic or that will negatively impact the significance of the area.

The increase in vegetation and upgrade to the streetscape facilities will improve the visual aesthetic of the subject site and reinvigorate the streetscape. The provision of increased seating will also provide a positive impact for visitors to the area with space to enjoy the surrounding aesthetic and to rest.

#### **Part E: Site Specific Controls**

This proposal relates to these matters as follows:

##### **3.1.1 Bronte Beach Neighbourhood Centre Desired Future Character Objectives**

*(a) To maintain the built form arising from the*

The proposed works will not impact on the historical subdivision pattern and small shop character of the Bronte Road streetscape, on the fabric and character of the 'Inter-war style

*historical subdivision pattern and the small shop character at street level.*

*(b) To maintain the built character of small shops originally built to supply the local residents, together with shop-top housing.*

*(c) To ensure the fabric and character of the interwar buildings and shop-fronts are maintained.*

building, 473 Bronte Road (Bogey Hole Café) or other shop-fronts adjacent to the subject site.

The development has been assessed and will not have any negative or detracting impact on the built-heritage character along the café strip of the Bronte Beach village. Works are not being undertaken on the shopfronts. The upgrade to footpath facilities are considered positive and historical research to date suggests that these are not original, however they may be on the original footprint.

The upgraded concrete footpath and feature paving, proposed seating area, addition of vegetation a drinking fountain, and bicycle racks will have an overall positive effect on the aesthetic value of the area and provide a positive experience to those that visit Bronte Park, Bronte Beach and the village.

## 5.4 Bronte Park and Beach Plan of Management 2017

The following table addresses the relevant proposed actions in the Bronte Park and Beach Plan of Management prepared by Bianca Simpson and Andrew Chau in 2017 for Waverley Council. Amendments were made in June 2018.

Section 6.1 Design and Setting 6.1.2 Action Plan	This proposal relates to these matters as follows:
<p><b>6.1.2 Action Plan</b></p> <p><b>A4. Provide a memorable experience for all users by celebrating the site's unique character and scenic qualities</b></p> <ul style="list-style-type: none"> <li>A4.1 Conserve view corridors from main arrival points to and within the park by ensuring future design and planning considers views.</li> <li>A4.2 Retain and build on existing materials on-site such as concrete, sandstone, timber and stainless steel.</li> </ul> <p><b>A6. Reinforce the sense of arrival to the site.</b></p> <ul style="list-style-type: none"> <li>A6.1 Review the alignment of pedestrian entrances into the site to ensure they are connected to pedestrian crossings, the Coastal Walk and thoroughfares.</li> <li>A6.2 Review and where necessary redesign entrances into the park from Bayview Street and Bronte Road to ensure they are welcoming and easily accessible.</li> </ul>	<p>The key views identified in the Bronte Park and Beach Plan of Management are not impacted on by works addressed in this HIS.</p> <p>The proposed works will both retain and build on existing materials, as well as replace current materials with sympathetic modern alternatives. This includes the retention of the two concrete staircases leading to the accessibility carpark and former tram shed level, and their refurbishment to include accessibility compliant features (see B1.3 below). However, a portion of the original retaining wall, associated section of timber post and rail fence and access stairs have been proposed for demolition and will not be replaced.</p> <p>The pedestrian entrances to the park from the subject site are not aligned with the current pedestrian crossing or the new location outlined in the proposed works. The pedestrian entrances also do not align with the Coastal Walk and thoroughfares through Bronte Park. The pedestrian crossing has been relocated to align with the new proposed seating area, with pedestrian access into Bronte Park either from the accessible ramp adjacent to the former tram shelter or further east of the crossing. The bus zone and proposed seating area will be</p>



	bordered by restored post and rail fencing.
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Section 6.2 Getting to and around the Park 6.2.1 Action Plan	This proposal relates to these matters as follows:
<b>B1.3 Entrances from Bronte Road</b> <ul style="list-style-type: none"> <li>i. Provide an accessible compliant bus link on the south side of the park.</li> <li>ii. Provide an allocated wheelchair space and seating in the heritage shelter.</li> <li>iii. Provide an accessible compliant link to the heritage shelter from the park.</li> <li>iv. Upgrade the stairs adjacent the heritage shelter with highlighting on step nosing, handrails on both sides and TGSIs, in accordance with Australian Standards, and Disability Discrimination Act.</li> </ul>	<p>This HIS does not assess the compliance of the accessible bus link.</p> <p>No works have been proposed directly relating to the heritage shelter.</p> <p>The proposed works include the upgrade to the paved ramp that leads between the bus zone and the location of the former tram shed. This upgrade will feature new a plain concrete surface bordered by a post and rail fence to match the existing. This will provide a compliant, accessible link between the bus zone, shelter and park, and maintain the heritage significance of the subject site.</p> <p>The two concrete staircases between the accessibility carpark adjacent to the former tram shed and bus zone feature upgrades within the proposed works. These upgrades include stair nosing at the on the stair tread, hand rails on both sides of the staircases in marine grade stainless steel, and tactiles TGSIs. Historical research to date suggests that these staircases were installed during the resumption of the tram terminus for Sydney Buses circa 1960-61, as they identify the change in ground level not visible in historical imagery during the time the tramline was operational.</p>

## 5.5 'Statements of Heritage Impact' (NSW Heritage Manual)

The following table addresses the proposal in relation to relevant 'questions to be answered' in the *NSW Heritage Manual* 'Statements of Heritage Impact' guidelines relating to a new development adjacent to a heritage item (including additional buildings and dual occupancies).

Questions to be answered	This proposal relates to these matters as follows:
How is the impact of the new development on the heritage significance of the item or area to be minimised?	<p>The impact on of the new development will not detract from the significance of the Bronte Beach Landscape (C29) and South Bronte Headland Landscape (C59) HCAs or heritage items. The works will not physically encroach into the curtilage of either HCA or heritage item. New paving and seating will be of sympathetic design, style and colouring. Sections of the original timber post and rail fencing will be retained and made good. Where required, new fencing will match the original. Where two Norfolk pines and one palm tree are removed they will be replaced with pockets of planting.</p>

	<p>The heritage items will not be altered directly, and the changes will not have a negative impact on their attributed significance.</p>
<p>Why is the new development required to be adjacent to a heritage item?</p>	<p>The subject site abuts the Bronte Beach Landscape (C29) or South Bronte Headland Landscape (C59) HCA to the north and north-east, and functions as the main visitor access to Bronte Park and Beach.</p> <p>The project aims to upgrade public domain features accessible by the public for aesthetic and safety value whilst retaining the heritage values of proximal heritage items.</p>
<p>How does the curtilage allowed around the heritage item contribute to the retention of its heritage significance?</p>	<p>The new development will not encroach into the curtilage of either Bronte Beach Landscape (C29) or South Bronte Headland Landscape (C59) HCA or include changes to the Bogey Hole Cafe heritage item.</p> <p>It is noted that conduit housing will be affixed to the north-facing exterior of the Bogey Hole Café, but this will be painted in neutral colours that match the exterior to reduce negative heritage impact to its aesthetic significance.</p>
<p>How does the new development affect views to, and from, the heritage item? What has been done to minimise negative effects?</p>	<p>Views to and from the Bronte Beach Landscape (C29) and South Bronte Headland Landscape (C59) HCAs and heritage items will not be affected, and impact to views will come from people traffic and the erection of larger trees within the mass planting plots.</p> <p>The introduction of trees along the bus zone between Bronte Road and Bronte Park will be widely spaced, reducing the negative visual impact.</p> <p>The former tram shed is not visible from the café strip due to the difference in ground level, and as such the additional plantings between the bus zone and Bronte Road will not alter its visibility.</p>
<p>Is the development sited on any known, or potentially significant archaeological deposits? If so, have alternative sites been considered? Why were they rejected?</p>	<p>Historical research suggests that the development is likely sited on archaeological remnants. The area is associated with the addition of the tramline in 1910-1912, which included retaining wall and associated steps between the former terminus and Bronte Road, and the removal of the tramline throughout Sydney in circa 1960. It was not established that the tram tracks were removed, and it is likely that they were infilled with concrete as was common practice at the time.</p> <p>The development aims to reinvigorate and modernise the existing bus zone and the footpath of the café strip featured within the subject site. Other sites have therefore not been considered or rejected previously.</p>
<p>Is the new development sympathetic to the</p>	<p>The new development is sympathetic to the</p>

heritage item? In what way (e.g. form, sitting, proportions, design)?	<p>heritage items. The works include the addition of seating, vegetation, drinking fountain, bicycle racks and a safety features added to stairways and the crosswalk. The new features have been designed with sympathy to the heritage items in colour and style, and new pavement will be laid on the original footprint. The general layout of the subject site appears to have remained similar since its resumption from the park for the tramline, and has been modified since.</p> <p>The post and rail fence will be made good. Where new sections are required, these will replicate the original, while replaced sections will be appropriately marked as new.</p>
Will the additions visually dominate the heritage item? How has this been minimised?	<p>The additions will not visually dominate the heritage items or Bronte Beach Landscape (C29) and South Bronte Headland Landscape (C59) HCAs, the subject site is a small, localised area and will not encroach into the curtilage of either HCA or heritage item.</p> <p>This has been minimised by maintaining the general layout of the subject site during redevelopment, the controlled addition of larger vegetation by spacing trees with greater height and by maintaining the height of built features such as fencing.</p>
Will the public, and users of the item, still be able to view and appreciate its significance?	<p>Yes, the works are intended to upgrade the public domain features surrounding the former tram shed and café strip and will not impede the significance of heritage items and Bronte Beach Landscape (C29) and South Bronte Headland Landscape (C59) HCAs.</p> <p>The works will include safety features such as non-slip tactile, fenced accessibility ramps, and additional seating, and allow the subject site to facilitate greater accessibility to the HCAs.</p>

## 6. Conclusion and Recommendations

In conclusion, it is considered by City Plan Heritage that the proposed works to the subject site located at Bronte Beach village would generally result in a moderate but acceptable heritage impact overall.

The proposed design seeks to upgrade the public domain features to include seating, vegetation, new paving, concrete ramps, the installation of a drinking fountain and bicycle racks to the Bronte Beach Village at Bronte Road, resulting in a more functional and usable space. While the design directly responds to the to the Bronte Beach Landscape (C29), South Bronte Headland Landscape (C59) HCAs and the Bogey Hole Café (item no. I279) it will result in the demolition of a portion of the original retaining wall and associated post and rail fence, as well as the demolition of the stairs between Bronte Road and the bus zone.

Historical research to date has also suggested that the subject site may have the potential to yield archaeological remnants associated with the building of the tramline.

The proposal demonstrates compliance with the existing controls regarding heritage conservation and is therefore recommended to Council for approval with the following recommendations.



### **Salvage**

- Prior to commencement of the works, allow a built heritage specialist, or council's heritage officer, to identify significant elements for salvage, storage and later reinstatement.

### **Monitoring**

- A built heritage specialist, or council's heritage officer, is to be on site during all critical processes that require specialist knowledge and methodology. Should any discoveries be made apparent during their absence, they are to be notified immediately and work in that area is to cease.

### **Specification**

- Develop a specification to the approval of the built heritage specialist or council's heritage officer. Specification to include relevant heritage clauses that address the methodology for execution of the works in close proximity to heritage fabric and the process for salvage and reinstatement of identified material. The specification should also include measures that ensure that junctions between new and original fabric are reversible.

### **Photographic archival recording**

- Develop an archival record (before, during and after) of areas implicated by the works in accordance with the Heritage Division of the NSW Office of Environment & Heritage guidelines *Photographic recording of Heritage Items Using Film or Digital Capture* (2006).

### **Heritage interpretation**

- Develop interpretation for the proposed development in accordance with the Heritage Division of the NSW Office of Environment & Heritage publications, *Interpreting Heritage Places and Items* (2005) and *Heritage Interpretation Policy* (2005).

CITY PLAN HERITAGE

NOVEMBER 2018

# **Appendix D**

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Bronte Village Streetscape Traffic Study –  
Bitzios Consulting

# BRONTE VILLAGE STREETSCAPE TRAFFIC STUDY

FOR

**GROUP GSA**

**BITZIOS**  
consulting

## **Gold Coast**

Suite 26, 58 Riverwalk Avenue  
Robina QLD 4226  
P: (07) 5562 5377  
W: [www.bitziosconsulting.com.au](http://www.bitziosconsulting.com.au)

## **Brisbane**

Level 2, 428 Upper Edward Street  
Spring Hill QLD 4000  
P: (07) 3831 4442  
E: [admin@bitziosconsulting.com.au](mailto:admin@bitziosconsulting.com.au)

## **Sydney**

Studio 203, 3 Gladstone Street  
Newtown NSW 2042  
P: (02) 9557 6202

Project No: P2960

Version No: 004

Issue date: 19 December 2018



## DOCUMENT CONTROL SHEET

### Issue History

Report File Name	Prepared by	Reviewed by	Issued by	Date	Issued to
P2960.001R Bronte Village Streetscape Traffic Study	G. Yin	T. Wheatley	T. Wheatley	24/10/18	Tim Field Group GSA
P2960.002R Bronte Village Streetscape Traffic Study	G. Yin	T. Wheatley	T. Wheatley	5/11/18	Tim Field Group GSA
P2960.003R Bronte Village Streetscape Traffic Study	G. Yin	T. Wheatley	T. Wheatley	14/12/18	Tim Field Group GSA
P2960.004R Bronte Village Streetscape Traffic Study	G. Yin	T. Wheatley	T. Wheatley	19/12/18	Tim Field Group GSA

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## Appendices

Appendix A:	General Arrangement Plan
Appendix B:	Traffic Survey Reports
Appendix C:	Austroads LATM Toolkit

## 1. INTRODUCTION

### 1.1 BACKGROUND

Bitzios Consulting were engaged by Group GSA on behalf of Waverley Council to undertake a traffic and pedestrian study within Bronte Village as part of a Review of Environmental Factors (REF). This study aims to investigate the existing traffic and pedestrian conditions in Bronte Village and provide an empirical evidence base to inform the streetscape design and potentially introduce traffic control devices or Local Area Traffic Management (LATM) treatments as part of the streetscape upgrades.

The findings of the study may be used to inform a revised streetscape design that will take into account the findings of the studies undertaken under the REF, with consideration of road and pedestrian safety, traffic speeds, traffic volumes and bus operations. The outcome of the findings may also form the basis for the design and implementation of a 40km/h HPAA speed zone and subsequent Speed Zone Application to Roads and Maritime Services.

### 1.2 STUDY AREA

The locality of Bronte Village (the study area) is shown in Figure 1.1.



Adapted from NSW SIXMaps

**Figure 1.1: Locality of Bronte Village**

### 1.3 PROPOSED DEVELOPMENT / UPGRADES

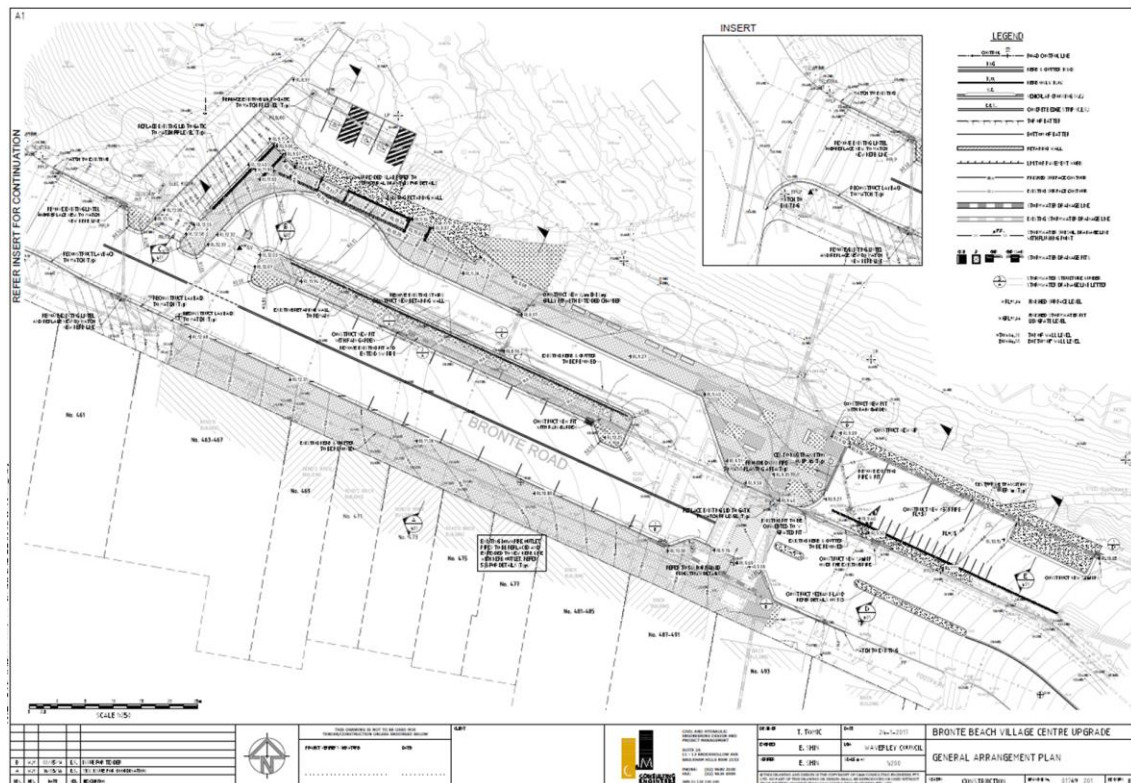
Streetscape upgrades previously proposed by Group GSA include:

- Changes to kerb alignments;
- Relocation of the pedestrian crossing to between its current position and Calga Place;
- introduction of a raised pedestrian crossing;
- expansion of kerbside walkways along Bronte Road;
- expansion of pedestrian facilities within the Bronte Terminus (bus stop);
- landscaping and trees;
- relocation of motorcycle and bicycle parking;



- modification to the accessible car park near Bronte Terminus; and
- additional accessible (PWD) parking spaces in Calga Place / Bronte Cutting car park.

The general arrangement plan (by C&M Consulting Engineers, Drawing number 0179\_201, dated 24 January 2017) is shown in Figure 1.2, also located in **Appendix A**.



Source: Bronte Beach Village Centre Upgrade: General Arrangement Plan - C&M Consulting Engineers

**Figure 1.2: General Arrangement Plan**

## 1.4 ROAD SAFETY AUDIT

A Road Safety Audit was previously conducted by an independent audit team from Bitzios Consulting on 27 April 2018.

Audited material included:

- Signage and Line Marking Plan (Draft – 27 April 2018);
- Swept path diagrams (Bitzios Consulting, dated 27/04/2018)
- Civil Engineering Design Drawings (C & M Consulting Engineers – 24 January 2017)

### 1.4.1 Audit Results

Findings of the Road Safety Audit included:

- Swept path for emergency vehicles (ambulance) into Calga Place may require removal of some motorcycle spaces;
- The loading zone on the northern side of Bronte Road may obstruct driver-pedestrian sight lines on approach to the crossing from the west;
- Existing give way signage at the exit from Bronte Terminus was badly faded;
- Existing phone booth on the southern side of Bronte Road poses a hazard for visually impaired crossing users;
- Westbound vehicles (from Macpherson Street) may exceed the proposed High Pedestrian Activity Area (HPAA) 40km/h speed limit (starting at Pacific Street) due to the downhill slope, which may require suitable traffic calming measures between Pacific Street and the crossing; and
- Signage plan did not include end of HPAA signage in either direction.

## 1.5 PROJECT SCOPE

The scope of this study includes:

- Survey of vehicle speeds and volumes on approaches to the pedestrian crossing and Bronte Village and site visit;
- survey of pedestrians using the pedestrian crossing and crossing Bronte Road within the village area;
- analysis and summary of survey data;
- analyse historic crash data from the last five years;
- identify trends in traffic behaviour, crash patterns and existing safety issues within and surrounding Bronte Village;
- identify the need for traffic control devices or LATM schemes (such as speed humps, speed cushions, slow points, etc.) and make recommendation on suitable treatments, including preparation of concept sketches; and
- identify any key aspects to be considered in the streetscape design relating to pedestrian and road safety.

## 1.6 CONCURRENT INVESTIGATION

At the time of this report, Bitzios Consulting are also engaged by Waverley Council to undertake a speed review with the objective of introducing a 40km/h speed limit across the whole LGA, which includes the Bronte Village area and associated section of Bronte Road.

The findings of this study may also be used to provide a detailed assessment of the Bronte Village area along Bronte Road and may be used to inform the support or rationale of a 40km/h speed limit, including a High Pedestrian Activity Area.

## 2. EXISTING CONDITIONS

### 2.1 ROAD NETWORK

#### 2.1.1 Bronte Road

Bronte Road is a two-way road with one lane in each direction, connecting Bronte Village and Bronte Beach with the surrounding area. It primarily runs east-west, acting as a collector road to a number of local streets. Kerbside parking is available both sides of Bronte Road. Bronte Village is situated on Bronte Road between Pacific Street and Nelson Avenue.

A section of Bronte Road adjacent to Bronte Park and Bronte Village is shown in Figure 2.1.



**Figure 2.1: Bronte Road adjacent to Bronte Park and Bronte Village – Looking West**

#### 2.1.2 Calga Place

Calga Place is a narrow one way road that connects Bronte Road and Macpherson Street. It serves as the circulating roadway for the Bronte Cutting Parking Area as well as a pedestrian access as part of the Bondi to Coogee Coastal Walk. A section of Calga Place is shown in Figure 2.2.





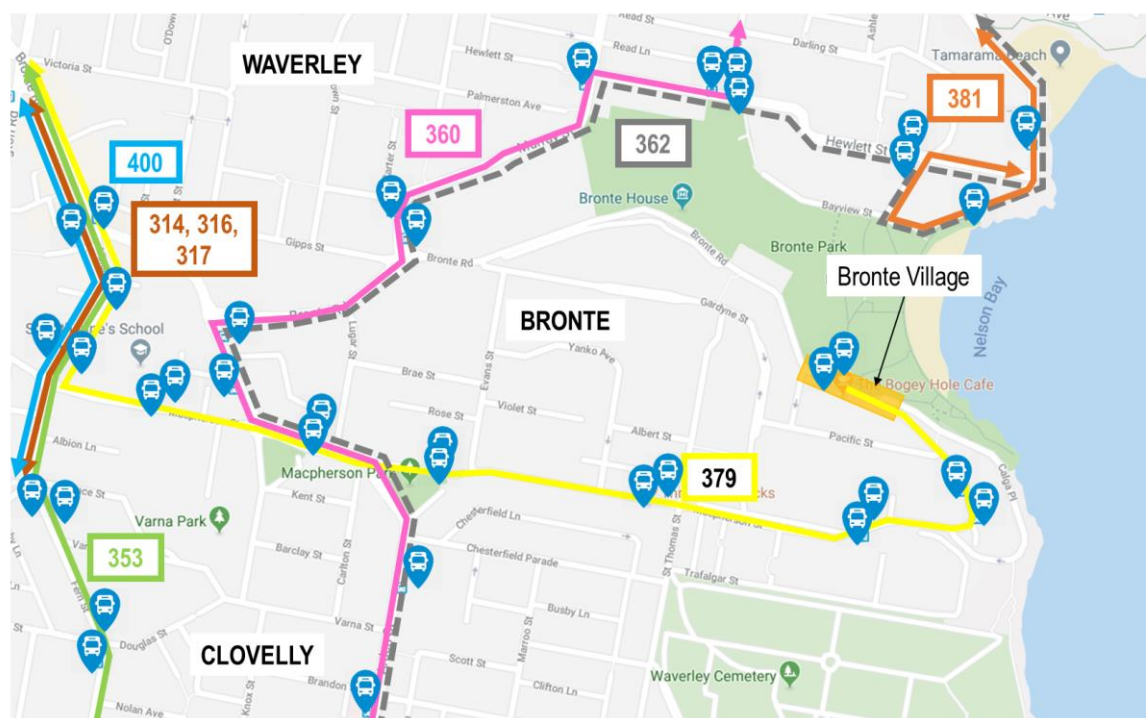
Figure 2.2: Calga Place – Looking East

## 2.2 PUBLIC TRANSPORT

### 2.2.1 Bus Services

Route 379 (North Bondi to Bronte via Bondi Junction) operates within Bronte Village, along Bronte Road and Macpherson Street. Service frequency varies during the week, with approximately eight services an hour during weekday peaks and nine services an hour during the Saturday peak.

Other bus routes also service the surrounding Bronte, Tamarama, Clovelly and Waverley suburbs. A map of bus services in the surrounding area is shown in Figure 2.3.



Adapted from Google Maps

Figure 2.3: Bus Services



## 2.2.2 Bus Stops and Bronte Terminus

A number of bus stops are located along Bronte Road and Macpherson Street. A map of bus stops near and within Bronte Village is shown in Figure 2.4. The Bronte Terminus is located within the Bronte Village area.



Adapted from GoogleMaps

**Figure 2.4: Bus Stops**

## 2.3 CAR PARKING

Car parking in the local area is primarily kerbside parking, with a small amount of angled off street parking.

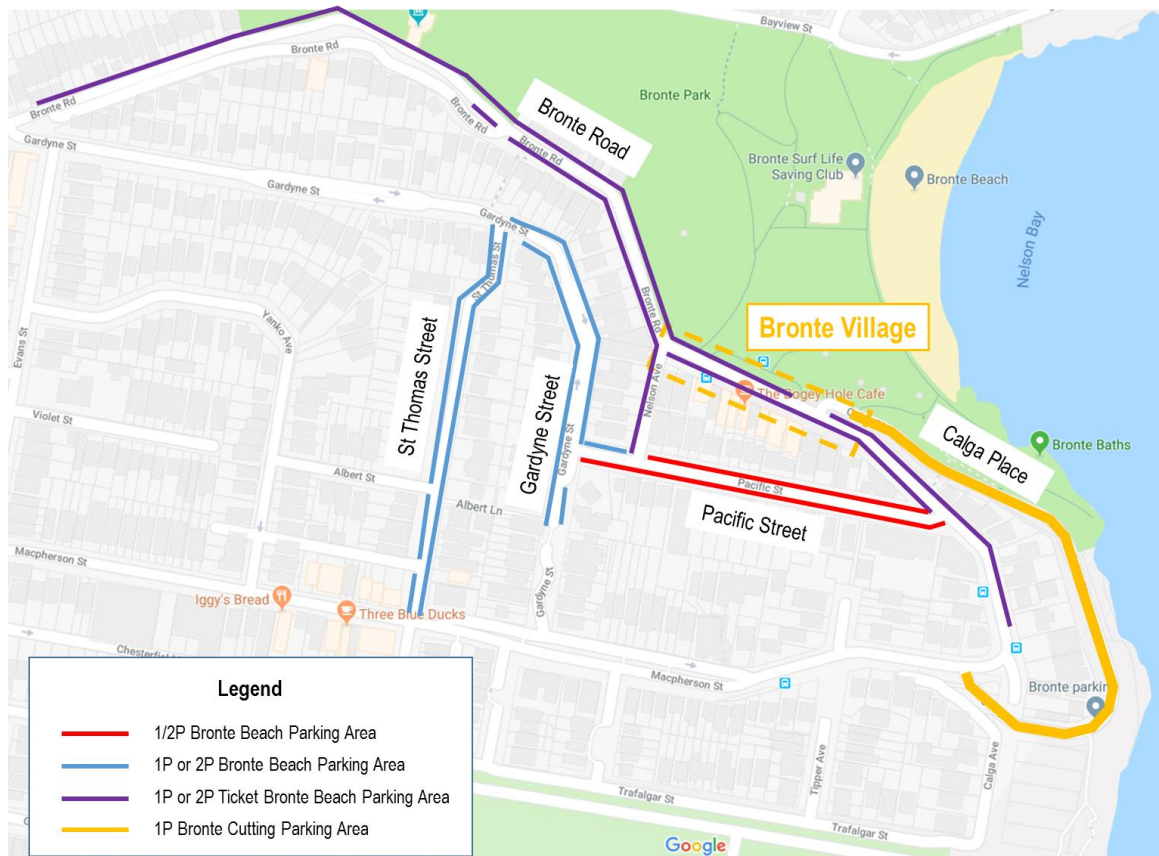
### 2.3.1 Bronte Beach Parking Area

The Bronte Beach Parking Area is a time restricted ticketed parking area consisting of a number of smaller areas with varying restrictions. This includes:

- ½P Bronte Beach Parking Area (Pacific Street)
- 1P or 2P Bronte Beach Parking Area (Gardyne Street and St Thomas Street)
- 1P or 2P Ticket Bronte Beach Parking Area (Bronte Road)

Parking time restrictions are season based with 1P restrictions occurring from September to May, and 2P restrictions occurring from June to August.

A map of parking areas is shown in Figure 2.5.



Adapted from GoogleMaps

**Figure 2.5: Parking Areas**

### 2.3.2 Bronte Cutting Parking Area

The Bronte Cutting Parking Area is a seasonal ticket parking area with the following restrictions:

- 1P Ticket Parking 9am-8pm September through to May.

The Bronte Cutting car park includes:

- 140 parking spaces in total
- Two accessible (PWD) parking spaces)
- Six Bronte Surf Life Saving permit spaces

The cutting also serves as a pedestrian route as part of the Bondi to Coogee coastal walk. At the time of this report, a 40km/h High Pedestrian Activity Area (HPAA) was observed to be implemented in Calga Place.

## 2.4 PEDESTRIAN CROSSING

The existing pedestrian crossing is located on the eastern end of Bronte Village, approximately 15m west of Calga Place. The crossing is at road level with kerb ramps on the southern kerb of Bronte Road and northern kerb of Bronte Terminus, with a small refuge/median island on Bronte Road and separating Bronte Road from Bronte Terminus. The existing Pedestrian Crossing is shown in Figure 2.6.

It currently crosses two lanes of traffic on Bronte Road and one eastbound lane within Bronte Terminus. Based on current RMS technical directions, this pedestrian crossing is non-compliant as it traverses more than two lanes of traffic.



**Figure 2.6: Existing Pedestrian Crossing**

## 2.5 SITE OBSERVATIONS

A number of observations were made on site:

- Pedestrians frequently cross Bronte Road and Bronte Terminus between the park and shops;
- shops and food outlets on the southern side of Bronte Road attract pedestrians,
- Bronte Park and Bronte Beach on the northern side also attract pedestrians;
- pedestrians observed walking along Calga Place along Bronte Cutting;
- buses drop passengers on the northern side of Bronte Road and lay over within Bronte Terminus before picking up passengers;
- most traffic begin to slow before entering Bronte Village;
- some vehicles observed to travel down the hill at speed;
- some cyclists were observed to ride along Bronte Road from Macpherson Street; and
- kerbside parking is mostly full in the area.

## 2.6 RESIDENT CONCERNS

As part of the public exhibition stage, Council have received a number of concerns presented by local residents and the community on the proposed streetscape design. These concerns included:

- Location of the raised pedestrian crossing relative to the downhill slope from Macpherson Street;
- speeds of vehicles approaching Bronte Village, particularly on the downhill from Macpherson Street; and
- preference for a signalised mid-block crossing within Bronte Village.



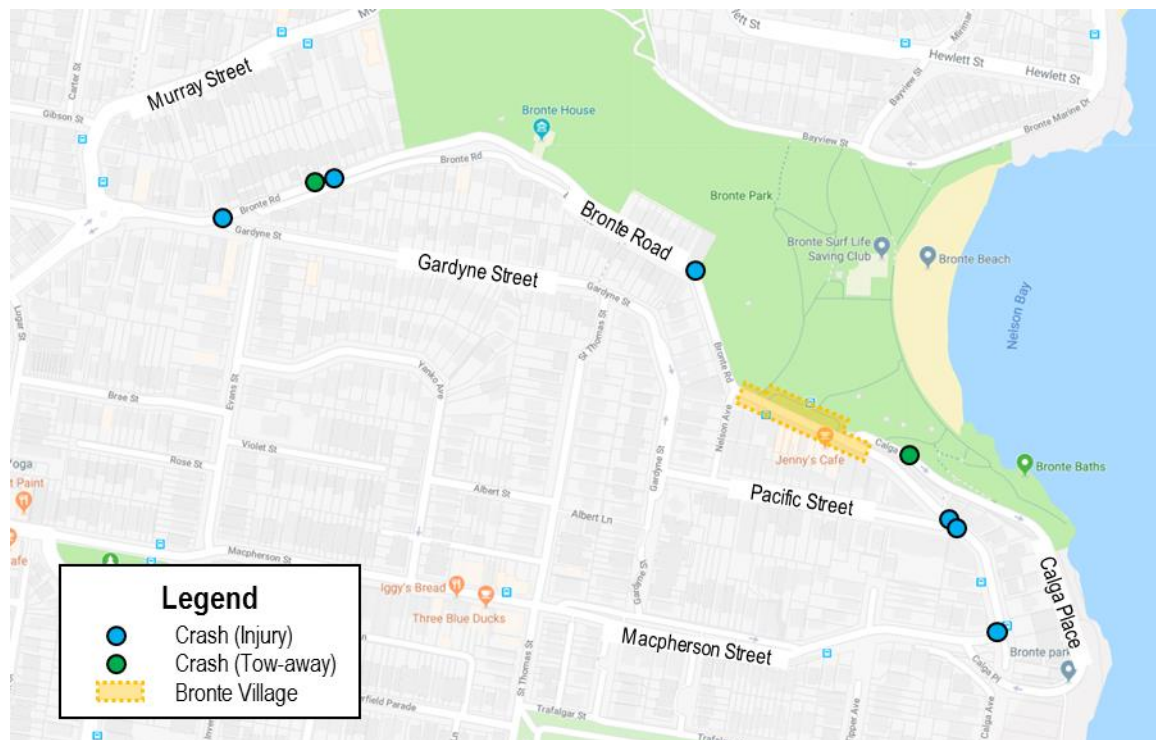
### 3. CRASH ANALYSIS

Historical crash data from the last 5 years (2012 to 2017) was obtained from Waverley Council from Roads and Maritime records for the period January 2012 to December 2017. The crash statistics include all 'reported' crashes along Bronte Road between Murray Street (approximately 680m to the west) and Macpherson Street (approximately 300m to the south east) during this period.

For the section of Bronte Road between Murray Street and Macpherson Street, the following crashes were observed during the five year period:

- A total of eight crashes were recorded;
- six crashes resulted in injury and two tow-away (non-casualty) crashes;
- three crashes involved a cyclist;
- two crashes involved a motorcycle;
- no crashes involved a pedestrian;
- one crash was recorded in Calga Place (Bronte Cutting Car Park); and
- no crashes occurred within Bronte Village.

A map of recorded crashes along Bronte Road (by severity) is shown in Figure 3.1.



Adapted from GoogleMaps

**Figure 3.1: Recorded Crashes (by Severity)**

Table 3.1 summarises the recorded crashes along Bronte Road and Calga Place. General trends include:

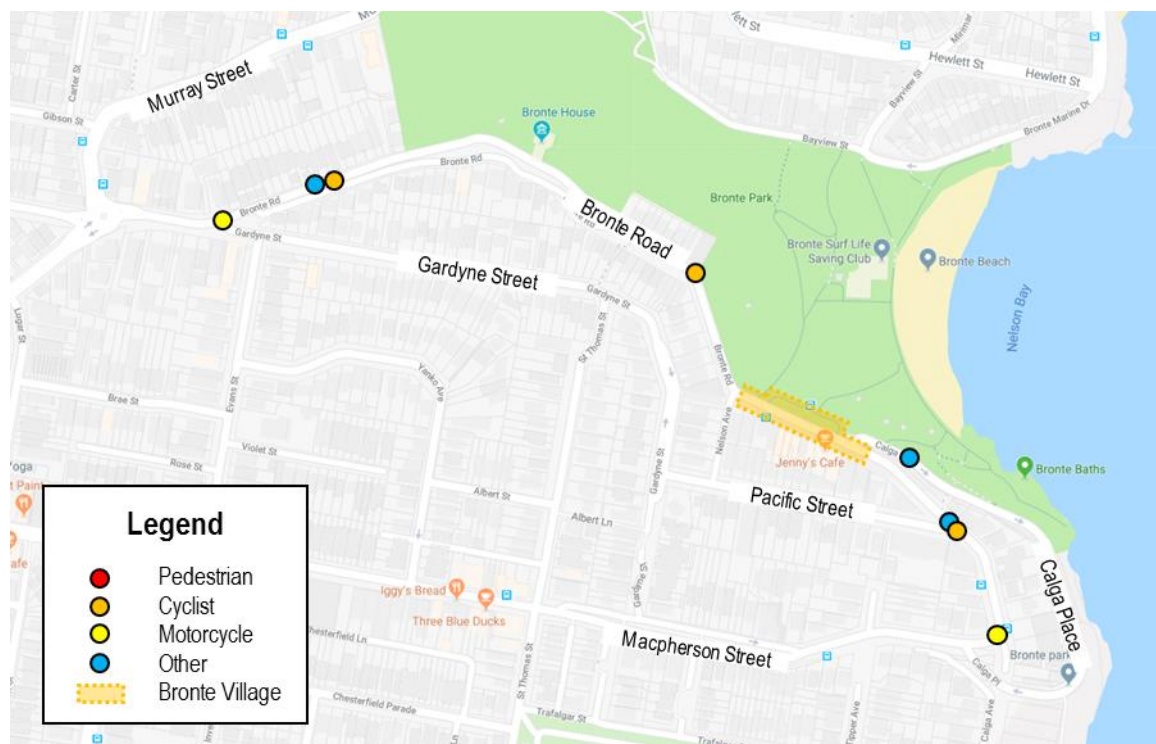
- all crashes occurred during day-light hours or in dusk conditions;
- one crash occurred during wet conditions;
- most crashes occurred during 2014; and
- crashes occurred mostly on Wednesday, Friday and Saturday.



**Table 3.1: Crash Data Summary**

Year	Location	Day	Time of Day	Severity	Road User Movement	Vulnerable Road User
2013	Bronte Road, 100m South of Pacific St	Sunday	Evening	Injury	U turn	Motorcycle /Scooter
2014	Bronte Road, 100m West of Nelson St	Saturday	Morning	Injury	U turn	Bicycle
2014	Bronte Road, 5m North of Pacific St	Friday	Afternoon	Injury	Off rd left into obj	-
2014	Bronte Road, At Pacific St	Saturday	Afternoon	Injury	Left turn sideswipe	Bicycle
2014	Bronte Road, At Gardyne St	Tuesday	Afternoon	Injury	Out of cont on bend	Motorcycle /Scooter
2014	Bronte Road, At No. 452 Bronte Rd	Wednesday	Morning	Non-casualty (towaway)	Head on	-
2014	Bronte Road, 240m East of Murray St	Tuesday	Morning	Injury	Right through	Bicycle
2015	Calga Pl, 30m East of Bronte Rd	Wednesday	Morning	Non-casualty (towaway)	Vehicle door	-

Crashes involving vulnerable road users (pedestrian, bicycles or motorcycles) are shown in Figure 3.2.



Adapted from GoogleMaps

**Figure 3.2: Crashes Involving Vulnerable Road Users**

### 3.1 STATISTICAL ANALYSIS

#### 3.1.1 Typical Casualty Rates

As part of statistical crash analysis, typical casualty rates for urban and rural roads are provided within the NSW Speed Zoning Guidelines. These typical rates are used for comparison against crash analysis outcomes.

If the calculated rate for a section of road is substantially greater than the average/typical rate for that type of road, additional safety measures including a lower speed limit may be warranted.

A table of typical urban casualty rates from the NSW speed zoning guidelines is shown in Table 3.2.

**Table 3.2: Typical Urban Casualty Rates**

URBAN TYPICAL CASUALTY RATE (casualties per km per year)							
Road category	Speed zones						
	50	60	70	80	90	100	110
Motorway / freeway	–	–	0.049	0.039	0.463	0.148	1.219
State highway	0.014	0.450	0.827	0.217	0.177	0.101	0.177
Other classified road	0.102	1.351	1.361	0.360	0.253	0.111	0.007
Unclassified road	0.446	0.874	0.376	0.154	0.077	0.064	0.008

**NOTE :**

- Discretion is needed in comparing these rates to the rate on a particular section of road. A specific road section may not fall comfortably into any single category.
- The values do not suggest an acceptable level.

Source: NSW Speed Zoning Guidelines (Section 3)

The applicable typical casualty rate for this study is:

- 50km/h road: 0.446 casualties per km per year

### 3.1.2 Casualty Rates

A statistical analysis of the casualty rate per km was undertaken for Bronte Road for each year and tabulated below.

**Table 3.3: Casualty Rate for Bronte Road**

Road Name	Length (km)		Casualties							
			2013	2014	2015	2016	2017	Total	Rate (per year)	Rate (per km per year)
Bronte Rd	1.1	Casualty crashes	1	5				6	1.2	1.09
		Total crashes	1	6	1	0	0	8	1.6	-

From the crash casualty rate results calculated in Table 3.3, it can be seen that Bronte Road has a casualty rate exceeding 0.446 casualties per km per year (the typical rate for a 50km/h road). As this is the case, it is recommended to implement measures to provide a safer speed environment with the aim of decreasing casualty rates across the study area.

## 4. TRAFFIC SURVEY DATA ANALYSIS

### 4.1 TRAFFIC SURVEYS

To investigate the existing speed and traffic conditions within and approaching Bronte Village, an automated traffic survey was conducted by Traffic Data and Control (TDC) for a seven consecutive day period, between 24 September 2018 and Monday 1 October 2018. Traffic Reports are located in **Appendix B**.

Tube-type vehicle counters were installed at the locations shown in Figure 4.1, capturing vehicle speeds and volumes on approach to Bronte Village and on approach to the existing pedestrian crossing.



Adapted from GoogleEarth

**Figure 4.1: Traffic Survey Locations**

#### 4.1.1 Survey Limitations

Due to the proximity of kerbside parking at each counter location, vehicles were found to have parked on the tube-type counting devices, affecting the collection of data for some durations during the survey period.

Survey periods where data was affected include:

- Eastbound:
  - Tues 25th 8:00pm to Wed 26th 5:15pm;
  - Wed 26th 7:00pm to Thurs 27th 7:00am;
  - Sat 29th 2:05pm to 3:05pm and 7:00pm to 8:15pm; and
  - Sun 30th 9:45am to 10:05am
- Westbound
  - Wed 26th 9:45am to 10:05am.

Affected periods were generally overnight and during off peak times.

## 4.2 TRAFFIC SPEED

Travel speed of vehicles were recorded during traffic surveys and analysed over the seven day survey period. The average speed and 85<sup>th</sup> percentile speeds are summarised in Table 4.1 for weekday and Table 4.2 for weekend periods. All values shown are in km/h.

**Table 4.1: Speed Summary – Weekday (km/h)**

Direction	Data	Monday	Tuesday	Wednesday	Thursday	Friday
Eastbound	Average	26.0	30.7	38.5	29.7	28.2
	85 <sup>th</sup> Percentile	34.0	38.9	46.8	37.4	36.1
Westbound	Average	26.4	32.1	32	30.8	29.6
	85 <sup>th</sup> Percentile	34.6	40.1	39.8	39.6	37.3

**Table 4.2: Speed Summary – Weekend (km/h)**

Direction	Data	Saturday	Sunday
Eastbound	Average	30.0	28.0
	85 <sup>th</sup> Percentile	38.0	35.8
Westbound	Average	29.8	27.8
	85 <sup>th</sup> Percentile	37.3	35.6

A summary of the data presented in Table 4.1 and Table 4.2 is as follows:

- Speeds presented in the tables above show that all traffic is travelling well below the posted speed limit (50km/h) on approach to Bronte Village and the existing pedestrian crossing;
- westbound vehicles were recorded to travel at a greater speed than eastbound vehicles during the weekday. This may be attributed by the steeper gradient on this approach;
- eastbound vehicles were recorded travelling marginally faster on the surveyed weekend;
- the maximum daily 85<sup>th</sup> percentile in the eastbound direction was 46.8km/h; and
- the maximum daily 85<sup>th</sup> percentile speed in the westbound direction was 40.1km/h.

The survey data suggests there is not a clear or obvious speeding trend of vehicles approaching Bronte Village from both directions.

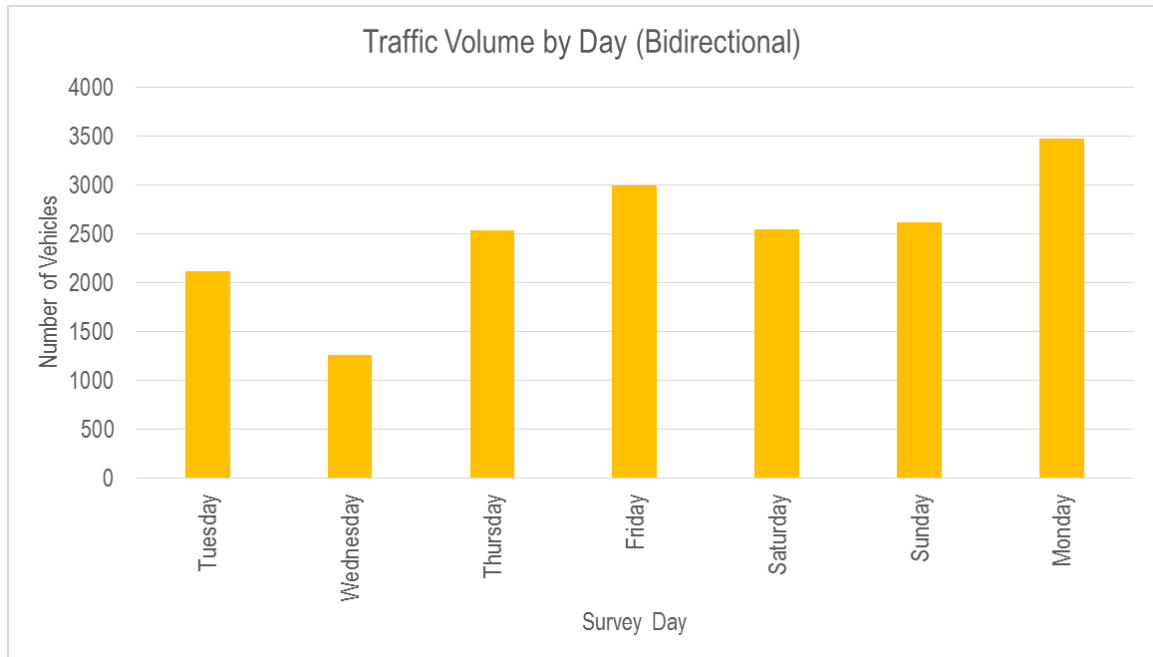
Further, this demonstrates that the implementation of a reduced speed zone (i.e. a posted speed limit of 40km/h) will not have a significant negative effect on vehicle travel through Bronte Village as most vehicles are travelling at 40km/h or below in the existing case.

## 4.3 TRAFFIC VOLUMES

Travel volumes were recorded during traffic surveys and analysed over the seven day survey period.

Total traffic volumes by survey day are summarised and shown in Figure 4.2. It should be noted the lower recorded volumes on Wednesday are affected by missing data as outlined in Section 4.1.1.



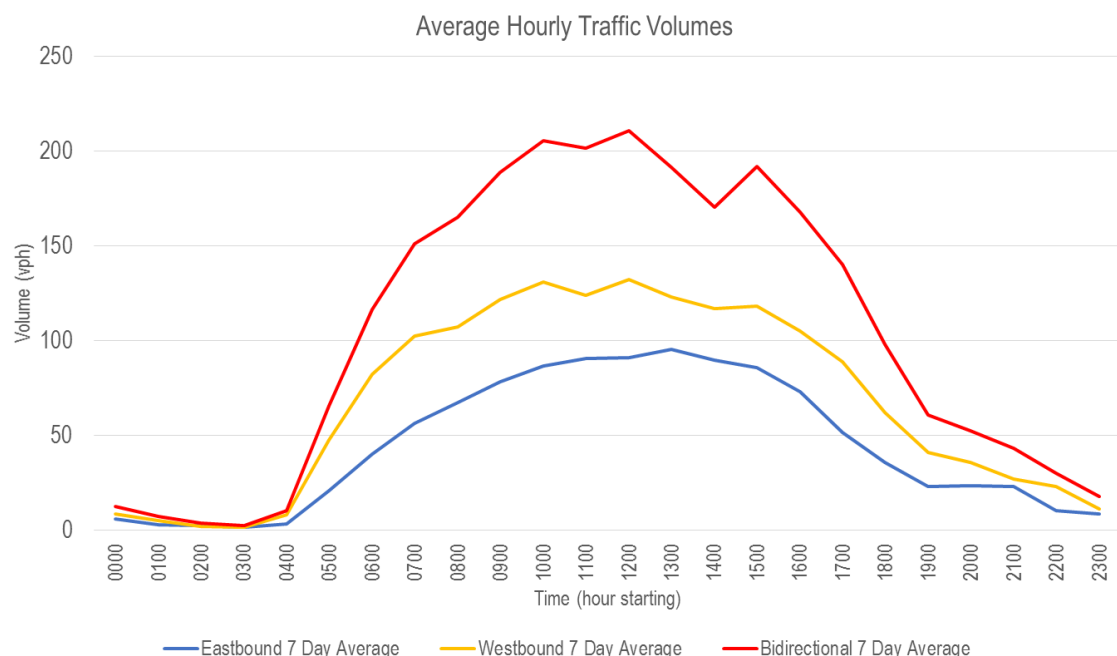


**Figure 4.2: Traffic Volume by Survey Day**

The following is a summary of findings based on the daily traffic volumes shown in Figure 4.2:

- Saturday and Sundays generally experience more traffic than weekdays (except on the surveyed Friday).
- The surveyed Monday (1/10/18) experiences an increase in traffic, which may be due to the public holiday.
- Peak daily traffic volume occurred on the Friday, with approximately 3000 vehicles per day.
- Weekend daily traffic is approximately 2600 vehicles per day.

Average hourly traffic volumes by direction were analysed and summarised in Figure 4.3.



**Figure 4.3: Hourly Average Traffic Volume by Hour**

The following is a summary of findings based on the hourly traffic volumes shown in Figure 4.3:

- Traffic through the area generally begins at 5:00am, almost doubling by 6:00am;
- Traffic during the morning gradually increases to midday;
- very little traffic travels through the area during the early morning (between 12am and 4am);

- Traffic volumes through Bronte Village do not exhibit typical AM or PM commuter peaks;
- traffic is generally travelling in the westbound direction, approaching and travelling through Bronte Village from Macpherson Street. A small number of these vehicles recorded will include route 379 buses and vehicles accessing Calga Place;
- peak traffic in the westbound direction reaches 130vph at 10:00am;
- peak traffic volumes in the eastbound direction reach approximately 80 vph at 12:00pm
- peak bidirectional traffic volumes reach approximately 220vph at 12:00pm.

## 5. PEDESTRIAN ACTIVITY

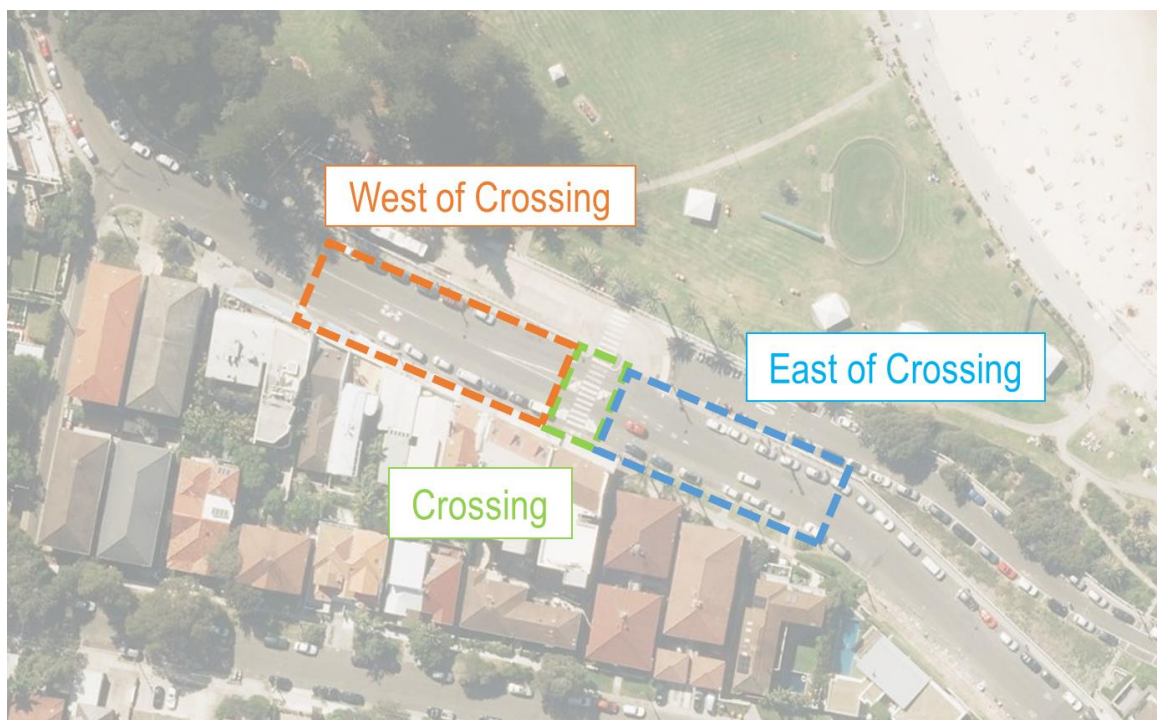
### 5.1 PEDESTRIAN SURVEY

To investigate pedestrian crossing behaviour within Bronte Village, a pedestrian survey was undertaken by TDC on Thursday 27 September and Saturday 29 September. The following was recorded as part of the survey:

- Pedestrians using the pedestrian crossing (both directions);
- pedestrians crossing (jaywalking) east of the crossing (both directions); and
- pedestrians crossing (jaywalking) west of the crossing (both directions).

The above pedestrian survey areas are also shown in Figure 5.1. It should be noted the survey does not cover the northern portion of the pedestrian crossing within Bronte Terminus.

Detailed survey reports are provided in **Appendix B**.



*Adapted from NSW SIX Maps*

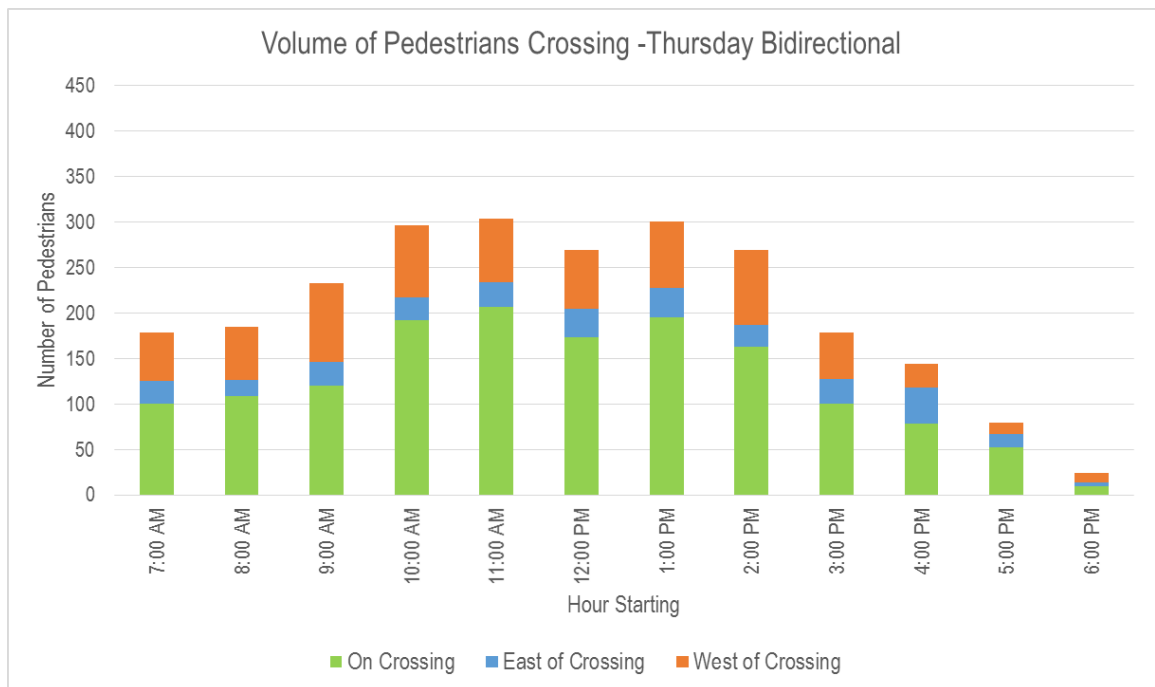
**Figure 5.1: Pedestrian Survey Areas**

#### 5.1.1 Crossing Pedestrians

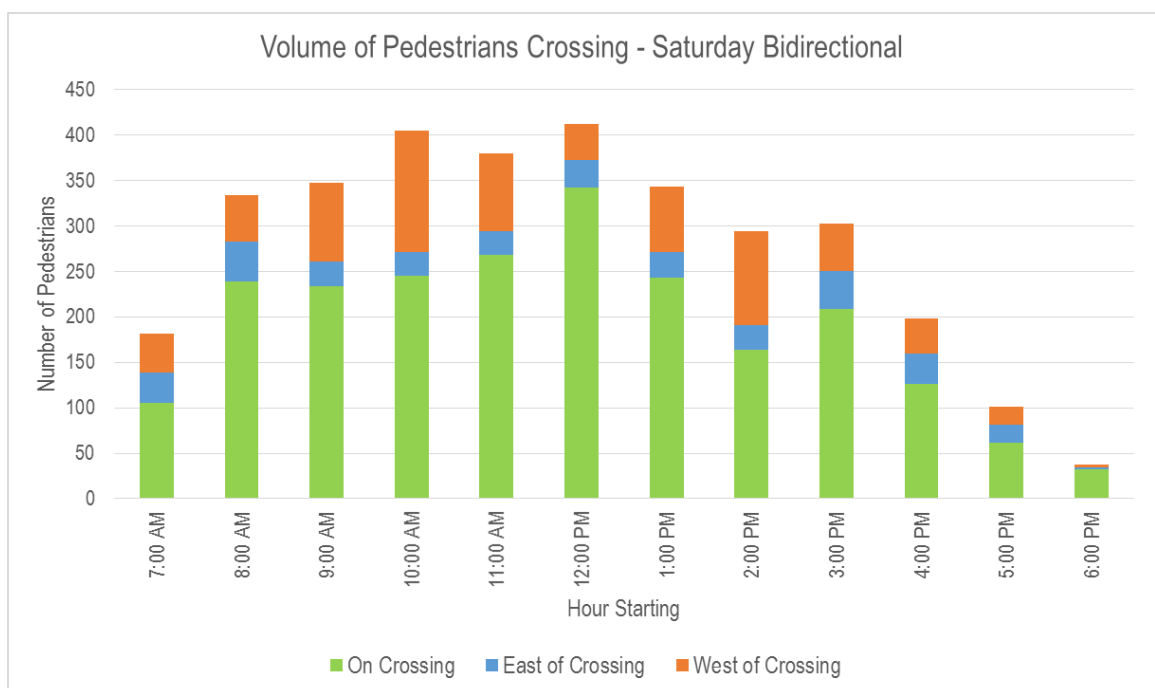
The volume of pedestrians crossing Bronte Road at or near the crossing were recorded and summarised in Figure 5.2 and Figure 5.3 for the Thursday and Saturday survey period respectively.

Pedestrian crossing behaviours are summarised as follow:

- A majority of pedestrians crossing Bronte Road use the existing pedestrian crossing at the eastern end of Bronte Terminus;
- Jaywalking pedestrians volumes are greatest west of the crossing during both Thursday and Saturday survey periods; and
- Peak flows of pedestrians (including jaywalkers) reach approximately 300 pedestrians per hour (pph, bidirectional) on the Thursday and 400 pph (bidirectional) during the Saturday.



**Figure 5.2: Volumes of Pedestrians Crossing – Thursday Bidirectional**



**Figure 5.3: Volumes of Pedestrians Crossing – Saturday Bidirectional**

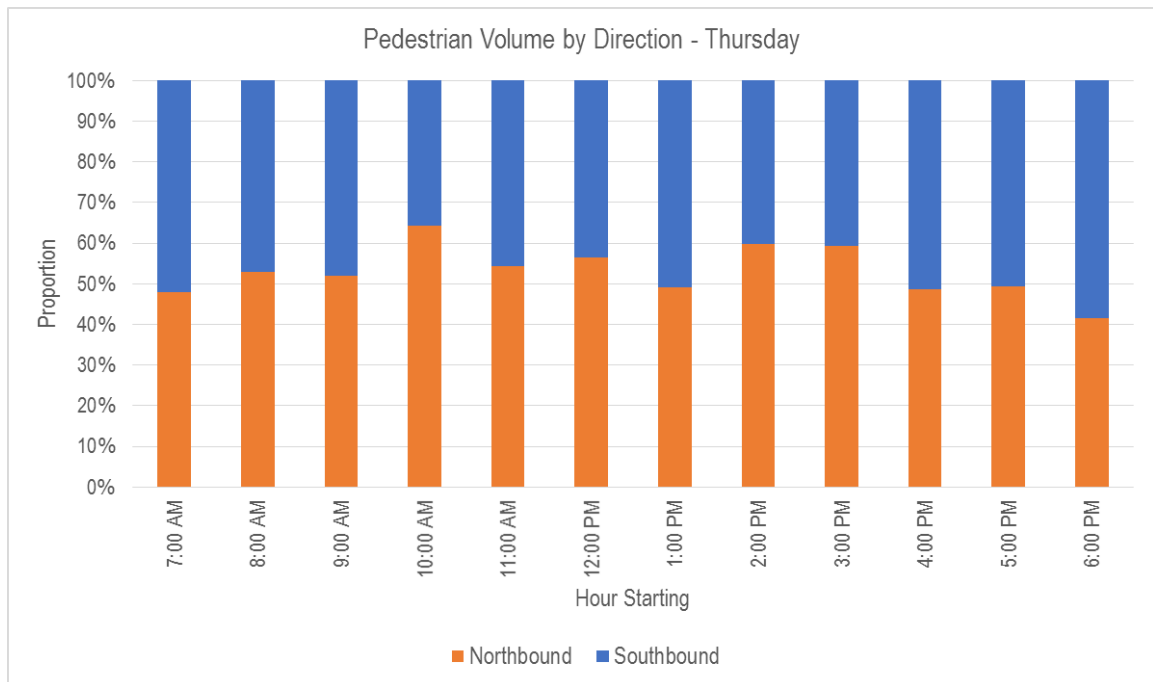
The greater volume of pedestrians crossing Bronte Road west of the crossing may be attributed to the number of food outlets located along this section of Bronte Village, acting as both pedestrian attractors and generators. In addition, the set down bus stop is also located west of the crossing.

Residential developments and parking are located towards the east and are believed to be the source of the few pedestrian movements east of the crossing and therefore experience lower volumes.

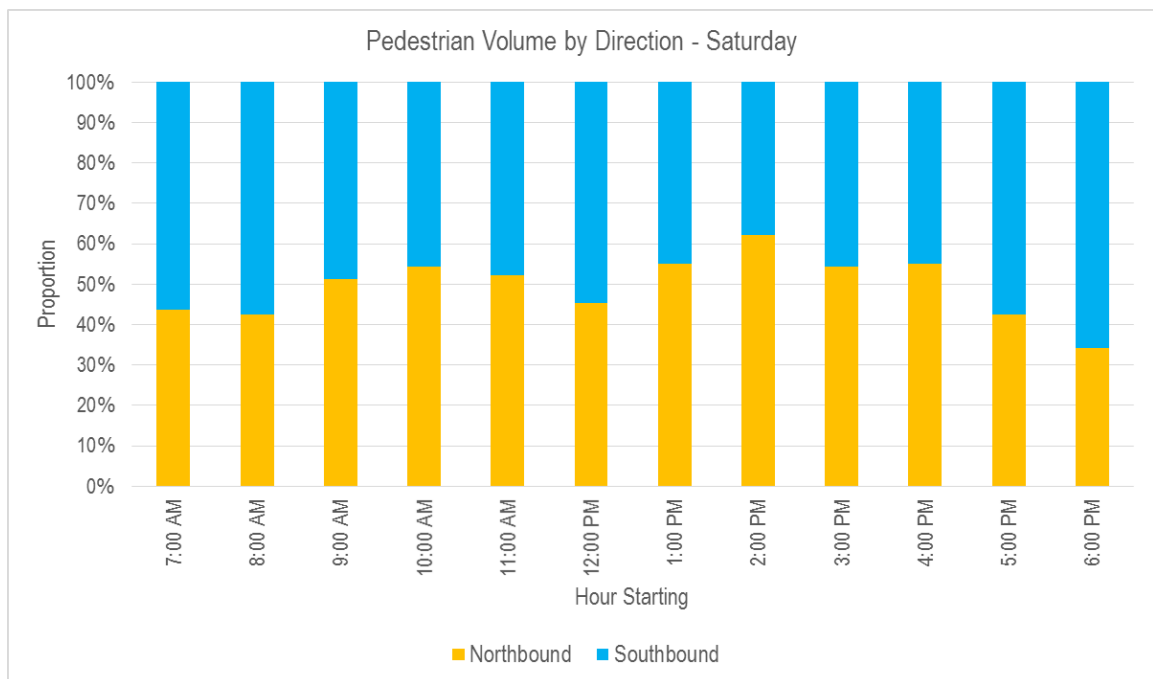


## 5.1.2 Direction

Detailed survey data also shows a greater volume of northbound pedestrians overall throughout the survey periods (on and off the pedestrian crossing), as shown in Figure 5.4 and Figure 5.5.



**Figure 5.4: Pedestrian Volume by Direction (Thursday)**



**Figure 5.5: Pedestrian Volume by Direction (Saturday)**

This may be attributed to the location of the Bronte Terminus set down stop, currently located on the southern kerb of Bronte Road out the front of No. 465 Bronte Road. Passengers alighting and walking towards Bronte Beach and Bronte Park would be included. Passengers boarding bus services would remain on the northern side of Bronte Road and Bronte Terminus and therefore would not be included in the pedestrian surveys.

The proportion of pedestrians travelling in each direction tends to vary throughout the day, with a noticeable swing towards the southbound direction in the early in the morning, middle of the day and late afternoon.

## 6. CROSSING TREATMENTS

### 6.1 TREATMENT OPTIONS

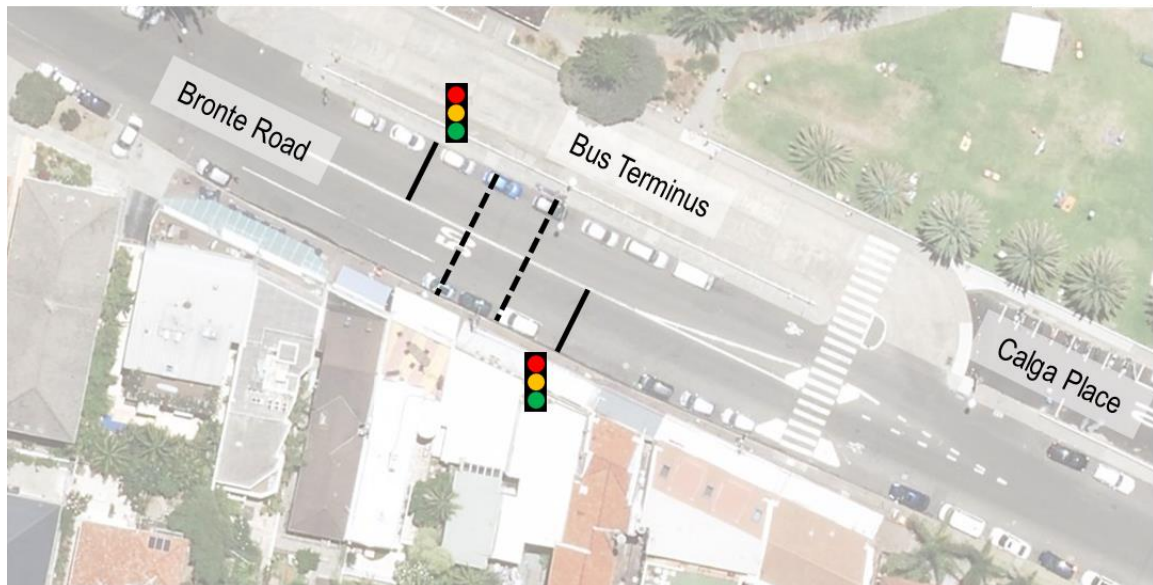
To provide for pedestrian amenity within Bronte Village, a number of pedestrian crossings and road treatment options are considered. These include:

- Pedestrian Crossing (Zebra Crossing);
- Signalised Mid-Block Crossing;
- Shared Zone;
- Raised pedestrian crossing at the proposed location (Group GSA); and
- Raised pedestrian crossing at an alternative location.

The assessment of each option considers pedestrian amenity, pedestrian and road user safety, traffic performance/efficiency and bus service considerations.

#### 6.1.1 Signalised Mid-Block Crossing

A signalised mid-block crossing uses traffic signals to control both vehicles and pedestrians. For the purpose of this assessment, the mid-block signalised crossing treatment would be most likely located within Bronte Village between the two Bus Terminus accesses, as shown in Figure 6.1.



*Adapted from NSW SIX Maps*

**Figure 6.1: Signalised Mid-Block Crossing**

The advantages and disadvantages of implementing such a crossing within Bronte Village are summarised in Table 6.1.

**Table 6.1: Signalised Mid-Block Crossing Assessment**

Treatment	Advantages	Disadvantages
Signalised Mid-block crossing	<ul style="list-style-type: none"> <li>Provides a designated crossing period for pedestrians by controlling vehicle movements</li> <li>may assist in improving traffic and bus movements by providing gaps in pedestrian flows</li> </ul>	<ul style="list-style-type: none"> <li>Prioritises vehicular traffic through Bronte Village</li> <li>Increases chance of crowding of pedestrians on northern and southern kerbs</li> <li>Low volumes of traffic may encourage pedestrians to disregard signals and 'jay walk'</li> <li>Depending on location, pedestrians may cross elsewhere along Bronte Road</li> <li>Audio-tactile push buttons may cause excessive noise to local residents</li> <li>Significant amount of parking will be required to be removed on both sides of Bronte Road to accommodate the signalised crossing</li> <li>May affect bus services attempting to access the passenger set-down stop and bus terminus.</li> </ul>

Crowding of waiting pedestrians may cause a safety issue, particularly on the northern kerb as the bus terminus is located immediately adjacent. Overcrowded pedestrians may spill onto roadway due to inadequate kerbside space, increasing the likelihood of a collision with a bus within Bronte Terminus.

Due to the traffic volumes along Bronte Road, it is likely that pedestrians will disregard the signals and cross the road when there is an opportunity, reducing the effectiveness of the signals. Current observations suggest that pedestrian flows do not significantly impact traffic movements through Bronte Village.

Overall, this treatment option may be deemed excessive as traffic volumes are not overly high (see section 6.2.2).

### 6.1.2 Shared Zone

A Shared Zone is a section of road where the road space is shared by vehicles and pedestrians. Pedestrians are given right of way when crossing or travelling along the roadway, with vehicles (including cyclists) speed limited to 10km/h. For the purpose of this assessment, the shared zone has been considered to be implemented between Calga Place and Bronte Terminus Entry to encompass the Bronte Village Area, as shown in Figure 6.2.



Adapted from NSW SIX Maps

**Figure 6.2: Shared Zone on Bronte Road**

The advantages and disadvantages of implementing a Shared Zone within Bronte Village are summarised in Table 6.2.

**Table 6.2: Shared Zone Treatment Assessment**

Treatment	Advantages	Disadvantages
Shared Zone	<ul style="list-style-type: none"> <li>▪ Prioritises pedestrians along the section of road and encourages walking in the Bronte Village Area</li> <li>▪ Pedestrians may legally cross the road anywhere within the Shared Zone,</li> <li>▪ Creates a slower speed environment by reducing vehicular speeds</li> </ul>	<ul style="list-style-type: none"> <li>▪ May potentially increase pedestrian-vehicle conflicts and collisions, increasing the safety risk for pedestrians</li> <li>▪ Shared Zone will affect through movements of general traffic on Bronte Road - the volume of traffic may not be suitable</li> <li>▪ May greatly impact bus services</li> <li>▪ The speed reduction for vehicles approaching the Shared Zone may be excessive due to the posted speed limit and road gradient</li> <li>▪ Less likely to control vehicle speeds in off-peak periods</li> </ul>

The implementation of a shared zone on such a road may be unsuitable as vehicles may require heavy speed reductions to meet the 10km/h speed limit, due to the downhill gradients approaching the village, particularly for buses approaching from Macpherson Street. As a result, it would be most likely that vehicles' speeds will not be reduced as intended. This then may increase the safety risk to pedestrians as they are now sharing the same space and potentially in the path of a vehicle.

