

Botany Industrial Park Staged 20-Lot Subdivision

Orica Australia Pty Ltd

20 December 2010

Statement of Environmental Effects

Botany Industrial Park Staged 20-Lot Subdivision



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Prepared for

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Executive Summary

Orica Australia Pty Ltd (Orica) proposes to subdivide under-utilised land within the north-east corner of the Botany Industrial Park, along Corish Circle and Denison Street. The subdivision proposal is permissible with development consent, and the Council of the City of Botany Bay is the consent authority.

The subdivision proposal includes a 20-lot staged subdivision of three existing lots (Lot 1 DP 1016112, Part Lot 10 and Part Lot 11 DP 1039919) and an existing internal private internal road (Part Lot 9 DP 1016112). As part of the subdivision, new public roads and infrastructure would be provided.

Key environmental planning issues associated with the proposed subdivision include land use safety planning (hazards and risk), management of potentially contaminated land, and traffic impacts.

A Risk Review based on the existing quantitative risk analysis for the Botany Industrial Park has confirmed that the subdivided land would be suitable for industrial land uses. However, given the risk profile of the adjacent Huntsman polythene oxide storage area, it is recommended that proposed lots 18 and 19 are not developed while the storage area is in operation. As such, proposed lots 18 and 19 would not be on-sold for future development until such time as the polythene oxide storage area is decommissioned.

A Phase 1 Site Assessment has concluded that there is potential for the site to be contaminated as a result of historical industrial operations. The most significant of this contamination, the car park waste encapsulation, is currently the subject of a project approval granted by the Minister for Planning to remediate that area of land. Beyond this area, there is potential for contamination to be presented in the vegetated mound along the Denison Street frontage of the site, and potentially in historical fill across the site. A Phase 2 Site Assessment is currently underway under the guidance of a Site Auditor accredited under the *Contaminated Land Management Act 1997*. Results of the Phase 2 assessment would be provided to Council prior to works commencing on the site.

A Traffic Impact Assessment has been undertaken, based on expected future development types for the subdivided land. This assessment demonstrates that if developed in future, the subdivided land is unlikely to have a significant impact on the local and regional road network. However, the intersection of Beauchamp Road and Denison Street, and the intersection of Denison Street, Corish Circle and Smith Street are currently constrained, with both operating at a level of service F, significant delays and at times, saturation beyond design capacity. Irrespective of whether the subdivision proceeds, the performance of these intersections will continue to be poor without upgrade works being undertaken. The Traffic Impact Assessment considers an increased 'no parking' length at Beauchamp Road/ Denison Street and signalisation of Denison Street/ Corish Circle/ Smith Street as potential solutions to address existing traffic constraints at these locations. Orica is prepared to contribute towards these works, in lieu of section 94 contributions that may otherwise be levied for traffic management measures.

Other impacts associated with the subdivision works, including soil and water management, dust generation and waste management would be mitigated and managed within acceptable environmental and amenity limits with the application of standard mitigation measures for construction works.

On balance, the proposed subdivision is considered appropriate and acceptable in an environmental planning context. The proposal will facilitate the future development of currently under-utilised industrially zoned land for employment-generating industrial and/ or port related uses.

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1.0 Background

Orica Australia Pty Ltd (Orica) proposes to subdivide land within the Botany Industrial Park, along Corish Circle and Denison Street. The proposal would subdivide three existing lots (Lot 1 DP 1016112, Part Lot 10 and Part Lot 11 DP1039919) and an existing private, internal road (Part Lot 9 DP 1016112) into 20 new lots with associated public roads and infrastructure. The ultimate aim of the subdivision proposal is to return currently under-utilised industrial land to beneficial use for employment-generating industrial development. The subdivision will be carried out on a staged basis.

1.1 The Botany Industrial Park

The Botany Industrial Park (BIP) is a large industrial complex in Matraville, in the City of Botany Bay local government area. The BIP is roughly triangular in shape, positioned between Denison Street, Matraville and the Botany rail line, and bounded to the north by Anderson Street and Corish Circle.

Industrial operations commenced on land within the BIP in 1942, with the establishment of a carbon bisulfide production facility by the Imperial Chemical Industries of Australia and New Zealand (ICI/ANZ) (part of the UK-based ICI Plc Group). Industrial operations expanded over time to manufacture a range of products, including:

- chlorine and caustic products for water treatment and swimming pools;
- polypropylene used for car bumpers and interiors;
- polyethylene for plastic film and containers;
- solvents such as perchlorethylene for dry cleaning fluids;
- polyvinyl chloride for plastic pipes and electrical insulation;
- ammonium nitrate and urea for fertilisers; and
- surfactants used in making detergents.

In July 1997, the ICI Plc Group divested its interests in ICI Australia Ltd to form an independent Australasian company. The company, Orica Ltd, was formed in February 1998. In the same year, Orica sold its surfactant operations within the BIP to the Huntsman Chemical Company of Australia Pty Ltd, and in 1999 merged its olefines businesses with ExxonMobil to form Qenos (Qenos was subsequently sold to China National Chemical Corporation (ChemChina) in 2006).

To reflect and rationalise the separate operations of Orica, Huntsman and Qenos, the Botany Industrial Park was formed and subdivided in 1999. With the exception of the replacement of Orica's chlor-alkali plant from 2002 onwards, little new industrial development has occurred within the BIP since its subdivision.

Since creation and subdivision of the BIP, Orica has been committed to addressing legacy issues associated with more than half a century of heavy industrial operations on the site, including remediation of contaminated soil and groundwater, and the safe management and disposal of chemical wastes. As part of the process, Orica has actively investigated opportunities to return appropriate industrial lands to beneficial use.

Orica has identified an opportunity to subdivide land in the north-east corner of the BIP, along Corish Circle and Denison Street, with the ultimate aim of offering the subdivided land for future industrial development.

1.2 Local Context and Surrounding Land Uses

The proposed subdivision is located in the north-eastern corner of the Botany Industrial Park, immediately adjacent to Corish Circle and Denison Street. The subdivision site abuts the easement for the South Western Sydney Ocean Outfall Sewer (SWOOS) to the south.

The nearest residential receivers to the site are located across Denison Street to the east and south-east, and in Eastlakes and Pagewood approximately 400 metres to the north-west. The Hensley Athletics Field is located on the eastern side of Corish Circle. Local sensitive receivers include the Banksmeadow Primary School approximately one kilometre to the south-west, Matraville Primary School approximately 600 metres to the south-east and Pagewood Primary School approximately 600 metres to the north-west.

Land immediately to the west of the proposed subdivision is occupied by the Botany Industrial Park.

1.3 Existing Planning Approvals

The Botany Industrial Park and the developments undertaken therein are the subject of various planning approvals granted by local and State Government authorities over time. Two planning approvals in particular are relevant to the assessment of the proposed subdivision:

- 1) a development consent (DA No 30/98) issued by the then Minister for Urban Affairs and Planning on 16 December 1998, for the subdivision of land (Lots 1 and 2 DP608153 and Lots 3 and 4 DP 206413, 16-20 Beauchamp Road, Matraville) into nine lots; and
- 2) project approval (MP 06_0197) issued by the Director-General of the Department of Planning under delegation from the Minister for Planning on 12 November 2009, for the Car Park Waste Encapsulation remediation.

1.3.1 Consent to Create and Subdivide the Botany Industrial Park

On 16 December 1998, the Minister for Urban Affairs and Planning granted development consent to the subdivision of the Botany Industrial Park (BIP) under Part 4 of the *Environmental Planning and Assessment Act 1979*. Subdivision of the BIP was assessed and determined as State Significant Development (as it then was) by virtue of a declaration made under section 76A(7) in 1998.

The development consent approved subdivision of Lots 1 and 2 DP 608153 and Lots 3 and 4 DP 206413, into nine new lots, generally to reflect land ownership between Orica, Huntsman and Qenos. The lots created under the development consent and their total areas are summarised in **Table 1** below.

Table 1 Subdivision Pattern Approved under Ministerial Consent DA No 30/98

Lots Created under DA No 30/98	Lot Area (m ²)
Lot 1 DP 1016112	60,355
Lot 2 DP 1016112	1,264
Lot 4 DP 1016112	3,724
Lot 5 DP 1016112	3,160
Lot 6 DP 1016112	2,199
Lot 7 DP 1016112	8,127
Lot 9 DP 1016112	35,659
Lot 10 DP 1039919	32,263
Lot 11 DP 1039919	22,713

The development consent, in addition to giving effect to the subdivision plan, sets up a framework for the coordination and management of cumulative impacts and shared services for developments on the subdivided land. It does this by requiring the establishment of a Special Purpose Company (SPC) (condition 2) to manage the BIP in accordance with a Constitution and Rules (condition 3), addressing a list of matters in Schedule 3 of the consent. Key among these issues is land use safety (hazards and risk management), although there are also requirements dealing cumulative noise, community consultation and shared services.

The conditions of consent also require that a covenant be applied to the BIP, and remain on the Certificate of Title of each lot created by the BIP consent, requiring that all landowners comply with the terms of the development consent.

