

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 22/01/09

CONICS



Portside Wharf: Building 2
Multiplex Portside Wharf Pty Ltd

SUSTAINABILITY REPORT

February 2008

Prepared by: Conics

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EXECUTIVE SUMMARY

This document has been prepared for Multiplex Portside Wharf Pty Ltd to demonstrate their commitment to improving the sustainability of the Portside Wharf Building 2 design outcome.

The information presented demonstrates how the development will address the Brisbane City Council 15 Principles of Sustainable Development. It provides a concise summary and analysis of the sustainability initiatives proposed for the development. A range of specialist consultants have provided advice through collaborative processes on the broad range of elements that contribute towards sustainable development.

The Portside Wharf Building 2 design has addressed the full range of sustainable design outcomes required by the BCC Principles. This included the environmental elements: design for our subtropical place, natural ecosystems, appropriate land use, integrated water management, energy management, building materials selection and waste management. Plus the social elements: cost efficiency, healthy indoor environments, green transport, adaptable buildings and spaces, safe and diverse community and education for end users. Of these elements, the development has a strong focus on subtropical design, water management, energy management and social connectivity. Key outcomes from these key areas are as follows:

The design of the built and natural environment will embrace the Brisbane subtropical climate, through the creation of active streetscapes, design to incorporate passive thermal design principles and encourage enjoyment of the outdoors and subtropical climate, building and landscape design detail for a subtropical place, design to optimise the benefits of the site (river, views, breezes) and native landscaping.

Water management has been addressed and key strategies include collection and reticulation of roof water for landscape irrigation, pool top up and wash down, reduction and treatment of stormwater runoff before discharging into the Brisbane River, water efficient fittings and fixtures, and water efficient landscaping.

Energy management to minimise consumption of mains power supply has also been addressed. This will be achieved through a number of measures including connection to the reticulated natural gas supply for residential uses and central energy efficient water heating system. The building has been designed to incorporate passive thermal design principles, efficient heating, cooling and ventilation systems, and energy efficient lighting design utilising natural light, energy efficient appliances. Additional measures that are being investigated include achievement of a minimum building envelope thermal performance rating of 3.5 stars for each apartment.

In line with the Portside masterplan, Building 2 will contribute to the social connectivity and diversity of the area. This will be achieved through provision of public spaces encouraging social interaction including a gym, pool facilities and public retail areas connecting with the surrounding streetscape and wharf, design for safety and to enable passive surveillance, Building and landscape design to link existing community facilities and define spaces, create character and differentiate between public and private zones.

1.0 INTRODUCTION

In response to the requirements of the Preliminary Approval for sustainability to be addressed in each stage of the Development Approval, this report provides a concise summary and analysis of the sustainability initiatives proposed for the development of Portside Building 2.

The sustainability information presented has been structured into the BCC 15 Principles of Sustainable Development to address both social and environmental outcomes. These principles cover the broad range of interlinked ecological and social elements including:

a) Visioning and collaborative processes -

1. Establish design vision.
2. Collaborative design process.

b) Environmental Elements -

3. Design for our subtropical place.
4. Natural ecosystems.
5. Appropriate land use.
6. Integrated water management.
7. Energy Management.
8. Building materials selection.
9. Waste Management.

c) Social Elements -

10. Cost Efficiency.
11. Healthy Indoor Environments.
12. Green Transport.
13. Adaptable buildings and spaces.
14. Safe and diverse community.
15. Education for end users.

The information provided in this report has been drawn from a process of collaborative team discussion, plus ongoing analysis and review of consultant information and design drawings. The objective of this process is to achieve an optimal and co-ordinated sustainability outcome for the development. This report provides a concise summary of the outcomes of this process and a clear vision of the sustainability objectives being addressed.

2.0 SUSTAINABLE DEVELOPMENT ANALYSIS

This section summarises how the Sustainability objectives will be addressed. For further detail please refer to the individual referenced consultant reports and drawings.

2.1 Sustainability Values and Collaboration

Principles 1 & 2. Sustainable design values and collaborative process

The Building 2 project design was undertaken in a collaborative manner with input from all team members to establish the key sustainability brief and design objectives. The desired sustainability outcomes for the development were established in the preliminary design stages through collaboration with the full design team. This document outlines the key sustainability initiatives to be addressed and those under consideration in the design and over the life of the development.

2.2 Environmental Sustainability

Principle 3. Design for a subtropical place

Design to embrace the subtropical climate of Brisbane is an essential component of capturing the unique lifestyle and character of the region and has been a key focus of the Building 2 design. It also assists in the creation of a sense of place, resulting in pride and ownership of the development community by its residents. Key design outcomes to achieve design for a subtropical place are outlined in the sections below and through out this report.

Site Analysis

An analysis of the existing site conditions has been undertaken by all consultants and this analysis has contributed to the development of the proposed design. The resulting building outcome suits the site and climatic conditions, and enables residents to appreciate and enjoy their natural surroundings and the comfortable SEQ climate.

