
Prepared by
Brookfield Multiplex Constructions Pty Limited

Construction Management Plan

300 GEORGE STREET

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1.0 Introduction

1.1 Purpose

This Construction Management Plan has been documented to describe how the Project Management team shall implement and conduct its allocated site management responsibilities during the Construction phase of the “300 George Street” Project (the Project).

A fundamental aim of this Plan is to ensure all construction is properly facilitated, integrated and coordinated so as to deliver certainty to the objectives of the Project.

This plan forms part of Brookfield Multiplex Constructions Management System which is accredited to AS/NZS ISO 9001:2008 – Quality Management System, AS/NZS ISO 14001:2004 – Environmental Management System, and AS/NZS 4801:2001 – Occupational Health and Safety Management System.

1.2 Scope of this Plan

This Plan provides a holistic approach that:

- advises how the project management team will comply with the requirements of the contract relating to construction;
- defines the project objectives and targets of particular relevance to the construction phase;
- describes constraints specific to the construction phase and the project in general;
- describes the process for the identification and control of risks specific to the construction phase; and
- details the proposed strategy for the construction phase, with particular regard to establishment resourcing, site organisation and construction controls.

1.3 Proposed Works

The proposed works require the construction of:

- 7 Basement Levels
- 4 Podium Levels
- 3 Towers
 - Commercial Office
 - Hotel
 - Residential

This type of construction will have several distinct phases that will require different material handling strategies to optimise the construction works and minimise impact to surrounding streets, other stakeholders (such as Department of Transport and Main Roads (DTMR)) and neighbours.

Our material handling strategies and Construction planning will require consultation with stakeholders and authorities before implementation.

1.4 Site Location

The proposed development site (refer Figure 1) is bounded by George Street, Ann St, Adelaide St and North Quay. The site is known as “300 George”.

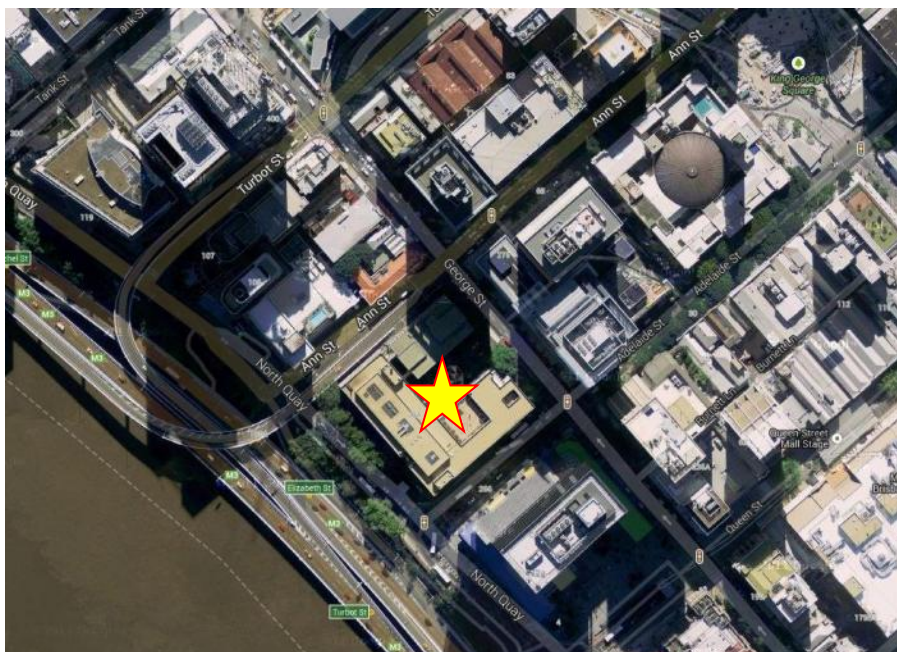


Figure 1 – Site Location

The site area is approx. 7892 sq.m and is located adjacent to the Heritage Site – “North Quay, between Ann and Queen Streets, including Adelaide Street intersection.”

1.5 Precedence

Where ambiguity is detected between the procedures and requirements in this plan and the Brookfield Multiplex Constructions Management Systems, then the procedures nominated in this plan will take precedence.