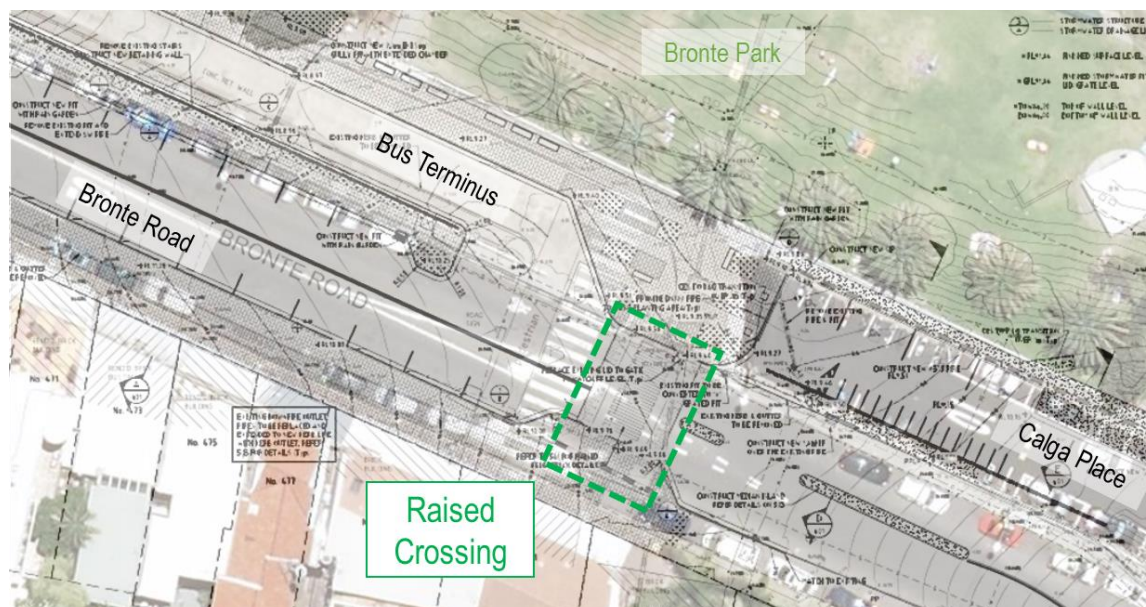
While this option greatly improves pedestrian priority and amenity in the area, the impact to bus services and general traffic may be significant. Current traffic flows are excessive for this type of treatment and may not be appropriate for a road that carries such volume of through traffic (see Section 6.2.3).



### 6.1.3 Raised Pedestrian Crossing – Proposed Location

The implementation of a raised crossing combines a pedestrian crossing (zebra crossing) and a flat top road hump, with the objective of acting as both a pedestrian crossing facility and traffic calming device. This type of treatment may also be used to highlight a change in road conditions such as entry to a built up and high pedestrian activity area.

The current proposed design places the crossing between Calga Place and the Bus Terminus exit, as shown in Figure 6.3.



Adapted from NSW SIX Maps and C&M Consulting Engineers

**Figure 6.3: Raised Pedestrian Crossing – Proposed Location**

The advantages and disadvantages of implementing a Raised Pedestrian Crossing on the eastern end of Bronte Village are summarised in Table 6.3.

**Table 6.3: Raised Pedestrian Crossing Assessment – Proposed Location**

Treatment	Advantages	Disadvantages
Raised Pedestrian Crossing – Located between Bus Terminus and Calga Place	<ul style="list-style-type: none"> <li>Provides for pedestrian priority crossing Bronte Road</li> <li>Combines pedestrian crossing with a road hump (traffic calming device)</li> <li>Controls vehicle speeds</li> <li>Mainly aligns with pedestrian desire line - reduces pedestrian-vehicle conflict by minimising number of road crossings</li> <li>Hump can be designed to accommodate bus services</li> <li>Is similar to existing operations in Bronte Village</li> <li>Highlights the change in road conditions at the eastern end of Bronte Village</li> <li>Minimises impact to parking along Bronte Road</li> </ul>	<ul style="list-style-type: none"> <li>The speed reduction for vehicles approaching the Raised Crossing may be excessive due to the posted speed limit and road gradient</li> <li>Bus passengers may be less comfortable due to road hump</li> <li>May be uncomfortable for cyclists</li> <li>May generate more road noise due to vehicles slowing or travelling over the raised crossing</li> <li>May not control vehicle speeds entering Bronte Village from the west</li> </ul>

This treatment option may be appropriate as it provides pedestrian priority and reduces vehicle speeds on approach to Bronte Village with minimal impact to local parking. The profile of the raised platform may also be designed to accommodate buses and cyclists.

Existing pedestrian behaviour suggests the proposed location may be suitable as most pedestrians use the existing crossing, which is located at a similar location. The proposed location provides a route for pedestrians that minimises the number of road crossings required and the potential for pedestrian/vehicle conflicts.

#### 6.1.4 Raised Pedestrian Crossing – Alternative Location

This option is similar to the raised crossing option presented in Section 6.1.3, but is located at an alternative location further west, between the two Bus Terminus accesses, as shown in Figure 6.4. This location (or approximate) has been raised as the preferred location of a raised crossing by some local residents during community consultation.



Adapted from NSW SIX Maps

**Figure 6.4: Raised Crossing – Alternative Location**

The advantages and disadvantages of implementing a Raised Pedestrian Crossing at this location are summarised in Table 6.4.

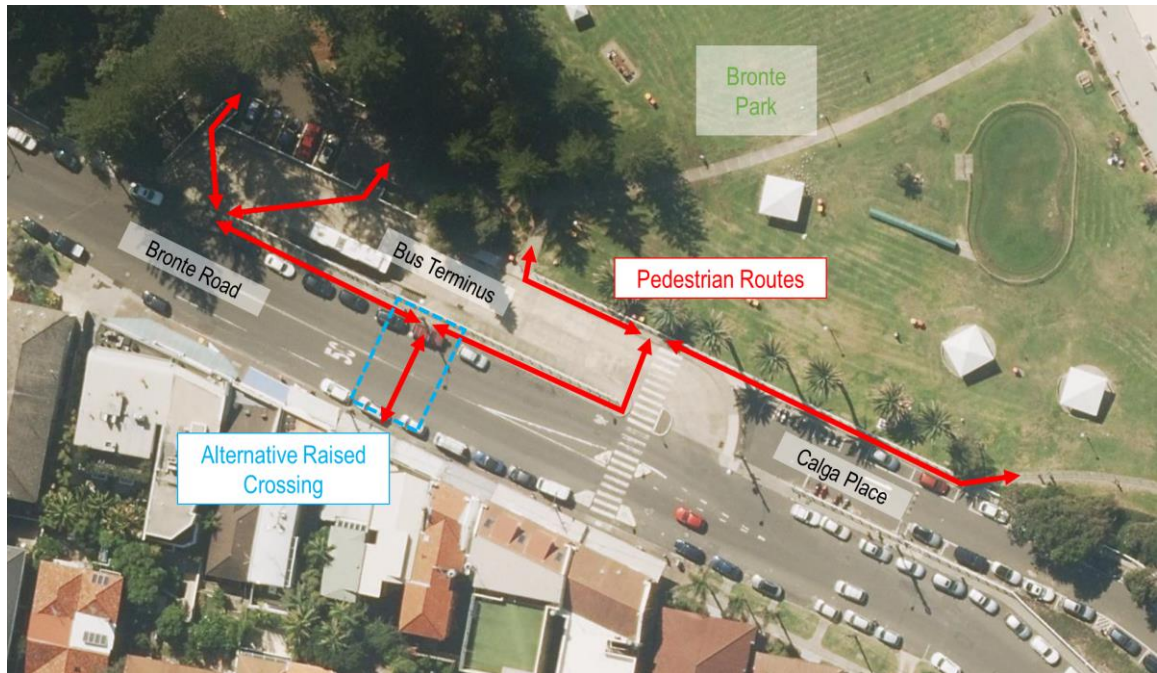
**Table 6.4: Raised Pedestrian Crossing – Alternative Location**

Treatment	Advantages	Disadvantages
Raised Pedestrian Crossing – Located between Bus Terminus Accesses	<ul style="list-style-type: none"> <li>Provides for pedestrian priority crossing Bronte Road</li> <li>combines pedestrian crossing with a road hump (traffic calming device)</li> <li>controls vehicle speeds</li> <li>vehicles may gradually decrease speed on approach</li> <li>aligns with observed pedestrian behaviour west of the existing crossing</li> <li>platform can be designed to accommodate bus services and will impact inbound buses only</li> <li>is similar to existing operations in Bronte Village</li> </ul>	<ul style="list-style-type: none"> <li>Does not align with required pedestrian travel</li> <li>increases likelihood of a pedestrian-vehicle conflict by increasing the number of road crossings required</li> <li>may encourage jaywalking elsewhere in Bronte Village</li> <li>Will remove some parking located directly outside shopfronts</li> <li>Northern kerb may not be wide enough to accommodate pedestrian traffic</li> </ul>



The advantages of this treatment are similar to those of the proposed design, however, is located further west, which will allow for a less effective reduction in speed by vehicles on the downhill approach from Macpherson Street. In addition, this location may be beneficial by providing a crossing at a desired crossing point as captured by pedestrian surveys (see Section 5).

However, the alternative location introduces one additional road crossing to pedestrian routes required to access Bronte Park, shopfronts and vice-versa, as shown in Figure 6.5. This is of particular concern as pedestrians must then negotiate with buses within Bronte Terminus, which poses a greater risk to pedestrian safety.



Adapted from NSW SIX Maps

**Figure 6.5: Pedestrian Routes**

Due to the grade difference of Bronte Road and Bronte Terminus, a continuous crossing connecting Bronte Road to the northern kerb of Bronte Terminus may not be feasible.

## 6.2 WARRANTS AND CRITERIA

The implementation of different pedestrian facilities is determined by a set of warrants and criteria set out by Roads and Maritime Services. These warrants compare the existing pedestrian and traffic volumes at the proposed crossing or treatment location.

### 6.2.1 Pedestrian Crossing Warrant

The normal warrant for the implementation of a pedestrian crossing, for three separate one hour periods in a typical day is as follows:

- pedestrian flow per hour (P) crossing the road is greater than or equal to 30,
- the vehicular flow per hour (V) through the site is greater than or equal to 500; and
- the product PV is greater than or equal to 60,000.

Table 6.5 presents the warrant assessment for a proposed pedestrian crossing within Bronte Village.

**Table 6.5: Pedestrian Crossing Warrant Assessment**

Day	Time Period	Pedestrian Volume	Warrant (P ≥ 30)	Traffic Volume	Warrant (V ≥ 500)	Product (PV)	Warrant (PV ≥ 60,000)	Warrant
Thursday	10:00am	296	Yes	123	No	38480	No	No
	1:00pm	301	Yes	130	No	37023	No	No
	11:00am	304	Yes	119	No	36176	No	No
Saturday	12:00pm	412	Yes	157	No	64864	<b>Yes</b>	No
	10:00am	405	Yes	141	No	57105	No	No
	11:00am	380	Yes	146	No	55480	No	No

*One hour periods are shown in order of largest to smallest PV product on each survey day*

While RMS warrants are not explicitly met on either the Thursday or Saturday survey periods, a pedestrian crossing should be considered in the future streetscape designs of Bronte Village, given the high volume of pedestrians crossing the road within Bronte Village and the high use of the existing pedestrian crossing.

Further, the seasonal nature of the local area may see an increase in both pedestrian and vehicular volumes during the summer months. It is expected that these volumes would meet RMS warrants and the implementation of a pedestrian crossing would be appropriate.

## 6.2.2 Signalised Mid-Block Crossing Warrant

The normal warrant for the implementation of a signalised mid-block pedestrian crossing is as follows:

- For four separate one hour periods in an average day
  - pedestrian flow per hour (P) crossing the road is greater than or equal to 250, and
  - the vehicular flow per hour (V) through the site is greater than or equal to 600; OR
- OR, for eight one-hour periods of an average day
  - pedestrian flow per hour (P) crossing the road is greater than or equal to 175;
  - the vehicular flow per hour (V) through the site is greater than or equal to 600; and
  - there is no other pedestrian crossing or signalised marked foot crossing within a reasonable distance.

In consideration of the pedestrian and vehicle flows presented in Section 6.2.1, vehicular flows do not meet the vehicular volume warrants for a signalised mid-block crossing.

Further, a signalised crossing would not be beneficial to pedestrians as there are large enough gaps in traffic which provide crossing opportunities. Pedestrians waiting for the green pedestrian lantern will most likely not comply and begin crossing before the pedestrian phase.

## 6.2.3 Shared Zone

The site criteria for the implementation of a shared zone along a section of road takes into consideration vehicular flows as well as existing pedestrian amenity and infrastructure. A comparison of the criteria and existing conditions is summarised in Table 6.6.



Table 6.6: Shared Zone Requirements and Assessment

Warrant Requirements	Requirements Met?
<b>Current Traffic Flows</b> - $\leq 100$ vehicles per hour and $\leq 1000$ vehicles per day.	<b>No</b> - Traffic volumes exceed the maximum 100vph and 1000 vpd. See Section 4.3 for a summary of the traffic volumes.
<b>Current Speed Limit</b> - $\leq 50\text{km/h}$ .	<b>Yes</b> - The current speed limit is 50km/h.
<b>Length of Proposed Shared Zone</b> - $\leq 400$ metres.	<b>Yes</b> - The proposed length of the shared zone is approximately 100 metres.
<b>Current Speed Limit of Adjoining Roads</b> - $\leq 50\text{km/h}$ .	<b>Yes</b> - All adjoining roads have a speed limit of 50km/h.
<b>Current Carriageway Width</b> - minimum trafficable width of 2.8m	<b>Yes</b> - The roadway width may accommodate minimum trafficable width of 2.8m.
<b>Route Access</b> - must not be located along bus route or heavy vehicle routes except delivery or garbage trucks.	<b>No</b> - Buses services are located along this section of road.
<b>Streets with Narrow or No Footpath</b> - where pedestrians are forced to use the road.	<b>No</b> - Adequate footpaths are located on either side of the road.
<b>Kerbs</b> - kerbs must be removed unless excepted by Roads and Maritime Services.	<b>No</b> - It would not be recommended to remove kerb and guttering at this location due to kerbside parking and drainage.

In consideration of the vehicle flows, bus services and presence of footpaths, the criteria for implementing a shared zone within Bronte Village are not met.

## 7. ROAD TREATMENTS

### 7.1 TRAFFIC CALMING AND LOCAL AREA TRAFFIC MANAGEMENT

Road treatments, including Local Area Traffic Management (LATM) Schemes and traffic calming measures can be included within streetscape designs to change traffic conditions, particularly within activity centres such as Bronte Village.

The primary objective of such road treatments is to change driver behaviour, both directly by physical influence on vehicle operation, and indirectly by influencing the driver's perceptions of what is appropriate behaviour in that street. This also aims to reduce traffic volumes and speeds in local streets to increase amenity, liveability, and improve safety and access for all road users. General implementation of road treatments and traffic calming are considered in the context of road safety.

The need for an LATM device or traffic calming measure usually arises from:

- an intent to reduce traffic-related problems;
- orderly traffic planning and management;
- a need to modify 'transport' behaviour;
- a desire to improve the community space and sense of place;
- a desire to improve environmental, economic and social outcomes; and
- traffic interventions associated with new development or the implementation of pedestrian and bicycle plans and other local policies (e.g. RTA 2002).

#### 7.1.1 AustRoads Selection Toolkit

The selection of an appropriate LATM is dependent on the overall objectives of the roadway and streetscape design, and the context of the road environment.

*Austroads Guide to Traffic Management (Part 8 – Local Area Traffic Management)* provides a toolkit and selection rubric, which outlines the relative use of different LATM devices based on previous research and practice within Australia and New Zealand. The Austroads Toolkit which provides a description and use of LATM devices is provided in Table 7.1 and **Appendix C**.

Table 7.1: Austroads Description and Use of LATM Devices

Measure		Reduce speeds	Reduce traffic volume	Reduce crash risk	Increase pedestrian safety	Increase bicycle safety
<b>Vertical deflection devices (Section 7.2)</b>	Road humps	✓	✓	✓	–	–
	Road cushions	✓	✓	✓	–	✓
	Flat-top road humps	✓	✓	✓	–	✓
	Wombat crossings	✓	✓	✓	✓	✓
	Raised pavements	✓	✓	✓	–	✓
<b>Horizontal deflection devices (Section 7.3)</b>	Lane narrowings/kerb extensions	✓	–	–	✓	–
	Slow points	✓	✓	–	–	–
	Centre blister islands	✓	✓	–	✓	–
	Driveway links	✓	✓	–	✓	✓
	Mid-block median treatments	✓	–	✓	✓	✓
	Roundabouts	✓	✓	✓	–	–
<b>Diversion devices (Section 7.4)</b>	Full road closure	–	✓	✓	✓	✓
	Half road closure	–	✓	✓	✓	✓
	Diagonal road closure	–	✓	✓	✓	✓
	Modified T-intersection	✓	✓	✓	✓	✓
	Left-in/left-out islands	–	✓	✓	✓	–
<b>Signs, linemarking and other treatments (Section 7.5)</b>	Speed limit signs	✓	–	✓	✓	✓
	Prohibited traffic movement signs	–	✓	✓	–	✓
	One-way (street) signs	–	✓	✓	✓	–
	Give-way signs	✓	✓	✓	✓	✓
	Stop signs	✓	✓	✓	✓	✓
	Shared zones	✓	✓	–	✓	✓
	School zones	✓	–	✓	✓	✓
	Threshold treatments	✓	✓	✓	–	✓
	Tactile surface treatments	✓	–	–	–	–
	Bicycle facilities	–	–	✓	–	✓
	Bus facilities	–	✓	–	–	–

Source: Austroads Guide to Traffic Management, Part 8 – Local Area Traffic Management, Table 7.1

## 7.2 TREATMENT ASSESSMENT

In determining the most appropriate treatment as part of the streetscape designs, the following objectives have been developed based on community concerns, the context of the Bronte Village area and road engineering experience:

- Provide traffic calming such that vehicle speeds are reduced and controlled through and on approach to Bronte Village;
- provide a measure that may highlight the presence of pedestrians and pedestrian activity;
- be suitable for use by buses;
- be safe and suitable for use by bicycles and motorcycles;
- potentially be integrated with pedestrian facilities; and
- integrate with and enhance the local context and Bronte Village environment.

Table 7.2 summarises the advantages and disadvantages, and appropriateness of each LATM type in relation to Bronte Village.

**Table 7.2: Road Treatment Assessment Summary**

Treatment Type	Advantages	Disadvantages
Vertical Deflection Devices	<ul style="list-style-type: none"> <li>Does not require additional road width for implementation</li> <li>Most common LATM treatments</li> <li>Reduces traffic speeds</li> <li>Generally bicycle and bus friendly, design can be modified to suit buses and cyclists</li> </ul>	<ul style="list-style-type: none"> <li>May increase vehicular noise</li> <li>Would further slow uphill bus movements</li> <li>Certain designs may not be bus or bicycle friendly</li> </ul>
Horizontal Deflection Devices	<ul style="list-style-type: none"> <li>May provide opportunity to introduce landscaping elements and enhance local environment;</li> <li>Pedestrian refuge/median treatments may allow for pedestrians crossing</li> </ul>	<ul style="list-style-type: none"> <li>May not be appropriate for all traffic due to geometry and gradient of roadway</li> <li>requires more roadway width to implement</li> <li>may affect kerbside parking</li> <li>may pose a risk to drivers on both up and downhill sections</li> <li>slow points or road narrowing points wide enough for buses will not control other vehicles</li> </ul>
Diversion Devices	<ul style="list-style-type: none"> <li>Significantly alters the road environment</li> <li>Reduces traffic volumes</li> <li>May provide opportunity to introduce landscaping elements and enhance local environment</li> </ul>	<ul style="list-style-type: none"> <li>Not entirely feasible due to nature of roadway</li> <li>Bronte Road is to maintain two way traffic for buses</li> <li>May pose a risk to drivers on both up and downhill sections</li> <li>May interfere with bus services and manoeuvres</li> </ul>
Signs and Linemarking Treatments	<ul style="list-style-type: none"> <li>May alert drivers to changed conditions</li> <li>Does not require additional road width for implementation</li> <li>Easiest to implement</li> </ul>	<ul style="list-style-type: none"> <li>Does not physically control traffic or vehicle speeds</li> </ul>

### 7.2.1 Recommended Treatment

In consideration of the objectives outlined above and the description of LATM devices outlined in Table 7.1, the implementation of a flat top road hump would be the most appropriate road treatment. This is primarily on the basis of:

- The presence of buses along this section of Bronte Road;
- concern on vehicle speeds approaching the crossing area;
- presence of bicycles along this section of road; and
- pedestrian activity in the area.



Whilst traffic speed data does not suggest speeding behaviour through Bronte Village, it would be beneficial to introduce a traffic calming measure to assist in controlling vehicle speeds and highlight the presence of pedestrian activity in the area.

### 7.2.2 Bus Friendly Design

The flat top road hump is to be designed in accordance with the STA Bus infrastructure Guide to accommodate buses and provide minimal disruption to passengers. These requirements include:

- maximum height of 75mm;
- ramp gradients no more than 1 in 16 (6.25%);
- maximum length of the central platform of 5.5m; and
- allowance for 3.5m travel lanes in each direction.

### 7.2.3 Combined Design

The STA Infrastructure Guide dictates that with the exception of raised pedestrian crossings, speed humps (such as Watts profile humps) are not to be constructed on bus routes.

With this in consideration, there is opportunity to replace the existing pedestrian crossing with a combined flat top road hump and pedestrian crossing (Wombat Crossing) as a LATM measure, which will directly slow vehicles on approach to the crossing area. This treatment will also assist in creating a self-regulating 40km/h speed area.

To meet RMS requirements, the proposed pedestrian crossing is to travel across a maximum of two traffic lanes.

### 7.2.4 Proposed Design

A raised pedestrian crossing is included in the initially proposed design by Group GSA (Figure 1.2). Given the geometry and grade of the roadway at other locations, the proposed location of the crossing may be appropriate as the crossing travels across two lanes of traffic only.

The location of the crossing will also provide better pedestrian access to Bronte Park and Bronte Beach and provide greater kerbside space along the northern side (park side) and minimises the number of road crossings required between the park and shopfronts.

### 7.2.5 Additional Measures

Based on concern of traffic speeds along Bronte Road, additional traffic calming measures may be required, despite speed data indicating vehicles travel below the speed limit on approach to Bronte Village.

Traffic speeds and road conditions should be monitored after the implementation of the flat top road hump to determine the effectiveness of the flat top road hump. The information gathered during this monitoring period will assist in determining the need for further traffic calming measures along the section of Bronte Road between Macpherson Street and Calga Place (westbound, down the hill).

A tube-type counter may be temporarily installed for a period of time to capture traffic speeds near Pacific Street to help determine the need for further traffic calming measures.

## 8. CONCLUSION

Traffic speed and volume surveys, crash data analysis and site visits have been conducted as part of this study to investigate the existing traffic and pedestrian conditions in Bronte Village. Key findings from the traffic study include:

- Crash analysis shows no recorded crashes within Bronte Village, but a total of eight crashes have been recorded along Bronte Road and Calga Place in the past five years;
- Most of these crashes have involved at least one cyclist or motorcyclist, but no pedestrian related crashes;
- Traffic surveys have determined that all traffic are travelling below the posted speed limit (50km/h) on approach to Bronte Village and the existing pedestrian crossing;
- The highest daily 85<sup>th</sup> percentile speeds were determined as 46.8km/h in the eastbound direction and 40.1km/h in the westbound direction;
- Traffic volumes through Bronte Village do not exhibit typical AM or PM commuter peaks;
- Overall, more traffic is heading westbound (which includes buses)
- Peak average traffic volumes reach 220vph (bidirectional) around 12:00pm
- Greatest amount of traffic experienced was on the surveyed Friday;
- Most of pedestrians crossing Bronte Road utilise the existing pedestrian crossing near Calga Place;
- Most jaywalking pedestrians do so west of the pedestrian crossing outside the shops, food outlets, and set-down bus stop;
- Peak flows of pedestrians are approximately 300 pedestrians per hour on the surveyed Thursday and 400pph on the Surveyed Saturday;
- Most pedestrians are travelling northbound, which may be due to the location of bus stops; and
- Vehicular and pedestrian volumes do not meet RMS Pedestrian Crossing, Signalised mid-block crossing or Shared Zone warrants. However, a proposed pedestrian crossing will be beneficial due to the volume of pedestrians and high use of the existing crossing.

A review of considered crossing treatments found that a raised pedestrian crossing would be most appropriate in Bronte Village. The proposed location at the eastern end of Bronte Village would be most suitable as it is similar to the existing crossing location and minimises the number of roadways crossed and the potential for pedestrian/vehicle conflicts.

A review of road conditions and Austroads Local Area Traffic Management (LATM) guidelines suggest a flat top road hump is the most suitable LATM treatment for this section of road, taking into consideration speed reduction, buses, cyclists and pedestrian safety.

Based on STA Bus Infrastructure Guidelines, a raised pedestrian crossing (combined flat top road hump and pedestrian crossing) is the only allowable road hump design along bus routes. Therefore, it is recommended to implement a raised pedestrian crossing as part of the Bronte Village Streetscape design. This crossing type will also raise driver awareness of pedestrian activity in the area.

The previously proposed raised pedestrian crossing would be a suitable design, taking into consideration pedestrian amenity and bus services in the area.

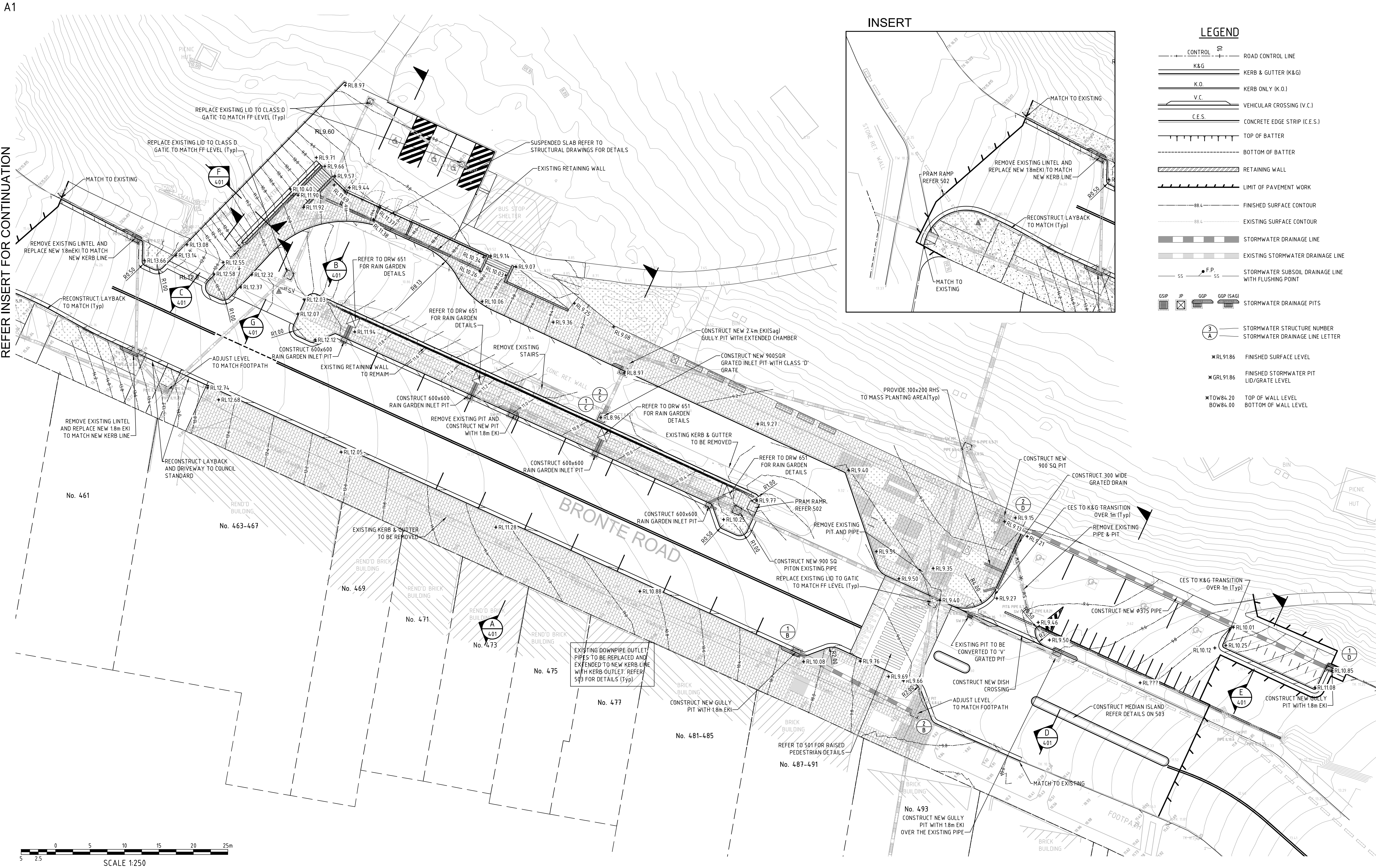
Due to concerns of vehicle speeds along this section of road, it is also recommended to conduct post-opening speed monitoring to assess the need for further traffic calming measures along Bronte Road.

## **APPENDIX A**

### **GENERAL ARRANGEMENT PLAN**

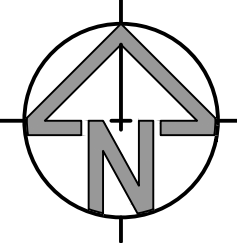


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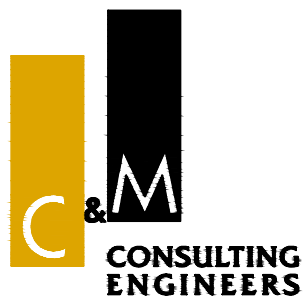
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REV.	DES.	DATE	VER.	DESCRIPTION
D	W.M	09/05/18	E.S.	ISSUE FOR TENDER
C	W.M	04/05/18	E.S.	ISSUE FOR TENDER
B	W.M	02/05/18	E.S.	ISSUE FOR TENDER
A	W.M	16/03/18	E.S.	75% ISSUE FOR COORDINATION



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ENGINEERING DESIGN AND  
PROJECT MANAGEMENT  
  
SUITE 26  
11 - 13 BROOKHOLLOW AVE  
BAULKHAM HILLS NSW 2153  
  
PHONE: (02) 9680 3100  
FAX: (02) 9634 6989  
ABN 21 118 134 240

DESIGNER	T. TOMIC	DATE	24-1-2017
ENGINEER	E. SHIN	LGA	WAVERLEY COUNCIL
VERIFIER	E. SHIN	SCALE @ A1	1:200

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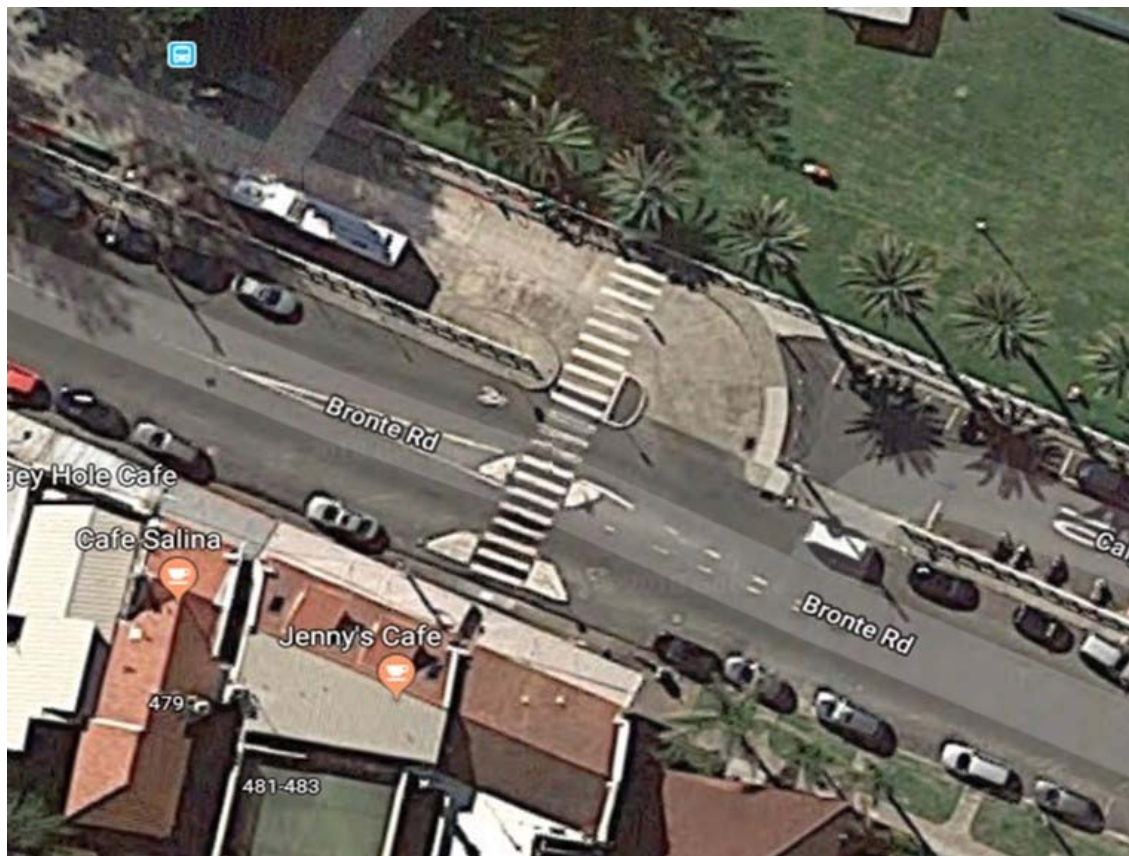
BRONTE BEACH VILLAGE CENTRE UPGRADE		
GENERAL ARRANGEMENT PLAN		
STATUS	CONSTRUCTION	DRAWING No. 01769_201
REVISION	D	



## **APPENDIX B**

### **TRAFFIC SURVEY REPORTS**

Pedestrian Crossing opposite 491 Bronte Rd, Bronte



Survey Area - Bronte Rd Pedestrian Crossing  
 Survey Date - Thursday 27th September 2018  
 Survey Period - 7:00am to 7:00pm



Start Time	Pedestrian Crossing		East of Crossing		West of Crossing		On Crossing 15 Minute Total	Off Crossing 15 Minute Total	All Crossing 15 Minute Total	Hourly Totals
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound				
7:00 AM	10	19	1	3	16	4	29	24	53	
7:15 AM	10	14	3	5	6	3	24	17	41	
7:30 AM	16	15	4	2	4	7	31	17	48	
7:45 AM	6	10	0	7	10	4	16	21	37	179
8:00 AM	13	10	3	2	7	2	23	14	37	163
8:15 AM	9	17	0	2	5	4	26	11	37	159
8:30 AM	20	16	2	6	12	5	36	25	61	172
8:45 AM	13	11	0	2	14	10	24	26	50	185
9:00 AM	14	23	1	7	14	7	37	29	66	214
9:15 AM	12	15	3	3	13	10	27	29	56	233
9:30 AM	21	16	0	7	19	8	37	34	71	243
9:45 AM	12	7	1	4	11	5	19	21	40	233
10:00 AM	11	12	3	3	13	3	23	22	45	212
10:15 AM	17	14	0	0	14	2	31	16	47	203
10:30 AM	20	8	0	3	10	2	28	15	43	175
10:45 AM	79	31	3	13	20	15	110	51	161	296
11:00 AM	28	13	0	15	8	7	41	30	71	322
11:15 AM	32	28	0	4	16	6	60	26	86	361
11:30 AM	29	27	3	1	14	5	56	23	79	397
11:45 AM	27	23	1	3	7	7	50	18	68	304
12:00 PM	34	14	3	6	10	4	48	23	71	304
12:15 PM	30	17	1	6	14	7	47	28	75	293
12:30 PM	23	21	0	10	11	7	44	28	72	286
12:45 PM	17	17	1	5	8	3	34	17	51	269
1:00 PM	13	38	3	10	4	1	51	18	69	267
1:15 PM	28	13	1	5	14	8	41	28	69	261
1:30 PM	14	37	3	7	17	7	51	34	85	274
1:45 PM	34	18	1	3	16	6	52	26	78	301
2:00 PM	21	19	1	5	11	10	40	27	67	299
2:15 PM	14	10	1	2	13	6	24	22	46	276
2:30 PM	39	19	2	5	23	6	58	36	94	285
2:45 PM	25	16	2	6	9	4	41	21	62	269
3:00 PM	15	17	2	1	5	0	32	8	40	242
3:15 PM	10	14	1	4	7	2	24	14	38	234
3:30 PM	21	9	2	6	11	3	30	22	52	192
3:45 PM	9	5	6	5	17	7	14	35	49	179
4:00 PM	10	14	4	5	4	3	24	16	40	179
4:15 PM	9	10	6	7	8	0	19	21	40	181
4:30 PM	8	10	2	7	3	0	18	12	30	159
4:45 PM	4	13	4	5	8	0	17	17	34	144
5:00 PM	7	9	1	4	2	1	16	8	24	128
5:15 PM	10	8	3	2	3	2	18	10	28	116
5:30 PM	7	7	0	1	1	1	14	3	17	103
5:45 PM	2	2	2	2	1	1	4	6	10	79
6:00 PM	0	3	0	0	0	1	3	1	4	59
6:15 PM	3	4	1	0	2	3	7	6	13	44
6:30 PM	0	0	1	0	0	1	0	2	2	29
6:45 PM	0	0	2	0	1	2	0	5	5	24
12 Hr Total	806	693	84	211	456	212	1499	963	2462	

Survey Area - Bronte Rd Pedestrian Crossing  
Survey Date - Saturday 29th September 2018  
Survey Period - 7:00am to 7:00pm



Start Time	Pedestrian Crossing		East of Crossing		West of Crossing		On Crossing 15 Minute Total	Off Crossing 15 Minute Total	All Crossing 15 Minute Total	Hourly Totals
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound				
7:00 AM	8	14	2	1	5	2	22	10	32	
7:15 AM	8	17	5	6	5	4	25	20	45	
7:30 AM	17	8	2	7	10	2	25	21	46	
7:45 AM	7	26	1	10	9	5	33	25	58	181
8:00 AM	16	26	1	13	13	2	42	29	71	220
8:15 AM	22	46	1	7	9	2	68	19	87	262
8:30 AM	30	39	0	6	10	1	69	17	86	302
8:45 AM	29	31	0	16	11	3	60	30	90	334
9:00 AM	32	15	2	5	14	2	47	23	70	333
9:15 AM	32	38	3	6	14	4	70	27	97	343
9:30 AM	27	30	0	8	17	5	57	30	87	344
9:45 AM	19	41	0	3	18	12	60	33	93	347
10:00 AM	33	24	1	5	33	13	57	52	109	386
10:15 AM	27	28	1	3	19	7	55	30	85	374
10:30 AM	29	43	1	5	22	11	72	39	111	398
10:45 AM	32	29	0	10	22	7	61	39	100	405
11:00 AM	28	39	2	5	22	12	67	41	108	404
11:15 AM	31	29	3	4	6	8	60	21	81	400
11:30 AM	44	24	0	6	20	2	68	28	96	385
11:45 AM	23	50	5	1	14	2	73	22	95	380
12:00 PM	42	41	3	7	2	4	83	16	99	371
12:15 PM	23	71	0	2	9	0	94	11	105	395
12:30 PM	48	38	1	3	10	2	86	16	102	401
12:45 PM	36	43	7	7	6	7	79	27	106	412
1:00 PM	37	38	1	4	16	4	75	25	100	413
1:15 PM	36	25	3	6	15	4	61	28	89	397
1:30 PM	33	19	2	0	11	0	52	13	65	360
1:45 PM	20	35	3	9	12	10	55	34	89	343
2:00 PM	20	20	6	3	14	14	40	37	77	320
2:15 PM	31	13	3	3	18	3	44	27	71	302
2:30 PM	29	16	2	3	15	7	45	27	72	309
2:45 PM	20	15	1	6	24	8	35	39	74	294
3:00 PM	24	29	3	7	13	2	53	25	78	295
3:15 PM	28	20	0	13	13	0	48	26	74	298
3:30 PM	31	33	1	3	7	2	64	13	77	303
3:45 PM	24	20	6	8	14	1	44	29	73	302
4:00 PM	13	20	0	4	11	4	33	19	52	276
4:15 PM	12	15	1	2	14	0	27	17	44	246
4:30 PM	14	14	2	10	4	1	28	17	45	214
4:45 PM	24	14	9	5	5	0	38	19	57	198
5:00 PM	8	7	0	6	1	0	15	7	22	168
5:15 PM	10	8	2	2	4	7	18	15	33	157
5:30 PM	6	5	2	2	4	0	11	8	19	131
5:45 PM	2	15	2	4	2	2	17	10	27	101
6:00 PM	3	13	0	1	2	0	16	3	19	98
6:15 PM	6	7	0	0	2	0	13	2	15	80
6:30 PM	0	0	0	0	0	0	0	0	0	61
6:45 PM	0	3	0	1	0	0	3	1	4	38
12 Hr Total	1074	1194	90	248	541	188	2268	1067	3335	



Bronte Rd Automatic Count



Site Name - #1 Bronte  
Description - 20 to 25m west of Pedestrian crossing [50]  
Direction - Eastbound

Comment - data starts at 3pm

Monday, 24 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
1500	16	15	1	0	28.3	34.7
1515	18	18	0	0	30.5	38.7
1530	15	13	2	0	32.3	38.4
1545	12	12	0	0	34.5	41.6
1600	13	12	1	0	31	39.2
1615	5	5	0	0	38.6	-
1630	11	9	2	0	33	38.8
1645	9	8	1	0	32.8	-
1700	11	9	2	0	37	44.9
1715	10	9	1	0	33.5	-
1730	12	12	0	0	35.1	41.9
1745	11	11	0	0	32.4	41.2
1800	8	8	0	0	35.5	-
1815	13	13	0	0	28.4	38.6
1830	7	7	0	0	39.9	-
1845	6	6	0	0	36.3	-
1900	6	6	0	0	37.3	-
1915	7	6	1	0	32.4	-
1930	5	5	0	0	41	-
1945	8	8	0	0	35.6	-
2000	4	4	0	0	34.9	-
2015	2	2	0	0	40.3	-
2030	3	3	0	0	31.8	-
2045	3	2	1	0	31.5	-
2100	2	2	0	0	43	-
2115	3	3	0	0	37.6	-
2130	5	5	0	0	33.9	-
2145	4	4	0	0	37.5	-
2200	2	2	0	0	28.8	-
2215	2	2	0	0	37.4	-
2230	0	0	0	0	-	-
2245	1	1	0	0	40.1	-
2300	2	2	0	0	33.4	-
2315	1	1	0	0	33.8	-
2330	1	1	0	0	31.2	-
2345	0	0	0	0	-	-
07-09	0	0	0	0	-	-
09-16	61	58	3	0	31.2	38.5
16-18	82	75	7	0	33.8	41.1
00-00	238	226	12	0	33.6	40.9

Bronte Rd Automatic Count



Site Name - #1 Bronte  
Description - 20 to 25m west of Pedestrian crossing [50]  
Direction - Eastbound

Tuesday, 25 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	1	1	0	0	33.3	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	1	1	0	0	31.6	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	1	0	1	0	35.7	-
0400	1	1	0	0	46.8	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	1	1	0	0	37.4	-
0500	1	1	0	0	42.9	-
0515	5	5	0	0	19.7	-
0530	13	12	1	0	30.8	37.9
0545	20	17	3	0	33	41.6
0600	11	11	0	0	31.3	40.6
0615	8	6	2	0	32.2	-
0630	18	17	1	0	35.9	45.4
0645	17	15	2	0	31.7	41.9
0700	12	12	0	0	35.1	42.5
0715	14	14	0	0	31	41.4
0730	10	9	1	0	31.6	-
0745	14	12	2	0	30.8	39.6
0800	8	8	0	0	33.5	-
0815	16	15	1	0	30.7	38.1
0830	11	11	0	0	29.5	33.2
0845	17	17	0	0	30.1	37.2
0900	8	7	1	0	26.5	-
0915	20	20	0	0	33	39.9
0930	16	14	2	0	30.7	36
0945	6	6	0	0	33.3	-
1000	18	16	2	0	29.7	36.4
1015	24	23	1	0	27.9	36.6
1030	22	19	3	0	30.6	35.6
1045	10	10	0	0	32.3	-
1100	18	18	0	0	27.7	37.1
1115	16	15	1	0	26.3	32.3
1130	15	13	2	0	27.1	34.5
1145	9	8	1	0	32	-
1200	19	19	0	0	30	37.4
1215	8	7	1	0	31.7	-
1230	8	8	0	0	32.4	-
1245	19	18	1	0	30.6	37.1
1300	13	13	0	0	22.7	32.3
1315	15	12	3	0	30.5	39.6
1330	10	10	0	0	30.5	-
1345	14	13	1	0	29.1	38.7
1400	16	14	2	0	27.8	39.5
1415	12	10	2	0	30.3	37.7
1430	16	12	4	0	31	36.9
1445	10	9	1	0	30.4	-
1500	16	16	0	0	26.2	32
1515	16	16	0	0	34.6	39.2
1530	13	13	0	0	30.6	41.2
1545	17	17	0	0	28.3	37.5
1600	11	11	0	0	32.3	38.8
1615	16	16	0	0	26.9	32.8
1630	18	18	0	0	29.9	42.1
1645	16	14	2	0	29.6	37.1
1700	9	9	0	0	35.9	-
1715	14	14	0	0	30.6	41.2
1730	15	13	2	0	28.7	38.1
1745	10	10	0	0	32.6	-
1800	10	10	0	0	34.6	-
1815	11	11	0	0	30.9	38.9
1830	4	4	0	0	33.3	-
1845	3	1	2	0	26.3	-
1900	6	6	0	0	36.8	-
1915	9	9	0	0	40.3	-
1930	8	8	0	0	34.8	-
1945	3	2	1	0	38	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	102	98	4	0	31.4	39.9
09-16	404	376	28	0	29.6	36.9
16-18	109	105	4	0	30.3	39.1
00-00	767	718	49	0	30.7	38.9

Bronte Rd Automatic Count



Site Name - #1 Bronte  
Description - 20 to 25m west of Pedestrian crossing [50]  
Direction - Eastbound

Wednesday, 26 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	0	0	0	0	-	-
0630	0	0	0	0	-	-
0645	0	0	0	0	-	-
0700	0	0	0	0	-	-
0715	0	0	0	0	-	-
0730	0	0	0	0	-	-
0745	0	0	0	0	-	-
0800	0	0	0	0	-	-
0815	0	0	0	0	-	-
0830	0	0	0	0	-	-
0845	0	0	0	0	-	-
0900	0	0	0	0	-	-
0915	0	0	0	0	-	-
0930	0	0	0	0	-	-
0945	0	0	0	0	-	-
1000	0	0	0	0	-	-
1015	0	0	0	0	-	-
1030	0	0	0	0	-	-
1045	0	0	0	0	-	-
1100	0	0	0	0	-	-
1115	0	0	0	0	-	-
1130	0	0	0	0	-	-
1145	0	0	0	0	-	-
1200	0	0	0	0	-	-
1215	0	0	0	0	-	-
1230	0	0	0	0	-	-
1245	0	0	0	0	-	-
1300	0	0	0	0	-	-
1315	0	0	0	0	-	-
1330	0	0	0	0	-	-
1345	0	0	0	0	-	-
1400	0	0	0	0	-	-
1415	0	0	0	0	-	-
1430	0	0	0	0	-	-
1445	0	0	0	0	-	-
1500	0	0	0	0	-	-
1515	0	0	0	0	-	-
1530	0	0	0	0	-	-
1545	0	0	0	0	-	-
1600	0	0	0	0	-	-
1615	0	0	0	0	-	-
1630	0	0	0	0	-	-
1645	0	0	0	0	-	-
1700	1	1	0	0	35.8	-
1715	12	10	2	0	30.3	32.3
1730	10	8	2	0	36.6	-
1745	8	8	0	0	35.6	-
1800	10	10	0	0	42.6	-
1815	9	9	0	0	30.4	-
1830	10	10	0	0	42.8	-
1845	9	9	0	0	56.3	-
1900	1	1	0	0	12.8	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	0	0	0	0	-	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	0	0	0	0	-	-
2115	0	0	0	0	-	-
2130	0	0	0	0	-	-
2145	0	0	0	0	-	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	0	0	0	0	-	-
09-16	0	0	0	0	-	-
16-18	31	27	4	0	33.8	41.1
00-00	70	66	4	0	38.5	46.8

Bronte Rd Automatic Count



Site Name - #1 Bronte  
Description - 20 to 25m west of Pedestrian crossing [50]  
Direction - Eastbound

Thursday, 27 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	1	1	0	0	40.3	-
0545	0	0	0	0	-	-
0600	0	0	0	0	-	-
0615	1	1	0	0	17.9	-
0630	0	0	0	0	-	-
0645	9	9	0	0	28.6	-
0700	18	18	0	0	29	39.7
0715	13	13	0	0	31.7	39.9
0730	17	15	2	0	29.4	41.1
0745	13	12	1	0	33.8	42.1
0800	24	23	1	0	33.7	38.2
0815	11	9	2	0	29.6	38.2
0830	14	14	0	0	28.3	35.9
0845	21	20	1	0	27.7	37.8
0900	21	18	3	0	27.7	35.9
0915	15	14	1	0	28.1	35
0930	10	8	2	0	27.6	-
0945	19	18	1	0	27.5	39.8
1000	11	11	0	0	24.3	29.3
1015	11	11	0	0	29.7	38
1030	20	17	3	0	31.3	38.6
1045	18	18	0	0	22.9	32.5
1100	13	11	2	0	26.3	35.4
1115	10	10	0	0	22	-
1130	25	24	1	0	29.8	36.2
1145	18	16	2	0	26.9	33.8
1200	10	10	0	0	26.6	-
1215	14	13	1	0	30	40.1
1230	16	16	0	0	23.5	32.4
1245	11	10	1	0	29.5	37.2
1300	18	15	3	0	28.2	36.2
1315	27	25	2	0	31.2	38.3
1330	15	13	2	0	27.2	31.7
1345	23	22	1	0	31.1	36.1
1400	24	21	3	0	29.7	35.1
1415	31	29	2	0	30.9	35.4
1430	14	13	1	0	30.6	37.3
1445	11	11	0	0	33.3	37.2
1500	22	22	0	0	28.6	39.2
1515	20	18	2	0	34.2	39
1530	20	17	2	1	30.3	32.8
1545	23	20	3	0	31.3	39.5
1600	15	13	2	0	28.8	35.6
1615	20	20	0	0	30.8	39.4
1630	20	18	2	0	31	40.7
1645	26	26	0	0	31.1	36.2
1700	17	16	1	0	29.3	40.3
1715	15	13	2	0	32.9	40.4
1730	24	23	1	0	26.5	32.9
1745	9	9	0	0	32.4	-
1800	12	12	0	0	32	43.2
1815	5	4	1	0	31.6	-
1830	8	8	0	0	36.3	-
1845	7	7	0	0	37.9	-
1900	4	4	0	0	33.4	-
1915	11	10	1	0	34.4	38.2
1930	7	7	0	0	31.1	-
1945	6	6	0	0	27.1	-
2000	9	9	0	0	36.8	-
2015	3	3	0	0	24.7	-
2030	4	4	0	0	31.4	-
2045	11	11	0	0	34	45.6
2100	19	19	0	0	27.5	33.8
2115	12	11	1	0	26.5	35.2
2130	6	6	0	0	25.9	-
2145	5	4	1	0	24.6	-
2200	2	2	0	0	32.8	-
2215	6	6	0	0	29.9	-
2230	1	1	0	0	35.2	-
2245	1	1	0	0	36.3	-
2300	2	2	0	0	34.5	-
2315	4	4	0	0	37.1	-
2330	2	2	0	0	20.9	-
2345	4	4	0	0	33.9	-
07-09	131	124	7	0	30.4	38.6
09-16	490	451	38	1	29	35.7
16-18	146	138	8	0	30.1	37.3
00-00	929	871	57	1	29.7	37.4



Bronte Rd Automatic Count



Site Name - #1 Bronte  
Description - 20 to 25m west of Pedestrian crossing [50]  
Direction - Eastbound

Friday, 28 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	1	1	0	0	53	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	1	0	1	0	29.5	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	1	1	0	0	31.5	-
0415	0	0	0	0	-	-
0430	1	1	0	0	38	-
0445	1	1	0	0	31.5	-
0500	5	5	0	0	34.3	-
0515	4	3	1	0	36.6	-
0530	13	13	0	0	37.5	46.3
0545	18	18	0	0	34.4	42.9
0600	15	12	3	0	30.7	34.6
0615	17	16	0	1	31.7	36.6
0630	28	26	2	0	30.5	47.3
0645	26	21	4	1	28.7	36.5
0700	24	24	0	0	29	36.1
0715	14	14	0	0	32	37.7
0730	14	10	3	1	30.1	37.4
0745	15	14	1	0	29.1	37
0800	19	17	2	0	28.4	39.4
0815	17	13	4	0	31.6	38.9
0830	17	14	3	0	26.4	33.9
0845	20	19	1	0	27.9	38.3
0900	21	19	2	0	25.9	34.3
0915	16	15	1	0	29	39.3
0930	16	16	0	0	25.6	32.5
0945	19	18	1	0	31.2	39.2
1000	21	19	2	0	26.5	34.4
1015	25	24	1	0	28.1	34.2
1030	20	20	0	0	29.2	37
1045	27	24	3	0	23.2	30.9
1100	22	21	1	0	23.4	29
1115	28	26	2	0	26.7	35.6
1130	44	42	2	0	24.5	31.5
1145	29	29	0	0	26.7	33
1200	29	27	2	0	26.1	32.9
1215	25	24	0	1	27	34.1
1230	25	24	1	0	26.8	35.5
1245	25	24	1	0	25.7	34.6
1300	26	25	1	0	26.3	32.2
1315	23	22	1	0	24.1	30.9
1330	26	25	1	0	25	33.5
1345	19	18	1	0	25.3	34
1400	28	26	2	0	23.5	35
1415	29	29	0	0	25.9	36.5
1430	18	18	0	0	28.4	32.8
1445	20	16	4	0	29.4	37.6
1500	17	17	0	0	28.8	34.4
1515	27	23	4	0	28	36
1530	24	23	1	0	25.8	34.2
1545	19	16	3	0	26.2	36.2
1600	19	19	0	0	27.7	34.6
1615	9	8	1	0	29.5	-
1630	19	18	1	0	31.3	36.2
1645	33	31	2	0	26.7	34.5
1700	18	18	0	0	29.8	39.1
1715	13	13	0	0	31.4	40.2
1730	13	13	0	0	30.4	36.7
1745	9	9	0	0	34.4	-
1800	3	3	0	0	34.7	-
1815	11	10	1	0	27.1	33.6
1830	8	8	0	0	32.9	-
1845	9	9	0	0	30.8	-
1900	9	8	0	1	46.5	-
1915	4	4	0	0	31.8	-
1930	3	3	0	0	35.9	-
1945	5	5	0	0	34.1	-
2000	4	4	0	0	42.8	-
2015	5	5	0	0	35.2	-
2030	6	6	0	0	36.6	-
2045	6	6	0	0	35	-
2100	2	2	0	0	26	-
2115	4	4	0	0	28.8	-
2130	6	6	0	0	31.2	-
2145	9	9	0	0	25.3	-
2200	2	2	0	0	32.9	-
2215	4	4	0	0	30.7	-
2230	4	4	0	0	25.8	-
2245	3	3	0	0	29.6	-
2300	2	2	0	0	26.2	-
2315	0	0	0	0	-	-
2330	1	1	0	0	39.8	-
2345	0	0	0	0	-	-
07-09	140	125	14	1	29.2	36.2
09-16	668	630	37	1	26.3	34.1
16-18	133	129	4	0	29.5	36.9
00-00	1182	1110	67	5	28.2	36.1

Bronte Rd Automatic Count



Site Name - #1 Bronte  
Description - 20 to 25m west of Pedestrian crossing [50]  
Direction - Eastbound

Saturday, 29 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	1	1	0	0	32.4	-
0015	2	2	0	0	35.4	-
0030	0	0	0	0	-	-
0045	6	6	0	0	39.1	-
0100	0	0	0	0	-	-
0115	1	0	1	0	36.2	-
0130	2	2	0	0	36.6	-
0145	0	0	0	0	-	-
0200	1	1	0	0	36.2	-
0215	1	1	0	0	18.2	-
0230	1	1	0	0	22.7	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	1	1	0	0	34.9	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	3	3	0	0	39.3	-
0515	2	2	0	0	38.5	-
0530	10	8	2	0	27.3	-
0545	8	7	1	0	26.4	-
0600	5	4	1	0	25.6	-
0615	3	3	0	0	30.7	-
0630	9	8	1	0	34.6	-
0645	14	14	0	0	37.5	50.2
0700	13	12	1	0	32.4	38.7
0715	31	30	1	0	36.7	43.7
0730	13	11	2	0	31.7	41.2
0745	17	16	1	0	34.4	44
0800	23	22	0	1	30.2	37.8
0815	19	18	1	0	33.2	41.4
0830	25	23	1	1	29.5	36
0845	15	14	1	0	23.4	33.3
0900	18	18	0	0	28	35
0915	17	16	1	0	27	35.8
0930	24	24	0	0	25.6	31.6
0945	19	19	0	0	29	36
1000	21	19	2	0	27	32.4
1015	28	27	1	0	28.2	34.4
1030	18	18	0	0	27.6	32.5
1045	13	11	2	0	23.8	29.2
1100	16	15	1	0	23.2	34.8
1115	22	20	2	0	28.1	35.6
1130	19	18	1	0	29.1	34.7
1145	22	21	1	0	27.6	36.2
1200	16	16	0	0	28.7	36.7
1215	25	25	0	0	26.6	36.4
1230	25	24	1	0	28.8	37
1245	26	25	1	0	26.8	33.9
1300	17	17	0	0	21.8	26
1315	20	18	2	0	27.7	38.5
1330	22	22	0	0	27.3	34.4
1345	17	16	1	0	28	35.7
1400	9	8	1	0	41.1	-
1415	0	0	0	0	-	-
1430	0	0	0	0	-	-
1445	0	0	0	0	-	-
1500	6	5	1	0	25.2	-
1515	17	16	1	0	31.7	40.9
1530	21	21	0	0	28.3	38.2
1545	21	18	2	1	32.5	36.2
1600	12	12	0	0	27.6	33.4
1615	18	17	1	0	30	39.3
1630	22	22	0	0	30.2	40.1
1645	14	14	0	0	28.1	37.8
1700	13	12	1	0	28.2	37.1
1715	13	12	1	0	28.1	36
1730	8	8	0	0	29.4	-
1745	14	14	0	0	34	39.6
1800	14	13	0	1	32	36.9
1815	13	13	0	0	38.1	66.6
1830	9	9	0	0	38.6	-
1845	7	6	0	1	38.5	-
1900	0	0	0	0	-	-
1915	0	0	0	0	-	-
1930	0	0	0	0	-	-
1945	0	0	0	0	-	-
2000	0	0	0	0	-	-
2015	6	6	0	0	35.3	-
2030	5	5	0	0	37.6	-
2045	10	10	0	0	32.7	-
2100	0	0	0	0	-	-
2115	2	1	1	0	34.6	-
2130	8	8	0	0	31.6	-
2145	5	5	0	0	30.4	-
2200	3	3	0	0	37.7	-
2215	2	2	0	0	39.8	-
2230	2	2	0	0	32.4	-
2245	3	3	0	0	39.4	-
2300	4	4	0	0	33.1	-
2315	5	5	0	0	35.2	-
2330	4	4	0	0	39.1	-
2345	2	2	0	0	42.1	-
07-09	156	146	8	2	31.9	41.4
09-16	479	457	21	1	27.8	34.6
16-18	114	111	3	0	29.6	37.3
00-00	923	879	39	5	30	38

Bronte Rd Automatic Count



Site Name - #1 Bronte  
Description - 20 to 25m west of Pedestrian crossing [50]  
Direction - Eastbound

Sunday, 30 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	2	2	0	0	35.3	-
0015	2	2	0	0	32	-
0030	0	0	0	0	-	-
0045	2	2	0	0	34.5	-
0100	1	1	0	0	34.6	-
0115	0	0	0	0	-	-
0130	2	1	1	0	44.1	-
0145	2	2	0	0	32.7	-
0200	2	2	0	0	30.6	-
0215	1	1	0	0	35.3	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	1	1	0	0	39.7	-
0315	2	2	0	0	30.9	-
0330	0	0	0	0	-	-
0345	1	1	0	0	30.3	-
0400	1	1	0	0	29.4	-
0415	1	1	0	0	30.8	-
0430	5	5	0	0	27.3	-
0445	2	2	0	0	38.9	-
0500	1	1	0	0	25.8	-
0515	3	3	0	0	31.8	-
0530	4	4	0	0	29.2	-
0545	4	4	0	0	30.9	-
0600	1	1	0	0	32.8	-
0615	8	7	1	0	28.9	-
0630	9	8	1	0	29.7	-
0645	8	8	0	0	34.5	-
0700	14	13	1	0	28.5	36.1
0715	9	9	0	0	33.7	-
0730	10	9	1	0	32.6	-
0745	17	17	0	0	32.2	39.4
0800	19	16	3	0	26.4	34.2
0815	16	15	1	0	28.7	33.9
0830	22	22	0	0	28.2	36.5
0845	18	18	0	0	26.8	31.5
0900	20	19	1	0	24.8	37.7
0915	19	17	2	0	29.5	35.8
0930	33	32	1	0	27.4	31.3
0945	15	14	1	0	29.8	34.8
1000	26	23	3	0	25.4	31.3
1015	27	27	0	0	25	32.2
1030	25	23	2	0	23.1	30.1
1045	18	18	0	0	27.7	36.2
1100	18	18	0	0	24	32.9
1115	28	28	0	0	27.8	32.2
1130	24	22	2	0	26.1	34.2
1145	30	30	0	0	23.3	31.5
1200	32	32	0	0	24.7	31.5
1215	35	34	1	0	25.9	35.6
1230	22	22	0	0	23.8	29.6
1245	0	0	0	0	-	-
1300	0	0	0	0	-	-
1315	0	0	0	0	-	-
1330	0	0	0	0	-	-
1345	0	0	0	0	-	-
1400	0	0	0	0	-	-
1415	0	0	0	0	-	-
1430	0	0	0	0	-	-
1445	5	5	0	0	25.9	-
1500	20	20	0	0	24.7	30.5
1515	24	24	0	0	26.7	32.5
1530	21	20	1	0	30.7	37.1
1545	16	16	0	0	25.6	30.7
1600	16	16	0	0	30.8	38.9
1615	16	15	1	0	25.6	33.8
1630	16	15	1	0	18.3	25.4
1645	0	0	0	0	-	-
1700	8	8	0	0	22.1	-
1715	20	20	0	0	30	36.1
1730	4	4	0	0	27.8	-
1745	11	11	0	0	25.7	35.6
1800	12	12	0	0	30.6	40.3
1815	14	14	0	0	34.5	44.8
1830	10	10	0	0	35.1	-
1845	4	4	0	0	27.5	-
1900	5	5	0	0	33.9	-
1915	14	13	1	0	28.4	33.7
1930	7	7	0	0	39.5	-
1945	3	3	0	0	38.2	-
2000	8	8	0	0	31.6	-
2015	8	8	0	0	39.4	-
2030	8	8	0	0	36.3	-
2045	2	2	0	0	33.4	-
2100	3	3	0	0	31.9	-
2115	1	1	0	0	35.4	-
2130	4	4	0	0	23.3	-
2145	6	6	0	0	33.7	-
2200	3	3	0	0	28.8	-
2215	1	1	0	0	23.3	-
2230	3	3	0	0	34.4	-
2245	3	3	0	0	29.4	-
2300	0	0	0	0	-	-
2315	4	4	0	0	39.9	-
2330	4	4	0	0	39.1	-
2345	4	4	0	0	35.8	-
07-09	125	119	6	0	29.1	35.7
09-16	458	444	14	0	26	32.4
16-18	91	89	2	0	26	34.9
00-00	870	844	26	0	28	35.8

Bronte Rd Automatic Count



Site Name - #1 Bronte  
Description - 20 to 25m west of Pedestrian crossing [50]  
Direction - Eastbound

Monday, 1 October 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	3	3	0	0	33.1	-
0015	4	4	0	0	25.7	-
0030	2	2	0	0	29.2	-
0045	3	3	0	0	37.2	-
0100	0	0	0	0	-	-
0115	1	1	0	0	40.6	-
0130	4	4	0	0	32.7	-
0145	1	1	0	0	43.8	-
0200	0	0	0	0	-	-
0215	3	3	0	0	37.6	-
0230	1	1	0	0	35.2	-
0245	1	1	0	0	44.4	-
0300	1	1	0	0	19.1	-
0315	0	0	0	0	-	-
0330	1	1	0	0	39.8	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	1	1	0	0	37.9	-
0445	0	0	0	0	-	-
0500	2	2	0	0	38	-
0515	2	2	0	0	35.5	-
0530	4	4	0	0	39.9	-
0545	3	2	1	0	44.1	-
0600	5	5	0	0	33.2	-
0615	9	9	0	0	33.9	-
0630	10	10	0	0	31.2	-
0645	10	9	1	0	32.9	-
0700	16	11	4	1	34.5	45.4
0715	7	7	0	0	28.9	-
0730	13	10	3	0	29.2	34.5
0745	0	0	0	0	-	-
0800	0	0	0	0	-	-
0815	13	12	1	0	26	34
0830	20	20	0	0	27.4	32.9
0845	20	20	0	0	27.8	34.4
0900	30	30	0	0	25.8	32.6
0915	25	25	0	0	28.9	36.6
0930	35	35	0	0	27.2	33.1
0945	29	27	2	0	24.2	32.9
1000	25	25	0	0	23.2	28.6
1015	28	27	1	0	25	31.7
1030	31	30	1	0	25.5	33.4
1045	34	33	1	0	26.6	32.3
1100	32	30	2	0	24.1	29.3
1115	17	16	1	0	22.6	26.7
1130	26	25	1	0	24.6	32.4
1145	42	42	0	0	22.5	29.8
1200	34	34	0	0	23.4	29.8
1215	37	35	2	0	22	28.1
1230	48	46	2	0	20.6	28.6
1245	39	39	0	0	22.5	30.2
1300	52	52	0	0	20.6	29.9
1315	34	31	3	0	20.6	29.6
1330	45	44	1	0	22.4	27.6
1345	42	42	0	0	22.5	30
1400	35	34	1	0	24.5	30.7
1415	32	32	0	0	19.4	24.7
1430	36	36	0	0	23.4	33.1
1445	28	28	0	0	22.3	29.8
1500	33	33	0	0	24	31.1
1515	44	43	1	0	23.9	29.6
1530	28	27	1	0	25.9	31.6
1545	30	29	1	0	23.8	30.5
1600	28	27	1	0	27.9	34.9
1615	31	30	1	0	23.8	32.8
1630	17	16	1	0	25.3	37.1
1645	27	24	3	0	28.6	35.2
1700	31	31	0	0	28.7	37.1
1715	12	11	1	0	26.2	33.5
1730	19	19	0	0	26.1	34
1745	10	10	0	0	28.9	-
1800	4	4	0	0	25.5	-
1815	4	4	0	0	33.1	-
1830	17	16	1	0	33.7	42.8
1845	15	15	0	0	31.1	42.7
1900	6	6	0	0	22.8	-
1915	10	10	0	0	64	-
1930	10	10	0	0	35.1	-
1945	7	7	0	0	39.3	-
2000	8	8	0	0	38.1	-
2015	5	5	0	0	37.5	-
2030	8	8	0	0	37.1	-
2045	2	2	0	0	29	-
2100	9	9	0	0	36.8	-
2115	5	5	0	0	44.2	-
2130	3	3	0	0	37.8	-
2145	6	6	0	0	34.6	-
2200	2	2	0	0	45.9	-
2215	3	3	0	0	38	-
2230	3	3	0	0	35.2	-
2245	0	0	0	0	-	-
2300	0	0	0	0	-	-
2315	1	1	0	0	37.9	-
2330	1	1	0	0	30.3	-
2345	0	0	0	0	-	-
07-09	89	80	8	1	29	36
09-16	951	930	21	0	23.4	30.6
16-18	175	168	7	0	26.9	34.1
00-00	1415	1375	39	1	26	34



Bronte Rd Automatic Count



Site Name - # 2 Bronte  
Description - 20 to 25m East of Pedestrian Crossing [50]  
Direction - Westbound

Comment - data starts at 3pm

Tuesday, 25 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
1500	12	10	2	0	31.8	41.9
1515	21	19	2	0	29.4	37.6
1530	17	15	2	0	31.9	40.8
1545	22	20	2	0	27.5	33.1
1600	27	25	2	0	32.9	43.1
1615	16	14	2	0	35.4	47.9
1630	18	15	3	0	34.8	43.8
1645	15	13	2	0	35.2	42.9
1700	14	11	3	0	31.2	40.5
1715	17	15	2	0	36.5	46.5
1730	17	16	1	0	33.7	41.6
1745	16	14	2	0	31.9	39.6
1800	18	16	2	0	32.7	46.5
1815	10	8	2	0	31.9	-
1830	11	8	3	0	33.2	44.4
1845	12	9	3	0	36.9	45.1
1900	14	13	1	0	33.6	42
1915	10	6	4	0	39.6	-
1930	9	6	3	0	39	-
1945	6	5	1	0	32.4	-
2000	10	9	1	0	36.7	-
2015	5	4	1	0	35.4	-
2030	9	7	2	0	30.8	-
2045	5	3	2	0	40.1	-
2100	6	5	1	0	35.9	-
2115	7	5	2	0	34.6	-
2130	1	1	0	0	59.1	-
2145	7	6	1	0	34	-
2200	5	4	1	0	35.8	-
2215	4	3	1	0	39	-
2230	1	0	1	0	34.1	-
2245	0	0	0	0	-	-
2300	3	2	1	0	42.1	-
2315	4	2	2	0	39.4	-
2330	1	0	1	0	25.7	-
2345	0	0	0	0	-	-
07-09	0	0	0	0	-	-
09-16	72	64	8	0	29.8	37
16-18	140	123	17	0	33.9	42.1
00-00	370	309	61	0	33.7	42.1

Bronte Rd Automatic Count



Site Name - # 2 Bronte  
Description - 20 to 25m East of Pedestrian Crossing [50]  
Direction - Westbound