1.3.2 Approval to Remediate the Car Park Waste Encapsulation

On 12 November 2009, the Director-General of the Department of Planning, under delegation from the Minister for Planning, granted project approval for the remediation of the car park waste encapsulation within the BIP under Part 3A of the *Environmental Planning and Assessment Act 1979*. The approval relates to Lot 4 DP 1016112, Part Lot 9 DP 1016112, Part Lot 10 DP 1016112 and Part Lot 11 DP 1039919. With the exception of Lot 4 DP 1016112, all other land the subject of the project approval would be affected by the current subdivision proposal.

At the conclusion of remediation works on the site, the land will be subject to certification by an accredited Site Auditor under the *Contaminated Land Management Act 1997* that the site is suitable for industrial land uses.

While the approval principally relates to remediation of an area of contaminated land within the BIP, it also includes a condition giving effect to a request made by Orica to transfer land between Orica Australia Pty Ltd and Qenos Pty Ltd (a boundary 'exchange'). The boundary exchange will require the consolidation and subdivision of

lots consistent with the plans of subdivision attached to the project approval. The boundary adjustment is required to be completed with 12 months of the conclusion of remediation.

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2.0 Proposed Development

2.1 Subdivision Plan

Orica Australia Pty Ltd proposes to subdivide three existing lots (Lot 1 DP 1016112, Part Lot 10 and Part Lot 11 DP1039919) and an existing private, internal road (Part Lot 9 DP 1016112) into 20 new lots and associated public roads. The subdivision plan and an overlay of the plan on an aerial photograph of the site are provided in **Appendix A**. A summary of the proposed subdivision, including lot sizes and street frontages, and reference to current lot descriptions is provided in **Table 2**.

Table 2 Proposed Subdivision Dimensions

Proposed New Lot	Proposed Lot Area (m ²)	Proposed Lot Frontage (m)	Current Lot Description	
Lot 1	5,071	43.905 (New Road 4)	Part Lot 10 DP1039919 Part Lot 11 DP1039919	
Lot 2	5,080	47.905 (New Road 4)	Lot 10 DP1039919 Part Lot 11 DP1039919	
Lot 3	1,762	25.000 (Corish Circle)	Part Lot 11 DP1039919	
Lot 4	1,582	25.500 (Corish Circle)		
Lot 5	1,582	25.500 (Corish Circle)		
Lot 6	1,582	25.500 (Corish Circle)		
Lot 7	1,582	25.500 (Corish Circle)		
Lot 8	1,582	25.500 (Corish Circle)		
Lot 9	1,740	25.425 (Corish Circle)		
Lot 10	2,400	40.550 (Corish Circle)		
Lot 11	3,435	63.345 (New Road 1)		Part Lot 11 DP1039919 Part Lot 9 DP1016112
Lot 12	2,771	43.000 (New Road 1)		
Lot 13	5,825	90.400 (New Road 1)		
Lot 14	5,639	32.265 (New Road 1)		
Lot 15	2,265	46.245 (New Road 1)	Part Lot 11 DP1039919	
Lot 16	2,265	41.200 (New Road 1)	Part Lot 11 DP1039919	
Lot 17	2,267	46.285 (New Road 1)	Part Lot 11 DP1039919	
Lot 18	5,726	103.585 (New Road 1)	Part Lot 11 DP1039919	
Lot 19	5,228	26.46 (New Road 1) 147.290 (existing entrance (Lot 9 DP1016112))	Part Lot 11 DP1039919 Lot 1 DP1016112	
Lot 20	5,802	118.080 (existing entrance (Lot 9 DP1016112))	Part Lot 11 DP1039919	
New Road 1 (southern extension of Wight Street)			Part Lot 10 DP1039919	
New Road 2 (intersecting with Corish Circle)			Part Lot 11 DP1039919	

Subject to securing development consent from Council, all new lots, with the exception of lots 18 and 19, would be made available for future industrial development. Lots 18 and 19 are excluded from development at this time based on hazards and risk considerations (refer to **Section 4.1** of this report). These lots would only be made available for development in future if hazards and risk issues are resolved.

Future development of lots the subject of the subdivision proposal would require separate planning approval in accordance with the provisions of the *Environmental Planning and Assessment Act 1979*.

2.2 Civil Works

In preparation for potential future development of the proposed lots, the subdivision proposal includes:

- clearing and levelling the site;
- bulk earthworks;
- construction of access roads;
- services reticulation through the site and as required through the adjoining BIP lands;

- installation of erosion and sedimentation control measures, drainage and stormwater management infrastructure; and
- fencing the site.

The civil works on the portion of the site that has Ministerial planning approval (the car park waste encapsulation remediation project) would be undertaken as part of those works to remediation that area of the site.

Appendix B provides a detailed civil design report and design plans for the proposed subdivision, with key aspects of the proposed civil works summarised below. The Landscape Plan in **Appendix C** indicates the extent of clearing required during bulk earthworks and infrastructure construction on the site.

2.2.1 Bulk Earthworks and Vegetation Clearing

Existing vegetation on the site will need to be cleared in order to facilitate bulk earthworks and infrastructure construction. Wherever possible, the need for vegetation clearing has been minimised, and importantly, the vegetated mound along the Denison Street frontage of the land will be retained. The Landscape Plan in **Appendix C** indicates the vegetation to be removed as part of the proposal, which in summary includes removal of:

- a grove of *Casuarina glauca* and *Eucalyptus botroides* on proposed Lot 15 (and extending into New Road 1);
- a group of *Casuarina glauca* and *Eucalyptus botroides* on proposed Lot 11;
- isolated *Casuarina glauca*, *Melia azaderach* and *Lophostemon confertus* individuals on Lot 12;
- isolated *Shinus areira*, *Callistemon sp*, *Ficus hilli* and *Acacia longifolia* individuals on proposed Lot 13;
- isolated *Lophostemon confertus* and *Melaleuca quinquenervia* on proposed Lot 14; and
- a grove of *Casuarina glauca* on proposed Lot 1.

Removal of this vegetation would be offset through the provision of site landscaping in accordance with the Landscape Plan.

Once cleared, topsoil would be stripped in stages and stockpiled for future reinstatement or disposal off-site. It is estimated that approximately 12,000 m³ of soil would need to be excavated, with approximately 11,000 m³ of this material replaced on site as engineered fill. Cut and fill required are indicated in the civil plans in **Appendix B**. Surplus spoil (estimated to be approximately 1,000 m³) would be reused on-site, or if necessary, disposed of off-site at an appropriately-licensed facility.

During bulk earthworks, current hardstand areas and limited small-scale structures would require demolition. All demolition works would be undertaken in accordance with Australian Standard AS2601-2001 *The Demolition of Structures*.

2.2.2 Site Access Roads

As part of the proposed subdivision, four new public roads are proposed to be constructed:

- New Road 1 – the principal spine road for the southern part of the proposed subdivision, running from Corish Circle south and generally parallel to Denison Street. New Road 1 would terminate in a cul-de-sac between proposed Lot 18 and Lot 14;
- New Road 2 – a perpendicular connection with New Road 1 between proposed Lot 18 and Lot 17. New Road 2 provides access to the BIP and will provide access to a Qenos car park;
- New Road 3 – a connection to the existing Qenos entry gate. The extent of public road is limited to the threshold connection to the existing Qenos entry road; and
- New Road 4 – an extension of existing Wight Street in a southerly direction, generally parallel to the north-south component of Corish Circle and Denison Street. New Road 4 may be extended in future (subject to separate planning approval) if further subdivision of the BIP to the south is proposed.

Further details of the proposed new road layout are provided in the civil drawings in **Appendix B** and the traffic impact assessment in **Appendix F**.

2.2.3 Erosion, Sedimentation, Drainage and Stormwater Management

Erosion and sedimentation controls would be implemented on-site prior to the commencement of vegetation clearing or soil disturbing works. All control measures would be consistent with the requirements of *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004). Erosion and sedimentation controls, including sedimentation basins, are shown on the civil drawings in **Appendix B**.

The stormwater drainage network to be installed on site has been designed in accordance with:

- *Australian Rainfall and Runoff* (Engineers Australia, 2000);
- *Guidelines for the Design of Stormwater Drainage Systems within the City of Botany Bay* (Council of the City of Botany Bay, 2002); and
- *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004),

The stormwater drainage system has been designed as an underground piped network with capacity to accommodate rainfall events up to and including the 20% AEP with corresponding overland flow paths within road reserves for events up to and including the 1% AEP. Details of the proposed stormwater drainage system are provided in the civil design report and civil drawings in **Appendix B**.

2.2.4 Fencing and Security

A wind and security fence will be installed between the BIP and the proposed subdivision (refer to **Appendix C**).

2.3 Interaction with Other Planning Approvals

The proposed subdivision is inconsistent with the subdivision requirements of both the development consent granted by the then Minister for Urban Affairs and Planning with respect to the creation and subdivision of the Botany Industrial Park, and with the project approval granted by the Minister for Planning's project approval with respect to the remediation of the car park waste encapsulation (refer to **Section 1.3** of this report).

Orica has held preliminary discussions with the Department of Planning in relation to options for resolving these conflicts between existing planning approvals and the proposed subdivision. The Department has indicated that it would be prepared to accept and assess appropriate modifications to the two Ministerial planning approvals should Council determine to approve the current subdivision proposal.

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3.0 Statutory Planning Considerations

3.1 Permissibility

The proposed development affects land zoned IN1 – General Industrial as part of the Three Ports Site under Part 20, Schedule 3 of *State Environmental Planning Policy (Major Development) 2005*. Development for the purpose of subdivision is permissible with development consent on all land within the Three Ports Site (clause 15, Part 20, Schedule 3).

