Environmental Assessment

Property:

15ha site within Lot 14 DP 207961, Lot E DP 388733 &
Lot 14 DP 1091199
Freeway North Business Park, Beresfield

Proposed Development:

Warehouse and Distribution Centre

Applicant:

ALDI Foods Pty Ltd

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CERTIFIED PRACTISING PLANNER

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ALDI Foods Pty Ltd

Proposed Warehouse and Distribution Centre

“warehouse”

15ha site within Lot 14 DP 1091199, Lot 14 DP 207961, and Lot E DP 388733 - Freeway North Business Park, Beresfield

Environmental Assessment

13/9/2010

Limitations Statement

This report has been prepared in accordance with the scope of services agreed between ADW Johnson Pty Ltd and the Client. The scope of services was defined by the requests of the Client and by time and budgetary constraints set by the Client.

All reasonable skill, diligence and care have been applied within the agreed scope of services and the resources made available to it by agreement with the Client. Any responsibility to the Client and others in respect of matters outside the scope of the above is disclaimed.

Unless otherwise specified in this report, information and advice received from external parties during the course of this project was not independently verified. However, to the best of our ability, checks were undertaken to determine relevancy and currency of information prior to use.

Prepared under the Environmental Planning and Assessment Act 1979.

Section 75F

EA prepared by

Name:	Anthony Alliston
Qualifications:	Bach. Urb. Reg. Plan Grad Cert PM
Address:	7/ 335 Hillsborough Road WARNERS BAY NSW 2282

In respect of

Development Application

Applicant Name:	ALDI Foods Pty Ltd
Applicant Address:	C/- ADW Johnson Pty Ltd 7/335 Hillsborough Road Warners Bay NSW 2282
Land to be developed:	Freeway North Business Park, Beresfield
Lot no. DP/MPS, vol/fol, etc:	Lot 14 DP 207961, Lot E DP 388733 & Lot 14 DP 1091199 Parish of Alnwick County of Northumberland City of Newcastle

Environmental Assessment — An environmental assessment is attached.

Certificate

I certify that I have prepared the contents of this Statement and to the best of my knowledge:

- It is consistent with Section 75Fof the Environmental Planning and Assessment Act 1979;
- The Statement contains all available information that is relevant to the environmental assessment of the development to which the Statement relates; and
- The information contained in the Statement is neither false nor misleading.

Signature:
Name:
Date: 13/9/2010
Submission of
Environmental Assessment (EA)



Anthony Alliston

EXECUTIVE SUMMARY

Introduction

This Environmental Assessment Report has been prepared by ADW Johnson Pty Ltd to accompany a Development Application to the Department of Planning for the construction and operation of a new warehouse and distribution centre, by ALDI Foods Pty Ltd, within the Freeway North Business Park, Beresfield.

The preparation of the Environmental Assessment Report has been undertaken in accordance with the Director-General's Requirements (Ref: MP 10_0042) and in consultation with relevant Government Agencies.

The purpose of the Environmental Assessment Report is to alert members of the public and the decision-maker to the potential environmental impacts and community consequences of the proposal. It is not a decision-making end in itself but rather a means to assist the Department of Planning in making a decision.

Background

ALDI Foods Pty Ltd has been operating internationally for over 50 years, and since January 2001 they have opened over 200 stores throughout Australia. These successfully operate across New South Wales, ACT, Queensland and Victoria. ALDI employs thousands of Australians, and with their continued growth, including the proposed warehouse and distribution centre that is the subject of this application, this figure will increase.

The site, at the Freeway North Business Park, Beresfield, provides ALDI Foods Pty Ltd with a prime industrial location, on which to expand their operations, with excellent access to the wider road network and major transport routes.

The Site

The site is described as Lot 14 DP 207961, Lot E DP 388733 and Lot 14 DP 1091199, and is located off Weakleys Drive at the Freeway North Business Park, Beresfield. The development site comprises a total area of approximately 15 hectares.

The Proposed Development

The proposed development is for the construction of a warehouse and distribution centre with a total building area of approximately 56,833m^2.

The proposal includes an ambient warehouse, cool house area, refuse area, office area, truck wash / refuelling areas, plant room, pump room / sprinkler tank, gatehouse, 'goods in' and 'goods out' docks, 'coolhouse' docks, and an area for future expansion.



Figure 1: 3D perspective of the north-east corner of the proposed development looking south-west from Road 1 (Canavan Drive) near the truck entry / exit driveway.



Figure 2: 3D perspective of the north-west section of the proposed development looking south-east from Road 1 (Canavan Drive) near the car entry / exit driveway.

The Site Zoning & Development Application Process

The site is zoned 4(a) Urban Services Zone, pursuant to Newcastle Local Environmental Plan 2003 (LEP). The proposal is defined as a "warehouse" and is permissible within the 4(a) zone with consent.

Because the project has an estimated capital investment value of $100 million, and falls within the definition of storage and distribution centre, it is subject to the provisions of State Environmental Planning Policy (Major Development) 2005 (Schedule 1: Group 4 Other Manufacturing Industries, Distribution and Storage Facilities – 12 Distribution and Storage Facilities).

The Minister's (Clause 6) Opinion was received, indicating that the proposed development was a Major Development, to which the Major Development SEPP (and Part 3A of the Act) applies. The Director-General's Requirements (Ref: MP 10_0042) were provided, and have been addressed in this Environmental Assessment Report.

The Development Application will be lodged with the Department of Planning under the provisions of Part 3A of the Environmental Planning and Assessment Act 1979 (as amended). The Minister will be the assessment and consent authority for this project.

Consultation

In establishing the environmental parameters and scope of this project, consultation was undertaken with Newcastle City Council (NCC), the Department of Planning (DoP), the New South Wales Roads and Traffic Authority (RTA), the New South Wales Rural Fire Service (NSW RFS), Energy Australia, Hunter Water Corporation and the Mine Subsidence Board (MSB). The consultation was undertaken in accordance with the Director-General's Requirements (Ref: MP 10_0042).

Key Environmental Investigations

Investigations of the existing environment, and the potential impacts on this of the proposed development were undertaken during the period January 2010 to August 2010. Specialist consultant reports were commissioned where necessary. The following is a brief summary of the matters investigated:

1. Architectural Design and Visual Considerations

   Woodhead Architects were commissioned to produce architectural plans of the proposed development. The ALDI warehouse and distribution centre design developed for Australia incorporates the interior layout from worldwide facilities but with a uniquely Australian exterior appearance. The design intent of the warehouse and office is essentially to remain consistent with the high standard of design and construction of existing ALDI warehouse and distribution facilities in Australia.

   The final design has evolved over time, and is the outcome of site analysis and investigations relating to the sites context and the surrounding landscape and topography.

   Architectural plans, 3D perspectives, a landscape design plan and report, and architectural design statement have been prepared in order to document the design rationale with respect to building heights, materials, articulation, setbacks, landscaping, lighting, signage, BCA and bushfire protection.

2. Traffic & Parking

   A Transport and Accessibility Assessment has been undertaken by Colston Budd Hunt & Kafes Pty Ltd to review the traffic and parking implications of the proposed development. The report covers all aspects of transport and access to the proposed development and provides

advice on public transport, work-place travel plan, parking provision, access, servicing and internal layout, traffic generation and effects, and principles of construction management.

The report concludes that the traffic and parking arrangements for the development proposal are satisfactory and that there are no traffic or parking impediments to the development.

3. Stormwater Management & Flooding

A Water Management Report has been prepared by Robert Bird Group, including Stormwater Management Plans and an Erosion and Sedimentation Control Plan. The report covers flooding, stormwater drainage, water quality, erosion and sediment control, rainwater harvesting, water re-use, and water usage efficiency.

The report indicates that stormwater drainage can be adequately and appropriately managed and that Water Sensitive Urban Design philosophies will be incorporated.

4. Infrastructure & Services

The proposed development will be provided with connection to all essential services including power, water, sewer and telecommunications. There are currently no gas mains serving the proposed development site, however under the current tender between ALDI and Hunter Land, Hunter Land is to provide natural gas connection to the development. If the proposed gas connections are not provided, ALDI will consider the use of on-site LPG storage.

Investigation into the provision of other services, including electrical services, hydraulic services, and fire services has been undertaken by Wood & Grieve Engineers and these will be provided effectively.

5. Noise & Vibration

A Noise Impact Assessment has been prepared by Environmental Resources Management (ERM) Australia to assess the potential noise impacts from the construction and operation of the proposed development. Subject to the noise control recommendations outlined in the Noise Impact Assessment, it has been shown that the proposed warehouse and distribution centre will not have any adverse noise impacts on surrounding properties.

6. Waste Management

The proposed development will provide an appropriate waste storage and removal area to the south of the warehouse building on the eastern side. The waste refuse storage and removal area includes areas specifically designated for waste storage and separation, recycling, and cardboard compaction.

7. Construction Impacts & Management

Construction impacts were assessed with respect to noise and vibration, stormwater management, dust impacts, waste management and traffic and pedestrian access management, and are addressed in the various specialist reports as outlined in this section.

8. Air Quality

An Air Quality Impact Assessment has been prepared by Environmental Resources Management (ERM) Australia to assess the potential air quality impacts from the construction and operation of the proposed development. The assessment found that the potential air quality impacts associated with the construction and operational activities of the development are minimal, and can be effectively managed through the implementation of a series of mitigation and monitoring measures.

9. Bushfire

A specialist Bushfire Protection Assessment has been undertaken to assess the issues associated with bushfire for the proposed development, and provide advice on the bushfire protection measures required for the construction of the new warehouse and distribution centre in accordance with *Planning for Bushfire Protection 2006*.

The assessment of the bushfire protection requirements and potential levels of bushfire attack on the proposed building indicates that the development of the site can be undertaken in a manner that balances development opportunities and the protection of life, property and the environment.

10. Revised Subdivision Plan (MP 06_0199) – Concept Plan and Project Approval

In order to accommodate the proposed ALDI warehouse and distribution centre on the subject site, amendments to the road and lot layout, staging, and stormwater drainage are required.

A separate report and letter has been prepared by RPS which summarises the proposed amendments as they relate to the approved subdivision layout, and makes assessment of the key impacts of the proposed amendments.

Justification for the Proposed Development

The main objective of the proposed development is to enable ALDI Foods Pty Ltd to expand their storage and distribution facilities in a suitable location, with good access to the wider road network and major transport routes.

Locating the facility on the Beresfield site will enable both the operational and environmental objectives of the project to be met. The main advantage of this site over the alternatives considered is its location within

an identified industrial area, and its proximity to major transport routes, including Weakleys Drive, the F3 Newcastle-Sydney Freeway, the New England Highway, Pacific Highway and John Renshaw Drive.

The Lower Hunter Regional Strategy includes the subject site within "future freight hub and employment lands", which are nominated to provide an opportunity for the storage, transfer and distribution of containerised freight and associated employment. The use of the subject land for a warehouse and distribution centre is consistent with the preferred land use identified within the Strategy, providing an appropriate facility for the storage, transfer and distribution of containerised freight, and increasing employment opportunities, through construction and operation, within the locality.

Furthermore, the proposed warehouse and distribution centre reflects the objectives of Element 7.3 – South Beresfield Industrial Precinct, of the Newcastle DCP 2005, particularly in capitalising on the highly accessible location of the site relative to the major transport routes surrounding the site.

Structure of the Environmental Assessment Report

This Environmental Assessment Report is generally structured in accordance with, and contains the information sought by the Director General's Requirements. The Environmental Assessment Report contains descriptive and summarised text, while the appendices contain the detailed specialist assessment reports.

Section 1- Provides the background to ALDI Foods Pty Ltd and the proposed development. The objectives of the proposal are described, and an outline, in table format, of compliance with the Director General's Requirements is provided.

Section 2 – Describes the proposed development and its operational details. A detailed description of the proposal, including construction phases, development features and building design is provided. Operational details, including hours of operation, access and parking, employment, security and lighting and Emergency procedures are described.

Section 3 – Provides the property description and owner's details, as well as a detailed site analysis and an overview of the existing environment.

Section 4 – Provides the planning context for the proposed development, as described in Section 2, including the relevant Commonwealth, State, Regional and local legislation and planning controls.

Section 5 – Describes how the project team identified the key issues associated with the proposal. This section outlines the consultation undertaken, and lists the project team and the specialist studies that were undertaken as part of the project.

Section 6 – Investigates, and makes assessment of, in accordance with the DGRs, the key environmental issues associated with the site and the proposed development. This section generally summarises the assessment and findings of the specialist consultant reports which are contained in the appendices to the report.

Section 7 – This section provides a summary of the proposed development "Statement of Commitments", and demonstrates how the proposal and the environmental safeguards will be implemented and managed in an integrated and feasible manner.

Section 8 – Provides justification for the proposal, including an assessment (of the proposal) within the principles of Ecological Sustainability, namely the "Precautionary Principle" and "Intergenerational Equity".

Table of Contents

LIST OF ABBREVIATIONS 16

LIST OF FIGURES 18

1.0 INTRODUCTION 19

1.1 Background 19
1.2 Objectives of the Proposal 20
1.3 Compliance with the Director-General's Requirements (Ref: MP 10_0042) 20

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT 27

2.1 Amendment to 90 Lot Subdivision (MP 06_0199) – Concept Plan & Project Approval 27
2.2 Site Layout and Design Plans 28
2.3 Development Features 32
2.4 Building Design 44
2.5 Access & Parking 45
2.6 Hours of Operation 46
2.7 Employment 46
2.8 Waste Production and Disposal 46
2.9 Landscaping 46
2.10 Security and Lighting 47
2.11 Fuel & Chemicals Storage 50
2.12 Existing Warehouse and Distribution Facilities Run by ALDI Foods Pty Ltd 50
2.13 Consideration of Alternatives 51

3.0 SITE ANALYSIS AND OVERVIEW OF THE EXISTING ENVIRONMENT 52

3.1 Introduction 52
3.2 Recent Subdivision Approval (90 Lots) 52
3.3 Property Description and Owners Details 53
3.4 The Locality and Site 53
3.5 Current Uses on the 15ha Site 56
3.6 Adjoining Lands 56
3.7 Topography 56
3.8 Vegetation & Threatened Species 57
3.9 Access & Road Network 57
3.9.1 Access 57
3.9.2 Road Network 57
3.10 Bushfire 57
3.11 Aboriginal Archaeology 58
3.12 European Heritage 58
3.13 Flooding and Drainage 58
3.14 Road Widening 58

3.15 Contamination 58
3.16 Geotechnical and Mine Subsidence 58
3.17 Services 59

4.0 PLANNING CONTEXT 60

4.1 Introduction 60
4.2 Commonwealth Legislation 60
4.2.1 Environment Protection and Biodiversity Conservation Act 1999 60
4.3 State Legislation 60
4.3.1 Environmental Planning and Assessment Act 1979 & Regulation 2000 60
4.3.2 Threatened Species Conservation (TSC) Act 1995 62
4.4 State Environmental Planning Policies 63
4.4.1 SEPP (Infrastructure) 2007 63
4.4.2 SEPP (Major Development) 2005 63
4.4.3 SEPP No. 33 – Hazardous and Offensive Development 63
4.4.4 SEPP No. 55 – Remediation of Land 64
4.4.5 SEPP No. 64 – Advertising and Signage 64
4.5 Regional Environmental Plans and Strategies 65
4.5.1 Lower Hunter Regional Strategy 65
4.6 Local Planning Instrument and Controls 66
4.6.1 Newcastle Local Environmental Plan 2003 66
4.6.1.1 Land Use Definition and Permissibility 67
4.6.1.2 Specific Newcastle LEP 2003 Clauses 67
4.6.2 Draft LEP's Applicable to the Site / Proposal & Adjoining Lands 68
4.6.3 Newcastle Development Control Plan 2005 68
4.6.4 Development Contributions 71
4.7 Other Relevant Policies, Strategies or Controls 71
4.7.1 Newcastle Urban Strategy 2005; 71
4.7.2 Crime Prevention Plan 72
4.7.3 Social Impact Assessment Policy 74

5.0 RISK ASSESSMENT & CONSULTATION 76

5.1 Introduction 76
5.2 Overview of the Methodology 76
5.3 Consultation 76
5.3.1 Newcastle City Council (NCC) 77
5.3.2 Roads & Traffic Authority (RTA) 77
5.3.3 NSW Rural Fire Service (RFS) 77
5.4 Outcome of Issues Identification 77
5.5 The Project Team 78

6.0 ENVIRONMENTAL ASSESSMENT 79

6.1 Introduction 79
6.2 Architectural Design and Visual Considerations 79
6.2.1 Built Form 79

6.2.2 Car Parking ... 81
6.2.3 Streetscape ... 81
6.2.4 Building Height and Floorspace ... 82
6.2.5 Advertising Signs ... 83
6.2.6 Staff Amenities ... 85
6.2.7 Visual Impact and Amenity ... 85
6.2.8 Landscaping ... 87
6.3 Traffic and Parking ... 91
6.3.1 Public Transport ... 92
6.3.2 Work Place Travel Plan ... 92
6.3.3 Parking Provisions ... 92
6.3.4 Access, Servicing and Internal Layout ... 93
6.3.5 Traffic Generation and Effects ... 94
6.3.6 Principles of Construction Traffic Management ... 95
6.3.7 Consultation ... 95
6.3.8 Director-General's Requirements ... 95
6.3.9 Summary ... 95
6.4 Stormwater Management and Flooding ... 95
6.4.1 Flooding ... 96
6.4.2 Stormwater Drainage ... 96
6.4.3 Water Quality ... 97
6.4.4 Erosion and Sediment Control ... 97
6.4.5 Rainwater Harvesting ... 97
6.4.6 Water Re-Use ... 97
6.4.7 Water Usage Efficiency ... 98
6.5 Infrastructure and Services ... 98
6.6 Noise and Vibration ... 99
6.7 Waste Management ... 100
6.8 Construction Impacts & Management ... 102
6.8.1 Noise and Vibration ... 102
6.8.2 Stormwater Management ... 103
6.8.3 Dust Impacts ... 103
6.8.4 Waste Management ... 104
6.8.5 Traffic and Pedestrian Access Management ... 104
6.9 Air Quality ... 105
6.10 Bushfire ... 107
6.11 Revised Subdivision Plan (MP 06_0199) – Concept Plan and Project Approval ... 110
6.11.1 Road and Lot Layout ... 110
6.11.2 Staging ... 111

7.0 DRAFT STATEMENT OF COMMITMENTS ... 112

7.1 Introduction ... 112
7.2 Architectural Design and Visual Considerations ... 112
7.3 Landscaping ... 113
7.4 BCA and Access ... 113

7.5 Traffic and Parking 114
7.6 Stormwater Management and Flooding 114
7.7 Infrastructure and Services 115
7.8 Noise and Vibration 116
7.9 Waste Management 116
7.10 Construction Impacts 117
7.10.1 Noise and Vibration 117
7.10.2 Stormwater Management 117
7.10.3 Dust and Erosion Control 117
7.10.4 Construction Waste Management 117
7.10.5 Traffic and Pedestrian Access Management 118
7.11 Air Quality 119
7.12 Bushfire 120
7.13 Revised Subdivision Plan (MP 06_0199) 122

8.0 JUSTIFICATION FOR THE PROPOSAL 123

8.1 Meeting Project Objectives 123
8.2 Ecological Sustainability 123
8.2.1 Integration 123
8.2.2 Precautionary Principle 124
8.2.3 Inter-generational Equity 124
8.2.4 Conservation of Biodiversity and Ecological Integrity 124
8.2.5 Improved Valuation, Pricing and Incentive Mechanisms 124
8.2.6 Environmental Assessment 125
8.2.7 Public Consultation 125
8.2.8 Conclusion 125
8.3 Meeting Environmental Performance Requirements 125

APPENDIX A 126

Director-General's Requirements & Clause 6 Opinion 126

APPENDIX B 127

Previous Subdivision Consent (MP 06_0199) & Amended Subdivision Plan, Report & Letter 127

APPENDIX C 128

Architectural Plans – Woodhead Architects 128

APPENDIX D 129

Architectural Design Statement – Woodhead Architects 129

APPENDIX E 130

Landscape Design Plan & Report – SCAPE 130

APPENDIX F 131

Transport and Accessibility Assessment – Colston Budd Hunt & Kafes Pty Ltd 131

APPENDIX G 132

Stormwater and Flooding – Robert Bird Group 132
APPENDIX H 133
BCA and Access – Phillip Chun & Associates 133
APPENDIX I 134
Infrastructure & Services – Wood & Grieve 134
APPENDIX J 135
Noise Impact Assessment - ERM 135
APPENDIX K 136
Air Quality Assessment - ERM 136
APPENDIX L 137
Bushfire Assessment Report - ABPP 137

List of Abbreviations

ABPP	Australian Bushfire Protection Planners
ADWJ	ADW Johnson Pty Ltd
AHD	Australian Height Datum
APZ	Asset Protection Zone
AQIA	Air Quality Impact Assessment
AS	Australian Standard
ASS	Acid Sulphate Soils
BCA	Building Code of Australia
BER	Beresfield
CCTV	Closed-Circuit Television
DA	Development Application
DCP	Development Control Plan
DECCW	Department of Environment, Climate Change and Water
DG	Director-General
DGR	Director-General's Requirement
DoP	Department of Planning
DP	Deposited Plan
EA	Environmental Assessment
EAR	Environmental Assessment Report
ECRTN	Environmental Criteria for Road Traffic Noise
EMP	Environmental Management Plan
EPA	Environment Protection Authority (now NSW DECCW)
EPA Act	Environmental Planning and Assessment Act 1979
EPA Reg	Environmental Planning and Assessment Regulation 2000
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
ERM	Environmental Resources Management Australia
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
GFA	Gross Floor Area
GTA	General Terms of Approval
INP	Industrial Noise Policy
LEP	Newcastle Local Environmental Plan 2003
LGA	Local Government Area
LHRS	Lower Hunter Regional Strategy
LPG	Liquefied Petroleum Gas
MSB	Mine Subsidence Board
MP	Major Project
NCC	Newcastle City Council
NIA	Noise Impact Assessment
PB	Parsons Brinkerhoff

PG	Packaging Group
PHA	Preliminary Hazard Analysis
PVC	Polyvinyl Chloride
QS	Quantity Surveyor
REP	Regional Environmental Plan
RFS	New South Wales Rural Fire Service
RL	Relative Level
RTA	Roads and Traffic Authority
SEPP	State Environmental Planning Policy
TSC Act	Threatened Species Conservation Act 1995

List of Figures

Figure 1	3D Perspective (North-east corner of development)
Figure 2	3D Perspective (North-west corner of development)
Figure 3	Proposed Site Plan
Figure 4	Amended Subdivision Plan
Figure 4a	Approved Subdivision Plan (MP 06_0199)
Figure 5	Landscape Plan
Figure 5a	Landscape Detail Plan
Figure 6	Locality Plan (Regional Context)
Figure 7	Locality Plan (Beresfield Context)
Figure 8	Locality Plan
Figure 9	Newcastle Bushfire Prone Land Map
Figure 10	Extract from Lower Hunter Regional Strategy
Figure 11	Extract from Newcastle Local Environmental Plan 2003 Zone Map

1.0 Introduction

1.1 Background

ALDI Foods Pty Ltd has been operating internationally for over 50 years, and since January 2001 they have opened over 200 stores throughout Australia. These successfully operate across New South Wales, ACT, Queensland and Victoria. ALDI employs thousands of Australians, and with their continued growth, including the proposed warehouse and distribution centre that is the subject of this application, this figure will increase.