Tuesday, 25 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	2	1	1	0	41	-
0030	0	0	0	0	-	-
0045	1	0	1	0	28.2	-
0100	1	0	1	0	45	-
0115	1	0	1	0	28.1	-
0130	1	1	0	0	54.4	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	1	1	0	0	36.7	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	3	3	0	0	49.5	-
0400	0	0	0	0	-	-
0415	0	0	0	0	-	-
0430	2	1	1	0	51.1	-
0445	3	1	2	0	39.9	-
0500	3	2	1	0	26.2	-
0515	10	8	2	0	29.4	-
0530	12	11	1	0	29.5	32.9
0545	30	28	2	0	31.9	42.7
0600	17	11	4	2	40.2	53.9
0615	18	13	5	0	31.4	42.1
0630	29	27	2	0	33.6	41.9
0645	25	23	2	0	31.9	39.5
0700	26	21	5	0	33.1	43.1
0715	23	19	4	0	32.6	41.5
0730	24	22	2	0	35	41.4
0745	21	17	4	0	30.9	38.2
0800	21	19	2	0	33.2	43.1
0815	21	18	3	0	30.6	38.1
0830	18	16	2	0	32.3	41.2
0845	32	28	4	0	31.3	37.5
0900	22	21	1	0	33.1	39.9
0915	31	26	5	0	31.7	39.6
0930	23	16	7	0	29	36.2
0945	26	22	4	0	30.8	37.6
1000	23	20	3	0	27.9	36.5
1015	33	30	3	0	28.2	38.3
1030	29	26	3	0	26.9	38
1045	18	15	3	0	29	38.2
1100	24	22	2	0	30.9	36.1
1115	12	11	1	0	28.7	33.1
1130	31	30	1	0	30.8	40
1145	23	22	1	0	32.7	41.7
1200	24	20	4	0	34.7	39.7
1215	25	23	2	0	30.6	39.5
1230	22	20	2	0	31.1	38.7
1245	18	16	2	0	32.4	40.9
1300	26	22	4	0	28.7	34.3
1315	22	21	1	0	30.3	37.2
1330	24	20	4	0	32.5	41.3
1345	17	14	3	0	29.4	40.3
1400	16	14	2	0	33.3	45.9
1415	11	10	1	0	35.9	46.9
1430	20	18	2	0	30.7	39.6
1445	27	24	3	0	33.4	40.2
1500	24	19	5	0	33.4	39.6
1515	21	19	2	0	31.3	37.5
1530	13	12	1	0	33.8	41.6
1545	37	33	4	0	32.1	38.2
1600	26	24	2	0	29.7	39.4
1615	22	21	1	0	25.3	32.6
1630	12	11	1	0	33.9	41
1645	22	19	3	0	29.1	36.6
1700	27	25	2	0	30.6	37.2
1715	22	20	2	0	32.1	41
1730	17	15	2	0	30.4	41
1745	10	9	1	0	32.9	-
1800	16	13	3	0	34.8	45.8
1815	24	21	3	0	32.3	39.7
1830	18	16	2	0	32.7	40.1
1845	21	18	3	0	34.7	39.9
1900	10	9	1	0	38	-
1915	11	10	1	0	34.5	45
1930	10	8	2	0	33.2	-
1945	7	5	2	0	38.3	-
2000	10	9	1	0	34.4	-
2015	19	14	5	0	45.3	51.3
2030	12	10	2	0	32	40.6
2045	6	5	1	0	32.5	-
2100	8	6	2	0	35.1	-
2115	4	3	1	0	30.2	-
2130	9	7	2	0	36.6	-
2145	3	1	2	0	38.6	-
2200	3	2	1	0	37.5	-
2215	1	0	1	0	36.4	-
2230	4	4	0	0	31.1	-
2245	3	1	2	0	35.4	-
2300	4	4	0	0	37.2	-
2315	3	1	2	0	39.9	-
2330	3	2	1	0	38.3	-
2345	1	0	1	0	33.9	-
07-09	186	160	26	0	32.4	40.3
09-16	642	566	76	0	31.1	38.5
16-18	158	144	14	0	30.1	38.5
00-00	1355	1170	183	2	32.1	40.1

Bronte Rd Automatic Count

Site Name - # 2 Bronte  
Description - 20 to 25m East of Pedestrian Crossing [50]  
Direction - Westbound



Wednesday, 26 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	1	1	0	0	35.1	-
0015	3	1	2	0	34.5	-
0030	0	0	0	0	-	-
0045	3	2	1	0	29.7	-
0100	0	0	0	0	-	-
0115	1	0	1	0	38.7	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	1	1	0	0	46.4	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	1	1	0	0	48.2	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	2	2	0	0	35.9	-
0415	0	0	0	0	-	-
0430	1	0	1	0	23.3	-
0445	5	4	1	0	30.8	-
0500	8	6	2	0	34.3	-
0515	6	5	1	0	38.7	-
0530	18	16	2	0	29.1	38
0545	21	20	1	0	28.1	36.5
0600	13	11	2	0	28.5	42
0615	10	8	2	0	34.9	-
0630	17	16	1	0	32.9	43.1
0645	14	9	5	0	30.1	41.9
0700	24	23	1	0	32.1	40.9
0715	19	16	3	0	32.9	40.5
0730	27	23	4	0	32.6	38.7
0745	20	17	3	0	37.8	44.5
0800	20	14	6	0	32.2	40.7
0815	28	26	2	0	32.5	43.8
0830	25	22	3	0	29.6	36.7
0845	23	22	1	0	32.4	38.2
0900	31	26	5	0	28	37.3
0915	17	15	2	0	29.4	34.3
0930	25	25	0	0	28.7	36.7
0945	0	0	0	0	-	-
1000	6	6	0	0	29.3	-
1015	14	10	4	0	32.7	40.4
1030	23	18	5	0	30.9	43.3
1045	21	20	1	0	30.9	37.4
1100	23	20	3	0	31	39.2
1115	32	28	4	0	33.9	40.3
1130	10	10	0	0	34.6	-
1145	19	17	2	0	32.1	43.6
1200	21	20	1	0	33.8	40.3
1215	20	18	2	0	31.3	39.7
1230	22	21	1	0	31	36.8
1245	28	25	3	0	30.9	39.6
1300	18	14	4	0	31.4	39.4
1315	12	11	1	0	30.9	43.4
1330	19	18	1	0	32.9	41.6
1345	24	21	3	0	29.4	38.3
1400	26	22	4	0	29.2	36.5
1415	11	9	2	0	30.6	43.6
1430	18	14	4	0	29.3	41.8
1445	17	14	3	0	32.9	40.5
1500	17	15	2	0	28.4	35.9
1515	15	12	3	0	26.6	35.3
1530	22	19	3	0	27.9	35.2
1545	25	21	4	0	30.1	35.7
1600	19	18	1	0	30	37.6
1615	19	17	2	0	30	35.1
1630	18	17	1	0	31.7	41.6
1645	19	15	4	0	32.4	36.4
1700	21	19	2	0	32.5	45.2
1715	17	15	2	0	34.1	38.7
1730	17	14	3	0	33.8	45.2
1745	20	18	2	0	33.2	38.9
1800	14	12	2	0	30.5	41.9
1815	10	9	1	0	33.9	-
1830	19	14	5	0	37.7	43.9
1845	20	18	2	0	32.9	42.9
1900	11	10	1	0	28.2	36
1915	15	12	3	0	36.6	43.1
1930	12	10	2	0	38.9	44.3
1945	13	11	2	0	36.9	42.6
2000	9	8	1	0	37.5	-
2015	9	8	1	0	38.7	-
2030	14	12	2	0	37.6	45.4
2045	5	4	1	0	34	-
2100	4	3	1	0	35.1	-
2115	7	6	1	0	38.4	-
2130	5	4	1	0	38.2	-
2145	5	4	1	0	39	-
2200	6	6	0	0	24.4	-
2215	5	3	2	0	34.4	-
2230	1	0	1	0	33.9	-
2245	3	2	1	0	33.7	-
2300	3	2	1	0	31.7	-
2315	2	1	1	0	46.7	-
2330	1	0	1	0	39.7	-
2345	3	2	1	0	38.7	-
07-09	186	163	23	0	32.6	40.5
09-16	536	469	67	0	30.6	38.5
16-18	150	133	17	0	32.2	38.9
00-00	1193	1029	164	0	32	39.8

Bronte Rd Automatic Count

Site Name - # 2 Bronte  
Description - 20 to 25m East of Pedestrian Crossing [50]  
Direction - Westbound



Thursday, 27 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	2	2	0	0	40.4	-
0015	6	4	2	0	32	-
0030	2	1	1	0	44.6	-
0045	1	0	1	0	37.2	-
0100	1	1	0	0	46	-
0115	1	0	1	0	39.3	-
0130	1	1	0	0	24.2	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	2	1	1	0	35.9	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	1	1	0	0	34.5	-
0415	1	1	0	0	47.1	-
0430	3	2	1	0	28.4	-
0445	6	4	2	0	35.6	-
0500	4	2	2	0	33.8	-
0515	12	10	2	0	34.8	50.7
0530	17	16	1	0	29.4	36
0545	29	28	1	0	34.1	54.5
0600	33	26	6	1	38.8	57
0615	27	24	3	0	31.6	42.3
0630	25	23	2	0	31.5	44
0645	34	29	5	0	32.8	39.8
0700	31	28	3	0	34.4	47.6
0715	30	27	3	0	31	38.4
0730	31	27	4	0	32.7	37.5
0745	19	19	0	0	31.2	37.6
0800	23	20	3	0	35	43
0815	23	21	2	0	31.5	38.4
0830	36	33	3	0	29.9	35.9
0845	26	24	2	0	29.6	36.5
0900	22	19	3	0	27.4	35.6
0915	33	30	3	0	29.4	37.5
0930	24	20	4	0	31.8	41.8
0945	17	13	4	0	32	44.5
1000	30	25	5	0	30.2	40.5
1015	27	24	3	0	31.1	38.4
1030	29	27	2	0	30.4	35.3
1045	44	39	5	0	26.4	34.8
1100	30	27	3	0	24.7	33.1
1115	23	21	2	0	30.3	41.1
1130	43	36	7	0	26.4	38
1145	23	20	3	0	28.3	37.1
1200	28	28	0	0	28.5	37.4
1215	30	27	3	0	30.4	39.7
1230	26	22	4	0	33.7	44.2
1245	20	20	0	0	28.7	34.7
1300	33	24	9	0	27.7	35.9
1315	28	25	3	0	27.8	35.5
1330	34	32	2	0	26.4	35.5
1345	28	25	3	0	28.5	37
1400	21	19	2	0	30.3	41.3
1415	29	23	6	0	30.3	40.4
1430	27	23	4	0	28.8	36
1445	25	22	3	0	26.5	39.7
1500	30	27	3	0	34.2	43.7
1515	24	23	1	0	26.8	36.9
1530	26	24	2	0	31.3	39.4
1545	24	22	2	0	31.9	38.9
1600	31	28	3	0	29.5	36
1615	24	21	3	0	32.5	43.6
1630	20	16	4	0	30.2	38
1645	26	22	4	0	32.5	40
1700	20	17	3	0	32.6	38.4
1715	15	14	1	0	30.7	41.3
1730	14	12	2	0	34.3	43.1
1745	23	23	0	0	28.9	33.8
1800	18	17	1	0	33	39.6
1815	7	4	3	0	33.3	-
1830	13	12	1	0	37	45.4
1845	12	10	2	0	39.6	47.1
1900	13	13	0	0	37	46.5
1915	19	16	3	0	33.8	46.8
1930	11	9	2	0	32.5	40.4
1945	6	4	2	0	39.9	-
2000	9	8	1	0	40.1	-
2015	10	9	1	0	40.7	-
2030	12	10	2	0	34.5	40.2
2045	13	11	2	0	29.4	36
2100	20	19	1	0	30	36.9
2115	7	7	0	0	21.3	-
2130	7	5	2	0	29.6	-
2145	11	9	2	0	24.6	36.3
2200	7	5	2	0	28.1	-
2215	13	10	3	0	26.9	35.5
2230	4	3	1	0	35.5	-
2245	5	4	1	0	23.4	-
2300	3	2	1	0	33	-
2315	3	1	2	0	34	-
2330	5	4	1	0	34.8	-
2345	3	3	0	0	34.5	-
07-09	219	199	20	0	31.9	39.2
09-16	778	687	91	0	29.1	37.5
16-18	173	153	20	0	31.2	39.2
00-00	1609	1410	198	1	30.8	39.6



Bronte Rd Automatic Count

Site Name - # 2 Bronte  
Description - 20 to 25m East of Pedestrian Crossing [50]  
Direction - Westbound



Friday, 28 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	3	2	1	0	40.6	-
0015	2	1	1	0	34.6	-
0030	1	1	0	0	37.7	-
0045	1	0	1	0	30.5	-
0100	1	1	0	0	56.7	-
0115	1	0	1	0	39.9	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	1	1	0	0	46.1	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	1	0	1	0	53.1	-
0415	1	1	0	0	57.2	-
0430	1	1	0	0	27.7	-
0445	9	6	3	0	36.4	-
0500	7	5	2	0	28	-
0515	6	4	2	0	39.6	-
0530	23	19	3	1	34.4	58.4
0545	37	35	2	0	31	37.6
0600	25	23	2	0	35.1	50.5
0615	28	24	4	0	35.4	47.9
0630	32	27	5	0	35.3	51.5
0645	22	18	4	0	32.2	36.4
0700	33	29	4	0	29.9	36.1
0715	22	20	2	0	32.1	41.6
0730	38	34	4	0	29.7	37.1
0745	41	38	3	0	29.4	37.5
0800	28	25	3	0	33.6	43.7
0815	29	25	4	0	29.8	36.3
0830	29	27	2	0	30.1	37.1
0845	33	28	5	0	26.5	33.5
0900	31	27	4	0	27.3	32.8
0915	37	35	2	0	30.3	36.5
0930	28	23	5	0	27.9	34.1
0945	38	35	3	0	30	38
1000	38	35	3	0	27.5	35.4
1015	33	32	1	0	25.3	34.2
1030	32	30	2	0	26.5	34.6
1045	35	32	3	0	27.3	35.5
1100	40	37	3	0	25.7	32.9
1115	34	33	1	0	26.2	33.8
1130	41	39	2	0	26.7	36.5
1145	27	25	2	0	26.5	34.9
1200	35	33	2	0	26.4	32.4
1215	33	30	3	0	27.4	35.7
1230	30	27	3	0	31.4	36.8
1245	42	40	2	0	26.8	34.6
1300	39	38	1	0	25.3	32.9
1315	29	28	1	0	28.3	37.4
1330	26	24	2	0	27.5	35.7
1345	38	34	4	0	25	31.4
1400	33	30	3	0	27.7	34.9
1415	25	21	4	0	29.2	35.7
1430	40	38	2	0	27.5	38.1
1445	23	20	3	0	28.6	37.9
1500	24	21	3	0	28.3	35.3
1515	29	27	2	0	27.7	32.9
1530	34	32	2	0	28	36.1
1545	26	22	4	0	29.1	37.2
1600	31	30	1	0	31.5	38.2
1615	30	26	4	0	29.5	36.6
1630	30	29	1	0	30	36.4
1645	34	31	3	0	25.3	31.9
1700	25	23	2	0	27.8	35.6
1715	24	21	3	0	27.9	38.1
1730	19	18	1	0	31.7	39.6
1745	18	16	2	0	31	38.6
1800	13	11	2	0	35	46.7
1815	24	20	4	0	33.1	38.9
1830	13	11	2	0	31	39.9
1845	16	14	2	0	34.8	43.7
1900	21	20	1	0	34.5	42.9
1915	12	11	1	0	32.8	41.9
1930	11	8	3	0	33.7	44.4
1945	4	3	1	0	40.1	-
2000	12	11	1	0	35.6	47.8
2015	9	8	1	0	33.7	-
2030	9	7	2	0	34.4	-
2045	11	9	2	0	33.4	40.1
2100	7	5	2	0	31.7	-
2115	3	2	1	0	35.9	-
2130	8	7	1	0	38.4	-
2145	10	9	1	0	32.6	-
2200	9	7	2	0	32.9	-
2215	4	3	1	0	31.7	-
2230	7	7	0	0	31.3	-
2245	9	8	1	0	36.5	-
2300	5	4	1	0	35.4	-
2315	3	1	2	0	41.1	-
2330	2	1	1	0	38.3	-
2345	1	0	1	0	29.4	-
07-09	253	226	27	0	30	37.1
09-16	920	848	72	0	27.5	34.7
16-18	211	194	17	0	29.1	36.6
00-00	1809	1624	184	1	29.6	37.3

Bronte Rd Automatic Count

Site Name - # 2 Bronte  
Description - 20 to 25m East of Pedestrian Crossing [50]  
Direction - Westbound



Saturday, 29 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	1	0	1	0	37.2	-
0015	4	3	1	0	36.6	-
0030	4	3	1	0	31.2	-
0045	2	2	0	0	37.4	-
0100	0	0	0	0	-	-
0115	2	1	1	0	32.4	-
0130	4	4	0	0	31.8	-
0145	1	0	1	0	32.7	-
0200	1	1	0	0	38.1	-
0215	2	2	0	0	30.1	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	1	1	0	0	32.2	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	1	0	1	0	22.5	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	7	6	1	0	30.3	-
0500	9	9	0	0	38.6	-
0515	8	5	3	0	29.6	-
0530	6	5	1	0	28.8	-
0545	18	15	3	0	30.7	42.3
0600	15	12	3	0	30.6	38.7
0615	7	7	0	0	31.8	-
0630	30	24	4	2	39.3	50.4
0645	18	17	1	0	29.2	37.4
0700	23	21	2	0	37.5	51.9
0715	27	23	4	0	30.2	35.8
0730	24	24	0	0	31.7	38.1
0745	38	35	3	0	35.2	45.6
0800	17	16	1	0	31.6	39.2
0815	41	33	8	0	33.3	48
0830	37	35	1	1	29.7	36.9
0845	29	28	1	0	25.7	31.1
0900	28	21	6	1	28.3	33.4
0915	24	22	2	0	26.6	36.9
0930	39	37	2	0	29.3	36.9
0945	24	22	2	0	26.6	34.1
1000	42	39	3	0	25.8	32
1015	34	33	1	0	29.2	35
1030	32	31	1	0	26.2	35
1045	33	31	2	0	24.8	33.9
1100	41	39	2	0	28.7	35.5
1115	37	34	3	0	28.3	34.7
1130	40	37	3	0	26.4	33.7
1145	28	28	0	0	29.9	38.7
1200	46	44	2	0	27.3	33.8
1215	37	35	2	0	26.5	32.9
1230	35	33	2	0	26.4	33.4
1245	39	39	0	0	26	34.7
1300	26	25	1	0	31.1	35.6
1315	24	21	3	0	29.1	35.7
1330	31	27	4	0	28.9	36.3
1345	23	22	1	0	30.2	37.7
1400	33	31	2	0	27.6	33.8
1415	31	29	2	0	27.6	32.1
1430	33	31	2	0	28.2	35.9
1445	23	21	2	0	32.2	39.3
1500	30	28	2	0	26.5	34.6
1515	24	22	2	0	31.5	39.6
1530	25	24	1	0	29.8	37.5
1545	22	19	3	0	28	37.3
1600	23	19	4	0	31.8	38.7
1615	21	20	1	0	32	37.5
1630	16	14	2	0	28.8	35.7
1645	26	26	0	0	25.5	33.2
1700	35	33	2	0	28.5	37.5
1715	32	31	1	0	28.9	37.8
1730	16	14	2	0	30.3	40.1
1745	11	10	1	0	35.4	44.3
1800	19	17	2	0	29.6	37.3
1815	11	10	1	0	32.1	36.2
1830	13	12	1	0	34.8	48.6
1845	12	11	1	0	31.3	39.5
1900	6	5	1	0	33.6	-
1915	3	2	1	0	35.8	-
1930	13	13	0	0	31.3	43.1
1945	10	9	1	0	35.1	-
2000	8	7	1	0	32.3	-
2015	8	6	2	0	36.9	-
2030	7	6	1	0	28.8	-
2045	3	3	0	0	38	-
2100	6	5	1	0	35.5	-
2115	4	2	2	0	35	-
2130	8	7	1	0	37.7	-
2145	2	2	0	0	34.6	-
2200	8	7	1	0	34.3	-
2215	7	6	1	0	32.7	-
2230	5	5	0	0	31.4	-
2245	14	11	3	0	38.1	45.9
2300	5	4	1	0	34.4	-
2315	5	5	0	0	26.6	-
2330	2	1	1	0	42.7	-
2345	5	5	0	0	47.2	-
07-09	236	215	20	1	31.9	41
09-16	884	825	58	1	27.9	34.9
16-18	180	167	13	0	29.6	37.8
00-00	1625	1485	136	4	29.8	37.4

Bronte Rd Automatic Count

Site Name - # 2 Bronte  
Description - 20 to 25m East of Pedestrian Crossing [50]  
Direction - Westbound



Sunday, 30 September 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	6	6	0	0	37.9	-
0030	3	3	0	0	37	-
0045	0	0	0	0	-	-
0100	5	4	1	0	38.3	-
0115	2	1	1	0	38.1	-
0130	3	2	1	0	30.2	-
0145	5	5	0	0	37.2	-
0200	0	0	0	0	-	-
0215	2	2	0	0	31.3	-
0230	0	0	0	0	-	-
0245	1	1	0	0	29.6	-
0300	3	3	0	0	39.2	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	2	2	0	0	39.9	-
0400	0	0	0	0	-	-
0415	3	2	1	0	33.6	-
0430	1	1	0	0	28.7	-
0445	2	2	0	0	34.5	-
0500	4	4	0	0	33.7	-
0515	8	7	1	0	27.4	-
0530	5	4	1	0	28.9	-
0545	8	8	0	0	34.9	-
0600	12	11	1	0	33.9	49.9
0615	13	9	4	0	31.3	41.4
0630	14	13	1	0	33.3	43.2
0645	27	26	1	0	37.2	50.9
0700	15	14	1	0	26	32.4
0715	19	15	4	0	31.5	41.9
0730	23	21	2	0	35.5	47.2
0745	28	25	3	0	27.9	34.6
0800	22	19	1	2	27.8	36.4
0815	20	18	1	1	36.5	52.3
0830	24	23	1	0	27	34.6
0845	42	42	0	0	27.4	34.3
0900	45	42	3	0	29.6	43.2
0915	37	37	0	0	26.7	32.3
0930	39	39	0	0	24.4	35.3
0945	34	32	2	0	27.4	33.6
1000	48	46	2	0	25.4	33.7
1015	43	41	2	0	23.6	28.7
1030	39	38	1	0	24.4	30.4
1045	34	32	2	0	25.8	34
1100	23	22	1	0	31.5	37.9
1115	28	27	1	0	25.9	32.3
1130	30	28	2	0	28.6	34.7
1145	39	39	0	0	26.7	35.1
1200	43	41	2	0	23.6	29.1
1215	37	36	1	0	26.6	32.8
1230	43	41	2	0	25	31.4
1245	28	27	1	0	25	30.3
1300	39	38	1	0	22.7	27.2
1315	32	31	1	0	24.7	31.7
1330	43	43	0	0	23.2	28.7
1345	26	25	1	0	25.8	32
1400	42	40	2	0	24.6	30.5
1415	22	19	3	0	25.9	34.8
1430	42	40	2	0	24.5	30.7
1445	32	31	1	0	26.9	32.4
1500	47	47	0	0	25.2	31.4
1515	52	48	4	0	27	35.3
1530	27	25	2	0	27.5	34.1
1545	28	25	3	0	26.5	34.6
1600	29	27	2	0	27.5	37.4
1615	33	31	2	0	27.4	34.2
1630	25	25	0	0	26.6	35
1645	32	28	3	1	24.6	30.8
1700	25	24	1	0	25.7	33.7
1715	40	37	3	0	26.9	33.8
1730	28	27	1	0	28.6	34.9
1745	21	20	1	0	30.9	40.1
1800	18	17	1	0	30.4	41.6
1815	20	18	2	0	30.2	40
1830	16	15	1	0	35.8	40.4
1845	8	8	0	0	32.8	-
1900	14	12	2	0	32.4	41.9
1915	6	5	1	0	29.1	-
1930	3	3	0	0	36.8	-
1945	8	6	2	0	31.3	-
2000	9	8	1	0	33.4	-
2015	9	8	1	0	29.5	-
2030	4	4	0	0	35.6	-
2045	3	2	1	0	25.2	-
2100	3	2	1	0	30.9	-
2115	9	8	1	0	39.2	-
2130	5	5	0	0	45.6	-
2145	4	2	2	0	30.2	-
2200	6	6	0	0	40.8	-
2215	8	8	0	0	32.9	-
2230	3	3	0	0	40	-
2245	4	3	1	0	30.8	-
2300	2	1	1	0	39.6	-
2315	1	1	0	0	40.9	-
2330	5	3	2	0	37.4	-
2345	5	5	0	0	36.1	-
07-09	193	177	13	3	29.7	38
09-16	1022	980	42	0	25.7	32.6
16-18	233	219	13	1	27.1	34.7
00-00	1750	1645	101	4	27.8	35.6

Bronte Rd Automatic Count



Site Name - # 2 Bronte  
Description - 20 to 25m East of Pedestrian Crossing [50]  
Direction - Westbound

Monday, 1 October 2018

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	4	2	2	0	32.4	-
0015	3	2	1	0	35.6	-
0030	1	0	1	0	28	-
0045	3	3	0	0	41.3	-
0100	2	2	0	0	37.9	-
0115	1	1	0	0	38.1	-
0130	2	2	0	0	37.9	-
0145	0	0	0	0	-	-
0200	2	2	0	0	37.9	-
0215	1	1	0	0	32.4	-
0230	0	0	0	0	-	-
0245	1	1	0	0	37.3	-
0300	0	0	0	0	-	-
0315	1	1	0	0	36.2	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	1	1	0	0	32.1	-
0430	1	1	0	0	50.2	-
0445	4	4	0	0	42.5	-
0500	3	3	0	0	30.7	-
0515	5	5	0	0	33.7	-
0530	7	6	1	0	33.6	-
0545	11	8	3	0	32.6	42.9
0600	11	10	1	0	34.8	56.6
0615	22	20	2	0	34.7	48.2
0630	18	16	2	0	37.3	49.6
0645	19	16	2	1	30.8	37.4
0700	28	25	3	0	32.8	45.2
0715	20	19	1	0	32.5	50.1
0730	19	18	1	0	39.9	48.4
0745	26	25	1	0	30.5	37.8
0800	12	12	0	0	29.4	39
0815	34	33	1	0	28.5	36.6
0830	29	29	0	0	28.7	37.9
0845	30	29	1	0	26.6	36.5
0900	43	41	1	1	24	31.5
0915	36	34	2	0	24.8	33.4
0930	52	51	1	0	23.7	30.7
0945	46	45	1	0	23.8	31.7
1000	41	39	2	0	27.3	34.5
1015	43	40	3	0	26.4	32.1
1030	39	38	1	0	26.8	33.7
1045	55	54	1	0	23	30.1
1100	37	34	3	0	21.9	30.3
1115	50	48	2	0	23.3	30.2
1130	41	38	3	0	24.7	31.5
1145	39	39	0	0	21	27.9
1200	50	48	2	0	21.8	28.8
1215	44	42	2	0	21.6	28.1
1230	42	42	0	0	26	30.6
1245	60	59	1	0	20.9	27.7
1300	46	45	1	0	23	29.1
1315	58	58	0	0	18.3	26.1
1330	52	52	0	0	22.3	30.4
1345	46	44	2	0	22.6	28.4
1400	47	45	2	0	24.4	29.9
1415	55	51	4	0	24.5	30.4
1430	40	39	1	0	22.1	29.1
1445	50	48	2	0	24.2	31.3
1500	43	40	3	0	23	30.5
1515	48	47	1	0	25	32.6
1530	57	55	2	0	23.4	31.3
1545	35	32	3	0	24.9	30.8
1600	40	37	3	0	24.6	33.2
1615	42	39	3	0	26.5	33.2
1630	31	28	3	0	25.6	34.2
1645	35	33	2	0	25.5	33.3
1700	33	32	1	0	27.2	36.1
1715	25	24	1	0	28.9	33.5
1730	25	23	2	0	30.9	33.3
1745	22	20	2	0	37.5	75.1
1800	20	19	1	0	38.3	41.8
1815	11	9	2	0	29.2	41.3
1830	11	11	0	0	34.6	42.3
1845	18	16	2	0	33.2	41.5
1900	10	9	1	0	33.4	-
1915	11	9	2	0	29.3	37.4
1930	8	8	0	0	39	-
1945	11	9	2	0	32.2	37.5
2000	10	9	1	0	40.3	-
2015	5	4	1	0	36.4	-
2030	9	8	1	0	36.7	-
2045	7	7	0	0	28.8	-
2100	10	9	1	0	39	-
2115	11	11	0	0	37.8	47
2130	5	5	0	0	41.1	-
2145	4	4	0	0	35.6	-
2200	9	7	2	0	33.8	-
2215	4	4	0	0	46.2	-
2230	4	3	1	0	31.1	-
2245	5	5	0	0	29.7	-
2300	2	1	1	0	37.3	-
2315	0	0	0	0	-	-
2330	2	1	1	0	40.8	-
2345	1	1	0	0	47.8	-
07-09	198	190	8	0	30.7	40.2
09-16	1295	1248	46	1	23.4	30.2
16-18	253	236	17	0	27.7	33.8
00-00	2057	1950	105	2	26.4	34.6



## **APPENDIX C**

### **AUSTROADS LATM TOOLKIT**

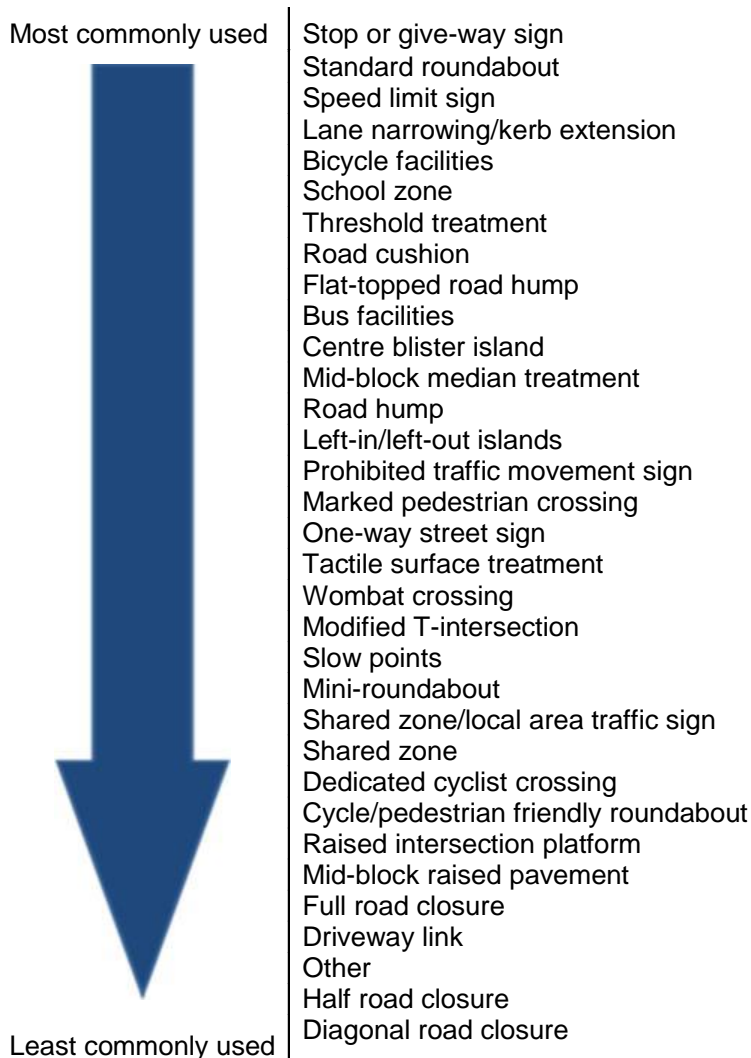
## 7. Selection of LATM Devices

### 7.1 LATM Device Toolkit

There are a range of LATM devices that can be used for different purposes and situations.

Figure 7.1 includes a list of LATM devices in common use by local government authorities in Australia and New Zealand, ranging from the most commonly used device and descending to the least commonly used device. This information provides a good indication of the popularity and breadth of application of different LATM devices, and may be useful as a measure of the amount of experience within the industry in their design and construction. It should be highlighted that the frequency of use of particular devices should not be a major determinant in the selection of an LATM device for a specific location. Instead, each treatment should be assessed for its effectiveness and appropriateness for the situation in which it is being used, as part of a whole of street or whole of area wide implementation.

**Figure 7.1: LATM devices commonly used by local governments**



Source: *Damen and Ralston (2015)*.

Table 7.1 lists each device in the LATM toolkit and outlines their relative uses based on previous research and current Australian and New Zealand practice.

**Table 7.1: Description and use of LATM devices**

Measure		Reduce speeds	Reduce traffic volume	Reduce crash risk	Increase pedestrian safety	Increase bicycle safety
<b>Vertical deflection devices (Section 7.2)</b>	Road humps	✓	✓	✓	–	–
	Road cushions	✓	✓	✓	–	✓
	Flat-top road humps	✓	✓	✓	–	✓
	Wombat crossings	✓	✓	✓	✓	✓
	Raised pavements	✓	✓	✓	–	✓
<b>Horizontal deflection devices (Section 7.3)</b>	Lane narrowings/kerb extensions	✓	–	–	✓	–
	Slow points	✓	✓	–	–	–
	Centre blister islands	✓	✓	–	✓	–
	Driveway links	✓	✓	–	✓	✓
	Mid-block median treatments	✓	–	✓	✓	✓
	Roundabouts	✓	✓	✓	–	–
<b>Diversion devices (Section 7.4)</b>	Full road closure	–	✓	✓	✓	✓
	Half road closure	–	✓	✓	✓	✓
	Diagonal road closure	–	✓	✓	✓	✓
	Modified T-intersection	✓	✓	✓	✓	✓
	Left-in/left-out islands	–	✓	✓	✓	–
<b>Signs, linemarking and other treatments (Section 7.5)</b>	Speed limit signs	✓	–	✓	✓	✓
	Prohibited traffic movement signs	–	✓	✓	–	✓
	One-way (street) signs	–	✓	✓	✓	–
	Give-way signs	✓	✓	✓	✓	✓
	Stop signs	✓	✓	✓	✓	✓
	Shared zones	✓	✓	–	✓	✓
	School zones	✓	–	✓	✓	✓
	Threshold treatments	✓	✓	✓	–	✓
	Tactile surface treatments	✓	–	–	–	–
	Bicycle facilities	–	–	✓	–	✓
	Bus facilities	–	✓	–	–	–

Guidance on the advantages/disadvantages and application of each commonly used device in the LATM toolkit to address specific problems and issues is given in the following sections. Additional information on the speed and safety impacts of some of these devices is given in Commentary 21.

[\[see Commentary 21\]](#)

Nomenclature used to describe the different devices and their component parts varies quite considerably across Australia and New Zealand. To overcome this issue, the terminology adopted by the Australian Standard has generally been applied, but not exclusively so.

## **APPENDIX C**

### **AUSTROADS LATM TOOLKIT**



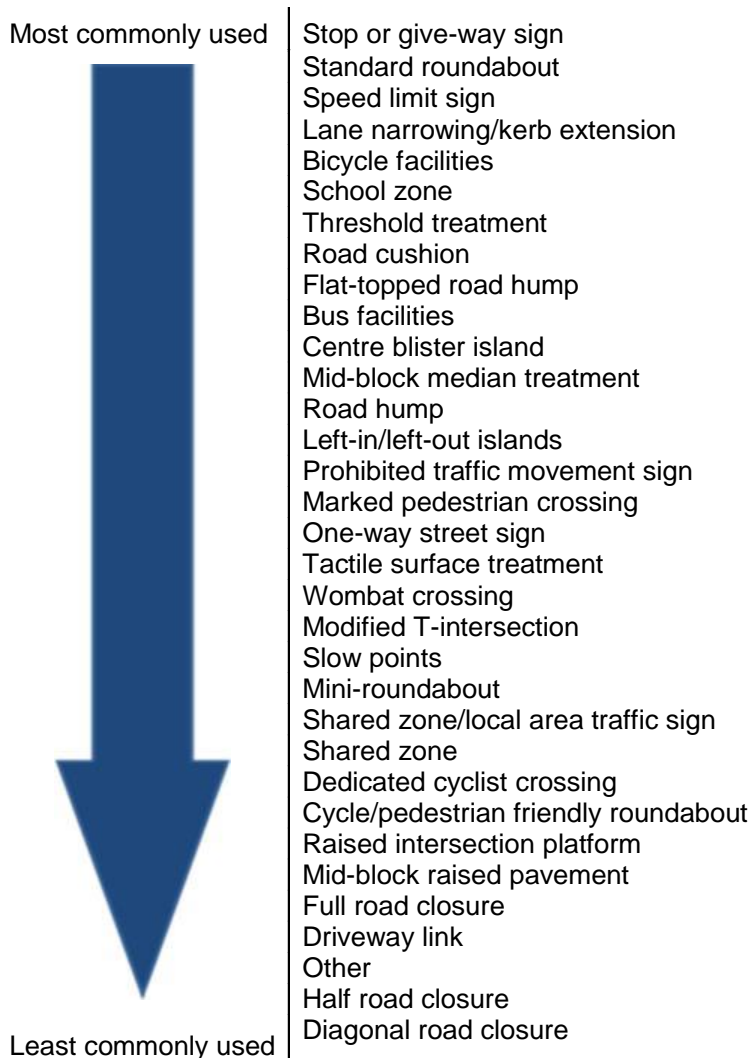
## 7. Selection of LATM Devices

### 7.1 LATM Device Toolkit

There are a range of LATM devices that can be used for different purposes and situations.

Figure 7.1 includes a list of LATM devices in common use by local government authorities in Australia and New Zealand, ranging from the most commonly used device and descending to the least commonly used device. This information provides a good indication of the popularity and breadth of application of different LATM devices, and may be useful as a measure of the amount of experience within the industry in their design and construction. It should be highlighted that the frequency of use of particular devices should not be a major determinant in the selection of an LATM device for a specific location. Instead, each treatment should be assessed for its effectiveness and appropriateness for the situation in which it is being used, as part of a whole of street or whole of area wide implementation.

**Figure 7.1: LATM devices commonly used by local governments**



Source: Damen and Ralston (2015).

Table 7.1 lists each device in the LATM toolkit and outlines their relative uses based on previous research and current Australian and New Zealand practice.

**Table 7.1: Description and use of LATM devices**

Measure		Reduce speeds	Reduce traffic volume	Reduce crash risk	Increase pedestrian safety	Increase bicycle safety
<b>Vertical deflection devices (Section 7.2)</b>	Road humps	✓	✓	✓	–	–
	Road cushions	✓	✓	✓	–	✓
	Flat-top road humps	✓	✓	✓	–	✓
	Wombat crossings	✓	✓	✓	✓	✓
	Raised pavements	✓	✓	✓	–	✓
<b>Horizontal deflection devices (Section 7.3)</b>	Lane narrowings/kerb extensions	✓	–	–	✓	–
	Slow points	✓	✓	–	–	–
	Centre blister islands	✓	✓	–	✓	–
	Driveway links	✓	✓	–	✓	✓
	Mid-block median treatments	✓	–	✓	✓	✓
	Roundabouts	✓	✓	✓	–	–
<b>Diversion devices (Section 7.4)</b>	Full road closure	–	✓	✓	✓	✓
	Half road closure	–	✓	✓	✓	✓
	Diagonal road closure	–	✓	✓	✓	✓
	Modified T-intersection	✓	✓	✓	✓	✓
	Left-in/left-out islands	–	✓	✓	✓	–
<b>Signs, linemarking and other treatments (Section 7.5)</b>	Speed limit signs	✓	–	✓	✓	✓
	Prohibited traffic movement signs	–	✓	✓	–	✓
	One-way (street) signs	–	✓	✓	✓	–
	Give-way signs	✓	✓	✓	✓	✓
	Stop signs	✓	✓	✓	✓	✓
	Shared zones	✓	✓	–	✓	✓
	School zones	✓	–	✓	✓	✓
	Threshold treatments	✓	✓	✓	–	✓
	Tactile surface treatments	✓	–	–	–	–
	Bicycle facilities	–	–	✓	–	✓
	Bus facilities	–	✓	–	–	–

Guidance on the advantages/disadvantages and application of each commonly used device in the LATM toolkit to address specific problems and issues is given in the following sections. Additional information on the speed and safety impacts of some of these devices is given in Commentary 21.

[\[see Commentary 21\]](#)

Nomenclature used to describe the different devices and their component parts varies quite considerably across Australia and New Zealand. To overcome this issue, the terminology adopted by the Australian Standard has generally been applied, but not exclusively so.

# **Appendix E**

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## **Bronte Beach Village Comparative Noise Study – Acoustic Logic**

## **Bronte Beach Village**

### **Comparative Noise Study**

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SYDNEY  
A: 9 Sarah St  
MASCOT 2020  
T: (02) 8339 8000

SYDNEY MELBOURNE BRISBANE CANBERRA  
LONDON DUBAI SINGAPORE GREECE

ABN: 11 068 954 343

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# 1 INTRODUCTION

Acoustic Logic Consultancy has been engaged to undertake a review the proposed streetscape works, and assess the potential changes to the acoustic environment at Bronte Beach Village as a result of the works.

In this report, we will:

- Undertake monitoring of the existing acoustic environment;
- Determine existing noise sources and their levels at residential façades;
- Review the proposed streetscape works and present predicted ongoing noise levels as a result of the infrastructure works;
- Compare the likely future noise levels to those currently experienced by nearby residents.

## 2 SITE DESCRIPTION AND PROPOSED WORKS

### 2.1 EXISTING DEVELOPMENT AND NOISE ENVIRONMENT

Bronte Beach Village is located along Bronte Road at Bronte Beach. Development and predominant noise sources in the area are as follows;

#### Development

- Bronte Road is a two-lane collector road running east-west through Bronte Beach Village. Street parking is currently provided on both sides of the road.
- Shop top housing on the southern side of Bronte Road. Housing is a mixture of single dwellings and residential flat buildings.
- Café and restaurant tenancies on the ground level of shop top housing on the southern side of Bronte Road.
- Bronte Beach Terminus bus layover / interchange, located on the northern side of Bronte Road. This terminus additionally acts as a rest stop for bus drivers.
- Bronte Beach and parklands across Bronte Road from Bronte Beach Village.

#### Predominant Noise Sources in the Area

- Traffic noise from bus services, commercial deliveries and light passenger vehicles along Bronte Road. Noise levels in the area are currently dominated by traffic noise from this roadway.
- Bus noise from Bronte Beach terminus. The only bus service operating to/from Bronte Beach Village is the 379 (North Bondi to Bronte); services currently operate from 5am to 12am (midnight);
- Patron noise from café / restaurant tenancies. A majority of these premises incorporate outdoor dining areas. All dining areas sit below an awning – there are no planned modifications to these tenancies or associated outdoor dining areas
- Bronte Beach and parklands across Bronte Road from Bronte Beach Village. Background noise in the area is dominated by ocean/wave noise.

## 2.2 PROPOSED WORKS

There is currently a proposed streetscape upgrade which includes the following key changes;

- Widening of the footpath on the southern portion of Bronte Beach Village by approximately 3m to accommodate pedestrian traffic;
- Relocation of the existing pedestrian crossing to between Calga Place and the existing bus terminus exit. The crossing will also be modified to become a raised pedestrian crossing (incorporation of a speed hump) to act as a traffic calming device;
- Changes to kerb alignments, noting that the relative distance of vehicular traffic to residents is not expected to change significantly.

This assessment is based on the architectural drawings provided by *Group GSA* (Project Number 17005, Issue D), and Traffic Study prepared for this project by *Bitzios Consulting* (Project Number P2960, Revision 2). Refer to Figure 2 for proposed streetscape modifications.

## 2.3 NOISE SENSITIVE RECEIVERS

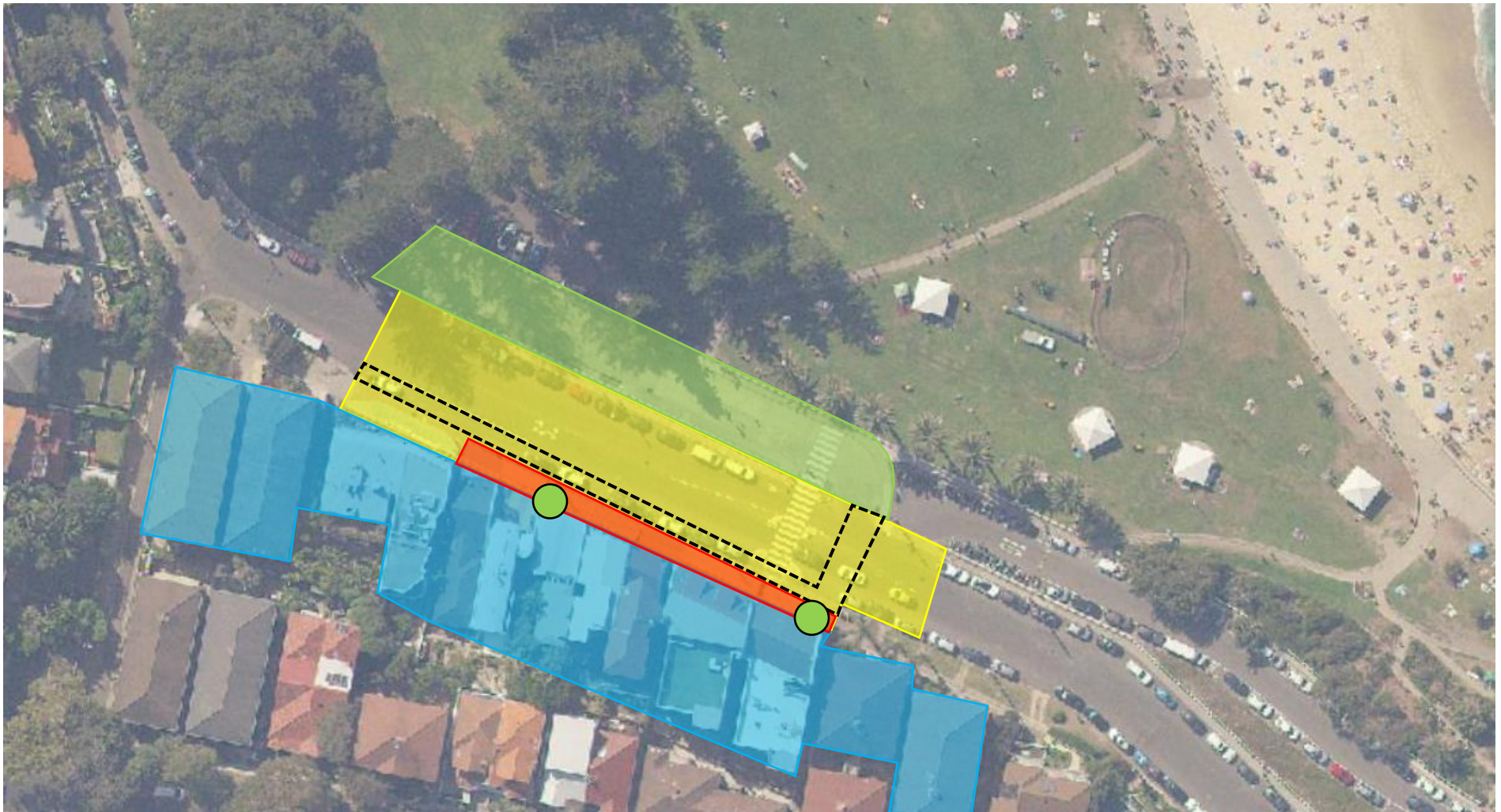
Residential development at Bronte Beach Village consists primarily of medium density residential housing, with a majority of residents living in residential flat buildings or shop top housing. Concern has been raised by local residents of the potential for increased noise impacts resulting from proposed streetscape works.

Residential development in the area is as follows;

- Three storey residential flat buildings at 495 & 493 Bronte Road;
- Shop top housing at 467 – 491 Bronte Road. Residences at this location are a combination of single dwelling and residential flat buildings located above existing restaurant / café tenancies.
- Three storey residential flat buildings at 459 & 461 Bronte Road.

Refer to Figure 1 detailing site location & measurement locations.





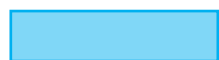
**Figure 1 - Site & Measurement Locations**



Location of Proposed Works



Bus Terminus



Residential Receivers



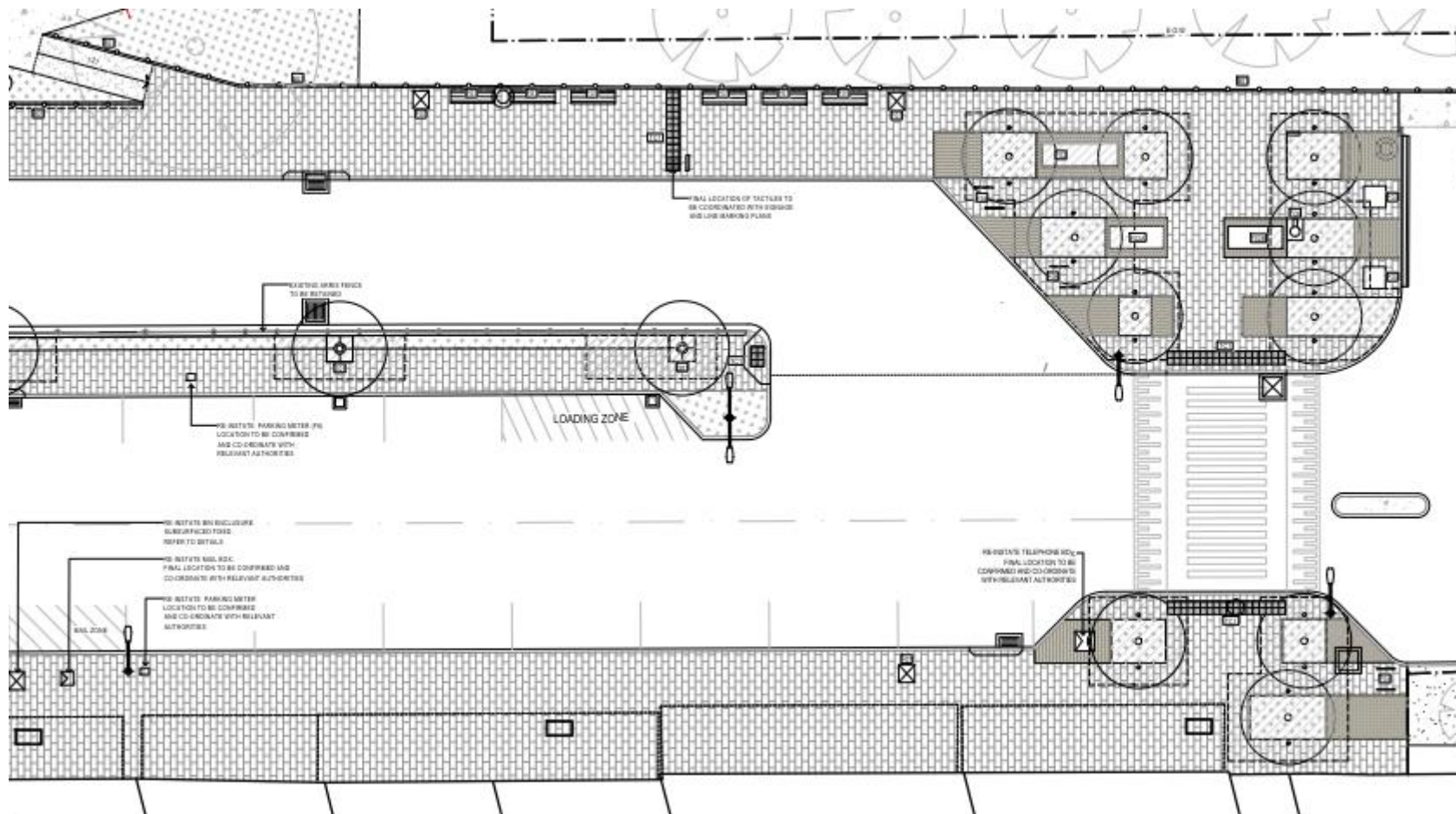
Unattended Monitor Locations



Proposed Pedestrian Crossing &  
Footpath Widening



Awning Covered Outdoor Dining



**Figure 2 – Proposed Streetscape Works  
(Group GSA)**

### 3 NOISE DESCRIPTORS

Environmental noise constantly varies. Accordingly, it is not possible to accurately determine prevailing environmental noise conditions by measuring a single, instantaneous noise level.

To accurately determine the environmental noise a 15 minute measurement interval is utilised. Over this period, noise levels are monitored on a continuous basis and statistical and integrating techniques are used to determine noise description parameters.

In analysing environmental noise, three-principle measurement parameters are used, namely  $L_{Max}$ ,  $L_{90}$  and  $L_{eq}$ .

The  $L_{90}$  level (which is commonly referred to as the background noise level) represents the noise level heard in the quieter periods during a measurement interval. The  $L_{90}$  parameter is used to set the allowable noise level for new, potentially intrusive noise sources since the disturbance caused by the new source will depend on how audible it is above the pre-existing noise environment, particularly during quiet periods, as represented by the  $L_{90}$  level.

The  $L_{eq}$  parameter represents the average noise energy during a measurement period. This parameter is derived by integrating the noise levels measured over the 15 minute period.  $L_{eq}$  is important in the assessment of traffic noise impact as it closely corresponds with human perception of a changing noise environment; such is the character of environmental noise.

$L_{Max}$  levels represent is the loudest noise event during a measurement period.

## 4 SURVEY OF EXISTING NOISE CONDITIONS

### 4.1 SURVEY OF EXISTING NOISE ENVIRONMENT

Long term unattended noise logging was conducted to examine and quantify the existing acoustic environmental at the site.

Unattended noise monitoring was conducted over a two week period between 2<sup>nd</sup> of October 2018 and 17<sup>th</sup> of October using Acoustic Research Laboratories monitors set on A-weighted fast response mode. The monitors were calibrated before and after the measurements using a Rion Type NC-73 calibrator. No significant drift was recorded.

Periods of adverse weather have been omitted when determining the noise levels at the site. Due to persistent poor weather, there were some periods where monitors did not record. Available noise monitoring data is presented in the appendices of this report.

Two monitors were installed (refer to Figure 1):

- Location 1 – One monitor was located on the awning of 491 Bronte Road (above Bronte Fish & Chips & Burgers)
- Location 2 – One monitor was located on the awning of 473 Bronte Road (above Bogey Hole Café)

These monitoring locations were selected as they were both secure for monitoring equipment and would provide noise data representative of shop top housing residents, which have been identified as the most potentially impacted residents.

Noise monitors also recorded audio files for the monitoring period. These audio files were analysed to determine typical noise sources, as identified in Section 2 of this report (traffic, patron noise etc).

Additionally, attended measurement were undertaken on the level 2 balcony of the residential dwelling at 473 Bronte Road (directly above monitoring location 2). Measurements were undertaken at this location to determine the acoustic impact (noise reduction) of the existing awning construction to residents at differing elevations above the structure.

#### 4.1.1 Measured Noise Levels

Noise levels established from the unattended noise monitoring period are presented below. These have been determined in accordance with the guidelines contained in the INP.

**Table 1 – Measured Noise Levels**

Monitor Location	Background Noise Level, dB(A) L <sub>90</sub>			Average Noise Energy, L <sub>eq</sub> dB(A)		
	Day	Evening	Night	Day	Evening	Night
1	54	54	53	64	63	62
2	56	56	54	64	63	62



## 5 NOISE GENERATED BY PEDESTRIAN TRAFFIC

The proposed streetscape works at Bronte Beach Village include modifications to the footpath along Bronte Road, in particular adjacent to outdoor dining. The proposal includes widening of the footpath, which would result in some pedestrian activity potentially being unscreened to residences located above the shops.

Currently, the footpath is almost completely covered by shop awnings which provides a barrier to residents above from pedestrian noise and outdoor dining noise along the footpath below. As much of the footpath is occupied by outdoor seating for restaurant tenancies, pedestrian thoroughfare is generally pushed to the kerbside portion of the footpath.

The proposed streetscape works involve the extension of the footpath past the existing shop awnings by approximately 3m. As the majority of the existing footpath space is consumed by outdoor dining, it would be expected that a majority of pedestrian traffic would be concentrated in this uncovered area of the footpath. Given this reduced screening, concerns have been raised by residents located above the shops as to the potential that they will experience increased pedestrian noise.

Importantly, it is noted that there are no proposed changes to the location, scale or operating hours for the outdoor dining areas located underneath the awning as a result of the proposed streetscape works. This section of the report presents the following;

- Description of typical noise levels currently in the Bronte Beach Village area;
- Predicted noise levels from assumed peak pedestrian activity;
- A comparison of predicted noise from pedestrian activity with existing noise levels in the area.

### 5.1 EXISTING NOISE LEVELS AT RESIDENCES LOCATED ABOVE BRONTE BEACH VILLAGE

The current noise environment in the area is dominated by vehicle movements along Bronte Road, with background noise consisting predominantly of ocean noise from nearby Bronte Beach. Contributing to this noise environment are the following other noise sources;

- Patron noise from café / restaurant tenancies located below the awning underneath the potentially affected residents;
- Vocal / pedestrian noise from Bronte Road & Bronte Beach parklands

Based on unattended noise logging data and attended measurements at the site, existing noise levels at the façade of the residential levels of Bronte Beach Village are summarised in Table 5.

**Table 2 –Existing Typical Noise Levels at Bronte Beach Village (all noise sources)**

Location	Measured Noise Level Incident on Residential Façades	
	Daytime	Night Time
Level 1 Residences	64 dB(A) $L_{eq}(15 \text{ hour})$ 66 dB(A) $L_{eq}(1 \text{ hour})$	62 dB(A) $L_{eq}(9 \text{ hour})$ 64 dB(A) $L_{eq}(1 \text{ hour})$
Level 2 Residences	64 dB(A) $L_{eq}(15 \text{ hour})$ 66 dB(A) $L_{eq}(1 \text{ hour})$	62 dB(A) $L_{eq}(9 \text{ hour})$ 64 dB(A) $L_{eq}(1 \text{ hour})$

## 5.2 PREDICTED PEDESTRIAN NOISE LEVELS FROM FOOTPATH WIDENING

The proposed streetscape works at Bronte Beach Village include widening of the existing footpath to accommodate pedestrian traffic. Although there is not expected to be an increase in the overall volume of pedestrians in the area, the widening of the footpath provides the possibility that noise generated by pedestrians will become less screened by the existing awning to residences above.

Pedestrian noise is typically transient, and typical noise levels generated by pedestrian traffic is problematic to quantify. For the purpose of this assessment, predicted peak volumes of pedestrian activity will be analysed to determine an approximate noise level from pedestrian use of the widened footpath. It is noted that there are no legislative requirements relating to the control of pedestrian noise impacting any type of development.

### 5.2.1 Pedestrian Volumes at Bronte Beach Village

Noise generated by pedestrian activity have been predicted based on pedestrian volumes measured as part of the *Bitzios Consulting Traffic Study* (document reference P2690.002R), and typical sound power levels used for the assessment of noise emissions from patrons in restaurants and cafés.

Section 5 of the Traffic Study details the volumes of pedestrian numbers measured as part of the assessment to determine appropriate pedestrian crossing treatments. This assessment focussed on the quantity of pedestrians using the crossing rather than the overall number of pedestrians in the area. Notwithstanding the above, these levels would provide an indicative volume of pedestrian traffic in the area. Pedestrian volumes were counted on a Thursday and Saturday, and summarised in Table 3 and Figure 3.

**Table 3 – Measured Pedestrian Crossing Volumes**

Week Day	Peak Pedestrian Volumes
Thursday	300 pedestrians per hour
Saturday	400 pedestrians per hour



**Figure 3 - Measured Pedestrian Volumes**

### 5.2.2 Noise Model

Noise from peak pedestrian activity potentially impacting residences above Bronte Beach Village shops has been modelled based on the following assumptions;

- Pedestrian numbers are as follows;
  - For Peak Periods - A total of 400 pedestrians accessing the footpath adjacent to residential receivers over a 1-hour period (or 100 pedestrians per 15 minute period);
  - For Typical Usage – A total of 250 pedestrians accessing the footpath adjacent to residential receivers over a 1 hour period (approximately 65 per 15 minute period).
- Pedestrians are located only in the portion of the footpath which is proposed to be extended as part of the streetscape works (and as such are less likely to be screened by the existing awning);
- Pedestrians are roughly evenly distributed throughout the footpath;
- Pedestrian (vocal) sound power level is assumed to be 75 dB(A)  $L_{eq}$  (raised voice);
- It has been assumed that one pedestrian in two would be speaking at any one time.

Based on above assumptions, Table 6 presents the predicted noise levels at the residential facades of apartments immediately adjacent to the proposed footpath extension.

**Table 4 –Noise Levels from Proposed Raised Pedestrian Crossing**

Location	Predicted Noise from Peak Pedestrian Activity	Existing Noise Level at Building Facade
First Floor Residences (Peak Period)	56 dB(A) $L_{eq(15min)}$	66 dB(A) $L_{eq(1hour)}$ (at building façade)
Second Floor Residences (Peak Period)	60 dB(A) $L_{eq(15min)}$	66 dB(A) $L_{eq(1hour)}$ (at building façade)
First Floor Residences (Typical Usage)	54 dB(A) $L_{eq(15min)}$	64 dB(A) $L_{eq(15hour)}$ (at building façade)
Second Floor Residences (Typical Usage)	58 dB(A) $L_{eq(15min)}$	64 dB(A) $L_{eq(15hour)}$ (at building façade)



### 5.3 DISCUSSION

Comparing existing noise levels in the area with the potential impact of pedestrian activities along the proposed widened footpath, we make the following comments;

- Predicted noise levels from pedestrian use of the widened footpath are between 6 – 10 dB(A) below those currently incident on the façade from various noise sources in the area (traffic / patron / pedestrian);
- For first floor residential apartments, the overall noise environment is not expected to change significantly.
- For upper level residential apartments, there could potentially be an increase in overall noise levels of 1 dB(A) during peak pedestrian activity.
  - An increase in noise level of this amount is generally not perceptible.
  - Additionally, this increase is typically only expected during peak periods of pedestrian activity (Friday / Saturday / Sunday).
- Considering the above, the proposed footpath widening is not expected to significantly impact the existing noise environment for residences above Bronte Beach Village shops.

## 6 NOISE GENERATED BY TRAFFIC

The proposed streetscape works at Bronte Beach Village include modifications to the traffic and pedestrian arrangements along Bronte Road. The proposal includes changes to existing kerb alignments and the relocation of an existing pedestrian crossing connecting Bronte Beach Parklands to Bronte Beach Village.

Although changes are proposed to the kerb alignments, these are generally minor when considering acoustic impacts. The distance between traffic laneways and the building façade is not proposed to differ significantly, and there is no anticipated increase to the overall traffic volumes along Bronte Road.

The predominant additional noise source as a result of streetscape works is from the addition of a combined raised pedestrian crossing located between Calga Place and the bus terminus exit. Whilst this is not expected to increase the overall levels of road traffic noise, it introduces a potential source of peak noise ( $L_{max}$ ) events (acceleration and impact noise). Peak noise events may impact sleep disturbance, and as such the assessment is typically limited to the night time period, defined as 10pm – 7am.

This section of the report presents the following;

- Description of typical peak noise events currently in the Bronte Beach Village area
- Expected noise levels from the proposed raised pedestrian crossing (based on attended measurements of similar traffic calming devices)
- A comparison of peak noise events likely to be experienced by residents at Bronte Beach Village.

### 6.1 EXISTING PEAK NOISE EVENTS

Currently, the most significant peak noise event identified in the area during the monitoring period was from vehicle movements along Bronte Road. Typical measured peak noise events and the associated noise level measured at the logger location with the potential to cause sleep disturbance are summarised in Table 5.

**Table 5 –Existing Typical Peak Noise Levels at Bronte Beach Village**

Type of Peak Noise Event	Measured Noise Level Incident on Residential Façades
Car Door Closing from Kerbside Parking	60 – 62 dB(A) $L_{max}$
Car / Light Vehicle Pass-By	63 – 65 dB(A) $L_{max}$
Bus Acceleration / Deceleration to Bus Stop or from Terminus	75 – 77 dB(A) $L_{max}$
Bus Air Brake Pressure Release	85 – 87 dB(A) $L_{max}$

As is indicated by the above table, bus movements servicing Bronte Beach present the loudest noise events in the area, in particular during the night time period. The Transport NSW 379 bus service from North Bondi to Bronte Beach is the only bus route which services Bronte Beach Village. A review of the timetable for this service indicates that services operate between the hours of 5am – 12am (midnight). As such, peak noise events from buses would have the potential to cause sleep disturbance between the hours of 10pm – 12am and 5am – 7am.

## 6.2 PEAK NOISE GENERATED BY PROPOSED RAISED PEDESTRIAN CROSSING

The proposal includes the introduction of a raised pedestrian crossing. This is currently proposed to be located between Calga Place and the bus terminus exit (refer to Figure 1). Peak noise events originating from this traffic calming device have the potential to impact residents along Bronte Road, as identified in the figure.

In order to assess the likely peak noise generation of the speed hump, measurements were taken of a similar device located at the corner of Bourke and Telopea Streets, Redfern on Monday 12<sup>th</sup> of November 2018. This location was proposed by the project traffic consultant *Bitzios Consulting* as it was identified as being similar to the proposed design / layout for Bronte Beach Village.

All measurements were made using a Norsonic 140 Type 1 sound analyser set on A-weighted fast response mode. Calibration of the meter was checked at the beginning and end of the measurement period, with no significant drift noted.

Typical noise sources and resulting maximum noise levels from vehicle traffic is detailed in Table 6. Measured noise levels have also been calculated at the façade of residential buildings along Bronte Road in order to provide a comparison to the existing noise environment.

**Table 6 –Peak Noise Levels from Proposed Raised Pedestrian Crossing**

Type of Peak Noise Event	Measured Noise Level	Calculated Noise Level at Closest Building Façade
Typical Vehicle Movement Over Raised Pedestrian Crossing (Typical Impact & Acceleration)	Up to 60 dB(A) $L_{max}$ (at 10 m from Crossing)	Up to 58 dB(A) $L_{max}$ (at building façade)
Heavy Impact of Speed Hump (Noise from Vehicle Suspension)	63 – 67 dB(A) $L_{max}$ (at 10 m from Crossing)	61 - 65 dB(A) $L_{max}$ (at building façade)
Heavy Vehicle Acceleration from Speed Hump (Noise from Vehicle Engine)	64 – 67 dB(A) $L_{max}$ (at 10 m from Crossing)	62 - 65 dB(A) $L_{max}$ (at building façade)

### 6.3 DISCUSSION

Based on the comparison of expected peak noise levels resulting from the introduction of the raised pedestrian speed hump and the existing noise environment, we make the following comments;

- Average ( $L_{eq}$ ) traffic noise levels are not expected to change significantly;
- The primary difference to the noise environment is the potential for the introduction of peak noise events from vehicles travelling over the raised pedestrian crossing.

#### For peak noise events:

- With reference to Table 5, peak noise events from the introduction of the proposed raised pedestrian crossing speed hump is expected to be lower than that from busses currently servicing the areas;
- The NSW Road Noise Policy provides guidance as to the assessment of peak noise events and the associated impact on sleep disturbance;
- There are two factors to consider when assessing the impact of a noise source on sleep disturbance, as follows;
  - An emergence test, or how audible a particular noise source would be above the general noise level in the area. This is defined as the background noise level (for the night time assessment period) plus 15 dB(A);
    - The emergence level for sleep disturbance events at Bronte Beach Village is 68 dB(A)  $L_{max}$ .
  - The internal noise level within a habitable area of a residence. Noting that there is typically a 10 dB(A) reduction in noise level when an external source noise is transmitted into a building (assuming the window is open to 5% of the floor area). The NSW Road Noise Policy states the following in relation to internal noise levels with the potential to cause sleep disturbance:

*For the research on sleep disturbance to date it can be concluded that:*

- *Maximum internal noise levels below 50 – 55 dB(A) are unlikely to awaken people from sleep.*
  - *One to two noise events per night with maximum internal noise levels of 65 – 70 dB(A) are not likely to affect health and wellbeing significantly.*
- With reference to the NSW Road Noise Policy, expected peak noise levels resulting from the introduction of the raised pedestrian crossing are expected to be within the emergence test and internal noise level limits suggested by the NSW Road Noise Policy as being appropriate.
- Additionally, the *Bitzios Consulting Traffic Study* includes traffic counts for the night time period. Based on the distribution of traffic throughout the day, Section 4.3 of the report notes the following regarding traffic volumes between 10pm – 7am;
  - Traffic through the area generally begins at 5am, almost doubling by 6am
  - Very little traffic travels through the area during the early morning (between 12am – 4am)
- Consideration of all of the above factors indicates that the introduction of the raised pedestrian crossing at Bronte Beach Village would not present a significant change to the potential for sleep disturbance from road traffic noise.



## 7 SUMMARY OF COMPARATIVE NOISE STUDY

Table 7 – Summary of Average Noise Environment (Existing and Predicted Future)

Noise Source / Location	Existing			Future				Comment
	Patron (Restaurant / Café)	Traffic (Bronte Road / Bus Terminus)	Combined	Pedestrian Movements (On Widened Footpath)	Patron (Restaurant / Café)	Traffic (Bronte Road / Bus Terminus)	Combined	
Level 1 Residential Facade	60 dB(A) Leq(1hr) (when audible)	66 dB(A) Leq(1hr)	66 dB(A) Leq(1hr)	56 dB(A) Leq(1hr)	60 dB(A) Leq(1hr) (when audible)	66 dB(A) Leq(1hr)	66 dB(A) Leq(1hr)	Noise levels at level 1 residential façades are not expected to be altered by the proposed streetscape works at Bronte Beach Village
Level 2 Residential Facade	60 dB(A) Leq(1hr) (when audible)	66 dB(A) Leq(1hr)	66 dB(A) Leq(1hr)	60 dB(A) Leq(1hr)	60 dB(A) Leq(1hr) (when audible)	66 dB(A) Leq(1hr)	67 dB(A) Leq(1hr)	Noise levels at level 2 residential façades are anticipated to be up to 1 dB(A) higher during peak times at Bronte Beach Village, due to the introduction of unscreened pedestrian movement along Bronte Road. A change in noise level of this magnitude is not generally perceptible.

## 8 CONCLUSION

A comparative review of the existing noise environment and likely changes as a result of proposed streetscape works has been conducted. Review of the works indicates that the likely changes of noise will be from the expansion of the footpath along the southern portion of Bronte Beach Village and the relocation / modification to the pedestrian crossing.

Predicted noise levels from the above activities have been compared to the existing noise environment, and it is not expected that there will be significant changes to the noise environment.

Please contact us if you have any queries.

Yours faithfully,

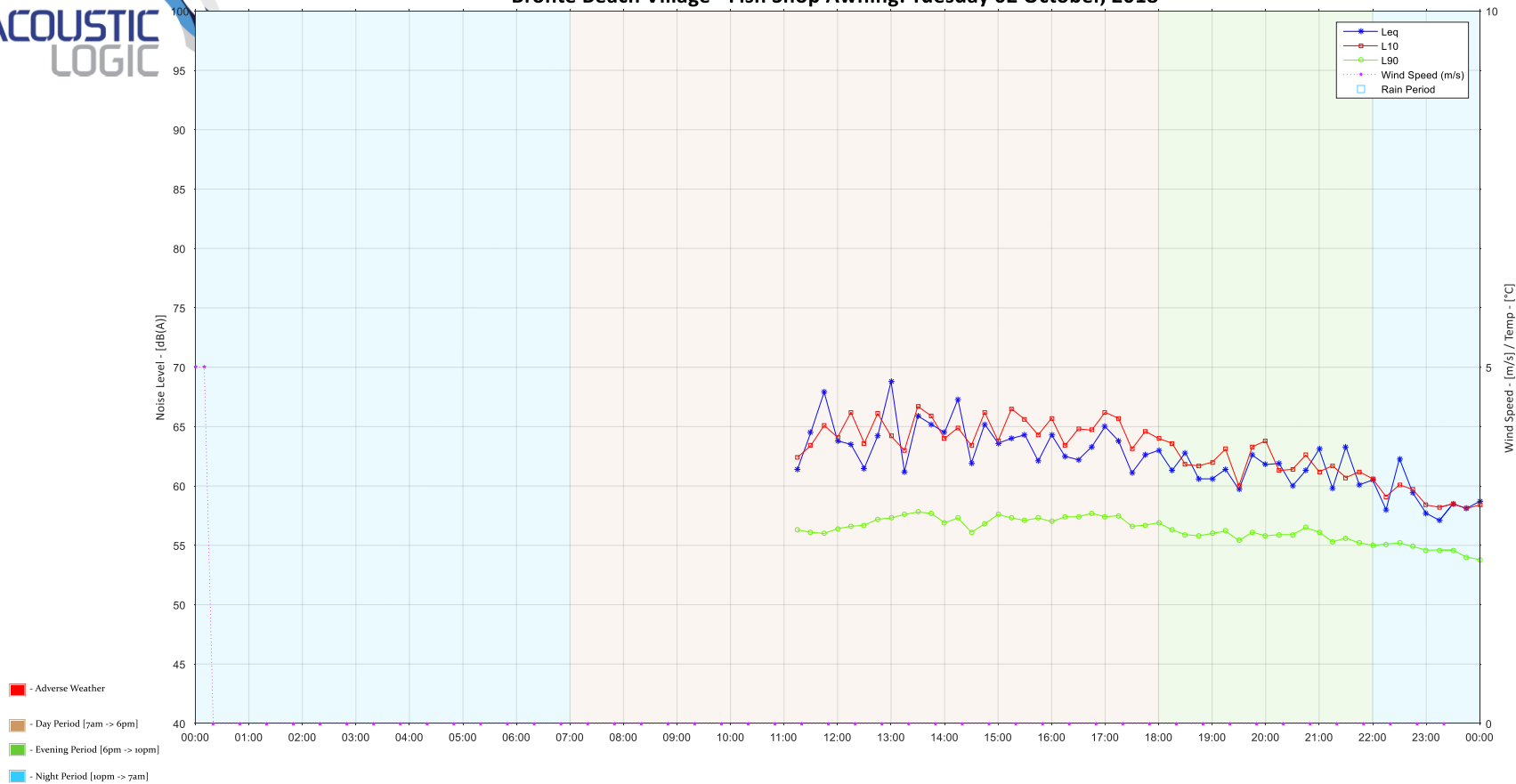
A handwritten signature in black ink, appearing to read 'Alex Washer', with a stylized, cursive script.