3.2 Consent Authority

Clause 5, Part 20, Schedule 3 of *State Environmental Planning Policy (Major Development) 2005* provides that the Council of the City of Botany Bay is the consent authority for the proposed subdivision, unless the subdivision is a project under Part 3A of the *Environmental Planning and Assessment Act 1979*. The proposed subdivision has not been declared to be a project under Part 3A.

3.3 Environmental Planning Instruments

Clause 4, Part 20, Schedule 3 of *State Environmental Planning Policy (Major Development) 2005* provides that only that policy, and other State Environmental Planning Policies apply to land within the Three Port Site. Therefore, the following environmental planning instruments apply to the proposed subdivision:

- *State Environmental Planning Policy (Major Development) 2005*;
- *State Environmental Planning Policy No 33 – Hazardous and Offensive Development*; and
- *State Environmental Planning Policy No 55 – Remediation of Land*.

There are currently no draft environmental planning instruments that apply to the proposed development. Relevantly, it is highlighted that although draft *Botany Local Environmental Plan 2011* is currently under preparation by Council, it would be excluded from application to the proposed subdivision by virtue of the operation of *State Environmental Planning Policy (Major Development) 2005*.

3.3.1 State Environmental Planning Policy (Major Development) 2005

The Three Ports Site was added to Schedule 3 of *State Environmental Planning Policy (Major Development) 2005* as a State Significant Site on 24 July 2009 and aims to:

- a) to provide a wide range of industrial and warehouse land uses;
- b) to encourage employment opportunities;
- c) to minimise any adverse effect of industry on other land uses;
- d) to facilitate and encourage port related industries that will contribute to the growth and diversification of trade through the port;
- e) to enable development for the purposes of retailing or commercial offices only where it is associated with, and ancillary to, port related activities or ancillary to industrial use of the same land;
- f) to encourage ecologically sustainable development.

The proposed subdivision is consistent with these aims as it will facilitate currently under-utilised industrially-zoned land to be beneficially used for development of appropriate employment-generating developments that are consistent with the industrial and port context of the area. The subdivided land will be available for a wide range of industrial, warehousing and port-related uses (subject to securing relevant planning approvals under the *Environmental Planning and Assessment Act 1979*). As outlined in **Section 4.0** of this report, the proposed subdivision could be undertaken within acceptable environmental and amenity criteria, and as such, is not expected to have any adverse effect on industry or other land uses. The proposed subdivision is therefore consistent with the aims of the Three Ports State Significant Site listing.

3.3.2 State Environmental Planning Policy No 33 – Hazardous and Offensive Development

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development requires a consent authority to consider whether a development constitutes a 'potentially hazardous development', and if so, to require and take into account a Preliminary Hazard Analysis (PHA) prepared for the development.

While the proposed subdivision itself is not a potentially hazardous development, it involves the subdivision of land to facilitate the location of potential future developments closer to the existing industrial hazards and risks associated with operation of the Botany Industrial Park. As such, a Risk Review has been prepared (refer to **Section 4.1** and **Appendix D**) to assess the potential land use safety planning implications of development of currently undeveloped land in proximity to the Botany Industrial Park.

The Risk Review recommends that based on current risks posed by existing industrial operations, particularly the Huntsman propylene oxide storage area, development of proposed lots 18 and 19 should not be permitted at this time. Should the risk characteristics of the Botany Industrial Park change in future, it may be possible to develop these lots. In the meantime, proposed lots 18 and 19 would not be sold for new development.

Hazards posed by potential future developments on the subdivided land would be subject to separate consideration in accordance with the requirements of *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*.

3.3.3 State Environmental Planning Policy No 55 – Remediation of Land

State Environmental Planning Policy No. 55 – Remediation of Land requires a consent authority to consider land the subject of a development application is contaminated, and if it is, whether the land is suitable for its intended land use (with or without remediation).

Part of the site is currently the subject of a remediation approval (the car park waste encapsulation remediation, refer to **Section 1.3**) and will be remediated to a level commensurate with future industrial development under that approval.

A Phase 1 Site Assessment has been conducted for the site, in accordance with *Managing Contaminated Land – Planning Guidelines: SEPP 55 – Remediation of Land* (DUAP & EPA, 1998). A copy of the Phase 1 assessment is provided in **Appendix E** and considered in **Section 4.3**.

The Phase 1 assessment concludes that, in addition to the contaminated land currently being remediated within the proposed subdivision site (the car park waste encapsulation remediation), there is reasonable potential for contaminated to be present in the soil/ fill present within the landscaped areas along Denison Street and in fill used to level portions of the site. The Phase 1 assessment also considers potential contamination of the adjacent former ammonia and urea plants (not part of this subdivision application). The Phase 1 assessment recommends further intrusive investigations (Phase 2). These investigations are currently underway, the results of which will be provided to Council in due course.

3.4 Development Control Plans

The following Development Control Plans are relevant to the assessment of the proposed subdivision:

- *Subdivision Development Control Plan No. 7* (Version 2);
- *Development Control Plan No. 33 – Industrial Development* (Version 5);
- *Development Control Plan No. 34 – Contaminated Land* (Version 5); and
- *Off-Street Parking Development Control Plan*.

3.4.1 Subdivision Development Control Plan

Subdivision Development Control Plan No. 7 (Version 2) was adopted by Council on 26 May 1999 (with amendments on 22 November 2002 and 22 March 2006). The Subdivision DCP aims to:

- promote a high standard of development within the City of Botany Bay;
- ensure the creation of new allotments are compatible with the surrounding subdivision pattern;
- promote the creation of allotments which maximise the opportunity for energy efficient use of land;
- ensure that new Torrens Title residential allotments, created by subdivision, are of sufficient size and shape to accommodate development that is compatible with the quality of development Council seeks to encourage in the surrounding neighbourhood;
- ensure that Strata subdivision, whether of a new or existing building, creates Strata Residential lots and Common Property lots of a size, standard and amenity that is compatible with Council's controls, policies or requirements, current for such developments at the time of lodgement of the Strata Subdivision application;
- identify subdivision patterns and outline minimum controls for new allotments; and

- clearly define matters, which Council take into consideration when assessing and determining development applications for subdivision.

The Subdivision DCP includes documentary requirements for subdivision development applications, and development controls for subdivisions based on land use type. Consideration of each of these matters in the context of the proposed subdivision is provided in **Table 3**. Based on this consideration, the proposed subdivision is consistent with the requirements of the Subdivision DCP.

Table 3 Application Requirements and Subdivision Development Controls for Industrial Zones

Application Requirements	Consideration
A combined development application seeking consent for both subdivision and the development of buildings is required where: the size of the proposed allotments is less than 350m ² ; or it is a residential battleaxe subdivision; or it is a multiple residential allotment subdivision.	The minimum proposed lot size is 1,582 m ² (Lots 4 to 8). The proposal does not include development for either a residential battleaxe subdivision or a multiple residential lot subdivision. Therefore, a combined development application is not required.
A Subdivision Certificate Application must be filled out to apply for a Subdivision Certificate.	A Subdivision Certificate Application will be lodged with Council with the linen plan once all works are complete.
A development application for subdivision must be accompanied by details of the existing subdivision pattern and details of the proposed subdivision. A preliminary plan must be provided indicating the existing/ proposed: <ul style="list-style-type: none"> lot areas and number of lots; boundary dimensions; proposed easements, right-of-ways and/ or covenants; location of access roads and/ or driveways; frontage and location to Council controlled roads and lanes; and existing buildings and structures. 	The subdivision plan is presented in Appendix A (Plan of Subdivision) and in the detailed civil drawings in Appendix B .
Preliminary engineering drawings must be provided that indicate proposed infrastructure, including roads, driveways, water, sewerage, gas, stormwater drainage and earthworks.	Preliminary engineering drawings are provided in Appendix B .
Topography including existing and finished ground levels must be provided.	Existing and finished ground levels are indicated on the civil drawings in Appendix B .
Concept plans indicating future buildings and structures and demonstrating compliance with Council's Energy Efficiency DCP (where applicable).	Future developments on the subdivided lots have not been established at this time. The <i>Energy Efficiency Development Control Plan</i> applies only to residential and commercial development, and is therefore not relevant to the proposed industrial subdivision.
A vegetation survey and assessment plan must be provided, showing the surveyed location of all existing trees on the property, on the road verge and in adjoining properties within five metres of the property boundary, indicating height, canopy spread, species, age, healthy and safety (SULE) rating and whether the trees are proposed to be retained or removed.	The Landscape Plan in Appendix C includes a vegetation survey, including details of vegetation to be retained and removed.
Fencing details must be provided.	Fencing details are provided in the Landscape Plan in Appendix C .
A copy of the current certificate of title indicating any details of any easements, right-of-ways, covenants and restrictions must be provided.	Certificates of title relevant to the subdivision have not been included in this document given their size, but can be made available to Council if required.
A masterplan must be provided where four or more allotments are proposed, indicating all of the above	The civil design report and civil drawings in Appendix B provide these details.

Application Requirements	Consideration
as well as the road pattern and details of usable open space.	
Development Control	Consideration
The area of each Torrens Title allotment to be created must be not less than 1,500m ² net area.	The minimum proposed lot size is 1,582 m ² (Lots 4 to 8).
The frontage of each allotment to be created must be not less than 25 metres.	The minimum proposed lot frontage is 25.000 m (Lot 3).
Any lot created that fronts a public road must not be less than 20 metres in width.	The minimum proposed lot frontage is 25.000 m (Lot 3).