The site, at the Freeway North Business Park, Beresfield provides ALDI Foods Pty Ltd with a prime distribution location, with excellent access to the wider road network and major transport routes, on which to expand their warehouse and distribution operations in order to service the community locally, regionally and nationally.

ALDI Foods Pty Ltd chose the site of the proposed development following extensive investigation of other sites in the Hunter and Central Coast areas, including Morisset, Warnervale and Somersby.

A submission made to the Department of Planning on 17th March, 2010 sought formal confirmation (Clause 6 Opinion) of the proposed development as a 'Major Development', and also sought the Director-General's Requirements.

The Director-General of the Department of Planning declared the proposal to be a Major Project (Clause 6 opinion) under Part 3A of the *Environmental Planning and Assessment Act 1979* on the 24th March, 2010 and the Director-General's Requirements (DGR's) were issued on the 12th May, 2010 (Ref: MP 10_0042). Appendix A includes a copy of the Clause 6 opinion and the DGR's.

Development consent was granted for the Freeway North Business Park and 90 lot subdivision with associated infrastructure, by the Minister for Planning on the 29th September, 2008 (06_0199). The approved 90 lot subdivision comprises 4 stages. Lots generally range from 1720m^2 to 2.08ha. Two lots have been created for the purpose of drainage reserves and environmental land that are 16.33ha (northwest portion of the site) and 13.5ha (southern portion of the site). These two lots will be dedicated to Council. Two entry points to the site will be created from Weakleys Drive as part of the approved subdivision. One involves the construction of a two-lane roundabout on Weakleys Drive, and one will be a left-in / left-out intersection further south of the roundabout. The current land owners are in the process of completing detailed engineering designs to be lodged with the RTA for approval. Construction will commence once approval has been obtained from the RTA.

The ALDI development will necessitate some amendments to the recent Concept Plan and Project Approval for subdivision, including an amendment to the staging of the subdivision. The determination by the Minister, approved plans, amended subdivision report and letter and amended subdivision plan are located at Appendix B.

1.2 Objectives of the Proposal

ALDI Foods Pty Ltd proposes to expand their warehouse and distribution capabilities by constructing a new warehouse and distribution centre within the Freeway North Business Park, Beresfield, located off Weakleys Drive. The proposal involves a total building area of approximately 56,833m^2.

The main objective of the proposed development is to enable ALDI Foods Pty Ltd to expand their storage and distribution facilities in a suitable location with good access to the wider road network and major transport routes.

Locating the facility on this site will enable both the operational and the environmental objectives of the project to be met. The main advantage of this site over the other alternatives considered is its location within an identified industrial area, and its proximity to major transport routes including Weakleys Drive, the F3 Newcastle-Sydney Freeway, the New England Highway, Pacific Highway and John Renshaw Drive.

The Lower Hunter Regional Strategy includes the subject site within "future freight hub and employment lands", which are nominated to provide an opportunity for the storage, transfer and distribution of containerised freight and associated employment. The use of the subject land for a warehouse and distribution centre is consistent with the preferred land use identified within the Strategy, providing an appropriate facility for the storage, transfer and distribution of containerised freight, and increasing employment opportunities, through construction and operation, within the locality.

Furthermore, the proposed warehouse and distribution centre reflects the objectives of Element 7.3 – South Beresfield Industrial Precinct, of the Newcastle DCP 2005, particularly capitalising on the site's highly accessible location relative to the major transport routes surrounding the site.

1.3 Compliance with the Director-General's Requirements (Ref: MP 10_0042)

The table below outlines where the Director-General's Environmental Assessment Requirements for the project have been addressed in this Report and its Appendices.

(DGEAR for MP 10_0042, issued 12th May, 2010).

Item	Environmental Assessment Requirement	Where issues have been addressed *	Addressed
GENERAL REQUIREMENTS			
1.	Executive summary	An executive summary has been included within the Environmental Assessment Report. Please refer to pages 4-9 of the EAR.	✓
2.	A description of the proposal	Section 2.0 of the Environmental Assessment Report provides a	✓

Item	Environmental Assessment Requirement	Where issues have been addressed *	Addressed
	including:	comprehensive description of the proposed development.	
	• Need for the project;	The need for the project is outlined in Section 1.2 – Objectives of the Proposal within the Environmental Assessment Report.	✓
	• Alternatives considered;	This is provided within Section 2.14 – Consideration of Alternatives, of the Environmental Assessment Report.	✓
	• Revised subdivision plan for the Freeway North Business park;	The revised subdivision plan for the Freeway North Business Park is provided as Figure 4 within the Environmental Assessment Report and is also provided at Appendix B to the EAR. A description of the amendments to the 90-Lot subdivision are included within Section 2.1 of the Environmental Assessment Report, and within a separate report included at Appendix B.	✓
	• The development to be carried out on site, including plans of all proposed building works;	The proposed development is described in Section 2.0 of the Environmental Assessment Report, and architectural plans are provided at Appendix C.	✓
	• Likely staging of this development; and	Provided in Section 2.0 – Description of the Proposed Development, and at Figure 4 of the Environmental Assessment Report.	✓
	• Details of how the project would be co-ordinated with construction and subdivision works approved under MP09_0199.	Provided in Section 2.0 – Description of the Proposed Development, and at Figure 4 of the Environmental Assessment Report.	✓
3.	A risk assessment of the potential environmental impacts of the project, identifying key issues for	Provided in Section 5.0 – Risk Assessment & Consultation of the Environmental Assessment Report.	✓

Item	Environmental Assessment Requirement	Where issues have been addressed *	Addressed
	further assessment.		
4.	A detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (see above), which includes:		
	• A description of the existing environment, using sufficient baseline data;	Provided in Section 3.0 – Site Analysis and Overview of the Existing Environment of the Environmental Assessment Report.	✓
	• An assessment of the potential impacts of the project, including any cumulative impacts, taking into consideration any relevant guidelines, policies, plans and statutory provisions (see below);	Provided in Section 3.0 – Site Analysis and Overview of the Existing Environment and Section 4.0 – Planning Context of the Environmental Assessment Report.	✓
	• A description of the measures that would be implemented to avoid, minimise, and if necessary offset the potential impacts of the project, including detailed contingency plans for managing any significant risks to the environment.	Provided in Section 6.0 – Environmental Assessment and Section 7.0 – Draft Statement of Commitments of the Environmental Assessment Report.	✓
5.	A suitable assessment of the other issues specified below, outlining the measures that would be implemented to minimise the potential impacts of the project.	Provided in Section 6.0 – Environmental Assessment and Section 7.0 – Draft Statement of Commitments of the Environmental Assessment Report.	✓
6.	A statement of commitments, outlining all the proposed environmental management and monitoring measures for the project;	Provided in Section 7.0 – Draft Statement of Commitments of the Environmental Assessment Report.	✓

Item	Environmental Assessment Requirement	Where issues have been addressed *	Addressed
7.	A conclusion justifying the project on economic, social and environmental grounds, taking into consideration whether the project is consistent with the objects of the *Environmental Planning & Assessment Act 1979*.	Provided in Section 8.0 – Justification for the Proposal of the Environmental Assessment Report.	✓
8.	A signed statement from the author of the Environmental Assessment, certifying that the information contained within the document is neither false nor misleading.	Provided at Page 3 of the Environmental Assessment Report.	✓
KEY ASSESSMENT REQUIREMENTS			
	The Environmental Assessment must address the following key issues:	The key issues are addressed within Section 6.0 – Environmental Assessment of the Environmental Assessment Report.	
1.	Visual / Design		
	• Demonstration (including photomontage of the building) that the project has regard for a high standard of architectural design including building heights, materials, articulation of the buildings, external appearance, setbacks, landscaping (including a detailed landscape plan), lighting, and signage.	This is specifically addressed within Section 6.2 – Architectural Design and Visual Considerations within the EAR. A full set of architectural plans prepared by Woodhead Architects has been provided at Appendix C, an Architectural Design Statement prepared by Woodhead Architects is included at Appendix D, and a Landscape Design Plan and Report are included at Appendix E of the EAR.	✓
	• Demonstration that the project meets the requirements of the BCA and *Planning for Bushfire Protection 2006*.	This is specifically addressed within Section 6.2 – Architectural Design and Visual Considerations (7.4 –BCA & Access), and Section 6.10 - Bushfire within the EAR.	✓

Item	Environmental Assessment Requirement	Where issues have been addressed *	Addressed
	• Measures that would be implemented to minimise water and energy use on site.	This is specifically addressed within Section 6.4 – Stormwater Management and Flooding within the EAR. A Water Management Report is also provided at Appendix G.	✓
2.	Traffic and Parking		
	• Predictions of the traffic volumes likely to be generated during construction and operation.	This is specifically addressed within Section 6.3 – Traffic and Parking within the EAR. A Transport and Accessibility Report is also provided at Appendix F.	✓
	• An assessment of the predicted impacts of this traffic on the capacity, efficiency, and safety of the surrounding road network, including modelling of key intersections.	This is specifically addressed within Section 6.3 – Traffic and Parking within the EAR. A Transport and Accessibility Report is also provided at Appendix F.	✓
	• Details of access to the site and car parking requirements.	This is specifically addressed within Section 6.3 – Traffic and Parking within the EAR. A Transport and Accessibility Report is also provided at Appendix F.	✓
3.	Soil and Water		
	• Sediment and erosion control during construction and stormwater management during operations.	This is specifically addressed within Section 6.4 – Stormwater Management and Flooding within the EAR. A Water Management Report and stormwater management and soil erosion and sedimentation control plans are also provided at Appendix G.	✓
	• Impacts of the project on flooding behaviour.	This is specifically addressed within Section 6.4 – Stormwater Management and	✓

Item	Environmental Assessment Requirement	Where issues have been addressed *	Addressed
		Flooding within the EAR. A Water Management Report is also provided at Appendix G.	
4.	Infrastructure		
	• Demonstrate that suitable arrangements are in place, or will be put in place, to provide necessary infrastructure for the project.	This is specifically addressed within Section 6.5 – Infrastructure and Services within the EAR. A Services Report is also provided at Appendix I.	✓
5.	Noise		
	• Construction, operational and traffic noise.	This is specifically addressed within Section 6.6 – Noise and Vibration within the EAR. A Noise Impact Assessment is also provided at Appendix J.	✓
6.	Waste Management		
	• The quantity and type of all liquid and solid waste to be generated at the site and a description of how this waste would be handled, processed and, if necessary disposed of.	This is specifically addressed within Section 6.7 – Waste Management and Section 6.8 – Construction Impacts & Management (6.8.4 – Waste Management) within the EAR.	✓
7.	Construction Management		
	• Details of the measures that would be implemented during construction to minimise and manage potential impacts.	This is specifically addressed within Section 6.8 – Construction Impacts & Management within the EAR.	✓
CONSULTATION REQUIREMENTS			
	During the preparation of the Environmental Assessment you should consult with the relevant	All consultation is documented / outlined within Section 5.3 – Consultation of the	✓

Item	Environmental Assessment Requirement	Where issues have been addressed *	Addressed
	local, State or Commonwealth Government authorities, service providers, community groups and affected landowners.	Environmental Assessment Report.	
	• Newcastle City Council	This is documented / outlined in Section 5.3.1 of the Environmental Assessment Report.	✓
	• Roads and Traffic Authority	This is documented / outlined in Section 5.3.2 of the Environmental Assessment Report.	✓
ADDITIONAL CONSULTATION			
	• NSW Rural Fire Service	This is documented / outlined in Section 5.3.3 of the Environmental Assessment Report.	✓
APPLICATION FEE			
	The application fee is based on Capital Investment Value of the project as defined in the Major Projects SEPP and as set out in Clause 8H of the Environmental Planning and Assessment Regulation 2000. To verify the cost of works for this project you are requested to submit a Quantity Surveyor's report for the project.	A Quantity Surveyor's Report verifying the cost of the works for the project has been submitted as part of the Project Application.	✓

** It is ADW Johnson's view that the Director-General's Requirements have been adequately addressed within this report and within the annexed specialist reports. The adequacy of this is to be determined by the consent authority and relevant Government authorities.*

2.0 Description of the Proposed Development

2.1 Amendment to 90 Lot Subdivision (MP 06_0199) – Concept Plan & Project Approval

At the time of obtaining the approval for the Freeway North Concept Plan and Project Approval for the proposed 90 lot industrial subdivision (MP 06_0199) the demand for large industrial parcels greater than two hectares was not envisaged. As a result of the proposal by ALDI to locate their regional distribution warehouse within the Beresfield location (site), modification is sought to the Concept Plan and Project Approval pursuant to Section 75W of the Act 1979. The modifications relate primarily to the road and lot layout, staging, and stormwater drainage. These variations are illustrated by comparing the amended subdivision and staging plan, shown at Figure 4, and the approved Concept Plan and Project Approval (subdivision) plan shown at Figure 4a.

As a result of the revised road layout and amalgamation of lots, some minor reconfiguration of the surrounding allotments will also be required. This includes the removal of the detention basin (shown as drainage reserve on the approved subdivision plan at Figure 4a) as it is no longer required. The changes to stormwater drainage for the subdivision are discussed further within the amended subdivision report at Appendix B. Appendix B also includes a letter requesting correction of a minor administrative error.

The proposed reconfiguration is not inconsistent with the intent of the Concept Plan and Project Approval and will have no additional environmental impact to the already approved industrial subdivision (MP 06_0199).

Staging of the Freeway North Business Park was approved over four (4) stages to ensure that a logical development of the site is achieved, with appropriate release of land as required. As a result of the proposed modification to the approved industrial subdivision, it is now intended to develop the site over three (3) stages. Please refer to the amended subdivision and staging plan shown at Figure 4.

The modified staging plan includes:

- Stage 1 – lots 101-124 (Lot 124 being the 15ha allotment on which the proposed ALDI warehouse and distribution centre is to be located);
- Stage 2 – Lots 201-217 (Lot 217 being a drainage reserve and dedicated to Council); and
- Stage 3 – Lots 301-317 (Lot 317 being a drainage reserve and dedicated to Council).

It is understood that while the modification of the Concept Plan and Project Approval for the subdivision and the ALDI Major Development will be assessed concurrently by the Department of Planning, two separate "approvals" will be granted. This is necessary because the proponent of the subdivision (MP 06_0199) is a different entity to ALDI Foods Pty Ltd.

Once the modification of the Concept Plan and Project Approval for the subdivision has been approved, the proponent of the subdivision will then prepare, and have approved, the Construction Certificate documentation that will allow for the physical subdivision construction works for Stage 1 (lots 101-124) to proceed.

On completion of the physical subdivision works for Stage 1 a Subdivision Certificate will be obtained from the consent authority. This will allow registration of the lots, including Lot 124, by the Lands Titles Office. At this point ALDI Foods Pty Ltd will take ownership of the land (Lot 124).

2.2 Site Layout and Design Plans

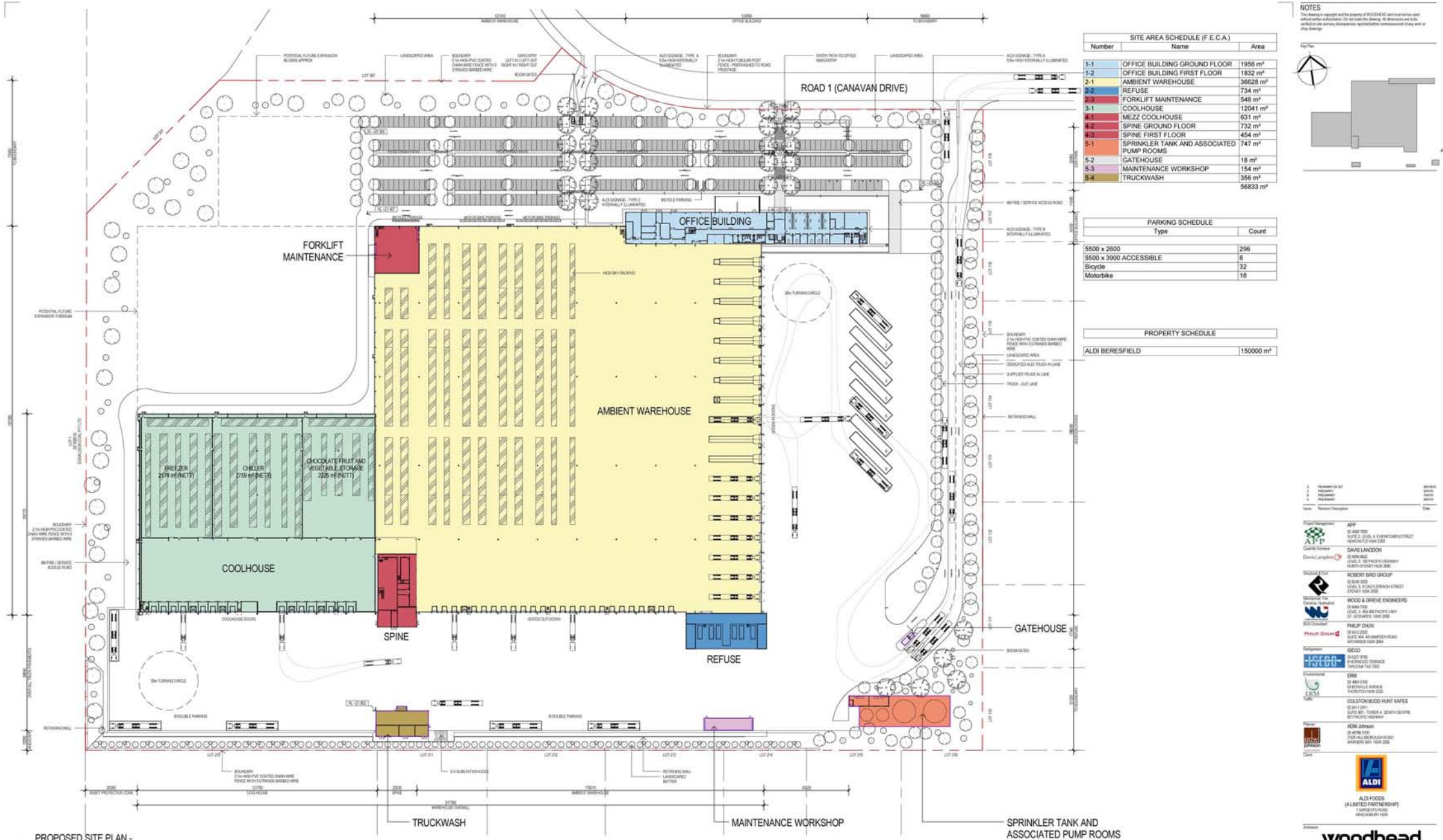
The proposed new warehouse and distribution centre building will be located on approximately 15ha of land within the Freeway North Business Park, Beresfield. Figure 3 includes the proposed site plan and shows the location of the proposed new building in the context of the site.

The following is a list of the architectural drawings which describe the site and design of the proposal:

- BER-A-2030 – 0001W Cover Sheet
- BER-A-2030 – 0002W Site Analysis
- BER-A-2030 – 0003W Site Plan Existing
- BER-A-2030 – 0004W Site Plan Proposed including signage details
- BER-A-2030 – 0005W Sun Study / Shadow Diagrams
- BER-A-2030 – 0010W Perspectives – Office Building
- BER-A-2030 – 1000W Proposed Ground Floor Plan
- BER-A-2030 – 1040W Proposed First Floor Plan
- BER-A-2030 – 2000W Proposed Elevations
- BER-A-2030 – 3000W Proposed Sections

In addition to the above architectural plans, Woodhead Architects have also prepared 3D perspectives.

The full set of architectural plans, including 3D perspectives, is located at Appendix C.



1 PROPOSED SITE PLAN - GROUND FLOOR
2000W 1 : 750



2 ALDI SIGN - TYPA A - PYLON SIGN
1 : 100



3 ALDI SIGN - TYPE B - WALL MOUNTED
1040W 1 : 100



4 ALDI SIGN - TYPE C - WALL MOUNTED
1040W 1 : 100

NOTES

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Key Plan

SITE AREA SCHEDULE (F.E.C.A.)