1.6 Interface with other Project Plans and Procedures

The Construction Management Plan forms part of an integrated set of Project Management Plans and should be read in conjunction with these other plans.

1.7 Document Control

Amendments to this Management Plan are approved by the Project Manager and authorised for distribution to all holders of controlled copies.

Date	Name of Recipient	Organisation
2/10/13	John Gough	Brookfield Multiplex
29/10/2013	Andrew Henebery	Brookfield Multiplex

Uncontrolled hard copies of this plan may be distributed to Brookfield Multiplex Constructions personnel. These copies are not subject to automatic amendment and the receiver should verify currency of the document.

Revisions to this Management Plan will be made as required to reflect the current system requirements.

Rev	Date	Description	Page	Reviewed By	Approved By
0	2/10/13	Initial Issue	All	GR/CM	JG
1	29/10/13	Changes to Appendix 1 drawings to Survey Backgrounds	14	CM	AH

2.0 Construction Management

2.1 Approach

The major external constraints on the project are:

- Maintaining smooth traffic and pedestrians flow with minimal disruptions to the surrounding streets;
- Undertaking works with minimal impact on neighbours;
- Ensuring existing Bus stops are collaboratively relocated or maintained with BCC; and
- Ensuring Ann St access to motorway is unaffected.

Upon commencement, our project team's immediate tasks will be to:

- Locate a project office, site accommodation and facilities;
- Undertake a survey of the site and complete a dilapidation report of surrounding properties and assets;
- Confirm the locations of existing services and obtain all necessary permits and licences and approvals; and
- Arrange for the installation of temporary services – power, water and sewer to service the site works and the amenities.

2.2 Approvals

A Development Approval is required for the works covering the excavation, basement and tower(s) works.

We foresee that the Development Approval will contain conditions that certain reports will need to be completed, submitted and approved before works can commence. Some of these reports needing approval will most likely be:

- Construction Management Plan;
- Erosion and Sediment Control; and
- Earthworks Plan for excavation.

Prior to commencing temporary modification of traffic arrangements, further approvals will be required from Brisbane City Council including but not limited to:

- Application / Notification to Work on Council Property
- Temporary Lane / Road Closure Application
- Application for Permit to Occupy Road
- After Hours Application
- Civil Operational Works
- Landscape Operational Works
- Signs and Line Marking Operational Works

It is proposed that staged Building Approvals (BA) will be obtained from a qualified Private Certifying Authority (PCA). It is proposed that the BA will be approved in the following sequence:

- Demolition and Excavation works
- Structural works for basements and podium
- Structural works for towers
- Services and Internal Fit Out

We do envisage that Staged occupation will be required.

The staging of the BA's will allow works to commence, whilst affording time for those works requiring intense design time such as structural and finishes works. The net effect is an overall reduction in total development construction time.

2.3 Site Security

The site will be secured using appropriate fences and/or hoardings, with access gates manned with qualified security guards/traffic control officers. To control site entry of inducted personnel and machinery a 'Smart Tech' system will be used. The site will be secured out of hours and patrolled by qualified security guards.

All visitors to the site will be required to report to the site office, and will be appropriately inducted and registered in a visitors log book.

2.4 Public / Worker Safety

All site staff and subcontractors will be required to complete a site specific induction before commencing work on site. The induction will cover aspects relating to safety and amenity; including access, emergency evacuation procedures, location of first aid facilities, location of amenities, site hours, material handling, noise and dust policies and environmental management.

Prior to commencing works on site, all subcontractors will be required to submit a project specific Safety Management Plan. This plan will be reviewed by Brookfield Multiplex for compliance with the overall Project Safety Plan.

A Safety Committee will be established during the early stages of the project. The committee will have representatives from subcontractors and Brookfield Multiplex. It will conduct regular inspections of the project, and will be actively involved in reviewing Safety Management Plans and making recommendations with regard to health and safety issues.

All committee members will be adequately trained in the field of health and safety compliance.

2.2.1 Hoarding

The Hoarding construction will consist of a timber hoarding. Where works are required at the boundary, temporary fence panels will be used. Gates will be used on all access points onto the site.

2.2.2 Gantry

Gantries will be used strategically along the site boundaries to maintain pedestrian access and safety. All gantry installations will be subject to council approval and permits.