3.4.2 Industrial Development Control Plan

The *Development Control Plan No. 33 – Industrial Development* was adopted by Council on 26 February 2003 to provide guidance on issues associated with industrial and mixed use developments, including:

- the interface between industrial and residential land uses;
- the impact of the operations of industrial development – including noise, traffic, odour and pollution on residential development;
- the design of new industrial development;
- the appearance of older industrial development;
- building height and form; and
- the traffic and parking associated with industrial and related development as well as the type of delivery vehicles and routes of delivery vehicles.

The controls within the Industrial Development DCP principally apply to changes of use, alterations and additions, and to constructions and uses. As such, most of the development controls within the DCP are not directly relevant to the proposed industrial subdivision. However, the requirements of the DCP, as may be applied to future development on the subdivided land, have been considered in developing the proposed subdivision plan to maximise the likelihood that future industrial developments will be able to comply with the provisions of the DCP and would not be precluded from such by the subdivision plan itself. Relevantly, the following key areas of the DCP have been considered and applied to the proposed subdivision:

- the objectives of the Banksmeadow Industrial Precinct (Section 2.7 of the DCP);
- the controls for the Banksmeadow Industrial Precinct (Section 2.7 of the DCP), noting that:
 - traffic associated with the future development of the subdivision is not expected to utilise either Rhodes Street or Smith Street (Control C1), although the traffic impact assessment (refer to **Section 4.2**) recommends signalisation of the Denison Street/ Corish Circuit/ Smith Street intersection to address existing traffic capacity constraints;
 - traffic associated with the future development of the subdivision, including the transport of hazardous substances, is not expected to pass through residential areas (Control C2);
 - a vegetated buffer is proposed to be retained along the Denison Street frontage of the subdivision, with industrial development to be undertaken behind that buffer (Control C5);
 - risk issues associated with the *Botany/ Randwick Industrial Area Land Use Safety Study* (DUAP, 2001) have been considered as part of the subdivision proposal (refer to **Section 4.1**)
- the stormwater drainage and management system (Section A2 of the DCP) for the subdivision has been designed in accordance with the requirements of the Industrial Development DCP, in particular the *Guidelines for the Design of Stormwater Drainage Systems within the City of Botany Bay* (CCBB, 2002) (refer to **Section 4.5**);
- the site area and frontage (Section B2 of the DCP) of lots within the proposed subdivision comply with *Subdivision Development Control Plan No. 7*
- the subdivision layout has sufficient capacity to comply with the parking and vehicular access requirements of the DCP (Section B9 of the DCP) (refer to **Section 4.2**); and
- a Landscape Plan has been developed for the proposed subdivision that complies with the requirements of the DCP (Section C1 of the DCP) (refer to **Section 4.4**).

3.4.3 Contaminated Land Development Control Plan

The *Development Control Plan No. 34 – Contaminated Land* (Version 5) was adopted by Council on 26 February 2003 to provide the framework for the integration of land contamination management into the planning and development process. The Contaminated Land DCP aims to:

- ensure that changes of land use will not increase the risk to health or the environment;
- avoid inappropriate restrictions on land use; and
- provide information to support decision making and to inform the community.

The Contaminated Land Development Control Plan details documentary requirements to be lodged with zoning and rezoning proposals, and development and subdivision applications with respect to contaminated land. The Development Control Plan is particularly focused on issues of health and environmental risk associated with the change of use of contaminated land.

While the proposed subdivision will not involve a change of land use (the land will remain industrially-zoned), there is a reasonable likelihood that parts of the site are contaminated given the historical use of the site for industrial development. As such, a Phase 1 Site Assessment has been conducted (refer to **Section 4.3**) to assess the potential nature and extent of contamination on the site. The Phase 1 Site Assessment recommends further investigation (Phase 2 Site Assessment) given the potential for contaminated soil to exist in the landscaped area of the site adjacent to Denison Street and in historical fill on the site. A Phase 2 Site Assessment is currently being undertaken under the guidance of an Accredited Site Auditor and will be provided to Council in due course. It is accepted that Council may, therefore, require, as a condition of consent, that the results of the Phase 2 investigations be submitted prior to the commencement of works on the site.

3.4.4 Off-Street Parking Development Control Plan

The *Off-street Parking Development Control Plan* was adopted by Council on 22 September 1993 and aims to:

- ensure the provisions of adequate off-street parking for users of a proposed activity and/ or development;
- relieve on-street parking problems where they exist and ensure traffic safety;
- improve the environmental amenity of those areas which are affected by adversely by parking and traffic conflicts;
- ensure that vehicular movement into and out of developments and circulation within those developments are carried out in a safe and efficient manner;
- ensure that parking areas and loading facilities are of an acceptable appearance and construction standard;
- ensure that any development or use is commensurate with the amount of carparking provided or proposed; and
- provide a framework for section 94 contributions in lieu of parking.

For industrial land uses, the *Off-street Parking Development Control Plan* requires the provision of one car space for every 80m² of manufacturing or storage space (whether or not included within a building) and one space for every 40m² of gross floor area (GFA) of office space.

While it is not possible to conclusively determine carparking requirements of potential future development on the site, given that specific developments have yet to be identified or proposed, the Traffic Impact Assessment presented in **Appendix F** has estimated the carparking requirements as follows:

- approximately 29,889.5 m² of manufacturing/ storage – 374 car spaces; and
- approximately 5,977.9 m² of associated office GFA – 149 spaces.

The proposed subdivision plan and civil drawings indicate that there is likely to be sufficient space within the subdivision to accommodate these carparking requirements. Further, more detailed assessment of carparking requirements would be undertaken for each future application for development of the subdivided land.

3.5 Section 94 Contributions

The *City of Botany Bay Section 94 Contributions Plan 2005-2010* details the section 94 contributions to be levied on development proposals in the Botany Bay local government area for the provision of public infrastructure and services. The Contributions Plan includes provisions for:

- community facilities and services, such as library services, childcare facilities, community centres/ halls, youth facilities and older persons' facilities;
- recreation and open space facilities and services;
- transport management facilities;
- drainage facilities; and
- administration of the Contributions Plan.

The proposed subdivision does not raise any additional need for community facilities and services, or recreation and open space facilities and services, and on this basis, it is argued that contributions in these areas should not be levied for the public improvements. It is recognised, however, that future developments on the subdivided land may need to make appropriate contributions in these areas.

Similarly, contributions towards administration of the Contributions Plan are based on resident and worker numbers. As the proposed subdivision does not include any resident or worker populations, this contribution is not considered relevant at this stage. Appropriate contributions will, however, need to be considered for future development proposals on the subdivided land once worker numbers are more clearly known.

The drainage facilities provisions of the Contributions Plan only apply to the Mascot West and Botany East areas, and are therefore not relevant to the proposed subdivision. It is noted, however, that the proposed subdivision includes installation of drainage infrastructure in accordance with relevant design requirements.

With respect to transport management facilities, the Contributions Plan provides for a levy of \$3.35 per square metre of site area within the Banksmeadow North Industrial Area (within which the subdivision is proposed). Based on the total area of new development lots within the proposed subdivision (65,185m²) (refer to **Table 2**), the potential contribution towards transport management facilities would be \$218,373.10. However, given that the proposed subdivision includes provision of new public road infrastructure, and Orica is prepared to contribute to the signalisation of the Denison Street/ Corish Circuit/ Smith Street intersection, it is argued that Council should use its discretion under section 2.13 of the Contributions Plan to accept these alternative works and contributions as works-in-kind (in place of the section 94 contributions). It doing so, it is also argued that the material public benefit of these works-in-kind would not create an unacceptable shortfall in contributions towards public infrastructure and services.

3.6 Other Approvals

In addition to development consent, the following additional approvals will be required:

- consent under section 138 of the *Roads Act 1993* to undertake works within the road reserve;
- approval under section 68 of the *Local Government Act 1993* to carry out stormwater drainage works.

These approvals will be sought and obtained prior to the relevant works commencing on the site.

4.0 Potential Environmental Impacts

4.1 Hazards and Risk

Under the 1998 Ministerial development consent for the creation and subdivision of the Botany Industrial Park, a cumulative quantitative risk analysis is required to be undertaken and updated every three years. The most recent update of the quantitative risk analysis for the BIP was completed in 2009, the result of which are considered current and applicable to assessment of the proposed subdivision. Sherpa Consulting has prepared a Risk Review for the proposed subdivision based on the quantitative risk analysis (refer to **Appendix D**).

4.1.1 Existing Environment

The closest potentially hazardous operations to the proposed subdivision are:

- the Huntsman polythene oxide storage (O1F1), located between proposed lots 18 and 19. Maximum storage at this location is 50 tonnes, less than 15 metres from the nearest boundary with the proposed subdivision;
- the Qenos Olefines ethylene sphere (F359), located to the west of proposed lot 19. Maximum storage at this location is 635 tonnes, less than 50 metres from the nearest boundary with the proposed subdivision; and
- the Qenos Olefines propane/ propylene storages (F266A/ B and F366A/ B/ C), to the west of the proposed subdivision. Maximum storage at this location is 133 tonnes per vessel, at a distance of more than 185 metres from the nearest boundary with the subdivision.