Acoustic Logic Consultancy Pty Ltd  
Alex Washer

## **APPENDIX ONE – UNATTENDED NOISE MONITORING (LOCATION 1)**

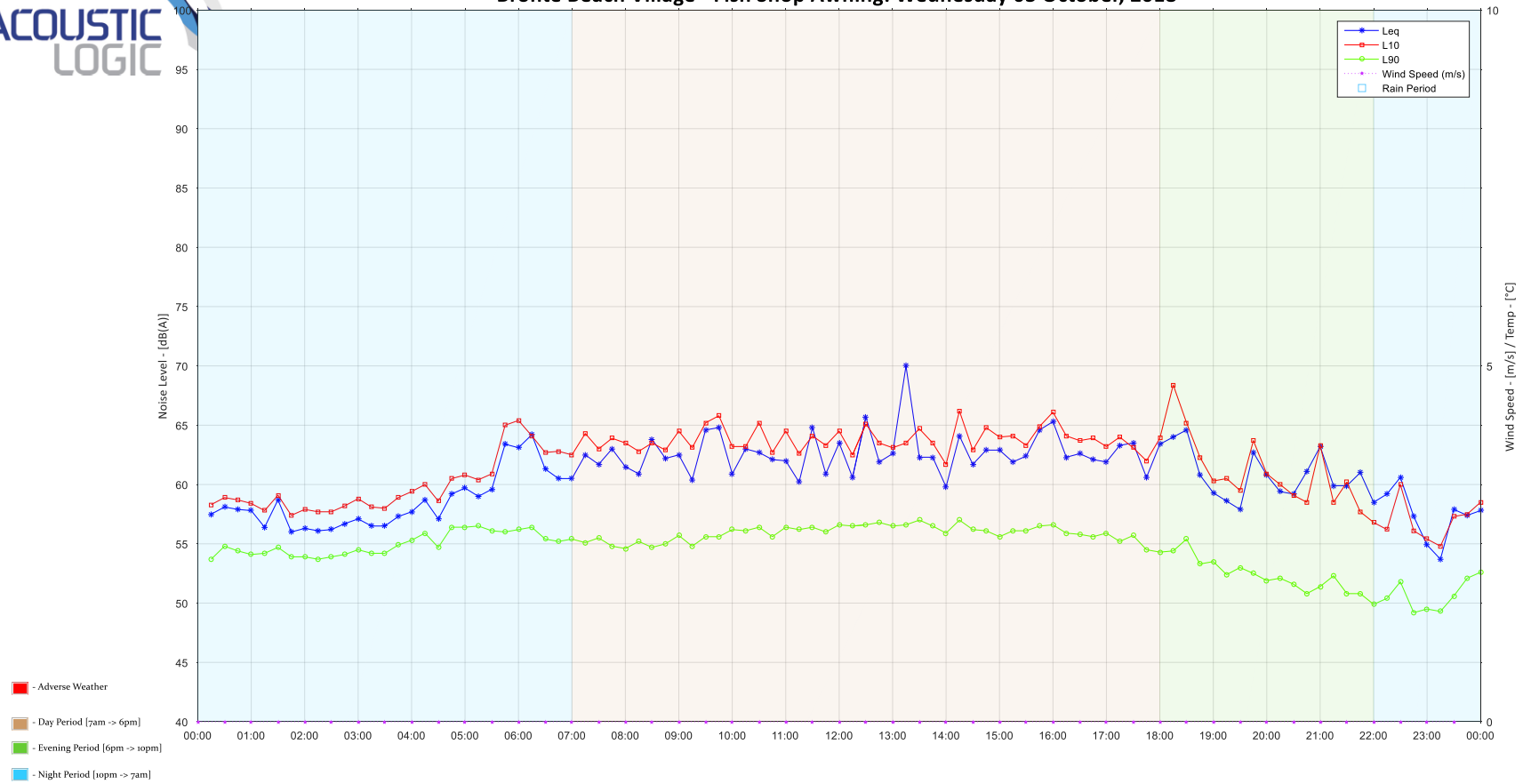


# Bronte Beach Village - Fish Shop Awning: Tuesday 02 October, 2018

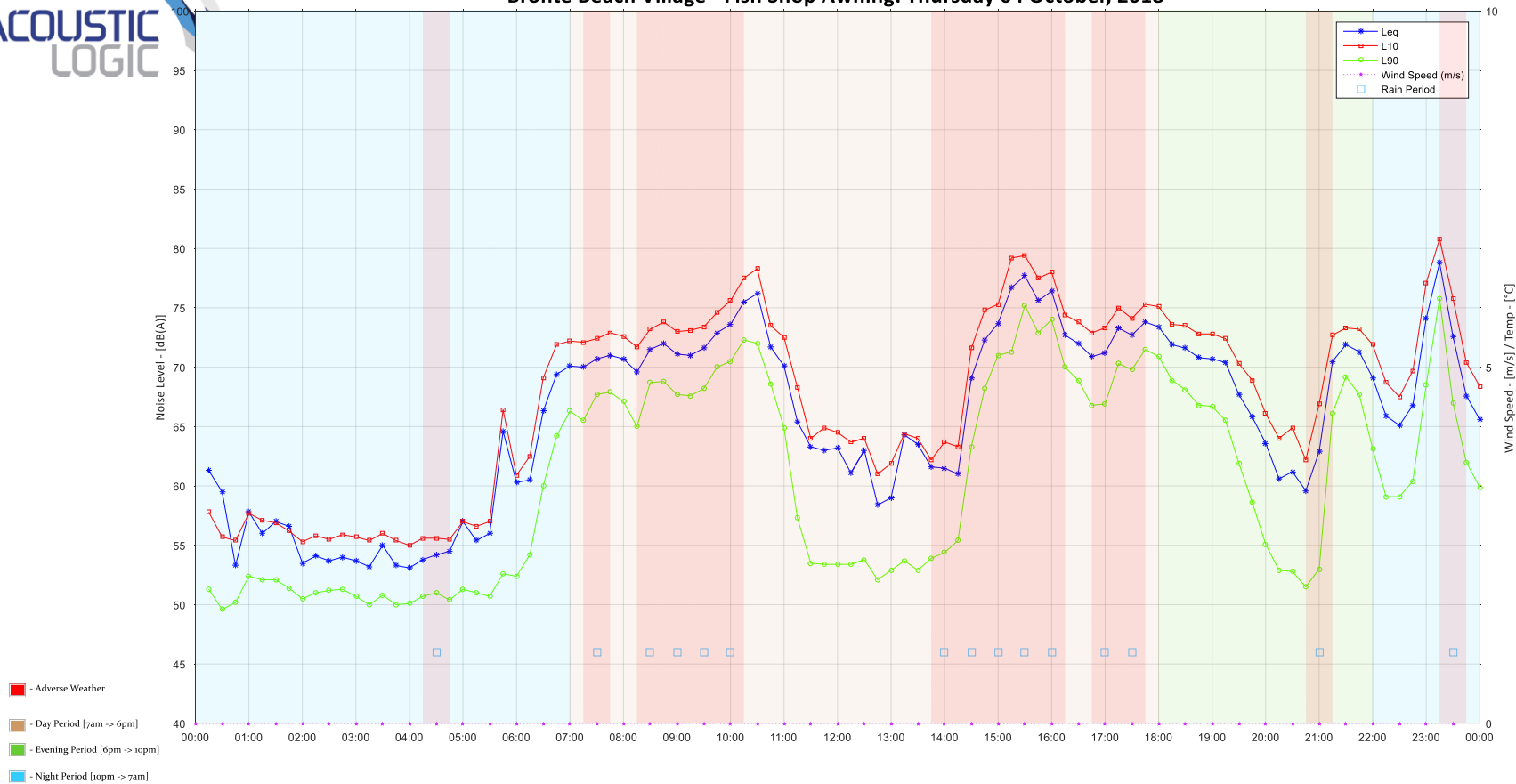




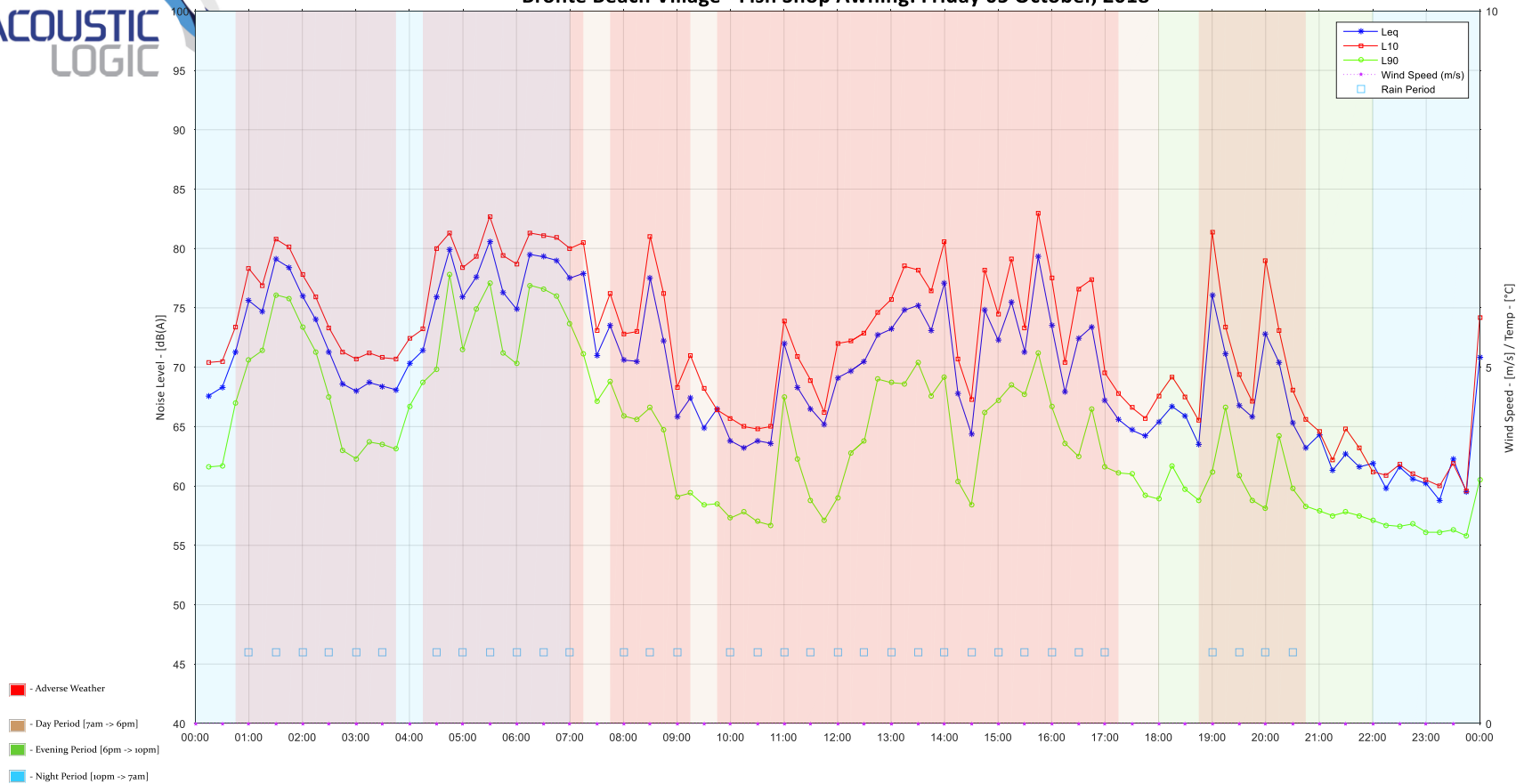
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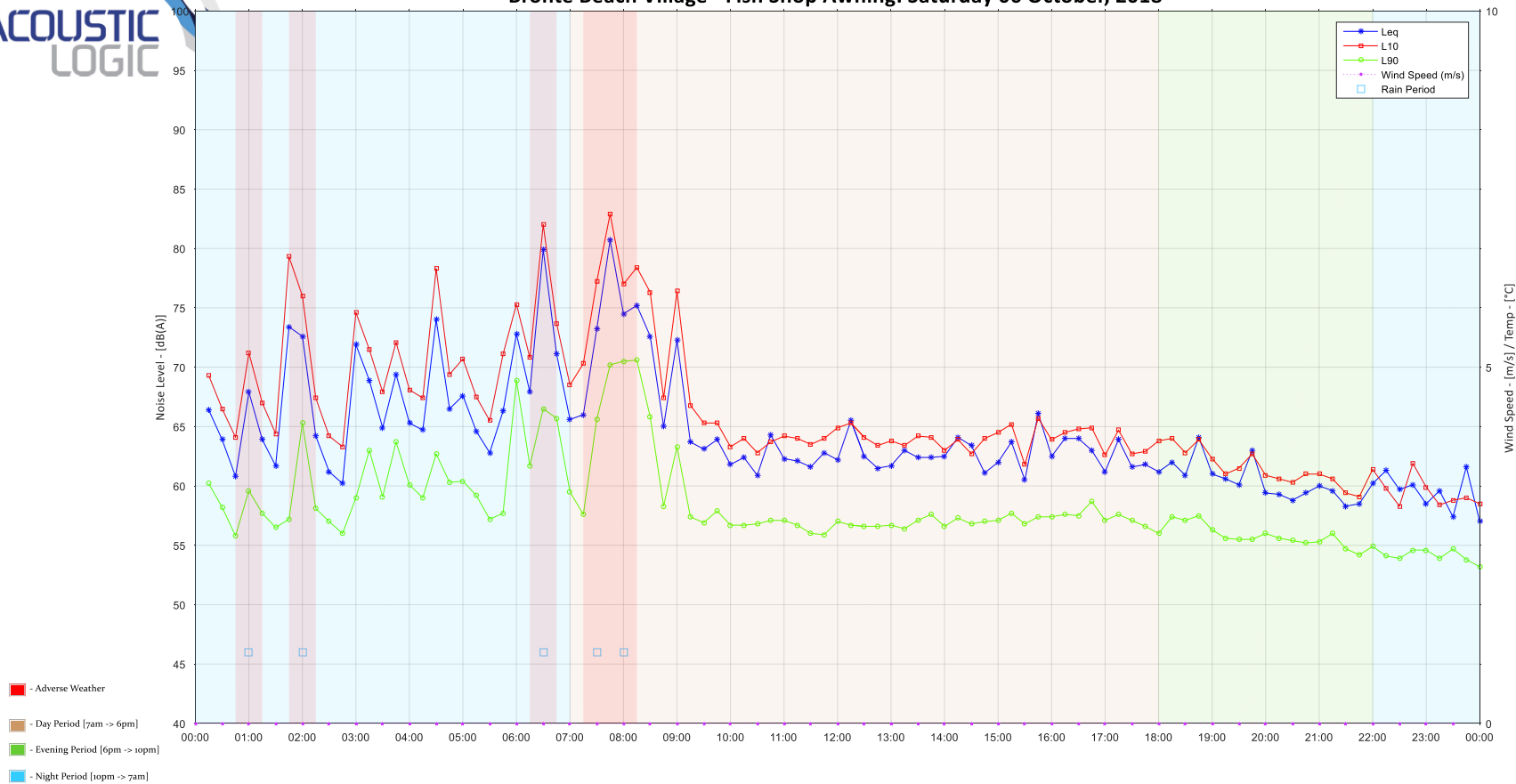
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# Bronte Beach Village - Fish Shop Awning: Friday 05 October, 2018

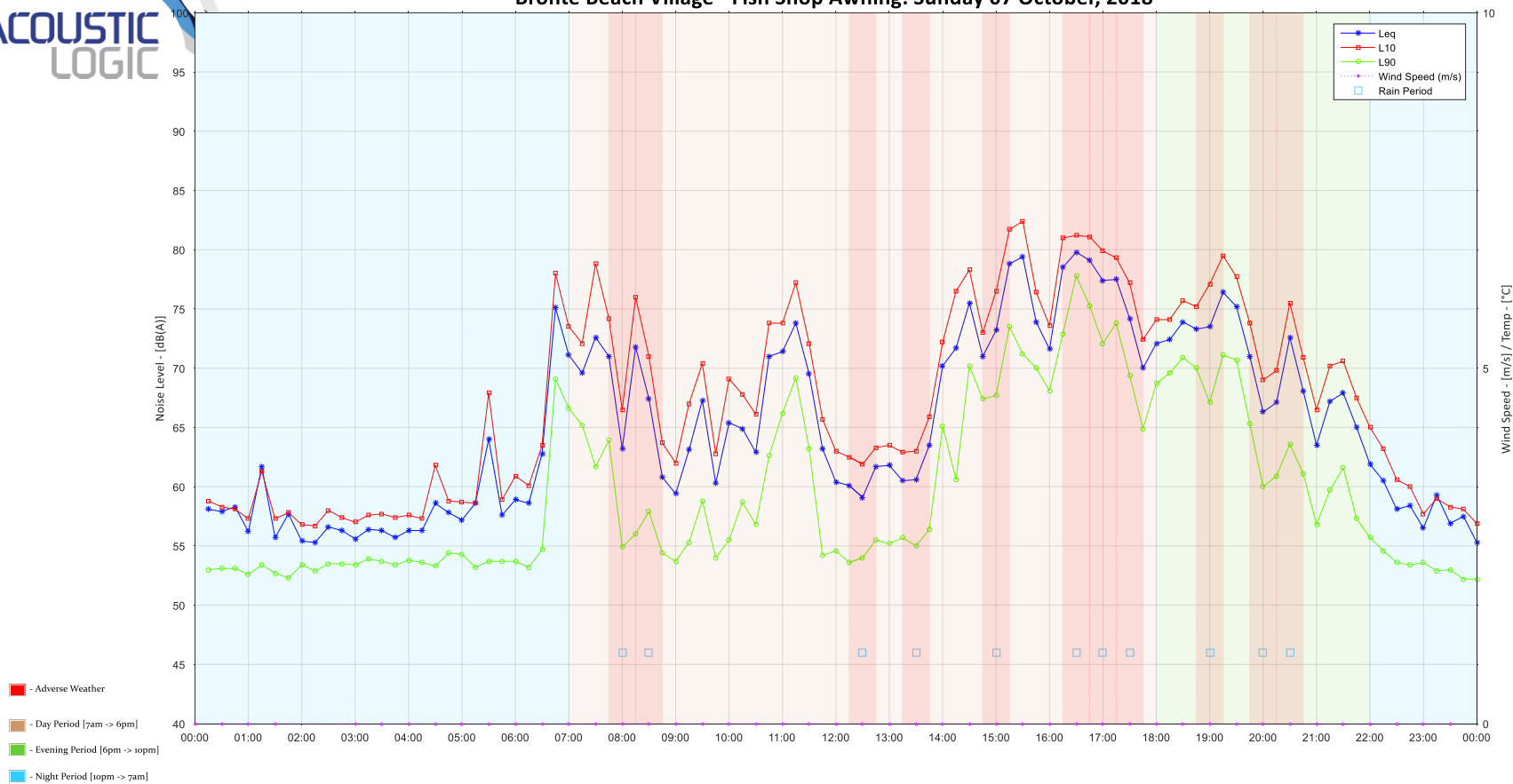


Bronte Beach Village - Fish Shop Awning: Saturday 06 October, 2018

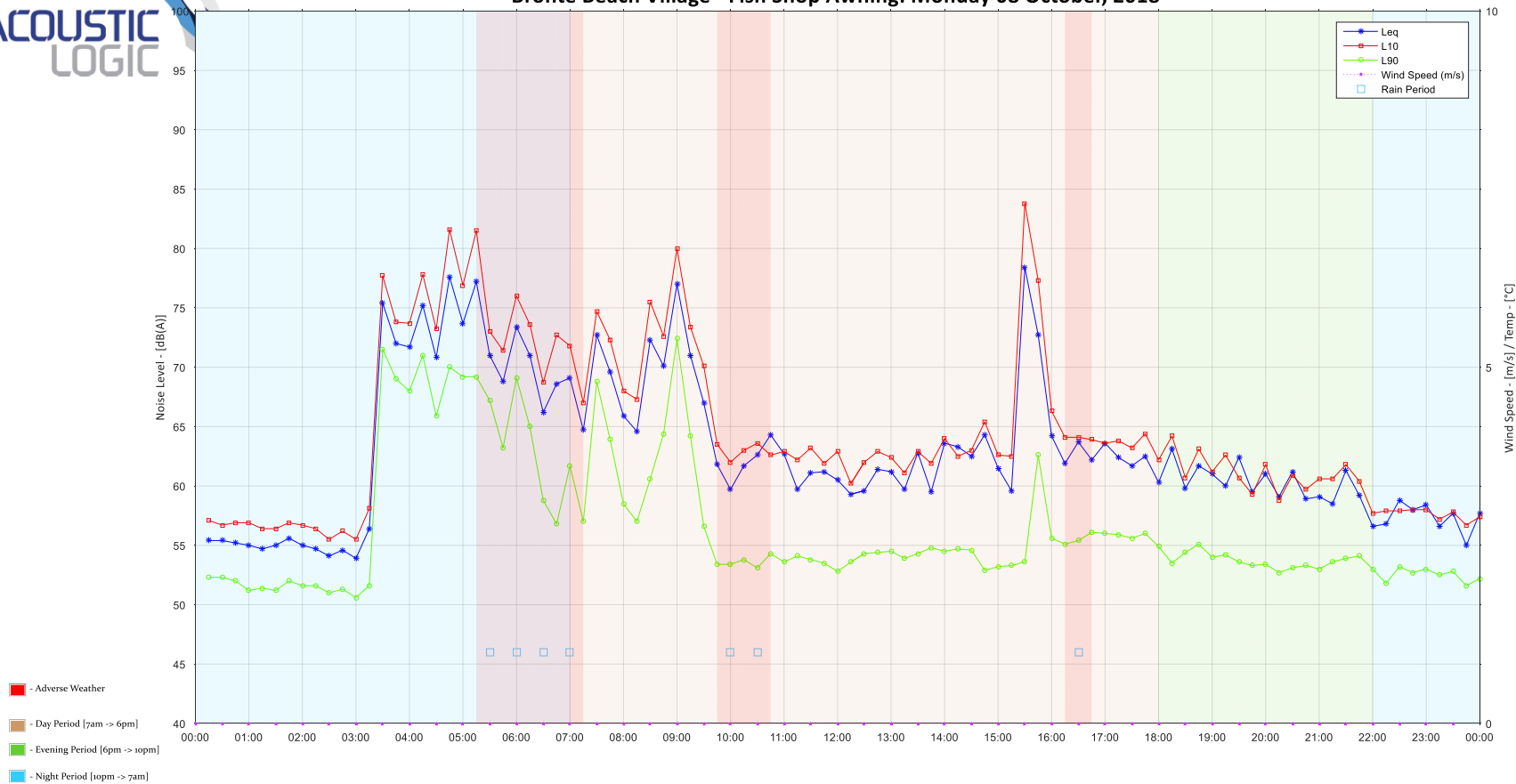




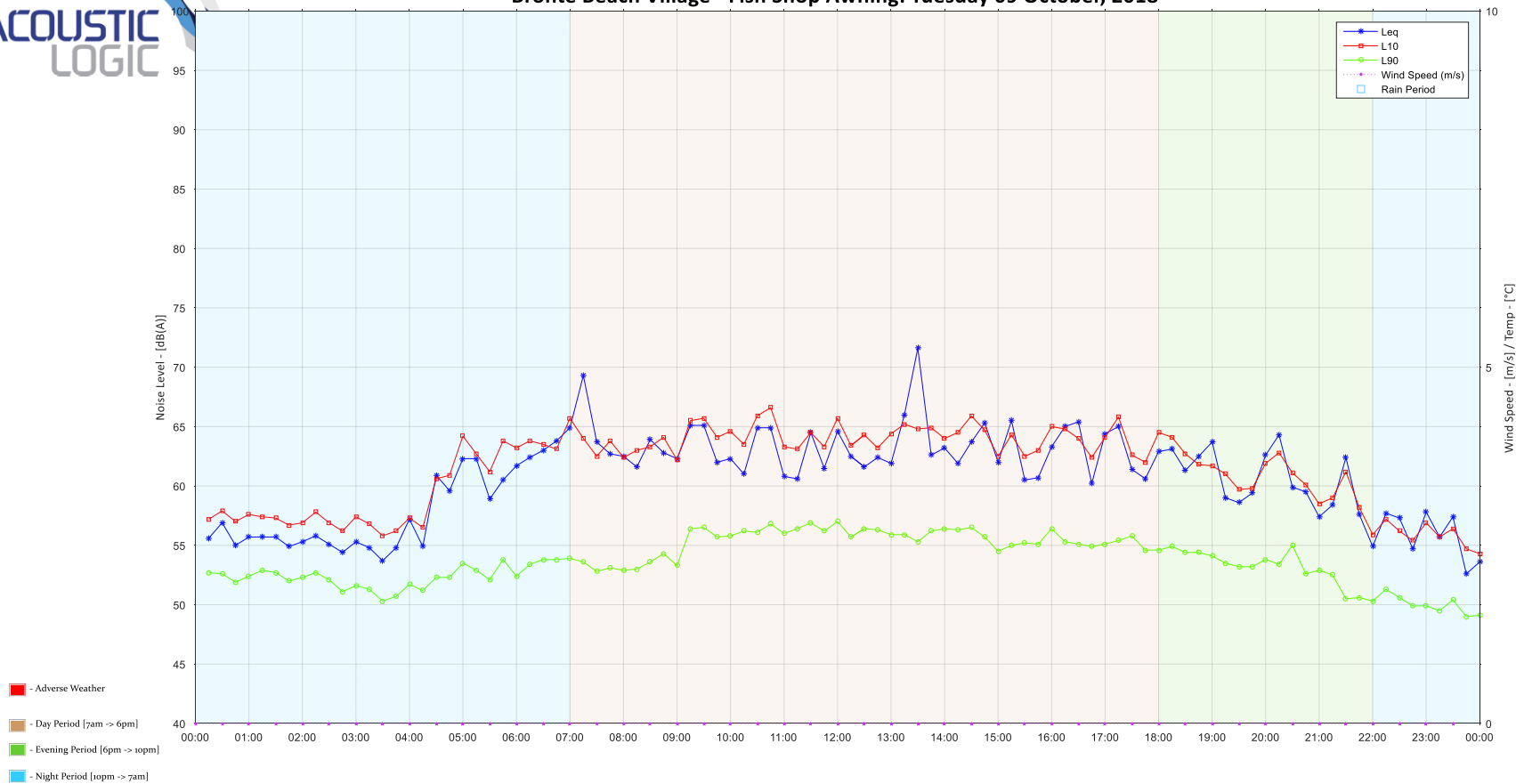
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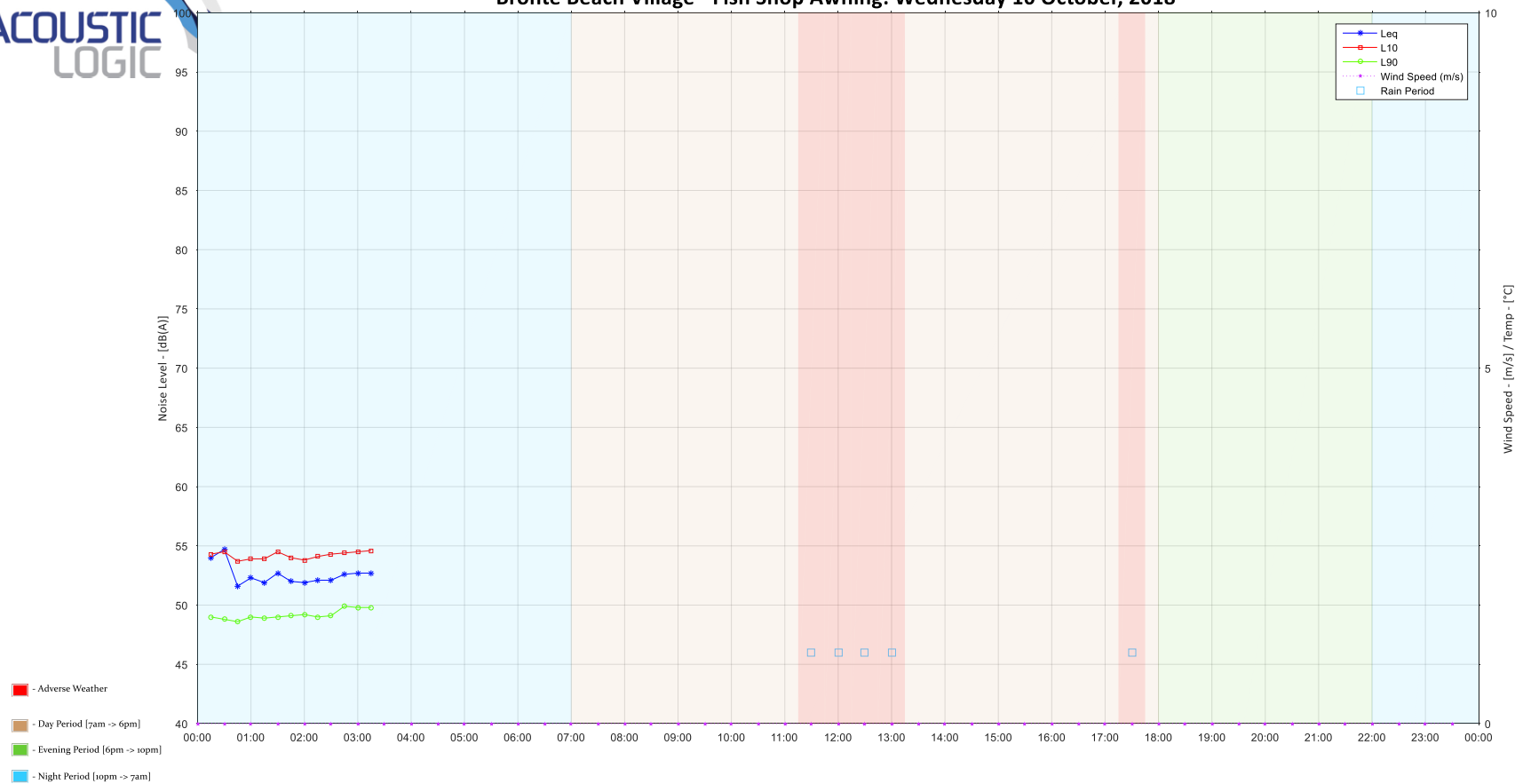
# Bronte Beach Village - Fish Shop Awning: Monday 08 October, 2018



# Bronte Beach Village - Fish Shop Awning: Tuesday 09 October, 2018

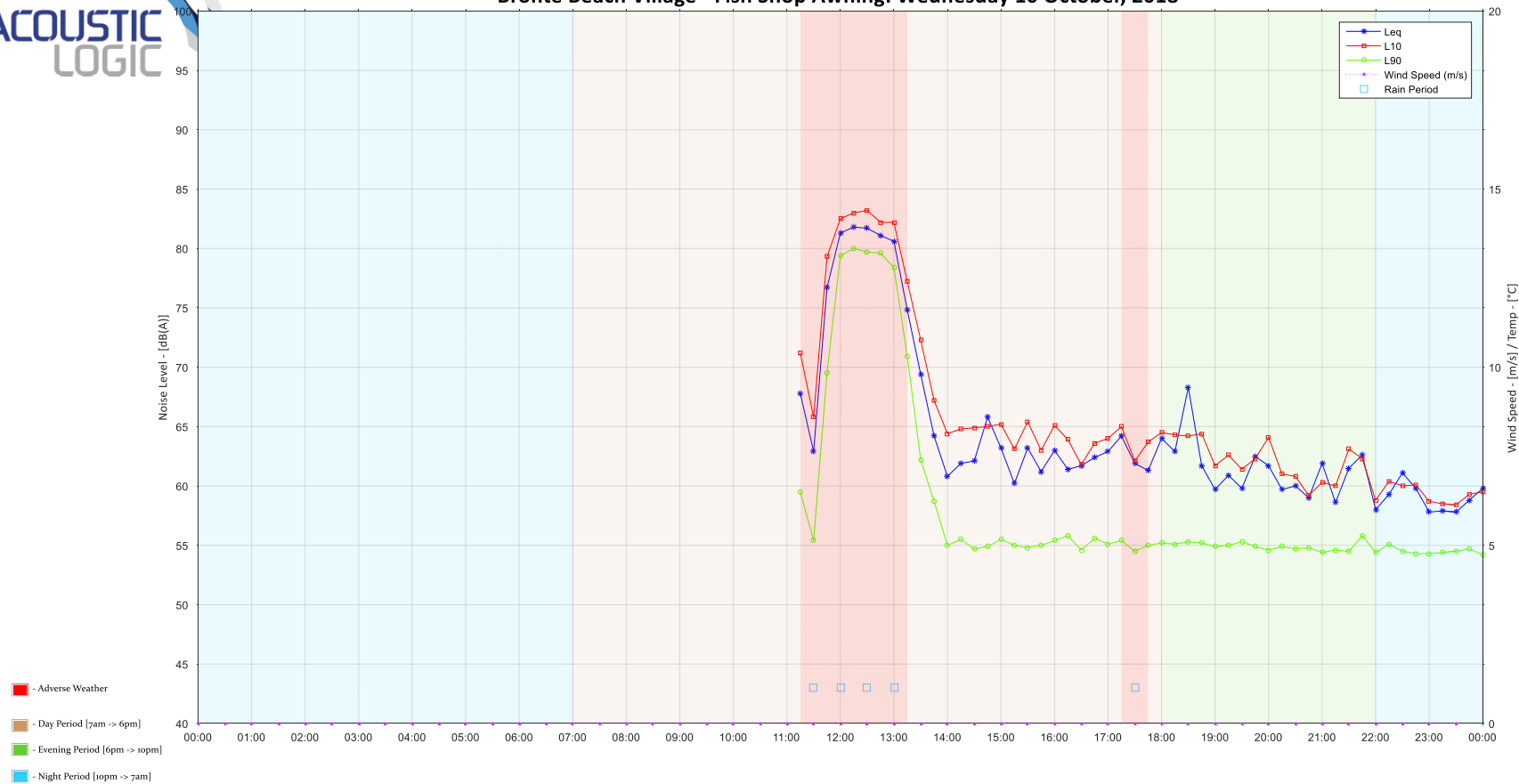


Bronte Beach Village - Fish Shop Awning: Wednesday 10 October, 2018

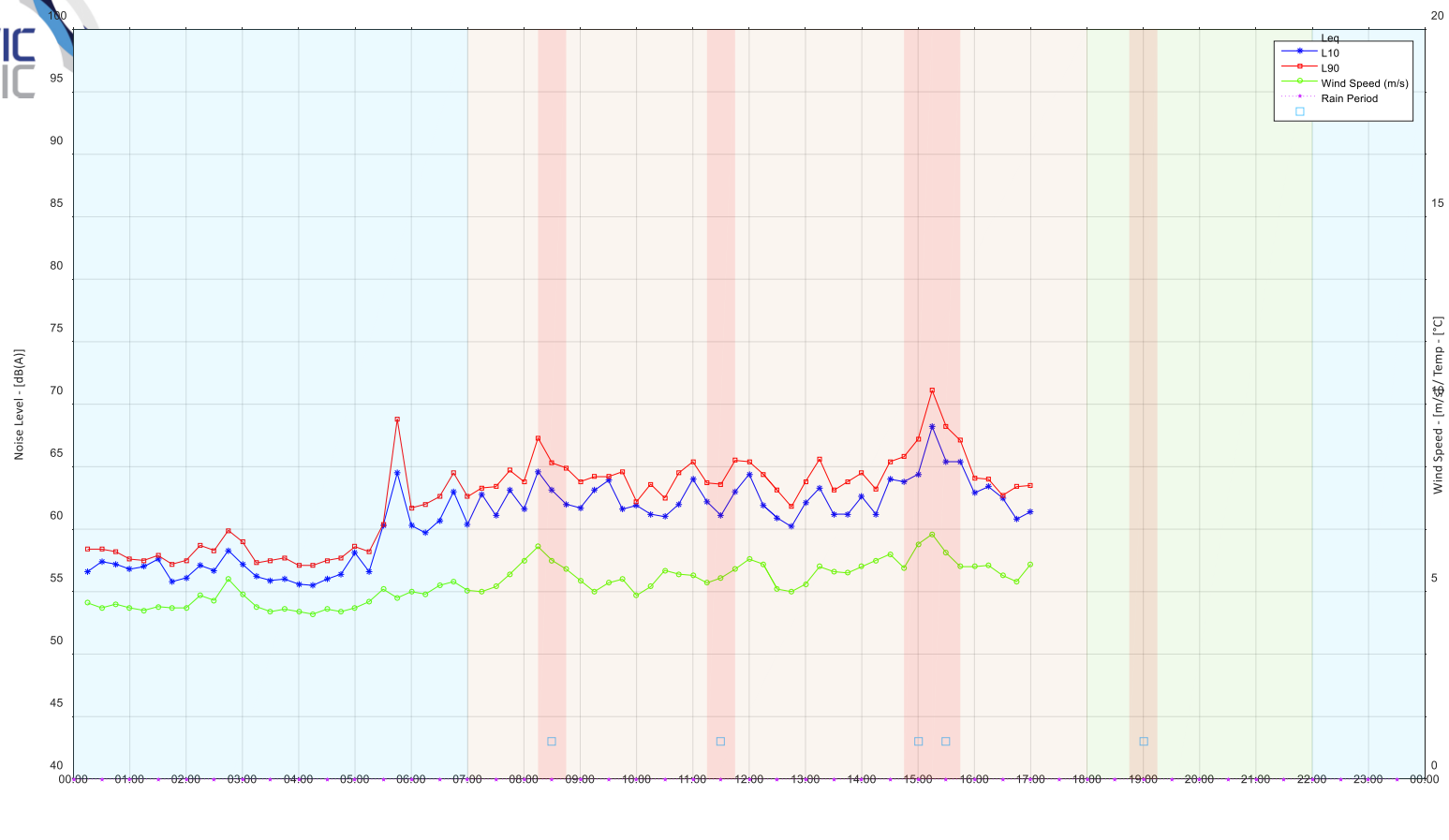




# Bronte Beach Village - Fish Shop Awning: Wednesday 10 October, 2018

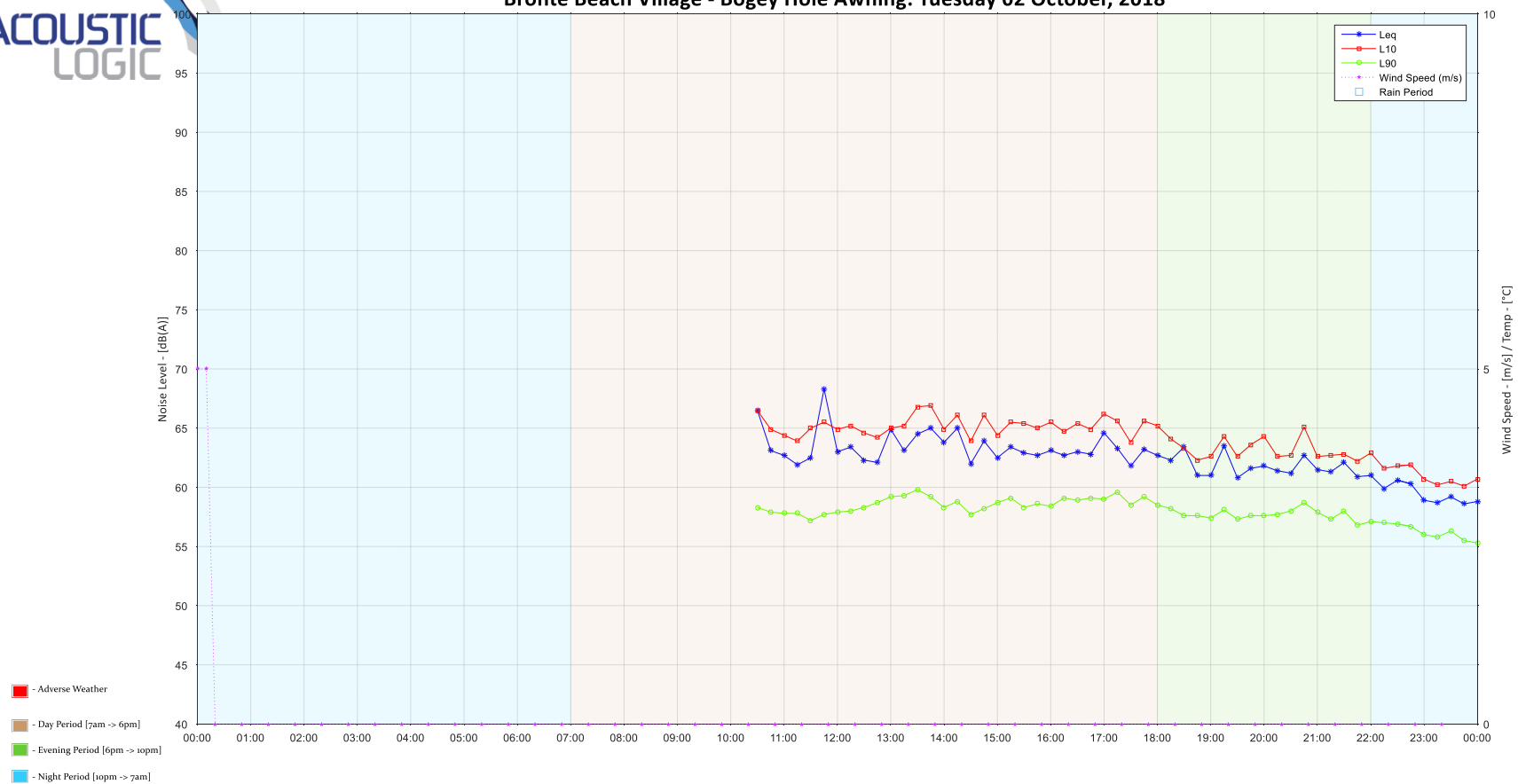


Bronte Beach Village - Fish Shop Awning: Thursday 11 October, 2018



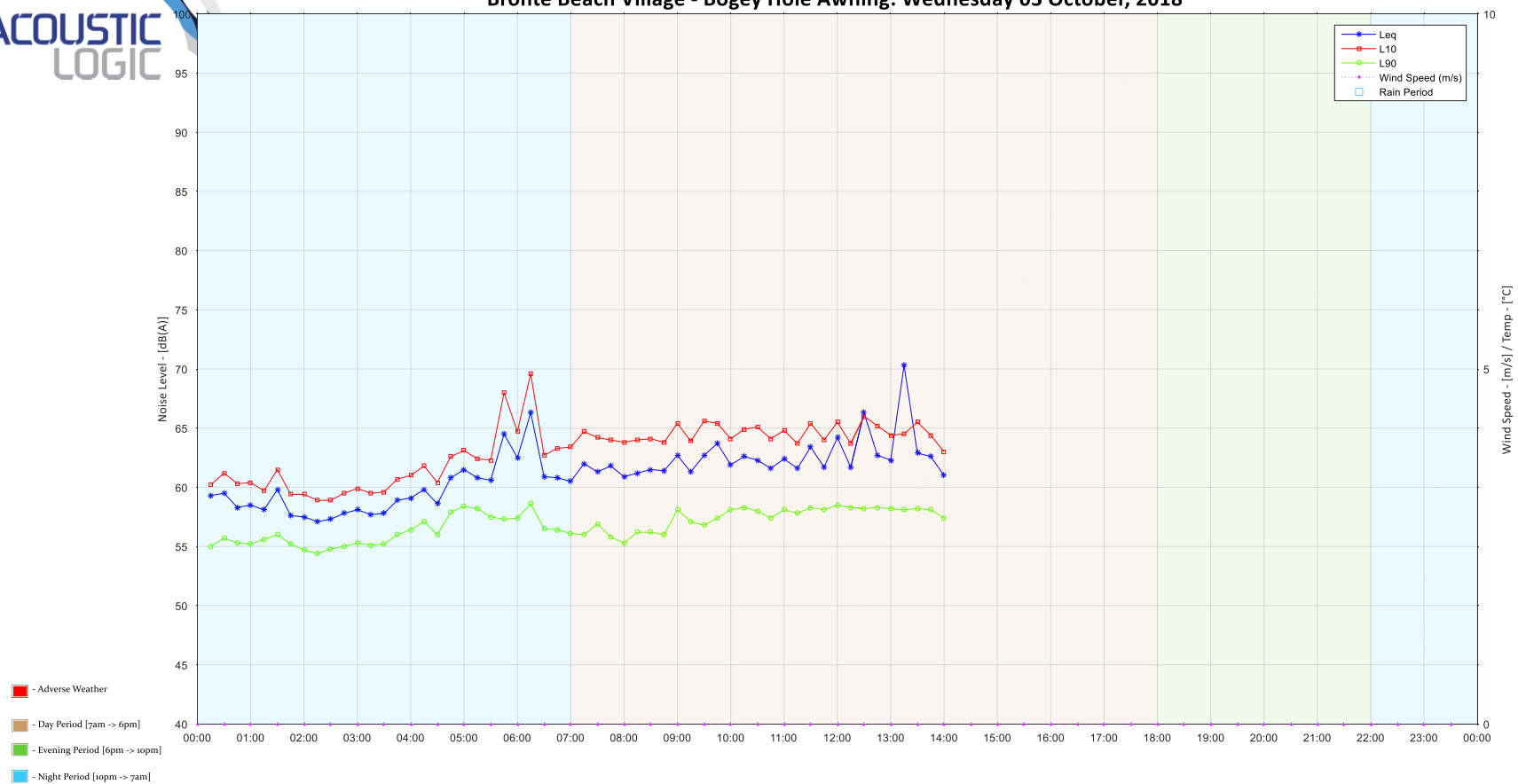
## **APPENDIX ONE – UNATTENDED NOISE MONITORING (LOCATION 2)**

# Bronte Beach Village - Bogey Hole Awning: Tuesday 02 October, 2018

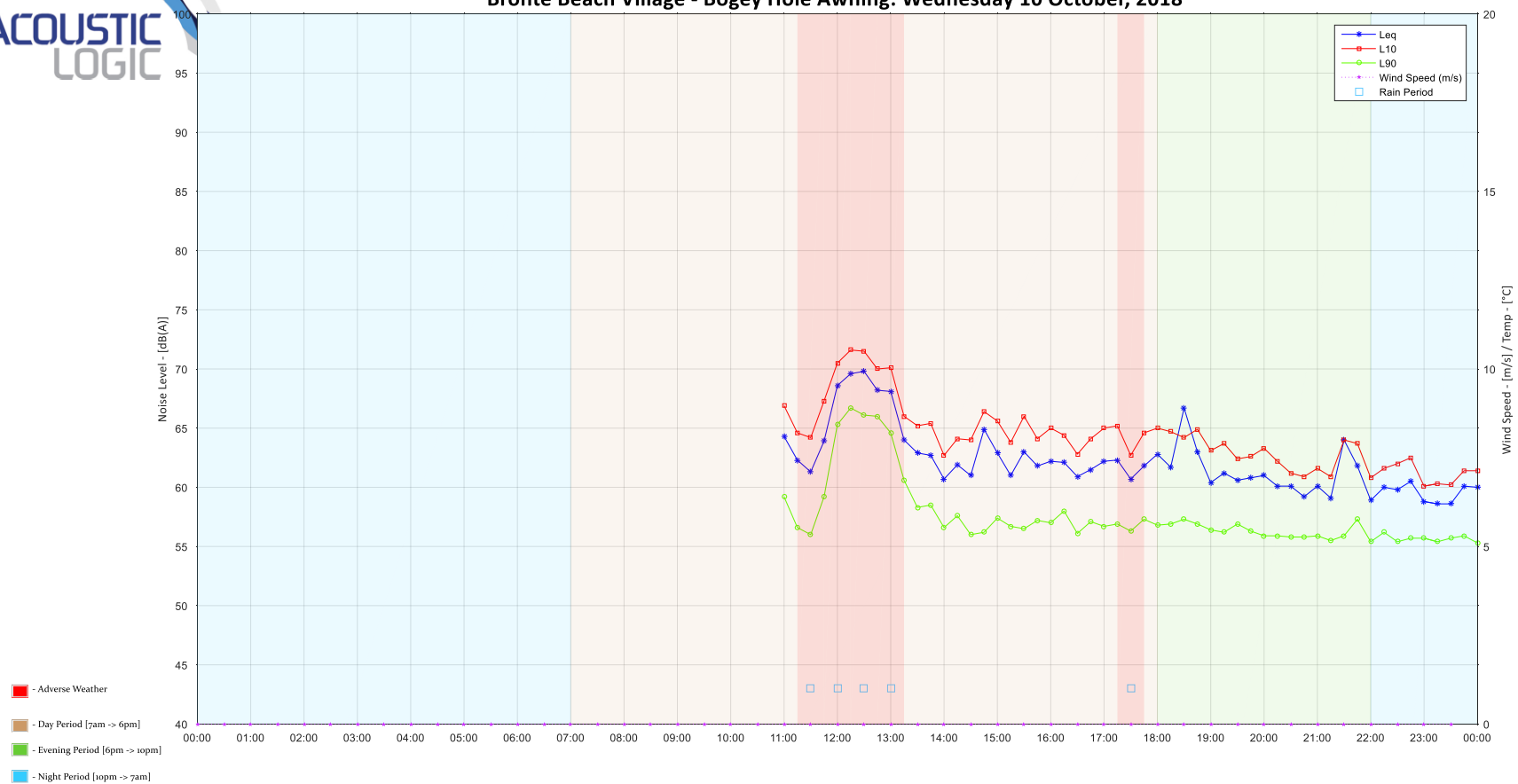




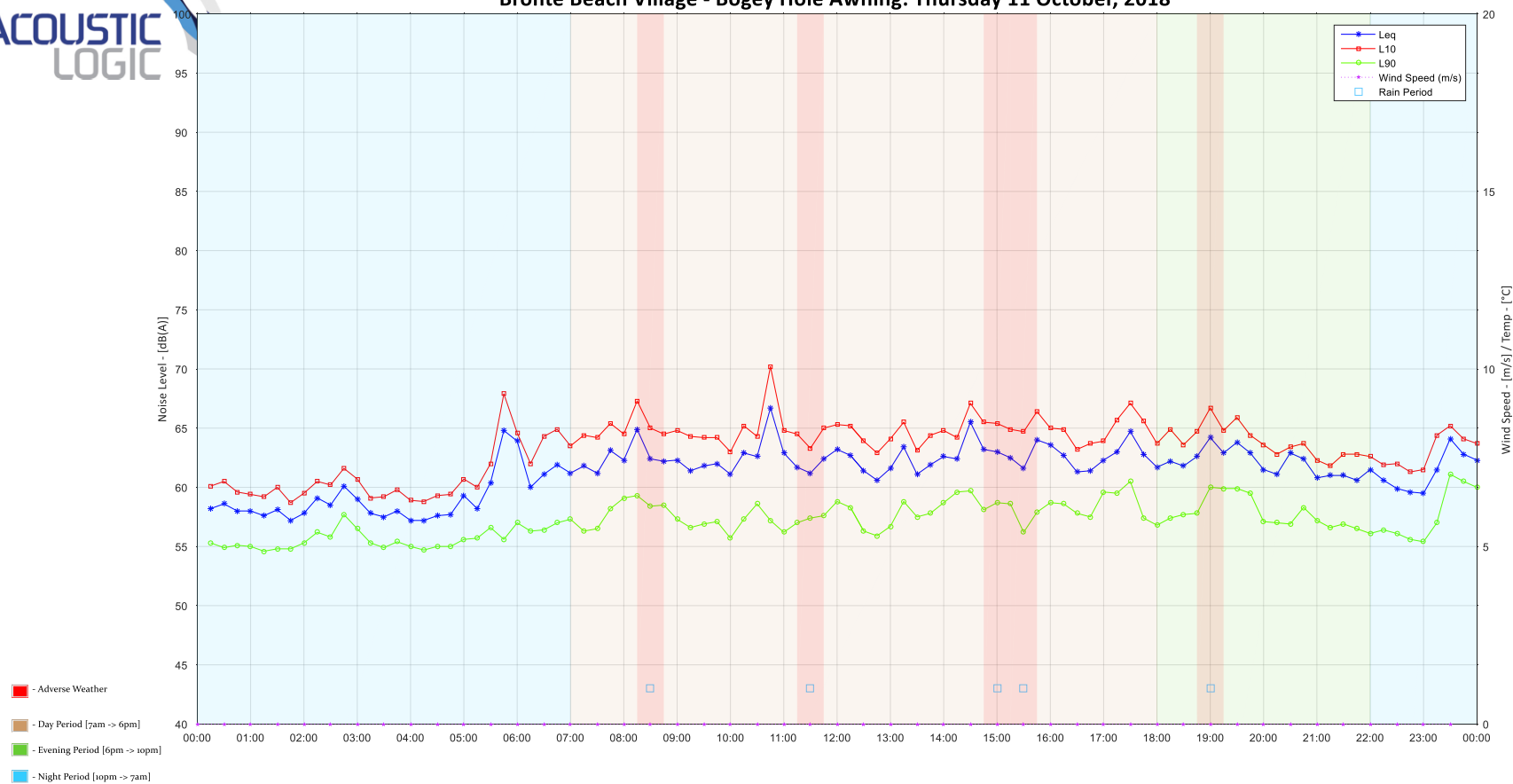
# Bronte Beach Village - Bogey Hole Awning: Wednesday 03 October, 2018



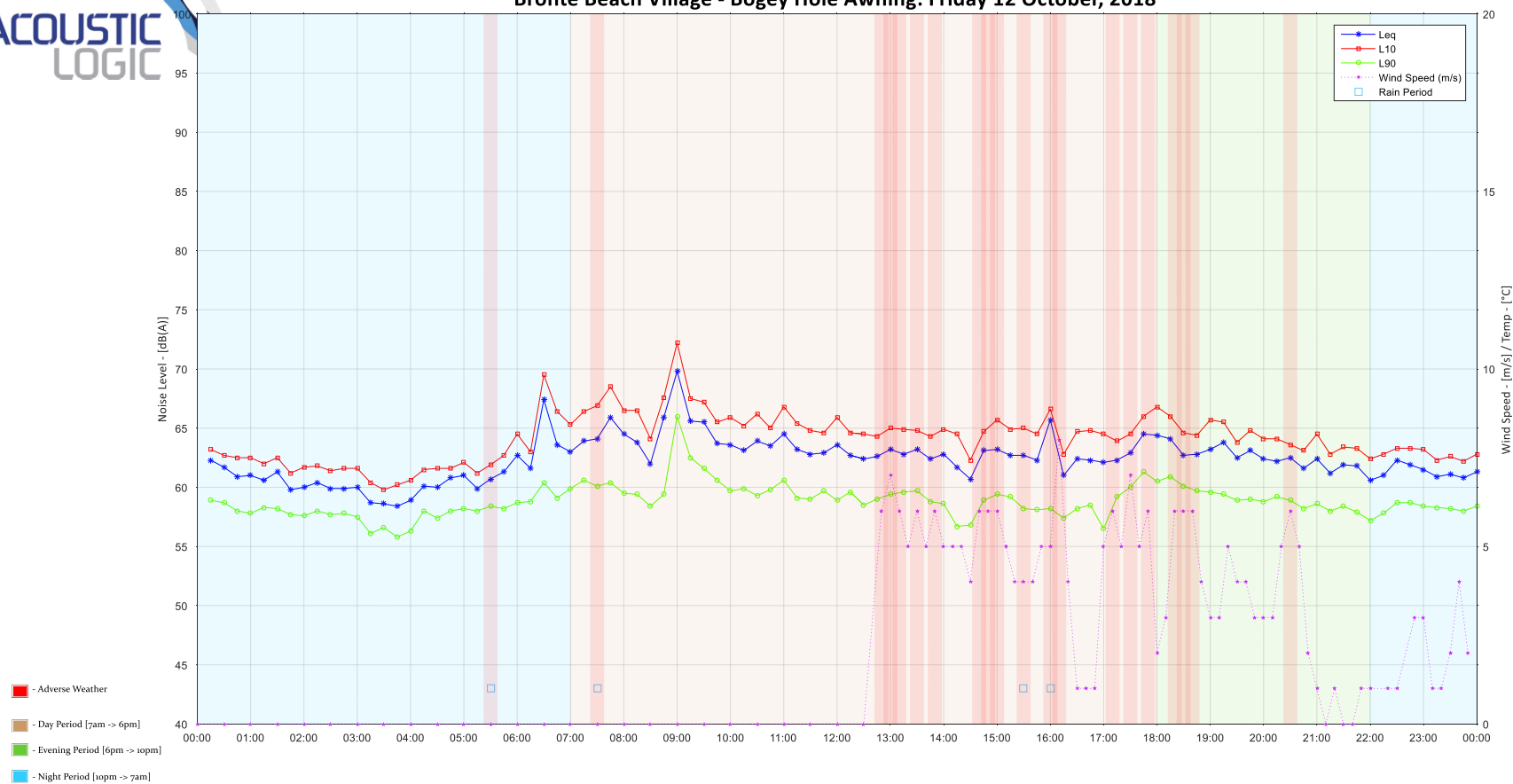
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# Bronte Beach Village - Bogey Hole Awning: Thursday 11 October, 2018

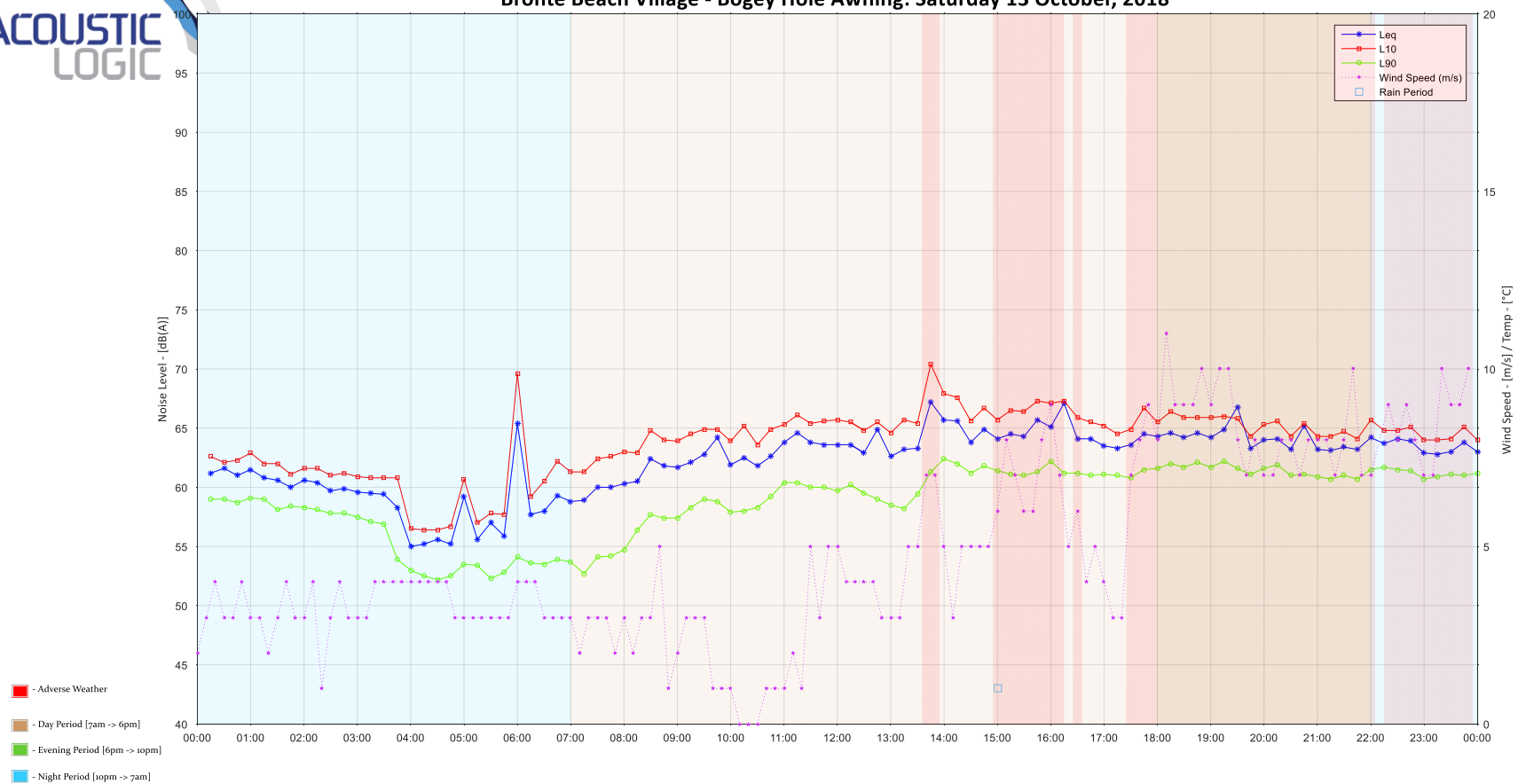


Bronte Beach Village - Bogey Hole Awning: Friday 12 October, 2018

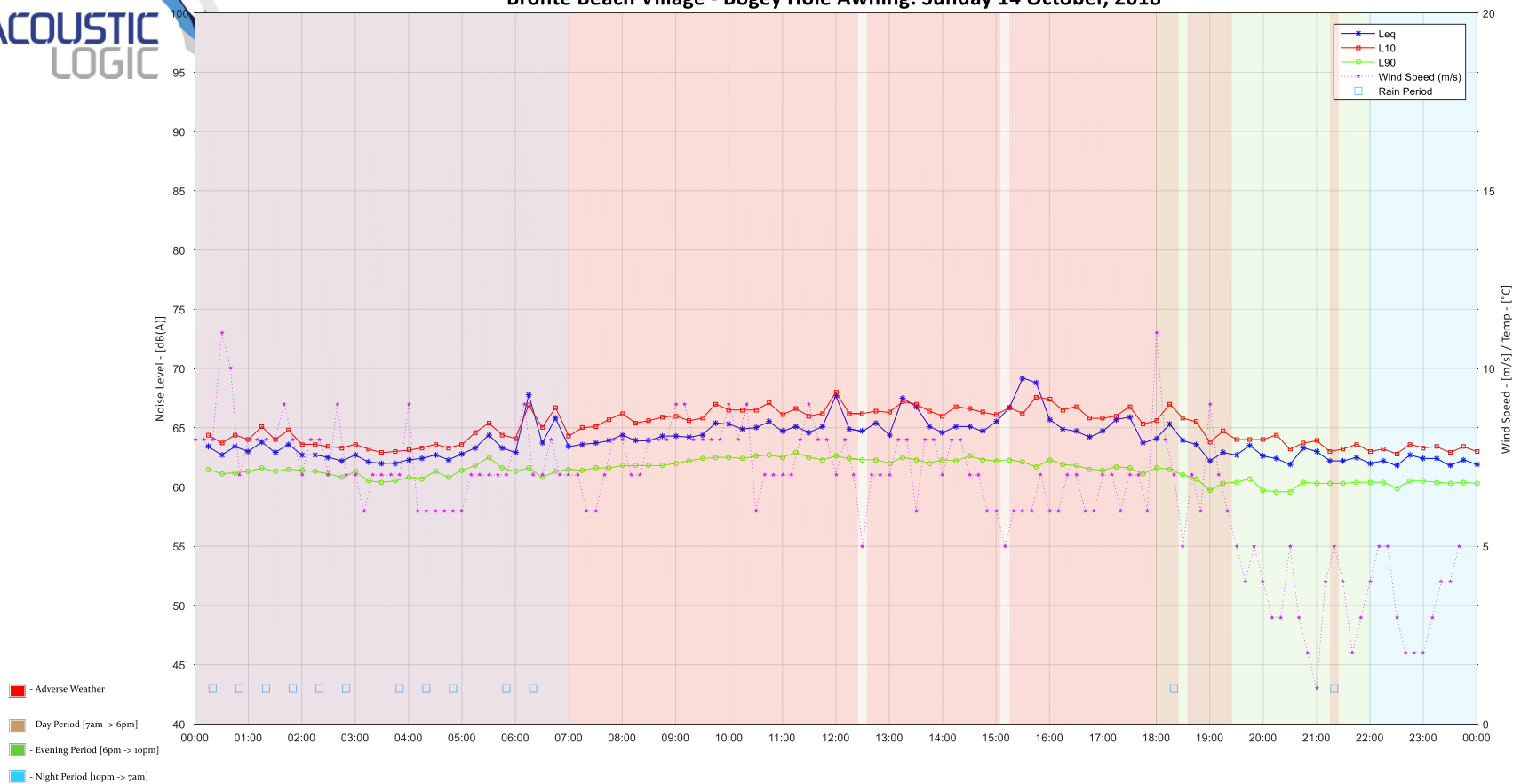




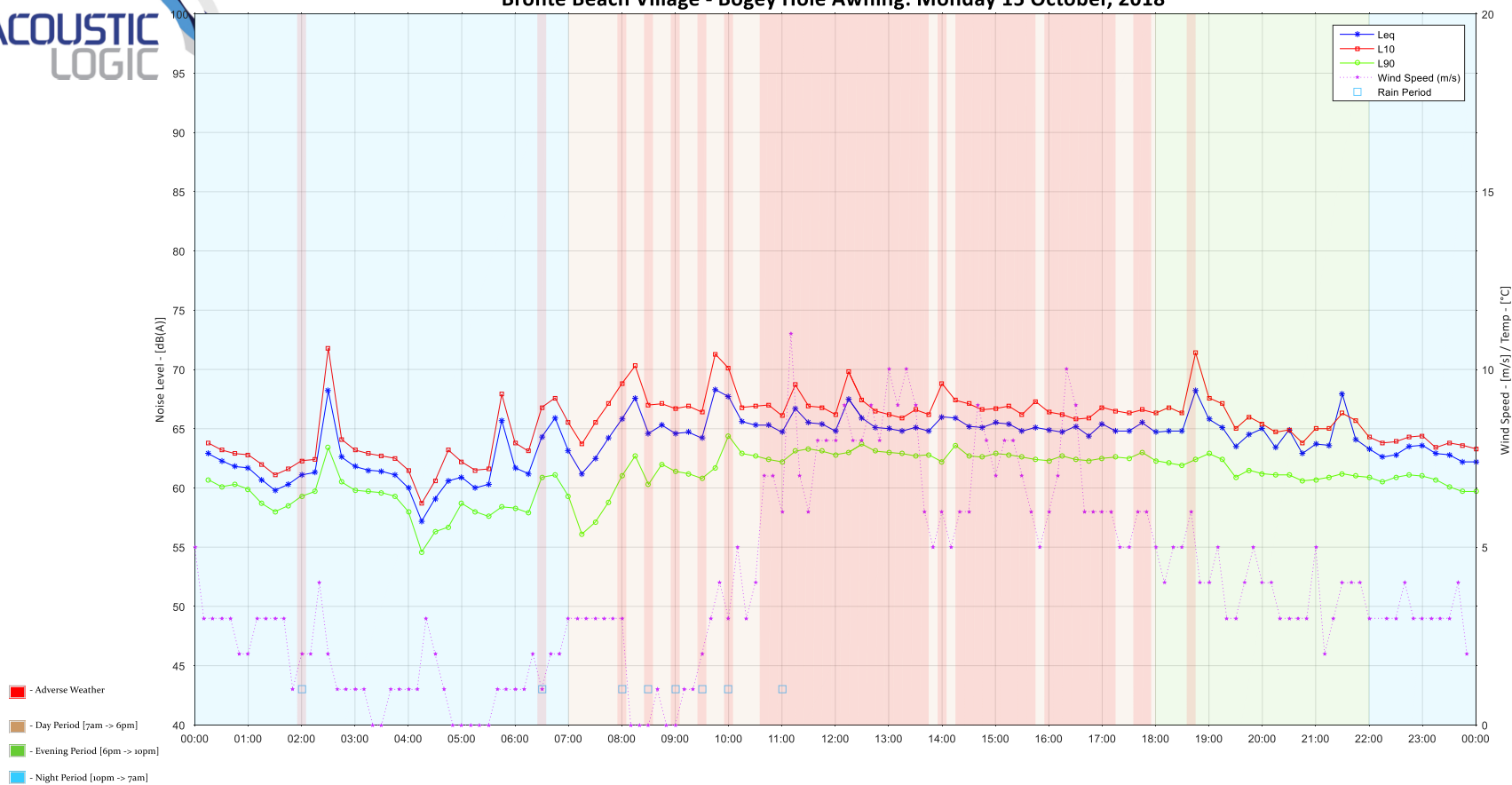
Bronte Beach Village - Bogey Hole Awning: Saturday 13 October, 2018



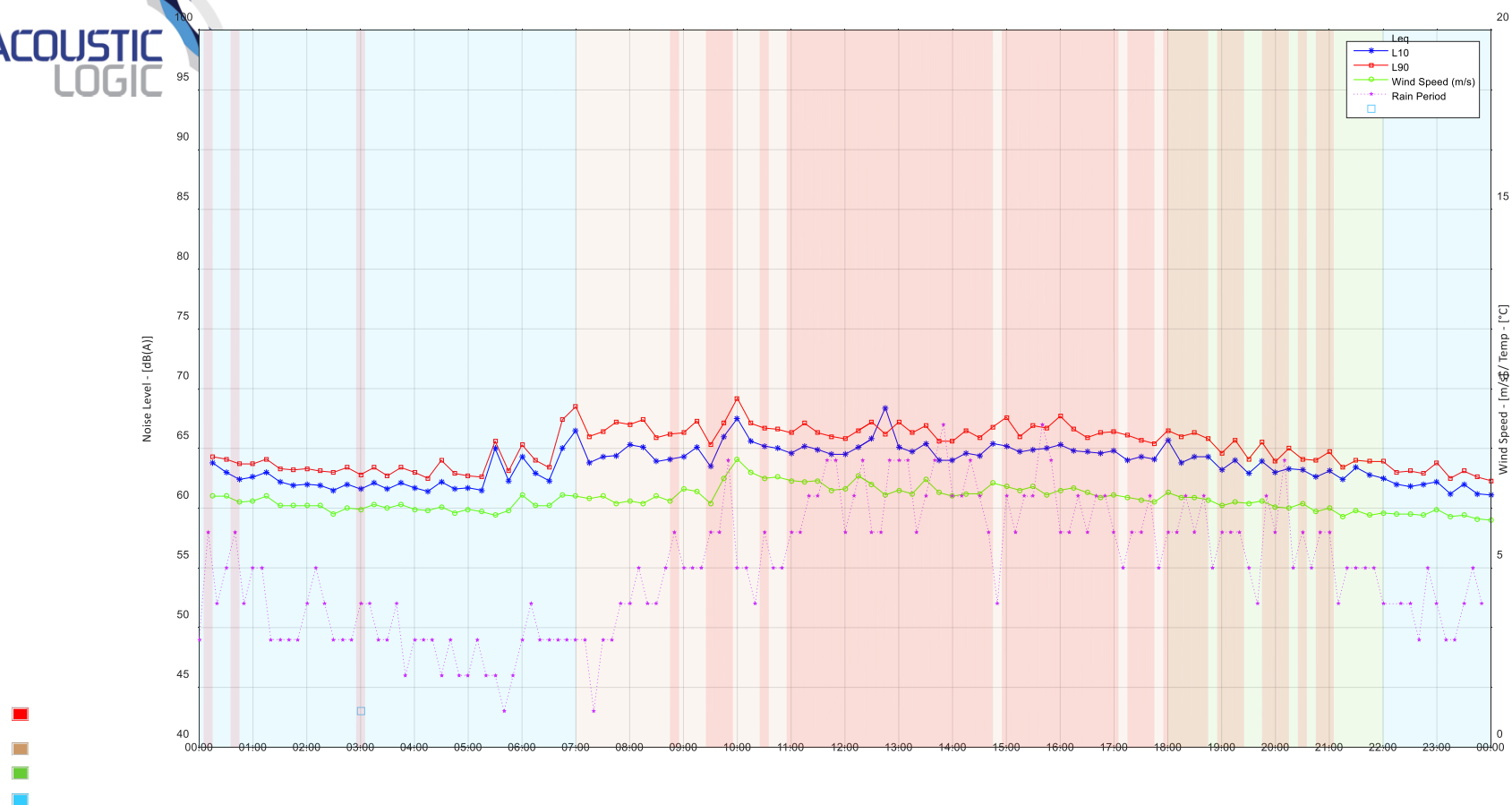
# Bronte Beach Village - Bogey Hole Awning: Sunday 14 October, 2018



Bronte Beach Village - Bogey Hole Awning: Monday 15 October, 2018

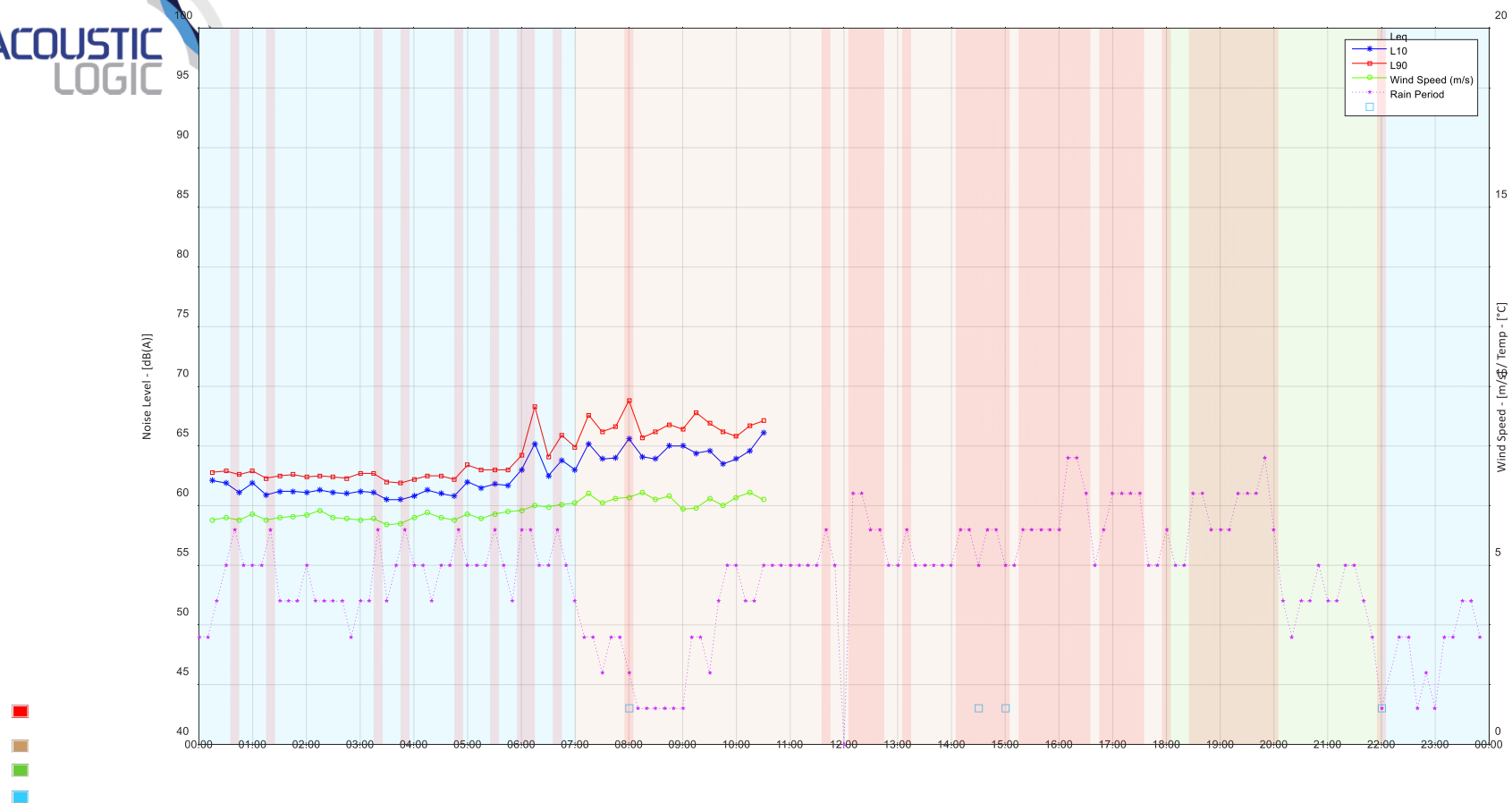


# Bronte Beach Village - Bogey Hole Awning: Tuesday 16 October, 2018





# Bronte Beach Village - Bogey Hole Awning: Wednesday 17 October, 2018



# **Appendix F**

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Bronte Village Upgrade Visual Impact  
Assessment – Group GSA



# BRONTE VILLAGE UPGRADE VISUAL IMPACT ASSESSMENT

Architecture  
Interior Design  
Landscape Architecture  
Urban Design  
Graphic Design

For Waverley Council  
Date December 2018

**GROUP** **GSA**

Issue	Description	Date	Prepared	Checked
1	Issue for Council Review	26/11/2018	FR	SH
2	Final Issue	19/20/2019	FR	SH
3				
4				
5				
6				
7				
8				



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# 1.0 EXECUTIVE SUMMARY

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## The site

Bronte Village is a small retail strip consisting predominantly of cafe's and restaurants opposite Bronte Park and Bronte Beach. It is located within the suburb of Bronte within Sydney's Eastern Suburbs.