Built environment

Subtropical design of the Portside Wharf Building 2 built environment has been addressed by Alex Popov Architects and key outcomes from their designs include:

- Design to incorporate passive thermal design principles into indoor and outdoor spaces – control of sun and shade and access to natural ventilation.
- Open plan design and indoor outdoor living areas to encourage enjoyment of the outdoors.
- Creation of contemporary character through a range of building materials, building forms and articulation and architectural detailing.
- Generous awnings at street level on all sides of the building to provide protection from sun and rain for pedestrians.
- Design to create active street frontages to all sides of the building to encourage street life.

Natural environment

Design of the landscape environment including hard and soft finishes has been addressed by EDAW and key outcomes include:

- Advanced street tree planting through the use of raised planting beds and recessed tree pits.
- Specification of plant species that promote bio-diversity and responds to a sustainable use of irrigation.



Principle 4. Protect and restore natural ecosystems

The Landscape report by EDAW outlines a range of objectives and practices to be implemented to improve the natural ecosystems on the site. Key outcomes are as listed in the sections below:

Protecting & restoring ecological processes

Due to the proposed high density nature of the development, the extensive podium cover over the site (100%) and the lack of existing vegetation, the opportunities for preserving natural processes on the site are limited. The intent of the landscape is to ensure that the proposed external works offers both a commercial reality and operational function for its users, as well as finding a home for nature and the natural processes of a site.

Biodiversity

- Selection of regionally specific and site appropriate endemic planting to create habitat and encourage endemic fauna.
- Street trees with extensive shading canopy.
- Raised planters for shade trees and understorey planting.
- Vertical screens and trellis / arbour landscapes.

Landscape design

- Construction processes and maintenance regimes will be utilised that retain moisture in the soil. This may include: use of soil wetting / water retaining agents within the soil structure, and planting and organic planting and mulch cover over any exposed soils.
- Permeable pavements (where appropriate) to encourage infiltration of surface water for irrigation and filtering.
- Provision of shade to hardstand areas and buildings through structures and vegetation.

Scenic amenity

- Enhancing scenic amenity through incorporating significant landscape trees and understorey vegetation where appropriate.
- Utilising arbour / trellis landscapes to promote a sense of 'green' along street frontages.
- Provide public amenities throughout the external landscape including shaded seating, drinking fountains and bicycle parking facilities.

Principle 5. Utilise land appropriately

This section addresses preservation and regeneration of the site land and ecology, as well as consideration of the impacts on the surrounding environment. Key outcomes from the reports of Alex Popov Architects, Butler Partners, Bornhorst and Ward and EDAW are as outlined in the sections below:

Context analysis

Integration of Building 2 into the broader context has been addressed in the masterplanning for the whole Multiplex Portside Wharf development. This process ensured that the Building 2 development integrated with existing and proposed development in the area.

Land use transport integration

Integration with existing transport systems was addressed in the Portside Wharf masterplanning stage. Key outcomes directly relevant to Building 2 include:

- Pedestrian focussed streetscapes around Building 2 providing safe and equitable access.
- Location within walking distance of regular public transport to the city (bus and citycat).

- Safe access for bicycles and bicycle parking for visitors to access the development.

Site planning and analysis

Site planning and analysis has been undertaken in the Portside Wharf masterplanning stages and also in the architectural design of Building 2 by Alex Popov Architects. Key outcomes of the design include:

- optimising integration of passive thermal design principles to private and public spaces, to reduce the need for mechanical heating and cooling.
- optimising access to views.

Contamination

During Portside Wharf Stage 1, The Butler Partners undertook an Environmental Site Assessment that established that the site was not contaminated and that it is not listed on the EPA's Environmental Management Register or the Contaminated Land Register.

During Stage 1, The Butler Partners also conducted a soil investigation for the site, that established that acid sulphate soils exist on the site. An acid sulphate soil management plan (ASSMP) was prepared to control net acidity levels within soils disturbed during development works and to restrict to an acceptable level potential onsite and off site environmental impacts during site development.

Cut and fill

Excavation for the basement to Building 2 was addressed by Bornhorst and Ward in the previous BCC Application for Building 4 – basements for Building 4 and Building 2 will be constructed as one. Key outcomes specific to Building 2 included:

- Major excavation works will be undertaken to construct one level of basement parking. There is limited space on the site due to the high density of the development, so the excavated earth material will be removed from the site.
- An erosion and sediment control programme will be developed for the construction phase to avoid contamination of waterways from stormwater runoff during site works.

Topsoil protection

The Butler Partners investigated the existence of topsoil in their soil investigation in Stage 1 and established that there is no topsoil, due to previous extensive site development.

Principle 6. Apply integrated water management

Integrated water management strategy

The flow of water into and out of the site has been considered by a Bornhorst and Ward, Alex Popov Architects and EDAW Landscape Architects and has addressed stormwater, rainwater and minimisation of mains potable water supply.

Rainwater collection and reuse

Rain water collection and reuse was addressed in the previous Building 4 BCC application and storage areas were allocated for rainwater for Building 4 and Building 2. Key outcomes specific to Building 2 included:

- Roof water runoff will be collected in rainwater tanks located in the basement with an approximate collection capacity of 100,000 litres.
- Roof water will be used for landscape irrigation, pool top up and car washing / washdown.