Given that the proposed subdivision will be for industrial land uses, the relevant land use safety planning criteria are:

- a fatality risk less than 50×10^{-6} per year;
- a risk of an incident heat flux of 23 kWm^{-2} of less than 50×10^{-6} per year; and
- a risk of explosion overpressure of 14 kPa of less than 50×10^{-6} per year.

4.1.2 Potential Impacts

Results of the Risk Review indicate that with respect to individual fatality risk:

- the fatality risk criterion of 50×10^{-6} per year is not exceeded at any location within the subdivision;
- immediately north and south of the Huntsman polythene oxide storage, risk levels slightly exceed 10×10^{-6} per year;
- in approximately the southern third of the proposed subdivision, risk levels exceed 5×10^{-6} per year; and
- in approximately the southern half of the proposed subdivision, risk levels exceed 1×10^{-6} per year.

Risk criteria for incident heat flux and explosion overpressure are complied with at all locations within the proposed subdivision.

On this basis, it is concluded that the proposed subdivision is not incompatible with industrial land uses (but would be inappropriate for commercial or residential development). Notwithstanding, the Preliminary Risk Analysis highlights an expected underestimation of risk in the quantitative risk analysis as a result of not including loading and unloading operations at the Huntsman polythene oxide storage. Were these activities to be accounted for, it is likely that the 50×10^{-6} per year fatality risk contour would encroach onto proposed lots 18 and 19. On this basis, the Preliminary Risk Analysis recommends that development of lots 18 and 19 not be permitted while the polythene oxide storage (O1F1) continues to operate.

4.1.3 Mitigation Measures

To mitigate against the identified conflict between the operation of the Huntsman polythene oxide storage (O1F1) and the proposed subdivision, development of proposed lots 18 and 19 would not be contemplated unless and until:

- the polythene oxide storage ceases to operate; or
- an updated quantitative risk analysis for the BIP, including all potentially hazardous activities associated with the polythene oxide storage demonstrate that the 50×10^{-6} per year fatality risk contour does not encroach into the proposed subdivision.

4.2 Traffic and Transport

TRAFFIX Traffic and Transport Planners undertook a Traffic Impact Assessment for the proposed subdivision, which is provided in **Appendix F** and summarised below.

4.2.1 Existing Environment

The site is conveniently located with respect to the arterial road systems serving the region. Traffic is effectively distributed onto the wider road network, minimising traffic impacts. Truck movements as a result of the proposed works would be confined to the arterial road network and Corish Circle, which serves other industrial facilities and Hensley Athletic Field.

The following roads are of particular interest to the proposed works:

- **Wentworth Avenue** – an RTA State Road (MR 344) that generally runs in an east-west direction between Bunnerong Road and Botany Road. It carries in the order of 31,000 vehicles per day (vpd) to the west of the site, with a reduced AADT of approximately 20,000 vpd to the east of Denison Street. Wentworth Avenue is constructed with a 23-metre divided carriageway and is subject to a 70km/hr speed zoning in the vicinity of Denison Street. It forms a signalised intersection with Denison Street and a Westfield Shopping Centre exit driveway, to the north of the site. Left Turn on Red movements are permitted for vehicles turning west from Denison Street at this intersection. An 80-metre right turn storage lane is provided on the western approach for vehicles turning south from Wentworth Avenue into Denison Street.
- **Bunnerong Road** – a Classified Road (MR 661) that runs in a north-south direction, to the east of the site. It carries in the order of 22,000 vpd.
- **Denison Street** – a Classified Road, that together with the southern section of Beauchamp Road forms part of MR 616. Access to the site is provided via Denison Street. Denison Street is constructed with a 12.8-metre undivided carriageway and generally carries two lanes of traffic in each direction, including kerbside parking. It forms the stem of a signal controlled 'T-junction' with Beauchamp Road, to the south of the site. Dual right turn lanes in addition to a left turn slip lane are provided on the northern approach to this intersection from Denison Street.
- **Beauchamp Road** – generally runs in an east-west direction between Malabar Road and Foreshore Drive. To the west of Denison Street it forms part of route MR 616 and to the east it forms part of the regional road network (RR 7340). Beauchamp Road is constructed with a 12.8-metre undivided carriageway and is subject to a 60km/hr speed zoning. It forms a signalised T-junction with Denison Street, as stated above. The western approach of Beauchamp Road to this intersection includes a 95-metre left turn lane plus a through lane.
- **Corish Circle** – a local road that runs between Wentworth Avenue and Denison Street. It provides access to a number of surrounding industrial premises and the Hensley Athletic Field facility. Further to the west, Wentworth Avenue forms a signalised intersection with Banks Avenue and Corish Circle. A 90-metre right turn storage lane is provided on the eastern approach to this intersection for vehicles turning north into Banks Avenue. Access to Corish Circle is limited to a left turn slip lane from the eastern approach of Wentworth Avenue due to the provision of a traffic island opposite Banks Avenue. A signalised left turn slip lane to Wentworth Avenue is the only form of egress from Corish Circle.
- **Wight Street** – a local road that extends southward from Moore Street, at the northwest corner of the site. Currently it provides access to a limited number of industrial unit complexes.

4.2.1.1 Public Transport

The site has moderate access to the public transport system via buses on Wentworth Avenue, Beauchamp Road and Bunnerong Road. Accessibility to these services varies for individual lots due to the increased walking distances required for lots to the south of the overall subdivision area.

A review of the 2006 Journey-to-Work data (TDC, 2006) for travel to the site indicates that public transport accounts for up to eight percent of journey-to-work travel in the locality, with a high level of 'car driver' travel. It is considered that these routes, particularly along Wentworth Avenue, would mainly be used to a limited degree by staff and visitors.

4.2.1.2 Existing Site Generation

The site is currently under-utilised and generally remains as open space or is used for car parking purposes for various other facilities within the overall Botany Industrial Park (BIP). It is expected that much of this car parking

and inherent traffic generation associated with it would be displaced to other BIP lands post development of the site. Therefore, a 'credit' for this traffic is not considered applicable in these circumstances and it is assumed that any existing traffic associated with this particular site would be minimal.

As such, for the purposes of this assessment, nil existing traffic generation has been assumed for the site. In this regard, the future impacts associated with the subdivision and later redevelopment of the site discussed in **Section 4.2.2** should be regarded as a 'worst case' scenario.

4.2.1.3 Existing Intersection Performances

Surveys were undertaken at the following key intersections during both morning (7-9am) and afternoon (4-6pm) on Thursday 16 September 2010:

- Beauchamp Road/Denison Street;
- Denison Street/Corish Circle/Smith Street;
- Wentworth Avenue/Denison Street/Westfield Shopping Centre Exit Driveway; and
- Wentworth Avenue/Corish Circle/Banks Avenue.

The results of these surveys were analysed using the SIDRA computer program to determine their performance characteristics under existing traffic conditions (refer to **Appendix F**). A summary of the modelled results is provided in **Table 4**.

Table 4 Existing Intersection Performance during Morning and Afternoon Peak Periods

Intersection	Control Type	Period	Degree of Saturation	Intersection Delay (s)	Level of Service
Beauchamp Rd/Denison St	Signals	AM	1.405	99.2	F
		PM	1.026	29.5	C
Denison St/Corish Cir/Smith St	Priority – stop	AM	1.077	212.6	F
		PM	0.508	46.8	D
Wentworth Ave/Denison St/Westfield Exit	Signals	AM	0.805	27.8	B
		PM	0.848	30.5	C
Wentworth Avenue/Corish Cir/Banks Ave	Signals	AM	0.761	27.3	B
		PM	0.826	30.1	C

4.2.2 Potential Impacts

4.2.2.1 Parking Requirements

As noted in **Section 3.4.4** of this report, the proposed subdivision would have sufficient capacity to accommodate expected car parking requirements consistent with the *Off-Street Car Parking Development Control Plan*.

4.2.2.2 Trip Generation and Distribution

Consistent with the *Guide to Traffic Generating Developments* (RTA, 2002) trip generation rates for the site (industrial warehousing land use) have been taken to be 0.5 trips per 100 m² of gross floor area (GFA) during peak hours and four trips per 100 m² of GFA per day.

In determining these trip generation rates, the RTA guideline assumes up to 20% of the overall development floor area is used for ancillary office uses. Future development of the site is likely to yield a developable area of some 60% of the available lot size, including 10% for office related purposes. This results in an effective mix of 20% office GFA and 80% warehouse GFA for each lot, which is consistent with the factors discussed in the RTA guideline for industrial uses. Therefore, the above rates are considered suitable for assessment of the traffic generation associated with the proposed development. Application of the above rates, to the total indicative yield of 35,867.4m² GFA, results in 179 peak hour vehicle trips or 1,435 movements per day.

It is expected that approximately 45% of the daily traffic would be associated with truck arrivals and departures. Truck movements during typical on-street peak periods are expected to be reduced and in the order of 10% of total peak hourly movements.

For the purpose of the traffic impact assessment, it has been assumed that traffic volumes during the morning peak period include 161 passenger vehicles per hour (145 in and 16 out), and 18 heavy vehicles per hour (nine in

and nine out). It is expected that the distribution of travel to the site would generally be consistent with that of the surrounding industrial land uses, which, based on the 2006 Journey-to-Work data (TDC, 2006) is:

- 24% to the north;
- 0% to the south;
- 15% to the east; and
- 61% to the west.