3.0 Construction Methodology

3.1 Demolition and Excavation

The site is currently a vacated law courts building covering the entire site. The existing building(s) will be progressively demolished until bulk earthworks can commence. The existing trees along North Quay, George St and Adelaide St will be removed during the works.

Existing services within the site will be located and either capped if redundant or modified if they are to be used as temporary services for the works.

The Wall Retention System will be designed by a registered Engineer based on current Geotechnical information. The overall Design drawings and specifications can be found as a standalone document and is not included in this CMP.

3.2 Substructure Works

From the Geotechnical report we envisage that the substructure works will be a combination of bored pier and pad footing arrangements.

The tower cranes will be erected as soon as the area it is intended to be erected on has been excavated. The tower cranes will assist with the removal of the last of the spoil where it is uneconomical to be done by other means, and load in materials for the substructure works.

Given the size of the site and to ensure program is met, the site will be broken up into zones so that concurrent activities can occur. As excavation is completed foundations will be cast, in ground services installed, the ground prepared for the structure and the slab on ground will be cast.

Following the slab on ground, the upper basement levels will be cast in zones, so that multiple work fronts will be created. Different formwork systems will be considered and taken into account in the design of the structure to ensure program can be met.

Concrete will be cast to these slabs and columns using a pump and satellite boom to minimise/ eliminate material handling injuries.

3.3 Core

The core(s) are central to the tower footprint. For the upper level slabs to be completed, the core must be cast to that level. To minimise program impact, we have created zones to each basement slab level to allow it to be cast without the core being complete to that level.

We will utilise a propriety vertical wall formwork system that is self-climbing to cast the core. The core system will be supported by a tower crane for lifting of materials, an Alimak to get men and tools to the system, and its own satellite concrete placing boom to place concrete.

The lobby slabs, header beams and stairs will follow the core walls and will be cast as soon as practical to maintain structural stability of the core walls and provide access to cast the tower slabs.

When the last vertical wall elements are cast, the jump form will be removed in a strategic sequence and manner for safety reasons and to allow the lift motor rooms to be cast as early as possible to get builders lifts operating.

3.4 Structure

The structure trades and works will be supported by tower cranes for lifting of materials, formwork hoists to lift recycled formwork, Alimaks to transport operatives and materials to the decks, satellite placing booms to place concrete, propriety perimeter edge screens to provide fall protection to operatives. See **Appendix 1** a materials handling layout including major plant.

Scaffold requirements have been considered and the two most significant areas are envisaged to be:

- Demolition
- Street to level 4 – non-typical floor plates
- Roof

3.5 Façade

The facade will be erected as soon as practical to commence waterproofing floors so that finishes and fit out can commence.

The roof embellishments will commence when the structure is complete. These works will not be able to be completed until all plant has been lifted into the plant rooms and the façade has been installed to this level to complete the water tightness of the fabric.

3.6 Services and Finishes

When slabs are cast and the formwork is stripped, the services will commence to be installed. These works will commence within the building but will not be completed till the façade to that level is complete. The façade provides edge protection for the men working near the edge and provides weatherproofing for equipment that is water sensitive. The works will be organised in several passes, with what we term “rough in of services” being the first pass which is all services that can be installed before the façade is installed to that level.

Finishes are normally commenced in earnest when the façade is installed to that floor. The services will be scheduled to be completed enough to allow finishes to commence in our programming.

Plant, equipment and materials will be lifted to the floors via several means depending on what stage the building is at. The means will be tower cranes, Alimaks or builders lift. The builders lifts will be used for “clean trades” such as services fit off, carpets, ceiling tiles and fit out, to minimise damage to the lifts.

Materials that will be hoisted via the Alimaks or Builders lifts will be unloaded in the loading dock to save congestion to the material handling areas.

3.7 External Works

When the fabric of the tower is complete, and the tower cranes have been removed, the gantries will also be removed. This will allow the external works to be commenced and completed in a timely manner.

The works will also include making good any areas that have been affected by the construction of the project.

As some of the external works will be to footpaths and roads to mesh them in with the new building, some footpath and lane closures will be required. These will be coordinated with the Authorities.