Number	Name	Area
1-1	OFFICE BUILDING GROUND FLOOR	1956 m²
1-2	OFFICE BUILDING FIRST FLOOR	1832 m²
2-1	AMBIENT WAREHOUSE	36628 m²
2-2	REFUSE	734 m²
2-3	FORKLIFT MAINTENANCE	548 m²
3-1	COOLHOUSE	12041 m²
4-1	MEZZ COOLHOUSE	631 m²
4-2	SPINE GROUND FLOOR	732 m²
4-3	SPINE FIRST FLOOR	454 m²
5-1	SPRINKLER TANK AND ASSOCIATED PUMP ROOMS	747 m²
5-2	GATEHOUSE	18 m²
5-3	MAINTENANCE WORKSHOP	154 m²
5-4	TRUCKWASH	356 m²
		56833 m²

PARKING SCHEDULE

Type	Count
5500 x 2600	296
5500 x 3900 ACCESSIBLE	6
Bicycle	32
Motorbike	18

PROPERTY SCHEDULE

ALDI BERESFIELD	150000 m²

Issue	Revision Description	Date
D	PRELIMINARY DA SET	28/07/20
C	PRELIMINARY	23/07/20
B	PRELIMINARY	15/07/20
A	PRELIMINARY	08/07/20

Project Management: APP
(02) 4926 7600
SUITE 2, LEVEL 4, 8 HENKOMBE STREET
HENCHMUTE NSW 2300

Quantity Surveyor: DAVIS LANGDON
(02) 9956 9922
LEVEL 5, 100 PACIFIC HIGHWAY
NORTH SYDNEY NSW 2060

Structural & Civil: ROBERT BIRD GROUP
(02) 9245 3200
LEVEL 5, 9 CHIFLEY/BRADFIELD STREET
SYDNEY NSW 2000

Mechanical, Fire, Electrical, Hydraulics: WOOD & GRIEVE ENGINEERS
(02) 8484 7000
LEVEL 3, 454-456 PACIFIC HWY
ST LEONARDS NSW 2065

BCA Consultant: PHILIP CHUN
(02) 9412 2220
SUITE 404, 44 HAMPDEN ROAD
ARTARMON NSW 2064

Refrigeration: ISECO
(02) 9207 9700
8 NORCOCO TERRACE
TAHCONA TAS 7053

Environmental: ERM
(02) 8584 8100
50 BERCELLE AVENUE
THORNTON NSW 2322

Traffic: COLSTON BUDD HUNT KAFES
(02) 9411 2411
SUITE 801 - TOWER A, ZENITH CENTRE
821 PACIFIC HIGHWAY

Planner: ADW Johnson
(02) 49788 5100
310B HILLSBOROUGH ROAD
WARNERN BAY NSW 2282

Client: ALDI FOODS (A LIMITED PARTNERSHIP)
1 SARGENTS ROAD
MINDARIBURI NSW

Architects: woodhead.
343 Pacific Highway
North Sydney NSW 2060
T +612 9964 9500
F +612 9964 9683
ABN 61 007 747 748

Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commissioned	

Project Description: ALDI DISTRIBUTION FACILITY BERESFIELD NSW

Project Number: 10203002

Drawing Title: SITE PLAN PROPOSED - GROUND FLOOR

Scale: As indicated

Drawing Number: BER-A-2030-0005W

Issue: D

Figure 3
Proposed Site Plan

PRELIMINARY

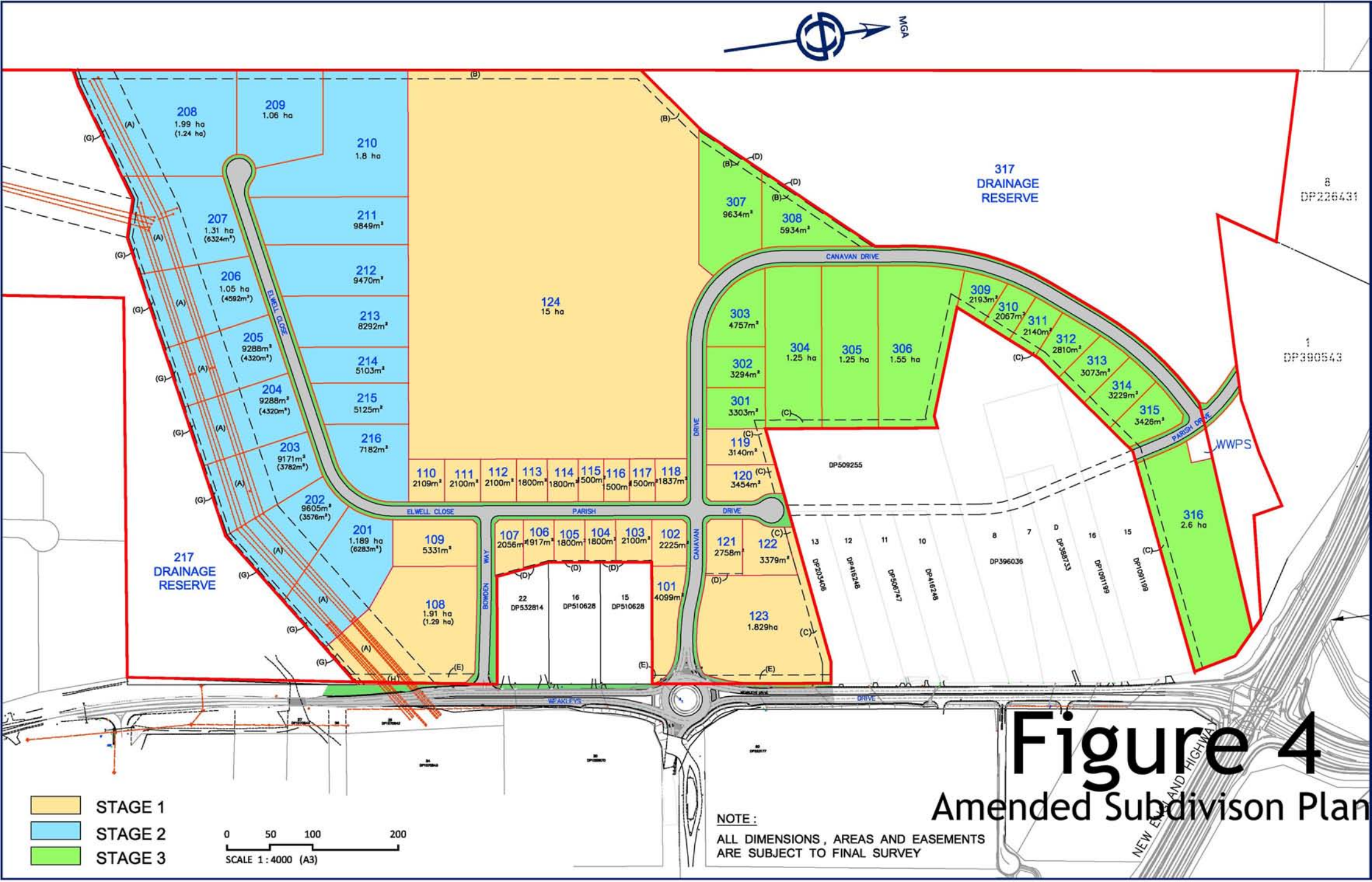


Figure 4

Amended Subdivison Plan

TITLE: PROPOSED SUBDIVISION PLAN
LOT 14 DP 1091199

LOCATION: WEAKLEYS DRIVE
BERESFIELD

DATUM:
PROJECTION: MGA

DATE: 1ST JULY 2010
PURPOSE: SUBDIVISION

AUTOCAD REF: 21717 - 2T
VERSION (PLAN BY): PROPOSED SUBDIVISION

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CLIENT: FREEWAY NORTH LAND COMPANY
JOB REF: 21717

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

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FIGURE 4A

Approved Subdivision Plan (MP 06_0199)

(A) - EASEMENT FOR TRANSMISSION LINE
(B) - ASSET PROTECTION ZONE 10 METRES
(C) - TEMPORARY ASSET PROTECTION ZONE 10 METRES
(D) - ROAD WIDENING

SCALE 1 : 5000 (A3)

100 0 100 200 300 400 500

TITLE: FREEWAY NORTH BUSINESS PARK
INDICATIVE LOT LAYOUT

CLIENT: FREEWAY NORTH LAND COMPANY

PLANNING SURVEYING ECOLOGY

HARPER SOMERS O'SULLIVAN

SCALE: 1 : 5000 (A3) DRAWN: P REYNOLDS APPROVED:
DATE: 30TH JULY 2008 SURVEYOR: J GOODE
DATUM: CONTOUR INTERVAL: SHEET 1 OF 1
ORIGIN: AUTOCAD REF: 21717-2K.DWG
LAYOUT REF: INDICATIVE LAYOUT 60 LOTS
JOB REF: 21717

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241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4961 6500 F: 02 4961 6794 E: survey@rpshso.com.au W: www.rpshso.com.au ABN 11 093 343 858

2.3 Development Features

The proposed new warehouse and distribution centre facility will include the following:

- Office Area – 3788m^2
- Ambient Warehouse – 36628m^2
- Refuse Area – 734m^2
- Forklift Maintenance Area – 548m^2
- Cool House Area - 12041m^2
  Including:
  - Chocolate Storage
  - Cold Handling
  - Cool Room / Chiller
  - Freezer
- Coolhouse Mezzanine – 631m^2
- Plant Room (spine ground and first floors) – 1186m^2
- Pump Room / Sprinkler Tank – 747m^2
- Gatehouse – 18m^2
- Maintenance workshop – 154m^2
- Truck Wash / Refuelling Area – 356m^2

Total building area = 56833m^2

The proposal will include 18 'goods-in' docks, 25 'goods-out' docks, 17 'coolhouse' docks, plus 5 future 'coolhouse' docks, and an area for future expansion of approximately 11400m^2.

The maximum building height will be 17m.

The warehouse and distribution centre will operate 24 hours per day, 7 days per week, 365 days per year.

The proposal will include 302 car parking spaces.

The operation of the warehouse and distribution centre will employ approximately 310 people.

The architectural plans prepared by Woodhead Architects are included in Appendix C.

As part of the development process for the project, the project team were taken on a site tour of the ALDI warehouse and distribution facility at Prestons, NSW (operational since September / October 2009) on which the Beresfield facility is modelled. The following photographs of the ALDI warehouse and distribution centre at

Prestons, show the layout, operations and efficiency of the facility and provide visual examples of those for the proposed development.

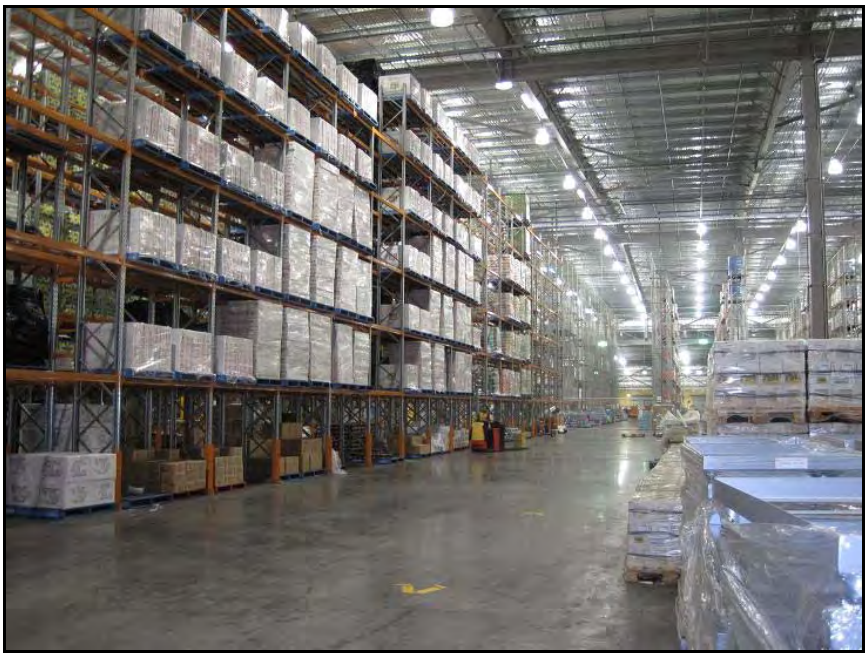


Photo 1: View of ambient warehouse and racking for goods-in at Prestons ALDI warehouse and distribution centre.

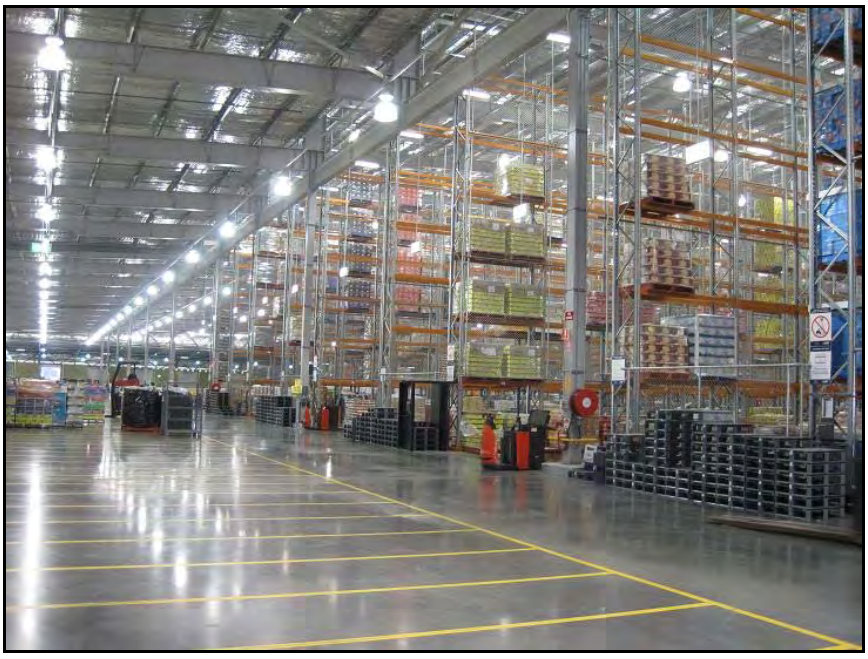


Photo 2: View of ambient warehouse and racking for goods-out at Prestons ALDI warehouse and distribution centre.

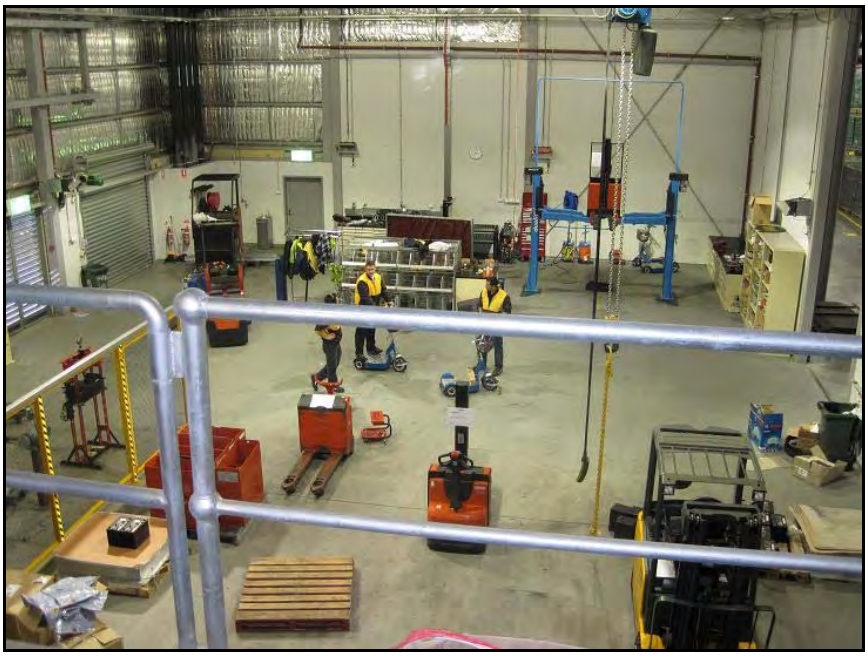


Photo 3: View of maintenance workshop within the Prestons ALDI warehouse and distribution centre.

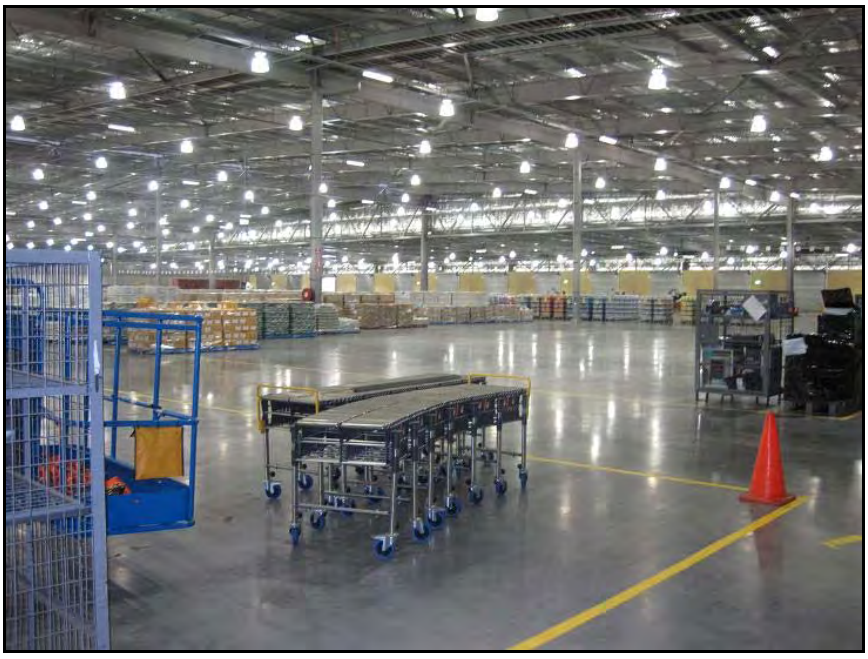


Photo 4: View of goods-in area within the Prestons ALDI warehouse and distribution centre.



Photo 5: View of goods-in truck terminal (internal) within the Prestons ALDI warehouse and distribution centre.



Photo 6: View of goods-in truck terminal (external) at the Prestons ALDI warehouse and distribution centre.

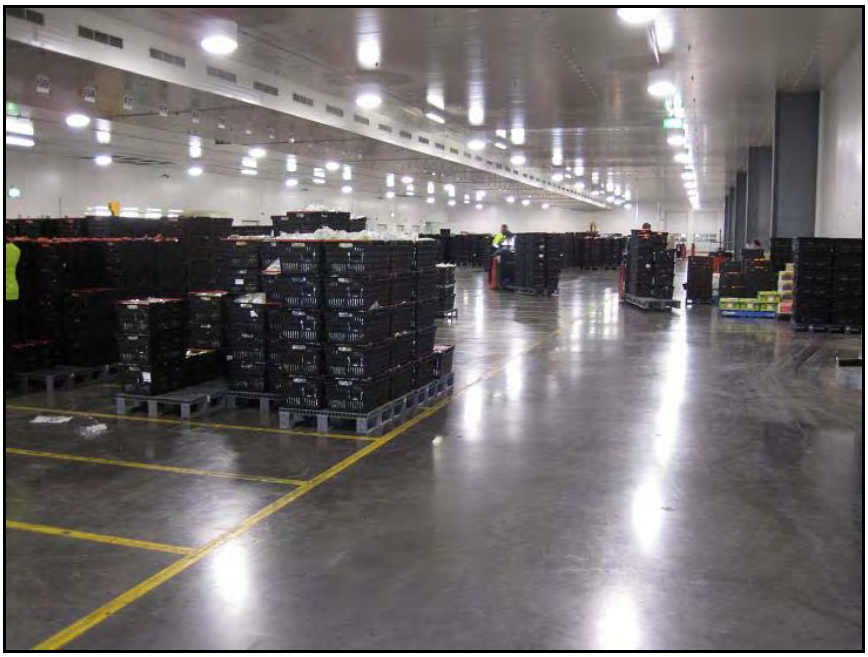


Photo 7: View of goods-out preparation area within the Coolhouse section of the Prestons ALDI warehouse and distribution centre.

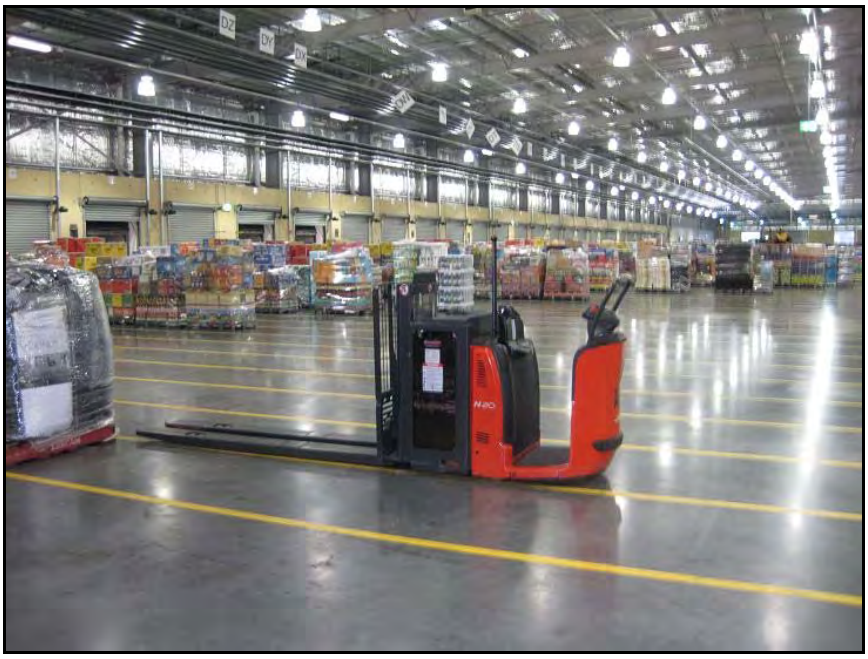


Photo 8: View of goods-out preparation area within the Prestons ALDI warehouse and distribution centre.

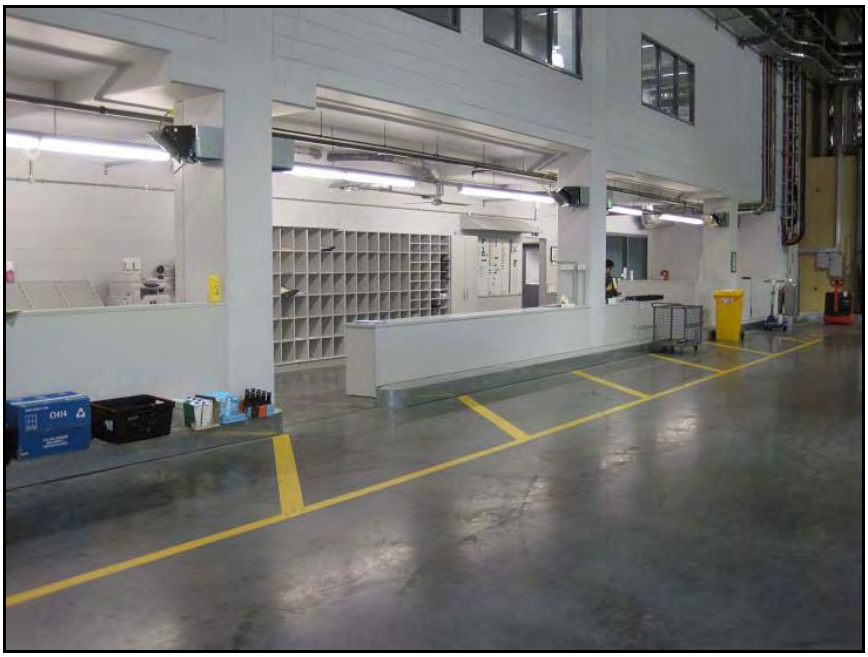


Photo 9: View of goods-out administration area within the Prestons ALDI warehouse and distribution centre.



Photo 10: View of goods-out truck terminal (internal) within the Prestons ALDI warehouse and distribution centre.



Photo 11: View of goods-out truck terminals (external) at the Prestons ALDI warehouse and distribution centre.



Photo 12: View of goods-out truck terminals and forklift battery charging locations within the Prestons ALDI warehouse and distribution centre.



Photo 13: View of goods-in truck terminals (external) to the right, and truck marshalling area to the left at the Prestons ALDI warehouse and distribution centre.



Photo 14: View of plant room (ground level) and lunch room decking (upper level) at the Prestons ALDI warehouse and distribution centre.



Photo 15: View of truck wash and refuelling area at the Prestons ALDI warehouse and distribution centre.