The proposed locations for the rainwater tanks and associated plant area are located on the architectural drawings by Cottee Parker Architects. They were also submitted for the previous Building 4 application.

Stormwater – Quantity and Quality

Bornhorst and Ward have addressed stormwater runoff quality and quantity and key outcomes include:

- Stormwater runoff from hardstand areas will be directed into a bio-retention system (constructed in planter boxes located on ground level) to be treated before discharging into the existing stormwater infrastructure provided by the Stage 1 development.
- Key pollutants generated by the developments are typically litter, sediment, nutrients (N & P) and hydrocarbons. Of these, sediment, nutrients (N & P) and pathogens are targeted for trapping.
- Key pollutants generated during the construction stage that will be trapped include: Litter, sediment, hydrocarbons, toxic materials and pH altering substances (acid sulphate soils).
- A gross pollutant trap will be constructed in the basement carparks.

Sewage

Building 2 will be connected to the existing sewage infrastructure which was upgraded during Stage 1 development.

Landscape design

Key outcomes to address water management from the Landscape report by EDAW include:

- Selection of plants suitable to the soil type, site location (micro-climate) to avoid / reduce the reliance for irrigation.
- Landscape practices including mulching to retain moisture in soil.
- Use of non-potable water sources for irrigation.

Water conservation fittings, fixtures and appliances

Alex Popov Architects will specify the following water conservation fittings and fixtures in the design documentation:

- Taps: 3 star WELS rated minimum.
- Shower heads: 3 star WELS rated.
- Dishwashers: 3 star WELS rated minimum (where provided by the developer).
- Dual flush WCs: 3 star WELS rated minimum.
- Shading to pool to reduce evaporation.

Smart metering

EMF Griffiths will address monitoring of resource use:

- Installation of smart metering (metering of water), will be investigated to enable the monitoring and management of use. This will be via a system that enables constant trending and automatic report / billing as required.

Principle 7. Manage Energy Use

Energy management has been addressed by EMF Griffiths and Alex Popov Architects and key outcomes are listed below:

Alternative energy supplies

The development is connected to **Natural Gas** and this will be reticulated for:

- apartment cooktops;
- pool heating; and
- serviced hot water.

Hot water system

The development will have an energy efficient hot water system however the system to be selected is still under investigation.

Passive thermal design

Architectural drawings prepared by Alex Popov Architects address passive thermal design. Key design outcomes include:

- All units have a north and / or south orientation enabling access to cooling breezes to reduce reliance on air conditioning.
- Reduced openings to western and eastern orientations to control solar access and minimise heat load from low morning and afternoon summer sun.
- Sun shading on east and west designed to suit the orientation and control solar access but still allow access to views.
- Retail areas at ground level have generous awnings to prevent solar access and maintain views and permeability.

Energy efficient heating, cooling and ventilation

EMF Griffiths will prepare mechanical drawings addressing mechanical heating and cooling. Key items in the design will include:

- Use of a central air conditioning plant with individual water cooled units for each apartment. The energy efficiency of the systems selected will be maximised.
- Control devices to enable optimal energy efficiency and occupant comfort and control including accessible switching, timers and sensors.
- Individual toilet exhaust systems in each internal bathroom (rather than a central system) to enable exhaust to be turned on only as required.
- Exhaust fans in underground carpark areas, connected to CO2 sensors to ensure they only run when required.

Energy efficient lighting & Daylighting

Alex Popov Architects and EMF Griffiths will address energy efficient lighting in apartments and common areas. Key items in the design will include:

- Design to provide optimal access to natural lighting.
- Integration of electrical lighting design with natural lighting where possible to achieve appropriate lighting levels and optimise energy efficiency. (eg lighting near windows on a separate switch to darker internal areas).
- Energy efficient lighting design with low energy light fittings and lighting control systems (dimmers, accessible switching, movement and light sensors etc).

Appliances

- Large electrical appliances including fridges / freezers and dishwashers (where provided by Multiplex Portside Wharf) will have a minimum Energy rating of 3.0 stars.
- No washing machines will be provided by Multiplex Portside Wharf.
- Dryers will be provided with optimum energy efficiency ratings. (There are currently no 3.0 star rated dryers available in Australia).

Residential component - Thermal performance rating

Alex Popov Architects are investigating the design of each apartment to achieve a minimum 3.5 star NatHERS rating. The thermal performance of apartments will be modelled during the design development stage to ensure they are achieving the desired outcomes. (3.5 star rating exceeds the minimum BCA requirement of 3.0 star rating for each apartment).

Smart metering

EMF Griffiths will address monitoring of resource use:

- Installation of smart metering (metering of power and gas), will be investigated to enable the monitoring and management of use. This will be via a system that enables constant trending and automatic report / billing as required.

Principle 8. Select appropriate building materials

Building materials and products have a substantial effect on all aspects of the environment through their lifecycle from extraction, manufacture, distribution, construction and demolition.

Alex Popov Architects is investigating implementation of a materials selection criteria for specifying materials and products that gives preference to:

- Local materials – eg. locally and Australian made.
- Renewable materials – eg. plantation timber and bamboo.
- Materials with recycled content.
- Materials with low embodied energy.
- Health:
 - materials that cause the least contamination in manufacture; and
 - materials that produce no toxic emissions in use eg. low to no VOC's.
- Materials requiring minimal maintenance.