3.8 Construction Sequence and Planning

The locations and types of plant may vary depending on the results of more detailed planning as the design solidifies and the availability of plant is firmed up.

There will be 3 distinct phases requiring different material handling logic to construct the building efficiently and minimise impact on surrounding streets and neighbours. The phases are:

- Phase 1. Site establishment; Demolition; Excavation and pile installation
- Phase 2. Structure
- Phase 3. Finishes and external works

Each Phase will not happen in isolation. Phase 2 and 3 will happen simultaneously once the structure is sufficiently complete to allow the finishes trades to commence on lower levels.

3.9 Material Handling

3.9.1 Tower Cranes

Refer Appendix 1 for approximate locations of Tower Cranes.

3.9.2 Mobile Cranes

Mobile cranes will be used during the bulk earthworks and retention phase but also to supplement the tower cranes during peak times.

3.9.3 Hoists

Refer Appendix 1 for approximate locations of man and materials hoists (Alimak).

3.9.4 Concrete Handling

Refer Appendix 1 for Work Zone areas.

3.9.5 Rubbish Removal

Rubbish will be removed from site by a licenced waste contractor and taken to a transfer facility for separation.

3.9.6 Loading Platforms

Loading platforms will be used to facilitate Tower Crane materials handling to tower slabs.

4.0 Environmental

4.1 General

The objective of this section is to identify the proposed methods that will be employed to minimise the impact of noise, vibration and air quality in the vicinity of the development.

4.2 Noise and Vibration Management

The normal hours of work will typically be 6.30am to 6.30pm, Monday to Saturday excluding public holidays. Noise management will generally be in accordance with the QLD DEHP environmental noise management criteria. All plant will be regularly maintained and log books kept ensuring that there are no excess noise emissions. Where it is practical, electric machinery will be used in lieu of mechanical devices.

All subcontractors will be responsible for managing noise and vibration in accordance with their project specific Management Plans.

It is proposed to undertake some after hour's works for specific tasks to minimise impacts to pedestrians, vehicular traffic or in the interest of safety. The works that are proposed to be undertaken outside of normal working hours include the following:

- Removal of North Quay tree's;
- Hoarding and Gantry works;
- Tower Crane erection and dismantling;
- Final awning works; and
- Footpath works.

All after hour's works will be subject to the Communication Management Plan. Consultation with the Brisbane City Council will occur at all times prior to any works being scheduled. All businesses and surrounding residents will be given notification via email of all the proposed after hours works prior to the works commencing which will include details of the works and the time to undertake each activity.

We do not envisage vibration generated by the Works affecting adjoining properties. The excavation of the rock may cause some vibration but this will be monitored. Consultation with DTMR will be required.

4.3 Dust Management

Dust control measures will be implemented as required, and will be in accordance with QLD Workplace health and safety regulations and Environmental Protection Act.

Dust Management will be most critical during the demolition phase of the project, with the subcontractors for these trades specifically dealing with dust management within their project specific management plans.

Measures that may be employed include:

- Site Perimeter – A 1.8m sheeted hoarding will be provided in all areas where external works are occurring
- Demolition – All trucks removing materials from site will be loaded whilst inside the site perimeter, with loads covered before exiting
- Excavation – water down working surfaces as required. Minimise stock piling of material. Maintaining stabilised access roads and driveway
- Construction – Maintain a high level of housekeeping to minimise likelihood of windblown dust

4.4 Stormwater and Sediment Control

A stormwater and sediment control plan will be developed and will be implemented prior to works commencing. This will ensure that stormwater from the development does not enter adjoining properties, and that all water that enters the council stormwater system does not contain silt or other contaminants.

The following are possible solutions during each phase of construction. These options will be developed further and consolidated into the overall management plan.

Demolition / Excavation – At the commencement of these works, screens and bunding at the perimeter of the site where stormwater may run off will be installed. Bunding will also be implemented around stormwater drains. Diligent housekeeping will be implemented to minimise risk of dust/debris being washed into pits.

Construction – The building slab drainage will be progressively installed and connected to council drains. Drainage pits will be bunded or have filter cloth applied to ensure debris and silt does not enter the council's drains.

4.5 Brisbane City Council Street Trees

The tree along George St, North Quay and Adelaide St will be required to be removed at the start of the project and replaced at the end after all construction activities have been completed. The project Landscape Architects will nominate a suitable replacement tree.