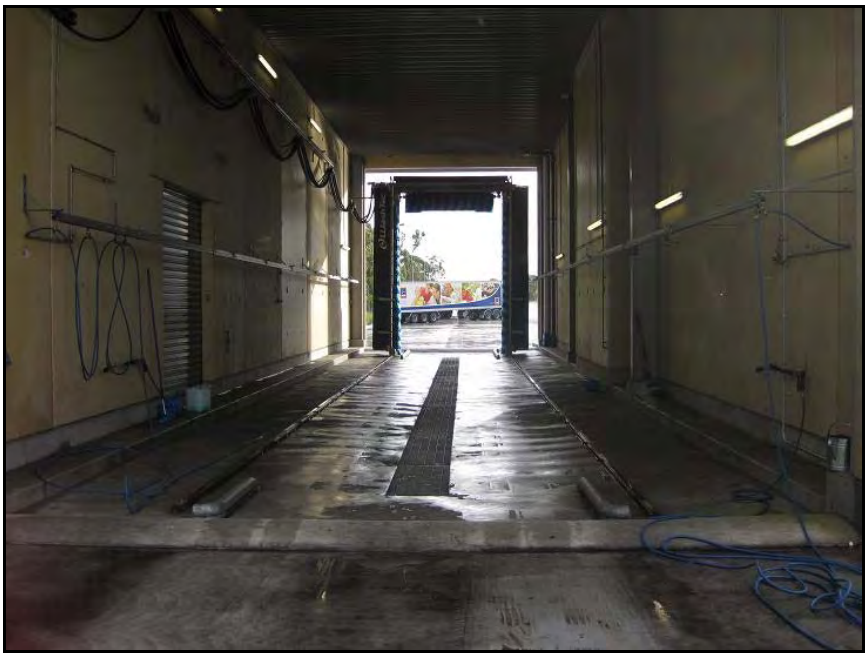


Photo 16: View of inside of truck wash at the Prestons ALDI warehouse and distribution centre.



Photo 17: View of truck refuelling at the Prestons ALDI warehouse and distribution centre.



Photo 18: View of truck wash and refuelling area at the Prestons ALDI warehouse and distribution centre.

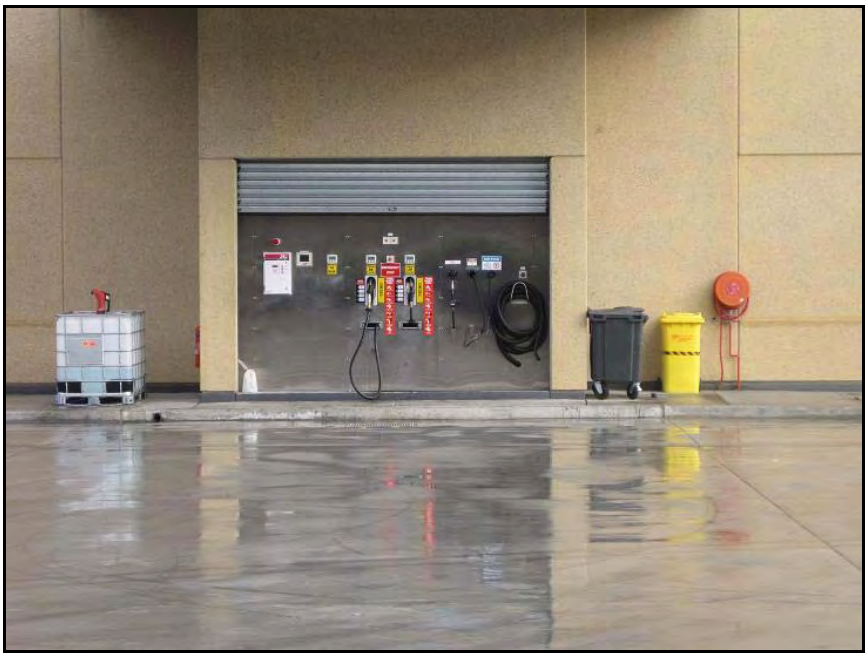


Photo 19: View of refuelling area at the Prestons ALDI warehouse and distribution centre.



Photo 20: View of plant room within the Prestons ALDI warehouse and distribution centre.

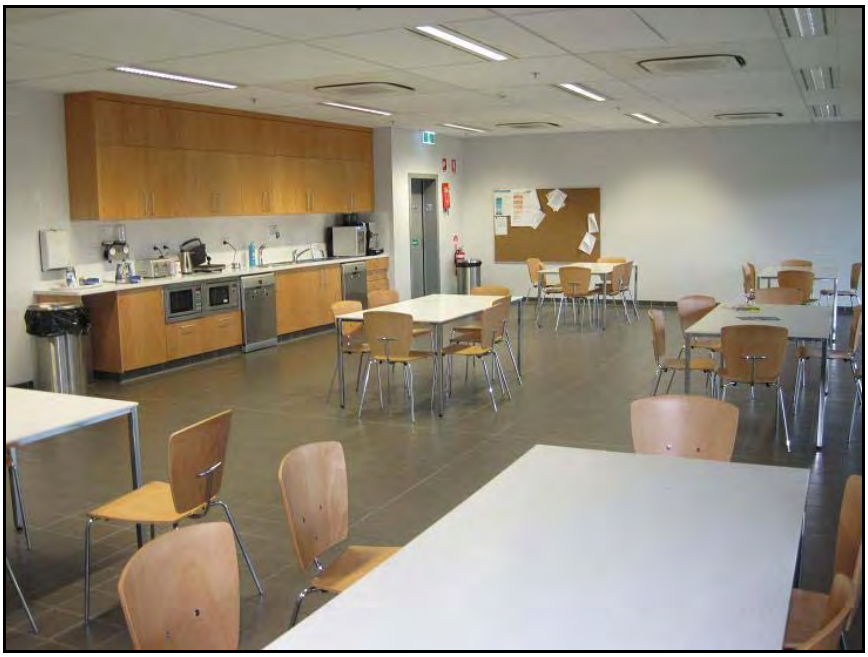


Photo 21: View of upper level lunch room within the Prestons ALDI warehouse and distribution centre.



Photo 22: View of ground floor lunch room within the Prestons ALDI warehouse and distribution centre.

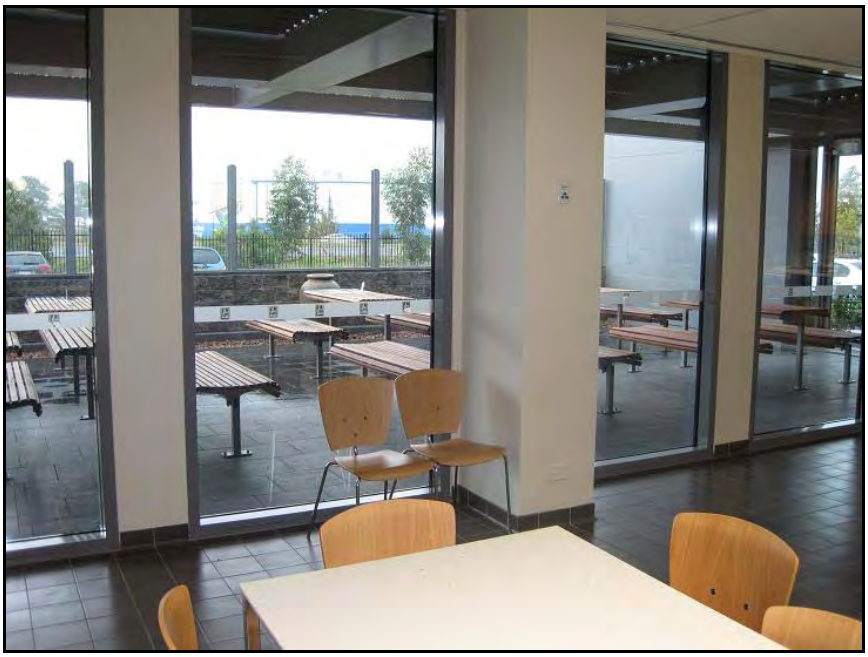


Photo 23: View of ground floor outside lunch area / smoking area at the Prestons ALDI warehouse and distribution centre.

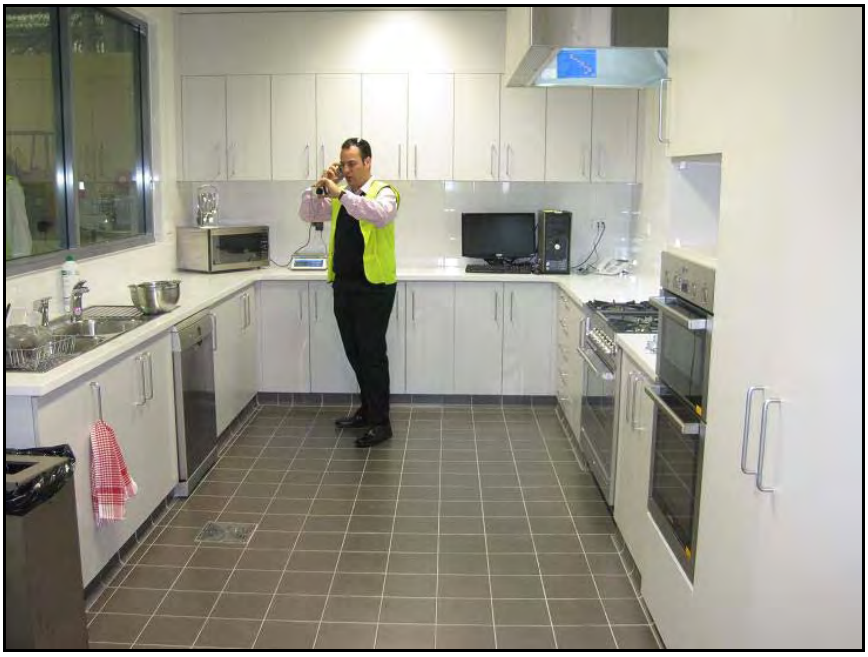


Photo 24: View of quality testing kitchen within the Prestons ALDI warehouse and distribution centre.

2.4 Building Design

The ALDI Warehouse and Distribution Facility design developed for Australia incorporates the interior layout from worldwide facilities, with a uniquely Australian exterior appearance. The design intent of the warehouse

and offices is essentially to remain consistent with the high standard of design and construction of existing ALDI Warehouse and Distribution Facilities in Australia.

This consistency is achieved by use of a similar layout, and application of consistent materials, finishes and design elements. The reasoning behind this approach is to utilise and build upon successful elements of previous designs, and to continue to develop ALDI's corporate identity through built form.

The following photograph provides an example of the similar existing ALDI Warehouse and Distribution Facility at Prestons, NSW which has been operating since September / October 2009.



Photo 25: Aerial photograph of ALDI Warehouse and Distribution Centre at Prestons in NSW, the overall site layout and finishes will be similar to that of the Beresfield facility.

The plans prepared by Woodhead Architects (located at Appendix C) include a number of 3D perspectives.

Visual design is addressed further within section 6.2 of this report, and an Architectural Design Statement has also been prepared by Woodhead Architects (attached at Appendix D).

2.5 Access & Parking

The Freeway North Business Park site is accessed off Weakleys Drive via the New England Highway, F3 Newcastle-Sydney Freeway, and John Renshaw Drive (refer to the amended subdivision plan at Figure 4).

The proposed warehouse and distribution centre will be accessed via Road 1 (Canavan Drive) off Weakleys Drive. Access to the site for cars will be via an entry / exit driveway off Road 1 (Canavan Drive), and the main

access for trucks will be via a separate entry / exit driveway also off Road 1 (Canavan Drive) (please refer to the proposed site plan at Figure 3 and amended subdivision plan at Figure 4).

The proposed development incorporates 302 on-site, at-grade car parking spaces, including disabled parking, as well as dedicated motorbike and bicycle parking (please refer to the proposed site plan at Figure 3).

2.6 Hours of Operation

The proposed new warehouse and distribution centre will operate 24 hours per day, 7 days per week, 365 days per year.

2.7 Employment

There will be 162 warehouse staff working during the morning shift, 95 working during the afternoon shift, and 23 working during the night shift, for a total of 280 warehouse staff. In addition, the proposed warehouse and distribution centre will employ 59 office staff, which results in a total overall staff number of 339, spread over three shifts.

The maximum number of staff at the peak shift change will be 221 (162 warehouse and 59 office staff).

In addition, the proposed development will generate approximately 1,741 construction jobs per year, with 424 jobs being generated directly by the construction of the proposed warehouse and distribution centre, 330 jobs being generated by production induced effects (i.e. employment required by other industries to produce the inputs for the construction industry), and 987 jobs being generated by consumption induced effects (i.e. demand for additional goods and services due to increased spending across all industries arising from employment).

2.8 Waste Production and Disposal

A waste / refuse storage and removal area is located to the south of the warehouse building on the eastern side. This includes areas specifically designated for waste storage and separation, recycling and cardboard compaction. The refuse area is shown on the proposed site plan and proposed ground floor plan located at Appendix C.

2.9 Landscaping

The proposed development will incorporate appropriate landscaping (refer to Figures 5 + 5a) the extent of which includes:

- Planting of native trees, shrubs and grasses along each of the site boundaries;
- An Asset Protection Zone provided along the western boundary with native tree species planted with a mature canopy spacing of 2m and maintained no less than 5m from the edge of the building;

- Planting of exotic trees and shrubs with low water needs throughout the car park area;
- Planting of ornamental trees and shrubs with seasonal interest to frame car park entrance;
- Feature planting of exotic trees and shrubs with low water needs, to provide seasonal interest around the office building;
- Planting of an avenue of Populus trees along truck entry drive and native planting to the boundary; and
- Planting to screen fire tanks.

A Landscape Design Report and Plan have been prepared by SCAPE and are attached at Appendix E.

2.10 Security and Lighting

A palisade metal fence will flank the entry along the new subdivision road and will transition into a black PVC coated chain wire fence to secure the balance of the site on the southern, eastern and western boundaries.

The proposed development will incorporate full monitoring of all external doors and goods-in / goods-out docks, access controls to selected doors in the office building and amenities area, intruder alarms by PIR movement detectors to Ground Floor perimeter offices, and CCTV cameras for safety monitoring in the freezer room and as required elsewhere.

Outdoor lighting will be unobtrusive and functional. Outdoor lighting will include:

- Wall mounted low powered lights to egress doorways and to outdoor staff areas;
- Internally illuminated pylon signage 5.5m high to truck entry and car park entry;
- Internally illuminated ALDI logo façade signage;
- Soffit lights to main entry awning;
- Low height bollard lighting adjacent office building to facilitate way finding at night; and
- Car park security lighting comprising 12 to 15m pole mounted, downward facing, high efficiency lighting at appropriate levels to the Goods-In and Goods-Out truck pavements as well as main vehicle access way.



WESTERN BOUNDARY
- Endemic tree and grass species to be sourced or matched from adjacent woodland as appropriate;
- Embankment planted with trees at top of slope;
- Understorey to be hydroseeded with low maintenance native grasses to remainder of slope above retaining wall;
- Asset Protection Zone provided with native tree species planted with a mature canopies spacing of 2m and maintained no less than 5m from the edge of the building.

Hydroseeded low maintenance native grasses

NORTHERN BUFFER
- 18.0m wide buffer along boundary featuring groups of native trees;
- Hydroseeded understorey bands of native shrubs and low maintenance native grasses;
- Low swale to collect stormwater from the proposed culvert

MAIN CAR PARK ENTRANCE
- Ornamental trees and shrubs with seasonal interest to frame entrance to carpark and signage;
- Visibility splays maintained over low feature shrub planting.

CAR PARK
- Exotic trees and shrubs species with low water needs planted to carpark to minimise irrigation requirements;
- Stylestone path linking the road, through carpark to office for pedestrian access;
- 1.2m wide pathway between car parking bays, integrated with low hedge planting.

Main office entry

FEATURE PLANTING
- Exotic trees and shrubs to provide seasonal interest around office building;
- Formalised planting with hedges and selected tree species will aid screening of the car park while maintaining solar access;
- Species with low water needs planted to minimise irrigation requirements.

6.0m wide TurfPave emergency access route

Main truck entry

SOUTHERN BOUNDARY
- Endemic tree and grass species to be sourced or matched from adjacent woodland as appropriate;
- Embankment planted with trees at top of slope;
- 1:4 Embankment reinforced with geotextile;
- Understorey to be hydroseeded with low maintenance grasses to remainder of slope above retaining wall.

FIRE TANKS
- Dense 6.0m height minimum planting to screen fire tanks;
- 1.5m gravel strip to perimeter of tanks for maintenance access.

EASTERN BOUNDARY
- Avenue of native trees beside access road above retaining wall;
- Dense native tree and shrub planting along boundary to screen adjacent development;
- Understorey to be planted as semi-mature specimens to aid screening function.

TRUCK ENTRY DRIVE
- Median between driveway and hardstand to be avenue of Populus trees to create an avenue with the native planting to the boundary;
- Understorey to be low native grasses.

0 5 10 20 50 80M

STAGE 1 LANDSCAPE CONCEPT PLAN 1:1000

ALDI BERESFIELD
DESIGN STATEMENT – Concept Design Phase

INTRODUCTION
The site of the new ALDI Distribution Centre in Beresfield, near Maitland NSW is part of the South Beresfield Industrial Precinct. The site is currently vegetated with Lower Hunter Spotted Gum – Ironbark Forest. The project site is intended to be cleared of all existing vegetation and regraded to form a cut and fill platform as part of an approval obtained by the vendor of the site. Endemic species are proposed to be used as replacement planting around the boundary of the site affected by the clearing and earthworks.

The existing site topography is gently sloping towards the eastern boundary. A predominantly native landscape character will be implemented with local endemic tree selections and low maintenance native grassland, providing a water wise, natural landscape treatment complimentary with the adjacent woodland setting. Site top soils will be stored for re-use in the landscape works where possible and a low water planting regime will be adopted. The majority of the site will not be irrigated, with irrigation restricted to the feature exotic and native combination planting around the carpark and office building. The overall landscape concept will offer a pragmatic solution to rehabilitating the site with long term management and sustainability in mind. A new road will constructed by the vendor to service the development. The landscape works associated with the road construction are outside the scope of this project.

PLANTING CONCEPT
The plant species selection will predominantly be a native woodland character with endemic native trees and native grasses. Shrub planting will be used to locations where access for mower maintenance is not achievable due to level restrictions. High quality material selections will complement the architecture providing a practical and low management regime.

A high level of landscape amenity will be provided to the office building entry, ground level staff lunch area and associated breakout spaces. Nominated species including Grevillea 'Honey Gem', Phormium tenax 'Purpurea' (Purple Flax), Photinia robusta (Photinia), Juniperus horizontalis (Creeping Juniper) and Lomandra longifolia 'Tanika' will be low maintenance and drought tolerant in keeping with the surrounding site character, however species will be carefully selected to also provide a variety of colour and texture to create a feature landscape. The planting will reflect the drainage characteristics of the site within the landscape. Plant and tree selections for the native buffer planting to all four boundaries will be drawn from locally endemic species with proven performance appropriate to the site conditions. These species have been identified from the Ecological Report and will include Corymbia maculata (Spotted Gum), Eucalyptus crebra (Narrow-leaved Ironbark) and Eucalyptus punctata (Grey Box) with an understorey to include Melaleuca linarifolia (Snow-in-Summer) and Melaleuca stypheloides (Prickly-leaved paperbark). It is intended to create a low management maintenance regime to the hydroseeded areas by developing a seed mix which is appropriate to the site and adheres to maintenance requirements.

The Preliminary Ecological Report by Ecohub Pty Ltd ecological consultants (prepared for rezoning in 2007) outlines the species found on site as part of the Lower Hunter Spotted Gum Ironbark Forest. Newcastle City Council have also prepared a Plant Matrix (5.3 Western Suburban Zone) which outlines a number of species which may be suitable for the area including those which are indicative to the Hunter Valley. These lists have been used as a guide, as well as review of species planted in other ALDI sites, to prepare a plant species list for the project.

CAR PARK
Bands of native tree planting will be provided along the northern frontage of the carpark to provide a landscape screen. Deciduous specimen trees will be used in the carpark planters to provide shade for vehicles including Jacaranda mimosifolia (Jacaranda) and Sapium sebiferum (Chinese Tallowood). The carpark surface will be bitumen, with feature paving to the pedestrian paths in the car parking areas. The car park will be terraced with 900mm maximum high split faced coloured concrete block work walls. Planting will be placed atop the wall with hedging closest to the edge for safety. Pedestrian paths will provide access along the bottom of the walls to the main pedestrian routes to the office. The landscape will enhance the amenity of the site and optimise solar management to the northern aspect of the office building. The carpark landscape will be irrigated using a sub terrain drip irrigation system using harvested water from the proposed buildings roof.

ENTRY DRIVE AND SECURITY
Entry to the site will be from the east via the new access road with ALDI signage denoting the site entry. The northern boundary will incorporate a combination of low maintenance hydroseeding with organic shaped bands of native tree plantings as an entry feature to the site, reflective of the existing woodland vegetation adjacent to the site. The landscape treatment and signage will be integral with the boundary fencing. A palisade metal fence will flank the entry along the new subdivision road and will transition into a black PVC coated chain wire fence to secure the balance of the site on the southern, eastern and western boundaries. The truck and car vehicular access points are separate crossover entries from the new access road, with a separate pedestrian entry through the carpark direct to the office building.

OFFICE BUILDING
The design intent is to optimise the solar aspect to the north with a structured landscape which reinforces the building entry and carpark infrastructure. The landscape which surrounds the office building will be visually appealing from the higher levels, and will provide colour and interest as a feature around the building through a layered planting layout of hedging, grasses, and tree planting. A 1.5m wide coloured paver path around the office building will provide pedestrian/service access.

BREAK OUT SPACE
The break out space is located between staff lunch amenities and the carpark. Simple formalised planting will enclose the space and accent planting will provide visual interest. The northern location of the break out spaces will optimise environmental amenity, providing an ideal location for indoor/outdoor staff amenity. This area will be hard paved with quality outdoor furniture. The landscape treatment adjoining to the terrace will provide visual screening to the carpark whilst optimising solar access. The pedestrian pathway lies adjacent to the Break Out Space with a planter with ornamental shrubs providing a visual buffer from and a feature edge between the two zones for the staff.

ASSET PROTECTION ZONE (APZ)
The western boundary of the site requires a Bushfire Asset Protection Zone as dense bushland will be retained on the adjacent property into the future. The APZ will need to conform to landscape planting recommendations as listed in the Planning for Bushfire Protection document published by the NSW Rural Fire Service. The species will be native species, planted at minimum mature canopy spacing of 2m, with the mature canopy no closer than 5m from the edge of the building. The landscape planting zone between the perimeter fire access road and the boundary will form the Outer Protection Zone for the site, with small groups of grasses and shrub understorey which can be easily maintained to reduce leaf litter to the ground plane.