Principle 9. Manage waste

This section addresses reduction of waste sent to landfill through encouraging recycling and reuse.

Waste management plan

Multiplex Portside Wharf undertake waste management practices as part of general construction practice and waste management plans will be prepared for construction and operation.

Design

Alex Popov Architects address encouraging reduction of waste sent to landfill during the operation of the development through the following measures:

- Easily accessible communal waste collection areas containing waste bins to collect recyclables.
- Kitchen waste bins installed in apartment kitchen joinery with two separate compartments: one for solids / organics, and one for recyclables.

Operation

Multiplex Portside Wharf facilities management will undertake co-ordination of waste management during operation:

- Collection and removal of domestic waste will be in accordance with City Waste Requirements.

- Collection and removal of retail and commercial waste will be in accordance with Multiplex Facilities Management Operational Management Plan.

2.3 Social Sustainability

Principle 10. Consider cost efficiency

Cost efficiency is an integral part of design and construction and will be addressed throughout the project by the whole team. Key outcomes in the design by Alex Popov Architects to optimise cost efficiency in design are addressed as follows:

Cost efficiency in construction

- Standardisation of details across multiple levels.
- Optimal design efficiency to minimise wasted space and unnecessary materials consumption.

Operating costs

- Passive thermal design to minimise energy costs for heating and cooling.
- Water efficient fittings and fixtures to minimise water consumption.
- Selection of materials and design for minimal maintenance.

Principle 11. Create healthy indoor environments

Alex Popov Architects has addressed creating healthy indoor environments in their drawings and key outcomes are addressed below:

Natural lighting / glare control

- Orientation of the building north / south to enable optimal access to natural lighting with minimal glare for all living areas and bedrooms.
- Window shading designed to prevent glare and control solar access as required.

Ventilation

- All interior habitable rooms are designed to have effective natural ventilation.

Access to outdoors

- All apartments have a covered, outdoor deck space accessible from the interior living areas.
- All retail areas at ground level have direct access to covered, landscaped outdoor areas.

Indoor air pollutants

- Materials and products emitting VOCs will be avoided where possible. Products will be specified that contain low or no VOCs (see also Principle 8. Materials selection above).

Noise

Max Winders and Associates have addressed possible noise impacts on the development from surrounding prominent noise sources including aircraft noise, vehicular traffic noise and noise from port activities and other surrounding land uses. Key outcomes from their report require that:

- buildings must be designed to provide appropriate internal noise levels in accordance with Australian Standards.
- buildings must provide façade treatments such as solid balustrades, shutters, double / thicker glazing and air conditioning to enable noise to be shut out if required.

- preliminary noise assessments and calculations made for building components should be reviewed at the detailed design phase. It is also recommended that the building drawings be reassessed at the Building approval stage to ensure appropriate acoustic elements are incorporated into the final design.

Lighting & Glare

Max Winders and Associates have addressed possible lighting and glare impacts on the development from vehicular headlights in the adjoining Building 4 above ground carpark (levels 1 to 4). Key outcomes from their report include:

- vehicle lighting will be contained on the Building 4 site with either solid masonry full height walls or a combination of full height external perforated screening and 1.4m high safety wall elements.
- the vehicles in Building 4 carpark will not result in unacceptable impact upon amenity of Building 2 or existing residential areas.
- there are no other surrounding land uses considered to have the potential to impact upon lighting amenity at the proposed development.

Principle 12. Support green transport

Support for alternative transport to minimise use of private vehicles was addressed in the Portside Wharf masterplanning stage. Key outcomes directly relevant to Building 2 include:

- Location within walking distance of regular public transport to the city (bus and citycat).
- Safe access for bicycles and bicycle parking for visitors to access the development.

Principle 13. Develop adaptable buildings and spaces

Alex Popov Architects have addressed these issues in their building design and key outcomes include:

- Design of private and communal areas to ensure they are safe and accessible for people of varying ages and abilities.

Principle 14. Build a safe and diverse community

Creation of true communities is achieved through encouraging social cohesion, vibrancy and pride in the community resulting in a sense of ownership. It incorporates social connectivity and diversity, safety and linking with existing community facilities and all of these aspects were addressed in the masterplanning for Portside Wharf. Alex Popov Architects and EDAW have addressed these issues in their building design and key outcomes specific to Building 2 are listed in the following sections.

Social connectivity and diversity

Social connectivity outcomes created by Building 2 include:

- Provision of public spaces to enable people to meet and gather including:
 - gym
 - pool facilities
 - ground floor lobby / lounge area
 - retail areas connecting with the surrounding streetscape and wharf

Public safety & CPTED

Key public safety outcomes created by Building 2 include:

- Passive surveillance of all public spaces.

- Appropriate lighting design of all public spaces.
- Façade design to reduce the opportunity for entrapment, concealment and vandalism.