It should be noted that traffic generated by proposed Lots 1 and 2 (estimated to be approximately 30 vehicles per hour in total), would utilise the proposed extension of Wight Street and would therefore be separate from traffic associated with the remainder of the subdivided land. Furthermore, it is expected that the majority of both north- and west-bound staff movements from proposed Lots 3-10 would occur via Wentworth Avenue. Heavy vehicle trips have been distributed in a similar proportion to that demonstrated at the extremities of the study area which demonstrated the following distribution of heavy vehicles:

- Wentworth Avenue (west) - 42.5%;
- Wentworth Avenue (east) - 7.5%;
- Beauchamp Road (west) - 45.0%; and
- Beauchamp Road (east) - 5.0%.

4.2.2.3 Peak Period Intersection Performance

The performance of surrounding key intersections with the additional traffic associated with the proposed subdivision is summarised in **Table 5**. Given the current poor level of service at the Beauchamp Road/ Denison Street intersection and at the Denison Street/ Corish Circuit/ Smith Street intersection (currently a priority stop control), the traffic assessment has assumed the following traffic control upgrades as possible means of alleviating existing traffic constraints:

- signalisation of the Denison Street/ Corish Circuit/ Smith Street intersection; and
- increased no parking length at the Beauchamp Road/ Denison Street intersection.

Table 5 Intersection Performance with Additional Subdivision Traffic during Morning and Afternoon Peak Periods

Intersection Description	Control Type	Period	Degree of Saturation	Intersection Delay (s)	Level of Service
Beauchamp Rd/Denison St	Signals	AM	1.407	96.8	F
		PM	1.045	32.1	C
Beauchamp Rd/Denison St (increased No Parking Length)	Signals	AM	0.776	29.8	C
		PM	0.829	24.1	B
Denison St/ Corish Cir/Smith St	Signals	AM	0.833	21.9	B
		PM	0.811	18.7	B
Wentworth Avenue/Denison St/Westfield Exit	Signals	AM	0.851	30.0	C
		PM	0.858	30.4	C
Wentworth Ave/Corish Cir/Banks Ave	Signals	AM	0.775	27.4	B
		PM	0.832	30.5	C

It can be seen from **Table 5** that all intersections would operate effectively post-development. Average delays at Beauchamp Road/ Denison Street would actually reduce due to the increased number of vehicles undertaking movements with comparatively lower delays than for the most critical movements. Increased no parking restrictions on the eastern approach of Beauchamp Road would significantly improve the performance of this intersection both under existing and future scenarios.

The implementation of signals at the Denison Street/ Corish Circuit/ Smith Street intersection and increased no parking length at the Beauchamp Road/ Denison Street intersection are necessary to address existing traffic constraints, and are not necessary solely as a result of the proposed subdivision. In particular, traffic signals at the Denison Street/ Corish Circuit/ Smith Street intersection would significantly improve the performance of this intersection. Furthermore, signalisation of this intersection is expected to improve safety for both vehicular and pedestrian traffic in the area which is considered important given the proximity of both the Westfield Eastgardens and Hensley Athletic Field. The delivery of the new signals would need to be coordinated with the RTA and costs

for the new signals would need to be shared amongst benefitting landowners, commensurate with the relative contribution of additional traffic generated by the benefitting developments.

4.2.2.4 Access Arrangements

Access to the majority of the proposed lots would be via a proposed new public road (cul-de-sac) from Corish Circle. This road is to be constructed with a 13-metre carriageway within a 20-metre road reserve which is considered appropriate for an industrial road. It is to extend southwards from the existing site access with Corish Circle and terminate with a turning head to the north of the existing Qenos entry gatehouse and weighbridge. A security controlled access to the Qenos Gate 4 is proposed from the southern end of the cul-de-sac via a public road to ensure that access for Qenos vehicles is maintained in a two-way direction.

Access to the northernmost lots would be provided directly to Corish Circle with the two northwestern lots accessed via a proposed extension of Wight Street.

Reference should be made to the swept paths included in **Appendix F** which demonstrate access by both 12.5-metre rigid and 19-metre articulated vehicles. Minor kerb line adjustments would also be required at the intersection of Denison Street, Corish Circle and Smith Street to readily facilitate left turn movements by these vehicles. Denison Street, Wentworth Avenue and Beauchamp Road are already approved 26-metre B-Double routes. However, approval from the RTA and Council is required to permit the use of B-Doubles on Corish Circle and the new public road to access the new subdivision lots. Access for B-Doubles is proposed as part of the current subdivision application.

It is noted that access by vehicles of this size would require management and may be limited to accessing the site via the northbound leg of Denison Street at Corish Circle and Smith Street due to limited width available to adequately undertake left-turn movements without encroaching into the opposing travel lanes at surrounding intersections, which may be obstructed by queuing vehicles waiting at the proposed signals. Similarly, exit movements from the site would be expected to travel south along Denison Street to access the wider road network due to the acute angle in the alignment of Corish Circle and Denison Street. Nevertheless, the detailed design of this intersection would be subject to further assessment, once in principle approval for a B-double route has been provided and this is a matter that can be conditioned.

4.2.3 Conclusion

The Traffic Impact Assessment presented in **Appendix F** concludes that the proposed subdivision is supportable on traffic planning grounds and the traffic impacts can be readily accommodated. This conclusion is based on:

- the site is located in close proximity to the arterial road network and Port Botany which is considered beneficial for an industrial development;
- future redevelopment of the site for industrial purposes is expected to result in an additional 179 vehicle movements per hour during peak periods;
- traffic can be readily accommodated by the surrounding road network, noting that traffic signals are to be provided at the intersection of Denison Street with Corish Circle and Smith Street. The cost of these signals should be shared with other adjoining benefitting land owners. This should be coordinated through the RTA;
- car parking for individual lots would be established during subsequent development applications. However, each lot is of a sufficient size that it is expected that all parking demands can be accommodated on-site;
- the proposed internal road carriageways provide sufficient width and would also provide additional on-street parking for the area; and
- access to the remainder of the Botany Industrial Park, particularly Qenos/Huntsman lands, is maintained via secure accesses from the proposed new public roads.

4.3 Contaminated Land

Golder Associates Pty Ltd has undertaken a Phase 1 Environmental Site Assessment of the land proposed to be subdivided (refer to **Appendix E**), the results of which are summarised below. It should be noted that the Phase 1 Environmental Site Assessment considers the land proposed to be subdivided as well as the former ammonia/urea polypropylene plant site (not part of the proposed subdivision).

4.3.1 Existing Environment

A detailed review of existing documents and assessments relating to potential contamination of the proposed subdivision site indicates a reasonable likelihood of contamination being present, as summarised in **Table 6**.

Table 6 Potential Contamination within the Proposed Subdivision

Area of Concern	Proposed Lots Affected	Historical Activity	Chemicals of Potential Concern
Land west of the Car Park Waste Encapsulation	Lot 1 Lot 2 New Road 1	Former Nightingale Chemicals operations	pH (alkali)
		Former fuel pipelines (Port Botany to former fuel depot to the west)	Total petroleum hydrocarbons (TPH), monoaromatic hydrocarbons (MAHs)
Car Park Waste Encapsulation	Part Lot 1 Part Lot 2 Lot 3 Lot 4 Lot 5 Lot 6 Lot 7 Lot 8 Lot 9	Encapsulation of contaminated soil	Semi-volatile chlorinated hydrocarbons (CHCs), volatile CHCs
		Former Nightingale Chemicals operations	pH (alkali)
		Former fuel pipelines (Port Botany to former fuel depot to the west)	Total petroleum hydrocarbons (TPH), monoaromatic hydrocarbons (MAHs)
Former ammonia/ urea polypropylene plants	Not subject to the current subdivision application	Former ammonia and urea plants	Ammonia, nitrate, nitrite, arsenic, copper, cobalt, molybdenum, zinc, nickel, chromium (metals), total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylenes (BTEX)
		Former use of urea plant for treatment of chlorinated wastes (not on-site)	Volatile and semi-volatile chlorinated hydrocarbons (CHCs)
		Former polypropylene plant	Volatile and semi-volatile chlorinated hydrocarbons (CHCs), benzene, toluene, ethylbenzene and xylenes (BTEX)
		Transfield lay-down area	Total petroleum hydrocarbons (TPH)/ greases, arsenic, copper, cobalt, molybdenum, zinc, nickel, chromium (metals)
Former laboratory	Lot 20	Laboratory, including pilot-scale testing of chlorinated materials	Volatile and semi-volatile chlorinated hydrocarbons (CHCs)
Landscaping area adjacent to Denison Street	Part Lot 11 Part Lot 12 Part Lot 13 Part Lot 14	Potential disposal of chlorinated waste materials, potentially including hexachlorobenzene	Volatile and semi-volatile chlorinated hydrocarbons (CHCs), arsenic, copper, cobalt, molybdenum, zinc, nickel, chromium (metals), polyaromatic hydrocarbons (PAHs)
Majority of site		Extraction of sand and/ or sand levelling/ filling (extent unknown, potentially containing ash)	Volatile and semi-volatile chlorinated hydrocarbons (CHCs), arsenic, copper, cobalt, molybdenum, zinc, nickel, chromium (metals), polyaromatic hydrocarbons (PAHs)

4.3.2 Potential Impacts

The most significant concern with respect to potential contamination of soil on the site relates to the car park waste encapsulation area (proposed lots 1 to 9). However, this land is currently the subject of an approved remediation project (refer to **Section 1.3.2**) and would be remediated and validated to a standard appropriate for industrial development as part of that project.