## The proposal

The proposal focusses on public domain improvements to Bronte Village. Proposals encompass pedestrian pavements and connections, road layout, bus layover changes and upgrading of public domain infrastructure including furniture, lighting & signage. The proposal improves accessibility and connectivity, concentrating on the interface between the village and adjoining Bronte Park.

## Visual impact assessment

The Visual Impact Assessment is based on an assessment of the visual significance of the Bronte Village Upgrade which encompasses all public domain improvements including the creation of a small pedestrian plaza and tree planting.

The report focusses upon the visual exposure of the Bronte Village upgrade from private viewpoints with an emphasis on the visual impact of proposed tree planting (palms) within the proposed small plaza space. This portion of the assessment was in response to concerns raised by residents regarding the visual impact to existing views. The assessment was aided by the use of large balloons (1.6 metre diameter) to replicate indicative tree location and canopy heights proposed tree planting.

## Conclusion

The visual impact ratings for the views assessed vary from negligible to high. The following explanations were found to be key factors at a number of viewpoints and consistently affected the visual impact ratings generated:

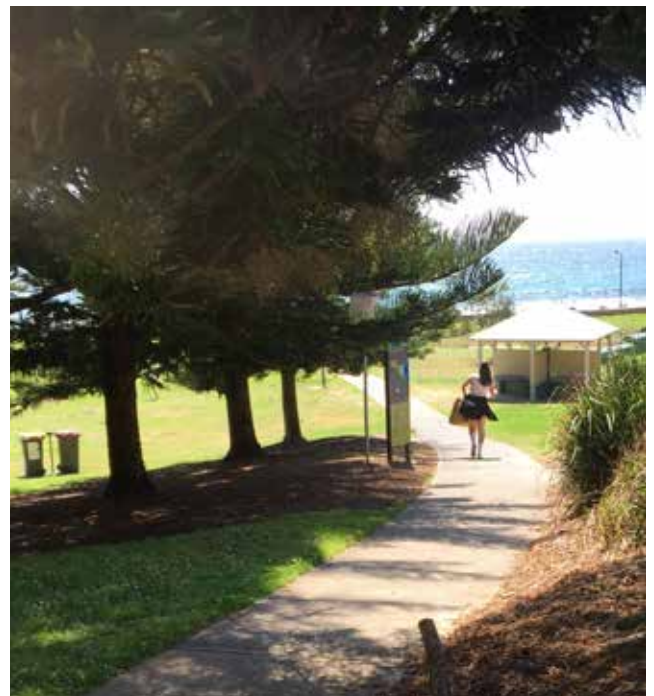
- visual sensitivity was consistently moderate-high to high in value taking into consideration that viewpoints are residential and in a beachside location
- Viewpoint character and context is sensitive to the view of the the proposed upgrade in particular palm plantings
- Viewing distances are relatively close, with the furthest viewpoint tested at approximately 120 metres and considered differing elevations, reflecting heights of balcony levels
- Visual impact ratings vary widely, reflecting the individual nature of each view
- Modelling palm planting at differing heights revealed that both heights were capable of reducing impact.
- Modelling palm planting at differing heights revealed that both heights were capable of contributing to impact.

- Approximately half (12 of the 26 viewpoints) were considered "negligible" visual impact rating
- 3 of the 26 viewpoints were considered "high" visual impact rating

## Mitigation

Options which could result in further mitigation of view impacts would likely entail:

- + Review of palm locations
- + Further testing of palm heights when planted, possibly utilising a variety of heights to minimise view impact
- + Ongoing management of palm canopies to maintain compact heads to the palms.
- + Reduced number of palms



**Figure 1: Pedestrian access into Bronte Park**  
(sourced by GSA)

## 2.0 INTRODUCTION

---

### Purpose of this report

GroupGSA have been engaged by Waverley Council to undertake an independent visual impact assessment for the Bronte Village Upgrade. The Bronte Village Upgrade occurs entirely within the public domain and includes proposed changes to

- + Bronte Road kerb alignment including increasing the pedestrian verge width to shopfronts
- + Pedestrian connections across Bronte Road
- + Tree planting
- + Bus layover area
- + Existing accessibility issues
- + Carparking & pathways
- + Lighting
- + Undergrounding of power

This report will form part of a Request for Environmental Factors (REF) submission to be lodged with Waverley Council as the consent authority.

An assessment of the potential visual impacts of the proposed upgrade was undertaken on the basis of fieldwork and observations carried out in October 2018. The field assessment included documenting and assessing the potential visual exposure of the proposal, the potential effect of the proposal on the desired future character of the immediate and wider context and the potential effects on existing views from the private domain.

The private domain concentrates on view exposure from the above-ground residential properties occurring above the shopfront area, directly opposite Bronte Park and Beach.

### Terms used in this report

The following provides a brief description of the terms which have been used within this report

- **Landscape character:** The aggregate of built, natural and cultural aspects that make up an area and provide its unique sense of place. Landscape in this context is taken to include all aspects of a tract of land - the built, planted and natural topographical and ecological features
- **Magnitude:** The scale, form and character of a development proposal. In the case of visual assessment also how far the proposal is from the viewer. Combined with sensitivity, magnitude provides a measurement of impact
- **Sensitivity:** The sensitivity of a landscape character zone or view and its capacity to absorb change. Combined with magnitude, sensitivity provides a measurement of impact
- **View:** The sight or prospect of some landscape or scene
- **Visual catchment:** The extent of the area that the proposal will be visible from
- **Visual impact:** The impacts on the views from residences and other public places
- **Visual impact rating:** A visual impact rating is determined by cross-referencing magnitude with sensitivity and is measured in the following grades:
  - + High
  - + High to Moderate
  - + Moderate
  - + Moderate to Low
  - + Low
  - + Negligible
- Further information relating to the assessment methodology and calculation of ratings is provided in section 6.0



## 3.0 SITE ANALYSIS

### Context

Bronte occurs within the Waverley Council local government area, and has two distinct local centres; Macpherson Street and Bronte Beach. In terms of the hierarchy of Waverley's local village centres, the shops at Bronte Beach are considered a neighbourhood centre, the lowest order of development. The village occurs along the eastern suburbs coastline, 7 km's from Sydney CBD, 2.6 km's south east of Bondi Junction and 2 km's south of the iconic Bondi Beach. It sits within a valley floor directly opposite Bronte Park and Bronte Beach. The village is accessible by vehicle via Bronte Road, on the south side of the valley. A bus layover area located directly opposite the shops services the village and beach, connecting Bronte to Bondi Junction along the 379 bus route.

Bronte Village is situated along the very popular clifftop coastal walk, extending from Bondi Beach to Coogee. The village is a single sided strip of interwar shops facing directly north to the park and beach. The surrounding area is predominantly residential. Flat developments typically 4 -5 storeys occur closer

to the village and along major roads. However, the predominant residential development is semi-detached and detached housing of varying ages and architectural styles. The area has a relaxed, open coastal character, reinforced by views to the beach, park and the ocean beyond. The adjoining Bronte Park provides "breathing space" within a densely populated area. The area is well patronised by locals and visitors alike.

### Topography

Bronte Village occurs on a reasonably flat area within an incised valley floor, on the lower south side of the valley. It sits within relatively confined topography which ranges from 30 metres in elevation down to sea level with residential development dominating the surrounding ridgelines. The landform is at its most dramatic along the coastal edge, characterised by high sandstone headlands which dive down towards Bronte Beach on either side. The southern cliff is incised with what's referred to as the Bronte Cutting, a remnant of times past, when the engineered excavation once carried trams along its length to the beachside



**Figure 2: Context map**

(Aerial imagery base sourced from SIX maps)

suburb. Today it is used for carparking to service the village, beach and park.

The valley floor is largely occupied by Bronte Park and Bronte Beach with the park extending westwards to Bronte Gully to form a significant spine of open space through the valley floor. The vegetated gully rises steeply further westward, with the landform clearly defining the open drainage channel of a once natural creekline. The watercourse accommodates stormwater from surrounding areas with the head of the gully featuring a waterfall. The drainage line has been piped underground in the flatter section of the park.

Overall, the confined topography creates a real sense of drama and scale along this stretch of coastline. The steep windswept sandstone headlands offer expansive ocean and coastline views. This scenic feature coupled with a more intimately scaled surf beach within a generous parkland setting gives Bronte Village a unique and much valued identity.

## Visual character

The neighbourhood centre of Bronte Village is a good example of modest interwar period buildings, generally one to two storeys in height which are interspersed with more modern development to the west. The village creates a coherent built form, maintaining a consistency of scale of buildings and style tied together with continuous awnings. Traditional brickwork and painted rendered building facades create variation along the streetscape. At street level the village is intimate and bustling, with outdoor dining dominating the footpath. It is a predominantly hard landscape, with the footpath, carparking, expanse of asphalt road and bus terminus dominating the immediate landscape. Visual relief is provided by the adjoining Bronte Park, with excellent views to the park and ocean enjoyed. No street tree planting occurs on the side of the village strip.

## Landscape character

Bronte Village has a relaxed coastal “village” character, reinforced by its close proximity and strong visual connection to Bronte Park and Bronte Beach. It is a compact, traditional retail strip, nestled within a highly urbanised area of predominantly residential development. The shops occur on one side only within a relatively flat area. It takes advantage of its northerly aspect to enjoy prime views of the park and the dramatic coastline beyond. It is a place focussed on recreation and relaxation. This context creates an open, “laid back” ambience, reinforced by the comings and goings of beachgoers, coastal walkers and park users alike. Mature plantings of palms, figs and pines throughout the park also contribute to its landscape character, providing a contrasting shady, green respite to the open, exposed beachfront.

Beyond the village, the context is primarily residential of varying scale and densities. A well-patronised publicly accessible walk occurs along the coast connecting to the Bronte Beach promenade.



**Figure 3: Views to Bronte Beach**  
(sourced by GSA)



## 4.0 THE PROPOSAL

### Planning Context

According to Waverley Council's LEP 1996, Bronte has two distinct local centres; Macpherson Street and Bronte Beach, referred to throughout this document as Bronte Village. Both centres are classified as Neighbourhood Centres. Refer Figure 4 with the land shown in brown zoned 3(c) Business Neighbourhood.

Waverley Council's DCP 2012 sets out desired future character objectives and planning controls for these centres (Part F5). Part F5 has been prepared in conjunction with a Public Domain Improvement Plan and a Technical Manual which sets out strategies and controls for the design of each centre. The DCP identifies the streetscape upgrade of Bronte Village as a high priority. Due to the requirement to upgrade the entry to the park, a holistic approach was taken to ensure the best outcome for the commercial interface, bus terminus and entrance to the park.

The project is also supported by the Bronte Park Plan of Management (2017) with design directions listed in the action plan.

### Design Principles

The following design principles form the basis for the Bronte Village Centre Upgrade project are to:

- + Provide a unique arrival experience for users of Bronte Park and Village Centre;
- + Reinforce the connection between Park and Village Centre whether travelling by foot, car or bus;
- + Create a meeting place for people between the popular destinations of the beach, café precinct and bus terminus
- + Improve access and wayfinding for all abilities and users of the park and village centre;
- + Facilitate bus turning and manoeuvres at bus transport terminus and ensure lay over for three buses.
- + Improve the amenity and public domain at Bronte Local Village Centre;



Figure 4: Zoning Plan

- + Utilise durable and sustainable materials and construction detailing;
- + Upgrade streetscape with new paving, street lighting and street furniture;
- + Design and implement a public realm that is accessible and safe for pedestrians;
- + Provide traffic calming measures;
- + Provide street tree to provide shade and contribute to reducing the urban heat island; and
- + Be cost effective. While the quality must be high and use durable materials they must also consider cost to ensure Council are getting good value for money. Likewise, ongoing maintenance costs must also be considered

## Proposed upgrade

The Bronte Village Upgrade occurs entirely within the public domain and includes proposed changes to

- + Bronte Road kerb alignment including increasing the pedestrian verge width to shopfronts
- + Pedestrian connections across Bronte Road
- + Tree planting
- + Bus layover area
- + Existing accessibility issues
- + Carparking & pathways
- + Lighting
- + Undergrounding of power

## Future context

As the population of the central Sydney increases, greater pressure is placed on existing open spaces, including Bronte Park and beach. As a result, development of the village also needs to consider the growing demand for recreational spaces and subsequent pressures on surrounding transport and infrastructure. As a regional parkland, Bronte Park can expect increased use and this will affect patronage of the village as well.

According to the Bronte Park Plan of Management (POM, 2017) over 900,000 people use the beach promenade section of the coastal walk annually (data collected 2015/2016). Generally, an even proportion of park and beach users will visit Bronte Village cafés.

In addition, with an ageing population coupled with an increasing family demographic, accessibility will be a key issue when planning and designing for the future.





Figure 5: Bronte Village upgrade plan

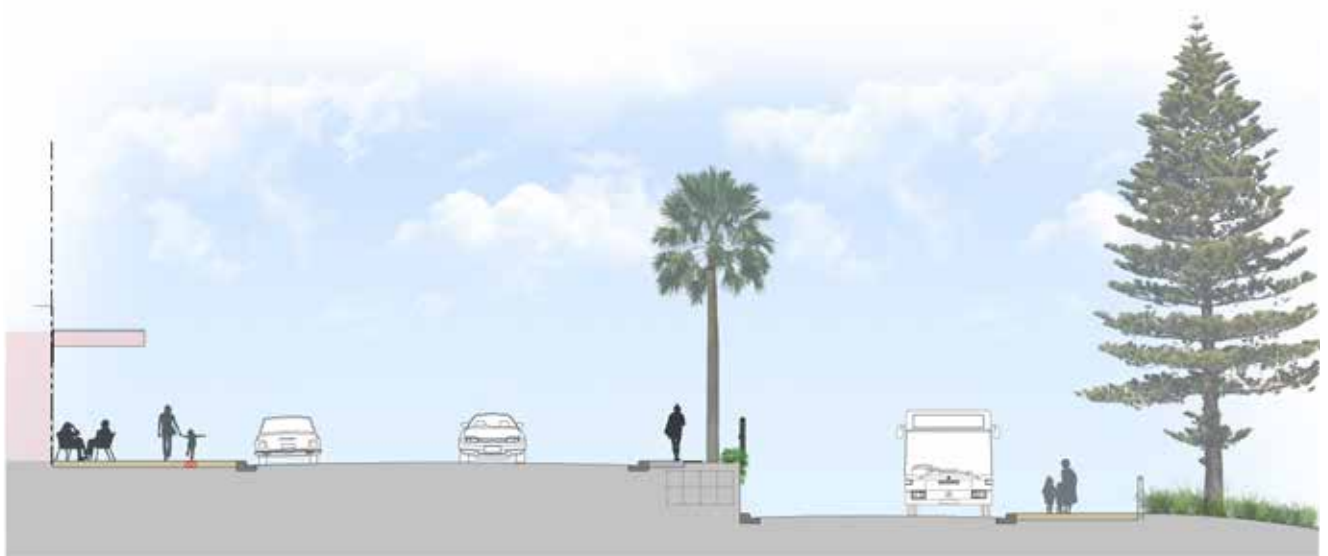


Figure 6: Bronte Village upgrade cross section

## 6.0 VISUAL CATCHMENT

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### Catchment mapping

The following visual catchment map shows in red the approximate extent ridgelines which define the valley containing Bronte Village, the beach and parkland. The visual assessment has focussed on Bronte Village and the extent of its proposed upgrade with a particular emphasis on the visual impact of proposed tree planting. Refer Figure 6: Visual Catchment Mapping.

The public domain is defined as open space and park areas, footpaths and roadways generally accessible to the public.

The catchment map also includes views from private property namely upper floors of some buildings immediately above the shopfronts along Bronte Road. This aspect has been included in response to concerns raised by residents regarding the visual impact of tree planting on viewsheds.

### Impacts of topography, vegetation & built form

The visual catchment is limited significantly by built form and established vegetation with the screening effects often exacerbated by landform. It is for this reason that views from residential streets to the proposed development are generally blocked.

As part of the proposed development the main aspect of the design of visual significance is the planting of palms within a small plaza space. The palms, which are intended to be planted within a height range between 5 to 10 metres will create vertical elements within the landscape, highlighting the southern entry point to Bronte Park while creating context, shade and scale. Given the confined nature of the topography, the group of residences occurring above the retail strip will be the most impacted from the proposed palm planting. At the planning stage, specific palms were selected due to their slow growth rate, compact canopies, and the degree of transparency through their foliage.





**Figure 7: Visual catchment map**  
 (Aerial imagery base sourced from SIX maps)



# 7.0 VISUAL IMPACT ASSESSMENT METHODOLOGY

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## Desktop study

A desktop study was carried out to identify the likely view sheds for the Bronte Village Upgrade based on mapping, aerial photography and existing prior knowledge of the surrounding areas. These mapping exercises were used to identify locations of known or possible views to be investigated during the fieldwork phase.

Views are from single private viewpoints and are representative of particular locations. They are not public domain views.

## Fieldwork and photography

The scope of the fieldwork was confined to assessment of visual impacts from Bronte Village commercial strip and associated residential development above. This involved deployment of a drone carrying a DJI Mavic Pro 2 camera, with a focal length of 28mm. Drone photography was carried out on Wednesday, 31st of October, 2017. The drone took photographs from various residences along Bronte Road. Determining visual impact was aided by the use of large helium balloons (1.6 metre diameter) positioned in the same location as proposed tree plantings.

## Montages

The extent of the new plaza space including the proposed location of trees were identified on site. The location of the plaza has been identified on the photographs as simple linework to provide context and scale. Utilising the balloon locations as a point of reference, various tree heights were modelled ranging from 5 to 10 metres to gain a good understanding of the extent of tree height impacts on viewpoints.

## Assessment of visual impact

The assessment is based on the methodology used by RMS - Guideline for Landscape Character and Visual Impact Assessment (EIA No4 Guidelines, 2013, RMS).

For each view, visual sensitivity and visual magnitude have been rated as per the definitions on the opposite page. A visual impact rating has been determined by cross-referencing visual sensitivity with magnitude. Table 1 has been used to identify the visual impact rating of the views.

An explanation of each visual impact rating is explained below:

**High:** The visual impact on these viewers is significant and would typically require amelioration at the site planning stage.

**Moderate:** The visual impact on these viewers is at a localised scale and can be mitigated or already has some existing screening or an existing setback which minimises visual impact.

**Low:** The visual impact on these viewers is considered low and no or very little amelioration is required.

**Negligible:** The visual impact on these viewers is considered very low or non-existent and no amelioration is required.

## Mitigation

Assessing the two palm heights at a range of viewpoints and elevations has highlighted the complexity in undertaking tree planting which will result in the least impact for the majority of viewers. This assessment also needs to consider that trees are not static, continuing to grow over time. Keeping this in mind, it is important to note that the palms species were selected for the following reasons:

- + Suitability of the species to thrive in a front line coastal s.
- + Complementary to the existing landscape character
- + Slow growing nature of the species (average growth rate of 1 metre every 10 years)
- + Compact palm head with a reasonable level of foliage transparency

Other options which could result in further mitigation of view impacts would likely entail:

- + Review of palm locations
- + Further testing of palm heights when planted, possibly utilising a variety of heights to minimise impacts
- + Ongoing Management of palm canopies to maintain compact heads.
- + Reduced number of palms



## Sensitivity

Sensitivity can be described by the following definition:

*The sensitivity of a landscape character zone or view and its capacity to absorb change. Combined with magnitude, sensitivity provides a measurement of impact.*

Sensitivity is determined by assessing the context at the view location. The following examples are provided as a guide:

- Residential context - Low capacity to absorb change due to potential impacts on day-to-day lives of local residents. High sensitivity.
- Industrial context - High capacity to absorb change due to dynamic use patterns, limited hours of high use levels and regular change within character area. Typically self-contained built form with limited views in/out. Low sensitivity.
- Commercial context - High to moderate capacity to absorb change depending on land use and built form character. May include office blocks or low-rise business parks. Moderate to low sensitivity depending on type.
- Open space context - Highly varied capacity to absorb change depending on open space typology and character. An expansive open space dominated by views to further green areas will have a low capacity to absorb change. A linear pedestrian link in an urban context may have a high capacity to absorb change if it is in a dynamic location with competing demands on users. High to Low sensitivity depending on character

- Transport corridor - High to moderate capacity to absorb change depending on surrounding character and context. As a dynamic environment typically experienced from a moving position, transport corridors can tolerate high levels of change and are typically expected to continually change and adapt. Low sensitivity.

## Magnitude

Magnitude can be described by the following definition:

*The scale, form and character of a development proposal. In the case of visual assessment also how far the proposal is from the viewer. Combined with sensitivity, magnitude provides a measurement of impact.*

Magnitude is assessed by determining the overall significance of the proposal each view. It can be summarised simply as the level of change proposed.

The following factors are key measurements to be taken into consideration:

- Existing screening
- Apparent size (often determined by distance between the viewer and the proposal)
- Visual context - Presence (or absence) of any items which provide context and scale to the proposal.

Table 1: Visual impact rating table

	Magnitude						
		High	High - moderate	Moderate	Moderate - Low	Low	Negligible
Sensitivity	High	High	High	High - moderate	High - moderate	Moderate	Negligible
	High - moderate	High	High - moderate	High - moderate	Moderate	Moderate	Negligible
	Moderate	High - moderate	High - moderate	Moderate	Moderate	Moderate - Low	Negligible
	Moderate - Low	High - moderate	Moderate	Moderate	Moderate - Low	Moderate - Low	Negligible
	Low	Moderate	Moderate	Moderate - Low	Moderate - Low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

Figure 8: Visual impact rating table

## 8.0 VISUAL IMPACT ASSESSMENT

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### View locations

The view locations under consideration are from single private viewpoints and are representative of particular locations. They are not public domain views. Locations have been selected to consider a variety of private viewpoints from the immediate surrounding residential properties and reflect those properties that would be most affected by the upgrade works. Figure 6 demonstrates the visual catchment mapping. Each view location is identified on Figure 8: Visual Assessment View Locations. The locations are to be read in conjunction with Table 2: Visual Assessment Matrix which describes the viewpoint, the corresponding balcony level from which the view was taken and the palm heights modelled at each location.

All photographs were taken with a drone mounted with a DJI Mavic Pro 2 camera with a focal length of 28mm.

A visual impact assessment of all critical view locations is included on the following pages.

Viewing distances describes the distance from the viewpoint to the proposed plaza space where the palm planting will occur.



**Figure 9: Bronte Village**  
(Sourced by GSA)

Table 2: Visual Assessment Matrix

Viewpoint	Level	Tree Height	Code
A	Level 1	5 metres	A1/5
		10 metres	A1/10
	Level 2	5 metres	A2/5
		10 metres	A2/10
	Level 3	5 metres	A3/5
		10 metres	A3/10
B	Level 1	5 metres	B1/5
		10 metres	B1/10
	Level 2	5 metres	B2/5
		10 metres	B2/10
C	Level 1	5 metres	C1/5
		10 metres	C1/10
	Level 2	5 metres	C2/5
		10 metres	C2/10
D	Level 1	5 metres	D1/5
		10 metres	D1/10
	Level 2	5 metres	D2/5
		10 metres	D2/10
E	Level 1	5 metres	E1/5
		10 metres	E1/10
	Level 2	5 metres	E2/5
		10 metres	E2/10
F	Level 1	5 metres	F3/5
	Level 2	10 metres	F3/10
G	Level 1	5 metres	G3/5
	Level 2	10 metres	G3/10

Figure 10: Visual Assessment Matrix





**Figure 11: Visual assessment view locations**  
 (Aerial imagery base sourced from SIX maps)



# VIEWS A1/5 & A1/10

## Direction and distances

The view to Bronte Village from this locations is in alignment with first storey residential balcony above road level in an easterly aspect.

The viewing distance from the viewpoint to the proposed plaza space is approximately 110 metres.

## View descriptions

View A is an elevated view eastwards which is dominated in the foreground by Bronte Road and the Bus Terminus. The view shows the natural topography of Bronte Road rising steeply to the southeast. The Bronte Cutting (roadway) is visible on the horizon. A portion of Bronte Park is visible to the north, with a grouping of mature tall pines dominating the midground. Tall, individual mature palms occur in the distance against an ocean backdrop and broad skyline. Significant vegetation in the foreground frames the ocean view and screen views northwards into the park.

View A1/5 photomontage shows tree planting at indicative heights of 5 to 5.5 metres. This height indicates palm plantings sitting below the ocean horizon line, with the majority of palm canopies obscuring minor areas of Bronte Park or the Bronte Cutting. Ocean views are maintained.

In View A1/10 photomontage, the 10 metre height palms sit well above the parkland with the canopies partly obscuring distant ocean views. The palms appear to visually connect with existing vegetation on the headland.

## A1/5

### Visual sensitivity

High-Moderate

Framed ocean views with horizon line visible

### Visual magnitude

Negligible – Significant distractions in the foreground and mid ground with road and pedestrian activity. Existing groupings of mature vegetation in the foreground and mid-ground screen views to ocean. Proposed palm locations and heights have a negligible impact on existing ocean views with no impact on the horizon line.

### Visual impact rating

Negligible

## A1/10

### Visual sensitivity

High-Moderate

Framed ocean views with horizon line visible

### Visual magnitude

Low

Significant distractions in the foreground and mid ground with road and pedestrian activity. Ocean views predominantly maintained with palm canopies partially screening distant sections of water.

### Visual impact rating

Moderate

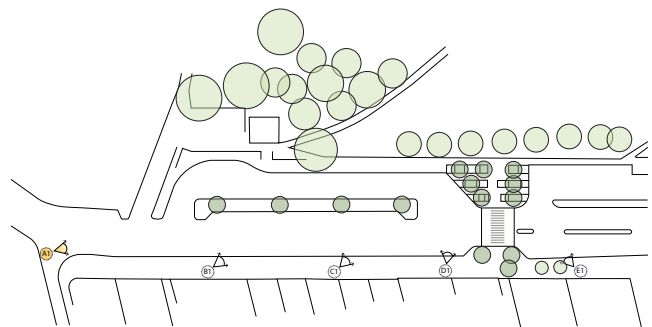


Figure 12: View Point Plan A1



Figure 13: View A1- existing conditions



**View A1/5**

Figure 14 (photograph by Motion Cinematic)



**View A1/10**

Figure 15 (photograph by Motion Cinematic))





**View A2/5:**  
Figure 16 (photograph by Motion Cinematic)



**View A2/10:**  
Figure 17 (photograph by Motion Cinematic)



# VIEWS A2/5 & A2/10

## Direction and distances

The view to Bronte Village from this locations is in alignment with a second storey residential balcony above road level in an easterly aspect.

The viewing distance from the viewpoint to the proposed plaza space is approximately 110 metres.

## View descriptions

The view presents a more elevated position than View A1. Ocean views are framed by the built form of the retail strip on one side and substantial mature vegetation within Bronte Park. Rooftops and shop awnings are visible. Bronte Road and the bus terminus and associated carparking areas represent a significant component of the view. Both mature pines and palms within Bronte Park punctuate the midground, with canopies and trunks silouhettted against the ocean. The skyline is expansive.

View A2/5 shows proposed palm planting at 5 - 5.5 metres appearing as a row aligning the road and a group of trees in the middle distance. The canopies of the palms do not impinge on ocean views. Distant palms blend in with the existing vegetation on the southern headland of Bronte Beach.

View A2/10 indicates that at height of 10 metres the nearest palms would sit above the parkland with canopies obscuring the taller existing palms and a small section of water.

## A2/10

### Visual sensitivity

High-Moderate

Elevated and expansive ocean views with horizon line visible and expansive sky.

### Visual magnitude

Negligible

Significant distractions in the foreground and mid ground with road and pedestrian activity. Existing groupings of mature vegetation in the foreground frame ocean views. Mid-ground group of existing mature pines create a minor screen to ocean views. Proposed palm locations and heights have a negligible impact on existing ocean views or the horizon line.

### Visual impact rating

Negligible

## A2/5

### Visual sensitivity

High-Moderate

Elevated framed ocean views with horizon line visible and expansive sky.

### Visual magnitude

Significant distractions in the foreground and mid ground with road and pedestrian activity. Existing groupings of mature vegetation in the foreground frame ocean views. Mid-ground group of existing mature pines create a minor screen to ocean views. Proposed palm locations and heights have no impact on existing ocean views or the horizon line.

### Visual impact rating

Negligible

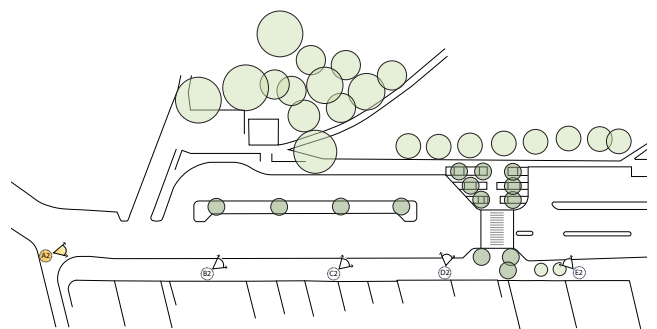


Figure 18: View point plan A2



Figure 19: View A2- existing conditions



**View A3/5:**  
Figure 20 (photograph by Motion Cinematic)



**View A3/10:**  
Figure 21 (photograph by Motion Cinematic)

# VIEWS A3/5 & A3/10

## Direction and distances

The view to Bronte Village from this locations is in alignment with third storey residential balcony above road level in an easterly aspect.

The viewing distance from the viewpoint to the proposed plaza space is approximately 110 metres.

## View descriptions

The view present a more elevated position than Views A1 & A2. Ocean views are framed by the built form of the retail strip on one side and substantial mature vegetation within Bronte Park. Rooftops and shop awnings are visible. Bronte Road and the bus terminus and associated carparking areas represent a significant component of the view. Both mature pines and palms within Bronte Park punctuate the midground, with canopies and trunks silhouetted against the ocean. The skyline is expansive.

View A2/5 shows proposed palm planting at 5 - 5.5 metres appearing as a row aligning the road and a group of trees in the middle distance. The canopies of the palms do not impinge on ocean views. The furthest palms blend in with the existing vegetation of the southern headland.

View A2/10 indicates that at height of 10 metres the nearest palms would sit above the parkland with canopies obscuring the taller existing palms and a small section of water.

## A3/5

### Visual sensitivity

Moderate-High

Elevated panoramic view east to ocean horizon line. Expansive sky. Visual distraction of roadway and associated movement dominates foreground.

### Visual magnitude

Negligible

Lower palm planting heights visually contained with roadway and recede in distance to blend with existing vegetation. No impact to existing panoramic views.

### Visual impact rating

Negligible

## A3/10

### Visual sensitivity

Moderate-High

Elevated panoramic view east to ocean horizon line. Expansive sky. Visual distraction of roadway and associated movement dominates foreground.

### Visual magnitude

Negligible

Higher palm planting heights appear against a backdrop of parkland in the mid-ground. Palms recede in distance to blend with existing vegetation. No impact to existing panoramic views.

### Visual impact rating

Negligible

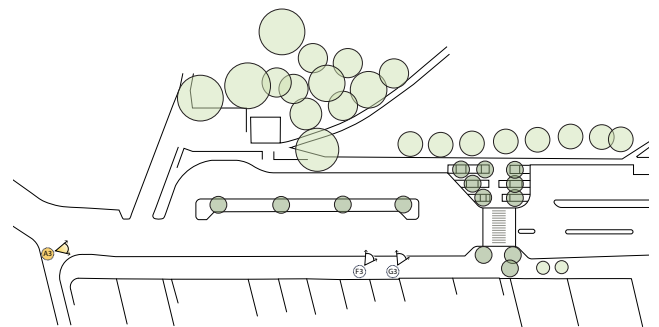


Figure 23: View point plan A3



Figure 24: View A3- existing conditions



# VIEWS B1/5 & B1/10

## Direction and distances

View B is a private view at an elevation in alignment with a level 1 balcony location in an easterly direction.

The viewing distance is long range, approximately 73 metres.

## View descriptions

View B is an elevated view eastwards. The foreground is dominated by hard road surfaces, white timber fencing and carparking which continues to stretch in an easterly direction along Bronte Road and the Bronte Cutting. A grouping of tall mature pines within Bronte Park contain and frame the view in an easterly direction towards the water. The background is comprised of ocean against a broad skyline. A green wedge of Bronte Park and a small section of beach is visible in the midground. Four tall mature palms create a silhouette against the skyline, with their canopies sitting above the ocean horizon line.

In View B1/5 the cluster of canopies located within the small plaza area obscure a minor area of ocean view in the section of view where the headland, park and ocean merge.

In view B2/10, 10 metre palms create additional verticality already provided by the existing palm planting. The proposed palm canopies appear above the horizon line of the ocean. The slender tall trunks of the palms offer views through to the water.

## B1/5

### Visual sensitivity

High-Moderate

Framed ocean views including the ocean horizon line and broad sky. Foreground dominated by roadway and considerable visual distractions associated with vehicular and pedestrian activities.

### Visual magnitude

Negligible

Proposed height and location of palms obscure only a minor distant area of ocean. Ocean horizon line is maintained.

### Visual impact rating

Negligible

## B1/10

### Visual sensitivity

High-Moderate

Framed ocean views including the ocean horizon line and broad sky. Foreground dominated by roadway and considerable visual distractions associated with vehicular and pedestrian activities.

### Visual magnitude

Moderate-Low

The proposed tall palm canopies form a contiguous canopy appearing above the horizon line receding in the distance. The cluster obscures the distant skyline. The proposed palms reinforce the existing visual character of single, tall, clean-trunked palms set against a backdrop of ocean and sky.

### Visual impact rating

Moderate

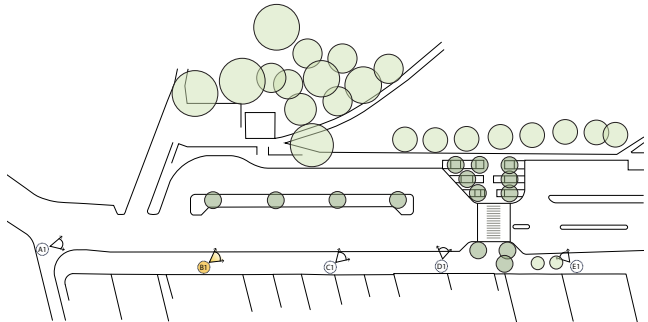


Figure 25: View point plan B1



Figure 26: View B1- existing conditions





**View B1/5: From Level 1 balcony location**  
 Figure 27 (photograph by Motion Cinematic)



**View B1/10**  
 Figure 28 (photograph by Motion Cinematic)

# VIEWS B2/5 & B2/10

## Direction and distances

View B is a private view at an elevation in alignment with a level 2 balcony location in an easterly direction.

The viewing distance is long range, approximately 73 m.

## View descriptions

The further elevated Viewpoint B2/5 shows that the palms at an approximate height of 5.5 metres have minimal impact on views to the parkland area and ocean beyond. Palms within the small plaza space obscure lower sections of the Bronte cutting carpark. Palms within the central median separating the road from the terminus are of insufficient height to interfere with views.

From ViewB2/10 palms at a height of 10 metres appear to match in height with the taller existing palms, obscuring the canopies of these. They also replicate the vertical lines created by the trunks. The palm canopies align with the ocean horizon, obscuring this where they are grouped together. Views through trunks to the ocean are maintained.

## B2/5

### Visual sensitivity

High-Moderate

Elevated, ocean views including the ocean horizon line and broad sky. Foreground dominated by roadway and considerable visual distractions associated with vehicular and pedestrian activities. The visual clutter recedes in the distance as the road corridor rises.

### Visual magnitude

Negligible

Proposed height and location of palms have a negligible impact on the existing view. Palm canopies sit against a backdrop of roadway and/or parkland, appearing at a lower elevation than existing single palms and mass vegetation. The ocean horizon line and broad skyline are maintained.

### Visual impact rating

Negligible

## B2/10

### Visual sensitivity

High-Moderate

Elevated, ocean views including the ocean horizon line and broad sky. Foreground dominated by roadway and considerable visual distractions associated with vehicular and pedestrian activities. The visual clutter recedes in the distance as the road corridor rises.

### Visual magnitude

Moderate

Proposed height and location of palms have a moderate impact on the existing view. Palm canopies form a contiguous canopy at the same level as the horizon line, obscuring a section where ocean meets sky.

### Visual impact rating

High-Moderate

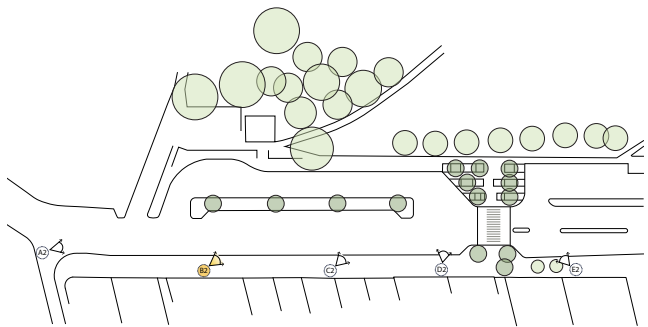


Figure 29: Viewpoint on plan B2



Figure 30: View B2- existing conditions





**View B2/5**  
 Figure 31 (photograph by Motion Cinematic)



**View B2/10**  
 Figure 32 (photograph by Motion Cinematic)

# VIEWS C1/5 & C1/10

## Direction and distances

The view is elevated in alignment with a level 1 balcony and is in a north easterly direction.

The viewing distance is approximately distance of 35 metres.

## View descriptions

The elevated view at a level 1 balcony location shows the foreground dominated by the painted pedestrian crossing and road. The foreground is visually complex, with a variety of streetscape furniture occupying the space. Car, motorcycle, cycle, pedestrian and bus movements add to the dynamic nature of the view. The tall individual palms are dominant, appearing as strong vertical silhouettes against water and sky. The green turf of Bronte Park in the midground provides a visual contrast to the blue ocean and gray pavements. The view to ocean and sky is expansive with distant northerly views of the coastal headland.

View C1/5 indicates the cluster of palms, even in canopy height which visually occur below the existing palm trees. From this perspective the palms provide a secondary layer of canopy, which partially obscures a section of the ocean foreshore. The palm canopies sit below the horizon line.

View C1/10 indicates that the taller palm canopy appear above the existing palms silhouetted against the skyline, while maintaining views through to the water. The proposed palms mimic the existing palms in height, adding further verticality to the group of palms.

## C1/5

### Visual sensitivity

High

The view is in close proximity to parkland, beach and ocean. A visually cluttered foreground gives way to expansive views of ocean and sky with coastal headlands receding in the distance. Existing single palm plantings form dominant vertical elements in the mid-ground.

### Visual magnitude

Moderate-Low

Proposed lower palm planting height sits below the horizon maintaining an uninterrupted horizon line. A section of water view is partially obscured by visually connected palm canopy.

### Visual impact rating

Moderate

## C1/10

### Visual sensitivity

High

The view is in close proximity to parkland, beach and ocean. A visually cluttered foreground gives way to expansive views of ocean and sky with coastal headlands receding in the distance. Existing single palm plantings form dominant vertical elements in the mid-ground.

### Visual magnitude

Moderate- Low

Proposed taller palm planting height sits well above the horizon, appearing taller than existing single palms. The taller palms reinforce the strong vertical nature of existing single palms while maintaining views through clean trunks to the horizon line and distant headland.

### Visual impact rating

High-Moderate

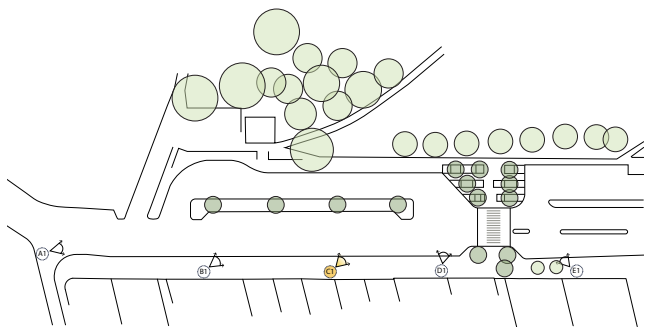


Figure 33: View point plan C1



Figure 34: View C1- existing conditions





**View C1/5**

Figure 35 (photograph by Motion Cinematic))



**View C1/10**

Figure 36 (photograph by Motion Cinematic))





**View C2/5**

Figure 37 (photograph by Motion Cinematic)



**View C2/10**

Figure 38 (photograph by Motion Cinematic)

# VIEWS C2/5 & C2/10

## Direction and distances

The view is elevated in alignment with a level 2 balcony and is in a north easterly direction.

The viewing distance is approximately distance of 35 metres

## View descriptions

Uninterrupted expansive views to park, beach, ocean and headland are maintained in view C2/5, with the 5 metre palms appearing well below the horizon line, with palm canopies appearing against a backdrop of green turfed area.

View C2/10 indicates that taller palms at a height of 10 metres join with the canopies of existing palms to add vegetation in line with the ocean horizon. This further screens the horizon line, but does not impinge any further north into the ocean view than palms already existing. The proposed palm canopies are dominant against the skyline in the foreground.

## C2/5

### Visual sensitivity

High

A more elevated location in close proximity to parkland, beach and ocean. A section of beach is visible with similar expansive views of the coastline, ocean and broad sky as views C1. The existing palms sit on the horizon line.

### Visual magnitude

Negligible

Proposed lower palm planting height sit against a backdrop of turfed area, with no impact on views to the beach, ocean, horizon line and receding coastal headlands.

### Visual impact rating

Moderate

## C2/10

### Visual sensitivity

High

A more elevated location in close proximity to parkland, beach and ocean. A section of beach is visible with similar expansive views of the coastline, ocean and broad sky as views C1. The existing palms sit on the horizon line.

### Visual magnitude

Moderate-Low

Proposed taller palms together with existing palms sit either above or at the same level as the horizon line to visually screen a greater portion of the horizon line and distant sky. Filtered views through the trunks are possible.

### Visual impact rating

High-Moderate

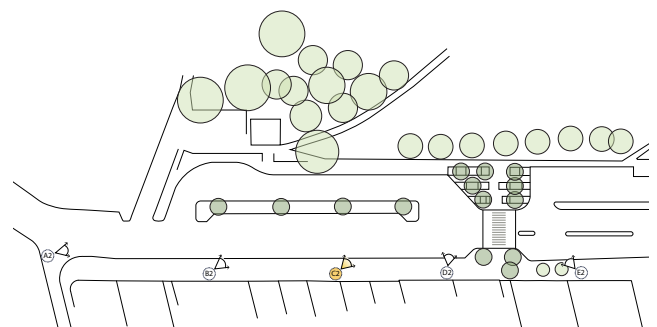


Figure 39: View point plan C2



Figure 40: View C2- existing conditions





**View D1/5**

Figure 41 (photograph by Motion Cinematic))



**View D1/10**

Figure 42 (photograph by Motion Cinematic))



# VIEWS D1/5 & D1/10

## Direction and distances

The view is elevated in alignment with a level 1 balcony and is in a northerly direction.

The viewing distance is approximately distance of 20 metres

## View descriptions

This viewpoint is in close proximity to the proposed plaza space. The foreground is dominated by roadway and pedestrian crossing. A row of mature individual palms create a strong vertical rhythm within the view composition. The canopies of the trees occur well above the horizon line against the broad skyline. In the middle distance, the topography falls away quickly from the road to the broad turf area of Bronte Park. A well-defined edge of low walling, separates the park from the beach. An area of sandy beach occurs within the mid distance, with a gentle arc of surf and an expanse of ocean visible in the eastern portion. The urban coastal headland, comprising of residential properties intensively stacked against one another form the backdrop. The headland recedes in the distance becoming more natural in character where it meets the ocean.

In View D1/5 Proposed palm planting in the range of 5 to 5.5 metres creates an even canopy height which visually connects to obscure views to the Bronte Beach northern headland, the distant headland and a significant portion of ocean. Views to the parkland are maintained. Views to the sand are screened minorly.

In View D1/10 Palm planting at a height of 10 metres also provides an even, high, visually connected canopy. At this height, the palms make a strong vertical statement, dominating the skyline. The slender, clean trunks allow for views through the midground and beyond, making it possible to see the more immediate beach headland and distant headland, sand, surf and ocean.

## D1/5

### Visual sensitivity

High

The view is in close proximity to the proposed plaza space and occurs within the currently existing roadway. The viewpoint takes in parkland to the west and the beach, ocean and coastal headland to the east. The ocean horizon is visible with an expansive skyline. Existing tall single stem palms dominate the mid-ground.

### Visual magnitude

High

Proposed palm planting at the lower height would substantially limit views to the distant coastal headland, ocean and horizon line. The proposed palm planting creates an even, secondary layer to existing palms, forming a continuous canopy, obscuring

water views.

## Visual impact rating

High

## D1/10

### Visual sensitivity

High

The view is in close proximity to the proposed plaza space which occurs within the currently existing roadway. The viewpoint takes in parkland to the west and the beach, ocean and coastal headland to the east. The ocean horizon is visible with an expansive skyline. Existing tall single stem palms dominate the mid-ground.

### Visual magnitude

Moderate-Low

Proposed taller palms enables a larger degree of transparency, with views through to ocean, headland and sky above maintained. The horizon is visible through palm trunks. The proposed palms would create a strong vertical statement alongside the existing tall palms.

## Visual impact rating

High-Moderate

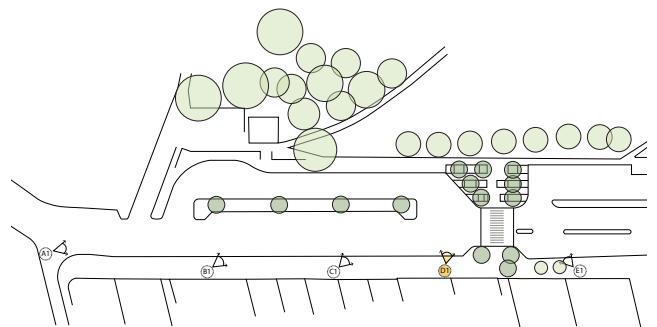


Figure 43: Extent of view



Figure 44: View D1- existing conditions



**View D2/5**

Figure 45 (photograph by Motion Cinematic)



**View D2/10**

Figure 46 (photograph by Motion Cinematic)



# VIEWS D2/5 & D2/10

## Direction and distances

The view is elevated in alignment with a level 2 balcony and is in a northerly direction.

The viewing distance is approximately distance of 20 metres.

## View descriptions

At a higher elevation of View D2/5, 5 metre palms in the plaza space appear as a secondary layer of palms, sitting under the existing tall palms. The shorter palm canopies appear against the backdrop of the parkland with only minor screening of the beach. Ocean and headland views are maintained.

In View D2/10 taller palms match in height with the existing palms to create a visually connected canopy of palm fronds silhouetted against the sky. The view highlights the visual dominance in the foreground of the upright trunks contrasting against the coastal backdrop. Ocean and headland views through the trunks are maintained.

## D2/5

### Visual sensitivity

High

Elevated view in close proximity to the proposed plaza space and palm planting similar to View D1.

### Visual magnitude

Negligible.

Lower palms canopies viewed from this vantage point occur against a background of parkland with negligible screening of the beach. Long distance ocean and headland views are maintained.

### Visual impact rating

Negligible

## D2/10

### Visual sensitivity

High

Elevated view in close proximity to the proposed plaza space and palm planting similar to View D1.

### Visual magnitude

Moderate – Low

Proposed taller palm plantings visually connect with existing palms to create a substantial visual statement of palm canopies and vertical trunks silhouetted against parkland and sky. Palm heights make it capable for the viewer to see the ocean and headland beyond through palm trunks.

### Visual impact rating

High-Moderate

Figure 47

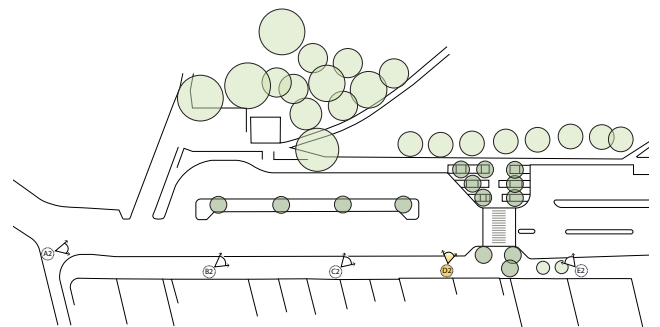


Figure 47: View point plan D2



Figure 48: View D2- existing conditions



**View E1/5:**  
Figure 49 (photograph by Motion Cinematic)



**View E1/10**  
Figure 50 (photograph by Motion Cinematic))



# VIEWS E1/5 & E1/10

## Direction and distances

The view is elevated in alignment with a level 1 balcony and is in a north-westerly direction.

The viewing distance is approximately distance of 30 metres.

## View descriptions

Typical of most of the residential viewpoints, the expanse of road pavement including the bus terminus dominate the foreground with the road rising gently to the west. The eastern mid ground of turfed open space visually contrasts with the expanse of road. The existing row of tall palms along the parks edge give way to a substantial grouping of mature trees, with pines in particular commanding the skyline. The mass planting significantly blocks westward views. Residential development along the ridgeline is visible in the distance.

Similar to other views the cluster of palms in view E1/5 form a contiguous canopy in the midground. The cluster of palms blends into the large mass of mature vegetation in the background. The proposed palms obscure a distant, small section of open space within Bronte Park. The canopies sit well below the skyline.

If planted in the 10 metre range, View E1/10 reveals that the palms reinforce the existing row and dominate a small section of the skyline. Due to the significant mass planting in the background, the majority of the palms form a coherent mass which blends naturally with this vegetation.

## E1/5

### Visual sensitivity

Moderate

The view is westward facing looking to Bronte Park.

### Visual magnitude

Negligible

The viewpoint focusses on the plaza space and planting relative to Bronte Park. It does not consist of expansive ocean and coastline. Palm canopies are viewed against a backdrop of parkland.

### Visual impact rating

Negligible

## E1/10

### Visual sensitivity

Moderate

The view is westward facing looking to Bronte Park

### Visual magnitude

Low

Palms at the proposed higher level appear to naturally blend with the significant mature tall vegetation behind. The palm canopies sit above the distant ridgeline, partially screening a minor area of sky and residential development.

### Visual impact rating

Moderate-Low

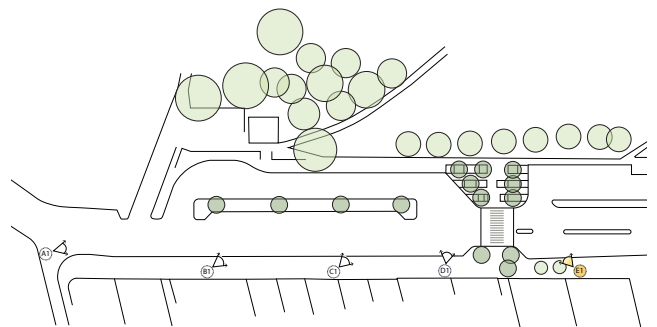


Figure 51: View point plan E1



Figure 52: View E1- existing conditions

# VIEWS E2/5 & E2/10

## Direction and distances

The view is elevated in alignment with a level 2 balcony and is in a north-westerly direction.

The viewing distance is approximately distance of 30 metres.

## View descriptions

In view E2/5 the proposed plaza space and planting will take up a significant portion of the view currently occupied by road. The palm heads at an even, lower height, connect together to form a continuous canopy of fronds which partially obscure the turfed area of Bronte Park.

The proposed taller palms in view E2/10 maintain views through to the parkland, matching in height with the existing palms. The higher canopies sit at the same level as the skyline, obscuring an existing palm head and distant views to ridgeline residential development.

## E2/5

### Visual sensitivity

Moderate

The view is more elevated than View E1 facing westward to Bronte Park with residential ridgeline development in the background.

### Visual magnitude

Negligible

The viewpoint focusses on the plaza space and planting relative to Bronte Park. It does not consist of expansive ocean and coastline. Palm canopies are viewed against a backdrop of parkland.

### Visual impact rating

Negligible

## E2/10

### Visual sensitivity

Moderate

The view is more elevated than View E1 facing westward to Bronte Park with residential ridgeline development in the background.

### Visual magnitude

Low

Palms at the proposed higher level appear to naturally blend with the significant mature tall vegetation behind. Some palm canopies sit at the distant ridgeline level, partially screening a minor portion of ridgeline residential development.

### Visual impact rating

Low-Moderate

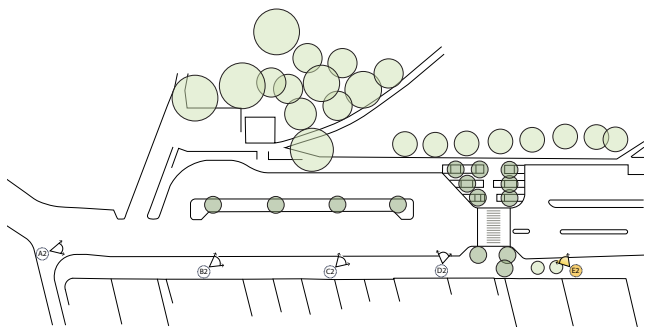


Figure 53: View point plan E2



Figure 54: View E2- existing conditions





**View E2/5**

Figure 55 (photograph by Motion Cinematic)



**View E2/10**

Figure 56 (photograph by Motion Cinematic)

# VIEWS F3/5 & F3/10

## Direction and distances

View F is a private view at an elevation in alignment with a level 3 balcony location in an easterly direction.

The viewing distance is short range, approximately 25 metres.

## View descriptions

View F3/5 presents an elevated, commanding view north over the parkland, beach, ocean, headland and expansive sky. A significant portion of the existing road would be occupied by the proposed plaza and palms. In View F3/5, The lower height palms maintain the view to the beach, ocean and distant coastal headlands. Palm canopies only partially obscure turf areas.

View F3/10 shows the taller palm height dominating the horizon line, matching in height with the existing palms. The palm canopies sit either on the horizon or just above to obscure distant ocean views.

## F3/5

### Visual sensitivity

High

Elevated northerly viewpoint in close proximity to parkland, beach, ocean and coastal headland. Roadway appears in the foreground. Expansive sky with existing tall palm canopies sitting at skyline level.

### Visual magnitude

Negligible

Lower height proposed palm plantings can be viewed against a turfed parkland backdrop. No proposed palm canopies obstruct beach or long distance views to water and headland.

### Visual impact rating

Negligible

## F3/10

### Visual sensitivity

High

Elevated northerly viewpoint in close proximity to parkland, beach, ocean and coastal headland. Roadway appears in the foreground. Expansive sky with existing tall palm canopies sitting at skyline level.

### Visual magnitude

High – Moderate

Proposed tall palms contribute to the portion of palm canopy sitting in line with horizon, obscuring a substantial section of distant views to the horizon. It is possible to view through the tall trunks to the ocean. The coastal headland is visible.

### Visual impact rating

High

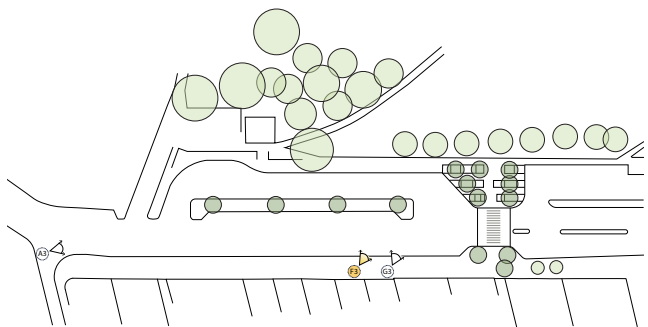


Figure 57: View point plan F3



Figure 58: View F3- existing conditions





**View F3/5**

Figure 59 (photograph by Motion Cinematic)



**View F3/10**

Figure 60 (photograph by Motion Cinematic)

# VIEWS G3/5 & G3/10

## Direction and distances

The view is elevated in alignment with a level 3 balcony and is in a northerly direction.

The viewing distance is approximately distance of 22 metres.

## View descriptions

This viewpoint presents a panoramic view dominated by an extensive sky with much of the foreground occupied by green open space and the well-defined arc of beach edge. Typically, the existing tall palms dominate the foreground, with their palm heads rising to meet with the ocean horizon line.

View G3/5 indicates that the proposed lower palms would sit in line with existing lower palms against the parkland backdrop, appearing as individual trees within the landscape.

View G3/10 is similar to View F3/10, showing the taller palm height dominating the horizon line, blending with the existing palms behind. The palm canopies sit on the horizon obscure distant ocean views.

## G3/5

### Visual sensitivity

High

Panoramic northerly view of the coastline in close proximity to proposed plaza space and palm planting. Existing palm canopies are visible on the horizon line.

### Visual magnitude

Negligible

Lower palm heights and canopies sit within the greenbelt of parkland and do not affect mid-ground or distant views of beach and coastline.

### Visual impact rating

Negligible

## G3/10

### Visual sensitivity

High

Panoramic northerly view of the coastline in close proximity to proposed plaza space and palm planting. Existing palm canopies are visible on the horizon line.

### Visual magnitude

High

Proposed taller palms mimic the existing palms in scale, height and position to screen additional portion of the horizon. Views through palm trunk to the beach and ocean are maintained.

### Visual impact rating

High

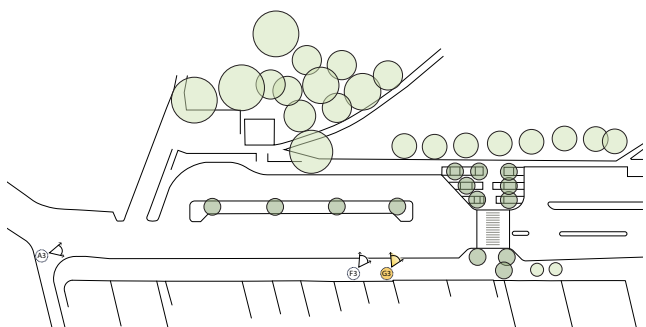


Figure 61: View point plan G3



Figure 62: View G3- existing conditions





**View G3/5**

Figure 63 (photograph by Motion Cinematic)



**View G3/10**

Figure 64 (photograph by Motion Cinematic)

## 9.0 CONCLUSION

### Visual Impact Results

The visual impacts of the proposed village upgrade, with a particular focus on palm planting impacts from the assessed views, ranges from negligible to high. A summary of the assessed view impact is provided in the following tables. For the purposes of analysis, the tables have been split in accordance with viewing level (levels 1, 2 & 3) and the corresponding values of the two palm heights noted. It was established that due to the nature of the view itself, visual sensitivity values were consistently “High-Moderate” or “High”. This sensitivity took into consideration that the views are all private and residential in nature with high value placed on water views and the ability to see broadly, that is, an expanse of water, sky and the horizon line. Only one viewpoint View E, was orientated westwards, away from the water views and therefore had a lower sensitivity value.

At level 1, one view impact was considered high for the 5 metre palm height. The impact of palm height on views was equally shared between the 5 and 10 metres as modelled, reinforcing the highly personal nature of each view. This pattern of equal impact at both heights was repeated amongst all levels tested. At levels 2 and 3, the higher palm height had more detrimental impact on views than the lower height. Generally higher impact readings were due to the following reasons:

- + Physical dominance of taller palms
- + Close proximity of planting
- + Equal height palm canopies appearing to be visually connected (at either height)
- + Palm canopies as singular entities or en masse obscuring water views (at either height)
- + Palm canopies appearing level with the horizon, impacting on the ability to see a continuous line (at either height).

Table 3: Summary of Visual Impact Ratings Level 1

VIEWS				
	Level 1 total	5-5.5m palm ht	10m palm ht	% of views
Negligible	3	3		30
Low	0	0		0
Moderate-Low	1		1	10
Moderate	2		2	20
High-Moderate	3	1	2	30
High	1	1	0	10

Figure 65

Table 4: Summary of Visual Impact Ratings Level 2

VIEWS				
	Level 2 total	5-5.5m palm ht	10m palm ht	% of views
Negligible	5	4	1	50
Low	0			
Moderate-Low	1		1	10
Moderate	1	1		10
High-Moderate	3		3	30
High	0	0	0	0

Figure 66

Table 5: Summary of Visual Impact Ratings Level 3

VIEWS				
	Level 3 total	5-5.5m palm ht	10m palm ht	% of views
Negligible	4	3	1	66
Low	0	0	0	0
Moderate-Low	0	0	0	0
Moderate	0	0	0	0
High-Moderate	0	0	0	0
High	2	0	2	34

Figure 67

To summarise, of the 26 views tested, the majority of these views were tested at levels 1 and 2 balcony heights. Testing of level 3 balcony heights was limited, since there were fewer residential properties at this level. Modelling palms at two differing heights and across all three levels, it was determined that high visual impacts were recorded for Views D1/5, F3/10 and G3/10. In all three cases the palm planting at either height appeared to significantly impact on water views, in particular, the loss of the horizon line where sky meets water as well as obscuring portions of the water. This was exacerbated if palms were planted at an even height.



In contrast, approximately half of the modelling, representing 12 of the 26 views, resulted in a negligible impact. This was due to following reasons:

- + Palms with canopies appearing against a backdrop of parkland, appearing visually contained with Bronte Park
- + Palms which do not obscure ocean views
- + Palms which do not screen the horizon line
- + Palms allowing for views through to water
- + Palms appearing as single elements
- + Palms which blend seamlessly with existing vegetation

The next highest impact value was High-Moderate at 23% followed equally by High and Moderate values at 11.5% each. As discussed, High Moderate results came about due to the high-moderate and high visual sensitivity ratings. Even if the visual magnitude was moderate-low, meaning that the planting had limited impact on the view, the combined value of sensitivity and magnitude deemed overall view impact as High-Moderate.

Table 6: Summary of Visual Impact Ratings - All

VIEWS		
	Total No. of Views	% of Views
Negligible	12	46
Low	0	0
Moderate-Low	2	8
Moderate	3	11.5
High-Moderate	6	23
High	3	11.5

Figure 68

## Mitigation

Assessing the two palm heights at a range of viewpoints and elevations has highlighted the complexity in undertaking tree planting which will result in the least impact for the majority of viewers. This assessment also needs to consider that trees are not static, continuing to grow over time. Keeping this in mind, it is important to note that the palms species were selected for the following reasons:

- + Suitability of the species to thrive in a front line coastal location with an ability to withstand salt laden winds and predominantly sandy soils.
- + Complementary to the existing landscape character, with other palm species evident within Bronte Park.
- + The relatively slow growing nature of the species (average growth rate of 1 metre every 10 years)
- + The compact palm head with a reasonable level of foliage transparency allowing for views through.

Other options which could result in further mitigation of view impacts would likely entail:

- + Review of palm locations
- + Further testing of palm heights when planted, possibly utilising a variety of heights to minimise impacts
- + Ongoing Management of palm canopies to maintain compact heads.
- + Reduced number of palms

## Conclusions

The visual assessment presents the range of impacts that the palm planting would result in for the proposed Bronte Village upgrade. It is important to note that all views discussed are private residential views. Bronte Village is a popular, busy beachside destination patronised by locals and the visiting public. There is a high level of movement of people between the retail strip and beach during the summer months with the need to provide an appropriately-scaled plaza space to cater for existing and future pedestrians. The space allows for somewhere to gather, contemplate the view and forms the landing point to safely cross Bronte Road. It creates a pedestrian sense of scale, shade and seating as well as highlighting the southern entry to Bronte Park and beach.

The assessment demonstrates that the upgrade can be implemented while taking care to minimise visual impacts on immediate residential views by carefully examining heights at which palm planting is implemented. It should also be noted that the palm species has been selected due to their compact canopy, degree of transparency through their crown and slow growth rate. Slower growth rates ensures a more predictable visual outcome over time.

It is challenging to propose palm planting in this location without having some degree of impact on existing views while also considering that palms grow over time. Half the locations tested resulted in negligible impact. However 13 viewpoints of the 26 modelled experienced high to high-moderate impact. While species selection issues have been addressed at the planning stage, it becomes a question of achieving an acceptable degree of impact across the range of views. There is potential to further minimise impacts, particularly with respect to the three "high" impact ratings (x 3) by employing one or more of the mitigation options discussed.





www.groupgsa.com  
ARN 3990

---

## Sydney

Level 7, 80 William Street  
East Sydney NSW 2011  
Australia  
T +612 9361 4144  
E sydney@groupgsa.com

---

## Melbourne

Level 1, 104 Exhibition Street  
Melbourne VIC 3000  
Australia  
T +613 9416 5088  
E melbourne@groupgsa.com

---

## Brisbane

Level 14, 100 Edward Street  
Brisbane QLD 4000  
Australia  
T +617 3210 2592  
E brisbane@groupgsa.com

---

## Gold Coast

Suite 30201 Southport Central Tower 3,  
Level 2, 9 Lawson St  
Southport QLD 4215  
Australia  
T +617 3036 4200  
E goldcoast@groupgsa.com

---

## Perth

Level 2, 307 Murray Street  
Perth WA 6000  
Australia  
T +618 6313 2125  
E perth@groupgsa.com

---

## Beijing

F2-S01-R09, Soho 3Q Guanghualu SOHO2 N.9  
Guanghualu, Chaoyang District, Beijing  
PR China  
T +86 (0)10 5327 4697  
E beijing@groupgsa.com

---

## Shanghai

Room 407, No. 71, Xi Suzhou Road Jingan District  
Shanghai 200041  
PR China  
T +86 (0)21 5213 6309  
E shanghai@groupgsa.com

---

## Ho Chi Minh City

19th Floor – Havana Tower, 132 Ham Nghi,  
Ben Thanh Ward, District 1, Ho Chi Minh City  
Vietnam  
T +84 8 3827 5385  
E hcmc@groupgsa.com

---

## Hanoi

2nd Floor, 5A/111 Xuan Dieu Street, Quang Tay Ward  
Tay Ho District, Ha Noi  
Vietnam  
T +84 24 3266 8025  
E hanoi@groupgsa.com

# **Appendix G**

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Bronte Village Upgrade Spill Light  
Assessment – Lighting, Art + Science





8 October 2018  
L144Z\_R01\_P1

## **Bronte Beach Village Upgrade Spill Light Assessment**

Lighting, Art + Science has been engaged by Group GSA to prepare an assessment of the streetlighting impact onto residential properties at the residential boundaries along Bronte Road (between street numbers 459 and 497) from the existing and proposed streetlighting.