Links with existing community facilities

As part of the Masterplan, Building 2 has been designed to link with the existing Portside facilities:

- Shaded links between buildings and facilities are provided through avenues landscaped with shade trees and built shade structures over pedestrian oriented areas.
- Design and landscaping is used effectively to define spaces, create character and differentiate between public and private zones (eg provide privacy around pool enclosure).
- Public facilities are designed to enable equitable access to all ages and abilities.

Principle 15. Inform the end owner and user

Providing education for the development community about all aspects of sustainability is an essential part of helping them understand the environment they live in and encouraging them to help protect and regenerate it.

User guide / body corporate induction

Multiplex Portside Wharf will provide information on the Building 2 development to inform owners and occupants about the sustainability initiatives incorporated. The final form of such educational material is still under discussion at this early stage, however elements being considered include:

- User guides for purchasers at handover, containing information and brochures on all sustainability products and materials in their new residence and how to use them efficiently.
- Interpretive signage or artwork, in and around the development explaining any environmental, social or cultural features.

3.0 CONCLUSION

This report has provided a concise overview and analysis of the sustainability initiatives proposed for the Portside Wharf Building 2 residential development in line with the requirements of the BCC 15 Principles of Sustainable Development.

The Portside Wharf Building 2 design has addressed the full range of sustainable design outcomes required by the BCC Principles. This included the environmental elements: design for our subtropical place, natural ecosystems, appropriate land use, integrated water management, energy management, building materials selection and waste management. Plus the social elements: cost efficiency, healthy indoor environments, green transport, adaptable buildings and spaces, safe and diverse community and education for end users. Of these elements, the development has a strong focus on subtropical design, water management, energy management and social connectivity. Key outcomes from these key areas are as follows:

1. Design of the built and natural environment to embrace the Brisbane subtropical climate through:
 - Streetscape design to encourage community interaction.
 - Indoor and outdoor spaces encouraging enjoyment of the subtropical climate and the natural site features of river, views and breezes.
 - Integration of passive thermal design principles in particular orientation to optimise control of sun and breezes.
 - Creation of contemporary character suited to the Brisbane climate through use of a range of materials, forms and architectural detailing.
2. A water management strategy addressing all water into and out of the site through:
 - Collection and reticulation of roof water for non-potable purposes.
 - Treatment of stormwater runoff from the site before discharge into the Brisbane River.
 - Water efficient landscape design, species selection and irrigation techniques.
 - Use of water efficient fittings and fixtures.
3. An energy management strategy to minimise consumption of mains power supply.
 - Connection to natural gas for residential uses.
 - Design of all buildings to incorporate the passive thermal design principles of orientation, solar access and shading and ventilation.
 - efficient heating, cooling and ventilation systems.
 - energy efficient water heating, lighting design and appliances
4. Enhancement of social connectivity and diversity.
 - Provision of public spaces encouraging social interaction including a gym, pool facilities and public retail areas connecting with the surrounding streetscape and wharf.
 - Design for safety and to enable passive surveillance.
 - Building and landscape design to link existing community facilities through provision of shaded avenues and pedestrian focussed areas.
 - Design and landscaping to define spaces, create character and differentiate between public and private zones.

A P P E N D I X F

Geotechnical Correspondence

Prepared by

Butler Partners



8 September 2008

Project No. 039001

Conics Pty Ltd
743 Ann Street
FORTITUDE VALLEY QLD 4006

Fax: 3237-8833

Attention: Mr K. Hanna

Dear Kieron,

**RE: PORTSIDE, HAMILTON
ULDA SUBMISSION
CONTAMINATED LAND AND ACID SULPHATE SOILS**

This letter summarises the work done to assess contaminated land and acid sulphate soils and methods to manage these issues for the development.

Lot 596 on SL6381 and Lot 631 on SL801514 have been subject to a Stage 2 and Stage 1 Assessment respectively. Lot 596 on SL6381 contained 77m³ (in-situ) of soil with a reported result of 154.7 mg/kg total polycyclic aromatic hydrocarbons (PAH) and 6.7 mg/kg benzo(a)pyrene (BaP) exceeding the health based investigation Level "A" for residential landuse (including children's day care centres). The results reported are within the range that are anticipated to be able to be managed or remediated, such, that the land can be made suitable for the landuse of a child care facility following site remediation.

The Stage 1 Environmental Site Assessment (ESA), for Lot 631 on SL801514, reported lead at three locations exceeding the health based investigation Level "A" for residential landuse (including children's day care centres). The results reported are within the range that are anticipated to be able to be managed or remediated, such, that the land can be made suitable for the landuse of a child care facility following Stage 2 ESA and site remediation.

Several acid sulphate soils reports were undertaken by Butler Partners Pty Ltd. These found there is a potential for localised draw down of groundwater during the construction phase over the short term and the Acid Sulphate Soil Management Plan (ASSMP) provides detail on mitigation measures for retained water.

As the proposed development option for a second basement includes using a tanked second basement level, long term impacts to groundwater and hence due to the disturbance of acid sulfate soils are not considered likely.

Mitigation measures for the minimisation of potential impacts from acid sulphate soils include stockpiling and treatment of soils and management actions for retained excavation water in accordance with the elements detailed in the ASSMP.