The Phase 1 Environmental Site Assessment highlights a general lack of data in relation to potential contamination in other areas of the proposed subdivision. In this regard, the greatest areas of risk are considered to be fill materials that may have been previously used on site to create the vegetated mound along Denison Street and generally as fill across the site. Phase 2 investigations have therefore been recommended in these areas are currently underway. The findings of the Phase 2 investigations will be provided to Council in due to contribute to the assessment of the proposed subdivision.

It is highlighted that the vegetated mound along Denison Street is not proposed to be disturbed as part of the bulk earthworks for the proposed subdivision, or as part of any potential future development of the land. As such, should contamination be identified in this area, it is unlikely to represent a significant issue for future industrial development of the site.

With the exception of hexachlorobenzene waste, the contaminants potentially located in fill materials across the site are likely to be readily manageable. Should such contaminated materials be identified, they would be characterised in accordance with the *Waste Guidelines* (DECC, 2008) and disposed of to an appropriately-licensed off-site waste management facility. As a consequence, there may be need to import clean fill material to offset any removal of contaminated soil from the site (as part of the proposed site levelling).

4.3.3 Mitigation Measures

A Phase 2 Environmental Site Assessment is currently being undertaken under the guidance of an Accredited Site Auditor. The results of these investigations will be provided to Council before any works commencing on the site. Based on the findings of that assessment, measures would be developed to address any identified contaminated areas.

4.4 Ecology and Landscaping

Jocelyn Ramsay & Associates Pty Ltd has prepared a Landscape Plan for the proposed subdivision, which identifies vegetation to be removed as part of the subdivision development and which presents the proposed landscaping outcomes for the subdivided land (refer to **Appendix C**).

4.4.1 Existing Environment

The land to which the subdivision application applies is generally highly disturbed as a consequence of historical industrial development on the site. While vegetation exists on the site, it is likely to have been planted as a landscaped buffer along the Denison Street frontage.

The site can be characterised by two distinct landscape elements:

- a well-established landscape mounded area on the Denison Street frontage which provides important visual separation between the industrial development and the adjoining residential areas; and
- the flat industrial land adjoining the Orica facilities, with an existing internal road system and carparking. There are some individual specimens of trees, including non-locally endemic native species such as *Ficus hillii*, *Melia azaderach* and *Lophostemon confertus*, as well as introduced species such as *Schinus areira*.

The layout of the proposed subdivision seeks to retain and protect the well established mounded area on the Denison Street perimeter. The mounded area is approximately 20 – 25 years old and it is evident that was deliberately mounded and planted as a buffer at that time. Some of the plant species are now exhibiting signs of senescence, with dead plant material through-out. There is little evidence of natural regeneration occurring as *Pittosporum undulatum* is dominant in the middle storey. Upper storey vegetation consists of *Eucalyptus botryoides* and *Angophora costata*. There is very little groundcover, herbaceous layer present. Rabbits use the area as habitat.

Vegetation on the site is not considered to represent significant ecological value.

4.4.2 Potential Impacts

The proposed subdivision will necessitate the removal of the individual specimens beyond the mounded vegetative buffer within the flat industrial land, plus a small area of the buffer at the current waste pad area at the northern entry off Corish Circle. The current driveway and car parking arrangements will be removed to allow for the construction of the new roadway to rationalise vehicular access through the site.

Vegetation to be move as part of the proposal is as follows:

- a grove of *Casuarina glauca* and *Eucalyptus botroides* on proposed Lot 15 (and extending into New Road 1);
- a group of *Casuarina glauca* and *Eucalyptus botroides* on proposed Lot 11;
- isolated *Casuarina glauca*, *Melia azaderach* and *Lophostemon confertus* individuals on Lot 12;
- isolated *Shinus areira*, *Callistemon sp*, *Ficus hilli* and *Acacia longifolia* individuals on proposed Lot 13;
- isolated *Lophostemon confertus* and *Melaleuca quinquenervia* on proposed Lot 14; and
- a grove of *Casuarina glauca* on proposed Lot 1.

Other plantings will be removed on the northern portion of the site as part of the carpark waste encapsulation remediation project (approved separately, refer to **Section 1.3**).

4.4.3 Mitigation Measures

Existing planting along the mounded area adjacent to Denison Street will be protected from future clearing through the imposition of a restriction on title.

Street tree planting is proposed for the internal road system. Species proposed are *Corymbia maculata* (Spotted Gum), *Elaeocarpus reticulatus* (Blueberry Ash) and *Banksia integrifolia* (Coast Honeysuckle). The *Corymbia* are to be planted at 10-metre centres, and the *Elaeocarpus* and *Banksia* at eight-metre centres. All nature strips are to be turfed with couch turf.

In addition, the western boundary of the site is to be fenced off from the adjoining Orica and a three-metre wide planting strip is proposed inside the fence to provide visual separation between the proposed subdivision land and the industrial facilities beyond. The species selected for this area are locally occurring natives. They will require additional protection from rabbits at planting time and during the establishment phase.

To enable successful establishment of planting and turfing areas, soil amelioration measures will incorporate additional organic matter and the water holding capacity of the soil will be improved with the addition of proprietary water crystal product.

4.5 Soils and Water

Cardno (NSW/ACT) Pty Ltd has prepared a Civil Design Report for the proposed subdivision, which includes details of proposed erosion and sedimentation control measures, and proposes stormwater drainage infrastructure for the site (refer to **Appendix B**).

4.5.1 Existing Environment

The closest waterbodies to the proposed subdivision are a drainage line approximately 637 metres to the west, and Botany Bay approximately two kilometres south-west of the site. The site drains west through a pit and pipe network traversing the Botany Industrial Park, which ultimately connects to the Springvale Drain.

The site catchments generally follow the existing site topography and also drain towards the west. The proposed drainage systems would be connected to the existing systems within the Botany Industrial Park (BIP), or else a new system would be provided through the BIP site with appropriate easements.

Redundant underground water and sewer services are present on site, due to the previous industrial site usage. These services would be removed as part of the proposed works.

4.5.2 Potential Impacts

4.5.2.1 Erosion and Sedimentation

Bulk earthworks, roadworks and service installations would result in the movement and exposure of soil and construction material, and subsequently increase the potential for erosion and mobilisation of soil by wind and water action. This may increase turbidity and suspended sediment loads, and otherwise reduce water quality of

drainage areas. Sediment-laden water also has the ability to block stormwater drainage structures and result in localised flooding.

4.5.2.2 Flooding

The site is sufficiently distant from the Springvale Drain that it is not affected by flooding from that system.

The proposed piped stormwater system has been sized to accept a 1 in 20 year ARI, six-minute post-development flow from the post-development lots. The underground stormwater drainage system would collect stormwater flows from the roads and proposed allotments for events up to and including the 20% AEP with corresponding overland flow paths within road reserves for events up to and including the 1% AEP. Depth x velocity, maximum flow depths and freeboard requirements would be assessed on a hazard/ risk basis and would conform to Council requirements.

An existing low point within Corish Circle, adjacent to the northern boundary of the proposed subdivision is subject to localised ponding during major storm events. In the case of a flood event during construction, the works area could potentially be inundated, causing contaminants such as hydrocarbons and sediment, spoil, debris and equipment to potentially wash into drainage areas and downstream environments. Specific measures have been identified and would be implemented to mitigate against these risks (refer to **Section 4.5.3**).

The approximate level of the existing low point within Corish Circle that is subject to localised ponding in a major storm event is RL 18.25 m. Resultant flooding would impact on the frontages of proposed Lots 3-5, generally within the landscaped setback zone. This would be avoided by making the minimum floor levels in this area RL 18.55 m (refer to **Section 4.5.3**).

4.5.3 Mitigation Measures

The following soil and water management controls would be included as a minimum to minimise potential water quality impacts of the proposed subdivision:

- Erosion and sedimentation controls would be constructed generally in accordance with the drawings, Council requirements and *Managing Urban Stormwater Soils & Construction* (Landcom, 2004) prior to any earthworks commencing on site. These measures would include the following:
 - installation of a perimeter wind and security fence;
 - installation of sediment fencing around disturbed areas including any topsoil stockpiles;
 - installation of earth banks and catch drains to direct runoff to the proposed sediment basins;
 - installation of sediment basins to collect site runoff and retain suspended particles; and
 - placement of pit protection measures around existing and proposed stormwater drainage pits.
- sediment basins would be located to match the proposed outlet of the stormwater drainage systems and at low points within the proposed earthworks. An indicative location has been nominated for the sediment basins (refer to **Appendix B**). Basin sizes would be determined in accordance with *Managing Urban Stormwater Soils & Construction* (Landcom, 2004) as part of the Construction Certificate process;
- erosion and sediment control measures would be checked and maintained prior to personnel leaving the site each day;
- should work areas remain inactive for periods of greater than two weeks, temporary stabilisation measures would be applied such as soil stabilisers or covering with a geo-fabric cover such as jute mesh;
- future development of each lot on the site would be the subject of an individual development application, and would be required to comply with Council's drainage design guideline. This would require the individual developer to incorporate stormwater quality measures prior to connection to the subdivision drainage system;
- each lot would be required to connect all roof areas to a rainwater tank for re-use on site;
- depending on the outcomes of the geotechnical investigation, the lots would be required to absorb a one-in-five year, six-minute storm event;
- all lots would provide detention such that the discharge from the site for all events does not exceed the 1 in 20 year post-development discharge;
- the minimum floor levels of proposed Lots 3 to 5 would be RL 18.55 m to avoid potential flooding impacts; and
- earthworks would be avoided or minimised during inclement weather to minimise water-induced soil erosion and increased sedimentation to the surrounding environment.