INDICATIVE IMAGES OF SITE FINISHES (IMAGES GENERALLY FROM SIMILAR ALDI NSW & VIC FACILITIES)


TREES PLANTED IN PARKING BAYS

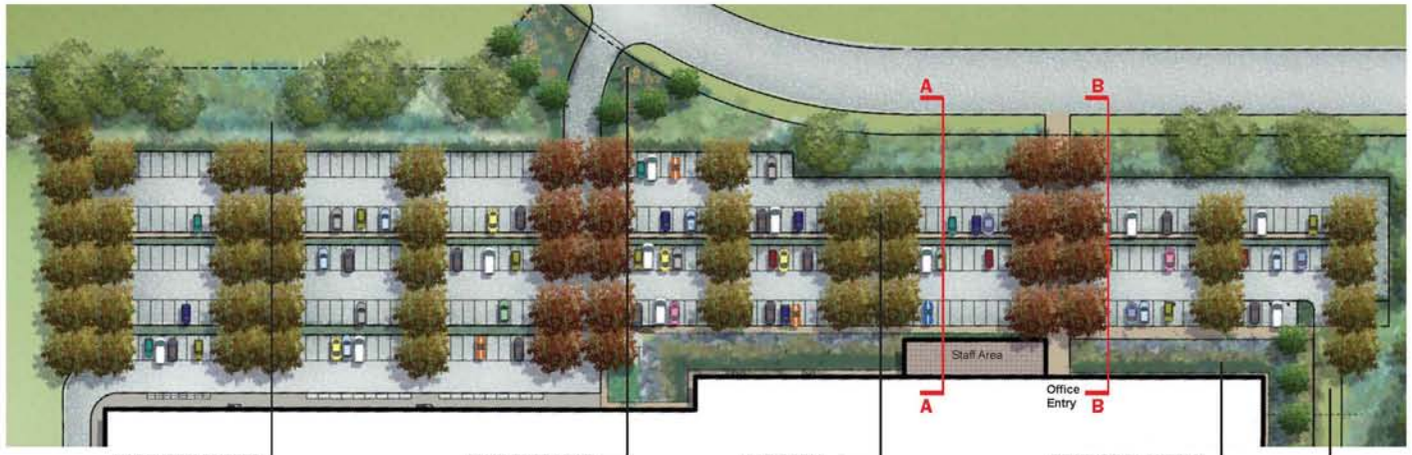

TUBULAR METAL SECURITY FENCE


CHARCOAL SPLIT STONE FACE FINISHED RETAINING WALL


STYLE STONE PAVING TO PATHS AROUND BUILDING


FEATURE PLANTING AROUND BUILDING

Figure 5
Landscape Plan



NORTHERN BUFFER
- 18.0m wide buffer along boundary featuring groups of native trees;
- Hydroseeded understorey bands of native shrubs and low maintenance native grasses;
- Low swale running west to collect stormwater from the proposed culvert.

MAIN ENTRANCE
- Small feature trees and shrubs with seasonal interest to frame entrance to carpark and signage;
- Visibility splays maintained over low feature shrub planting.

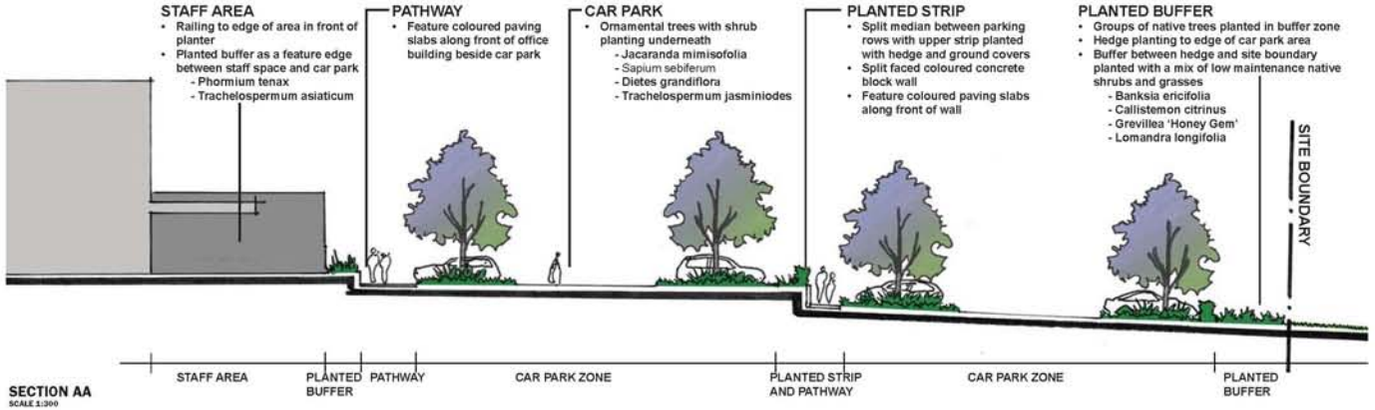
CAR PARK
- Exotic trees and shrubs species with low water needs planted to carpark to minimise irrigation requirements;
- Stylestone path linking the road, through carpark to office for pedestrian access;
- 1.2m wide pathways between carparking bays, integrated with low hedge planting.

FEATURE PLANTING
- Exotic trees and shrubs to provide seasonal interest around office building;
- Formalised planting with hedges and selected tree species will aid screening of the car park while maintaining solar access;
- Species with low water needs planted to minimise irrigation requirements.

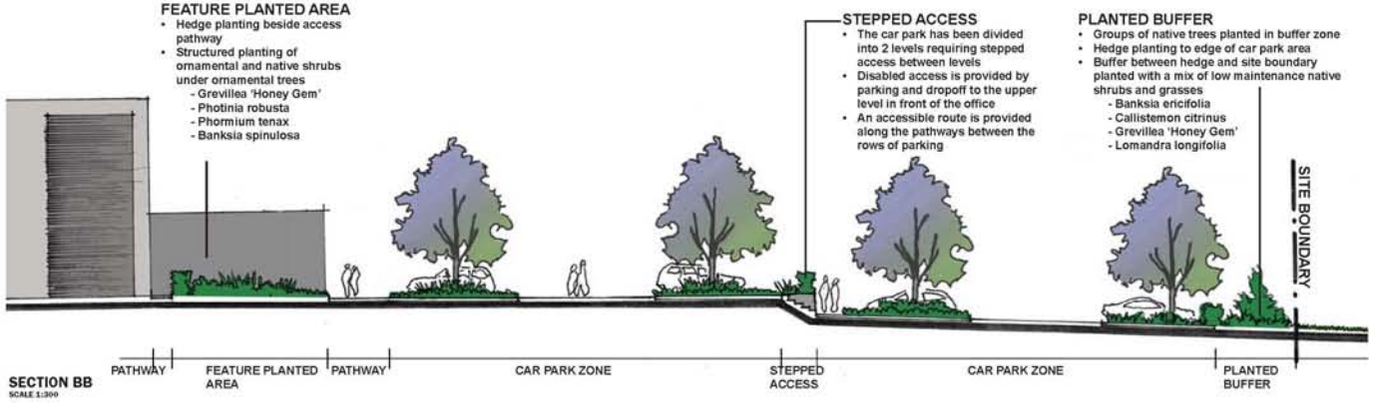
6.0m wide TurfPave emergency access route

0 5 10 15 25M

STAGE 1 CAR PARK PLAN 1:500



SECTION AA
SCALE 1:300



SECTION BB
SCALE 1:300

RECOMMENDED PLANTING PALETTE


Angophora costata


Corymbia maculata


Eucalyptus ficifolia


Eucalyptus saligna


Eucalyptus punctata


Jacaranda mimosifolia


Populus deltoides


Sapium sebiferum


Doryanthes excelsa


Grevillea 'Honey Gem'


Melaleuca linariifolia


Banksia ericifolia


Dietes grandiflora


Lomandra katrinus


Trachelospermum jasminoides

SPECIES SCHEDULE

Code	Botanical name	Common Name	Pot Size	Minimum Height and Spread	Spacings	Mix: percentage/ planting area
	Trees					
T1	Angophora costata	Smooth-Barked Apple	100L	2.4m		SP
T2	Casuarina cunninghamiana	River Oak	15L	1.2m		SP
T3	Corymbia maculata	Spotted Gum	100L	2.4m		SP
T4	Eucalyptus crebra	Narrow-leaved Ironbark	15L	1.2m		SP
T5	Eucalyptus ficifolia	Red Flowering Gum	45L	1.8m		SP
T6	Eucalyptus microcorys	Tallowwood	15L	1.2m		SP
T7	Eucalyptus pilularis	Blackbutt	15L	1.2m		SP
T8	Eucalyptus punctata	Grey Box	15L	1.2m		SP
T9	Eucalyptus saligna	Blue Gum	45L	1.8m		SP
T10	Jacaranda mimisofolia	Jacaranda	200L	3.5x3.0m		SP
T11	Populus deltoides	Eastern Cottonwood	100L	2.9x1.2m		SP
T12	Sapium sebiferum	Chinese Tallowwood	100L	1.2m		SP
	Mid Canopy					
	Callistemon viminalis	Weeping Bottlebrush	25L	600mm	1.0m	Individual species in groups of 4-7
	Grevillea hookerana	Hooker's Grevillea	300mm	750mm	1.0m	
	Grevillea x 'Ivanhoe'	Ivanhoe	300mm	750mm	1.0m	
	Melaleuca ericifolia	Swamp Paperbark	300mm	750mm	1.0m	
	Melaleuca linariifolia	Snow-in-Summer	25L	600mm	1.0m	
	Melaleuca nodosa	Prickly-leaved paperbark	25L	600mm	1.0m	
	Melaleuca stypheloides	Prickly-leaved paperbark	300mm	750mm	1.0m	
	Shrubs					
	Banksia ericifolia	Candle Sticks	300mm	750mm	1.0m	6%
	Banksia spinulosa	Hairpin Banksia	150mm	300mm	0.5m	6%
	Buxus japonica	Japanese Buxus	150mm	300mm	0.5m	2%
	Callistemon cintrinus	Lemon Scented Bottlebrush	300mm	750mm	1.0m	4%
	Doryanthes excesla	Gymea Lily	25L	750mm	1.0m	2%
	Grevillea 'Honey Gem'	Honey Gem	300mm	750mm	1.0m	5%
	Grevillea rosmarinifolia	Rosemary Grevillea	150mm	300mm	0.5m	4%
	Phormium tenax 'Purpurea'	Purple Flax	300mm	750mm	1.0m	3%
	Photinia robusta	Photinia	150mm	300mm	0.75m	5%
	Viburnum japonica	Japanese Viburnum	150mm	300mm	0.75m	3%
	Groundcovers					
	Dietes grandiflora	Wild Iris	150mm	300mm	0.5m	15%
	Juniperus horizontalis	Creeping Juniper	150mm	300mm	1.0m	3%
	Lomandra longifolia 'Katrinus'	Katrinus	150mm	300mm	0.5m	10%
	Lomandra longifolia 'Tanika'	Tanika	150mm	300mm	0.5m	10%
	Trachelospermum asiaticum	Yellow Star Jasmine	150mm	300mm	1.0m	1%
	Trachelospermum jasminoides	Star Jasmine	150mm	300mm	1.0m	1%
					Total	80%

Notes:
1. The species mix percentages are estimates and require a detailed planting plan to confirm exact numbers and locations.
2. Hydroseeded grass mix to cover 13500m2 total.
3. Planted area to cover 24900m2 with the Native Buffer Area comprising 16000m2. It is proposed that mid-canopy species planted within the Native Buffer Area will be calculated as covering 20% of the total planted area with the remaining 80% planted with shrubs and ground covers.
4. The landscaped area around the Office Building and car park will receive greater density of plantings. Percentages for exotic and ornamental species relative to the overall area have been increased to accomodate this.

Figure 5A
Landscape Detail Plan

SCAPE ALDI woodhead

2.11 Fuel & Chemicals Storage

The proposed development will see the following fuels and chemicals stored on site:

- Methylated Spirits, Turpentine and Citronella oil
  - Class 3, Packaging Group (PG) III – 7000 tonnes max storage permitted before classification as a Dangerous Goods location. Storage will not exceed 7000 tonnes.

- Granulated chlorine 10kg
  - Class 5.1, Packaging group (PG) II – 1 tonne max storage permitted before classification as a Dangerous Goods location. These will be stored separately to other Class 3, 5 and 8 materials or other combustibles by 5m minimum and the volume stored will not exceed 1 tonne.

- Butane lighters
  - Class 2.1 – 2 tonne max storage before Dangerous Goods location. Quantity stored will not exceed 2 tonnes of flammable materials.

- Liquid chlorine
  - Class 8, Packaging Group (PG) III – 50 tonnes max storage before classification as a Dangerous Goods location. Storage will not exceed 50 tonnes.

- Diesel
  - Class C1 – 2 x 60,000 Litre (120,000L total) underground fuel tanks will be stored on site. Class 3 materials will be separated from the diesel storage tanks by more than 7.5 metres and so the diesel to be stored is not classified as a dangerous good.

The 2 x 60,000 litres underground diesel fuel tanks to be installed will be double walled tanks with double wall delivery pipelines. The proposed fuel storage and handling facilities will be designed in accordance with the requirements of *AS 1940 – The Storage and Handling of Flammable and Combustible Liquids.*

2.12 Existing Warehouse and Distribution Facilities Run by ALDI Foods Pty Ltd

ALDI Foods Pty Ltd has been operating internationally for over 50 years, and since January 2001, has opened over 200 stores throughout Australia, successfully operating across New South Wales, ACT, Queensland and Victoria.

Other warehouse and distribution facilities run by ALDI Foods Pty Ltd within Australia include those located at:

- Minchinbury, NSW;
- Prestons, NSW;
- Derrimut, VIC;
- Dandenong, VIC;

- Stapylton, QLD; and
- Brendale, QLD (to be constructed).

2.13 Consideration of Alternatives

ALDI Foods Pty Ltd, in undertaking this project, carefully considered a wide variety of development options including a number of site alternatives for the provision of a warehouse and distribution centre. Some of the alternative sites considered include:

1) Morisset;
2) Two different sites at Warnervale; and
3) Somersby.

3.0 Site Analysis and Overview of the Existing Environment

3.1 Introduction

This section provides the property description and owner's details, as well as a detailed site analysis and an overview of the affected environment.

3.2 Recent Subdivision Approval (90 Lots)

A Concept Plan and Project Application for the Freeway North Business Park and 90 lot subdivision, with associated infrastructure, was approved by the Minister for Planning on the 29th September, 2008 (06_0199). Please refer to the approved subdivision plan located at Appendix B.

The approved 90 lot Torrens Title subdivision comprises 4 stages. Lots generally range from 1720m^2 to 2.08ha. Two lots, created for the purpose of drainage reserves and environmental land, comprise 16.33ha (northwest portion of the site) and 13.5ha (southern portion of the site). These two lots will be dedicated to Council.

Two entry points to the site will be created from Weakleys Drive as part of the approved subdivision. One involves the construction of a two lane roundabout on Weakleys Drive, and one will be a left-in / left-out intersection further south of the roundabout. Hunter Land are in the process of completing detailed engineering designs to be lodged and approved with the RTA. Construction will commence once approval has been obtained from the RTA.

The proposed ALDI development has necessitated an amendment to the recent subdivision approval including some amendments to the road and lot layout, staging, and stormwater drainage of the subdivision (please refer to Figure 4).

The following environmental issues were addressed as part of the approved subdivision (MP 06_0199):

- Vegetation removal (flora and fauna);
- Aboriginal archaeology;
- Contamination;
- Traffic – including external road networks;
- Stormwater and flooding; and
- Bulk earthworks.

3.3 Property Description and Owners Details

The land that is the subject of the previous concept plan and project application approval (06_0199) is described as Lot 14 DP 1091199, Lot E DP 388733 and Lot 14 DP 207961, Freeway North Business Park, Beresfield. The site is owned by Hunter Land Holdings Pty Ltd.

The proposed "development site" has an area of approximately 15 hectares, and is referred to as proposed Lot 124 on the amended subdivision plan (please refer to **Figure 4**).

Copies of the Deposited Plans and the Certificates of Title have been provided as part of the application documentation.

3.4 The Locality and Site

The 15ha development site is located at the northern end of the F3 Freeway and southern end of the New England Highway, to the west of Weakleys Drive, within the Freeway North Business Park, Beresfield.

The locality of the site is shown in the following figures:



Figure 6: Locality Plan – Regional Context.

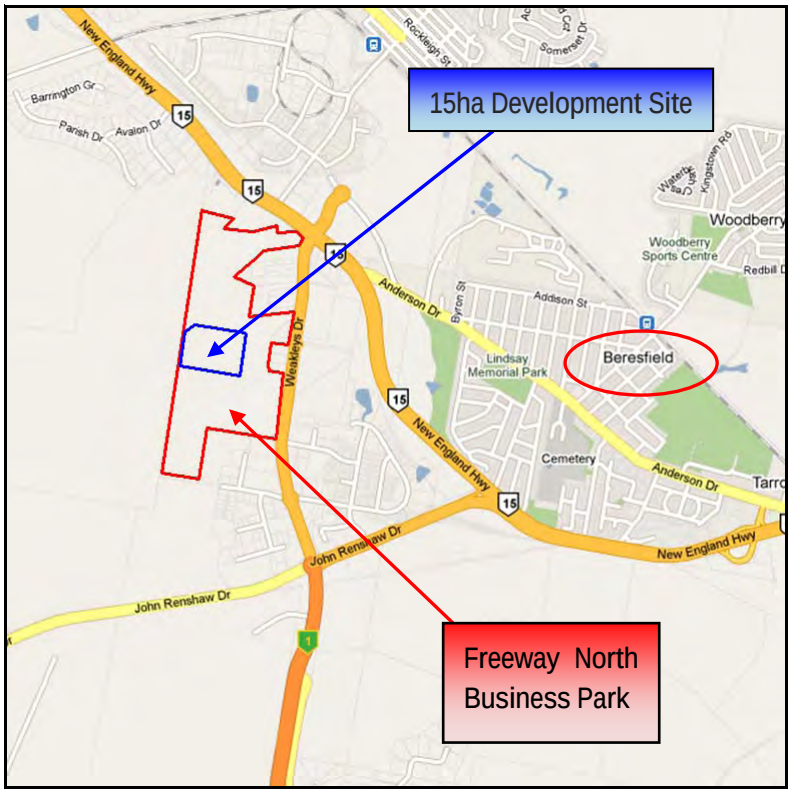


Figure 7: Locality Plan – Beresfield Context.

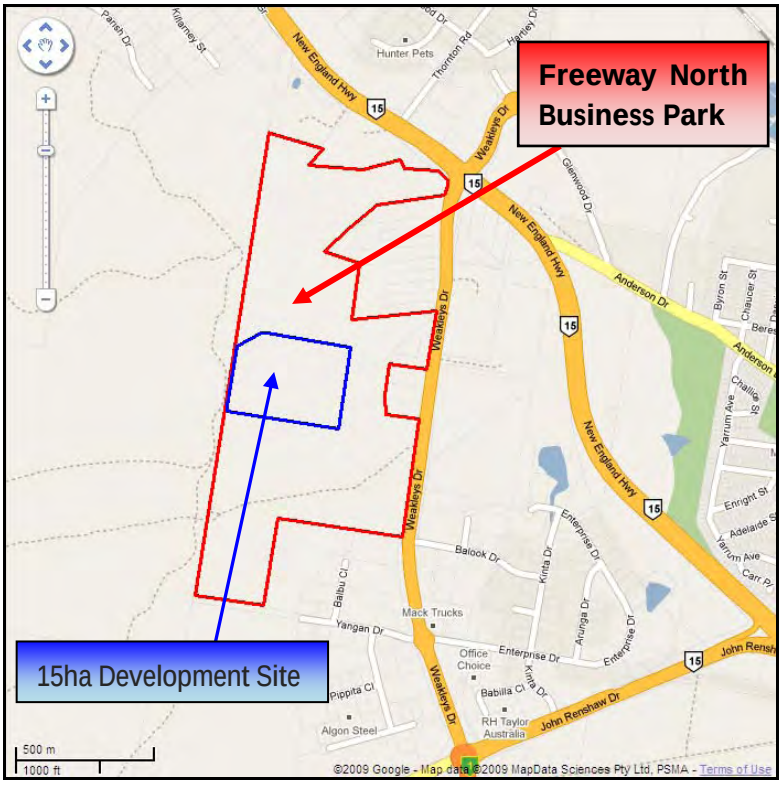


Figure 8: Locality of site.

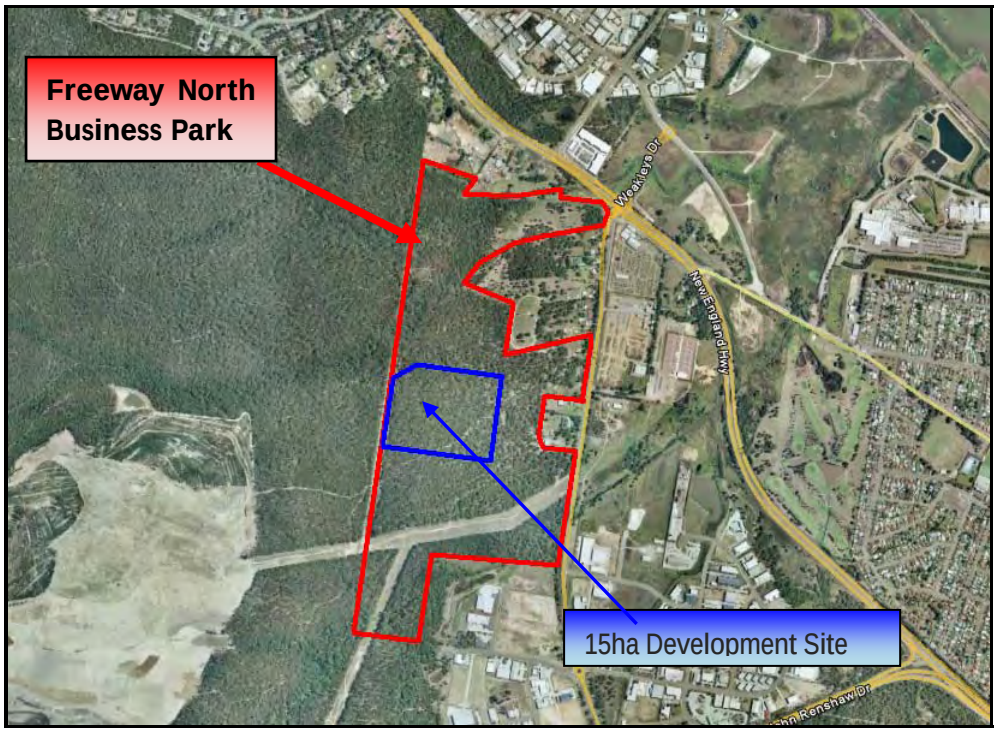


Photo 26: Aerial photo of site.