GEOTECHNICAL AND GEO-ENVIRONMENTAL CONSULTANTS

Butler Partners Pty Ltd
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It is proposed to complete contaminated land investigations to delineate the scale and extent of impacts and prepare a site management plan / remediation action plan to undertake necessary remediation of impacts to make the land suitable for its intended use. When remediation is complete a validation report that documents the remediation and makes a clear recommendation for the proposed site use.

It is proposed that acid sulphate soils and contaminated land issues will be dealt with in accordance with Environmental Protection Agency and Department of Natural Resources and Water requirements.

Yours faithfully

BUTLER PARTNERS PTY LTD

ST.JOHN HERBERT MSC
Principal Environmental Scientist

A P P E N D I X G

Titling Concept Plans

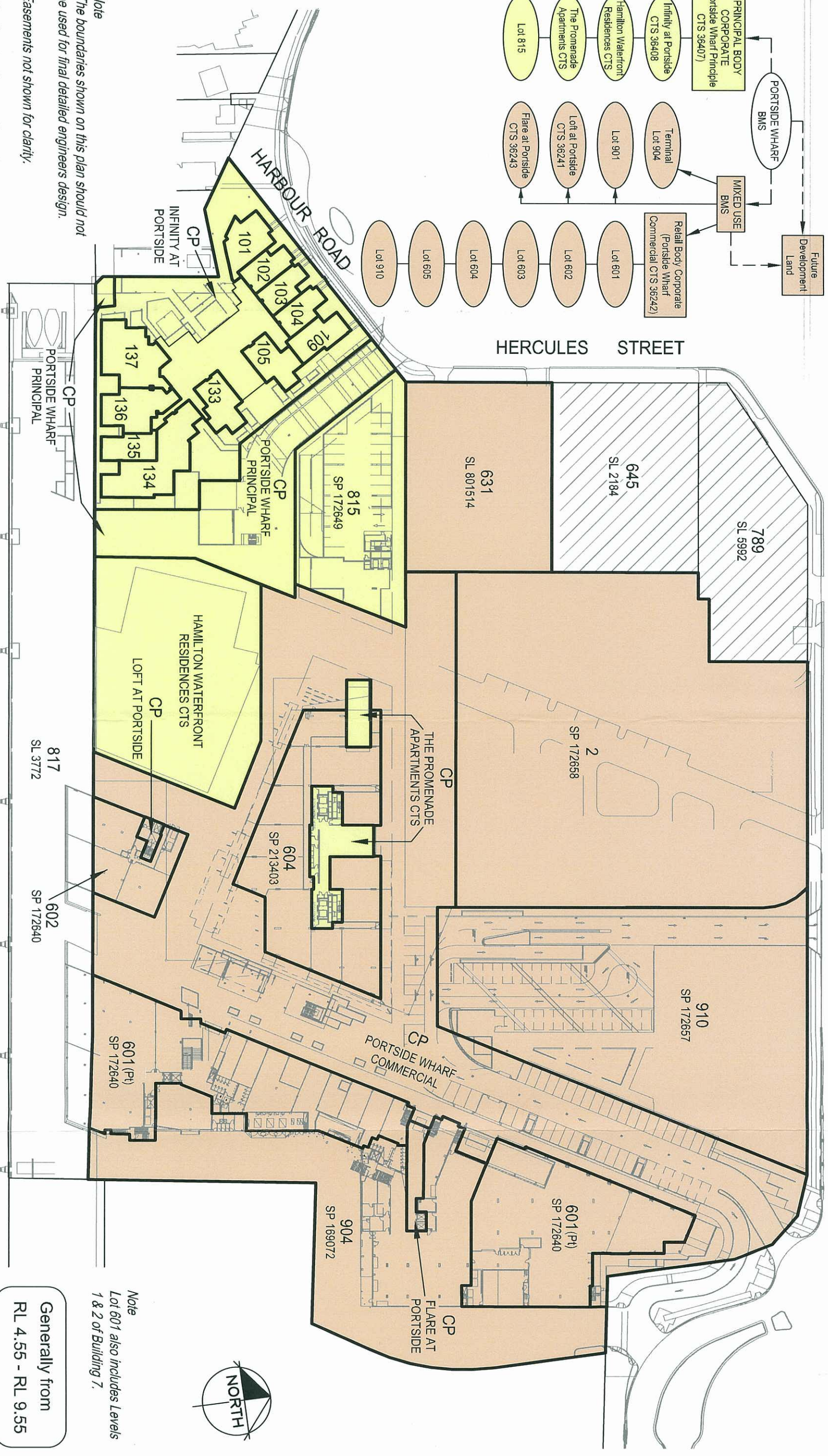
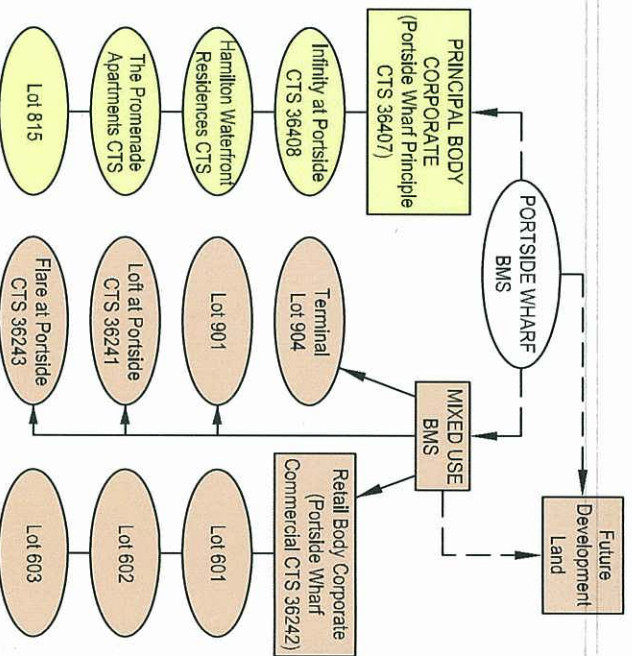
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HERCULES