Measurement of existing light levels is not feasible for this type of study as the measurement would include contributions from all light sources switched on at the time of the measurement.

The methodology for the assessment of existing street lighting has been as follows:

- 1) Inspect the entire route to identify the existing street lighting luminaires installed, the mounting height and outreach arm
- 2) Transpose the survey data into AGi 32, a highly respected industry standard lighting calculation software, to establish the present lighting levels
- 3) Modelled the existing street set up in AGi 32 including obstructions to lighting from existing structures (awnings)
- 4) Where photometric data is available for surveyed existing light fittings it has been used. Where photometric data is not available for existing light fittings the data from an equivalent lighting fitting was used

### **ASSESSMENT OF SPILL LIGHTING**

By its nature, light cannot be simply stopped on property boundaries. Some light spill is a natural consequence of living in an urban environment. The problem in an urban environment is to prevent people from being subjected to an unreasonable amount of spill lighting while still allowing reasonable external lighting installations.

Any lighting, even internal lighting will have some effect on the neighbouring residences.

Different people have different opinions as to what is an acceptable level of light trespass. Some people can be quite unreasonable as to what they are willing to accept and complaints about lighting can be part of an overall objection to the proposal.

The Australian standard AS4282-1997 'Control of the obtrusive effects of outdoor lighting' was therefore written to set a benchmark as to what a person should be reasonably expected to tolerate as a result of an adjacent lighting installation.

Public lighting is exempt from the standard as public safety is generally considered more important than the discomfort of an individual.

Even though the Standard exempts public lighting we have used the calculation methodology to establish the impact of the spill light resulting from the existing lighting installation and the proposed lighting scheme onto the residential properties along Bronte Road (between street numbers 459 and 497).

Illuminance lighting calculations were set up in the vertical plane along the facades of the residential properties, to determine the streetlighting and proposed streetlighting contribution.

## Light technical parameters

*Illuminance in the vertical plane* – This is a measure of the general light spill onto the property and is calculated at the residential property line in the vertical plane and facing perpendicular to the fence. This is compared to the sports lighting which is measured on the horizontal playing surface.

The illuminance in the vertical plane is an assessment of the extent to which the lighting will light up a residential property adjacent to the lighting installation.

The Illuminance reduces proportionally to the square of distance from the light source. As a result the distance from the light source is a major way of ameliorating vertical illuminance.

The illuminance used for assessment is only the direct illuminance resulting from the installation; that is the light that comes directly from the light fittings.

In all installations there is also reflected light that is reflected off the ground, walls of building, objects in the lit area and in some cases reflections from clouds and the sky.

Direct illumination can be readily and reliably calculated. Indirect or reflected illumination is a result of light reflected off the ground and other surfaces and will change depending on things like the colour of clothes people are wearing, whether flowers are in bloom or leaves are green, ground finishes etc. Although it does have an effect, it cannot be definitively calculated and therefore cannot be included in this assessment.

As a result measurements of the illuminance would always be higher than the calculated result as they would include ambient light and reflected light.

### Comparison between existing street lighting and proposed street lighting on the buildings, calculated on the vertical plane

LOCATION	EXISTING STREET LIGHTING MAX ILLUM VALUE (lx)	PROPOSED STREET LIGHTING MAX ILLUM VALUE (lx)
OLA 459	36.8	35.9
OLA 461	19.9	17.4
OLA 463 - 469	10.5	11.2
OLA 471	26.5	14.0
OLA 473	26.4	14.3
OLA 475	12.6	5.3
OLA 477	6.9	9.0
OLA 481 - 485	20.4	11.1
OLA 487 - 491	13.2	27.0
OLA 493	8.4	15.2
OLA 495	9.5	5.8

**Table 1 - Comparison between existing street lighting and proposed street lighting**

- Existing street lights (Num. 1 & 2) located on the intersection of Nelson Ave and Bronte Road were kept on the proposed street lighting design - spill lighting calculation. In the future, these street lights will most likely be removed and Multi Function Poles installed. When that happens the Illuminance levels on the facades of buildings 459, 461 and 463 will reduce substantially to maximum illuminance values of 11.6 lux, 12.8 lux and 10.5 lux respectively.



- Proposed new street lighting design shows reduced illuminance values on building façades n. 471, 473, 475, 481-485, 495
- Proposed new street lighting design shows marginally higher illuminance values on building façade n. 477
- Proposed new street lighting design shows higher illuminance values along building façades n. 487 & 493. This is a result of the addition of floodlighting to the new pedestrian crossing in that area and the higher illumination levels required for a pedestrian crossing.

These results are shown on the plans attached to this report (CL01-P1 & CL02-P1). To see the values on the façades please zoom into the PDF to inspect the values.

Lighting, Art & Science Pty Ltd

Maria Albuquerque

# **Appendix H**

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Bronte Village Streetscape Upgrade  
Construction Traffic Management Plan –  
Bitzios Consulting





# **BRONTE VILLAGE STREETScape UPGRADE CONSTRUCTION TRAFFIC MANAGEMENT PLAN**

**FOR**

**GROUP GSA ON BEHALF  
OF WAVERLEY COUNCIL**

**BITZIOS**  
consulting

**Gold Coast**

Suite 26, 58 Riverwalk Avenue  
Robina QLD 4226  
P: (07) 5562 5377  
W: [www.bitziosconsulting.com.au](http://www.bitziosconsulting.com.au)

**Brisbane**

Level 2, 428 Upper Edward Street  
Spring Hill QLD 4000  
P: (07) 3831 4442  
E: [admin@bitziosconsulting.com.au](mailto:admin@bitziosconsulting.com.au)

**Sydney**

Studio 203, 3 Gladstone Street  
Newtown NSW 2042  
P: (02) 9557 6202

Project No: P2960

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Issue date: 4 May 2018

## DOCUMENT CONTROL SHEET

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P2960.001R Bronte Village Streetscape CTMP	G.Yin/J.Yang	M.Thompson	M.Thompson	4/5/18	Tim Field and Felicity Ratcliffe, Group GSA

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## 1. INTRODUCTION

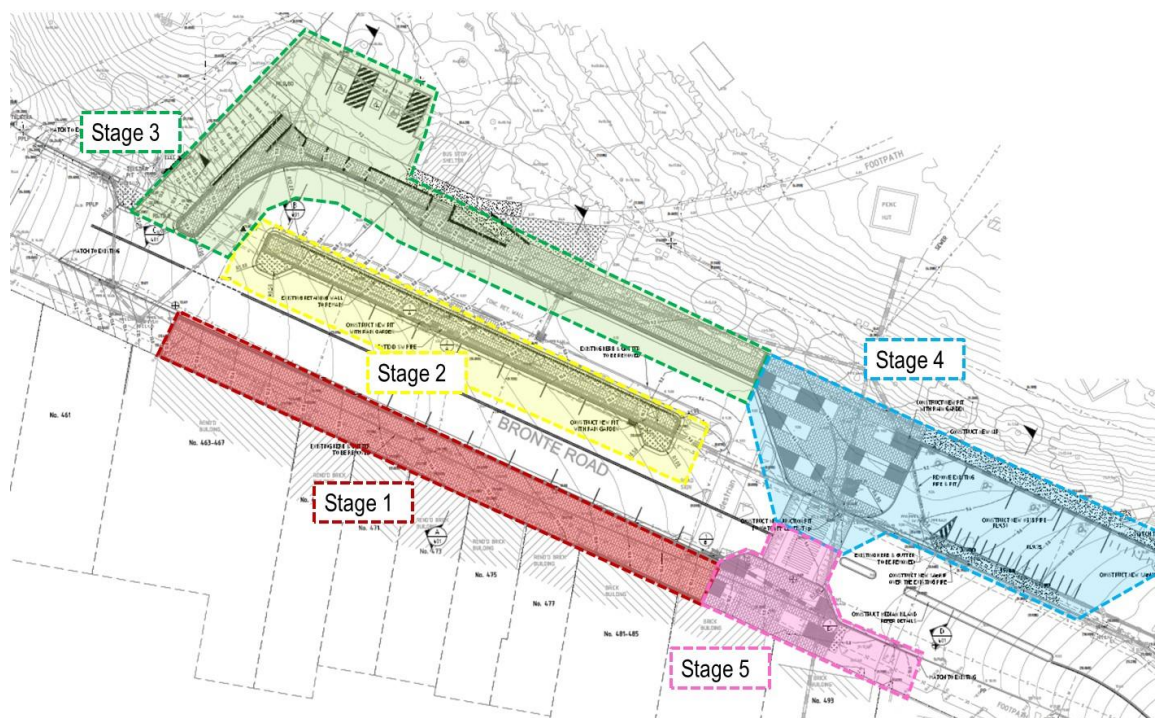
### 1.1 BACKGROUND

Bitzios Consulting has been engaged by Group GSA on behalf of Waverley Council to prepare a high-level, strategic Construction Traffic Management Plan (CTMP) for the Bronte Village Street Scape Upgrade project. This will form a template for the contractors on this project, as they base their traffic management works on this document.

The current timeline for the project indicates construction commencing mid-late 2018.

### 1.2 WORK STAGES

The construction of the project could be undertaken in a similar order to the following stages, which will have implications on traffic management and public transport in the area. Figure 1.1 outlines proposed stages of work, with a detailed summary of each stage below. This is subject to change by either Waverley Council and/or their contractor and is for indicative purposes only.



**Figure 1.1: Staging of Works**

#### ***Stage 1: Reconstruction of Southern Kerb***

This stage involves street scaping upgrades of the southern side of Bronte Road along shop frontages, including:

- realignment of existing kerbside; and
- repaving of the surface.

#### ***Stage 2: Reconstruction of Northern Kerb and Bus Terminus (South)***

This stage involves the reconstruction of the southern side Bronte Bus Terminus and the northern kerbside of Bronte Road. This work includes:

- realignment of kerb on the southern side of the terminus;
- re-alignment of kerb on the northern side of Bronte Road;
- landscaping;
- surface repaving on the northern side of Bronte Road; and
- modification to the bus terminus entrance.

**Stage 3: Reconstruction of Bus Terminus (North)**

This stage involves the reconstruction of the northern side of Bronte Bus Terminus. This work includes:

- realignment of northern kerb within the bus terminus;
- construction of cantilevered structure;
- modifications to bus terminus entry;
- modifications to lower car park; and
- surface repaving.

**Stage 4: Construction of Bus Terminus Exit and Pedestrian Crossing (north)**

This stage involves the construction of the bus terminus exit (kerb build out) and initial construction of the raised crossing. This work involves:

- realignment of kerb at the terminus exit (kerb build out);
- modifications to the Calga Place entrance and footpath;
- construction of the northern side of the new crossing (raised platform);
- surface repaving; and
- landscaping.

**Stage 5: Construction of Crossing (south)**

This stage involves the construction of the remainder of the raised crossing and tying in to Stage 1 works. This work includes:

- construction of southern side of raised platform;
- tie in raised platform with kerb build out; and
- surface repaving.

**1.3 SCOPE OF THIS PLAN**

The scope of this CTMP is to provide a high-level overview of Bronte Village Streetscape Upgrade project. It identifies overall constraints, issues and provides potential solutions to selected issues expected in the project.

A more detailed site specific CTMP is to be completed for each work area by the contractor performing the work in the area in question.

**1.4 COUNCIL'S AUTHORITY**

Council is authorised by the Roads Regulation 2008 to appoint traffic controllers and direct traffic and is registered under the RTA's Registration Scheme Category G.

## **1.5 GENERAL PROJECT REQUIREMENTS**

- Noise from construction activities shall comply with the Protection of the Environment Operations (Noise Control) Regulation 2008; and
- The project is follow the relevant council, state and federal guidelines regarding the environment.

### **1.5.1 Work Hours**

Works are to be undertaken between the following hours:

- Monday – Friday: 07:00 – 17:00; and
- Saturday: 08:00-15:00.

No work is to be undertaken on:

- Saturdays and Sundays that form part of public holiday weekends;
- Sundays;
- Public Holidays; and
- Saturdays and Sundays which immediately precede or follow industry Rostered Days Off as agreed by the CFMEU and Master Builders Association of NSW.

## 2. **MANAGEMENT OF THE CTMP**

Waverley council has warranted that it will provide people, materials, resources, and systems to properly perform the Services including related traffic management.

Council and the RMS require the people to be competent, experienced, and qualified to carry out the services.

The RMCC Organisational Chart and the people hiring the positions are to be shown in the Contract Management Plan.

## 3. **IMPLEMENTATION**

Traffic Management for the project site will be in accordance with the Roads and Maritime Services Traffic Control at Work Sites Manual as modified to site conditions.

## 4. **TRAFFIC CONTROL PLANS**

Any changes to traffic through or around a work site or temporary hazard will require a Traffic Control Plan (TCP) that has been designed and approved by Roads and Maritime Services accredited personnel with the appropriate and current qualification as outlined in Roads and Maritime QA specification G10 Traffic Management Clause 1.5.3.

A Road Safety Audit (RSA) should be undertaken of the existing road conditions and the TCPs prior to their implementation.



## 5. IMPACTS ON EXISTING CONDITIONS

### 5.1 PEDESTRIANS

Pedestrian access must be maintained during the works. Existing disability access, where provided, must be ensured, following the requirements set out in the Disability Discrimination Act, and Disability Standards for Accessible Public Transport. Alternative services are to be considered, such as offering connections or pickup services between destinations or bus stops.

Pedestrian Management Plans (PMPs) must be created for any redirection of pedestrian movements from existing paths.

### 5.2 BUSES

#### 5.2.1 Bus Stops

Bronte Village is serviced by one local bus service, with multiple bus services running in the local area. A map showing the local bus routes near and around the subject site is shown in Figure 5.1.



Adapted from Google Maps

**Figure 5.1: Bus Route Map**

Buses operate within the site, with the Bronte Beach Bus terminus (and associated drop-off bus stop on Bronte Road) being one of the areas undergoing a streetscape upgrade. As the bus terminus acts as a turnaround facility for State Transit buses, buses will need to be provided an alternative turn around point / facility to maintain bus operation in the event the terminus is fully closed during construction.

The bus stops at Bronte Bus Terminus are expected to experience the most disruption from works. To accommodate these impacts, the following amendments to bus stops are proposed.

Stage 1:

- Relocate bus stop (TSN 202435) drop off only, to within the Bus Terminus. This is to the west of the pickup bus stop (TSN 202436), as shown in Figure 5.2.

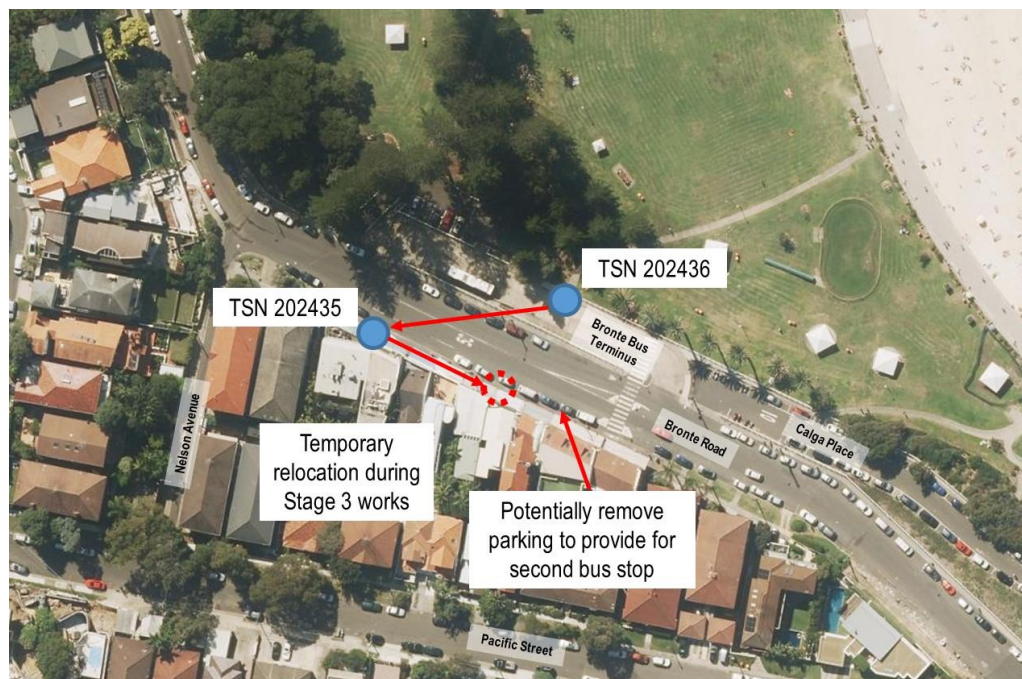


Adapted from NSW Six Maps

**Figure 5.2: Relocation of bus stops for Stage 1**

Stage 3:

- Relocate bus stop (TSN: 202435) drop off only, east on Bronte Road; and
- Relocate bus stop (TSN: 202436) to previous location of bus stop (TSN: 202435) on the southern kerb of Bronte Road. This would be while works are occurring within the Bus Terminus facility, as shown in Figure 5.3.



Adapted from NSW Six Maps

**Figure 5.3: Relocation of bus stops for Stage 3**

The final stage of works will involve closing one side of Bronte Road to construct the raised crossing east of the bus terminus.



## 5.2.2 Bus Routes

As Bronte Road west of the terminus is narrow, buses are not to proceed beyond the terminus entrance. As a result, buses must be able to perform a turn-around manoeuvre, using the roadway or bus terminus, at all times, during construction works. The Route 379 bus service, which services the site is to follow the same route as current operations.

## 5.2.3 Bus Interchanges

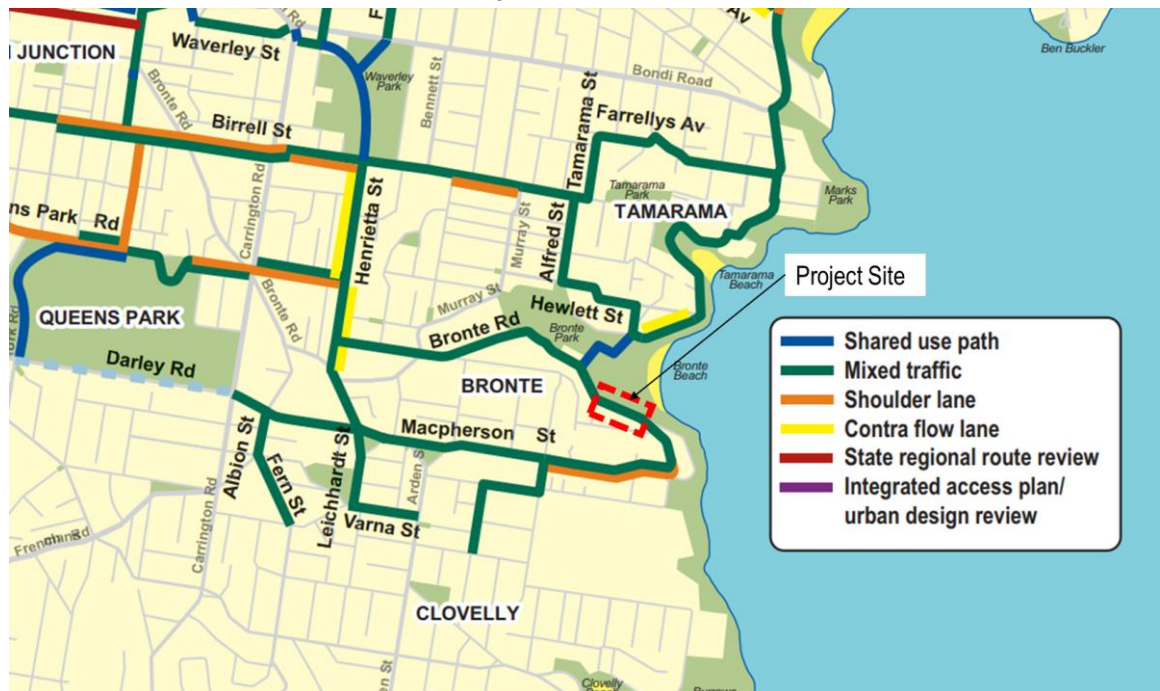
No major public transport interchanges are located near Bronte Village. The nearest transport interchange is located at Bondi Junction, 2.3 kilometres north-east of Bronte Village.

## 5.3 CYCLISTS

### 5.3.1 Existing Cycle Infrastructure

There is cycling infrastructure leading to and surrounding Bronte Village as found in Waverley Bike Plan 2013, which is shown in Figure 5.4. This includes:

- Macpherson Street - on road bicycle lane (shoulder) between St Thomas Street and Calga Place;
- Bronte Road – on road mixed traffic conditions; and
- Bronte Park – shared use path connecting Bronte Road and Marine Parade.



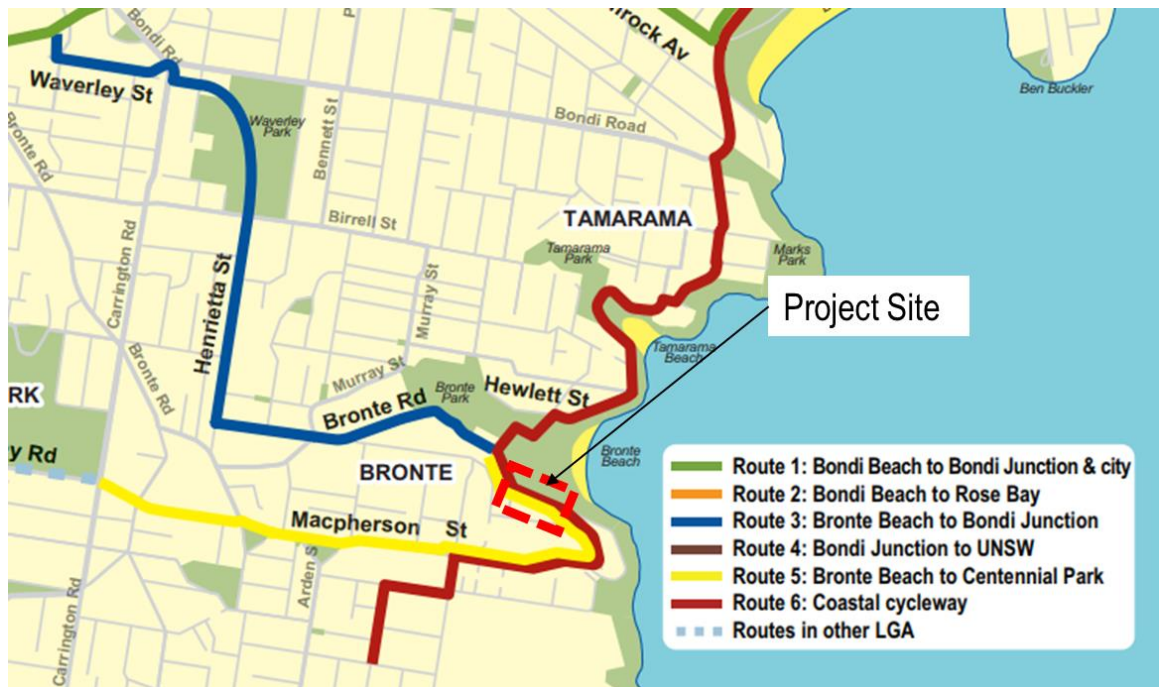
Adapted from Waverley Bike Plan 2013

**Figure 5.4: Cycling Infrastructure**

### 5.3.2 Cycling Routes

Waverley Bike Plan released in 2013 indicates three priority cycle routes that travel through and around Bronte Village, also shown in Figure 5.5:

- Route 3: Bronte Beach to Bondi Junction
- Route 5: Bronte Beach to Centennial Park
- Route 6: Coastal cycleway



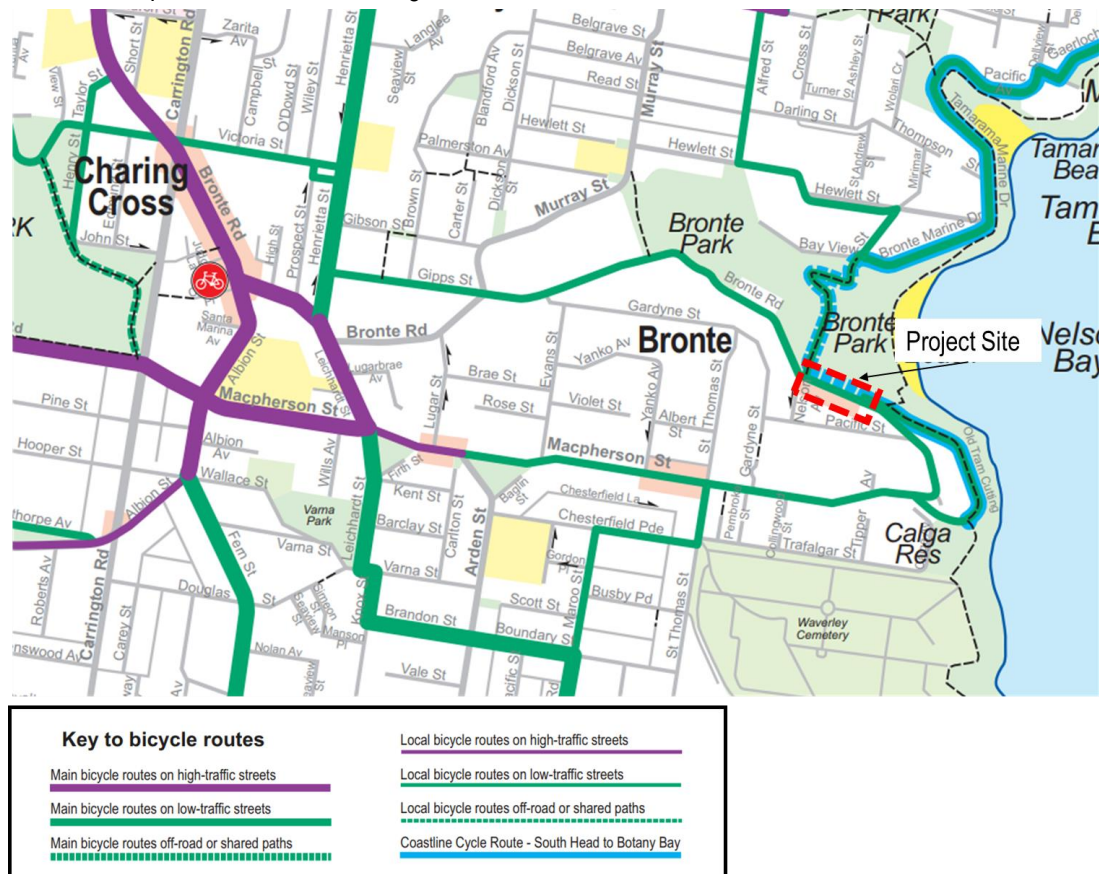
Adapted from Waverley Bike Plan 2013

**Figure 5.5: Cycling Routes Through and Around Bronte Village**

The map also indicates a connection between route 5 and a cycling route in the adjacent LGA (Randwick).

The Cycling in Waverley and Woollahra Map (2007, shown in Figure 5.6) also indicates the following route classifications:

- MacPherson Street and Bronte Road (leading to and from the village) is considered a local bicycle route on low traffic street;
- Off road paths can be used through Bronte Park between Bronte Road and Marine Drive



Adapted from Cycling in Waverley and Woollahra 2007

**Figure 5.6: Cycling in Waverley and Woollahra Route Classifications**



## 5.4 LOADING AND CAR PARKS

### 5.4.1 Loading Zones

Access to the existing loading zone located on the northern kerb of Bronte Road within Bronte Village will be significantly impacted during any construction works. There needs to be continuous access to a loading zone to service the number of retail and commercial properties on Bronte Road. A loading zone should be provided at a temporary location on Bronte Road during construction. The existing loading zone location on Bronte Road is shown in Figure 5.7.



*Adapted from NSW SIX Maps*

**Figure 5.7: Existing Loading Zone Location on Bronte Road**

### 5.4.2 Car Parks

Impacts to car parking along Bronte Road should be minimised throughout construction. However, during Stages 1 and 2 involving the construction of new kerbside, kerbside parking will be greatly affected within the project area. Where active kerbside construction is not occurring, kerbside parking should be maintained where possible.

Bronte Cutting Parking Area (Calga Place) and private car park accesses are to be kept accessible as much as possible during construction. The contractor is to notify building managers, business owners and Waverley Council well in advance of when driveway closures will be required.

## 5.5 EMERGENCY RESPONSE

It is imperative that access to emergency vehicles be maintained during construction. Fire Ambulance and police services must be able to get to all project areas if necessary, particularly to access Bronte Park.

The nearest public hospitals are as follows:

- Prince of Wales Hospital – Barker St, Randwick NSW 2031, approximately 4.2 km from the project site; and
- St Vincent's Hospital – 390 Victoria St, Darlinghurst NSW 2010, approximately 7.0 km from the project site.

The nearest ambulance station is Bondi Ambulance Station, Brighton Boulevard Bondi, approximately 4.0km from the project;

The nearest police station is Waverley Police Station, located at 153 Bronte Road Waverley, approximately 2.0 km from the project site.

The nearest fire station is Randwick Fire Station, located at 4 The Avenue Randwick, approximately 3.1km from the project site.

## **6. RESPONSIBILITIES**

### **6.1 MANAGERS**

The responsibilities of managers are to:

- ensure that the site-specific CTMP are being correctly and safely implemented;
- correctly accredited personnel are implementing TCPs, VMPs and PMPs;
- ensure that the project is following the project specific and council specific guidelines;
- notify and collaborate with stake holders and transport agencies affected by the project; and
- notify and collaborate with Council.

Additional and more detailed responsibilities must be defined in the site specific CTMP.

### **6.2 DRIVERS**

Drivers are to:

- Obey road rules at all times;
- follow the haulage routes defined in this CTMP or the site specific CTMP;
- notify site contact / escort of arrival;
- follow instructions from traffic controllers to access the site or perform manoeuvres specified in a TCP;
- follow instructions from site contact / escort, including directions to nominated laydown or holding areas;
- after arriving at the nominated laydown area, exit the vehicle and remain in a pre-defined safe area while unloading of freight is being undertaken;
- once unloading of the freight has been completed; return to the vehicle and exit the site, following instructions from site contact / escort and traffic controllers. The driver is then to follow the designated haulage routes; and
- drivers are to have read, understand and follow this CTMP, site-specific CTMPs and any other relevant project documentation regarding road safety and traffic management.

## **7. TRAFFIC CONTROLLERS**

Traffic controllers are required to be certified with RMS Traffic Controller (Blue Card). They must ensure that the TCPs are implemented safely and correctly. The exact responsibilities of traffic controllers are to be shown on the specific Traffic Control Plans.

## **8. WORK ZONES**

Each stage of the project is to be broken up into smaller construction stages. The exact work zones will be defined when the smaller construction stages are identified.

### **8.1 HOLDING AREAS**

Vehicles are to be held off site. There is to be no queuing or vehicle holding outside the work areas. Deliveries and arrival of heavy vehicles is to be timed to ensure that queueing does not occur. Construction vehicles are not to park using on-street parking.

## 8.2 DILAPIDATION SURVEY

A dilapidation survey is required for roads affected by the project. The survey must cover:

- All roads where construction occurs; and
- Local roads surrounding the project area that are utilised by construction vehicles for deliveries.

An indicative dilapidation survey area is shown in Figure 8.1.



Adapted from Google Maps

**Figure 8.1: Indicative Dilapidation Survey Area**

## 8.3 WORKER PARKING RESTRICTIONS

Workers are not to park on residential streets around the work area. Workers should use public transport where possible or use off-street car park facilities. An indicative restricted parking area is shown in Figure 8.2. A pick up and drop off area may be required near the site so workers can drop off tools and machinery, if necessary.



Adapted from Google Maps

**Figure 8.2: Indicative Restrictive Parking Area**

## 9. PLANT AND EQUIPMENT

Exact plant and equipment usage and requirements are to be determined at a later date by the construction contractor.

### 9.1 MOVEMENT RESTRICTIONS

Movement restrictions such as weight restrictions, turn restrictions and no entry areas are shown in Figure 9.1.





Adapted from Google Maps

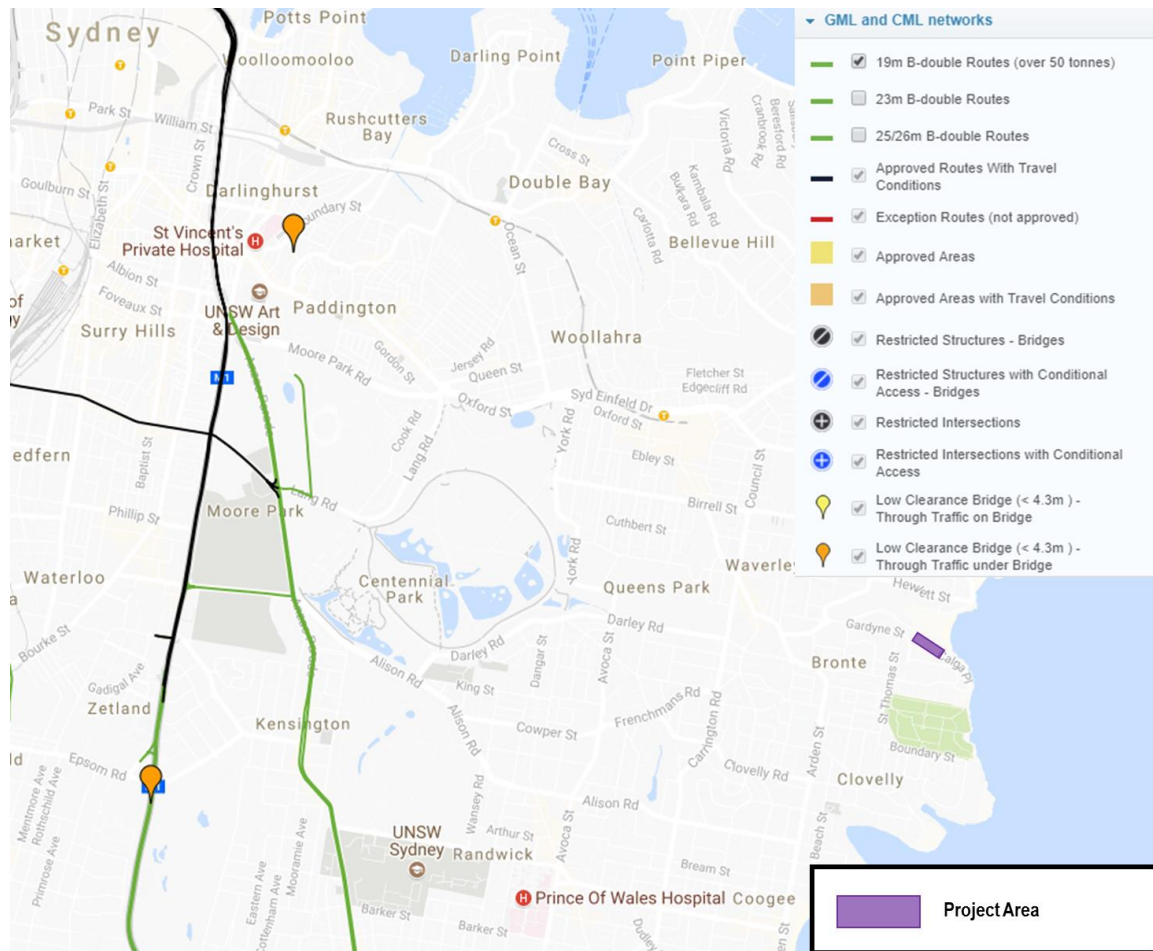
**Figure 9.1: Movement Restrictions**

## 9.2 HAULAGE ROUTES

As the construction staging is developed, modifications or additions to the routes may be required. Changes in routes will need to be assessed by the subcontractor to ensure that:

- The route does not include an illegal or banned manoeuvres;
- The route does not endanger anyone, such as pedestrians, cyclists or other vehicles;
- Swept paths indicate that the vehicle can successfully make the turns; and
- Any manoeuvres requiring traffic management have appropriate TCPs created for them by qualified personnel. See section 4 for certification requirements.

For Restricted Access Vehicles (RAVs), none of the roads surrounding the site (such as Macpherson Street, Bronte Road) are designated for use by RAVs. Figure 9.2 shows the approved RAV routes in Eastern Sydney.

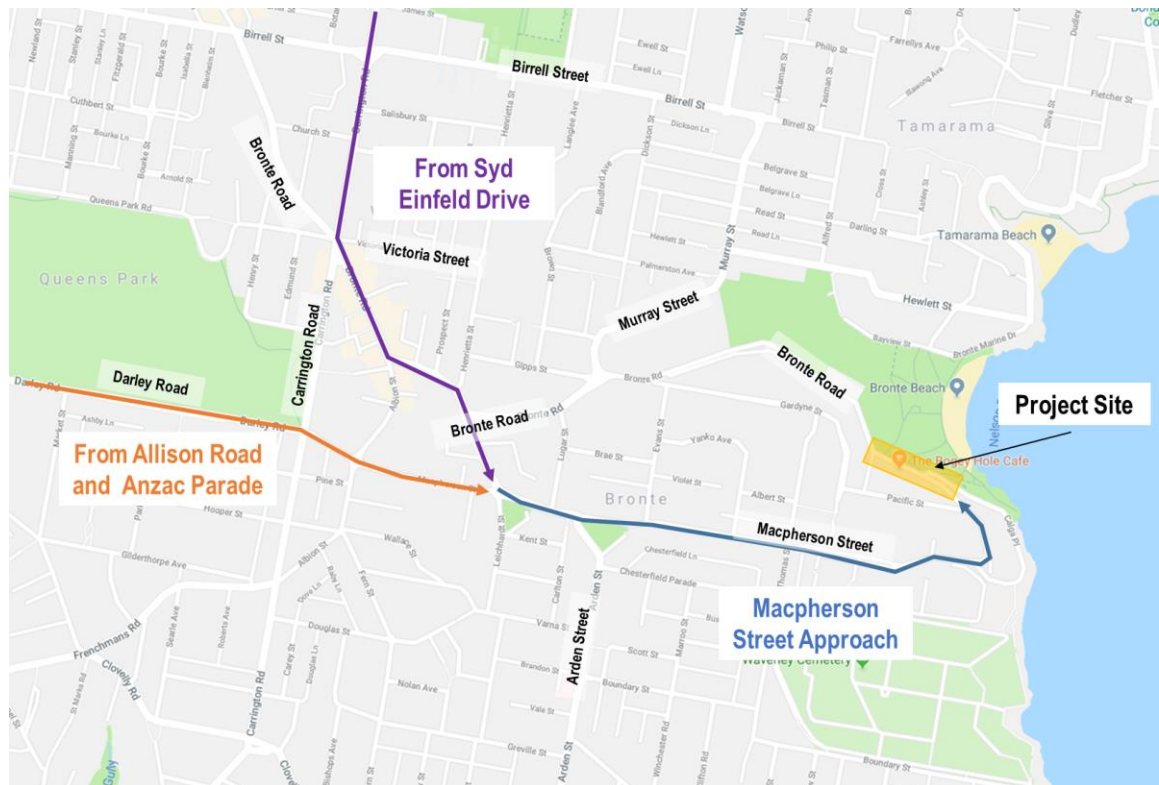


Adapted from NSW Combined Higher Mass Limits (HML) and Restricted Access Vehicle (RAV) Map – Roads and Maritime Services

**Figure 9.2: Restricted Access Vehicle (RAV) Routes in Eastern Sydney**

Due to the constrained local road network surrounding the site, most construction vehicles would be required to utilise Macpherson Street / Bronte Road (east) to access Bronte Village. This indicative haulage route (towards site) is shown in Figure 9.3.

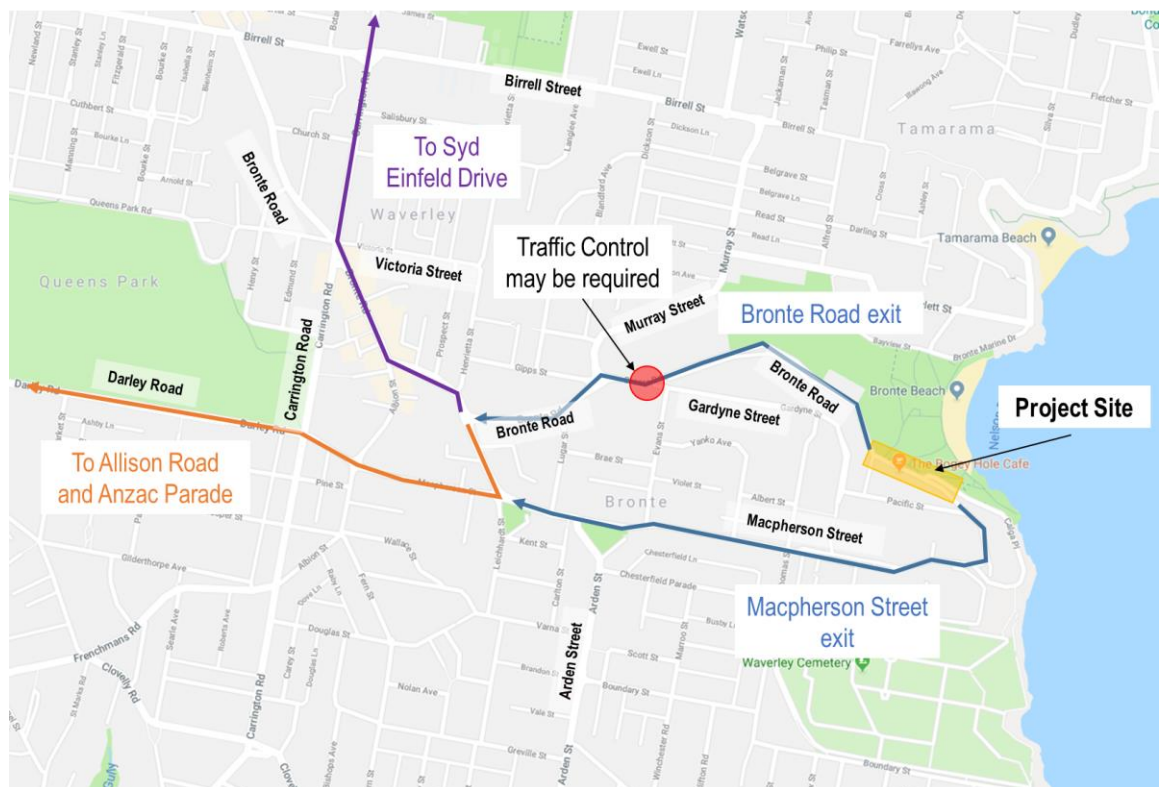
Overall, construction and delivery vehicles should use main and arterial roads where possible.



Adapted from Google Maps

**Figure 9.3: Indicative Haulage Route (towards site)**

Where possible, vehicles should leave the site via the same route. However, the nature of the roads and environment surrounding the project site may restrict the ability for some construction and delivery vehicles to turn around. In the event that this occurs, it may be possible to leave the site westbound using Bronte Road towards Murray Street. This indicative haulage route (leaving site) is shown in Figure 9.4.



Adapted from Google Maps

**Figure 9.4: Indicative Haulage Route (Leaving Site)**

Consideration should be given to additional traffic control at the top of Bronte Road near Gardyne Street to assist with vehicle movements along Bronte Road. Details of traffic control required are to be included in the site specific CTMP.

Use of Bronte Road (west) between the project site and Murray Street may be limited to smaller construction and delivery vehicles. Swept paths will be required to assess the suitability of larger vehicles (i.e. truck and dog combinations) accessing and exiting the project site via Bronte Road (west).

### **9.3 SWEPT PATH ANALYSIS**

At the present stage of planning the work, swept path analysis is yet to be undertaken.

When site specific CTMPs are created, swept path analysis should be undertaken for all vehicle types that will access and exit the site.

## **10. OUT OF WORKING HOURS CONTACTS**

The out of working hours contacts are to be determined.

The overall Council Project manager is:

- Name: TBA
- Mobile Number: TBA



# **Appendix I**

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Bronte Park and Beach Plan of  
Management – Waverley Council

# Bronte Park and Beach

## Plan of Management



COUNCIL ADOPTED JULY 2017

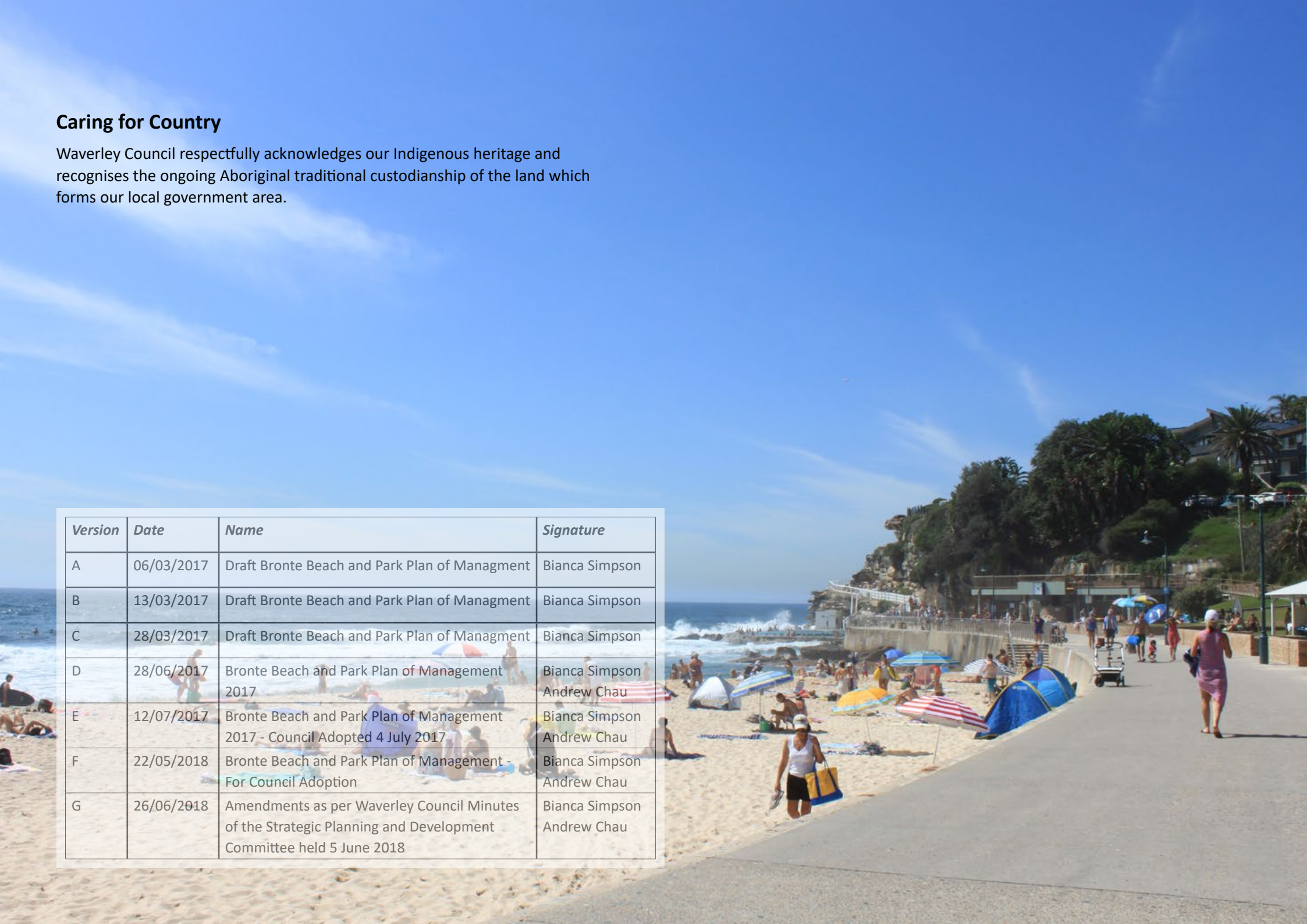




## Caring for Country

Waverley Council respectfully acknowledges our Indigenous heritage and recognises the ongoing Aboriginal traditional custodianship of the land which forms our local government area.

<i>Version</i>	<i>Date</i>	<i>Name</i>	<i>Signature</i>
A	06/03/2017	Draft Bronte Beach and Park Plan of Managment	Bianca Simpson
B	13/03/2017	Draft Bronte Beach and Park Plan of Managment	Bianca Simpson
C	28/03/2017	Draft Bronte Beach and Park Plan of Managment	Bianca Simpson
D	28/06/2017	Bronte Beach and Park Plan of Management 2017	Bianca Simpson Andrew Chau
E	12/07/2017	Bronte Beach and Park Plan of Management 2017 - Council Adopted 4 July 2017	Bianca Simpson Andrew Chau
F	22/05/2018	Bronte Beach and Park Plan of Management - For Council Adoption	Bianca Simpson Andrew Chau
G	26/06/2018	Amendments as per Waverley Council Minutes of the Strategic Planning and Development Committee held 5 June 2018	Bianca Simpson Andrew Chau



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# Introduction and Purpose

1

# 1. Introduction and Purpose

## 1.1. What is a Plan of Management and Master Plan?

A plan of management is a document providing a strategic framework to guide the sustainable use, improvement, maintenance and management of public land. The plan provides strategic directions and identifies important actions to achieve what is envisioned for the land. These directions and actions are largely formed through research and consultation with the community to identify future use of the site and management of the varied and changing needs of the users. The plan seeks to balance the interests of all users of the land, including the local community, residents, businesses and visitors. Plans of management also serve to consolidate information about a site and its users.

In conjunction with a plan of management, a master plan can be developed. A master plan is a comprehensive long-term plan illustrating the design direction for the site. Together the plan of management and master plan create a vision and provide strategic and operational direction for the design and management of the site for an extended period.

## 1.2. Why is one needed for Bronte Park and Beach?

Bronte Park and Beach is a valuable recreational and landscape resource to the people of the Bronte area and of the wider Eastern Suburbs and Metropolitan regions. A Plan of Management for Bronte Park and Beach has been prepared to promote and regulate the recreational use and maintain the landscape amenity of the Park and Beach.

The current plan of management is over ten years old and many of the projects and actions identified by this plan have been completed, investigated and are no longer relevant; are underway; or are continuing maintenance and

management items. Projects identified in the plan that were acted on need to be reviewed and reprioritised.

The existing Plan of Management does not include a Master Plan. A Master Plan provides an overall design direction and layout for a place. The absence of a Master Plan can result in ad-hoc planning and development. As many of Bronte's building assets are due for renewal or are in the process of being renewed, the development of a Master Plan will be critical in guiding these works. Bronte's new Plan of Management will include a Master Plan to ensure a clear design direction that reflects Bronte's shared values and vision.

Also, the current plan is based on outdated visitor information: we need to see how people currently use the park and beach to make sure we are providing the correct facilities for the community today and into the future.

## 1.3. Purpose of this Plan

This Plan of Management aims to ensure that the values of Bronte Park are retained, particularly its environmental, scenic, recreational, heritage, cultural and social values.

A large number of residents and visitors use Bronte Park and Beach for recreation, health and fitness. The high level of use has a considerable impact on the infrastructure and resources of the Park and its surrounding environment. This Plan of Management aims to set out a way to appropriately manage the site and improve recreational facilities to meet current and future demands over the next ten years.

## 1.4. The Plan's Scope and Process

The Plan of Management has been completed in line with the requirements of the Crown Reserves Act 1989. This Plan has been developed in partnership with key stakeholders and the community and is based on evidence-based research and background studies.

A broad range of consultation activities were programmed over two stages, gaining stakeholder and community feedback to assist in setting the direction, vision and values identified by this plan.

The methodology for developing the Plan of Management is set out below:

**Research and Background Studies:** The first stage focused on information-gathering, including mapping and research to understand current issues and opportunities for the site. Specialist studies such as a feature and topographic survey and a universal accessibility audit were undertaken.

**Consultation Stage One:** To clarify the vision, values and design direction for Bronte Park and Beach over the next decade, it is essential to engage with the residents, local businesses and visitors to gauge understanding of the values and use of Bronte and its recreational facilities through locals and visitors. To inform this process, a user survey and consultation was undertaken with Council, stakeholders and the community.

**Draft Plan of Management:** From this basis, the Plan of Management and Master Plan were drafted. The draft Plan of Management outlines what future works will take place, their priority, and main actions for delivery.

**Consultation Stage Two:** On approval from Council, the draft Plan of Management was released for a second round of consultation, formally notified as a Public Exhibition.

**Final Plan of Management:** Following exhibition, the Plan of Management will be updated and can be adopted by Council. Crown Lands do not intend to formally adopt the Plan of Management.





Figure 1.1 Study Area





Site Context

2



## 2. Site Context

### 2.1. The Study Area and Surrounds

Bronte Park and Beach is made up of Reserved Crown land, managed under the Crown Lands Act, and Council-owned community land, managed under the Local Government Act. The bus terminus, once part of the park, was appropriated for transport purposes in 1910 and 1961 and is managed by Sydney Buses.

Bronte Park and Beach is a major Sydney attraction, featuring headlands, foreshores, baths, parkland and bush. It is highly regarded for its natural and cultural values, and offers a broad range of recreational opportunities for families, groups and individuals of all ages. The park, and some of the attractions such as the baths, bogey hole and miniature train, have iconic status. Refer to Figure 1.1 for the study area.

Bronte Park is listed as a Landscape Conservation Area in the *Waverley Local Environmental Plan 2012*, and the park adjoins the NSW State heritage listed Bronte House.

Bronte Park is a focal point of the local residential area. Its welcoming green space is overlooked by many local homes, and contributes substantially to the beauty, character, and charm of the local area. Additionally, the park is a community gathering space contributing to the recreational needs and improving the quality of life of local residents.

### 2.2. Regional and Local Context

Waverley Local Government Area (LGA) offers many attractions to locals and tourists, including the internationally recognised beaches of Bondi, Tamarama and Bronte. Waverley also offers the Bondi to Bronte Coastal Walk, an interconnecting walkway with views that attract joggers and walkers daily. Centennial Parklands is next to Waverley and is one of the most visited urban parks in Sydney.

Bronte Park and Beach is located within the inner-eastern suburbs of Sydney, about eight kilometres by road from the Sydney Central Business District, and is well connected via public transport, particularly the Eastern Suburbs Rail Line. Refer to Figure 2.1 for regional context.

Waverley LGA falls within the Central District of the *Greater Sydney Commission's District Plan*. The Central District includes the City of Sydney and extends west to Rhodes and Burwood, south to Sans Souci, and east to the eastern and south-eastern suburbs. The Central District has a population of 1,013,200 people. Residents of the area are attracted to the lifestyle and natural features, including some of Sydney's prime coastline and public parklands. Bondi Junction is a district centre within the Central District accommodating retail, employment and local services for the community and a transit interchange.<sup>1</sup>

Waverley LGA has an existing population of 72,106 with density at 77.99<sup>2</sup> persons per hectare, which is higher than the Greater Sydney population density of 4.07 persons per hectare.<sup>3</sup> The resident population of the suburb of Bronte in 2016 was 6,733 residing in 2,989 dwellings, with an average 2.6 people per household.<sup>4</sup>

The age structure of the Waverley LGA provides important insights into the level of demand for age-based services and facilities. Compared to Greater Sydney's average, significant differences exist in the proportion of 25- to 34-year-olds. The 'young workforce' makes up nearly a quarter (23.9 per cent) compared to Greater Sydney's 15.7 per cent. Waverley also

has a slightly lower proportion of 0- to 15-year-olds, and a marginally higher proportion of working age population (15- to 64-year-olds) and residents aged over 85.<sup>5</sup> The median age of Bronte is 37, higher than Waverley Local Government Area's median of 35.8.

Waverley's population born overseas is higher than Greater Sydney's average. 38.5 per cent of the total population were born overseas (compared to Sydney's 36.7 per cent). A quarter (25.6 per cent) of our overseas-born residents have arrived here in the last five years. The most common area of emigration is from North-West Europe (12.8 per cent), followed by Southern and Eastern Europe (6.2 per cent), Americas (5.2 per cent), Sub-Saharan Africa (4.6 per cent), Asia (4.1 per cent) and Oceania and Antarctica (excluding Australia) (2.9 per cent). Waverley is home to people from all over the world, with many small language/birthplace groups.<sup>6</sup>

Of the Waverley residents, 21 per cent speak a language other than English at home. Russian remained the largest language group in 2016 but has decreased from 2011. There has been a significant increase in Portuguese, Spanish, French, Mandarin, and Italian language speakers since 2011.

Waverley's community is highly educated. 44.5 per cent of people in the Waverley LGA have a tertiary qualification, an increase of 4.2 per cent between 2011 and 2016. This is significantly higher than the 28.3 per cent of Greater Sydney. A further 9.1 per cent have a diploma or advanced diploma as their highest qualification.<sup>7</sup>

1 Greater Sydney Commission, 2016, Draft Central District Plan, p 36

2 Australian Bureau of Statistics 2016, Waverley (A) Regional Profile, viewed 20 April 2018, [http://stat.abs.gov.au/itt/r.jsp?RegionSummary&region=18050&dataset=ABS\\_REGIONAL\\_LGA2016&geoconcept=LG\\_A\\_2016&maplayerid=LGA2016&measure=MEASURE&datasetASGS=ABS\\_REGIONAL\\_ASGS2016&datasetLGA=ABS\\_REGIONAL\\_LGA2016&regionLGA=LGA\\_2016&regionASGS=ASGS\\_2016](http://stat.abs.gov.au/itt/r.jsp?RegionSummary&region=18050&dataset=ABS_REGIONAL_LGA2016&geoconcept=LG_A_2016&maplayerid=LGA2016&measure=MEASURE&datasetASGS=ABS_REGIONAL_ASGS2016&datasetLGA=ABS_REGIONAL_LGA2016&regionLGA=LGA_2016&regionASGS=ASGS_2016)

3 Australian Bureau of Statistics 2016, Census, Greater Sydney (GCCSA) Regional Profile, viewed 20 April 2018, [http://stat.abs.gov.au/itt/r.jsp?RegionSummary&region=1GSYD&dataset=ABS\\_REGIONAL\\_ASGS2016&geoconcept=ASGS\\_2016&measure=MEASURE&datasetASGS=ABS\\_REGIONAL\\_ASGS2016&datasetLGA=ABS\\_REGIONAL\\_LGA2016&regionLGA=LGA\\_2016&regionASGS=ASGS\\_2016](http://stat.abs.gov.au/itt/r.jsp?RegionSummary&region=1GSYD&dataset=ABS_REGIONAL_ASGS2016&geoconcept=ASGS_2016&measure=MEASURE&datasetASGS=ABS_REGIONAL_ASGS2016&datasetLGA=ABS_REGIONAL_LGA2016&regionLGA=LGA_2016&regionASGS=ASGS_2016)

4 Australian Bureau of Statistics 2016, Bronte Quick Stats, viewed 20 April 2018, [http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2016/quickstat/SSC10594?opendocument](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/SSC10594?opendocument)

5 ibid

6 ibid

7 ibid

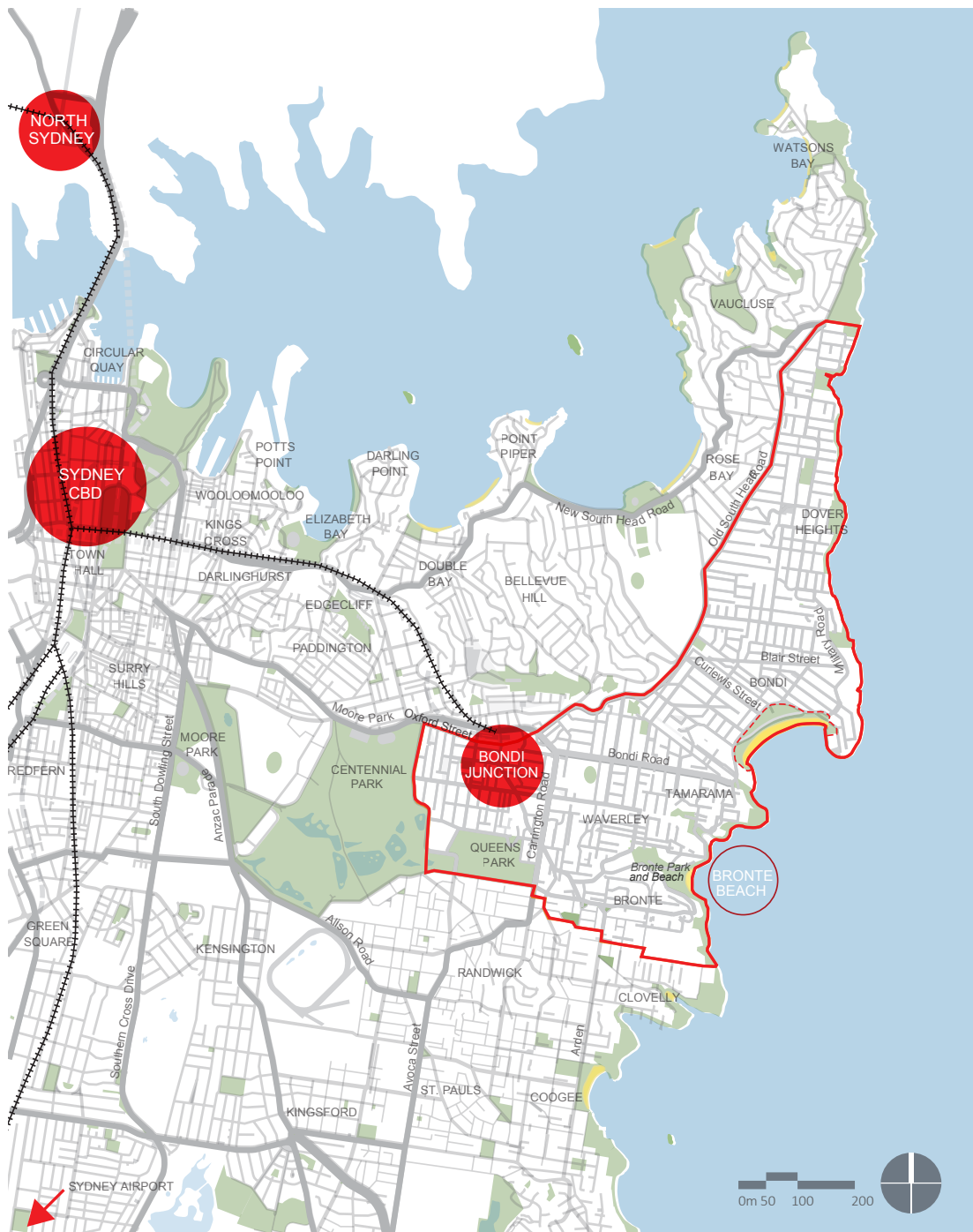


Figure 2.1 Regional Context

#### KEY

- LGA Boundary
- Commercial Centre
- - - - - Train Route
- Major Roads
- Roads
- Open Green Space
- Water Body
- Beach



Households in Waverley earn a high income with 28.8 per cent earning more than \$3,000 per week, by comparison the median weekly income of Greater Sydney households is \$1,750.<sup>8</sup>

## 2.3. Future Population

With an annual growth rate of between 1.3 per cent and 1.4 per cent, the population is projected to increase by approximately 13,000 to 83,570 by 2026. Waverley's birth rate is predicted to peak between 2020 and 2022 with 1200 to 1300 births expected to occur each year. The natural increase (births minus deaths) is around 800–900 per year.

The proportion of under 15-year-olds is set to rise to 18 per cent from 2013's figure of 16 per cent, while the proportion of older people aged 65 and over is predicted to increase from 12 per cent to 13 per cent. The proportion of people over 85 is predicted to decrease each year by one to two per cent.

By 2026, Waverley's working-age population is expected to have increased from 51,000 in 2013 to 57, 570.<sup>9</sup>

A greater future demand on Waverley's recreation and park resources can be deduced from the projected local population growth. The working population of Waverley is also growing; this age group will seek active and passive recreation opportunities, particularly on weekends. It can be expected Bronte Park and Beach will continue to be heavily used for recreation and exercise.

Accessible facilities and walkways around the Park and Beach remain an important planning consideration for Council, particularly with a growing family demographic. While the population is not aging as rapidly as had been predicted, Waverley's proportion of older people is substantial and requires careful consideration in the upgrade of the Park.

Additionally, an increase in population density in the Central District, as identified by the *Greater Sydney Commission's District Plan*, indicates that Sydney's parks and recreation spaces will be under greater pressure from a growing population. As a regional parkland Bronte Park and Beach can expect an increase of visitors.

## 2.4. Users of the Park

Waverley Council's estimate for beach visitation is 500,000 per year with 10,000 visitors estimated on the busiest days.<sup>10</sup> Pedestrian counters in the Bronte Cutting capture pedestrian volumes in the Bronte section of the Coastal Walk, which continues to the Bronte beach promenade through the park. Annual data collected during 2015–16 indicates 931,952 pedestrians used this route. The daily average counted 2,757 users, the busiest time of the week being the weekend. Sundays contributed 24.2 per cent of users and 21.4 per cent on Saturdays. Most pedestrians use the walk during the middle of the day. Anzac Day was the busiest day within the data collection period.<sup>11</sup>

The Bronte Beach Surf Lifesaving Club (BBSLSC) and the swimming clubs are local institutions of the park that organise regular club activities. BBSLSC currently has 1,800 members with over 800 Nippers and junior surf lifesaving members.<sup>12</sup> The BBSLSC clubhouse is open and widely used on Sunday mornings to provide amenity to the Nippers and their parents. The clubhouse is used for storing lifesaving equipment – including rescue boards, patrol equipment and first aid equipment.

In preparation of this Plan of Management the *Bronte Park User Survey 2016* was conducted to investigate pedestrian and stakeholder behaviour at Bronte Park and Beach. The survey was undertaken during July and August 2016 and involved different mechanisms including intercept surveys, online survey, site observations, and consultation events

with park users and stakeholders.

Findings from the *Bronte Park User Survey 2016* about visitation include:

- The type of people who visit are notably varied in their age and gender. They include young and older families, singles and couples.
- The surveys suggest a high proportion of visitors are locals. This is suggested by the higher number of respondents walking to the study area – 56 per cent of intercept respondents and 74 per cent of online survey respondents. Face-to-face conversations conducted during the intercept surveys also indicate high levels of people who are either local (from Bronte) or from the Eastern suburbs.
- Results indicate high levels of people visiting the park and beach area alone. However, it was observed that while many people do visit alone, most visitors are in groups of two, walking or exercising together.
- Small groups of five adults or fewer are common.
- The most popular length of stay is one to two hours.
- There is a high proportion of carers with prams.
- A notable number of dog walkers use the park.
- There are limited numbers of cyclists.
- There are limited numbers of those who use mobility aids such as wheelchairs, walking frames or electric scooters.
- Generally, an even proportion of park and beach users will visit cafés along Bronte Road. 40 per cent of intercepted respondents and 50 per cent of online survey respondents said they planned to visit one of the cafés.

8 ibid

9 Resource for Ageing Population Planning, Local Government NSW 2012

10 Bronte Lifeguards Visitor Information

11 Eco Counter, 5 March 2016, Eco Counter Report.

12 Bronte Surf Life Saving Club, Letter dated 29 September 2016, Basil Scaffidi, President.

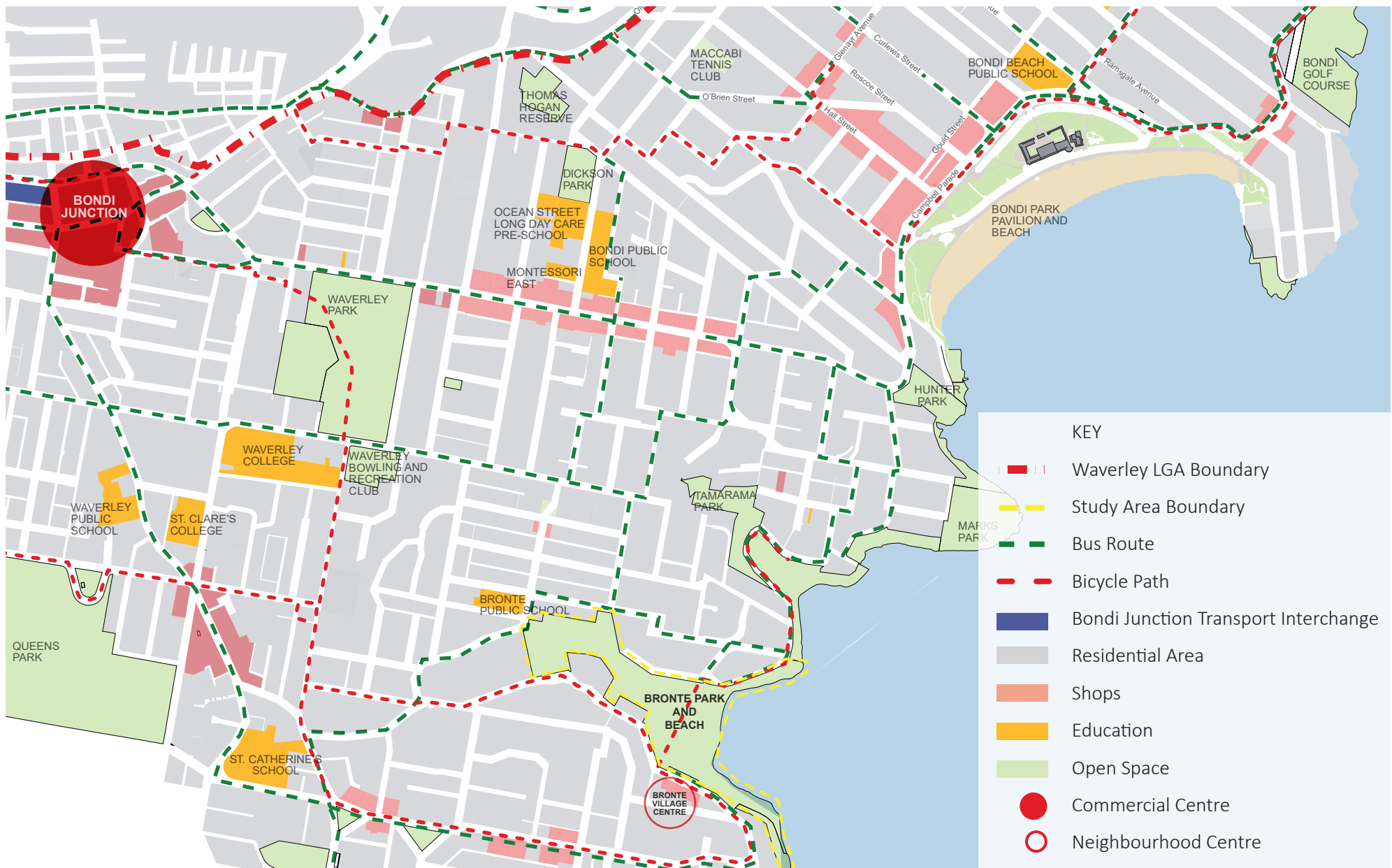


Figure 2.2 Local Context





**SURFERS CODE**  
RESPECT EVERYONE

**RIGHT OF WAY**

**DO NOT**

**PADDLING OUT**

**REMEMBER TO COMMUNICATE**

**ALWAYS**

**DANGER**

Waverley Council

Planning Context

3



## 3. Planning Context

### 3.1. Ownership and Management

Bronte Park consists of both land owned by Council and Crown reserve. This Plan of Management has been prepared in accordance with the *Crown Lands Act 1989* (CLA), the *Crown Lands Regulation 2006*, and the *Local Government Act 1993*. Refer to Figure 3.1 for land ownership.

All Crown land is cared for by Bronte Park Reserve Trust and is managed by Waverley Council.

### 3.2. Leasing and Licencing on Crown Reserves

There are a number of existing licenses and leases on Bronte Park Crown Reserve for the Kiosk, Bronte Beach Surf Lifesaving Club (BBSLSC), and Bronte Beach Community Centre. These leases and licences are consistent or ancillary to the purpose of the reserve being for public recreation.

The *Crown Lands Management Bill 2016* passed through the NSW Parliament on 9 November 2016. Once introduced into law, it will amend the current approvals process for leases and licenses on Crown reserves. All future leasing and licensing will be managed in accordance with legislation active at the time of submission.