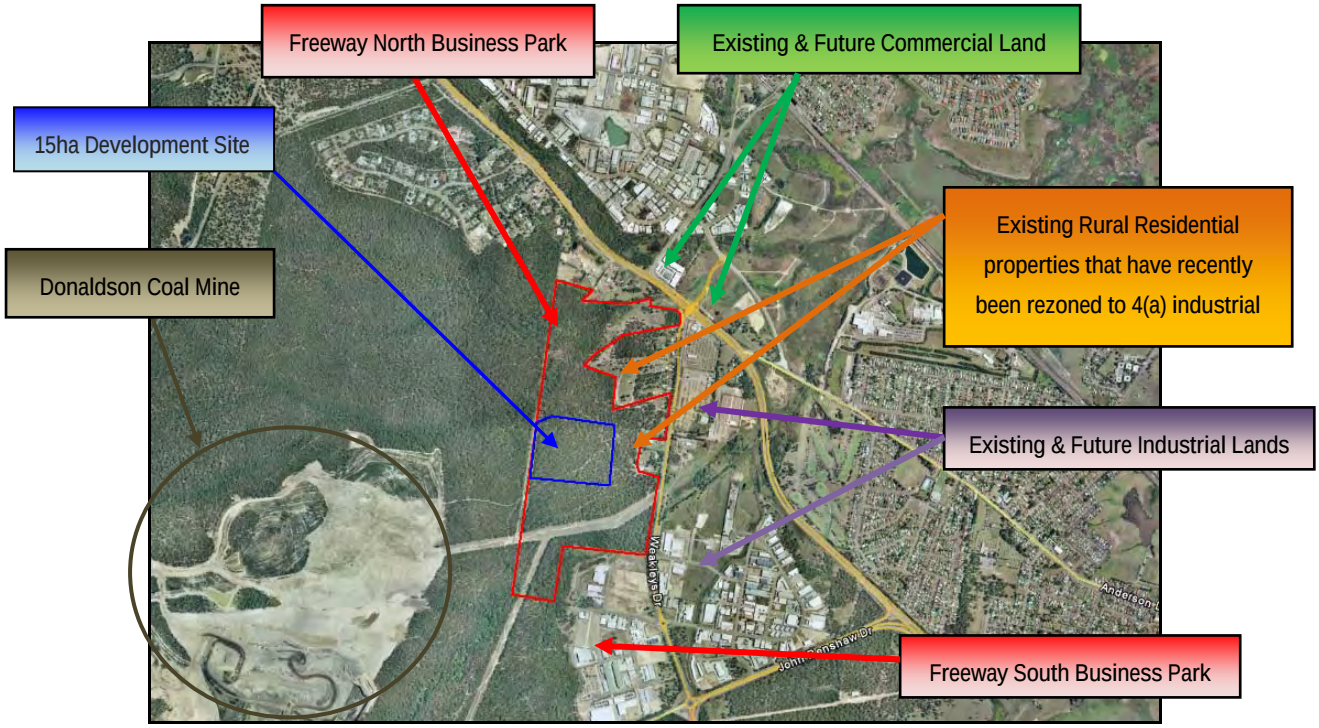


Photo 27: Aerial photo of site and surrounding pattern of development.

3.5 Current Uses on the 15ha Site

The 15ha development site is vacant land, and is currently heavily vegetated, however the site will be cleared of vegetation as part of the approved subdivision works (refer to Photo 26 above showing the existing site).

3.6 Adjoining Lands

The surrounding land uses include existing and future industrial / commercial land.

The New England Highway lies to the north of the site. Vacant and cleared land is located to the northeast of the site, with bushland lying to the northwest. Land to the North of the New England Highway contains the existing 110ha Thornton Industrial Estate and currently vacant land that will accommodate further commercial / industrial uses.

The site is bound to the east by Weakleys Drive. Beyond Weakleys Drive is a car wrecker yard, Koppers timber facility, new commercial / industrial developments and an Energy Australia work compound, part of which has recently been developed into a substation. Existing rural residential properties are located adjacent to the site along the western side of Weakleys Drive. These properties have been rezoned 4(a) and will change over time.

Land to the south contains the existing Freeway South Business Park and bushland to the south east. A proposed industrial area identified in the Lower Hunter Regional Strategy is located to the south of John Renshaw Drive.

Land to the west contains existing bushland which forms a buffer between the site and Donaldson Coal Mine (located in Maitland LGA) to the southwest, and is identified as Environment Protection land under the Maitland LEP 1993.

Donaldson Coal Mine is located approximately 350m to the southwest of the subject site (refer to Photo 27 above).

3.7 Topography

The Business Park site is characterised by a ridge running in a north-east direction across the southern half of the site. The site slopes down to Scotch Dairy creek and the north-east corner on the northern side of the ridge, and down to Weakleys Flat Creek and Weakleys Drive on the southern side of the ridge. The site rises moderately in the far north-west corner.

The subject site levels fall from approximately RL 27.0m at the south boundary to RL 14.0m at the north western corner and to RL 23.0m at the north eastern corner. All levels are quoted to Australian Height Datum (AHD). The land slopes more steeply at the north western corner (approximately 1 in 10) and more gently at the northern boundary (approximately 1 in 17).

During the subdivision works approved by Major Project 06_0199, and the amendments, the site will undergo extensive bulk earthworks in order to provide a level building platform for the ALDI project. The 15ha development site will be graded and finished in accordance with ALDI specifications.

3.8 Vegetation & Threatened Species

The 15 ha site is currently covered by vegetation. The site will be cleared as part of the bulk earth works. The aerial photos (26 & 27) of the site show the extent of current vegetation within the site. A vegetation off-set associated with clearing of the vegetation has already been provided.

3.9 Access & Road Network

3.9.1 Access

Access to the proposed site of the warehouse and distribution centre will be via Road 1 (Canavan Drive) off Weakleys Drive (to the west), which will be constructed in the first stage of the subdivision. Access to the site for cars will be via an entry/exit driveway off Road 1 (Canavan Drive), and the main access for trucks will be via a separate entry/exit driveway also off Road 1 (Canavan Drive) (refer to the proposed site plan at Figure 3 and amended subdivision plan at Figure 4).

3.9.2 Road Network

The access roads to the proposed warehouse and distribution centre are part of a larger surrounding road network which provides good connectivity and includes Weakleys Drive, the F3 Newcastle-Sydney Freeway, the New England Highway and John Renshaw Drive. Weakleys Drive forms a strategic link between the current northern end of the F3 Freeway and the southern end of the New England Highway. Both of these roads are part of the AusLink network of land transport corridors, with the F3, New England Highway and Pacific Highway being major roads that link Sydney and Newcastle to the Hunter Valley, northern New South Wales, Brisbane and other parts of Queensland.

3.10 Bushfire

The proposed site is identified as being in a Bushfire Prone Area (Vegetation Category 1). Consideration has been given to the provisions of "Planning for Bushfire Protection (2006)".

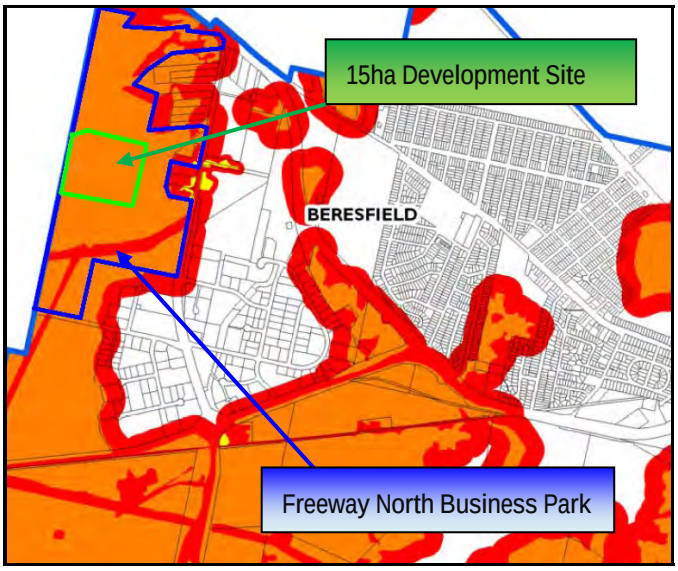


Figure 9: Extract from Newcastle Bushfire Prone Land map.

3.11 Aboriginal Archaeology

An Aboriginal Heritage Impact Assessment of the Freeway North Business Park was undertaken in 2007 by South East Archaeology, with representatives of the local Aboriginal community participating. During the field survey, 18 Aboriginal heritage sites were recorded, and all Aboriginal heritage sites related to stone artefact occurrences, with a total of 178 stone artefacts recorded.

The ALDI development site will be cleared of any Aboriginal archaeological constraints as part of the approved subdivision works, and no further investigation is required.

3.12 European Heritage

There are no heritage items on the site that are listed in Schedule 6 of the Newcastle LEP 2003.

3.13 Flooding and Drainage

The overall Freeway North Business Park site incorporates three catchments, including Scotch Dairy Creek, Weakleys Drive and Viney Creek. The 100 year flood envelope within Scotch Dairy Creek varies from 5.3m AHD to 9.9m AHD across the northern part of the site. Flooding within the Freeway North Business Park is restricted to the creekline corridors and no development is proposed for these areas.

The finished floor levels of the 15ha ALDI site are in the order of 20-23m AHD. Impacts from flooding on the site and development are unlikely.

3.14 Road Widening

Road authorities have identified Weakleys Drive to be upgraded to provide two lanes in both directions, and it is understood that the RTA has acquired land on both sides of the road to facilitate this work. This will not affect the 15ha development site.

3.15 Contamination

A Phase 1 Environmental Site Assessment prepared by Parsons Brinkerhoff Pty Ltd found some potentially contaminating activities on site, including the stockpiling of building rubble, rubbish and car bodies.

Despite initial recommendation that remedial works be undertaken, for the site to be considered at low risk of potential land contamination, and therefore suitable for the proposed land use, the Phase 1 Environmental Site Assessment concluded that contamination would not be an issue requiring any further investigation. This will not affect the 15ha development site.

3.16 Geotechnical and Mine Subsidence

The Environmental Site Assessment prepared by Parsons Brinkerhoff in April 2005 for the Freeway North Business Park proposal notes that the regional geological map of the area (Newcastle Coalfield Regional Geology, Edition 1 199b. Geological Series Sheet 9231 and part of 9131, 9132 and 9232, Scale 1:100,000)

indicates that the site is underlain by Permian aged Tomago Coal, and Measures consisting of sandstone, tuff, claystone, siltstone and coal.

The Acid Sulfate Soil (ASS) Risk Map of the area (Department of Land and Water Conservation, 1997, ASS Risk Map, Beresfield, Edition Two, 1:25,000) indicates that the subject site is predominantly situated on bedrock slopes. The ASS Risk map indicates there is no known occurrence of acid sulfate soil materials.

The regional soils map (Department of Land and Water Conservation, 1995, Soil Landscape Series Sheet 9232, Newcastle, Scale 1:100,000) indicates that the site is located on undulating low hills and rises on Permian sediments in the East Maitland Hills region.

The Environmental Site Assessment (2005) also identifies that Newcastle Council's Planning 149 Certificate states that the site is not within a Mine Subsidence District. The Mine Subsidence Board confirmed that the site is not in a Mine Subsidence District.

3.17 Services

Power, water, sewer and telecommunications are provided to the site. There are currently no gas mains serving the proposed development site, however under the current tender between ALDI and Hunter Land, Hunter Land will provide natural gas connection to the development. If the proposed gas connections are not provided then ALDI will consider the use of on-site LPG storage.

4.0 Planning Context

4.1 Introduction

The purpose of this section is to outline the applicable planning controls and statutory requirements relating to the site and the proposed warehouse and distribution facility. This section explores the relevant Commonwealth and State Legislation, State Planning Controls, Regional Planning Controls and Local Planning Controls, and provides an overview of the approval process for the project.

4.2 Commonwealth Legislation

4.2.1 Environment Protection and Biodiversity Conservation Act 1999

This Act (EPBC Act) was introduced in 1999, and replaces several dated Environmental Protection and Conservation Acts. The EPBC Act aims to protect seven matters of national environmental significance being;

- World Heritage properties;
- National heritage places;
- Wetlands of international importance (Ramsar wetlands);
- Threatened species and ecological communities;
- Migratory species;
- Commonwealth marine areas; and
- Nuclear actions (including uranium mining).

The proposed distribution centre development will not have a significant impact on any of the above matters. Referral under the EPBC Act is therefore not considered necessary.

4.3 State Legislation

4.3.1 Environmental Planning and Assessment Act 1979 & Regulation 2000

The EPA Act 1979 and the EPA Regulation 2000 constitute the principle planning legislation in NSW and provide the statutory framework for the assessment of this proposed development.

Consideration has been given to the objects of the EP & A Act 1979 and these are addressed below:

a) To encourage:

I. *The proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*

The proposed development will help to boost the physical, social and economic welfare of the community by providing a facility that will create increased employment opportunities, through both construction and operation. The site is ideally located for this purpose being situated between the population centres of Newcastle and Maitland, and in close proximity to the Newcastle-Sydney Freeway.

The proposed development will not have significant adverse impacts on the immediate or surrounding natural or built environment.

II. *The promotion and co-ordination of the orderly and economic use and development of land,*

The proposed development is consistent with this object. The location of the proposed warehouse and distribution centre, within the Freeway North Business Park (an approved industrial subdivision 06_0199), is within close proximity to key transport routes including the Newcastle-Sydney Freeway and Pacific Highway. This demonstrates an appropriate, orderly and economic use of the land, promoting the principles of highest and best use.

III. *The protection, provision and co-ordination of communication and utility services,*

The proposal will meet this object.

IV. *The provision of land for public purposes,*

The proposed development will not diminish the ability to provide land for public purposes.

V. *The provision and co-ordination of community services and facilities, and*

The proposed development will not inhibit the provision and co-ordination of community services and facilities.

VI. *The protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*

The land has not been identified as including or comprising critical habitat.

VII. *Ecologically sustainable development, and*

The proposed building design has been developed to provide for ESD principles. In addition, throughout the construction and operation of the proposed development ESD principles and guidelines will be implemented and adhered to.

VIII. *The provision and maintenance of affordable housing, and*

This object is not applicable to the proposed development.

b) *To promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and*

The proposal is consistent with this object.

c) *To provide increased opportunity for public involvement and participation in environmental planning and assessment.*

The Part 3A process under which this development is being considered allows extensive public involvement.

The proposed development is considered to be consistent with all of the objects of the EP & A Act.

4.3.2 Threatened Species Conservation (TSC) Act 1995

The TSC Act 1995 provides a framework for the listing and declaration of threatened species, populations, endangered ecological communities, key threatening processes and critical habitat. It also provides a framework for the preparation and implementation of recovery plans and threat abatement plans and for licensing.

The 2007 ecological report prepared by Ecohub, for the previous 90 Lot subdivision, concludes that the site comprises two vegetation communities listed as Endangered Ecological Communities and provides habitat for several significant species pursuant to the TSC Act 1995. These communities and species are the:

- Lower Hunter Spotted Gum Ironbark Forest EEC;
- River-flat Eucalypt Forest EEC;
- Black-chinned Honeyeater;
- Greater Broad-nosed Bat; and
- Eastern Freetail Bat.

The 2007 Ecohub report concludes that compared to ecosystems at the local level, the ecosystem health of the Freeway North Business Park site is poor, with the creek-line areas dominated by a range of exotic flora species and upland habitats having been disturbed by clearing. The integration of other conservation initiatives with those proposed on the subject site will result in a large, diverse, well connected network of habitats that will support local species, populations and communities.

The 2007 report indicates that the proposed rezoning of the area for commercial uses, for which the report was written, would not compromise the integrity of the broader connected habitat to the extent that species, populations or communities would be placed at risk of extinction.

4.4 State Environmental Planning Policies

4.4.1 SEPP (Infrastructure) 2007

The general aim of this Policy is to facilitate the effective delivery of infrastructure across the State of NSW. Clause 104 – Traffic Generating Development, of this SEPP is considered to apply to the proposed development.

Clause 104 of the SEPP applies to development listed in Schedule 3 which identifies traffic generating developments that require referral to the RTA. The proposed warehouse and distribution centre is identified as traffic generating development under Schedule 3 of the SEPP and therefore will require referral to the RTA.

4.4.2 SEPP (Major Development) 2005

This SEPP defines certain developments that are major projects under Part 3A of the Environmental Planning and Assessment Act 1979 and determined by the Minister for Planning. The SEPP also lists State significant sites.

The proposed development is identified as being a Part 3A Major Development under Schedule 1, Group 4, Clause 12 – Distribution and Storage Facilities, of the SEPP. The proposed development has a capital investment value of $100 million, and is for the purpose of providing a warehouse and distribution centre for ALDI Foods Pty Ltd.

The Director-General's Clause 6 Opinion declaring the proposed development to be a Part 3A Major Development has been included as Appendix A.

4.4.3 SEPP No. 33 – Hazardous and Offensive Development

This SEPP provides new definitions for 'hazardous industry', 'hazardous storage establishment', 'offensive industry' and 'offensive storage establishment'. The definitions apply to all planning instruments, existing and future. The new definitions enable decisions to approve or refuse a development to be based on the merit of the proposal. The policy also requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the policy.

It is proposed that 120,000 litres of diesel will be stored in 2 x 60,000 litre underground fuel tanks (isolated from Class 3 dangerous goods). Diesel is classified as a C1-combustible liquid with a flash point above 61 degrees Celsius but not exceeding 150 degrees Celsius. Combustible liquids are any liquids other than flammable liquids that have a flash point and that have a fire point less than their

boiling point. Diesel is not classified within the Dangerous Goods Code in this situation, and as such SEPP 33 does not apply to the proposed development with respect to diesel.

The following materials will also be stored on site (away from the Diesel). The quantities stored will not exceed the thresholds detailed below:

Methylated Spirits, Turpentine and Citronella Oil	7,000 tonnes
Granulated Chlorine	1 tonne
Butane Lighters	2 tonnes
Liquid Chlorine	50 tonnes

Because these quantity thresholds will not be exceeded, the development is not classified as 'potentially hazardous' and SEPP 33 will not apply.

4.4.4 SEPP No. 55 – Remediation of Land

This SEPP introduces state-wide planning controls for the remediation of contaminated land. The policy states that land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed. The policy makes remediation permissible across the State, defines when consent is required, requires all remediation to comply with standards, ensures land is investigated if contamination is suspected, and requires councils to be notified of all remediation proposals.

A Phase 1 Environmental Site Assessment was undertaken by Parsons Brinkerhoff Pty Ltd in 2007 for the Freeway North Business Park project. Their report recommended some remedial works to be undertaken for the site to be considered suitable for the proposed land use. The remedial works will be undertaken as part of the 90-lot subdivision work and as such the subject site will be made suitable with respect to contamination prior to the construction of the proposed warehouse and distribution centre.

4.4.5 SEPP No. 64 – Advertising and Signage

This SEPP aims to ensure that outdoor advertising is compatible with the desired amenity and visual character of an area, provides effective communication in suitable locations and is of high quality design and finish. This SEPP was amended in August 2007 to permit and regulate outdoor advertising in transport corridors (e.g. freeways, tollways and rail corridors). The amended SEPP also aims to ensure that public benefits may be derived from advertising along and adjacent to transport corridors.

Signage is included as part of the proposed development and is discussed further within Section 6.2.5 of this report.

4.5 Regional Environmental Plans and Strategies

4.5.1 Lower Hunter Regional Strategy

The Lower Hunter Regional Strategy was released as a draft in December of 2005, and as a final document in October 2006. In summary, the purpose of the strategy is to provide broad guidance to future planning for the Lower Hunter, with the following general aims:

- To promote Newcastle as the regional city, with a hierarchy of urban centres;
- To provide for a forecast population increase of 160,000 persons by 2031;
- To identify new release areas;
- To ensure an adequate supply of employment land;
- To focus a higher proportion of new housing in centres which will reduce pressure on existing established suburbs;
- To enable the release of rural land for a series of new communities and extensions to existing urban areas;
- To ensure that greenfield land is released in a coordinated way with improved neighbourhood design and more efficient use of infrastructure; and
- To ensure the protection of biodiversity through a Regional Conservation Plan.

Figure 10 below shows that the site is included within "future freight hub and employment lands", identified to provide an opportunity for the storage, transfer and distribution of containerised freight and associated employment.

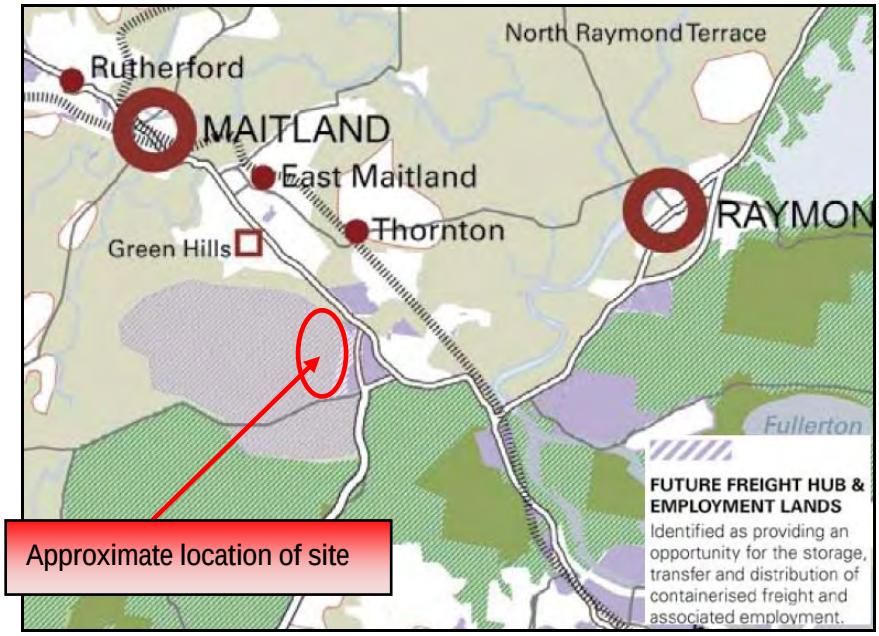


Figure 10: Extract from Lower Hunter Regional Strategy.

The proposed warehouse and distribution centre is consistent with the land use for the site identified within the Strategy, providing an appropriate facility for the storage, transfer and distribution of containerised freight, and increasing employment opportunities, through construction and operation, within the locality.

4.6 Local Planning Instrument and Controls

4.6.1 Newcastle Local Environmental Plan 2003

The site is zoned 4(a) Urban Services pursuant to the Newcastle Local Environmental Plan 2003 (NLEP 2003).

The objectives of the 4(a) zone are:

(a) To accommodate a wide range of light industrial, transport and storage activities which do not adversely affect the amenity of the neighbourhood.

(b) To accommodate a wide range of employment generating uses and associated support facilities with good access to the arterial road network for freight movement.

(c) To accommodate sales and storage operations requiring extensive space such as bulky goods retail outlets, which will not prejudice the viability of local centres, district centres or the Newcastle City Centre.

Figure 11 is an extract from Newcastle LEP 2003 and illustrates the site's zoning in the context of the surrounding locality.

The proposed warehouse and distribution centre is permissible within the 4(a) Urban Services zone with the consent of Council and is consistent with the objectives of the 4(a) zone.