STREET

portside wharf
HAMILTON



Note
Lot 601 also includes Levels 1 & 2 of Building 7.

Generally from
RL 4.55 - RL 9.55

Note
The boundaries shown on this plan should not be used for final detailed engineers design.
Easements not shown for clarity.
CP - Denotes Common Property



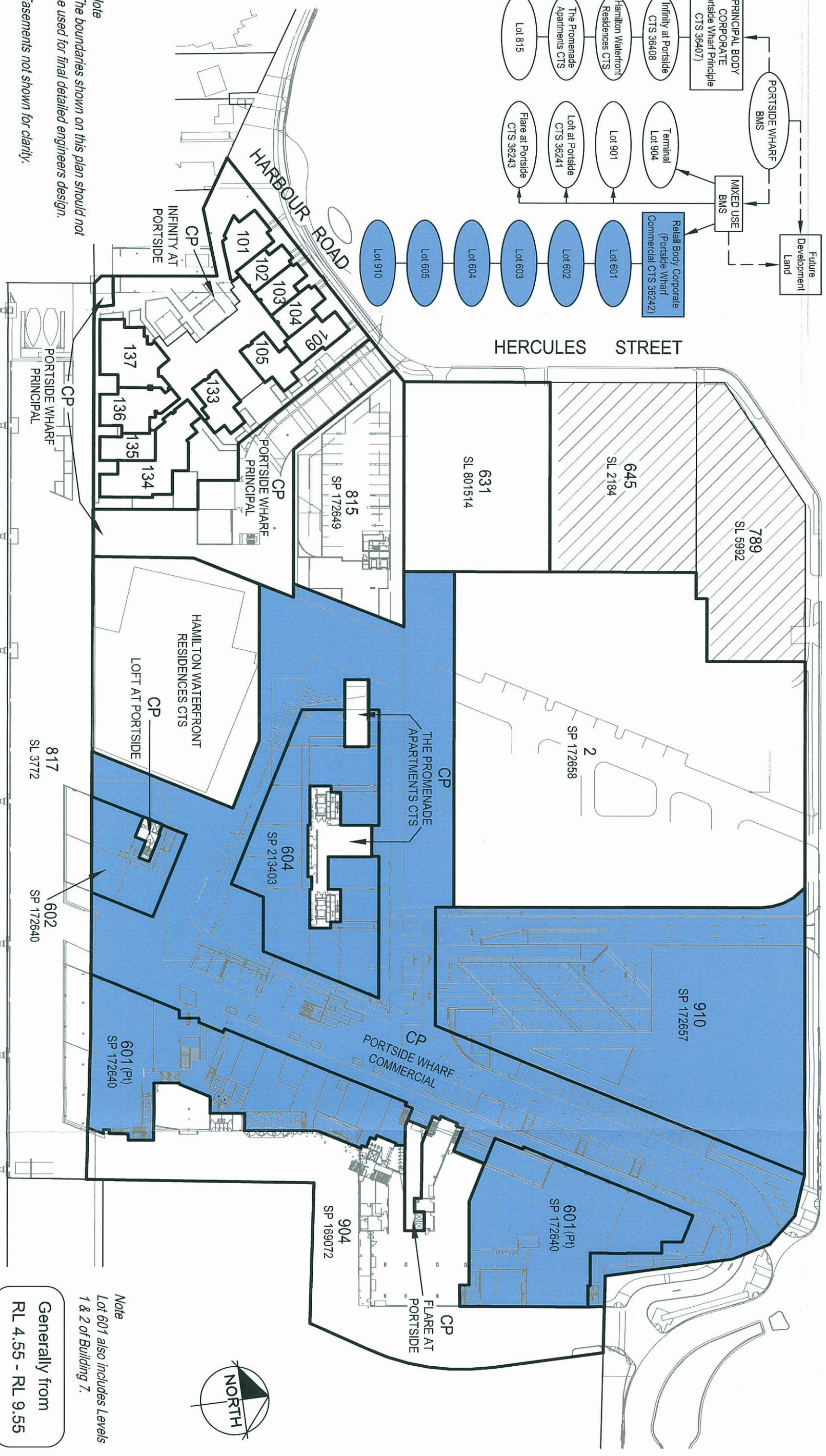
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DATE : 15 AUG 2008 DWG NAME : 6121-SP0D DWG # 6121-82/1C

SITE PLAN - LOT BOUNDARIES PODIUM PORTSIDE STAGE 2



portside wharf
HAMILTON



NOZIS

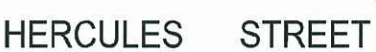
DATE: 15 AUG 2008 DWG NAME: 6121-SP0D DWG # 6121-822C

SITE PLAN - LOT BOUNDARIES	
PODIUM	PORTSIDE STAGE 2

Note
Lot 601 also includes Levels 1 & 2 of Building 7.