The *Crown Lands Policy for Food and Beverage Outlets on Crown Reserves 2004*, outlines additional requirements that are relevant to BBSLSC and the Kiosk.

The *Crown Lands Act 1989* also allows a reserve trust to grant a lease or licence to enable a filming project, whether or not this use is consistent with an adopted plan of management, or the purpose of the reserve.

The proceeds from any leases or licenses on Crown reserves are received into Council's general fund and are directed back into the maintenance and upkeep of the park through the expenditure of operational budgets linked to the delivery of Council's annual Operational Plan.

### 3.3. Heritage Significance

Bronte Park is within a locally significant Landscape Conservation Area, as identified in the *Waverley Local Environmental Plan 2012* (LEP). Additionally, the LEP classifies Bronte Ocean Pool (I280) as a heritage item.

Bronte House and grounds adjoins the Bronte Park Landscape Conservation Area C29. Bronte House and grounds, identified as items I508 and I278 in the LEP, have State-level significance. A Conservation Management Plan (CMP) prepared for Bronte House by Clive Lucas, Stapleton and Partners dated October 2014, states that:

'For clarity and planning purposes the extent of the setting of the place should be clearly defined. In this case, the setting should be the area within which all new development should be controlled in consideration of the significance of the place and should encompass those parts of the former Bronte Park, Bronte Beach and the section of Bronte Road from the junction of Murray Street (to the west) through to the junction of Pacific Street (to the southeast).'

Therefore, any works within the parklands should refer to the CMP for Bronte House.

The Bronte Beach and Park Landscape Conservation Area and Bronte House and grounds are not listed on the Register of the National Estate and therefore are not affected by the provisions of the *Environmental Protection and Biodiversity Conservation Act 1999*. However, the provisions of the *NSW Heritage Act 1979* are applicable to Bronte House and grounds, the significance of which has implications for the Bronte Beach and Park Landscape Conservation Area. As such, this document should be guided by the *NSW Heritage Act 1979* and the provisions contained in *Waverley Local Environmental Plan 2012*, in particular Clause 5.10 Heritage conservation and the provisions contained in Part B of *Waverley Development Control Plan 2012*.

Item	State Heritage Registered	Waverley Council LEP 2012
Bronte House and Grounds	YES (SHR 00055)	YES I278, I508
Bronte Sewage Pumping Station	YES (SP 0056)	INCLUDED IN C29
Bronte Park	NO	YES C29
Bronte Ocean Pool	NO	YES I280
Bronte Cutting	NO	YES C59
Bronte Tram Shelter	NO	INCLUDED IN C29
Bronte Picnic Shelter	NO	INCLUDED IN C29





Figure 3.1 Land ownership



### 3.4. State Planning Context

The principal planning legislation in New South Wales is the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act) that governs planning and development assessment. The Act requires a determining authority to have written consent from the legal owner of any affected land before granting consent for development. Development on Crown land in Bronte Park would require Crown land approval for any development application.

The *NSW Environmental Planning and Assessment Act 1979*, regulations, state planning policies and the *Waverley Local Environmental Plan 2012* apply to all development in Bronte Park. This legislation defines the process that any development in the park must follow.

When managing Bronte Park, Council must comply with all relevant laws that apply to the use of the community land. These include:

- State Environmental Planning Policy (Infrastructure) 2007: provides for development permitted without consent and exempt development on State land.
- State Environmental Planning Policy (Exempt and Complying Development Codes 2008): provides for development permitted without consent and exempt development of State land. Exempt development includes works such as compliant access ramps, play equipment, fences, bollards, paths, barbecues and signs.
- State Environment Planning Policy (Coastal Management) 2018: guides development in coastal areas, including land adjacent to beaches, estuaries, coastal lakes, coastal wetlands and littoral rainforests. Bronte Park and Beach falls within a Coastal Environment Area and Coastal Use Area. The aim of this Policy is to promote an integrated and coordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016, including but not limited to the following management objectives:

- managing development in the coastal zone and protect the environmental assets of the coast, and
- establishing a framework for land use planning to guide decision-making in the coastal zone.<sup>13</sup>
- Coastal Management Act 2016 No 20: The objects of this Act are to manage the coastal environment of New South Wales in a manner consistent with the principles of ecologically sustainable development for the social, cultural and economic well-being of the people of the State.
- State Environmental Planning Policy 19 – Bushland in Urban Areas: Bronte Park contains bushland covered by this Policy. In this Policy, ‘bushland’ means land on which there is vegetation that is either a remainder of the natural vegetation of the land or, if altered, is still representative of the structure and floristics of the natural vegetation. The plan of management should not be inconsistent with the aims of this Policy.
- The Disability Discrimination Act (DDA) 1992: applies to existing premises, including heritage buildings, those under construction, and future premises. It extends beyond the building to include outdoor spaces in Bronte Park. This Act recognises the importance of providing equality, dignity and independence to people with a range of abilities. This Act means it is unlawful to discriminate against people with a disability in the provision of access to premises.
- Local Government Act 1993: requires plans of management to be prepared for public land and reserves under the responsibility of local councils. It requires that Council-owned community land be ‘categorised’ according to the function desired by the community. Councils must manage this land in accordance with the ‘core objectives’ specified in the Act. The previous Plan of Management provided three categories for Bronte Park including ‘Natural area bushland’, ‘Area of cultural significance’, and ‘Park’.
- Crown Lands Act 1989: requires plans of management to be prepared for all public reserves. As well as needing to consider relevant plans of management

when undertaking a strategic land use planning process for a locality, these plans of management may be considered when assessing development or activities under the Environmental Planning and Assessment Act in relation to certain activities on or near Crown lands.<sup>14</sup> The Crown Lands Act applies to all Crown land in the study area (refer to figure 3.1 illustrating land ownership of Bronte Park and Beach). The objects and principles of Crown land management are listed in Sections 10 and 11 of the Act and require that:

- Environmental protection principles be observed in relation to the management and administration of Crown land;
- The natural resources of Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible;
- Public use and enjoyment of appropriate Crown land be encouraged;
- Where appropriate, multiple use of Crown land be encouraged;
- Where appropriate, Crown land should be used and managed in such a way that both the land and its resources are sustained in perpetuity; and
- Crown land be occupied, used, sold, leased, licensed or otherwise dealt with in the best interests of the State consistent with the above principles.

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14 Nicole Gurrán, 2007, *Australian Urban Land Use Planning*, Sydney University Press

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13 New South Wales Government Legislation, State Environment Planning Policy (Coastal Management) 2018, viewed 22 May 2018, <https://www.legislation.nsw.gov.au/#/view/EPI/2018/106/part1/cl3>

## 3.5. Regional and Local Planning Context

### 3.5.1. Regional and Metropolitan Planning

The following regional and metropolitan plans are relevant to this Plan of Management.

*The Sydney Regional Coastal Management Strategy 1998* aims to ensure that ecological integrity is maintained and when available, coastal zone resources are fairly and equitably used by the public and commercial interests alike, so that the long-term benefits derived by the community can be optimised. The Strategy also aims to maintain adequate and appropriate access to the coast, so that it is possible to enjoy a range of recreational opportunities.

The NSW Department of Planning and Environment sets out metropolitan plans that inform *Waverley's Local Environmental Plan* and Council's policy position by providing direction on matters including housing, jobs, affordable housing and open space. Relevant metropolitan plans include:

- Greater Sydney Region Plan: A Metropolis of Three Cities. Aims to re-balance growth and deliver its benefits more equally and equitably to residents across Greater Sydney. A Metropolis of Three Cities will transform land use and transport patterns, boosting Greater Sydney's livability, productivity and sustainability by spreading the benefits of growth to all its residents. Some of the objectives of the plan are to:
  - Objective 25. The coast and waterways are protected and healthier
  - Objective 27. Biodiversity is protected, urban bushland and remnant vegetation is enhanced.
  - Objective 28: Scenic and cultural landscape are protected
  - Objective 31. Public open space is accessible, protected and enhanced
- Eastern City District Plan: provides the 'district-level planning that connects local planning with the longer-term Greater Sydney Region Plan. Some relevant priorities include:

- Planning Priority E18. Delivering high quality open space.

### 3.5.2. Local Planning Context

*The Waverley Local Environmental Plan (2012)*: Bronte Park and part of the beach are zoned RE1 Public Recreation, a section of the beach is Zoned E2 Environmental Conservation Zone, Landscape Conservation Area/Heritage Items. The Local Environmental Plan makes provision for development of land within the coastal zone for the purpose of implementing the principles in the NSW Coastal Policy. The LEP outlines conditions of development consent within the coastal zone such as: providing and maintaining public access along the foreshore; suitability of the development in relation to the surrounding area and the natural scenic quality (including the location and bulk, scale, size); impact on the amenity including overshadowing and view loss; visual amenity and scenic qualities of the coast; and biodiversity and ecosystems.

*Waverley Development Control Plan 2012*: Bronte has recognised habitat, habitat corridor and habitat buffer (see Figure 4.4). The park includes areas identified as Coastal Inundation Risk Lots that require a Coastal Risk assessment and/or Geotechnical Risk Assessment to be submitted with a Development Application.

*Waverley Together 3: Community Strategic Plan 2013 – 2025*: is Council's overarching strategic plan. This guides Council in responding to change, challenges, and opportunities in a consistent, sustainable, and coordinated way. Several directions within this plan apply to Bronte Park and Beach.

Other Council Policies and Guidelines of relevance to Bronte Park and Beach are outlined below:

- The Access and Mobility Policy 2011–2015
- Waverley Coastal Risk Management Policy 2012
- Bronte Gully Ecological Restoration Framework Action Plan 2015–2045
- Bike Plan 2001

- Waverley Council Recreation Needs Study 2008
- Play Space Strategy 2014–2029

The implications of these plans are detailed in the following section, Site Analysis.





# Site Analysis

4



## 4. Site Analysis

The following chapter brings together information gathered from site investigations and specialist reports. In an effort to coordinate information and ensure important aspects are adequately addressed, the chapters have been organised into major themes:

- Design and Setting
- Getting to and Around the Park
- Playing and Relaxing
- Enhancing the Environment
- Community, History and Culture
- Management and Maintenance

### 4.1. Design and Setting

This section provides an analysis of the site's visual and physical characteristics. Such characteristics are considered to be defined by the design of spaces and buildings, planting types and design, and the types of materials used. People's experience of the place is also considered; consequently safety, community values, views and setting are also considered to characterise a site.

#### 4.1.1. The Setting

The suburb of Bronte is characterised by its coastal location and beach; the medium- to high-density suburb surrounds the urban beach and village centre. Bronte Village Centre, located to the south of Bronte Road, connects directly with the park and consists of a strip of cafés and take-aways popular with park and beach goers. People love the openness of the park and beach, and the relaxing atmosphere. Refer to Figure 2.2 for local context.

The western portion of the park is flanked by the steep slopes of the Bronte Gully, heavily treed, with remnant planting (groups of Norfolk Island Pines and Morton Bay Figs) of the 'wild garden' of Bronte House. The Bronte Gully changes at its eastern end to an open grassed space with a playground as the centrepiece.

East of the playground, the park is more open providing a

popular picnic, sunbathing, and recreation setting with a beach backdrop. The central lawn is bounded by a series of public amenities. BBSLSC, kiosk and amenities building to the north; the sea baths and community centre to the south. The picnic shelters and barbecue facilities are to the west.

Natural elements also define the space. Groupings of Norfolk Island Pines, palms, figs and eucalypts enclose the picnic area. Canary Island Palms define the park's edge, and the presence of the ocean can be felt throughout the space, through the smell of salt and sound of waves.

Extending to the north and south of the central area, the headlands enclose the beach and form narrow corridors of public land overlooking the surf from elevations of up to 30 metres. North of BBSLSC, the shoulder of the northern headland forms a spectacular, if windswept, viewpoint across the beach and surf. Bordering Bronte Park at its southern end is the clifftop area of Bronte Cutting, which was excavated for the old tramway and now provides car parking for the village centre, beach and park.

#### 4.1.2. Landscape Character

Bronte's unique topography and size consists of a variety of areas with distinct landscape characters. The characters lend themselves to various recreational uses, and consideration of these characters in planning and design is essential in reducing conflicts between users.

The park divides readily into two parts: the protected western area focused internally onto the vegetated slopes and floor of the Bronte Gully; and the open eastern area exposed to the elements oriented towards the beach and ocean.

The two sections may be further divided into areas of specific function and enclosure. Figure 4.1 illustrates the landscape character areas of Bronte Park and Gully. These areas are generally well defined by topography and site elements, such as planting and pathways. The areas suit various uses such as picnicking, relaxing, walking, dog walking, or informal ball games and exercising. The site has

been defined by five landscape character areas: the Bronte Gully, Park, Beach and the two Headlands. These areas are further defined below:

##### *Bronte Gully*

The Bronte Gully consists of a narrow, grassed valley floor and steep treed side-slopes. An engineered natural creek central stormwater channel run through the centre of the valley, with a waterfall at the Bronte Gully head. The space is sheltered, quiet, shaded, and intimate. The playground area is found at the eastern end. The Bronte Gully can be further broken down into the following sub-areas:

- Upper Gully: has the greatest amount of shade and shelter. The trees and waterfall are the main features, with less of a connection to the ocean.
- Lower Gully: has a broader valley floor and greater connection to picnic area and ocean. The children's play area is the main feature, and Council authorised personal trainers are permitted to use the open areas<sup>15</sup>.
- Slopes: heavily vegetated by weeds and tree cover. With very limited access; however, demand for access is shown by desire lines in more cleared areas.

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<sup>15</sup> Waverley Council Commercial Fitness Training, Training Area Maps, Accessed 1 May 2018, [http://www.waverley.nsw.gov.au/recreation/venue\\_hire/outdoor\\_venue\\_hire/commercial\\_fitness\\_training](http://www.waverley.nsw.gov.au/recreation/venue_hire/outdoor_venue_hire/commercial_fitness_training)



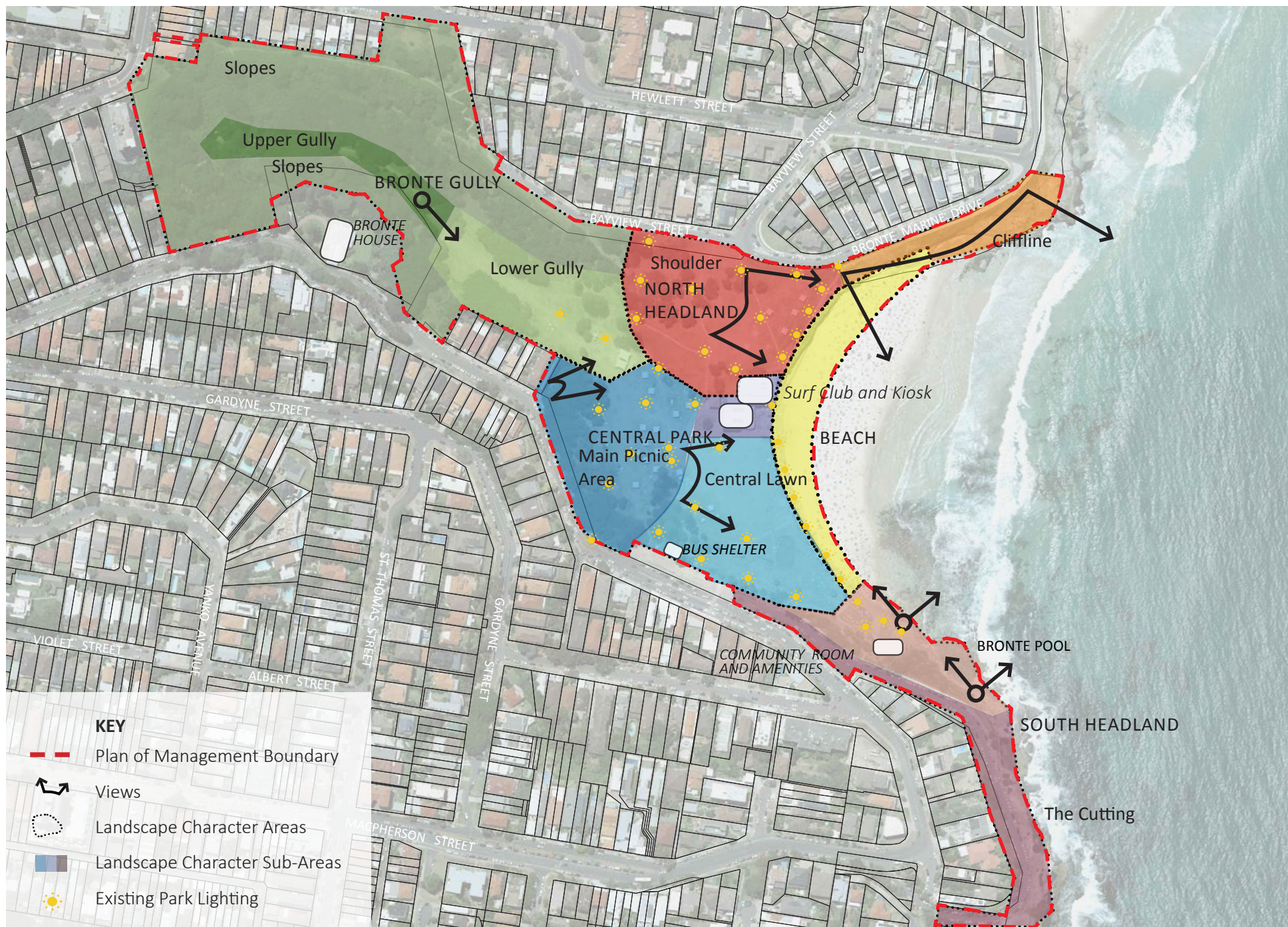


Figure 4.1 Design and Setting - existing conditions



### Central Park

The central park is the low-lying level area immediately behind the beach providing beach access. It is well used by picnickers and people relaxing. Sub-areas of the central park include:

- Central Lawn: an open, sunny lawn area used for sunbathing, informal games, strolling, and Council authorised personal training groups. Has immediate access from main parking area and bus terminus, and to the surf club and kiosk. Picnic shelters and the miniature train are at the south end.
- Main Picnic Area: consists of eighteen picnic shelters extending across the lawn area with a choice of shaded or open locations. Groups of Norfolk Island Pines feature strongly and divide the area from the accessible car park.
- North Amenities, Kiosk and BBSLSC: hard-edged space with courtyard and dominating brick building. Immediate access to beach, promenade and central land. Heavily used but aesthetically dated.

### Beach

The focal point of the park is the deeply embayed beach, gaining privacy and drama from the close spacing of its headlands. It is protected from strong southerly winds, with sheltered swimming in the naturalistic 'Bogey Hole' at its southern end.

### North Headland

A high, open area with spectacular views. The main access route to the beach from the north. This area is broken down into the following sub-areas:

- Cliff line: an exposed, narrow, high-access route containing the Coastal Walk. Highly exposed with spectacular views of the ocean and dramatic rock formations. Remnant heath vegetation along the cliff.
- Shoulder: open grassed hill, with spectacular views. Contains picnic shelters and settings and is traversed by paths providing access from the street. Bare of planting except at rear. Council authorised personal trainers are also permitted to use the open areas towards the back of the headland.

### South Headland

A high headland area with access at several levels encloses the beach dramatically to the south. Includes the heavily used Community Centre, Local significance heritage pool<sup>16</sup>, and a short walkway around the cliff line. This area is further broken down into the following sub-areas:

- Community Centre and Pool: a built area at the base of the cliff, backed by dense vegetation. Heavily used facilities for swimming, sunbathing, and meeting of community groups. Sunny, open, wind sheltered. Dramatic location beneath a cliff and adjacent to the surf. Main features: pool, community centre building and forecourt, cliff pathway and railings and dense planting behind. Major park entry.
- Cutting: dominated by car parking and dramatic rock face. Access to the clifftop can be achieved, revealing spectacular views and a narrow strip of remnant heathland.

### 4.1.3. Views

The topography of the site presents spectacular views of the beach, headlands and ocean. Views are revealed across the park to the beach and respective cliff lines upon arrival from Bronte Road or Bronte Marine Drive. And once in the space the many vantage points can be discovered from the floor of the lower gully and park area, with views out to the ocean across the beach. The views from these locations are framed by the cliff line and capture the activity of the park. Arriving from the Bronte Gully affords glimpses of the beach and park before the entire view is revealed in the lower gully. There are some viewing locations provided where visitors are able to stop, sit, and absorb the view. Additionally, there is a viewing location from the end of the southern headland that provides spectacular 180-degree views of the park, beach, ocean, and the shoreline to Tamarama Beach and Mackenzie's Point.

16 NSW Legislation, Waverley Local Environment Plan 2012, Viewed 23 April 2018, [https://www.legislation.nsw.gov.au/#/view/EPI/2012/540/sch5?autoquery=\(Content%3D\(\(%22pool%22\)\)\)&dq=Within%20Title%3D%22Waverley%20Local%20Environmental%20Plan%202012%22%2C%20Exact%20Phrase%3D%22pool%22&fullquery=\(Content%3D\(\(%22pool%22\)\)\)&scope=text&withintitle=yes](https://www.legislation.nsw.gov.au/#/view/EPI/2012/540/sch5?autoquery=(Content%3D((%22pool%22)))&dq=Within%20Title%3D%22Waverley%20Local%20Environmental%20Plan%202012%22%2C%20Exact%20Phrase%3D%22pool%22&fullquery=(Content%3D((%22pool%22)))&scope=text&withintitle=yes)

### 4.1.4. Park and Planting Design

Within the Park are some remnants of the old colonial garden, overlain with Victorian additions. Portions of stone steps and terracing still remain from Bronte House's original garden design. These elements are historically important in association with Bronte House.

The small naturally formed cave below the house is likely to have been a focal point of the old garden. This cave once had an arbour-style seat looking down to the creek; however, this is no longer remaining and the supporting stone retaining wall has deteriorated.

It is likely that some existing trees in the Park today were part of the original Bronte House garden. Some of the significant trees planted at this time included the Moreton Bay Figs, Norfolk Island Pines, Camphor Laurels, and Palms.

Planting in the open park is sparse and limited to open lawn. Native vegetation forms the majority of the planting, selected for its capability to survive the front-line coastal conditions.

### 4.1.5. Built Form

The Northern Amenities and BBSLSC building is a two-storey brick and concrete structure located in the central area of the park. It was completed by Waverley Council in 1974, replacing a series of earlier buildings. This is the largest single structure in the park. The building accommodates BBSLSC facilities, public toilets including accessible toilets, cold-water showers, change rooms, a kiosk, room for park staff, and lifeguard facilities. A brick building with tiled roof adjacent to the North Amenities and BBSLSC houses sewage pumping equipment operated by Sydney Water.

The Community Centre building is a single-storey brick and concrete building located at the southern end of the promenade. The building sits below the sandstone headland and contains public toilets, change facilities, showers, and a clubroom with storage facilities. The flat roof area is an observation deck and sunbaking area that was dedicated to the public in 1985.

Picnic shelters have been a part of the fabric of the park since Council's 1914–16 program of works. The general location and style of the timber-framed picnic shelters currently found on-site date back to the 1940s. Three of the earlier dated shelters were replaced in 1994. In addition, a series of five concrete-roofed shelters located in the south-eastern corner of the park were replaced with the pitched sheet-metal roofing following a damning report on the structural condition of the concrete roof slabs in 2011.

The existing picnic shelters within the park have low heritage significance, but the continuity of style, general location, and use since c. 1913-14 has value.<sup>17</sup>

On the southern boundary of the park below the bus terminus is a bus shelter. It is an open weatherboard structure with tiled roof, previously built as a tram shelter. This structure is not listed on any heritage register, and has had the addition of a toilet for State Transit Authority staff use.

#### 4.1.6. Urban Furnishing/Materials and Finishes

The park features an assortment of urban furnishings including seating, rubbish bins, bollards, dog waste bag dispensers, bubblers, barbecues, bicycle racks, and lighting. The circular concrete shelters in the south-east of the park were built in the 1970s.

The primary paving material throughout the park is concrete with various finishes. Sandstone flagging is used in Bronte Gully.

Fencing and balustrades typically use arris rail fencing and stainless-steel balustrades.

#### 4.1.7. Lighting

There are two types of pole lighting within the study area – lighting to the park and to the promenade. Ausgrid owns all

the existing lights within the park and along the promenade. Currently the Bronte Cutting is not lit – this area has been identified to be suitable for lighting. There is an identified gap in lighting provision within the amenities buildings and outdoor beach showers at the southern end of the promenade.

#### 4.1.8. Safety

Findings from the *Bronte Park User Survey 2016* suggest that most people felt safe in the park and on the beach.

#### 4.1.9. Community Values

During the *Bronte Park User Survey 2016* the following values were consistently identified when people were asked 'What do you like about the area?'

- The natural beauty;
- The strong sense of community;
- The undeveloped quality of the space;
- The variety of different characters and environments across the Bronte Gully, the Park, Bronte Baths and the Beach; and
- The heritage and connection to local history.<sup>18</sup>

<sup>18</sup> Straight Talk, October 2016, Bronte Park User Survey Report

#### 4.1.10. Major Issues

- i. There are gaps in lighting provision: i.e. in bathrooms, the Bronte Cutting, and outdoor showers.
- ii. Pathways and the bear pit need updating.
- iii. Planting design within the park lacks structure and form.
- iv. Buildings within the Park are dated, and need to be refurbished or upgraded.
- v. The style of furniture and fixtures is inconsistent throughout the site.
- vi. Planting design is not coherent and lawn is worn with dead patches.

<sup>17</sup> Mayne-Wilson & Associates, Heritage Study of Bronte Park, 2003, Heritage Table Item 3.5

## 4.2. Getting to and around the Park

This section looks at the various modes of transport to and from the park; entry and exit points; and wayfinding and circulation in and around the park. Refer to Figure 4.2 for the location of paths, entries and routes of travel.

### 4.2.1. Getting to the Park

The results of the *Bronte Park User Survey 2016* show that most people who visit Bronte Park and Beach walk or otherwise travel by bus, car, motorbike, or bicycle.

Main pedestrian access points to the park include the main entrance to the south at Bronte Road, Bronte Cutting, and to the north, Bronte Marine Drive, Bayview Street and Hewlett Street. A number of entrances also exist in the west of the park through the Bronte Gully that link to unpaved tracks.

Park entrances range from formal signposted accessways to informal tracks. These include steps, step-free access, kerb ramps, sloping concrete paths, informal dirt and grass tracks, and shared vehicle and bike accessways. Entrances in the north predominantly consist of steps or are linked to steep pathways that are not deemed compliant with Australian Standards. Entrances in the south provide more accessible options.

There are some car-share pods in the Bronte area, as an alternative to travelling by bus, private vehicle, or walking. The Randwick Waverley Community Transport (RWCT) service also provides transport services for the frail, aged, people with disabilities and the transport disadvantaged. Presently RWCT owns and operates seven vehicles and provides around 25,000 trips per year.

#### *Walking*

The Coastal Walk continues through Bronte on the promenade, connecting to the north via the Bronte Marine Drive footpath, and to the south by a path leading to the Bronte Cutting. The Bronte Cutting is a designated 10km/h zone for cars and includes a section without footpaths where coastal walkers share the carriageway with traffic.

Green Links was initiated by Waverley Council to promote walking in the area. There is a Green Link connection from Queens Park to Bronte Beach.

#### *Public Transport*

Waverley is serviced by a comprehensive and popular public transport system with regular trains to Bondi Junction and numerous bus routes connecting the site to the City, Bondi Junction, Dover Heights, and Bronte. Bondi Junction is on the Eastern Suburbs and Illawarra train line operated by CityRail. Frequent suburban train services operate to and from Bondi Junction Bus and Rail Interchange.

Sydney Buses currently run three regular bus services from Bondi Junction to Bronte. Route 379 from the Bus Terminus on Bronte Road, route 364 from Bronte Marine Drive and Hewlett Street, and the route 360/361 service from Murray and Alfred Streets. There is currently no equal-access path between these stops and the park due to topographical constraints. In addition, Sydney Buses operate a summer peak and public holiday bus service through the Murray and Alfred Street stop, route 362.

#### *Cars and Parking*

Waverley Council operates marked and metered parking in the Bronte Cutting that has 140 bays, three Mobility Parking Spaces, and motorbike parking. Residents with a Beach Parking Permit can use this facility for free. The Bronte Cutting carpark is rarely used to full capacity.<sup>19</sup>

Surrounding streets provide additional parking. Bronte Road operates unmarked pay and display metered parking.

There are five accessible parking spaces in a carpark in the Park adjoining the Bus Route Terminus. There is currently no accessible pathway grade connecting these spaces with the beach and town centre.

There are currently no taxi ranks servicing Bronte Park, Beach, and Village Centre.

#### *Bike Routes*

A bike and pedestrian shared path runs through Bronte Park, connecting Bayview Street and Bronte Road. This path forms part of the Coastal cycleway route that runs along the coastline, identified in the *Waverley Bike Plan 2013*. This bike path also connects mixed-traffic cycle routes on Bronte Road and Cutting with Centennial Park and Bondi Junction.

Entrances for bicycles is via the vehicle shareway and Bayview Street. Bike parking is provided on Bronte Road between the pedestrian crossing and Cutting carpark entry. Bike racks are also provided adjoining the heritage tram shelter in the accessible car parking area.

### 4.2.2. Getting around the Park

The *Bronte Park User Survey 2016* revealed that a high proportion of people said they did not have difficulty getting around the area. However, some commonly cited impediments across the park and the beach include the steep gradient in front of the bus stop on Bronte Road and up the hill for parking, as well as the longer distance between facilities, which can make things difficult for elderly users.

#### *Walking*

Within the park there are several formal pathways leading from the park entry points to main destinations such as the promenade, beach, BBSLSC, amenities building, and community centre. Access to the playground, picnic shelters and barbecues are not currently formalised by pathways. There is also a popular dirt track at the bottom of Bronte Gully connecting to the waterfall and down towards the beach.

Formal paths within the park are typically concrete with the exception of sandstone flagging on stairs and paths in the upper gully. Paths are typically narrow, most paths measuring 1.3 metres wide. The promenade is typically 5.7 metres wide.

<sup>19</sup> Waverley Council, 2016, Bronte Cutting Parking Statistics 1 Dec 2014 to 30 November 2016.





Figure 4.2 Getting to and Around the Park- existing conditions



### *Universal Access*

Universal Access in the built environment takes into account the needs of a wide range of community members so that each visitor has an equally satisfying experience.<sup>20</sup> As part of the development of the Plan of Management an Access Study was undertaken. This study revealed that many of the entries, stairs, paths, and beach access points in the park did not comply with standards such as the *National Construction Code 2016* and *Australian Standards 1428 Design for Access and Mobility (2009)*. Furthermore, the condition of many paths and stairs is poor with cracked and uneven surfaces.

Many of the facilities provided within the park are not accessible from a path and do not cater for those with mobility impairments. These facilities include basic amenities such as seating, picnic shelters, barbecues, playground, toilet facilities, and baths. For a complete analysis of the access report please refer to *Funktion Making Life Fit, October 2016, Universal Access Study*. Major issues and actions identified in the Universal Access Study have been integrated into this document.

### *Vehicle Access in the Park*

The primary service vehicle access point is located on Bronte Road. A secondary service vehicle access point is located on Bronte Marine Drive, adjacent to a pedestrian access point.

The following vehicles typically access the park:

- Garbage trucks, to empty garbage bins from the bin collection area;
- A truck to empty the Gross Pollutant Trap every couple of months;
- Parks maintenance vehicles, to deliver supplies such as mulch and remove green waste;
- Service vehicles, to maintain existing building assets such as the amenities buildings, community centre, kiosk and BBSLSC;
- Emergency vehicles; and
- Helicopter, in the case of medical emergency.

### *Signage and Wayfinding*

Bronte Park and Beach has an existing suite of signage. Park Welcome Signs are found at most pathway entries to the park, refer to Figure 4.2 for locations. These signs provide a map showing the current location and places of interest in the park and information on prohibited activities. A single Visitor Information sign is located along the promenade at the nexus of the entry path and promenade; surf safety information is also displayed on this sign. The existing park signage is old and faded, is difficult to read, and contains incorrect information.

In addition, there are several standalone compliance signs detailing dog compliance, no alcohol, no commercial trainers, and no smoking on beach. There are also Beach Regulation signs and the Surfers Code signs at beach access ramps and adjoining the promenade. Pool safety signs are also located at Bronte Pool.

Interpretative signage can be found in the Bronte Gully and along the promenade, providing information on both the aquatic and terrestrial environment.

Wayfinding throughout the park can be unclear as path entrances are often obscured with destination points not being within the line of sight. Coastal walk directional signs are located towards the end of the promenade directing pedestrians to the Coastal Walk.

### *Beach and Pool Access*

The beach can be accessed from the promenade via beach ramps or stairs. There are three sets of stairs and two ramped access points. BBSLSC and lifeguards share a ramped access with the public. None of these access points are compliant with Australian Standards.

The Bronte Baths are accessed from two points, both entries have stairs so are not accessible to wheelchairs. Currently the stairs do not have Tactile Ground Surface Indicators (TGSIs) or contrast strips on the nosing for people with vision impairment. There is a separate stair access to the beach pool pump, which is closed to public use. The pool has a split-level seating area elevated from the pool. Seating and balustrades in this location are also non-compliant with Australian Standards.

There is ladder access to the ocean from the pool area. This ladder needs to be regularly cleaned due to the build-up of algae.

20 Funktion Making Life Fit, October 2016, Universal Access Study DRAFT

### 4.2.3. Major Issues

- i. The Coastal Walk through Bronte Park and Beach has ambiguous wayfinding.
- ii. Existing accessible compliant parking does not meet current standards and there is no accessible compliant pathway connection between the parking spaces in the Park to the beach and café area.
- iii. Main pathways and access into the park need to be wider and better designed to accommodate passing of prams, wheelchairs and bicycles.<sup>21</sup>
- iv. Some pathways do not link entrances directly to the park facilities such as the playground, barbecue and picnic shelters.<sup>22</sup>
- v. The barbecues and picnic shelters are not accessible for wheelchairs.
- vi. Stairs at the northern end forming part of the Coastal Walk are difficult to use.<sup>23</sup>
- vii. Older visitors noted the distance from picnic areas to park amenities is too long.<sup>24</sup>
- viii. Safety issues were identified due to vehicle-pedestrian conflict outside BBSLSC and the park storage area.<sup>25</sup>
- ix. Some visitors have difficulty accessing the baths and bogey hole due to uneven stairs, slippery stairs and rails.
- x. Pedestrian access from the Bronte Road bus stop and car parking is not at an accessible compliant grade and entrance into the park and beach is difficult to identify.
- xi. There is a need to create better access around Bronte Baths (pool and toilets) in consideration of the elderly, those who use wheelchairs, and parents with prams.
- xii. The shared traffic and pedestrian system in the Bronte Cutting can be difficult to negotiate. The narrow space causes conflict between pedestrians and vehicles, particularly when vehicles are passing pedestrians.
- xiii. Existing signage is faded and some information is outdated.

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21 Funktion Making Life Fit, October 2016, Universal Access Study DRAFT

22 ibid

23 ibid

24 ibid

25 ibid

## 4.3. Playing and Relaxing

Bronte Park and Beach is a highly used space and supports a wide variety of active and passive recreational activities such as swimming, surfing, Nippers, beach-goers, walking, jogging, bike riding, picnicking, barbecuing, beach viewing and relaxing. Refer to Figure 4.3 for the location of recreation facilities and park uses. Feedback from the *Bronte Park User Survey 2016* indicated that the community appreciate the provisions at Bronte, particularly the pool, picnic shelters, open grass areas, amount of gathering space and access to coffee shops.

### 4.3.1. Recreation Facilities

Important facilities in Bronte Park that support recreation include:

- Bronte Beach Surf Lifesaving Club (BBSLSC): BBSLSC occupies the northern portion of the building with the ground floor consisting primarily of storage facilities, gymnasium, change rooms, members' area, office, and first aid room. An undercroft storage area is located at the rear of the ground level. The first floor consists of members' rooms that includes a bar and toilets; a narrow veranda is located on the east elevation orientated towards Bronte Beach. Presently BBSLSC is accessed from the ground floor via Bronte Beach Promenade, south side access ramps and steps, or via the storage room located at the rear of the building. The first floor of BBSLSC is accessed via internal stairs or from the Bronte stairs and veranda at the building's east elevation. BBSLSC has no on-site car parking, however it has dedicated parking spaces within the Bronte Cutting.

- Attached to the BBSLSC is a single-storey building consisting primarily of:
  - Male change area with five toilets, ambulant/accessible toilet, and urinals. Communal shower area with six shower heads;
  - Female change facilities with sixteen toilets and one ambulant/accessible toilet. Shower area with four shower cubicles;
  - Parks Staff lunch room with lockers, female and male toilets;
  - Rangers office; and
  - Bronte Kiosk.
- The building in the southern section of the Park accommodates:
  - Bronte Beach Community Centre;
  - Bronte south amenities building. There are no designated accessible showers or male/female toilets in this facility.

Bronte Park also accommodates:

- Picnic shelters and barbecues
- Miniature train track
- Playground in Bronte Park
- Playground in Hewlett Street Reserve
- Heritage tram shelter currently used as a bus shelter
- Bronte Baths

### 4.3.2. Recreation Activities

The findings of the *Bronte Park User Survey 2016* indicated that:

- The most common activities were swimming and walking. As expected, the beach is the most highly used element of the area.
- Jogging, exercising, relaxing and socialising were also very popular activities.
- Activities are spread across all areas of the park and beach.
- Most people say they generally stay for one to two hours.
- Some people come multiple times per day.
- There is a strong underlying community network based on the presence of intergenerational residents and a number of active clubs and organisations. These groups drive regular visitation, and provide a vehicle for the consistent use of the facilities and an appreciation of the natural beauty of the area.
- Some activities are more common in certain areas and at certain times of the day.
- Many people enjoy the use of the grass areas as this provides open space for small and large group activities. This is popular through midday and into the afternoon in daylight.
- Most activities are self-organised. People appear to bring all the items they require to entertain themselves but rely on the use of amenities (toilets, showers and change rooms) and sometimes purchase food. Around 50 per cent of those surveyed said they make use of the Bronte Road cafés on their visit to the park and beach.<sup>26</sup>

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26 Straighttalk, 2016, Bronte Park User Survey Report





Figure 4.3 Playing and Relaxing- existing conditions



### *Passive Recreation*

Bronte Park and Beach is very popular for people to stop and relax, enjoying the sun, outdoors and view of the beach and ocean. People also frequently use the area to socialise with friends, take photographs, and sunbake or quietly recline with a book.<sup>27</sup> Generally these activities are spread throughout the park and beach; however, the park beyond the promenade, including the open grass area and slopes, are very popular spots for people to enjoy the park with a view of the beach. Occasionally the park is used for larger gatherings and parties.

### *Swimming*

The most popular places for the public to swim are at the northern end of the beach, the rock pools (bogey hole) and baths.

The Baths are located at the southern end of the promenade and are accessed by stairway only. There are a number of organised swimming clubs that use the pool and the community centre adjoining the southern amenities building; these clubs include Bronte Splashes Swimming, Bronte Swimming club, Bronte RSL Swimming Club, Bronte Breakers Women's Swimming Club and Dr Bronte Swim and Discussion Club.

The beach is also popular for swimming; the northern end and the centre of the Beach are typically the safest for swimming. The Life Guard patrol flags are usually set up at the northern end. Submerged rocks at the southern end make swimming there undesirable. The rock pool known as the 'bogey hole' on the southern end of the beach is protected from strong currents, deep water and waves (unless there is big surf) by outlying rocks. Anecdotal evidence from lifeguards indicates that the areas where most rescues occur are in the northern corner of the beach where a topographical rip flows. Strong currents and a rock platform that is popular with rock fishermen make this a notorious spot for people getting into trouble. There is also a strong rip that runs out against the southern rocks that

results in frequent rescues by lifeguards.<sup>28</sup>

Waverley Council employs professional lifeguards to protect visitors at Bronte. The lifeguards patrol the beach and bogey hole. Bronte Beach had a large number of rescues over the 2016-17 season, second only to Bondi Beach in the Sydney region.<sup>29</sup> This is reflective of the perception Bronte Beach is one of the more dangerous beaches in Sydney.

### *Surfing and Paddling*

Bronte Beach is popular for board riders and is home to the Bronte Board Riders Club.

### *Snorkelling and Fishing*

The beach and bogey hole are also popular for snorkelling and fishing. Fishing is also popular from the headland north of the beach. Bronte Beach is the major access point to the northern part of the Bronte-Coogee Aquatic Reserve.

### *Volunteer Surf Life Saving*

The volunteer lifesavers wear red and yellow uniforms and assist the lifeguards on the Beach on weekends and public holidays during the summer period. BBSLSC organises regular activities (daily surf training, surf patrols and Sunday Nippers training) and special events such as surf carnivals, Nippers fun swim days, the Christmas Scramble, Christmas Carols nights, Bondi to Bronte Swim, barbecues, Bronte Biathlon and fundraising initiatives.

### *Walking*

Walking is one of the most popular activities in the park. As mentioned earlier, the Bronte Promenade forms part of the Coastal Walk, refer to Getting to and Around the Park.

### *Dog Walking*

Dog walking is a very popular exercise. Bronte Park and Gully have designated off-leash areas, refer to the Management and Maintenance section for details.

### *Picnicking and Barbecuing*

The picnic shelters and barbecues are very popular for

meeting friends and family. Council provides two barbecue stations with four barbecues in each. Many people use benches and the picnic shelters to rest as they provide space to put items including books, bags and food.<sup>30</sup>

### *Exercising*

Bronte Park, Beach and Pool are popular for individuals to come and exercise. Visitors typically exercise in the morning. Waverley Council sets guidelines and manages commercial training permits. Individuals utilise the Park and Beach for activities such as running, walking and swimming.

### *Ball Games*

The open grassed area between the promenade and picnic shelters is often used as an informal kick-about area, Frisbee is also popular. Informal ball games are permitted in this area on the lawn; however, organised ball sports are not permitted.

### *Children's Play*

The playground in Bronte Park was upgraded in 2013 and is very popular. The playground is identified as a District Level Play space in Waverley Council's *Play Space Strategy 2014–2029*, meaning that it is a 'destination' play space and services a substantial residential area. This play space currently provides play experiences for toddlers up to senior children (10–14 years old); however, the full age range for senior children is not entirely catered for. Play equipment includes a large climbing unit, boat, hammock, slide, spinning carousel, swings and a toddler area. As this play space was recently upgraded it is not due for replacement for some time. In developing the play strategy, a gap in play provision for young people was identified. As Bronte Park and Beach currently is identified as a district level play space, providing additional activities at Bronte would be beneficial and assist in addressing play provision as identified in Council's *Play Space Strategy 2014-2029*.

A smaller playground is located in Hewlett Street Reserve; this playground is much smaller and identified as a Pocket

28 Waverley Council, Bronte Beach Lifeguard Tower Draft Proposal, 2016

29 Surf Life Saving Sydney, Rescue Methods/Statistics, accessed 23 April 2018, <http://surflifesavingsydney.com.au/lifesaving/rescue-methodsstatistics/>

30 Straighttalk, 2016, Bronte Park User Survey

Play Space in Council's *Play Space Strategy 2014–2029*, catering to the immediate residents in the area. This playground currently has a climbing cubby house, spring animal, see-saw, spin pole and swing set. It is used by toddlers (0–4 years) and junior children (5–9 years). The play space has seating facilities but is not connected by a formal path. The *Play Space Strategy 2014–2029* has identified this play space to be upgraded as a medium-term priority to a Neighbourhood Level play space.

A miniature train track is located adjacent to the open grassed area that operates on weekends during the summer months and daily during school holidays. The train has been in operation for many years with locals having fond childhood memories of riding the train.

Bronte Gully is often used by senior children and young people as a space to hang out. With the exception of other park facilities there are no other facilities or activities aimed to cater for this age range exclusively.

#### *Events*

Based on the Council's approved Fees and Charges, the approval for the use of Bronte Park and Beach for 'one-off temporary events' is based on the impact and time of the proposed activity as detailed under *Waverley Council Events Policy 2015*. Currently BBSLSC hosts an annual event that uses Bronte Park and Beach to accommodate its major ocean swim event.

### **4.3.3. Major Issues**

- i. Limited shade trees.
- ii. Trees should be considered as living assets with a long term maintenance and replacement plan.
- iii. Conflict of dogs off-leash with other users.
- iv. The picnic area in the north headland of the park is underutilised.
- v. There are two barbecue units of four barbecues: there are times where larger groups take over the barbecue zone making it difficult for others to use.
- vi. Not enough water bubblers.
- vii. Bronte Beach water safety.

## 4.4. Enhancing the Environment

This section analyses the key intrinsic natural assets of the site including micro-climate, geology and soils, topography, hydrology, flora and fauna, and sustainability, refer to Figure 4.4 for more detail. Results from the *Bronte Park User Survey 2016* showed that people love the natural setting, unspoilt beaches and undeveloped feel. People also appreciated the environment in the Bronte Gully and work done to maintain this setting.

### 4.4.1. Micro Climate

Bronte Park and Beach are within a bay flanked by sandstone cliffs, the beach is east-facing. The coastal environment presents some extreme weather conditions such as salt spray, strong winds and high tides.

Sydney's climate is temperate, with four seasons. It is mainly sunny throughout the year with cool, mild winters and hot, humid summers. Sydney's mean annual rainfall is 1,212mm. Average temperatures range from between 20.3–14.13o° in winter, to 29–23o° in summer.<sup>31</sup>

### 4.4.2. Geology and Soils

Bronte is underlain by a varied thickness of Quaternary-aged beach sands overlying Triassic Hawkesbury Sandstone, with outcrops at the northern and southern extents of the beach.<sup>32</sup>

Large parts of Bronte Park and Gully appear to have fill material. Fill would have been used following the construction of the sea wall to create a level site for the park.

The site is located in an area of acid sulphate soils (class 5), with a pocket of class 4 acid sulphate soils central to the open lawn and picnic area.

31 <http://www.weatherzone.com.au/climate/station.jsp?l=site&lc=66062>, viewed 21/01/17

32 1:100000 Geological map for Sydney

### 4.4.3. Topography

In its original form Bronte Beach consisted of a natural valley that channelled surface water run-off towards the ocean. Beach sands extended up to 100 metres into the valley. Between 1914 and 1917, a 250-metre-long seawall and promenade were constructed, effectively reducing the beach depth. A set of stairs was constructed in the north, providing access from the beach level to the headland. The land behind the wall was drained, backfilled and converted to public open space.<sup>33</sup>

### 4.4.4. Hydrology and Services

Bronte Creek remains a viable watercourse and serves as an urban stormwater channel. The creek funnels the natural base flow of the 135-hectare Bronte Water Catchment. The watercourse consists of an open concrete channel from the base of the waterfall to the western extent of the main grassed section of Bronte Park, from here it is undergrounded and directed to the discharge point at the northern end of Bronte Beach.<sup>34</sup>

The mean tidal range in Sydney is approximately one metre and the tidal period is around 12.5 hours. Tides in spring are higher and lower from the mean sea level than other times of year. The average spring tidal range is 1.3 metres and the maximum range reaches two metres.<sup>35</sup>

Sea level rise is a gradual process and will have medium- to long-term impacts. National and international projections of sea level rise along the New South Wales coast estimate a rise of up to 40cm by 2050 and 90cm by 2100, relative to 1990 mean sea levels. There is no scientific evidence to suggest that sea levels will stop rising beyond 2100 or that the current trends will be reversed. It is expected that sea level rise will reduce the shoreline and cause recession and shortening of the beach. Increasing sea levels have the

33 2011, Coastal Risk Hazard Vulnerability Study

34 Total Care Pty Ltd, 2015, Bronte Gully Ecological Restoration Action plan 2015-2045

35 Worley Parsons, Coastal Risks and Hazard Vulnerability Study, Sydney

potential to increase coastal hazards such as beach erosion, and flood risks during major storm events. This may affect buildings, infrastructure, recreational facilities and amenity.<sup>36</sup>

The seawall along Bronte Beach is approximately 250 metres long. It retains the beach and promenade, and protects the foreshore buildings from inundation. With consideration of predicted sea level rise and more frequent extreme storm events, the Bronte Beach seawall is at a potential risk of:

- Excessive scour due to wave action in front of the wall.
- Wave overtopping causing structural damage behind the seawall (higher for 20-year average recurrence interval [ARI] or more extreme event).
- Impact on the seaward face and the production of significant volumes of splash water or wave overtopping of the seawall.

Not unlike the damage caused in the 2016 storms, these events are likely to cause damage to infrastructure along or immediately behind the seawall and undermine the seawall itself.<sup>37</sup>

The site is identified as a risk of coastal inundation in the coastal inundation risk map detailed in Part B4 of the *Waverley Development Control Plan 2012*. Accordingly, a coastal risk assessment will need to be done alongside any development applications.

36 ibid

37 ARUP, 2016, Waverley Council Bronte Seawall Technical Study Report, Sydney





Figure 4.4 Enhancing the Environment- existing conditions



#### 4.4.5. Sustainability

The aim of the Bronte Gully Stormwater Harvesting System is to save water, improve beach water quality, reduce pollution and better manage water resources. The system uses the reliable stormwater flow travelling down the channel in Bronte Gully that would otherwise be discharged straight out to sea. The system was installed and completed in September 2008. It uses a 120-kilolitre underground storage tank. The harvested and treated water is:

- Used for cleaning Bronte Pool and other public spaces,
- The sole source of water for park irrigation and bush care activities,
- The primary supply of water to both amenity blocks (toilet and urinal only),
- Provided to the Bronte Beach Surf Lifesaving Club for use.

The system is estimated to save 16 megalitres of water every year; it improves the beach and water quality by providing water to the park and amenities, reducing stormwater flowing into Bronte Beach, and reduces risk of pollution. BBSLSC and the adjoining public amenities are currently supplied treated stormwater from Council's Bronte Stormwater Reuse System for toilet flushing.<sup>38</sup>

#### 4.4.6. Fauna and Flora

Bronte Gully, located inland from the Park and Beach, is one of the largest areas of urban bushland in Sydney's Eastern Suburbs.<sup>39</sup>

Bronte Gully supports approximately 3.5 hectares of mixed native and exotic vegetation on the north and south-facing slopes surrounding Bronte Creek. The original native vegetation that once occurred over Bronte Gully would have been a mixture of Coastal Heath and Scrubland vegetation

on the upper slopes and more open areas to the east, with Wet Sclerophyll Forest/Gallery Rainforest vegetation present within the riparian zone of Bronte Creek.<sup>40</sup>

Land management practices over the past 100 years have resulted in the degradation of the native bushland in the Bronte Gully. Currently existing vegetation is a combination of native and exotic plantings (historic and recent), exotic weeds and restored/reconstructed native bushland communities.<sup>41</sup>

Waverley Council has adopted and is implementing an *Ecological Restoration Action Plan* (ERAP) to re-establish native species within the bushland dominated by invasive exotic weeds. Works are carried out by the Bushcare groups, Bronte Gully Bushcare and Bronte Waterfall Bushcare, as well as commissioned to professional contractors by Waverley Council.

The aim of the ecological restoration of Bronte Gully is to:

- Increase the quality of the habitat availability for native fauna and attract more species into the area,
- Restore and increase the occurrence of native vegetation in the Eastern Suburbs and provide higher quality passive recreation and educational opportunities,
- Greatly increase the visual amenity of the area, and
- Reduce a major source of exotic weed seed spreading into surrounding remnant native bushland patches.<sup>42</sup>

There are patches of remnant vegetation on the northern and southern cliffs. The vegetation community is known as Sea-cliff Heath and Sea-cliff Grassland. The remnants range in ecological condition from heavily weed-infested to low levels of weed occurrence. All patches were identified as being in Very Poor Vegetation Condition by SBR (2010). Bush regeneration works are routinely undertaken within the larger remnants. Connectivity planting is recommended to

support the remnant vegetation in numerous locations.<sup>43</sup>

Bronte Park and Gully forms a critical link in a habitat corridor identified in the *Waverley Development Control Plan 2012*. The corridor aids wildlife movement, interbreeding and recolonisation through the provision of habitat and buffer vegetation. Bronte Gully is a large habitat resource for a wide range of native fauna species. The Bronte Gully is a temporary refuge for transient bird species and a permanent home for native frogs, reptiles and small to medium-sized birds and mammals.<sup>44</sup>

The cliff line supports low to moderate levels of native flora and fauna habitat. Vegetation generally occurs as sparse to dense shrub layer with few areas of dense native understorey/groundcovers. The shrubby vegetation provides moderate perching and foraging habitat of value to small passerine birds; there are few food resources for nectar-feeding species. Large areas of open sandstone provide basking and foraging habitat for small skinks.<sup>45</sup>

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43 Biodiversity Action Plan 2014-2020

44 Total Each Care Pty Ltd, 2015, Bronte Gully Ecological Restoration Action plan 2015-2045

45 Biodiversity Action Plan 2014-2020

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38 [http://www.waverley.nsw.gov.au/environment/water\\_and\\_coast/our\\_projects/bronte\\_gully\\_stormwater\\_harvesting\\_and\\_reuse](http://www.waverley.nsw.gov.au/environment/water_and_coast/our_projects/bronte_gully_stormwater_harvesting_and_reuse), viewed November 2016

39 Total Each Care Pty Ltd, 2015, Bronte Gully Ecological Restoration Action plan 2015-2045

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40 UBM, 1993, Bronte Gully Bushland Survey and Rehabilitation Strategy, Sydney

41 Total Each Care Pty Ltd, 2015, Bronte Gully Ecological Restoration Action plan 2015-2045

42 ibid

#### 4.4.7. Major Issues

- i. From time to time foxes and other pests require management.
- ii. Planting selection and design in the Park does not currently consider the biodiversity corridor.
- iii. The crib retaining wall in the upper gully needs to be backfilled and planted.
- iv. There is some evidence of soil contamination.
- v. From time to time stormwater quality needs to be managed.
- vi. Weed control is difficult to manage on steep slopes in the Bronte Gully.
- vii. Continued and further support to volunteer Bushcare groups.
- viii. Park and pool infrastructure is not currently set up for climate change, being vulnerable to storm and extreme weather damage.
- ix. The entry to the underground stormwater pipe (trapezoid) in the Bronte Gully is not secure, posing a safety risk for people or animals being washed into the pipe.
- x. Some remnant vegetation is in poor condition.
- xi. Tree replacement is currently unplanned.

## 4.5. Community, Culture and Heritage

People like the sense of community, local atmosphere, and ambiance of Bronte. In the *Bronte Park User Survey 2016* many people commented that Bronte Park and Beach felt like home.

### 4.5.1. Statements of Heritage Significance

The following are the existing Statements of Significance for the *Bronte Beach and Park Landscape Conservation Area* and *Bronte House* and grounds as provided in their respective inventory sheets:

*Statement of significance for Bronte Beach and Park:*

The developed park behind the beach is a rare example of a beachside park retaining much of its 1920–1940 period character and layout. It is also unusual for a Sydney beach park not to have its beach and park elements separated by a road. Historical, cultural, natural and scenic value. Important aesthetic and historical associations with Bronte House. State significance. Date significance updated: 07 Feb 00

*Statement of significance for Bronte House and grounds:*

Bronte House is of a style not commonly found in Australian Colonial architecture, with its superb siting and substantial garden it is a significant essay in the picturesque. The property has connections with colonial architect Mortimer Lewis and more importantly with Robert Lowe, later created Viscount Sherbrooke. It is especially notable stylistically as an individual mid-Victorian design reflecting a romantic and picturesque interpretation of the medieval past. It is substantially intact and retains its outstanding original setting. Bronte House is the oldest known residence in the Waverley Council area.<sup>46</sup>

A historic, extremely rare, picturesque garden constructed in a naturally irregular site as a setting for an equally picturesque colonial house by one of the colony's rarest inhabitants – a cultivated lady. (James Broadbent for

National Trust of Australia, 1981)

Bronte House is one of Australia's most picturesque surviving colonial residences and dates back to 1845. Built in the 'Gothick' taste so fashionable in the late 18th and early 19th centuries it is a perfect example of the cottage orné, not a mansion but a romantic retreat from more formal city life. Its restored and adapted garden is now a small scale botanic garden, a repository for rare and beautiful plants, and one of Australia's best new private gardens. (Schofield, 2002) Date significance updated: 08 Dec 03

### 4.5.2. European Heritage

In preparation for the 1995 Plan of Management, a heritage study was prepared by Mayne Wilson and Associates. The following information has been summarised from this report.

The land on which Bronte Park has developed is part of four land grants totalling 42 acres acquired by Colonial Architect Mortimer Lewis in 1836. Although he laid the foundations for a modest house, he did not build it, and sold his estate to barrister Robert Lowe and his wife Georgiana in 1843. They designed and built what became known as Bronte House in 1844–46, and laid out elaborate landscaped grounds influenced by the picturesque theory, exploiting the many natural features of the site.

After their return to England in early 1850, the estate passed through several hands, the only two families to reside there for any length of time being the Holdsworths (1861–1882) and Ebsworths (1882–1948). The subdivision of the estate in 1882 reduced the land on which Bronte House is situated to only four acres. Most of the landscape elements – sandstone stairways, the bridge over the waterfall, and some pathways that remain within the Park today – were constructed during the Lowe's relatively short occupation, and have a high degree of historical significance.

The Estate's second phase began in 1886. In response to public pressure, Waverley Council resumed 14 acres of it

for a public park. The following year saw the construction of public baths near the Bogey Hole, and women's dressing sheds. From then on, the Park grew into a favourite seaside resort, taking its name from historic *Bronte House* on the ridge behind it.

Bronte Surf Life Saving Club was established in 1903, and a Swimming Club building erected above the baths the following year. A tram service opened in 1911, bringing hundreds of beach-goers to the Park at weekends and public holidays. Facilities such as pathways, dressing sheds, toilets, picnic shelters and kiosk were provided and upgraded as required.

The sea wall, promenade, and turfed area were constructed during 1914–16. Waverley Council progressively acquired additional land for the Park, purchasing Bronte House itself in 1948.

Bronte Park has historical significance as a cultural landscape still containing elements that demonstrate its origin as a *picturesque* landscape fashioned on the late 18<sup>th</sup> – early 19<sup>th</sup> century English model. The presence of Bronte House on the ridge reinforces the interpretation of the park as a former mid-19<sup>th</sup> century gentry estate.

Since 1887, Bronte Park has acquired high social significance as a favourite seaside resort for both local and regional visitors. Some of its 19<sup>th</sup> century and early-20<sup>th</sup> century plantings have a moderate degree of aesthetic significance, as do the many view corridors and visual catchments available from both the Bronte Gully and the coastal walkways.

Although much modified, the waterfall and the gully through which its creek flows has some residual natural heritage significance, as do the rock benches, cliffs and steep slopes of the gully walls. The picnic shelters within the Park have low heritage significance, but the continuity of style, general location, and use since c. 1913-14 has value.<sup>47</sup> The sites of

<sup>46</sup> Dowd, pp. 154-161. Kerr J, Broadbent J, Gothic Taste in the Colony of New South Wales, p. 107.

<sup>47</sup> Mayne-Wilson & Associates, Heritage Study of Bronte Park, 2003, Heritage Table Item 3.5





Figure 4.5 Community, Culture and Heritage- existing conditions



the swimming pool, BBSLSC, and the old tram shelter have a moderate degree of social significance because of their consistency of use for the better part of a century or more.

The Mayne-Wilson and Associates heritage study identified the following heritage items of high and moderate significance within Bronte Park:

- The Waterfall and Staircase: A focal point at the centre of the original Bronte Estate, this staircase was built alongside the waterfall by the Lowes to allow access from the upper cultivated zone of the estate down into the lower gully area.
- The Upper (southern) Pathway: Formed by the Lowes to provide access around the northern perimeter of the homestead gardens and to service the stone staircase towards the beach.
- Gully Watercourse and Pathway: The drainage channel marks the approximate alignment of the original watercourse through the gully, alongside which a pathway was constructed by the Lowes. The present stone and concrete channel was built in the 1970s.
- Stone Staircase from Bronte House: Remnants of this staircase remain above the former tennis court platform. It was created to provide access from Bronte House into the gully and towards the beach. Two flights of stairs are identifiable.
- Mrs. Lowe's seat: Carved out of a rock overhang, this seat is located alongside the steps built by the Lowes to access the Bronte Gully. Commonly referred to as Mrs. Lowe's 'woodland boudoir', it was reputedly a favourite location from which she would paint.
- Stone retaining wall: Actual date of construction not reliably known. Stone blocks may be recycled from elsewhere e.g. from farmlet cottage or other stone cottages once nearby.
- Double sandstone block retaining wall: Judged by its type of construction, it appears to be very old. It was possibly used to contain the lower south-facing slopes of the knoll on which the farmlet cottage was built.
- Bronte Park Tram Shelter Shed and Calga Cutting: Calga

Cutting was built during 1910 to provide access for the tram line to Bronte, which was opened in May 1911. The existing bus shelter was the second tram shed, built c1912–13 to replace an earlier smaller structure.

- Sandstone retaining walls adjacent to Calga Cutting: These sandstone block walls were constructed c1910s–20s to prevent sand from the dunes upslope drifting onto the tram tracks, and to consolidate the slopes between the tram tracks and the paths below them down to the baths.
- Bronte Baths: First built in 1887. Women's and men's dressing sheds were built abutting the baths in 1887 and 1910 respectively and the first swimming club building was built above the baths c.1904. Two bogey holes were created to the north of the baths. The sandstone block walls just above the baths should be continuously monitored and conserved.
- Bronte Beach sea wall: Built from 1914–1917 to prevent large seas from sweeping into the park. It enabled a promenade around the beach to be built above the wall, and backfill to be installed behind, creating the present grassed picnic area.<sup>48</sup>

Refer to Figure 4.5 for the approximate location of heritage items.

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48 Mayne-Wilson and Associates, 2003, Heritage Study of Bronte Park, p 139, Sydney.

### 4.5.3. Aboriginal Heritage

Aboriginal people have inhabited the greater Sydney region for over 20,000 years. A number of communities have been associated with the land between Sydney Harbour and Botany Bay. The surrounding coastal strip contains a range of Aboriginal sites including middens, art sites, axe grinding grooves and rock engravings. It is likely most of the Aboriginal people who occupied the land around the study area would have been of the Cadigal clan.<sup>49</sup>

They would have used the marine, riverine and land resources of the area. In the Bronte Gully, the original watercourse flowed over the waterfall and ponded in a series of lagoons that meandered through the coastal vegetation down to the beach. Fishing was observed to have formed a significant part of Aboriginal subsistence activities in the eastern Sydney area at European contact, and this environment provided a variety of fresh and saltwater fish and shellfish.<sup>50</sup>

Following European contact, the Sydney Aboriginal population was quickly reduced in numbers, and dispersed by European settlement. Traditional groups were broken up and reconfigured.<sup>51</sup>

There are no documented Aboriginal sites recorded for the study area. However, archaeological evidence may potentially remain undetected in Bronte Park.<sup>52</sup> Aboriginal use of sheltered coastal places like Bronte Gully and the adjoining hinterland likely commenced after the sea stabilised at the current shoreline several thousand years ago. It is highly probable that Aboriginal people were regularly using Bronte Gully and its coastline before the first settlers who arrived with an intention to stay increased in number from the 1830s.<sup>53</sup>

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49 Dominic Steele Consulting Archaeology (2003).

50 *ibid*

51 *ibid*

52 *ibid*

53 (Aboriginal Heritage Assessment –Bronte House April 2015 p,83)

#### 4.5.4. Community and Cultural History

Many community groups, particularly the swimming and surf clubs, hold a significant place in the cultural history of the site. Additionally, the volunteer bush care groups established in 1998 have been an active community group and have also contributed to the environmental restoration of the Bronte Gully.

The first Council works within the park included the baths and adjoining women's dressing sheds completed in 1887. The baths were first managed by private leases.<sup>54</sup> It wasn't until 1904 that the first swimming club building was established for the Eastern Suburbs Headquarters Swimming Club, a male-only club. The ladies' branch of the club was established in 1905.<sup>55</sup> Other clubs have since opened, including the Bronte Splashers Swimming Club in 1921, which is still operating today. Swimming at Bronte Baths has remained an integral part of the place. Today the Bronte Baths and community centre from which the clubs operate is an active node within the park.

The Bronte Surf Life Saving Club (BBSLSC) is also a significant part of the social heritage of the park. The clubhouse was constructed in 1910 in much the same location as it stands today. BBSLSC was established in 1903 and the club building was expanded in the early 1920s and rebuilt in 1931. The 1930s building burnt down and was again rebuilt in 1974, in the form that currently stands today. BBSLSC has remained an active club, providing a surf lifesaving service to the community and hosting many community events. Membership numbers have increased over the years, placing greater demands on the existing club facilities and building. BBSLSC and surrounding area is also an active hub within the park, particularly on weekends and when running the Sunday Nippers program.

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<sup>54</sup> Mayne-Wilson and Associates, 2003, Heritage Study of Bronte Park, p 139, Sydney.

<sup>55</sup> Ibid, p 56-68

#### 4.5.5. Major Issues

- i. Many of the historic elements of the site remain a mystery, including Aboriginal and European history.
- ii. Community groups such as BBSLSC and swimming clubs have identified that the existing facilities do not meet their current needs.
- iii. There are incomplete details for a number of heritage items listed by the Office of Environment and Heritage.
- iv. Not all heritage items identified by Mayne-Wilson and Associates in the Heritage Study of Bronte park dated 2003 are identified as items of local significance in Council's Local Environmental Plan.

## 4.6. Management and Maintenance

Bronte Park and Beach, with all of its associated buildings and stormwater infrastructure, is maintained and managed by Waverley Council. The high level of use requires careful management and intensive maintenance of infrastructure and resources. The *Bronte Park User Survey 2016* indicated that visitors are generally satisfied with the cleanliness and maintenance of the beach, water and park. However, the community expect the assets to be maintained and cleaned on a more regular basis and to a higher standard.

Details of the on-site facilities and their use is documented in the preceding chapter. This section of the report details the services that Council provides in managing and maintaining the site to ensure the place is well kept, refer to Figure 4.6 for location of facilities and services.

In maintaining and managing the Park and Beach the following activities are considered:

- **Activities and Events:** Licenced fitness trainers are permitted to use Bronte Park in accordance with Council's Commercial Fitness Training Policy. Bronte Park is also used for 'one-off temporary events' – the approval for events is assessed on the potential impact and time of the proposed activities, detailed under Council's Use and Hire of Public Open Spaces. There have been instances of unlicensed fitness trainers utilising the park, and not abiding to Council's Policy. BBSLSC upper level has a function venue with a liquor licence and small kitchen. BBSLSC has an annual event using Bronte Park and Beach to accommodate a major ocean swim event. The park and beach are highly used for commercial photography.
- **Waste Services:** Garbage is collected from a central bin collection area in the centre of the park. Bins are collected by garbage trucks daily, both garbage and recycling trucks enter the park. Currently bins are located throughout the park, when full the bins are wheeled to a central bin collection point behind the amenities building and kiosk for collection.
- **Lifeguards:** Waverley Council employs professional lifeguards to protect visitors to Bronte Beach. These professional lifeguards work 365 days of the year. The lifeguards are responsible for patrolling the beach, Bogey Hole and Bronte Pool. The lifeguards put out flags, rescue equipment, surf crafts, patrol designated public surf bathing and closely monitor dangerous swimming areas. When necessary they perform rescues and resuscitations.
- **Park Maintenance:** Council oversee all the maintenance requirements of the park and beach. To assist with maintenance, a Parks Works Yard is located at the rear of the amenities building. The yard accommodates hand tools and a four-wheeled bike. A staff room is located on the beach side of the amenities building. Council is generally responsible for maintaining assets such as turf, gardens, paving, roads, fences, handrails and cleaning the beach. Council is also responsible for cleaning the facilities and amenities throughout Bronte Park.
- **Pool Maintenance:** The Bronte Park pool is drained and cleaned weekly during daylight saving and fortnightly for the rest of the year. Pool maintenance teams require light vehicle access to the pool.
- **Playground Maintenance:** Council maintains the playgrounds in Bronte Park and Hewlett Street Reserve. The playground rubber softfall surface is routinely patched and cleaned. Equipment is maintained and parts replaced from time to time. Council audits playgrounds annually to ensure they meet safety requirements.
- **Building Maintenance:** Council maintain and repair the existing buildings on site including both North and South Amenities buildings, BBSLSC, kiosk, Bronte Bath Community Centre, picnic shelters and the bus shelter (heritage tram shelter). The amenities buildings are regularly cleaned. Light vehicle access is required to the southern amenities block for this purpose.
- **Parking:** Managed by Council, refer to Getting to and Around the Park for details.
- **Environmental Services:** Council is responsible for identifying and implementing energy, water savings and renewable opportunities within Bronte Park and Beach. This includes identifying ways to reduce waste to landfill; encouraging visitors to use sustainable transport options; educating the community on the environmental significance of the area; and preparing for the future impacts of climate change. The Council adopted Bronte Gully Ecological Restoration Action Plan assists Council in restoring the Bronte Gully with a combination of works by specialist contractors and the two active community volunteer groups undertaking bush regeneration. There are two gross pollutant traps that are cleaned and managed every two months.





Figure 4.6 Management and Maintenance - existing conditions



- **Safety and Regulations:** Council Park Rangers patrol Bronte Park and Beach daily, enforcing regulations to promote safety and equitable access for visitors. Activities that adversely affect other patrons' pleasure of the park are regulated. On occasion rangers and other Council staff need to manage antisocial behaviour particularly in the park and gully. Controlled activities include dog walking, consumption of alcohol, commercial training, ball games, bicycle riding, skateboard riding, use of portable barbecues and littering. Dogs are allowed off-leash in Bronte Gully between 3pm and 10am daily. Dogs must be on-leash in all other areas of the park and gully. Dogs are prohibited near Bronte Ocean Pool, on the beach, within 10 metres of the children's playground and the barbecues. Dog regulation signage could be improved to assist in owner education and enforcement. The following regulations are enforced in the park:
  - No alcohol
  - No camping or staying overnight
  - No organised ball games
  - No commercial activities
  - No skateboards or rollerblades
  - No kites or kite activities
  - No portable barbecues or open fires
  - No collecting or harvesting invertebrates in the intertidal area
  - No smoking on the beach
  - Dogs are prohibited on the beach, in the bushland of the Bronte Gully, on the Coastal Walk promenade and near children's play areas and food preparation areas such as barbecues and the kiosk.

- **Leases, Licences and Hire:** Various licences exist within the park to deliver services and products including those for mobile vendors and fitness trainers. Commercial tenancies occur in the kiosk to deliver take-away food.

Service vehicles access the park from Bronte Road. Access is gated; however, typically the gate is unlocked or open. Vehicles that require access include the garbage truck, Parks Staff with utes, and deliveries to BBSLSC. Occasional access is required by a large truck to the gross pollutant trap located in the vehicle/pedestrian shared path in the centre of the park.

Emergency vehicles require access to the grassed area adjoining BBSLSC. This area is also used as the helicopter landing site in the event of a medical emergency.

#### 4.6.1. Major Issues

- i. Accommodation for Parks Staff is not adequate; additional storage space is required for tools and green waste.
- ii. Bin management in the park and upper gully is ad hoc, is labour-intensive with high turnover of bins, with no unobtrusive location for corral, storage and pickup.
- iii. Driveways and turn-around areas are insufficient for the size of trucks servicing the bin area.
- iv. Some picnic shelters are currently in a poor state of repair.
- v. Vehicle access into the park is unsecured, as the gate is typically left open, allowing unauthorised vehicles to access the park.
- vi. There are frequent reports of vandalism and antisocial behaviour in the Bronte Gully.
- vii. Maintenance vehicle access to the southern amenities building via the promenade poses a risk to pedestrians.
- viii. Large sections of the irrigation system are not in working order.
- ix. There is a wide spectrum of views about dog use, from too lenient or too strict.
- x. There should be more frequent, more focused maintenance of amenities.
- xi. The location of the pool pump-house is a safety issue for staff who need access via the pool edge.
- xii. Regulation and enforcement of user behaviour in accordance with legislation is difficult with the aging signage, examples include dogs off leash outside of permissible hours, and unlicensed fitness trainers utilising the park.