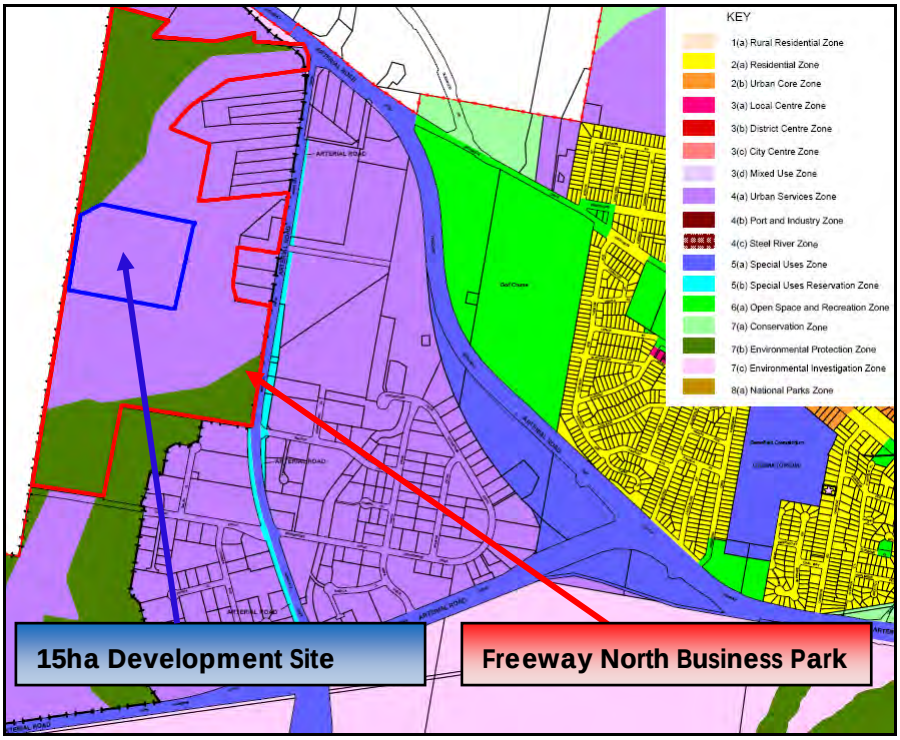


Figure 11: Extract from NLEP 2003 Zoning Map.

4.6.1.1 Land Use Definition and Permissibility

The applicable land-use definition for the proposed development, based on definitions in Newcastle LEP 2003, is "warehouse".

'Warehouse' means:

> "*a building or place used for the storage of goods, merchandise or materials pending their sale or distribution to persons engaged in the retail trade"*.

A warehouse is a permissible use in the 4(a) zone, with the consent of Council.

4.6.1.2 Specific Newcastle LEP 2003 Clauses

The following clauses are deemed relevant to the site and proposed development outcome..

- Clause 8 – Requirements for development – refers to the provision that Council is required to have regard to the relevant aims and objectives of the plan, the relevant zone objectives, and any other relevant provisions of the plan, prior to granting consent;

  The proposed development is considered to be consistent with the relevant aims and objectives of the plan, as well as other relevant provisions of the plan, and the zone objectives; providing for an employment generating, storage and distribution facility, requiring extensive space.

- Clause 23 - Access to arterial roads – refers to the provision that a person shall not carry out development on land which adjoins an arterial road unless direct vehicular access to the

land is made by way of a road that is not an arterial road. However it also refers to the provision that consent may be granted to development involving direct vehicular access from a development site to an arterial road if alternative access to that development site is provided by a road that is not an arterial road, or in the opinion of the consent authority, alternative access is not practicable;

The proposed development will be provided with access via Road 1, a local road off Weakleys drive, created as part of the 90-lot Freeway North Business Park subdivision. As such, access to the site is consistent with this clause of the LEP, providing access to the site by way of a road that is not an arterial road.

- Clause 26 - Bush fire prone land – refers to the provision that the consent authority shall not grant consent to development on bush fire prone land unless the consent authority is satisfied with the measures proposed to be taken with respect to protecting persons, property and the environment from danger that may arise from a bush fire;

  Whilst the subject site is identified as being located within a Bushfire prone Area (Vegetation Category 1), the site will be cleared of vegetation as part of the previously approved, 90-lot subdivision works, reducing the potential bushfire threat. Notwithstanding this, a Bushfire Assessment Report has been prepared by ABPP, and bushfire considerations are addressed further in section 6.8 of this report.

- Clause 31 - Development affecting places or sites of Aboriginal heritage significance – requires that, before granting consent for development that is likely to have an impact on a place of Aboriginal heritage significance or that will likely be carried out on an archaeological site of a relic that has Aboriginal heritage significance, the consent authority consider a heritage impact statement, and notify local Aboriginal communities of the proposed development and take into consideration any comments received in response within 21 days from the date of notification;

  The proposed development site will be cleared of any Aboriginal archaeological constraints as part of the approved subdivision works.

- Clause 36B – Freeway North Business Park – refers to the land that makes up the Freeway North Business Park and the types of development prohibited on any part of the Freeway North Business Park that is within Zone 7(b) Environmental Protection Zone.

  The proposed development site is not located within any section of the Freeway North Business Park zoned 7(b), please refer to the zone map at Figure 11 above.

4.6.2 Draft LEP's Applicable to the Site / Proposal & Adjoining Lands

There is no specific draft LEP applicable to the site.

4.6.3 Newcastle Development Control Plan 2005

Newcastle City Council Development Control Plan 2005 (DCP 2005) is the only Development Control Plan applicable to this site and proposal. The DCP encompasses many environmental requirements ranging from ecological values, scenic values, bushfire risk, erosion prevention and sediment control, mine subsidence through to detailed building design outcomes.

The following elements of DCP 2005 are considered applicable to the proposed development:

- Element 4.1 – Parking and Access;

  This element of DCP 2005 outlines the requirements for the provision of car parking and service delivery facilities.

  Table 1B of Element 4.1 in the Newcastle DCP 2005 requires the provision of car parking for warehouses at the following rates:

  - For staff and visitors - 1 car park space per 200m^2 GFA or 1 space per 2 staff (whichever is greater);
  - For staff - 1 bicycle space per 20 staff (class 2 – medium security level); and
  - 1 motorbike parking space per 20 car spaces.

  Based on a warehouse GFA of 56833m^2 and a maximum number of staff at peak shift change being 221, the proposal is required to provide 284 car park spaces, 11 bicycle spaces, and 15 motorbike spaces.

  The proposed development provides 302 car park spaces which is in excess of the required parking spaces under DCP 2005. 32 bicycle and 18 motorbike spaces will also be provided as part of the proposed development.

  A detailed Transport and Accessibility Report has been prepared by Colston Budd Hunt & Kafes Pty Ltd (attached as Appendix F) and traffic and parking is discussed further within section 6.3 of this report.

- Element 4.2 – Contaminated Land Management;

  This element of DCP 2005 outlines requirements relating to the use and/or development of land that is or may be contaminated. This element is also a policy of the Council adopted in accordance with the Contaminated Land Planning Guidelines notified under Section 145C of the Environmental Planning and Assessment Act 1979.

  A Phase 1 Environmental Site Assessment was undertaken by Parsons Brinkerhoff Pty Ltd in 2007 for the Freeway North Business Park project. Their report recommended some remedial works to be undertaken for the site to be considered suitable for the proposed land use. The remedial works will be undertaken as part of the 90-lot subdivision work and as such the subject site will be made suitable with respect to contamination prior to the construction of the proposed warehouse and distribution centre.

- Element 4.4 – Landscaping;

  This element outlines requirements and procedures for landscape planning and design for development sites.

  The proposed development is generally consistent with this element of DCP 2005. Whilst the proposed landscaping throughout the car park does not quite achieve the 50% shade coverage required, approximately 40% shade coverage is achieved, and the proposed landscaping is of a particularly high quality as shown on the landscape plan at Figures 5 & 5a.

  A site analysis plan, landscape concept plan and landscape design report have been prepared by Woodhead Landscape Architecture (Appendix E) and landscaping is discussed further in Section 6.2.8 of this report.

- Element 4.5 – Water Management;

  This element outlines requirements for sustainable water management for all development.

  The proposed development is consistent with this element of DCP 2005. An erosion and sediment control plan and stormwater concept plan have been prepared by Robert Bird Group, and stormwater management is addressed within the Water Management Report also prepared by Robert Bird Group (attached at Appendix G). In addition, stormwater management is discussed further in Section 6.4 of this report.

- Element 4.6 – Waste Management;

  This element outlines requirements for the use and/or development of land that is likely to result in the generation of waste.

  The proposed development is consistent with this element of DCP 2004. Waste Management is addressed further within Section 6.7 of this report.

- Element 4.7 – Outdoor Advertising;

  This element of DCP 2005 outlines requirements for the design of advertising and structures.

  The proposed development is consistent with this element of DCP 2005. The design of the proposed advertising signs included as part of the development, is discussed further within Section 6.2.5 of this report.

- Element 7.1 – Industrial Development; and

  This element of DCP 2005 provides detailed guidelines for industrial land and buildings within the Newcastle Local Government Area.

The proposed development is consistent with this element of DCP 2005. The design and appearance of the proposed warehouse development is addressed within the architectural design statement prepared by Woodhead Architects (attached at Appendix D) and is also addressed within Section 6.2 of this report.

- Element 7.3 – South Beresfield Industrial Precinct.

Newcastle City Council is keen to ensure that the City receives the maximum benefit from the land's strategic location adjacent to the major transport networks. Development consistent with this goal is encouraged over other types of development that may be located to equal advantage elsewhere within the City.

The proposed development is consistent with the objectives of this element of DCP 2005. The proposal is for a light industrial form of development, within a highly accessible location, with excellent access to surrounding major transport routes. Road access to the development site, approved as part of the 90 lot subdivision works, is considered to be efficient and to integrate well with the existing road system in the surrounding area. Existing natural watercourses located within the larger Freeway North Business Park site are not part of the proposed development site, and as such, will not be adversely impacted upon by the proposal, nor will visual amenity be negatively affected by the proposal. Constraints relating to items of Aboriginal Archaeological significance will be resolved as part of the approved subdivision works, and the site will undergo appropriate remedial works, prior to construction, as part of the approved subdivision works.

4.6.4 Development Contributions

The Newcastle section 94A contributions plan applies to this development pursuant to Part 5B of the EP&A Act 1979. In reviewing this plan, the expected types of development to which it applies are industrial, commercial and urban housing developments with an estimated cost of over $100,000. There may be other forms of development, not specified above, which generate a demand for the public services and amenities identified in the plan (such as traffic management and drainage, stormwater and water quality control facilities). Under this plan, for developments with an estimated cost over $200,000, Council impose a contributions levy of 1.0% of the estimated cost of works.

4.7 Other Relevant Policies, Strategies or Controls

Other relevant Newcastle City Council policies, strategies or controls that are applicable to the site, and proposed development, include:

4.7.1 Newcastle Urban Strategy 2005;

The Newcastle Urban Strategy has been adopted by Newcastle City Council as a means of providing direction to future development patterns throughout the city of Newcastle. The Strategy is designed to analyse, influence and determine:

- Land use, transport and development practices;
- Corresponding social, economic and ecological impacts;
- Social and economic trends and their implications for city growth;
- The role each neighbourhood and district plays, e.g. residential, industrial or commercial areas; and
- Roles Newcastle plays locally, regionally and globally.

The neighbourhood vision for Beresfield in general is that it becomes a transit-oriented town that preserves the amenity provided by its proximity to surrounding rural areas and wetlands.

The proposed warehouse and distribution centre is consistent with the vision for Beresfield to become a transit-oriented town, utilising the optimal location of the site, within close proximity to major transport routes including the F3 Freeway and the Pacific Highway, for distribution.

4.7.2 Crime Prevention Plan

In 2001 the then Department of Urban Affairs & Planning produced a guideline titled "Crime prevention and the assessment of development applications". The purpose of the guideline is to assist councils identify crime risk and minimise opportunities for crime through the appropriate assessment of development proposals. The guidelines advise that:

Crime prevention through environmental design seeks to influence the design of buildings and places by:

- Increasing the perception of risk to criminals by increasing the possibility of detection, challenge and capture;
- Increasing the effort required to commit crime by increasing the time, energy or resources which need to be expended;
- Reducing the potential rewards of crime by minimising, removing or concealing 'crime benefits'; and
- Removing conditions that create confusion about required norms of behaviour.

The guideline provides four basic design principles, these are addressed as follows:

Surveillance

The attractiveness of crime targets can be reduced by providing opportunities for effective surveillance, both natural and technical.

The warehouse and distribution centre will operate 24 hours per day, 7 days per week providing for optimum casual surveillance by staff.

The proposal also incorporates:

Clear sightlines between public and private spaces;

Well-maintained landscaping that will ensure clear visibility around the site, and ensure that offenders are not provided the opportunity to hide or entrap victims; and

The installation of Closed Circuit Television (CCTV) surveillance cameras that will provide a high level of electronic surveillance for the site.

Access Control

Physical and symbolic barriers can be used to attract, channel or restrict the movement of people. They minimise opportunities for crime and increase the effort required to commit crime.

Appropriate access control has been incorporated into the development, including boom gates and security access control to doors.

Territorial Reinforcement

Community ownership of public space sends positive signals. People often feel comfortable in, and are most likely to visit places which feel owned and cared for. Well used places also reduce opportunities for crime and increase risk to criminals.

The design ensures a clear distinction as to what areas of the site / building are public versus private, including a 2.1m high PVC coated chain wire fence with 3 strands of barbed wire around the boundary of the site.

Space Management

Popular public space is often attractive, well maintained and well used space. Linked to the principle of territorial reinforcement, space management ensures that space is appropriately utilised and well cared for.

The physical spaces have been designed to facilitate maintenance. The building will appear well-kept at all times, and therefore deter crime.

The development maintains an appropriate balance between surveillance (natural and technical), territorial reinforcement, space management and access control to ensure the risk of crime is reduced on the site. Surveillance cameras will be installed to assist in site surveillance.

Given that the site will operate 24 hours per day, 7 days per week, the site will also incorporate appropriate lighting, acting as a preventative and corrective measure against intrusions or other criminal activity on the site.

In addition, security signs will be erected around the site, particularly in locations which are restricted, prohibited, or under surveillance.

4.7.3 Social Impact Assessment Policy

Newcastle City Council has adopted a Social Impact Assessment Policy to ensure that, where relevant, social considerations are an integral part of the development assessment system. In order to realise this objective the policy seeks to:

(a) Indicate which development applications should include comment regarding social impacts or a detailed social impact statement.

(b) Provide clear guidelines as to how social impact assessments should be conducted.

(c) Enhance consistency, certainty and transparency in Council's assessment of the social impact of development proposals.

(d) Ensure that the process of assessing social impact has statutory legitimacy.

(e) Assist Council staff to improve their understanding and assessment of social issues relating to development applications.

This policy does not require the preparation of a Social Impact Statement for the proposed development, however the following social impact comment addresses the requirements of the policy:

- Appropriate access has been provided.

- The proposed warehouse is not considered to pose a significant level of crime risk, however appropriate measures will be incorporated into the development to provide security to the staff and visitors, including lighting, fencing, well-maintained landscaping, surveillance cameras, signage and training of staff.

- The proposal offers employment opportunity through construction jobs as well as operational jobs. The proposed development will generate 424 full time jobs over one year (424 job years) directly through construction. Multiplier impacts will provide a further 330 job years in production induced effects and 987 job years in consumption induced effects.

  The warehouse operations will create 200 permanent part time jobs, the ancillary office operations will create 30 full time jobs and the warehouse distribution operations will create in excess of 80 full time jobs.

- The proposed development will not have an adverse impact on a primary residential area, it is not likely to cause conflict with the surrounding community or adjacent land uses, and is not expected to involve the introduction of a large non-resident workforce.

- It is not expected that the proposed development will assist any specific disadvantaged social group. At the same time it is not expected that the proposed development will disadvantage any social group.

5.0 Risk Assessment & Consultation

5.1 Introduction

This section describes how the project team identified the key issues associated with the proposal and the specialist studies undertaken and used to support this project.

5.2 Overview of the Methodology

The key issues associated with the construction and operation of the proposed new warehouse and distribution centre have primarily been identified in consultation with the client, ALDI Foods Pty Ltd, who own and operate similar ALDI warehouse and distribution facilities at Minchinbury and Prestons in NSW, Derrimut and Dandenong in VIC, and Stapylton and Brendale (to be constructed) in QLD.

ADW Johnson Pty Ltd undertook preliminary environmental and town planning investigations in accordance with their company checklists and policies.

ADW Johnson also sought guidance from Newcastle City Council on local planning issues. The Minister's agreement that the proposal be considered a 'Major Development', and the Director-General's Requirements (MP 10_0042) were obtained.

While not exhaustive, the following legislation formed the basis for identification of the issues associated with the preparation of the Environmental Assessment Report:

- Environmental Planning and Assessment Act 1979;
- Protection of the Environmental Operations Act 1997;
- Threatened Species Conservation Act 1995;
- National Parks and Wildlife Act 1974;
- Heritage Act 1977;
- Occupational Health and Safety Act 2000;
- Contaminated Land Management Act 1997;
- Native Vegetation Act 2003;
- Roads Act 1993;
- Rural Fires Act 1997;
- Rural Fires & Environmental Assessment Legislation Amendment Act 2002;
- Mine Subsidence Compensation Act 1961;
- Local Government Act 1993;
- Newcastle Local Environmental Plan 2003 & associated Development Control Plans and Policy; and
- Commonwealth Environment Protection and Biodiversity and Conservation Act 1999.

5.3 Consultation

In establishing parameters and appropriate design for this project, consultation was carried out with the key authorities. The following is a brief outline of the consultation undertaken.

5.3.1 *Newcastle City Council (NCC)*

A meeting was held with Newcastle City Council on the 18th February, 2010 to present the proposed ALDI warehouse and distribution centre development to Newcastle City Council staff for discussion. Council staff indicated their general support for the proposal, and highlighted the issues that they believed would need to be considered as part of the proposal.

The NSW Department of Planning requested Newcastle City Council provide input into the DGRs for the proposed development. Council provided a letter to the NSW Department of Planning, dated 5th May, 2010, detailing matters they deemed to require inclusion in the DGRs, including traffic, landscaping, drainage, fire risk, waste management, and amendments to the approved subdivision.

Additionally, consultation with Newcastle City Council was undertaken by the specialist traffic consultant on the project, Colston Budd Hunt and Kafes Pty Ltd. The details of this consultation are provided within the Transport and Accessibility Report at Appendix F.

5.3.2 *Roads & Traffic Authority (RTA)*

The NSW Department of Planning also requested the NSW Roads and Traffic Authority provide input into the DGRs for the proposed development. The NSW RTA provided a letter to the NSW Department of Planning, dated 9th April, 2010, noting that they would not require the developer to provide any additional information to the RTA as it is considered that all classified (State) road infrastructure requirements have been met as part of the Freeway North Business Park application.

Further consultation was undertaken with the NSW RTA by the specialist traffic consultant for the project, Colston Budd Hunt & Kafes. The details of the consultation with the RTA are provided within the Transport and Accessibility report at Appendix F.

5.3.3 *NSW Rural Fire Service (RFS)*

Consultation was undertaken with Mr. Jason Hulston of the NSW Rural Fire Service by the specialist bushfire consultant for the project, Australian Bushfire Protection Planners Pty Ltd. The details of this consultation are included within the Bushfire Protection Assessment report at Appendix L and within Section 6.10 of this report.

5.4 Outcome of Issues Identification

Normally it is ADW Johnson Pty Ltd's preference to prioritise the environmental issues and address the key environmental issues in sequence from greatest potential impact to least likely potential impact within the report. In this instance, and for ease of reference, we have addressed each issue in the order listed in the DGR's. Within the EA some issues have undergone more analysis and discussion than others, which is reflective of the weighting the project team have given to the potential impact.

In addition to the issues identified within the DGRs we have also addressed the issues of bushfire and air quality.

5.5 The Project Team

Consultants were commissioned to undertake specialist assessments and investigations to identify the various issues associated with the construction and operation of the proposed warehouse and distribution centre.

The Environmental Assessment for this project has been undertaken by the following project team:

Company	Personnel / Project Coordinator	Responsibility / Section Prepared
ALDI Foods Pty Ltd	Trent Doran	- Proponent
APP Corporation	Andrew McSwan	- Project Manager
Woodhead Architects	John Stefanatos	- Architectural Plans - 3D Perspectives - Architectural design statement
ADW Johnson Pty Ltd	Anthony Alliston Kristy Clifford	- Town Planning - Preparation of the EAR
SCAPE	Lisa Heathers	- Landscape Design Plan & Report
Colston Budd Hunt and Kafes	Josh Hollis	- Traffic and Parking Assessment
Robert Bird Group	Ian Harris Bruce Gunn	- Civil & Structural - Stormwater Drainage Report - Mine Subsidence
ABPP	Graham Swain	- Bushfire Assessment Report
ERM	Oliver Muller Jacinta Coulin	- Noise and Vibration - Air Quality Assessment
Wood and Grieve	Joseph Walsh	- Utility Services
Philip Chun & Associates	Kara Chun	- BCA and access
Iseco	Basil McKinley	- Coolhouse Design
Davis Langdon	Alan Jenkins	- Quantity Surveyor Report

6.0 Environmental Assessment

6.1 Introduction

This section investigates, and makes assessment of, the key environmental issues associated with the site and the proposed development. This section generally summarises the assessment and findings of the specialist consultant reports, which are included in full in the appendices to the report. This section is set out in accordance with the DGRs, with the inclusion of the additional issues identified for the development, being bushfire, air quality and the amended subdivision.

6.2 Architectural Design and Visual Considerations

Woodhead Architects have prepared a detailed Architectural Design Statement which is included as Appendix D. The Architectural Design Statement, including photo examples of similar ALDI warehouse and distribution facilities, has sought to document the issues relating to built form, car parking, streetscape, building height and floor space, signage, staff amenities, visual impact and amenity, landscaping, and security.

6.2.1 Built Form

The ALDI Distribution Facility design developed for Australia incorporates the interior layout from worldwide facilities but with a uniquely Australian exterior appearance. The design intent of the warehouse and offices is essentially to remain consistent with the high standard of design and construction of existing ALDI Distribution Facilities in Australia, an example of which is the ALDI Distribution Facility at Prestons NSW.

This is achieved by the use of a similar layout, and the application of consistent materials, finishes and design elements. The reasoning behind this approach is to utilise and build upon the successful elements of previous designs, and to continue to develop ALDI's corporate identity through built form.



Photo 28: Aerial photograph of ALDI Warehouse and Distribution Centre at Prestons in NSW, the overall site layout and finishes are similar to those proposed for the Beresfield facility.

The layout of the office takes advantage of its ideal orientation. Solid components such as plant areas, toilets and stairs are placed on the eastern and western ends of the buildings to minimise solar heat gain from eastern and western sun. Clear office space then runs in between these "solar buffers". Glazing placed on the northern and southern facades enhances the internal amenity of the development by maximising views and natural lighting.