Generally from
RL 4.55 - RL 9.55

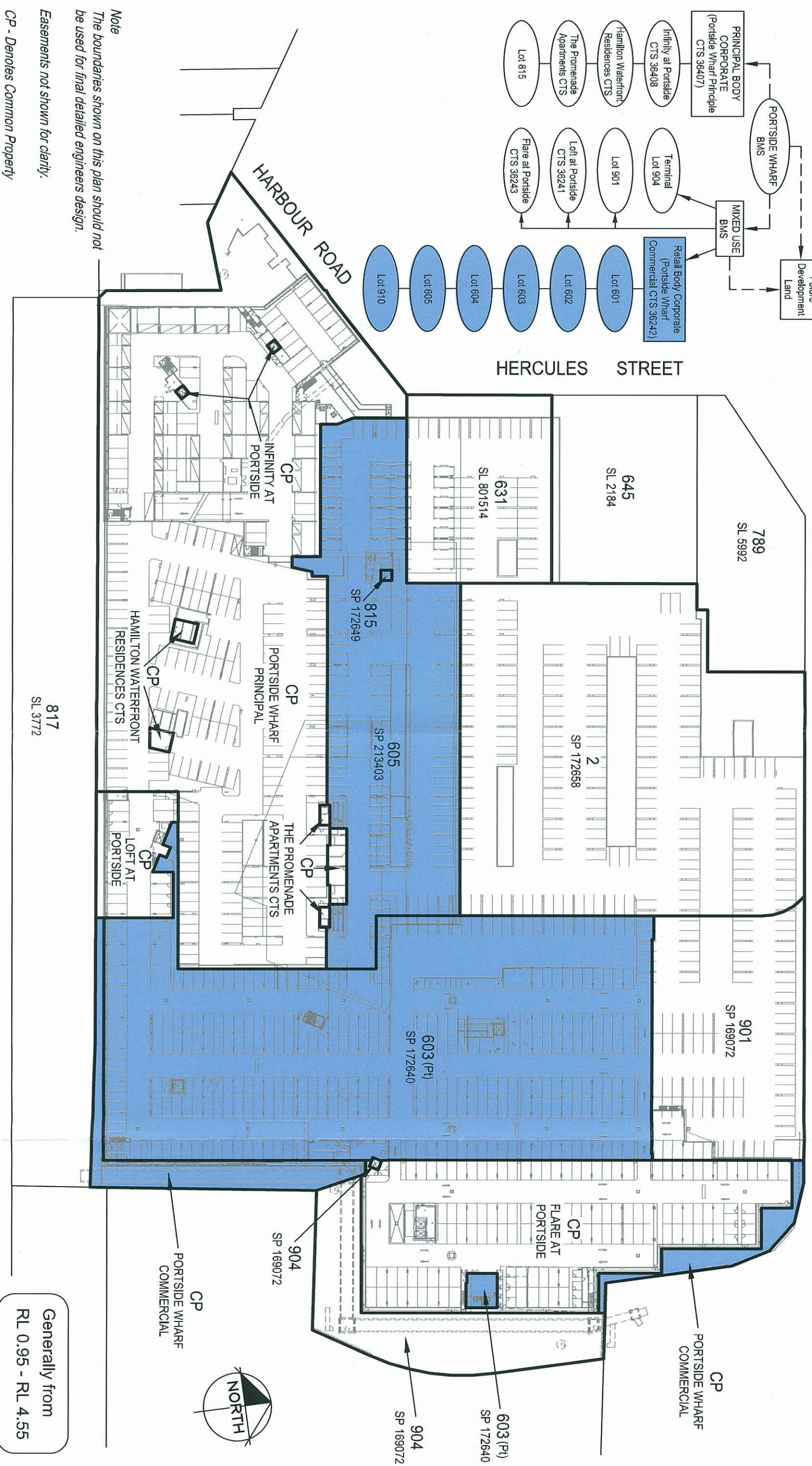




Generally from
RL 0.95 - RL 4.55

SITE PLAN - LOT BOUNDARIES	
LEVEL B1	PORTSIDE STAGE 2

DATE: 15 AUG 2008 DWG NAME: 6121-SB1 DWG # 6121-109/1C



Note
The boundaries shown on this plan should not be used for final detailed engineers design.
Easements not shown for clarity.
CP - Denotes Common Property

Generally from
RL 0.95 - RL 4.55



Scale 1 : 500 @ A1

DATE: 15 AUG 2008 DWG NAME: 6121-SB1 DWG # 6121-109/2C

SITE PLAN - LOT BOUNDARIES	
LEVEL B1	PORTSIDE STAGE 2