5.0 Appendices

5.1 Appendix 1 – Site Layout

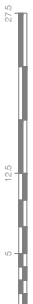
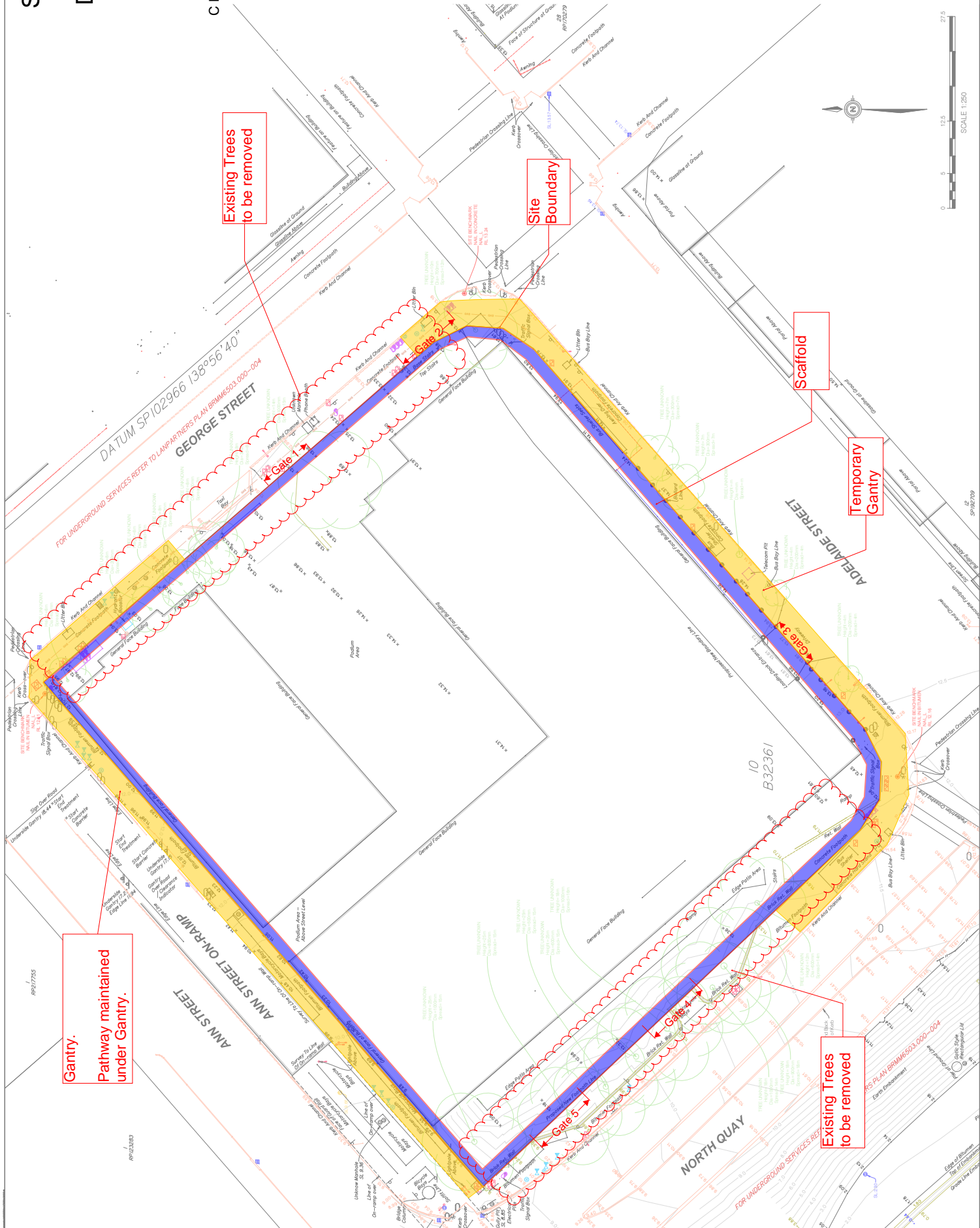
Site Layout