# Vision and Directions

5



## 5. Vision and Directions

### 5.1. Vision Statement

A vision was drafted based on community feedback on what people liked and wanted to see in the future. The vision is essential as it sets the tone for all future works and practices within the park and beach. The following statement captures the aspects of what people love about Bronte Park and Beach and want retained in the future:

Bronte Park, Beach and Gully is a unique and varied landscape. An oasis hemmed in between sandstone cliffs and a grassy park, it allows visitors to escape the hustle and bustle of the Eastern Suburbs.

The natural landscape provides a stunning contrast to the suburban backdrop. The spectacular views of the coast and beach, combined with the close proximity to nature and wildlife, leave a lasting impression on everyone who visits. It embodies all that is Sydney, the perfect balance between the city and the beach.

Low-key buildings at Bronte Park, Beach and Gully recede into the landscape of the area and allow the natural beauty of Bronte to shine. The facilities are understated, convenient, comfortable, clean and accessible to all everyone. Best of all, Bronte can be easily accessed by foot, bike, public transport or car.

Bronte is a seaside gem that holds many treasures. The waterfalls, creek and bush support diverse plant and wildlife, appreciated on a stroll or by taking a quiet moment to reflect. The park is vibrant, welcoming, clean and safe. It's a place to relax with friends and family, picnic, play or relax while enjoying Sydney's beautiful weather and the impressive view. The beach's sand, surf and spectacular cliffs provide an immersive natural experience to all who visit. It has the ability to stimulate all of our senses, drawing us into the beauty that is Bronte.

Bronte is a place for locals and visitors alike. Its unique character is loved by all: from surfers searching for the ultimate wave to families looking for a quiet place for a picnic. It's a place where people can partake in a diverse variety of activities such as walking, swimming, surfing, exercising and relaxing – all against the beautiful backdrop that is Bronte.

The community feel a very strong connection to the area and have many personal memories connecting them to the land – from celebrating birthdays and holidays, to participating in sport tournaments or popping down with the family after school on a Friday and enjoying some fish and chips.

Bronte is a cared-for and much-loved asset. It's the pride of the community and will be preserved and cherished for many generations to come.

## 5.2. Directions

These value statements will guide the future development and management of Bronte Park and Beach to achieve the vision for the site. The values have been tested and are responsive to the site analysis, consultation feedback and best-practice principles outlined throughout this report. For ease of reference and consistency the values are focused under the same themed headings as previous chapters.

### 5.2.1. Design and Setting

A1. Maintain the natural and casual feel.

A2. Reinforce the variety of different landscape characters across the Bronte Gully, park, beach and headlands in future design and planning.

A3. Ensure the landscape and architectural design reflects best practice and design excellence and integrates within the landscape.

A4. Provide a memorable experience for all users by celebrating the site's unique character and scenic qualities.

A5. Ensure materials and finishes are of a high quality, are robust, designed to benefit the setting, and considers the adjoining Bronte House Conservation Management Plan.

A6. Reinforce the sense of arrival to the site.

### 5.2.2. Getting to and around the Park

B1. Provide easily identified, distinct arrival points into the park and designated pedestrian pathways that allow safe and continuous movement.

B2. Provide a hierarchy of pathway networks that link to destination points and facilities.

B3. Implement a wayfinding strategy for the park. Consider an audience of a range of abilities, literacy levels and languages. Encompass the physical environment, signage, customer service, information, brochures, guides and website.

B4. Provide an adequate proportion and distribution of universally accessible facilities connected by accessible paths of travel.

B5. Provide a universally accessible beach access point and improve the safety and amenity of the existing stairs to the beach and Bronte Baths.

### 5.2.3. Playing and Relaxing

C1. Provide adaptable and flexible spaces to accommodate a variety of interest groups.

C2. Provide high-quality amenities and facilities that support Bronte's recreational values and users.

C3. Prioritise activities that are intrinsic to the place, its cultural values and that draw value from being in a beachside location.

### 5.2.4. Enhancing the Environment

D1. Enhance and conserve the natural heritage of the site such as vegetation, land form and hydrology.

D2. Monitor and adapt to the effects of climate change.

D3. Promote environmentally sustainable practices in the management and maintenance of the place.

D4. Consider whole of life-cycle cost in the selection of materials and construction techniques.

D5. Educate the community about the value of the site's unique environment.

### 5.2.5. Community, Culture and Heritage

E1. Interpret and tell the story of the place, including Aboriginal themes and storylines.

E2. Strengthen and express the cultural values of the site through supporting community groups and activities.

E3. Ensure the cultural landscape is expressed in the design and management of the site.

E4. Conserve and maintain the heritage fabric of the park.

### 5.2.6. Management and Maintenance

F1. Ensure that the park and beach environments are safe for users at all times.

F2. Ensure facilities are well-maintained and appropriately serviced.

F3. Review and reinforce compliance and regulations that enable a range of users to enjoy the park and beach safely.

F4. Manage vehicle access in the park.



# The Master Plan and Action Plan

6



## 6. The Master Plan and Action Plan

The Master Plan illustrates how the vision and directions may be realised over the next 10 years. Where specific proposals may turn out to be impractical due to changing circumstances, reference will be made to the vision and values in formulating amendments. The Master Plan has been broken down into a series of maps that address each theme.

The Master Plan and Action Plan is the working part of a plan of management. It details the key actions and implementation priorities needed to achieve the vision of the Plan of Management for Bronte Park and Beach. The following tables describe the objectives of the Action Plan, how they will be achieved, who will be responsible, the timeframe, the availability of funding, the desired outcomes and the monitoring and reporting required. Each table detailing the Action Plan is broken down into the following headings:

**Directions:** In order to achieve the vision for Bronte Park and Beach, a series of values were developed as identified in Section 5. The values provide the main reference point for each set of actions and combine to achieve the vision.

**Who:** There are many Council divisions involved in carrying out the actions of this Plan. The Executive Managers of these areas are responsible for ensuring the actions are undertaken. These include:

- Creating Waverley
- Clean and Attractive Waverley
- Project Waverley
- Shaping Waverley
- Sustainable Waverley
- Safe Waverley
- Enriching Waverley
- Caring Waverley

Other organisations responsible for the implementation of the Plan of Management include:

- Bronte Surf Life Saving Club (BSLSC)

**Time:** The actions are prioritised and will be achieved in the:

- Short term (S) 0–1 year
- Medium (M) 1–5 years
- Long term (L) 5–10 years
- Ongoing (O)

**Funding implications (\$):**

- Existing funding (E) is mainly associated with recurrent park maintenance costs, planning and development. Works identified need to be prioritised annually and take into account the maintenance and upgrades required in all of the parks in the Waverley Local Government Area.
- Other works are to be included in the Long-Term Financial Plan (LTFP). These LTFP projects will need to be prioritised by Council.
- To-be-determined funding (TBD) involves an initial investigation and preparation of a business case to Council. Further details of funding opportunities are outlined in Chapter 7.
- Opportunities to obtain grant funding (G) are also noted.

### 6.1. Design and Setting

Bronte Park and Beach is defined by its setting and varied landscape character. To conserve and enhance the place future design works will need to carefully consider both the function of the site and respond to its natural characteristics. There is much work that can be done to reveal more of Bronte's character and charm. The plan aims to draw from the existing character areas, planting types and views to reinforce the entries and upgrade the park infrastructure as required, refer to Figure 6.1.

While park amenities and services such as the bin storage, vehicle access requirements and amenities facilities are very important in their provision, these functional aspects detract from the site's visual amenity. The design and rationalisation of these services and buildings will be crucial in enhancing the qualities of the site. In addition, to guide future development building controls have been drafted in the following section. Future building works must comply with these controls and guidelines and be cognizant to the adjoining Bronte House Conservation Management Plan.





Figure 6.1 Design and Setting- The Master Plan



### 6.1.1. Buildings in the Park – Building Controls

This plan allows for building upgrades and includes guidelines for the design of building work.

#### 6.1.1.1. General Requirements

Development consent must not be granted to development within Bronte Park unless the consent authority considers that the development conforms to the current *State Environment Planning Policy (SEPP)*, *Waverley Local Environment Plan (LEP)*, exhibits design excellence, and is cognisant of the adjoining Bronte House Conservation Management Plan. In determining whether the development exhibits design excellence, the consent authority must consider the following matters:

- i. Development Applications must conform to the SEPP. With particular emphasis on:
  - SEPP (Coastal Management) 2018, *Part 2 Development Controls for Coastal Management Areas*
- ii. Development Applications must conform to the Waverley LEP. With particular emphasis on:
  - *Part 5, Clause 5.5 Development within the Coastal Zone, and*
  - *Part 5, Clause 5.10 Heritage Conservation.*
- iii. Development Applications should be referred to the Design Excellence Panel.
- iv. Whether the form and external appearance of the development will improve the quality and amenity of the public domain.
- v. Whether the development has a detrimental impact on view corridors.
- vi. How the development addresses the following matters:
  - The suitability of the land for development.
  - Existing and proposed uses, and mixing uses.
  - Heritage issues and site constraints.
  - The relationship of the development with other development (existing or proposed) on the same site or on neighbouring sites in terms of separation, setbacks, amenity and urban form.

- Bulk, massing and modulation of buildings.
- Environmental impacts such as sustainable design, overshadowing, wind and reflectivity,
- The achievement of the principles of ecologically sustainable development, refer to actions D2.2, D3.4, D3.6, D4.1 under Enhancing the Environment for guidance.
- Pedestrian, cycle, vehicular and service access, circulation and requirements,
- The impact on, and any proposed improvements to, the park.
- Principles of View Sharing.<sup>56</sup>

#### 6.1.1.2. Life Guard Facilities Building Development Controls

In addition to the General Requirements, the following controls must be adhered to. Provision should be made for lifeguard facilities to include a patrol room, first aid room, outdoor lookout, coffee- and tea-making facilities, toilet and shower amenities, and modest storage space. Additionally, the following provisions must be made in any future development:

- i. Lifeguards must have a facility that provides good views (180 degrees) and clear line of sight of the beach and surf.
- ii. Any lifeguard facility on the beach must not compromise views from the North amenities and BBSLSC building, in accordance with the principles of view sharing.
- iii. Any lifeguard facility must consider how the beach is used.
- iv. Any future development must minimise visual intrusiveness to the beach and landscape.
- v. If deemed suitable, lifeguard facilities could be provided in a separate structure to the North amenities building / BBSLSC.

#### 6.1.1.3. The North Amenities Building, Kiosk, and BBSLSC Development Controls

In addition to the General Requirements, the following controls must be adhered to. Future development of the existing north amenities building / BBSLSC must ensure the provision of support facilities for the BBSLSC and kiosk to cater for existing and future demand for services. Future development must also support the recreational activities in the park by providing toilets and staff amenities with space for tool storage for the Parks Operations team. Additionally, future development must include:

- i. First floor setbacks from existing footprint of ground floor external walls, except where existing first floor structure is within defined setbacks.
  - Minimum 6 metres setback from the sea wall, seawall defined by the eastern face of the promenade adjacent to the beach.
  - Minimum 5 metres setback on southern elevation.
  - Minimum 5 metres setback on eastern elevation adjacent to plaza space.
  - Minimum 2 metres setback on southern elevation adjacent to plaza space.
  - No permanent canopy or shade structure to be within setbacks.
- ii. Ground floor footprint, as defined by the existing external walls, and ramps and stairs providing direct access into the building.
  - Not encroach on the park further to the Sydney Water easement to the west unless approved by Sydney Water.
  - Maintain a minimum 4 metre wide path/access way to the South, and not encroach on existing turfed area.
  - Maintain space for a functional pedestrian plaza space at the front of the building to facilitate movement between the park, promenade, kiosk and amenities building.
  - Not impede on the operational function or access to the existing Sydney Water pump house.

<sup>56</sup> NSW Caselaw, Tenacity Consulting vs Warringah Council [2004] NSWLEC 140, Viewed 27 April 2018, <https://www.caselaw.nsw.gov.au/decision/549f893b3004262463ad0cc6>

iii. Massing and Visual impact.

- Building heights (with the exception of existing structures, proposed balustrade or, proposed lifts, or proposed plant) must not exceed the height of the embankment to the north of the building, defined by RL14.00.
- Building plant and machine rooms must be screened.
- Consider key view corridors from the park to the beach, in accordance with the LEP.
- Integrate the north amenities / BBSLSC building into the landscape.

iv. Access and vehicles.

- Maintain unrestricted and direct pedestrian access along the promenade to the coastal walk connection at the north of the building, in accordance with LEP.
- Provide direct access for lifesaving equipment from the building to the beach.
- Consider providing a publicly accessible roof for passive recreation and viewing, connecting to the park at the north.
- Consider a publicly accessible lift from the ground floor to access the coastal walk connection.
- Contain all vehicle maneuvering and access into the surf club within the existing hardstand area to the west.
- Not allow vehicle maneuvering or parking to cross pedestrian building entrances and pedestrian paths of travel.

v. Environment and Heritage

- Building upgrade must consider the impact on the cliff and coastal environment in accordance with the relevant State and Local Government policies on heritage and environment.
- Building must preserve the heritage value of the broad staircase and path across the northern cliff towards Bronte Marine Drive.<sup>57</sup>

6.1.1.4. South Bronte Amenities and Community Centre Development Controls

In addition to the General Requirements, the following controls must be adhered to. Future development of the existing Bronte Bath Community Centre and Amenities must only provide facilities that support recreational uses of the park. Facilities are to include space to accommodate the swimming clubs, public toilets and change rooms. Outdoor showers should also be located in close proximity to the building. Additionally, future development must:

- Provide a family accessible compliant toilet and shower facility with baby change.
- Provide compliant ambulant toilet facilities.
- Provide level access into the building and eliminate level changes outside the building.
- Provide an increased gross floor area of no more than 10 per cent of the existing area.
- No additional second storey is supported.

6.1.1.5. Alternative Designs

Notwithstanding any of the building development controls, alternative designs will be considered where it is demonstrated that the building development controls above do not result in the best planning and design outcome. Alternative designs can be prepared subject to compliance with the criteria listed below and consistency with the *Vision and Directions* in Section 6, and the *General Requirements* in *Design and Setting* of the Bronte Park and Beach Plan of Management.

- Alternative designs should demonstrate there is no additional adverse impacts, when compared to the building development controls, relating to heritage, views, visual bulk, access, overshadowing, and the public domain.
- Alternative designs should demonstrate rationale and quantifiable evidence for deviating from the building development controls.

<sup>57</sup> Mayne-Wilson and Associates, 2003, Heritage Study of Bronte Park, p 119, Sydney.



### 6.1.2. Action Plan

Category	Action	Time	Who	\$
A1. Maintain the natural and casual feel				
A1.1	Ensure building design address future needs, is visually unobtrusive, does not detract from the natural landscape character of the park, is in keeping with the Landscape Conservation Area status, and considers the heritage impact on the state heritage listed Bronte House property.	O	Shaping Waverley, Creating Waverley BSLSC	LTFP
A1.2	Ensure landscape design: <ul style="list-style-type: none"> <li>i. Maintains the natural topography</li> <li>ii. Maintains and reveals views through the park and to the beach and cliff line</li> <li>iii. Maintains areas of exposed natural rock where practical</li> <li>iv. Uses semi-formal and informal planting design in the park</li> <li>v. Uses informal planting design in the Bronte Gully</li> <li>vi. Maintains the openness of the park area</li> <li>vii. Maintains the sense of enclosure and intimacy of the Bronte Gully while ensuring key views are revealed.</li> </ul>	O	Creating Waverley	LTFP
A2. Reinforce the variety of different landscape characters across the Bronte Gully, park, and beach in future design and planning.				
A2.2	Ensure future planting design is consistent with the character areas identified in the Master Plan.	O	Creating Waverley, Clean and Attractive, Sustainable Waverley	LTFP
A2.3	Maintain and reveal views through the site.	O	Creating Waverley, Clean and Attractive, Sustainable Waverley	LTFP / E
A2.4	Ensure the selection of materials is appropriate to its setting.	O	Creating Waverley	E

A3. Ensure the landscape and architectural design reflects best practice, design excellence and integrates within the landscape.				
A3.1	<p>Ensure future building works are complimentary to their surroundings. Works to ensure:</p> <ul style="list-style-type: none"> <li>i. Compliance of new building works to the building controls outlined in the Master Plan.</li> </ul>	O	Shaping Waverley, Creating Waverley, Project Waverley, BSLSC	E
A3.2	<p>Develop a detailed landscape Master Plan for the site. Works must ensure:</p> <ul style="list-style-type: none"> <li>i. Design meets objectives outlined in the Plan of Management;</li> <li>ii. Existing and new tree planting is incorporated, including: <ul style="list-style-type: none"> <li>- Detailing trees to be removed or replaced.</li> <li>- New tree-planting locations.</li> <li>- Detailed species list.</li> <li>- Arboricultural assessment of existing trees outlining life expectancy, landscape value, and significance. Refer to action E3.2.</li> </ul> </li> </ul>	S	Creating Waverley	E
A3.3	Develop a planting schedule and materials palette based on Council's Public Domain Technical Manual that preserves the integrity of the site and considers significant view corridors.	S	Creating Waverley, Sustainable Waverley, Clean and Attractive Waverley	E
A3.4	<p>Develop a lighting plan for the park, promenade and cutting that considers:</p> <ul style="list-style-type: none"> <li>i. Pole or bollard lighting to major pathways</li> <li>ii. Lighting to the Coastal Walk connection through Bronte cutting.</li> <li>iii. Lighting to buildings and particularly the amenities buildings.</li> </ul>	S	Creating Waverley	LTFP
A3.5	<p>Upgrade the sunken seating area in front of the kiosk, which considers:</p> <ul style="list-style-type: none"> <li>i. Providing seating along the promenade facing the beach.</li> <li>ii. Providing a range of seating types including 50 per cent with backrests and armrests.</li> <li>iii. Implement universal access principals to allow equal access into the space.</li> <li>iv. Provision of shade in summer.</li> </ul>	S	Creating Waverley	LTFP

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A4. Provide a memorable experience for all users by celebrating the site's unique character and scenic qualities.				
A4.1	Conserve view corridors from main arrival points to and within the park by ensuring future design and planning considers views.	S	Creating Waverley	LTFP
A4.2	Retain and build on existing materials on-site such as concrete, sandstone, timber and stainless steel.	S	Creating Waverley	LTFP
A5. Ensure materials and finishes are of high quality, robust and designed to befit the setting.				
A5.1	Consider materials that are graffiti resistant.	O	Creating Waverley, Clean and Attractive Waverley	E
A5.2	Ensure materials are selected to withstand the coastal environment to minimise corrosion or degradation.	O	Creating Waverley, Clean and Attractive Waverley	E
A5.3	Replace furniture and fixtures when they reach the end of their life with Council's preferred palette as identified in the Public Domain Technical Manual, and in keeping with heritage values and plans.	O	Creating Waverley, Clean and Attractive Waverley	E
A6. Reinforce the sense of arrival to the site.				
A6.1	Review the alignment of pedestrian entrances into the site to ensure they are connected to pedestrian crossings, the Coastal Walk and thoroughfares.	S	Creating Waverley	LTFP
A6.2	Review and where necessary redesign entrances into the park from Bayview Street and Bronte Road to ensure they are welcoming and easily accessible.	S	Creating Waverley	LTFP



## 6.2. Getting to and around the Park

Paths into and through the park do not follow any formal alignment based on a design rationale. Instead paths have been formalised from desire lines over the years, with further desire lines forming over time, evident as bush tracks. As Bronte's topography is steep, many paths do not comply with *Australian Standards for Access and Mobility 1428*. Findings from the user survey also suggest that a proportion of people had some difficulty getting around the park. This plan presents an opportunity to address these issues and plan for improvements. When paths are due for replacement they must be built with consideration of a complete pedestrian network. Some works may need to take place as a priority.

The plan suggests improvements to the main arrival points into the park connected by a clear path hierarchy, considering circulation and wayfinding principles. Refer to Figure 4.2 for details. A higher priority is provided to paths that connect to major park facilities such as the beach, swimming pool, surf club, amenities building, playground, and picnic facilities.

New paths or path re-alignments are suggested at the following locations:

- Along Bayview Street to improve access by providing a footpath adjacent to the street carriageway, formalising a strong desire line and addressing erosion issues. The path connection from the west is suggested to be re-aligned along the desire line, enabling a direct entry route to the park.
- Re-alignment of the shared path to follow a gentler grade, closer to universal access principals. Connecting to the east closer to the Coastal Walk, as it is the desirable destination.
- The park entrance adjacent to the tram shelter from Bronte Village Centre is identified as a major pedestrian entrance and would require reconfiguration to allow for universal access and improved wayfinding.

- To improve wayfinding along the promenade and connection of the Coastal Walk.

Improvements are recommended to Bronte Gully paths using decomposed granite or similar material. Sandstone flagging may be appropriate to the new seating areas along the path. This will ensure that the path is more comfortable to use. This treatment is expected to run for the length of the stormwater channel. The informal path at the top of the Bronte Gully could also have the same treatment.

Both toilet amenities blocks require some work to accommodate toilet facilities for wheelchair users.

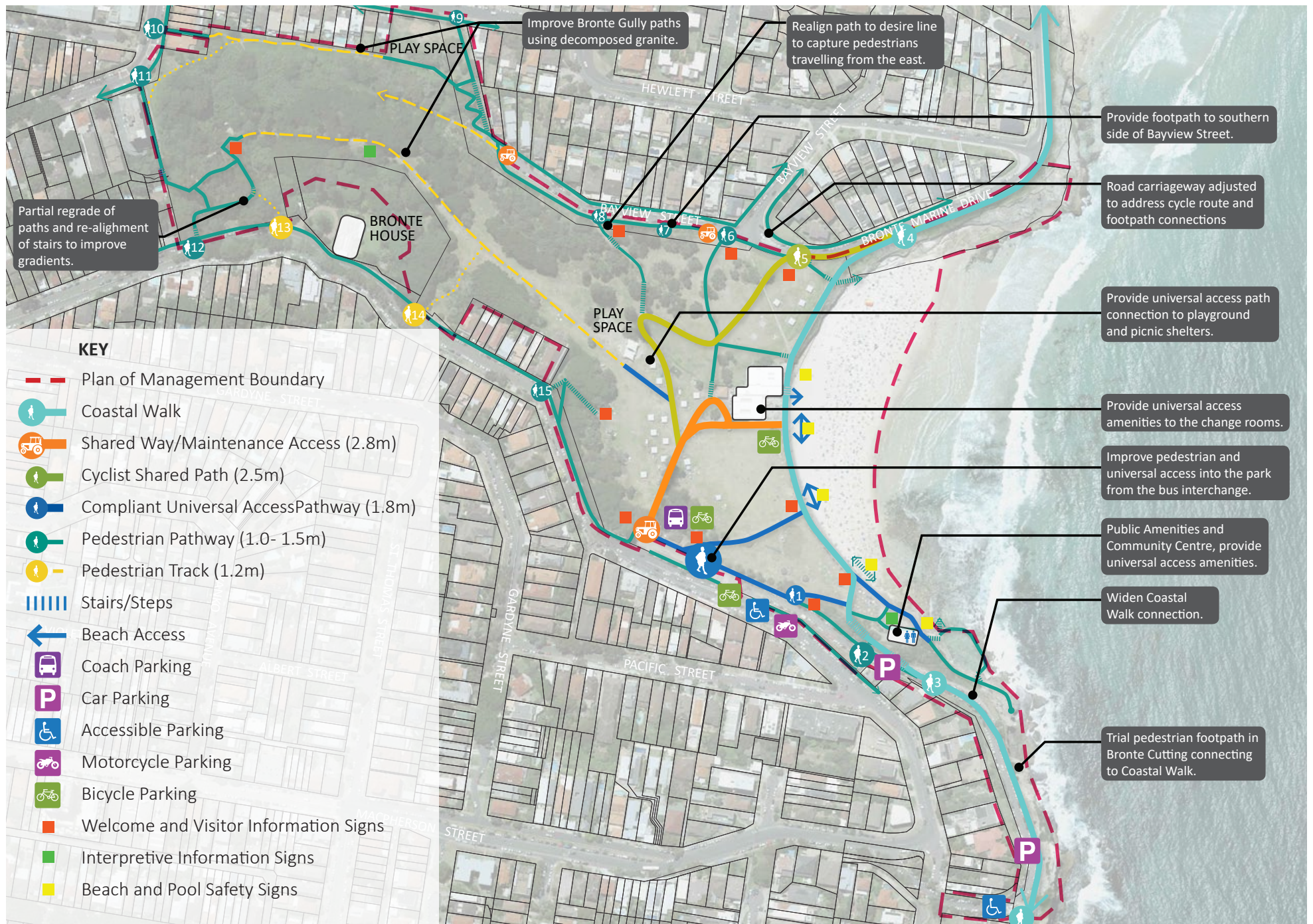


Figure 6.3 Getting to and Around the Park- The Master Plan



### 6.2.1. Action Plan

Category	Action	Time	Who	\$
B1. Provide easily identified, distinct arrival points into the park and designated pedestrian pathways that allow safe and continuous movement.				
B1.1	<p><i>Universal Access Car Parking</i></p> <ul style="list-style-type: none"> <li>i. Relocate a proportion of existing accessible parking within Bronte Park to the northern end of Bronte Cutting Car Park, with consideration of Australian Standards, and Disability Discrimination Act.</li> <li>ii. Provide accessible compliant pathways to universal access car parking spaces, including compliant kerb ramps and landings in accordance with Australian Standards, and Disability Discrimination Act.</li> </ul>	S	Creating Waverley	TBC
B1.2	<p><i>Entrances on Bronte Marine Drive</i></p> <ul style="list-style-type: none"> <li>i. Provide one bus link that is step-free on the north side of the park into and through the park, provide tactile ground surface indicators (TGSIs) at the bus boarding point.</li> <li>ii. Provide step-free access into the park from the Coastal Walk.</li> </ul>	S	Creating Waverley	TBC
B1.3	<p><i>North Side Entrances</i></p> <ul style="list-style-type: none"> <li>i. Provide three step-free entrances into the park on the north side</li> <li>ii. Primary arrival point for the Coastal Walk – provide handrails, TGSIs and highlighting on step nosing at stairs.</li> <li>iii. Provide a min. 1500mm/1.5m wide kerbside footpath to the southern side of Bayview Street along the length of the road to provide access to park entrances and step-free access from the park to the Coastal Walk. Relocate the fence to the park side of the footpath to allow access to the path off the road.</li> <li>iv. Upgrade the intersection on Bayview Street and Bronte Marine Drive to reduce road width and install aligned kerb ramps linking the park to street.</li> <li>v. Arrival point at Hewlett St (No.9) – Upgrade the ramp so that the gradient is constant throughout its length and provide continuous handrails on both sides of the switchback ramp. Keep vegetation clear of the ramp. Redesign and upgrade stairway. In accordance with Australian Standards, and Disability Discrimination Act.</li> <li>vi. Redesign stairway entries into the park to provide handrails on both sides and highlighting on step nosing, in accordance with Australian Standards, and Disability Discrimination Act.</li> </ul>	M	Creating Waverley	TBC
B1.4	<p><i>Entrances from Bronte Road</i></p> <ul style="list-style-type: none"> <li>i. Provide an accessible compliant bus link on the south side of the park.</li> <li>ii. Provide an allocated wheelchair space and seating in the heritage shelter.</li> <li>iii. Provide an accessible compliant link to the heritage shelter from the park.</li> <li>iv. Upgrade the stairs adjacent the heritage shelter with highlighting on step nosing, handrails on both sides and TGSIs, in accordance with Australian Standards, and Disability Discrimination Act.</li> </ul>	S	Creating Waverley	TBC

B1.5	<p><i>South Side Entrances</i></p> <ul style="list-style-type: none"> <li>i. Provide one compliant universally accessible principal entrance adjacent to the tram shelter and two step-free entrances on the south side of the park.</li> <li>ii. Widen and redesign the stairway of the primary arrival point for the Coastal Walk. Provide an alternative step-free pathway by widening the path in the Bronte Cutting to 1500mm/1.5m to allow two prams to pass.</li> <li>iii. The Coastal Walk in the Bronte Cutting – Investigate options to provide a dedicated pedestrian pathway that links the Coastal Walk to Bronte Park and Beach. Undertake a trial period over peak and off-peak seasons collating data relevant to parking in the area prior to implementing a permanent solution.</li> <li>iv. Stairway that intersects with the Bronte Cutting – upgrade to include an even surface on treads, highlighting on step nosing, continuous handrails on both sides and TGSIs top and bottom.</li> <li>v. Arrival point at service vehicle driveway – provide a separate pedestrian pathway into the park behind the bus terminus.</li> <li>vi. Provide a zero net loss of compliant universal access parking when relocating a proportion of the existing accessible parking from adjacent the tram shelter to the north end of the Bronte Cutting Car Park.</li> </ul>	M	Creating Waverley	TBC
B1.6	<p><i>West Side Entrances</i></p> <ul style="list-style-type: none"> <li>i. Arrival Point on Bronte Rd (No.15) (two entrance points) – redesign two lots of top stairs with new stairs, handrails and highlighting on step nosing. Investigate the stability of the retaining wall. On bottom stairs, provide handrails on one side and highlighting on step nosing.</li> <li>ii. Arrival Point on Bronte Rd (No.12) – resurface the sandstone paving on the stairway to minimise trip hazards. Provide handrail on one side. Provide kerbs on side of stairs.</li> <li>iii. Arrival Point on Murray St (No.10) – retain unpaved surface but upgrade so that it is more even.</li> <li>iv. Arrival Point on Murray St (No. 11) – upgrade landings to make them level. Provide handrails on both sides and highlighting on step nosing.</li> </ul>	M	Creating Waverley	TBC
<b>B2. Provide a hierarchy of pathway networks that link to destination points and facilities.</b>				
B2.1	<p><i>Links to Park and Principal Entrance</i></p> <ul style="list-style-type: none"> <li>i. Provide a hierarchy of pathway networks into and through the park: Refer to figure 6.3.</li> <li>ii. Provide an accessible compliant pathway (preferably no steeper than 1 in 20 slope) from the principal entrance, adjacent to the tram shelter, linking to the main promenade. Minimum width of accessible compliant pathways is 1800mm/1.8 metres, in accordance with Australian Standards.</li> <li>iii. Provide accessible compliant pathway from the new principal entrance to the picnic area, playground and amenities buildings.</li> <li>iv. The path shared with vehicles should: <ul style="list-style-type: none"> <li>- Be adequately signed to maximise pedestrian safety.</li> <li>- Be resurfaced to emphasise pedestrian priority with contrasting colour on speed humps and gaps to allow for ease of access.</li> <li>- Limit vehicle size and time of delivery access.</li> </ul> </li> </ul>	S	Creating Waverley	TBC



B2.2	<p><i>Pathways within Park</i></p> <ul style="list-style-type: none"> <li>i. Provide an accessible compliant pathway to amenities buildings</li> <li>ii. Provide a network of step-free, 1500mm/1.5-metre-wide pathways into and through the park, where topographical constraints preclude accessible paths that are fully compliant with relevant Australian Standards.</li> <li>iii. Widen pathway that links to step-free access into the park from south to 1500mm/1.5 metres (entrance no.2) (maintain the existing noncompliant gradient).</li> <li>iv. Widen pathway that links to step-free access into the park from north (to 1500mm/1.5 metres from entrance no.6) (maintain the existing noncompliant gradient).</li> <li>v. It is preferable to separate pedestrians and cyclists. However, if cycleways are shared with pedestrians, the path should be a minimum 2.5 metres wide.</li> <li>vi. Provide adequate lighting levels on primary pathways, shared ways and cycleways.</li> </ul>	M	Creating Waverley	TBC
B2.3	<p><i>Circulation, Surfaces and Edges</i></p> <ul style="list-style-type: none"> <li>i. Resurface areas of pathway throughout the park that are uneven and potential trip hazards.</li> <li>ii. Address the water pooling/drainage issue on the section of the path at the northern pathway into the park at the top of the stairs near BBSLSC, leading to a potentially slippery pathway.</li> <li>iii. At the primary arrival point on the north side (Coastal Walk), provide a low wall or kerb along the section of path that has a drop-off, in accordance with best practice in design for safety.</li> <li>iv. Provide a low wall (min height 450mm) or kerb (min height 150mm) along the section of promenade that is above one metre high, in accordance with best practice in design for safety.</li> <li>v. Bronte Gully pathway – Re-grade and improve surface and edging of the path, removing trip hazards, and worn turf. Refinish the sandstone-cobbled viewing area at the waterfall to provide a more even and consistent surface.</li> </ul>	M	Creating Waverley	TBC
B2.4	<p><i>Stairways</i></p> <ul style="list-style-type: none"> <li>i. Upgrade stairways in the main access routes into and through the park (see Entrances section)</li> <li>ii. Upgrade primary stairways to be an even surface on treads, and include contrasting step nosing, handrails on both sides of the stairway, and TGSIs to be compliant with Australian Standards.</li> <li>iii. Secondary stairways are to include even surface on treads, highlighting on step nosing and a handrail on both sides. These are stairs that are more likely to be used by residents who are familiar with the area.</li> <li>iv. Tertiary stairs are to include highlighting on step nosing and a handrail on one side. These link to informal bush tracks.</li> </ul>	M	Creating Waverley	TBC

**B3. Implement a wayfinding strategy for the park. Consider an audience of a range of abilities, literacy levels and languages. Encompass the physical environment, signage, customer service, information, brochures, guides and website.**

B3.1	<p><i>General Information</i></p> <ul style="list-style-type: none"> <li>i. Review the existing signage and undertake Wayfinding information at Bronte Park, Beach, and Coastal Walk connections to ensure ordinance and wayfinding information is relevant and up-to-date.</li> <li>ii. Review the current distribution of information about Bronte Park and provide information about existing facilities, amenities and activities.</li> <li>iii. Update information as works are completed.</li> <li>iv. Provide detailed information on the Council's website in W3C-accessible formats.</li> <li>v. Provide off-site information on access and mobility to and within the park. Develop an Access Guide that includes information on transport options, accessible parking and transport, drop-off area, access pathways, accessible toilet/shower facilities, seating and shelter, food/drink, beach wheelchair bookings, etc.</li> </ul>	M	Creating Waverley	TBC
B3.2	<p><i>Ocean Pool</i></p> <ul style="list-style-type: none"> <li>i. Provide information on Council's website for accessible ocean pool options at nearby beaches of Bondi and Clovelly.</li> <li>ii. Provide information on swimming groups at Bronte Baths.</li> </ul>	S	Creating Waverley	TBC
B3.3	<p><i>Beach Wheelchair</i></p> <ul style="list-style-type: none"> <li>i. Review the use of beach wheelchairs at Bondi Beach and assess if facilities would be well utilised at Bronte. If beach wheelchair access is provided, identify the storage location and operational management strategy for booking and accessing the wheelchair/s.</li> </ul>	L	Creating Waverley	TBC

B3.4	<p><i>Wayfinding System</i></p> <p>Implement a wayfinding strategy for Bronte Park and Beach with consideration of the following:</p> <ul style="list-style-type: none"> <li>i. Support legibility and cohesion to and throughout the park by using consistent sign systems, colour/contrast, street furniture, trees, landmarks and other landscape features.</li> <li>ii. Improve signage locations so they are placed at major decision-making points and all primary and secondary points into the park, especially the Coastal Walk, amenities and viewing areas.</li> <li>iii. Ensure that the physical placement, installation and illumination of signs enhances legibility when viewed from a distance.</li> <li>iv. Create an informed and complete user experience by ensuring the coverage of signage throughout the entire Bronte Park area.</li> <li>v. Implement a signage system with relevant content, showing up-to-date maps and information. Help visitors navigate through the Bronte area by offering content in a structured way with a clear hierarchy.</li> <li>vi. Use consistent signage text, graphic style, pictograms and locations. Increase font and map size and contrast, use a plain background for printed information.</li> <li>vii. Improve communication of directional and warning messages for all park users, including people who are blind or have a vision impairment. Consider using Braille and tactile elements/information at major access points.</li> <li>viii. Incorporate interactive wayfinding technology into signage and information.</li> <li>ix. Ensure sign mapping identifies and provides information on accessible paths and step-free paths.</li> <li>x. Provide information at an optimal height so that it is clearly visible by a person while either seated or standing.</li> <li>xi. Provide adequate colour contrast between the sign and the symbol and the surface surrounding the sign – e.g. wall or background.</li> <li>xii. On Green Links signage, provide information on accessible pathway networks and links.</li> </ul>	M	Creating Waverley	TBC
B3.5	<p>Incorporate consistent edges that follow the grade of the walkway and provide reference for orientation and navigation. Well-defined edges such as landscaping, walls and building lines provide good reference.</p>	L	Creating Waverley	TBC
B3.6	<p>Provide clear delineation between cycleways and pedestrian areas with adequate sight lines, signage and pavement marking.</p>	M	Creating Waverley	TBC
B3.7	<p>Provide detailed information on Council's website on accessible compliant public transport links and how to arrive at Bronte Park.</p>	S	Creating Waverley	TBC

B4. Provide an adequate proportion and distribution of universally accessible facilities connected by accessible compliant paths of travel.				
B4.1	<p><i>Toilet/shower/change facilities</i></p> <ul style="list-style-type: none"> <li>i. Provide a new accessible compliant family/unisex toilet and shower facility with parent/carer change facility ('changing places facility') in the northern amenities building.</li> <li>ii. Provide a new accessible compliant family/unisex toilet and shower facility with parent/carer change facilities to service the Bronte Bath, Bogey Hole, and southern end of Bronte Park. Investigate options for a stand-alone facility adjacent to the southern amenities building, and/or an integrated building.</li> <li>iii. Provide compliant ambulant cubicles in the male and female toilets in the northern and southern amenities building.</li> <li>iv. Provide a clear door width into accessible compliant amenities wide enough to accommodate a beach wheelchair (minimum 1050 mm clear door width).</li> </ul>	M	Creating Waverley	TBC
B4.2	<p><i>Bronte Beach Surf Lifesaving Club, Kiosk &amp; Community Centre</i></p> <ul style="list-style-type: none"> <li>i. Provide an accessible compliant pathway to the principal entrance of the BBSLSC in accordance with Access to Premises Standards.</li> <li>ii. Provide universally accessible shade and seating in the kiosk courtyard.</li> <li>iii. Provide compliant universal access to the kiosk, including a lower height section of counter (900mm above finished floor level), and compliant finished surface grades/slopes.</li> <li>iv. Provide an accessible compliant entry and access to the community centre and southern amenities.</li> </ul>	M	Creating Waverley	TBC
B4.3	<p><i>Viewing Areas</i></p> <ul style="list-style-type: none"> <li>i. Provide a step-free link to the lookout point at the southern tip of the park (beyond Bronte Baths), in accordance with Australian Standards and Disability Discrimination Act.</li> <li>ii. Investigate an accessible compliant lookout with seating, in accordance with Australian Standards and Disability Discrimination Act.</li> <li>iii. Provide an accessible compliant pathway to lookout points, in accordance with Australian Standards and Disability Discrimination Act.</li> </ul>	L	Creating Waverley	TBC
B4.4	<p><i>Playgrounds</i></p> <ul style="list-style-type: none"> <li>i. Provide accessible compliant pathway to Bronte Park playground.</li> <li>ii. Provide accessible compliant seating with armrests and backrests the playground (20 per cent of seats).</li> <li>iii. Provide a minimum of two independent wheelchair spaces (hardstand) set back off the pathway next to seats (1300mm x 800mm).</li> <li>iv. Provide an accessible compliant pathway to one seat in Hewlett Reserve playground.</li> <li>v. Provide one seat on a hardstand with backrest and armrests; provide additional hardstand next to seat 1300mm x 800mm to accommodate a wheelchair.</li> </ul>	L	Creating Waverley	TBC
B4.5	<p><i>Barbecues and Picnic Shelters</i></p> <ul style="list-style-type: none"> <li>i. Provide accessible compliant barbecue facilities that are linked to accessible pathways.</li> <li>ii. Provide two accessible compliant picnic shelters and picnic tables with linking pathways, with sufficient hardstand and wheelchair seating spaces.</li> </ul>	M	Creating Waverley	TBC



B4.6	<p><i>Seating and Street Furniture</i></p> <ul style="list-style-type: none"> <li>i. Provide 50 per cent seating in the main park area with backrests and armrests.</li> <li>ii. Increase the amount of shade with seating underneath throughout the park.</li> <li>iii. Provide wheelchair space adjacent to two seats at two different locations on the promenade.</li> <li>iv. Provide seats approximately every 60 metres along the accessible compliant pathway route (set back from footpaths with an allocated hardstand adjacent).</li> <li>v. When upgraded, select street furniture (bollards, bins, seats) that provide adequate luminance contrast with the background surface.</li> <li>vi. Maintain accessible water fountains with hardstands and circulation space.</li> </ul>	L	Creating Waverley	TBC
B4.7	<p><i>Beach Access</i></p> <ul style="list-style-type: none"> <li>i. Provide one accessible compliant ramp link to the beach at the centre of the beach, width 1800mm, maximum gradient 1:14 and landings every nine metres. Provide handrails on both sides of the ramps in accordance with Australian Standards and Disability Discrimination Act.</li> <li>ii. No tactile ground surface indicators (TGSIs) at beach access stairs and ramps due to other cues– beach, handrails, and setback from path of travel.</li> <li>iii. <del>Extend the fixed handrail from the main pool stairs to the ocean access stairway.</del><sup>58</sup></li> <li>iv. Provide a continuous handrail at the stairway adjacent to the pump house.</li> <li>v. Stairway access to beach – provide handrails on both sides of the stairs leading to the beach, and highlighting on step nosing.</li> <li>vi. Provide kerb rails to all new balustrades along the promenade.</li> <li>vii. Maintain a clear shoreline along the promenade, with no obstructions, seats set back from the pathway.</li> <li>viii. Redesign and upgrade the northern stairway to the beach to include increased width, even risers, highlighting on step nosing and handrails on both sides.</li> </ul>	L	Creating Waverley	TBC

58. Waverley Council, 2018, Minutes of the Strategic Planning and Development Committee Meeting 5 June 2018, p 3.

#### B5. Provide a universally accessible beach access point and improve the safety and amenity of the existing stairs to the beach and Bronte Baths.

B5.1	<p><i>Pool Access</i></p> <ul style="list-style-type: none"> <li>i. Provide information on Council's website for accessible pool facilities at nearby beaches of Bondi and Clovelly.</li> <li>ii. Provide safe stairways into the pool.</li> <li>iii. Investigate extending the fixed handrail from the main pool stairs to the ocean access stairway.</li> <li>iv. Provide highlighting strips on all stair nosings.</li> <li>v. Provide tactile ground surface indicators (TGSIs) along the top of the primary stairway in accordance with AS1428.4.</li> <li>vi. Provide slip-resistant treatment to all stairways into pool.</li> </ul>	M	Creating Waverley	TBC
B5.2	<p><i>Seating Areas</i></p> <p>Give consideration to:</p> <ul style="list-style-type: none"> <li>i. location of seats adjacent to balustrades as they pose a safety risk.</li> <li>ii. locate two bench seats on the path to the lookout beyond Bronte Baths.</li> <li>iii. a range of seating options with back- and arm-rests at all seating areas.</li> <li>iv. a minimum of two wheelchair seating spaces next to the seating on the path between the Bronte bath and cliff face.</li> <li>v. upgraded seating and lounging area to upper concrete hardstands between the Bronte Baths and cliff face.</li> <li>vi. identification and wayfinding signage to the viewing area.</li> </ul>	L	Creating Waverley	TBC
B5.3	<p><i>Accessway</i></p> <ul style="list-style-type: none"> <li>i. Provide a smooth and level path to the seating area, and lookout beyond the Bronte Baths.</li> <li>ii. Upgrade stair access to upper seating areas by setting back stairs and providing contrasting step nosing and handrails.</li> </ul>	L	Creating Waverley	TBC

## 6.3. Playing and Relaxing

The intent of the Master Plan is to make allowances to improve existing buildings and park infrastructure that support current activities such as picnicking, playing, relaxing, swimming and the activities associated with the community clubs. There are also some improvements to be made in extending these facilities such as shade, seating, water bubblers and rationalising bins and barbecue stations.

Bronte is a vibrant and well-loved place. As with any popular location there can be conflict between user groups. The Master Plan seeks to minimise conflict by providing buffer zones between areas of use and better separation and definition of blurred boundaries. Existing areas such as the open grassed spaces and picnic areas must remain uninhibited by additional infrastructure.

In keeping with the vision for Bronte, commercial activities should be prohibited in Bronte unless approved by Council. The Action Plan below seeks to address these points, refer to Figure 6.4 for the location of activities.

### 6.3.1. Action Plan

Category	Action	Time	Who	\$
C1. Provide adaptable and flexible spaces to accommodate a variety of interest groups.				
C1.1	Investigate options to better integrate the miniature train into the park such as a permanent fence or barrier that is conducive to the park and beach character. Provide shade trees within this area with consideration of views from Bronte Road.	S	Creating Waverley, Clean and Attractive Waverley	TBC
C1.2	Provide a clear through-link from the Bronte Gully to the park and beach by better defining the picnic area and barbecue locations back from this line of travel.	M	Creating Waverley	TBC
C1.3	When the assets reach the end of their life, replace the two stations of four barbecues with four stations of two barbecues. Ensure that barbecue stations are located central to the picnic shelters and have provision for bins. Locate one station in the upper level of the park. Ensure barbecues are located away from the pedestrian thoroughfare from the Bronte Gully to minimise conflict and noncompliance issue with dogs.	M	Creating Waverley	TBC
C1.4	Provide additional water bubbler facilities near the Bronte Baths, along the Bronte Gully path and Coastal Walk. Provide dog bowl attachments in appropriate locations (dog off-leash areas, popular dog walking connections).	S	Creating Waverley	TBC
C1.5	Locate bins in proximity picnic shelters, entries, pathways and beach access ramps.	S	Creating Waverley, Sustainable Waverley	TBC
C1.6	Review seating locations in the north headland with consideration to views and shade trees. Provide additional backed seating under shade trees and an increase in shade tree planting where possible.	M	Creating Waverley	TBC
C1.7	Provide additional shade tree planting to the park within the existing tree stands. Consider native species and plant trees in clusters. Consider view corridors in the placement of trees.	S	Creating Waverley	TBC
C1.8	Investigate the reinstatement of the three picnic shelters on the northern park above the Bronte Surf Club. <sup>59</sup>	O	Creating Waverley	TBC

59. Waverley Council, 2018, Minutes of the Strategic Planning and Development Committee Meeting 5 June 2018, p 3.



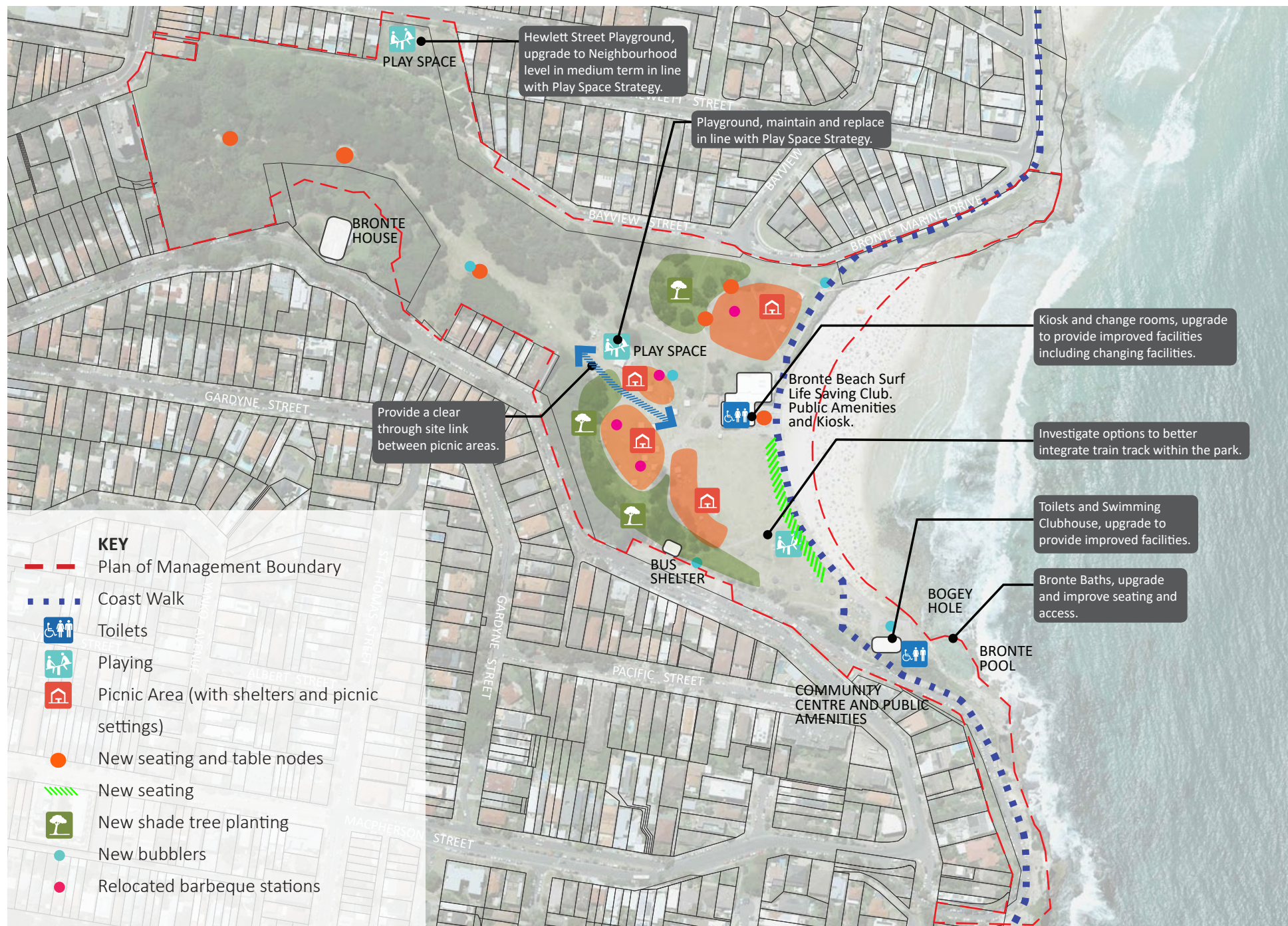


Figure 6.4 Playing and Relaxing- The Master Plan



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C2. Provide high-quality amenities and facilities that support Bronte's recreational values and users.				
C2.1	<p>Monitor and review the provision of amenities including toilets, carer facilities, change rooms and showers to ensure they meet user demand and meet standards.</p> <p>In meeting demand, focus upgrades and new facilities in the following locations:</p> <ul style="list-style-type: none"> <li>i. Upgrade/refurbish the southern toilet block.</li> <li>ii. Upgrade the northern toilet block to provide improved facilities.</li> </ul>	M	Creating Waverley, Project Waverley	TBC
C2.2	Investigate the upgrade or refurbishment of the picnic shelters with consideration of identified heritage values.	M	Creating Waverley	TBC
C2.3	Upgrade the playground at Bronte Park in line with directions in the Play Space Strategy	L	Creating Waverley	LTFP
C2.4	Upgrade the playground at Hewlett Street Reserve in line with directions in the Play Space Strategy	M	Creating Waverley	LTFP
C3. Prioritise activities that are intrinsic to the place, its cultural values and which draw value from being in a beachside location.				
C3.1	Do not permit overtly commercial use of the park or any high-impact events that are inappropriate to the location. Do not permit high-impact events as classified in <i>Waverley Councils Events Policy 2015</i> .	O	Enriching Waverley	E
C3.2	Support occasional community events and not-for-profit organisations hosting charity events, in accordance with the <i>Waverley Council Outdoor Events Management and Delivery Guidelines, Waverley Council Events Policy, and Waverley Council Venue Hire Grants Program</i> .	O	Enriching Waverley	E
C3.3	Continue to prohibit the use of Bronte Park and Beach for organised sports activities. Sports-related facilities within the park and beach must not compromise the passive recreational values of the place.	O	Enriching Waverley	E

## 6.4. Enhancing the Environment

In planning for the future one of the intrinsic values of Bronte Beach and Park is the preservation of the unique environment. Consequently, environmental values are at the forefront of any future works in the park and overlay with many proposals identified under other themes and their respective action plans.

To date, Council and volunteer bushcare groups have completed strategic plans and are underway implementing actions that aim to conserve remnant vegetation, and to support and improve the existing bushland of the Bronte Gully. This Plan of Management does not provide actions that relate directly to the management of bushland or remnant vegetation but aims to support these works by aligning the master plan and action plan with the works scheduled, particularly in the Biodiversity Action Plan and Ecological Restoration Action Plan. Council will continue to coordinate, support and liaise with volunteer bushcare groups to undertake the actions identified in these environment and ecological specific plans.

There is more work to do, particularly in managing vegetation in the park, considering the environmental performance of buildings in the park and ensuring the seawall, promenade and landward infrastructure is adapted to both today's and the future's climatic conditions. Consequently, the master plan and action plan focuses on these works. Refer to Figure 6.5 for major interventions.

### 6.4.1. Action Plan

Category	Action	Time	Who	S
D1. Enhance the natural heritage of the site such as vegetation, land form and hydrology.				
D1.1	Provide further opportunities to support habitat by increasing planting opportunities and using native and endemic species throughout the park.	O	Sustainable Waverley, Creating Waverley, Clean and Attractive Waverley	E
D1.2	Support actions identified in the Bronte Gully Ecological Restoration Action Plan.	O	Sustainable Waverley, Creating Waverley, Clean and Attractive Waverley	E
D1.3	Undertake a risk-management strategy for the opening to the underground stormwater pipe (trapezoid) and implement recommendations.	S	Sustainable Waverley, Creating Waverley	LTFP
D1.4	Continue to support the Bushcare program to undertake regeneration to remnant vegetation in accordance with the Biodiversity Action Plan 2014–2020. Provide planted buffer planting to remnant vegetation as identified in this plan.	O	Sustainable Waverley, Creating Waverley, Clean and Attractive Waverley	E
D1.5	Retain the natural landform of the site, minimising any regrading, particularly of the headlands.	O	Creating Waverley	TBC
D1.6	Maintain the trees within Bronte Park registered on <i>Waverley Council Significant Tree Register</i> in accordance with tree management policies and the <i>Bronte Gully Ecological Restoration Action Plan</i> .	O	Sustainable Waverley, Creating Waverley, Clean and Attractive Waverley	E



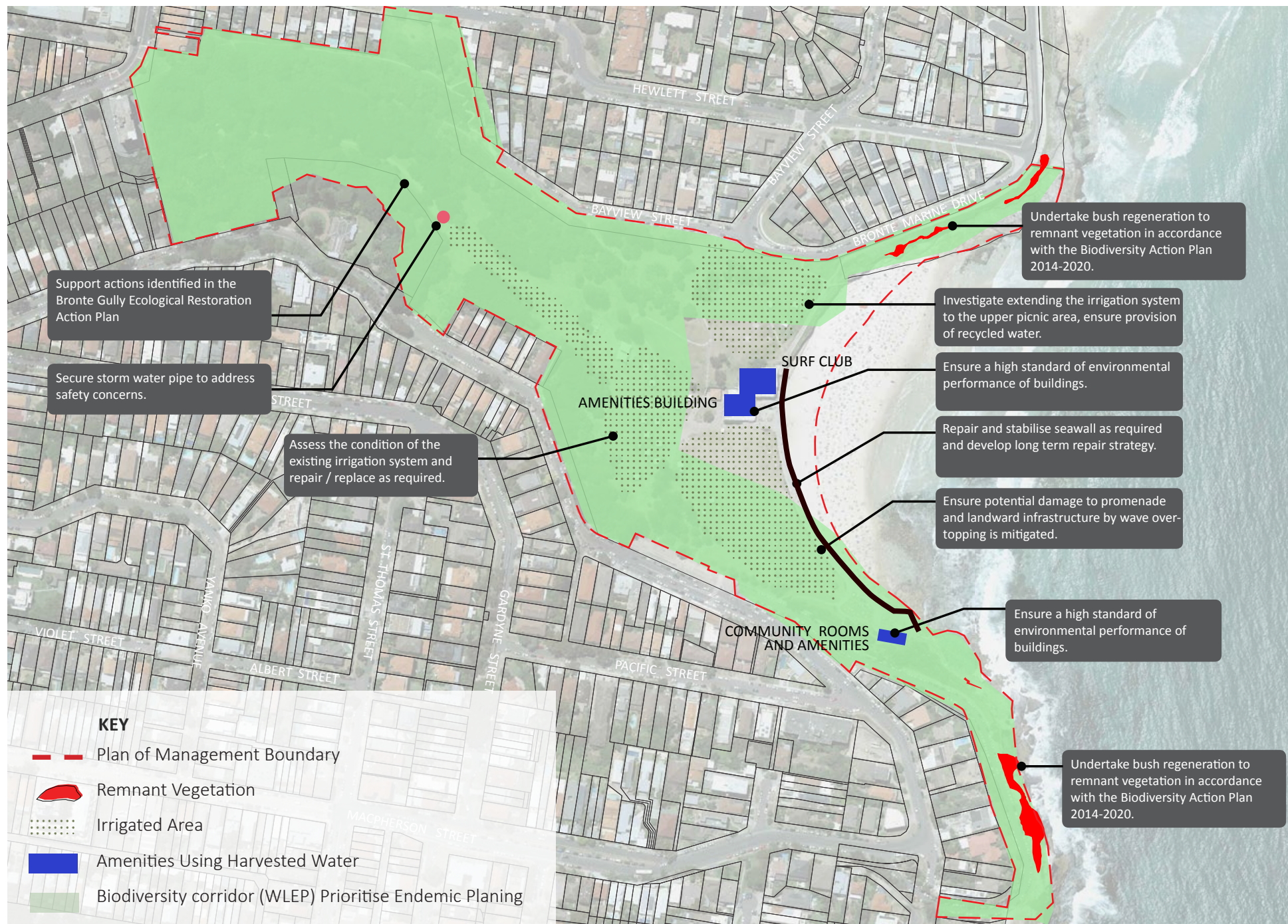


Figure 6.5 Enhancing the Environment- The Master Plan



## D2. Monitor and adapt to the effects of climate change.

D2.1	Implement the findings of the Bronte Seawall Technical Study: <ul style="list-style-type: none"> <li>i. Repair and stabilise the seawall as required and develop a long-term repair strategy.</li> <li>ii. Ensure potential damage to the promenade and landward infrastructure by wave overtopping is mitigated.</li> <li>iii. Consider moving the Bronte Pool pump to a more secure location.</li> </ul>	S	Sustainable Waverley, Creating Waverley, Project Waverley	TBC
D2.2	Design buildings and landscape works to consider environmental sustainability and adaptation to future climatic conditions.	O	Sustainable Waverley, Creating Waverley	TBC

## D3. Promote environmentally sustainable practices in the management and maintenance of the place.

D3.1	Assess the condition of the existing irrigation system and repair/replace as required.	O	Clean and Attractive Waverley	TBC
D3.2	Investigate extending the irrigation system and stormwater harvesting. Investigate irrigation to the north headland picnic area; ensure provision of recycled water.	S	Sustainable Waverley, Creating Waverley, Clean and Attractive Waverley	TBC
D3.3	Develop a sustainable waste management plan for the park.	S	Sustainable Waverley, Creating Waverley, Clean and Attractive Waverley	LTFP
D3.4	Reduce and minimise water use and waste-water generation, works to consider: <ul style="list-style-type: none"> <li>i. Continue to harvest water from the stormwater system and monitor rates and use to ensure adequate supply for park irrigation and building use;</li> <li>ii. Ensure staff awareness of the importance of resource conservation;</li> <li>iii. Visitor education on the importance of water conservation through appropriate signage; and</li> <li>iv. Installation of water-saving devices on taps and use of water-saving appliances.</li> </ul>	S	Sustainable Waverley, Creating Waverley, Project Waverley, Clean and Attractive Waverley	TBC
D3.5	Develop a sustainable lighting plan for the whole Park with LED fittings. To be coordinated with action 3.4.	M	Sustainable Waverley, Creating Waverley, Shaping Waverley	TBC
D3.6	Conserve energy and resources throughout the park and buildings, works should: <ul style="list-style-type: none"> <li>i. Generate renewal energy</li> <li>ii. Use energy-efficient fixtures and appliances.</li> </ul>	M	Sustainable Waverley, Creating Waverley, Clean and Attractive Waverley	TBC

D4. Consider whole of life-cycle cost in the selection of materials and construction techniques.				
D4.1	Explore options for the improvement and implementation of environmental sustainability through such measures as site design, layout and building design.  i. Consider the use of local materials in the construction of buildings and infrastructure ii. Design buildings with the local climatic conditions in mind, with consideration of local heating and cooling requirements iii. Minimise impact on the environment through appropriate footprint design and techniques.	M	Sustainable Waverley, Project Waverley, Creating Waverley	TBC
D5. Educate the community about the value of the sites unique environment.				
D5.1	Support programs that provide environmental education on-site.	O	Sustainable Waverley	E
D5.2	Incorporate environmental information on promotional materials and signs.	O	Creating Waverley, Sustainable Waverley	TBC

## 6.5. Community, Culture and Heritage

The Master Plan aims to reveal the site's heritage values by integrating interpretative signage to draw attention to, and explain the origins and the heritage value of, the landscape items within the park. This would be particularly appropriate for the Bronte Gully area, the tram cutting, and the baths precinct. Additionally, the plan aims to continue supporting the community use and groups that have long been affiliated with the site to ensure the clubs continue to function and the place is continually used for swimming and surfing. Refer to Figure 6.6 for key interventions.

### 6.5.1. Action Plan

Category	Action	Time	Who	\$
<b>E1. Interpret and tell the story of the place including Aboriginal themes and 'storylines'.</b>				
E1.1	Consider providing heritage information in the signage suite for the site to draw attention to and explain the origins and heritage value of the landscape items within the park. This would be particularly appropriate for the Bronte Gully area, the tram cutting and the baths precinct.	M	Creating Waverley	TBC
E1.2	Continue consultation with the La Perouse Local Aboriginal Land Council (LALC) on matters such as conservation and major development of Bronte Park, particularly those that change existing ground surfaces and the potential to expose rock engravings and axe-grinding grooves.	O	Creating Waverley, Project Waverley	E
E1.3	Provide information on the Indigenous heritage of the area and incorporate these stories within the existing Waverley heritage trails network.	M	Creating Waverley, Shaping Waverley	E
<b>E2. Strengthen and express the cultural values through supporting community groups and activities.</b>				
E2.1	Continue Council's bush care program to support the Bronte Bushcare groups, providing materials and volunteer support and training.	O	Sustainable Waverley	E
E2.2	Continue to support BBSLSC to make sure its activities and programs remain an integral part of Bronte.	O	Waverley Life	E
E2.3	Continue to support the swimming clubs to make sure their activities and programs remain an integral part of Bronte.	O	Waverley Life	E
<b>E3. Ensure the cultural landscape is expressed in the design and management of the site.</b>				
E3.1	Ensure the visual setting of the park and beach are conserved by considering main views when assessing and/or designing new development or rebuilding existing infrastructure in the park.	O	Creating Waverley	TBC
E3.2	Identify significant trees in the park and gully and conserve as required, coordinate with action A3.2.	M	Clean and Attractive Waverley	E





Figure 6.6 Community, Culture and Heritage- The Master Plan



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E4. Conserve and maintain the heritage fabric of the park.				
E4.1	Review the Indigenous Heritage Assessment Report 2003, prepared by Dominic Steele Consulting Archaeology.	S	Shaping Waverley, Creating Waverley	TBC
E4.2	Review the Heritage Study of Bronte Park prepared by Mayne-Wilson and Associates.	S	Shaping Waverley, Creating Waverley	TBC
E4.3	Based on findings from the heritage reviews, update the potential items to be considered for inclusion in Schedule 5 of Waverley LEP 2012.	M	Shaping Waverley, Creating Waverley	E
E4.4	Maintain and repair heritage items to standards as outlined in Section 118 of the Heritage Act. Use the items listed in section 3 of the Mayne-Wilson Heritage Study as a guide.	O	Creating Waverley, Clean and Attractive Waverley	E / TBC
E4.5	Restore the Bronte Pool gate to former white timber in keeping with the heritage values of the heritage listed Bronte Pool. <sup>60</sup> Refer Figure BB35, Section 3.8 of the Mayne-Wilson Heritage Study.	O	Creating Waverley, Clean and Attractive Waverley	E / TBC

60. Waverley Council, 2018, Minutes of the Strategic Planning and Development Committee Meeting 5 June 2018, p 3.

## 6.6. Management and Maintenance

Bronte Park and Beach have a high level of visitation placing immense pressure on park services and maintenance requirements. The plan proposes to review some of the current management and maintenance practices for the park and beach with the intent of ensuring the safety of park users, a high level of maintenance and the reduction of visual clutter associated with garbage services and vehicle access.

Some service infrastructure such as the park's storage area, irrigation system, bin collection zone and Bronte Bath pump-house and pipes also require repair or replacement. When these assets are replaced it must be ensured they meet both today's and future requirements and where possible be low-maintenance. Refer to Figure 6.7 for the location of proposed service infrastructure.

### 6.6.1. Action Plan

Category	Action	Time	Who	\$
F1. Ensure that the park and beach environments are safe for users at all times.				
F1.1	Provide ramp access for the beach rake directly from the shared vehicle route, allow for accessible compliant access at other times.	S	Creating Waverley, Clean and Attractive Waverley	TBC
F1.2	Manage and program activities to minimise conflict and ensure that the place can continue to function during events.	O	Enriching Waverley	E
F1.3	Ensure safety is considered in all design projects with the park and beach and continue to work with relevant stakeholders (local Police and Safety Committee) to address identified safety concerns.	O	Creating Waverley, Safe Waverley	E
F1.4	Provide information on general beach, sun and surf safety.	O	Safe Waverley	E
F1.5	Improve passive surveillance into the Bronte Gully to manage antisocial behaviour. Consider providing a link to Murray Street for the mid-access path.	S	Creating Waverley	TBC
F2. Ensure facilities are well-maintained and appropriately serviced.				
F2.1	Investigate the development of a place management strategy for the continued maintenance, cleaning, and management of facilities and grounds.			
F2.2	Maintain the Bronte Baths Pump: <ul style="list-style-type: none"> <li>i. Review the location of the Bronte Bath pump control and relocate it to an area more accessible for management and maintenance.</li> <li>ii. Replace pipes and other infrastructure as necessary.</li> <li>iii. Consider an automated system to reduce maintenance requirements.</li> </ul>	M	Clean and Attractive Waverley, Project Waverley	TBC
F2.3	Undertake an audit of the irrigation system: replace, repair and maintain as necessary.	S	Clean and Attractive Waverley	E
F2.4	Provide additional storage for tools and improved amenities for parks staff.	M	Creating Waverley, Project Waverley	TBC





Figure 6.7 Management and Maintenance- The Master Plan



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F2.5	Undertake a waste management study and implement findings with consideration of: i. Rationalising bin locations. ii. Management of green waste. iii. Reducing the frequency of garbage pick-up. iv. Minimising garbage truck vehicles in the park. v. Consolidating a bin storage and pickup location, potentially near the bus interchange.	S	Sustainable Waverley, Creating Waverley, Clean and Attractive Waverley.	LTFP
F2.6	Undertake a dilapidation report (refer to action C2.2) to inform the repair and/or replacement of the picnic shelters.	S	Clean and Attractive Waverley.	E
F2.7	Provide signage notification of cleaning and maintenance routines to the Bronte Baths and amenities buildings.	S	Clean and Attractive Waverley.	E
F2.8	Undertake a regular planned maintenance program for the park and beach, including toilets, picnic shelters, rubbish collection, lawns and garden beds.	O	Clean and Attractive Waverley.	E
F2.9	Ensure a continual upgrade of lawn, paths and planting areas and other park assets in line with Strategic Asset Management Plan (SAMP).	O	Clean and Attractive Waverley.	E
F2.10	Undertake reactive maintenance of the park such as graffiti removal.	O	Clean and Attractive Waverley.	E
F2.11	Improve the surface of the mid-access path in the Bronte Gully for use by maintenance staff and bush care contractors.	S	Creating Waverley	TBC
<b>F3. Review and reinforce compliance and regulations that enable a range of users to enjoy the park and beach safely.</b>				
F3.1	Continue to monitor the use of the dog off-leash areas. Undertake any necessary campaigns to educate dog-walkers about regulations and dog-owner responsibilities. Enforce regulations as required.	O	Safe Waverley	E
F3.2	Integrate compliance signage with a signage and wayfinding strategy and update signs accordingly. Ensure the relevant information to allow for practicable enforcement of regulations, such as timed dog off leash.	M	Creating Waverley	TBC
F3.3	Review, monitor, and actively enforce the commercial fitness groups' and personal trainers' lease agreements and agreed use of the park. To manage and reduce wear and tear on the lawn and park infrastructure, and ensure groups are in compliance with the agreement terms.	O	Enriching Waverley	E
<b>F4. Manage vehicle access in the park</b>				
F4.1	Engage an external expert technical consultant to undertake a vehicle access plan with consideration to: i. Reducing access to vehicles in the park. ii. Providing adequate and safe turn-around spaces. iii. Reducing the area of hard surfaces required for vehicles. iv. Ensuring the safety of pedestrians, cyclists, and park users. v. Providing a secure entrance to the park to manage vehicle entry. vi. Recommending an emergency vehicle access plan and processes, including ambulance and helicopter access.	S	Creating Waverley	TBC
F4.2	In line with the vehicle access plan and waste management strategy, review driveways and turn-around areas for the vehicle/pedestrian shareway and provide appropriate areas and signage.	S	Creating Waverley	TBC





# Implementation and Funding

7



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## 7. Implementation and Funding

### 7.1. Funding Sources

Funding for implementing the Plan of Management will either be allocated for future upgrade works (capital works) or maintenance and management of the park and beach. Funding for the management and maintenance is currently provided through Council's annual budget allocation.

To fund the proposed upgrade works Waverley Council plans to set aside Capital Works funds in future years that will cover a number of the proposals in the shorter-term plan.

Council's budget for the Plan of Management is not expected to accommodate all proposals in the short- or long-term plan. Additional funding options that may be investigated include:

- State and Federal grants
- Voluntary Planning Agreements
- Section 94 planning contributions
- Partnerships with community groups or businesses.

The amount of funding through these streams is difficult to anticipate as it is dependent on development and grant programs. Regardless of the type of current or future enterprises Council must also ensure that legitimate costs of upgrading the park are recouped wherever possible.

### 7.2. Performance Indicators

To effectively implement the Action Plan performance indicators are required to demonstrate that the desired outcomes from the plan have been achieved.

It is desirable that the values and actions of this plan can be measured by some means. For this purpose, the following means are considered practical survey methods of monitoring the progress and performance of the Action Plan:

- i. Surveys: Carry out surveys and questionnaires periodically (approximately every five years), accompanied by a survey of user numbers in various parts of the area; qualitative and quantitative in nature. This survey/questionnaire should establish any changes in park usage, visitor experience and perceptions, etc. Additionally, online surveys could be undertaken to request feedback on the implementation of particular programs and management strategies.
- ii. Register of correspondence: review of letters, emails and community requests received each year (positive and negative) on various subjects related to the park, pavilion and beach. This register can be used to indicate general trends and changes in issues and opportunities and the management of the space.
- iii. Photographic survey: taken at key and consistent locations every five years to establish degrees of change (either positive or negative). This could be compared with aerial photographs reviewed every five years.

### 7.3. Review and Monitoring

If the Plan of Management is to remain relevant in the future it is essential that its implementation is reviewed on a regular basis to ensure any relevant changes are incorporated. Changes that may need to be addressed include new legislation, changes in community values, project priorities, funding resources and new opportunities for future upgrades.

Given that community expectation and requirements change over time, this plan also needs to have some flexibility to adapt to any changes of circumstance.

It is recommended that the plan be reviewed in the following sequences and time spans:

- i. Annually; review progress of action plan.
- ii. Every two years: review management and administration structures and update priorities.
- iii. Every five years: undertake a major review of all values based on revised analysis and issues and amended planning legislation. Review outcomes against survey information, photographic record and register of correspondence.
- iv. Every ten years: review the Plan of Management.