4.6 Air Quality

4.6.1 Existing Environment

Local air quality in the vicinity of the proposed works would be typical of that experienced in an urban area. The existing key influences on air quality at the site are likely to be airborne particulates associated with surrounding industrial development and diesel emissions associated with heavy vehicle traffic in the area.

4.6.2 Potential Impacts

The principal air pollutant likely to be associated with the proposed works would be dust generated during excavation and blown from soil stockpiles. When mobilised, the fine fraction of dust particles may travel up to several hundred metres from the source before returning to the surface. Residential properties located north east and east of the proposed subdivision, users of the surrounding industrial area and construction personnel working on-site would be potentially affected receivers.

Diesel fumes from construction vehicles would also temporarily impact on the surrounding air quality. However, the number of vehicles would be insufficient to represent a significant emission source.

These impacts would be minor, short-term and temporary in nature.

4.6.3 Mitigation Measures

The following measures would be implemented during bulk earthworks and infrastructure construction activities on-site to mitigate potential impacts on local air quality during the proposed works:

- Access for vehicles would be limited to stabilised areas as far as practicable to reduce dust generation.
- Establishment and enforcement of appropriate on-site vehicle speed limits which would be reviewed depending on meteorological conditions or safety requirements.
- Vehicle loads involving loose materials would be covered.
- Dust minimisation measures for exposed stockpiles and unsealed construction areas would be implemented as appropriate, such as water spraying.
- Vehicles and machinery would be regularly serviced and maintained in an efficient condition to minimise potential emissions.
- During weather events where wind speeds exceed 10 m/s and where dust generation cannot be effectively minimised, dust generating works would cease until adequate controls can be implemented or until such weather conditions abate.
- Clearing would be limited to the minimum required for safe construction to limit exposed areas and vegetation removal.
- Exposed areas would be stabilised as soon as reasonably practicable with seeding and planting.
- Vehicles and activities would be confined to designated work areas to prevent any inadvertent encroachment into exposed and stripped areas of ground.
- All emission controls used on vehicles and construction equipment would comply with standards listed in Schedule 4 of the *Protection of the Environment Operations (Clean Air) Regulation 2010*.

4.7 Noise and Vibration

4.7.1 Existing Environment

The acoustic environment surrounding the proposed subdivision is typical of an urban environment, and is dominated by existing industrial noise from the Botany Industrial Park and traffic noise along arterial and collector roads in the area. Consistent with the qualitative assessment approach advocated in *Interim Construction Noise Guideline* (DECC, 2009) for small-scale construction works, and in the context of the existing acoustic environment, a full qualitative assessment of noise impacts associated with bulk earthworks and infrastructure construction has not been undertaken.

All works on the site undertaken on the site would be subject to active management through a Noise Management Plan, and would only be undertaken during standard construction hours, being:

- Monday to Friday, 7:00 am to 6:00 pm;
- Saturday, 8:00 am to 1:00 pm; and

- no works on Sunday or public holidays.

4.7.2 Potential Impacts

If not effectively managed, noise generated during bulk earthworks and infrastructure construction has the potential to adversely impact on local acoustic amenity, particular that of the closest residential receivers on Denison Street.

4.7.3 Mitigation Measures

All reasonable and feasible noise mitigation measures would be utilised to minimise potential noise impacts on nearby sensitive receivers, including:

- potentially-affected residential and sensitive receivers would be notified of works prior to commencement;
- all works would be carried out during normal construction hours;
- appropriate plant would be selected for each task, minimising the potential noise impact;
- deliveries would be carried out during standard construction hours;
- non-tonal reversing alarms would be fitted on all construction equipment, where possible;
- off-set distances between noisy plant items and nearby residential receivers would be maximised;
- noisy equipment would be orientated away from residential receivers, where possible;
- site access points and roads would be located as far as practicable from residential receivers; and
- trucks would travel via major roads and routes where possible and would be forbidden to queue near residential dwellings.

4.8 Waste Management

4.8.1 Existing Environment

Activities associated with bulk earthworks (including demolition activities) and infrastructure construction have the potential to generate waste materials. Waste streams and types likely to be generated include:

- excavated material (spoil) unsuitable and/or not required for backfilling and restoration (estimated to be approximately 1,000m³);
- demolition waste – from the removal of existing hardstand areas, services and infrastructure that is no longer required and small-scale structures;
- general waste – domestic refuse (litter) generated by on-site personnel and construction workers.
- green waste – vegetation and other such organic materials from clearance when grubbing.
- human waste – mobile site toilets (sewage);
- maintenance waste – waste generated from site plant and vehicle maintenance e.g. oil and wash down wastewater.

Each of the waste streams would be managed throughout the duration of the proposed works to satisfy three main aims:

- appropriate disposal of chemical, fuel and lubricant containers, solid and liquid wastes that conforms to requirements of the DECCW and Council;
- undertake resource recovery and recycling wherever possible; and
- continual update and improvement of waste management throughout the development of the proposed works.

4.8.2 Potential Impacts

The nature and volume of waste generated during the earthworks and construction has the potential to impact on the local environment if not managed appropriately. Inappropriately managed waste may have potential adverse impacts on the following:

- water quality of local drainage lines and watercourses; and
- proliferation and spread of noxious weeds disturbed during excavation and bulk earthworks if not properly separated and contained.

4.8.3 Mitigation Measures

The following measures would be implemented during bulk earthworks and infrastructure construction activities on-site to mitigate potential waste impacts:

- all waste would be classified in accordance with the *Waste Classification Guidelines* (DECC, 2008);
- handling, storage and transport of hazardous materials and waste would be in accordance with the National Code of Practice and the relevant Material Safety Data Sheet for the product;
- various components of each of the waste streams would be kept separate, where possible;
- all general inert and solid waste generated should be stored in waste containers located at designated points, isolated from surface water drains; and
- at regular intervals, waste to be disposed of off-site would be brought to a waste facility that is licensed under the *Protection of the Environment Operations Act 1979* to receive waste of that type.

5.0 Conclusions and Consideration under Section 79C

In determining the development application for subdivision of land within the Botany Industrial Park, Council is required to consider the matters listed under section 79C of the *Environmental Planning and Assessment Act 1979*. A summary of considerations under section 79C is provided in the table below. Based on these considerations, the proposed subdivision is considered appropriate for approval.

Table 7 Consideration under Section 79C

Head of Consideration	Consideration
The provisions of any environmental planning instrument and any proposed instrument that is or has been the subject of public consultation.	The relevant provisions of applicable environmental planning instruments are considered in Section 3.3 . The proposed subdivision is generally consistent with the provisions of these instruments.
The provisions of any development control plan.	The relevant provisions of applicable development control plans are considered in Section 3.4 . The proposed subdivision is generally consistent with the provisions of these plans.
The provisions of any planning agreement or draft planning agreement under section 93F.	No planning agreement or draft planning agreement is proposed under section 93F of the <i>Environmental Planning and Assessment Act 1979</i> .
The provisions of the <i>Environmental Planning and Assessment Regulation 2000</i> with respect to prescribed matters.	With respect to the matters prescribed under clause 92 of the <i>Environmental Planning and Assessment Regulation 2000</i> : <ul style="list-style-type: none"> the proposed subdivision is not within the NSW Coastal Zone; and all demolition works will be undertaken in accordance with Australian Standard AS2601-2001 <i>Demolition of Structures</i>.
The likely impacts of the development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality.	Section 4.0 details the potential environmental impacts of the proposed subdivision, and mitigation measures proposed to minimise and manage those impacts. On balance, the environmental impacts of the proposed subdivision are considered acceptable, and could be mitigated and managed within acceptable environmental and amenity limits.
The suitability of the site for the development.	The site is currently zoned for industrial land use, but is under-utilised. The proposed subdivision would make the land available for future industrial development.
Any submissions made in accordance with the <i>Environmental Planning and Assessment Act 1979</i> .	If the development application for the proposed subdivision is publicly exhibited and Council receives submissions raising substantive issues relevant to the assessment of the subdivision, Orica would be please to provide a response to those particular issues to assist Council in assessing the application.
The public interest.	It is in the public interest to return under-utilised industrially-zoned land to active use, as would be facilitated by the proposed subdivision.

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Appendix A

Plan of Subdivision

Appendix A Plan of Subdivision

Appendix B

Civil Design Report and Civil Plans

Appendix B Civil Design Report and Civil Plans

Appendix C

Landscape Plan

Appendix C Landscape Plan

Appendix D

Risk Review

Appendix D Risk Review

Appendix E

Phase 1 Site Assessment

Appendix E Phase 1 Site Assessment

Appendix F

Traffic Impact Assessment

Appendix F Traffic Impact Assessment