Demolition

SK-001

Revision: 1

Author:
C Beeby/ C Matthews



SCALE 1:250

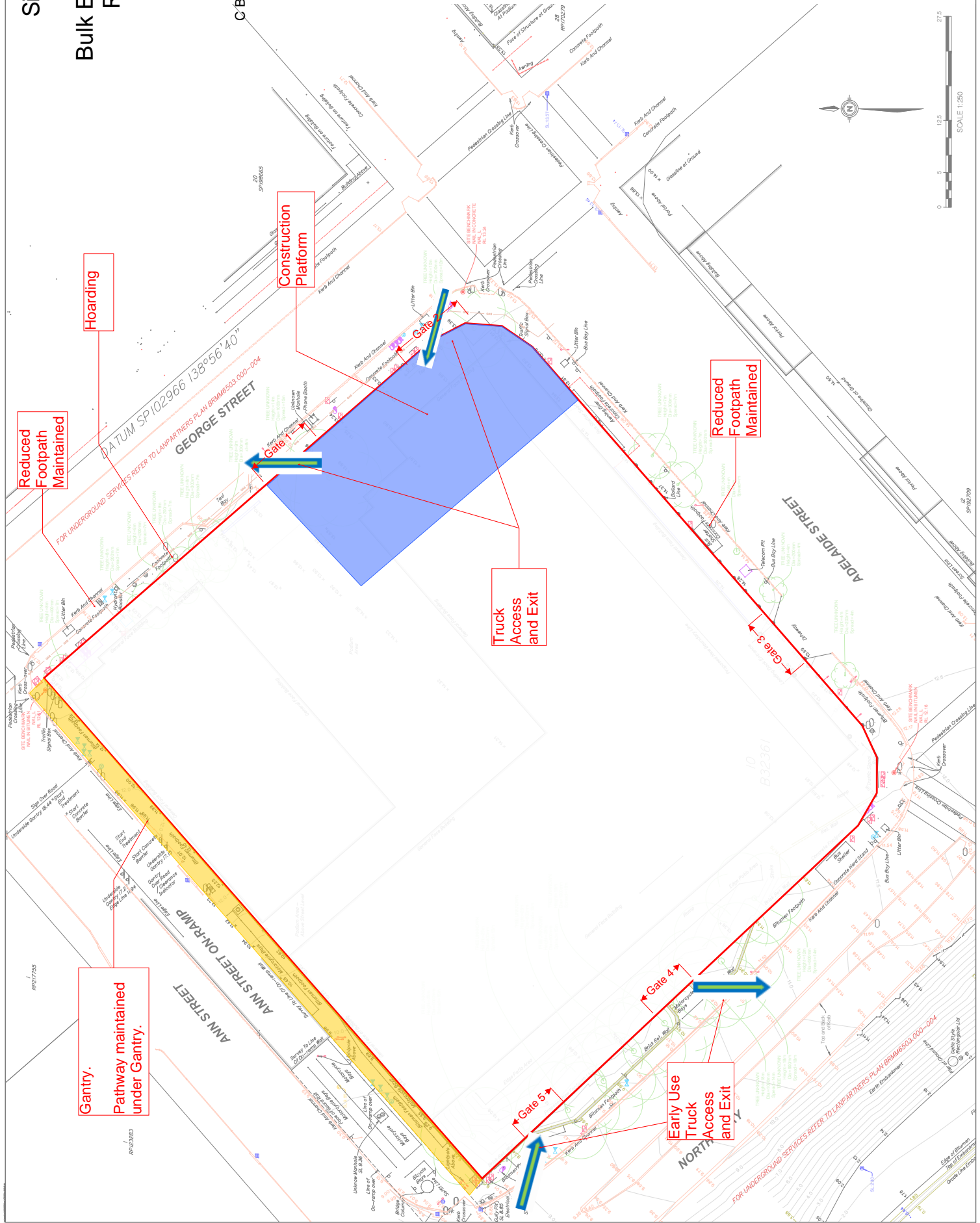
Site Layout

Bulk Excavation and Retention

SK-002

Revision: 1

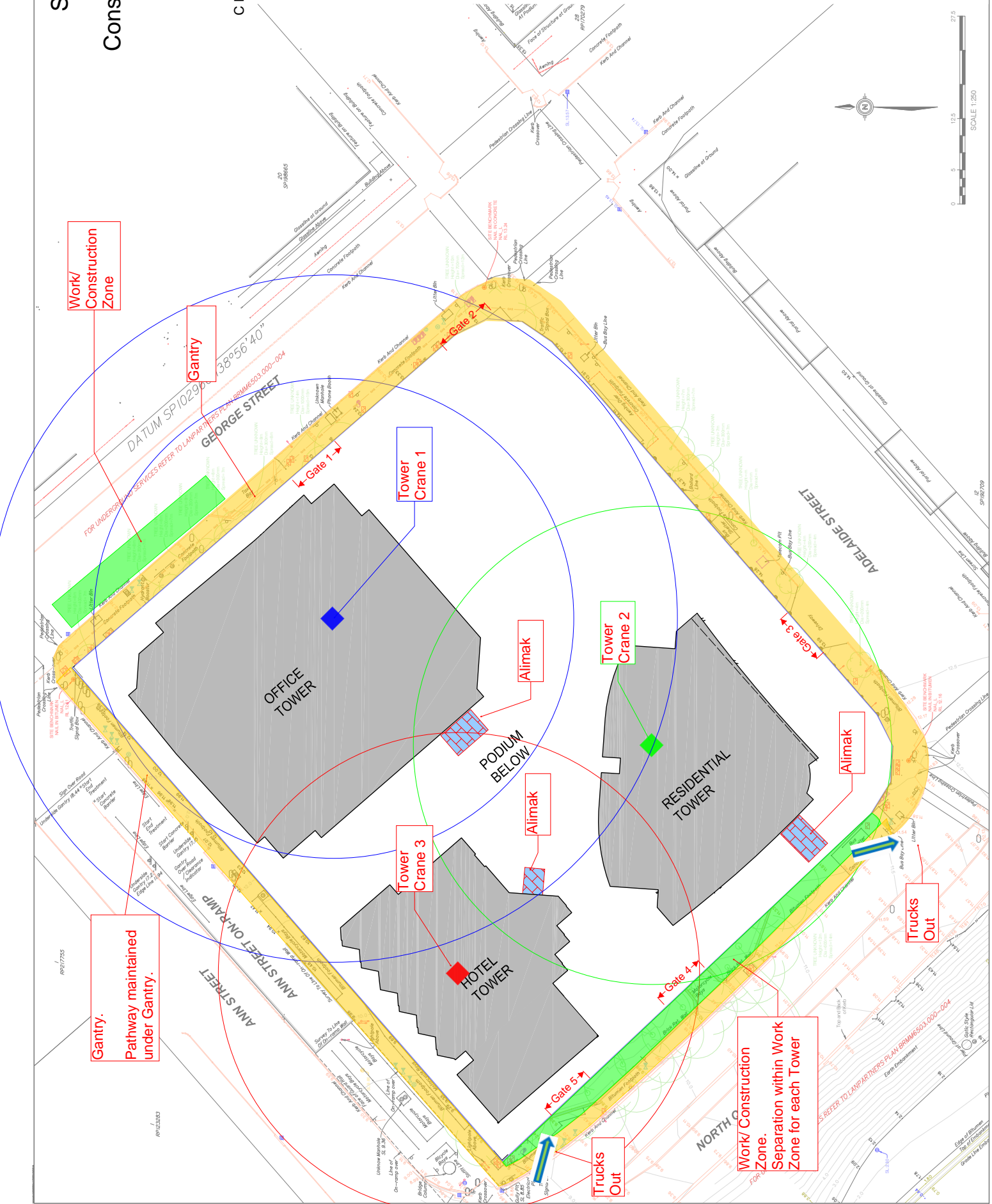
Author:
C Beeby/ C Matthews



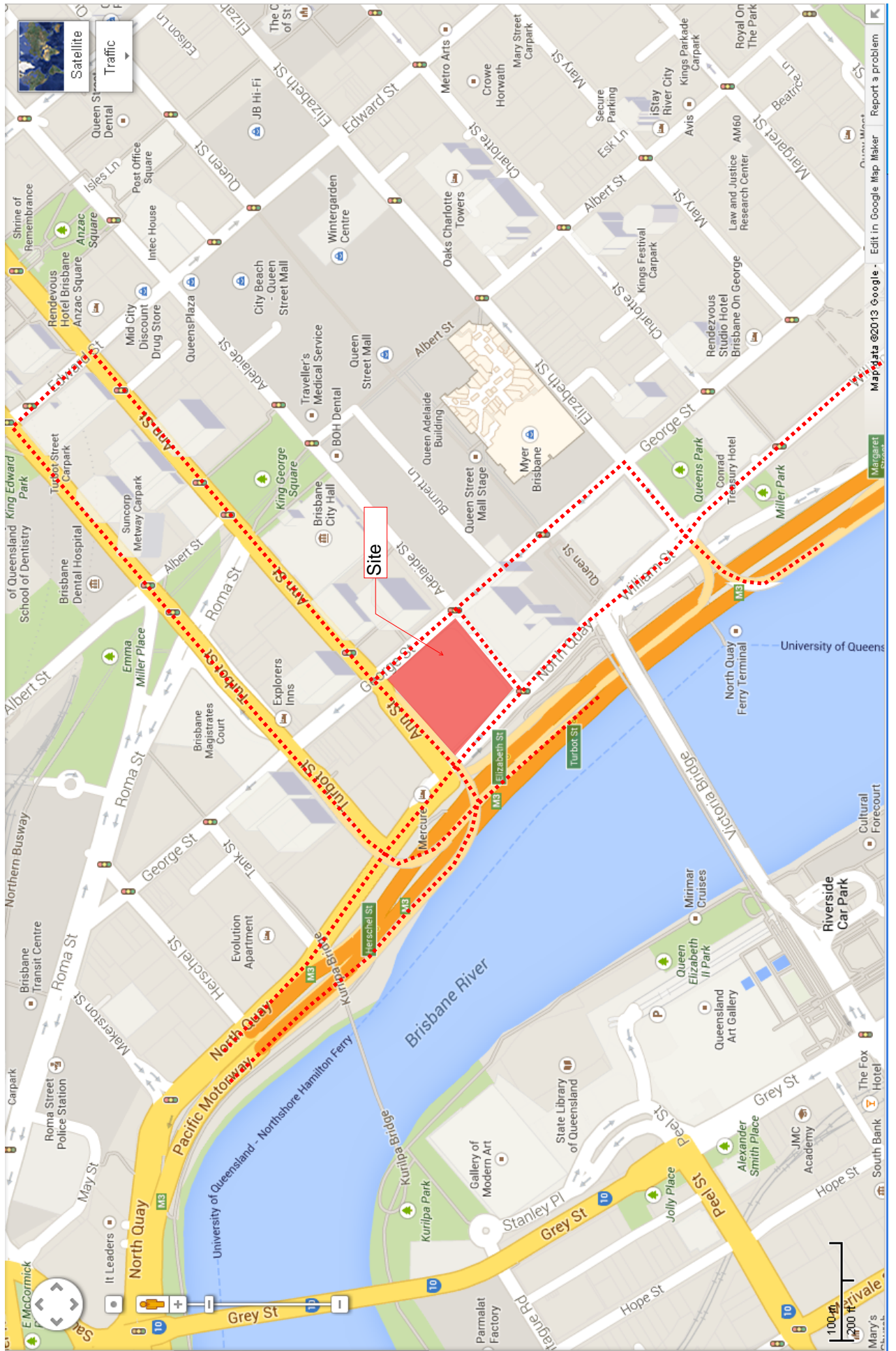
Construction Phase

Revision: 1

Author:
C Beeby/ C Matthews



5.2 Appendix 2 – Proposed Traffic Routes



5.3 Appendix 3 – BCC Trees to be removed

NOTE: CONCEPT DRAWING - INFORMATION IS
SUBJECT TO DESIGN DEVELOPMENT & APPROVALS.

ISSUE	DATE	DESCRIPTION
A	05/09/13	PROGRESS ISSUE
B	10/09/13	PROGRESS DRAFT ISSUE

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PROJECT

300
GEORGE STREET
BRISBANE

PROJECT NUMBER

DATE

701

SEPT 2013

DRAWING NAME

SITE PLAN

DRAWING NUMBER

ISSUE

A-SD-G-1.101

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