The location of the entry to the office provides an ideal central position to access the office component as a whole and ensures visibility from the car park and presence to the new subdivision road (Canavan Road / Road 1).

Truck access is provided near the north east corner of the site with access just over 50m west of the subdivision road intersections.

Provision has been made for future additions to the northwest of the site.

The Ambient Warehouse and Coolhouse are steel framed precast / Colorbond metal clad buildings with east west central ridgelines. These components are articulated into smaller-scale forms by structural steel columns. Lower-level concrete edge beams form a darker coloured visual building base and above this are ochre coloured precast concrete walls.

The office component comprises a two-storey concrete framed building with aluminium panel cladding of high quality appearance. Windows are grey tinted performance glass, with cantilever sun screening to the north elevation.



Photo 29: View of office building at ALDI Warehouse and Distribution Centre at Dandenong in VIC, showing quality of office façade and entry similar to that proposed for Beresfield.



Photo 30: View of office building entry at ALDI Warehouse and Distribution Centre at Prestons in NSW, showing façade material, colours and sunscreening similar to that proposed for Beresfield.

6.2.2 Car Parking

The proposal will provide for 302 car spaces onsite, including spaces for disabled persons. Dedicated motorcycle and bicycle parking will also be provided. These numbers are based on those provided at previously built Australian ALDI facilities that have proven to be appropriate car parking numbers for staff and visitors of these facilities. The number of car spaces provided (302) compares favourably with the 240 car spaces provided at ALDI's similar warehouse facility at Prestons and the 300 spaces provided at ALDI's recently constructed Dandenong facility, which is very similar in size to that proposed for Beresfield. Refer to separate Transport and Accessibility Report prepared by Colston Budd Hunt and Kafes Traffic Consultants for additional information on car parking.

Designated paved pedestrian pathways are provided, interlinking the street boundary with the main office front entry, as well as an east/west pathway to provide a pedestrian interlinkage along the whole length of the car park.

6.2.3 Streetscape

The proposed site sits along a new subdivision road, Road 1 (Canavan Drive), in the Freeway North Business Park). High quality landscaping adjacent to the northern boundary of this site and fronting this road will buffer the development and the proposed car park from Road 1 (Canavan Drive).



Photo 31: View of the northeast corner of the proposed development from Road 1 (Canavan Drive) showing truck access, car park and office building and indicative signage.

The location of the office building at the north/east corner of the site maximises its presence to Road 1 (Canavan Drive) and allows for an aesthetically pleasing façade facing this road.

Primary car access into the carpark will be via the new car access cross over located at the north/west of the site, while truck access will be provided west of the Road 1 (Canavan Drive) and Road 2 (Parish Drive) intersection, at which point left in, right out lanes will be provided.



Photo 32: View of the northwest corner of the proposed development from Road 1 (Canavan Drive) showing car access, ambient warehouse and office building and indicative pylon signage.

6.2.4 Building Height and Floorspace

The height of an ALDI Distribution Facility at roof ridge is approximately 17 metres above the floor level (to top of ridge vent).

Table A provides a summary of key development information relating to the proposal.

Table A – Key Development Information

Component	Proposal
Office Building Ground Floor.	1956m²
Office Building First Floor	1832m²
Ambient Warehouse	36628m²
Refuse Area	734m²
Forklift Maintenance Area	548m²
Cool house	12041m²
Mezzanine coolhouse	631m²
Spine Ground Floor	732m²
Spine first floor	454m²
Sprinkler tank and associated pump rooms	747m²
Gate house	18m²
Maintenance workshop	154m²

6.2.5 Advertising Signs

Reinforcing the strong corporate identity of ALDI Foods Pty Ltd, appropriate logo signage will be placed at integral points of the design. This will comprise two 5.5m high internally illuminated pylon signs to identify the separate truck and car entries to the facility, as well as the provision of key branding via wall mounted internally illuminated ALDI logos to the façade. ADLI will also provide appropriate way finding signage to optimise the separate car and truck flows within the site. The pylon signs will include small non-illuminated traffic guidance signs to identify car park access and various areas of the Distribution Facility. Appendix C includes the details of all the proposed signs, including the sign location, dimensions and colours. Table B below provides a summary of the signs proposed:

Table B – Summary of Proposed Signs

Sign Type	Description	Dimensions	Appendix C - Plan References
A	Pylon Sign	5.5m high x 2m wide	BER-A-2030-0005W (Site Plan Proposed – Ground Floor) SK-02-08 Rev A (Artist Impression 1) SK-02-09 Rev A (Artist Impression 2)
B	Wall Mounted Sign	2.4m high x 3m wide	BER-A-2030-0005W (Site Plan Proposed – Ground Floor) BER-A-2030-0010W (Perspectives – Office Building) BER-A-2030-2000W (Proposed Elevations) SK-02-08 Rev A (Artist Impression 1) SK-02-09 Rev A (Artist Impression 2)
C	Wall Mounted Sign	3.6m high x 3m wide	BER-A-2030-0005W (Site Plan Proposed – Ground Floor) BER-A-2030-0010W (Perspectives – Office Building) BER-A-2030-2000W (Proposed Elevations) SK-02-08 Rev A (Artist Impression 1) SK-02-09 Rev A (Artist Impression 2)

6.2.6 *Staff Amenities*

Staff amenities will predominantly be housed within the office component of the design and will include:

- Office amenities i.e. WCs, toilets, tearooms for office staff;
- WCs, showers and lockers to cater for ambient warehouse staff of approximately 94 females and 96 males;
- Staff common room including kitchen, and internal dedicated lunch rooms;
- Sheltered outdoor staff break-out area, off the office and warehouse staff common room;
- Additional south facing first floor amenities area with outdoor terrace will be provided to the southern end of the plant area for coolhouse staff and ALDI truck drivers; and
- Separate WC amenities will be provided for truck drivers (non ALDI truck drivers).

6.2.7 *Visual Impact and Amenity*

The proposed Warehouse and Distribution Facility is located within a designated industrial subdivision (i.e. South Beresfield Industrial Precinct). Landscaping within the site, including that in the car parking areas and around buildings will be designed to maximise visual amenity of the site from the adjacent subdivision road, Road 1 (Canavan Drive) and surrounding sites.

The site has limited street frontage with only the northern boundary located against a street. By purposely locating the offices and landscaped car park area to this street frontage, the proposed development provides a high quality corporate office aesthetic for public view.

Loading docks are located facing east (shielded from the street by the office building and from neighbouring industrial developments by a 10 metre landscape strip) and south, also not being visible from the street.

The proposed exterior finishes and materials for the construction are listed in Table C below and follow ALDI's corporate theme for Australian Distribution Centres. Refer to photographs of ALDI Prestons and Dandenong Distribution Centres included in this report for illustration of these.

Refer also to the architectural drawings attached at Appendix C.

Table C – External Materials and Finishes

Material	Finish
Metal Wall Cladding – Office	Prefinished – Colour: Metallic Silver
Profiled Metal Parapet/Trim – Office	Prefinished – Colour: Metallic Silver
Precast Concrete Panels – Warehouse/Coolhouse	Coloured Finish: Yellow/Ochre Colour
Coolhouse Steel Columns – Warehouse/Coolhouse	Paint Finish – Light Grey
Aluminum Framing to Glazing	Powdercoat – Colour: Dulux Old Pewter Grey
Metal Roof Sheeting	Zincalume Unpainted
Metal Wall Cladding – Warehouse/Coolhouse	Colourbond: Bluescope Steel "Vatican Grey"
Roller Shutters	Zincalume/Unpainted



Photo 33: View of Goods-Out Docks, truck pavements, and truck wash building at Prestons in NSW, illustrating finishes similar to those proposed for Beresfield.



Photo 34: View of Goods Out and Coolhouse Docks with truck wash building (on left hand side of photo), and high quality landscaping, at Dandenong in VIC.

6.2.8 Landscaping

The site of the new ALDI Warehouse and Distribution Centre in Beresfield, near Maitland NSW is part of the South Beresfield Industrial Precinct. The site is currently vegetated with Lower Hunter Spotted Gum – Ironbark Forest. The project site will be cleared of all existing vegetation and regraded to form a cut and fill platform as part of an approval obtained by the vendor of the site. Endemic species are proposed to be used as replacement planting around the boundary of the site affected by the clearing and earthworks.

The existing site topography is gently sloping towards the eastern boundary. A predominantly native landscape character will be implemented with local endemic tree selections and low-maintenance native grassland, providing a water wise, natural landscape treatment complementary to the adjacent woodland setting. Site top soils will be stored for re-use in the landscape works where possible, and a low-water planting regime will be adopted. The majority of the site will not be irrigated, with irrigation restricted to the feature exotic and native combination planting around the car park and office building. The overall landscape concept will offer a pragmatic solution to rehabilitating the site, with long term management and sustainability in mind.

Feature landscaping surrounding the office and car park will be irrigated via large capacity onsite roof water storage tanks located underground. These tanks will collect roof water for reuse as landscape irrigation and truck wash water and also for toilet flushing.

The following photograph provides an example of the boundary landscaping provided at the Prestons ALDI warehouse and distribution centre.



Photo 35: View of landscaping along edge of site at Prestons ALDI warehouse and distribution centre.

Planting Concept

The plant species selection will predominantly feature a native woodland character, with endemic native trees and native grasses. Shrub planting will be used in locations where access for mower maintenance is not achievable, due to level restrictions. High quality material selections will complement the architecture, providing a practical, and low-maintenance regime.

A high level of landscape amenity will be provided to the office building entry, ground level staff lunch area and associated breakout spaces. Nominated species including Grevillea 'Honey Gem', Phorium Tenax 'Purpurea' (Purple Flax), Photina Robusta (Photinia), Juniperus Horizontalis (Creeping Juniper) and Lomandra Loniforia 'Tanika' will be low maintenance and drought tolerant in keeping with the surrounding site character, however species will be carefully selected to also provide a variety of colour and texture to create a feature landscape. The planting will reflect the drainage characteristics of the site within the landscape. Plant and tree selections for the native buffer planting to all four boundaries will be drawn from locally endemic species with proven performance appropriate to the site conditions. These species have been identified from the Ecological Report (prepared for the rezoning of land in 2007) and will include Corymbia Maculata (Spotted Gum), Eucalyptus Crebra (Narrow-Leaved Ironbark) and Eucalyptus Punctata (Grey Box) with an understorey to include Melaleuca Lunariifolia (Snow-In-Summar) and Melaleuca Stypheloides (Prickly-Leaved Paperbark). It is intended to create a low-maintenance regime to the hydroseeded areas by developing a seed mix which is appropriate to the site and adheres to maintenance requirements.

The Ecological Report by Ecohub Pty Ltd Ecological Consultants (prepared for rezoning in 2007) outlines the species found on site as part of the Lower Hunter Spotted Gum Ironbark Forest. Newcastle City Council have also prepared a plant matrix (5.3 Western Suburban Zone) which

outlines a number of species which may be suitable for the area including those which are indicative to the Hunter Valley. These lists have been used as a guide, in addition to a review of species planted in other ALDI sites, to prepare a plant species list for the project.

Car Park Landscaping

Bands of native tree planting will be provided along the northern frontage of the car park to provide a landscape screen. Deciduous specimen trees will be used in the car park planters to provide shade for vehicles, including Jacaranda Mimosifolia (Jacaranda) and Sapium Sebiferum (Chinese Tallowood). The car park surface will be bitumen, with feature paving to the pedestrian paths in the car parking areas. The car park will be terraced with 900mm maximum high split-faced coloured concrete block work walls. Planting will be placed atop the wall with hedging closest to the edge for safety. Pedestrian paths will provide access along the bottom of the walls to the main pedestrian routes to the office. The landscape will enhance the amenity of the site and optimise solar management to the northern aspect of the office building. The car park landscape will be irrigated using a sub terrain drip irrigation system using harvested water from the proposed building's roof.

Whilst the proposed car park landscaping does not quite achieve the 50% shade coverage required under element 4.4 – Landscaping of Newcastle DCP 2005, approximately 40% shade coverage is achieved, and the proposed landscaping is of a particularly high quality, as shown on the landscape plan at Figure 5 and Figure 5A.

Entry Drive and Security

Entry to the site will be from the east via the new access road with pylon mounted ALDI signage denoting the site entry. The northern boundary will incorporate a combination of low-maintenance hydroseeding with organic shaped bands of native tree plantings as an entry feature to the site, reflective of the existing, adjacent woodland vegetation. The landscape treatment and signage will be integral with the boundary fencing. A palisade metal fence will flank the entry along the new subdivision road and will transition into a black PVC coated chain wire fence to secure the balance of the site on the southern, eastern and western boundaries. The truck and car vehicular access points are separate crossover entries from the new access road, controlled by a Gatehouse, and boom gates with intercom, for truck and car access respectively. A separate pedestrian accessway from the street boundary, through the car park, direct to the office building main entry will be provided.

Office Building

The design intent is to optimise the solar aspect to the north, with a structured landscape which reinforces the building entry and car park infrastructure. The landscape to surround the office building will be visually appealing from the higher levels, and will provide colour and interest through a layered planting of hedging, grasses and trees. A 1.5m wide coloured concrete paver path will provide pedestrian/service access around the office building.

Break-out Space

The break out space is located between the staff lunch amenities and the car park. Simple formalised planting will enclose the space, and accent planting will provide visual interest. The northern location of the break-out space will optimise environmental amenity, providing an ideal location for indoor / outdoor staff amenity. This area will be hard paved and provided with quality outdoor furniture. The landscape treatment adjoining the terrace will provide visual screening to the car park whilst optimising solar access. The pedestrian pathway adjacent to the break-out space will be furnished with a planter of ornamental shrubs, providing a visual buffer and a feature edge between the staff outdoor lunch area and the car park.

Asset Protection Zone

The western boundary of the site requires a Bushfire Asset Protection Zone as dense bushland will be retained on the adjacent property into the future. The APZ will need to conform to landscape planting recommendations as listed in the Planning for Bushfire Protection document published by the NSW Rural Fire Service. The species will be native, planted at minimum mature canopy spacing of 2m, with the mature canopy to be no closer than 5m from the edge of the building. The landscape planting zone between the perimeter fire access road and the boundary will form the Outer Protection Zone for the site, to be planted with small groups of grasses and shrub understorey which can be easily maintained to reduce leaf litter to the ground plane.

Outdoor Lighting

Outdoor lighting will be unobtrusive and functional. Typically outdoor lighting will comprise:

- Wall mounted low-powered lights to egress doorways and to outdoor staff areas;
- Internally illuminated pylon signage 5.5m high to truck entry and car park entry;
- Internally illuminated ALDI logo façade signage;
- Soffit lights to main entry awning; and
- Low-height bollard lighting adjacent office building to facilitate way finding at night.

BCA Access

BCA

A Building Code of Australia Capability Report has been prepared by Philip Chun & Associates Pty Ltd (attached at Appendix H) to provide comments and recommendations in respect to Building Code of Australia compliance for the proposed development.

The proposed new warehouse and distribution centre will comply with either the 'deemed to satisfy' provisions of the Building Code of Australia, or where this is not possible, alternative solutions will be provided to meet the performance requirements.

Access

A Disability Access report has been prepared by Philip Chun Accessibility and is also attached at Appendix H.

The proposed development will comply with the recommendations made within the Disability Access Report, dated 15th July 2010, as well as the following Access Legislation:

- The Disability Discrimination Act 1992;
- The Building Code of Australia 2007 – Section D3: Access for People with Disabilities;
- Australian Standards AS1428.1, AS1428.2, AS1428.4 – Design for Access and Mobility;
- Australian Standard AS2890.1 – Parking Facilities – Off-street Carparking 1993; and
- Australian Standard AS1735.12 – Lifts, Escalators and Moving Walks: Facilities for Persons with Disabilities.

The Disability Access Report confirms that accessibility has been appropriately addressed in the associated design documentation and confirms the proponent's commitment to the development of an equitable and accessible environment for all.

6.3 Traffic and Parking

A Transport and Accessibility Assessment was undertaken by Colston Budd Hunt and Kafes Pty Ltd to review the traffic and parking implications of the proposed development (Appendix F). The report covers the following:

- Public transport;
- Work place travel plan;
- Parking provisions;
- Access, servicing and internal layout;
- Traffic generation and effects;
- Principles of construction traffic management;

- Consultation;
- Director-General's Requirements; and
- Includes a summary.

6.3.1 Public Transport

Beresfield railway station is some 2.5 kilometres from the site. Services through Beresfield operate on the Main Northern Railway line between Newcastle and Telarah. Some three services per hour stop at Beresfield in each direction during peak hours. Other services provide connections to Scone, Muswellbrook and Dungog.

Weakleys Drive does not include bus stops and no regular services operate along Weakleys Drive. However, internal roads within the approved industrial subdivision will have the ability to accommodate potential future bus services.

6.3.2 Work Place Travel Plan

To encourage travel modes other than private vehicle, it is proposed to adopt a travel demand management approach through a work place travel plan to meet the specific needs of the site and its employees. The principles of the proposed work place travel plan are outlined within the Transport and Accessibility Report at Appendix F.

6.3.3 Parking Provisions

The proposed development incorporates 302 on-site, at-grade car parking spaces, including disabled parking, as well as dedicated motorbike and bicycle parking (please refer to the proposed site plan at Figure 3)

Part 4.1 of the Newcastle Development Control Plan (DCP) 2005 – Parking and Access, indicates that warehouses should provide parking at the greater of:

- One (1) space per 200m^2; or
- One (1) space per two (2) employees.

These rates compare to those in the RTA's "Guide to Traffic Generating Developments" which suggests a parking rate of one space per 300m^2. The RTA guidelines also indicate that industrial developments can include up to 20 per cent as office area without generating a higher parking requirement. The proposed ALDI warehouse includes an office component of less than 10 per cent.

The proposed distribution centre will have the capacity to operate 24 hours per day. The proposed development could have up to some 221 employees on site during the busiest shift (the morning shift), including some 162 warehouse employees and 59 office employees.

Based on the DCP rate of one space per 200m^2, the parking requirement is 284 spaces. Based on the RTA rate of one space per 300m^2, the parking requirement is 189 spaces.

The Council DCP rate for offices is one space per 50m^2. If this component is treated separately, the parking requirement would be 76 spaces for the offices plus 265 spaces for the warehouse, totalling 341 spaces.

The proposed provision of 302 spaces satisfies the DCP and RTA requirement for warehouses of 284 and 189 spaces respectively. It will also readily cater for the parking demands of the 221 employees on site at any one time.

In this instance it is considered that the RTA rate is the most appropriate for the proposed development, having drawn on recent data from existing ALDI facilities, and as such support from the consent authority is requested to assess the proposal against the RTA parking rate as opposed to the Newcastle City Council DCP 2005 parking rate.

Newcastle DCP 2005 indicates that parking for motor cycles should be provided at a rate of one space per 20 car spaces. With 302 parking spaces proposed, 15 spaces would be required for motor cycles. 18 motor cycle parking spaces will be provided in accordance with this requirement.

Newcastle DCP 2005 indicates that bicycle parking should be provided at a rate of one space per 20 employees, for warehouses. With a maximum of 221 employees on site at any one time, 11 bicycle parking spaces would be required. 32 bicycle parking spaces will be provided in accordance with this requirement.

6.3.4 Access, Servicing and Internal Layout

The proposed warehouse and distribution centre will be provided vehicular access via Road 1 (Canavan Drive), to the east of Weakleys Drive. Weakleys Drive is accessed via the New England Highway to the north and north-east, F3 Newcastle-Sydney Freeway to the south, and John Renshaw Drive to the south-east and south-west.

Access to the site for cars will be via an entry / exit driveway off Road 1 (Canavan Drive) towards the centre of the north frontage. The proposed car park driveway will provide for two-way traffic and will be situated on the outside of a curve in Road 1 (Canavan Drive), therefore providing good sight lines in both directions for vehicles exiting the site. A boom gate will control access to and from the car park. Queuing for some five to six vehicles will be provided between Road 1 (Canavan Drive) and the control point, in accordance with the Australian Standard for Parking Facilities (Part 1: Off-Street Car Parking), AS 2890.1:2004 for a car park of the size and type proposed. Parking spaces within the car park will be provided in accordance with AS 2890.1:2004 and AS 2890.6 – 2009.

Truck access will be provided via a separate entry / exit driveway, also off Road 1 (Canavan Drive), approximately 50m west of the Road 1 (Canavan Drive) / Road 2 (Parish Drive) intersection (please refer to the proposed site plan at Figure 3 and amended subdivision plan at Figure 4). The service

vehicle driveway will have separate entry and exit lanes, separated by a median. Inside the site, service vehicles will travel along a two-way circulation road prior to reaching a gate house and security point. There is queuing space to accommodate some 10 b-doubles or 14 semi-trailers between Road 1 (Canavan Drive) and the gate house.

Inbound goods will be delivered on the eastern side of the building, whilst outbound goods will be distributed from docks on the southern side of the building. Dock aprons and manoeuvring areas will be provided to accommodate 19 metre semi trailers and 26 metre b-doubles, in accordance with the Australian Standard for Parking Facilities (Part 2: Off-street commercial vehicle facilities), AS 2890.2 – 2002.

A circulation road will be provided on the western side of the building for emergency vehicle access. This road will accommodate 12.5 metre large rigid trucks. Service vehicle swept paths are provided as Figures 2 and 11 within the Transport and Accessibility Report at Appendix F.

6.3.5 Traffic Generation and Effects

Colston Budd Hunt and Kafes Pty Ltd undertook traffic surveys of ALDI's existing distribution centre at Prestons, NSW which is of a similar size to that proposed at Beresfield and currently services some 38 ALDI stores. The proposed warehouse and distribution centre at Beresfield is anticipated to service up to some 75 stores.

The surveys found peak traffic generations of some 115 (60 cars and 55 trucks) and 60 (50 cars and 10 trucks) vehicles per hour two-way (sum of both directions) during the morning and afternoon peak hours respectively.

The previous traffic report prepared for the approved Freeway North Business Park (MP 06_0199) assessed a traffic generation of some 1,350 and 1,480 vehicles per hour two-way during weekday morning and afternoon peak hours respectively. These generations included some 760 and 920 vehicles per hour two-way for the industrial component during morning and afternoon peak hours respectively. The approved development is for 45.5 hectares of industrial land, and the industrial traffic generation was based on an FSR of some 0.35 and traffic generation rates of 0.58 and 0.7 vehicles per hour 100m^2 two-way during morning and afternoon peak hours respectively.

With a site area of some 15ha, the generation previously assessed for the subject site is equivalent to some 305 and 370 vehicles per hour two-way during the morning and afternoon peak hours respectively.

Based on 75 stores being serviced by the proposed distribution centre at Beresfield, the estimated traffic generation of the proposed development would be some 230 and 120 vehicles per hour two-way during morning and afternoon peak hours respectively.

Therefore the proposed development will have a lower traffic generation than that previously assessed for the site. The traffic implications of the proposed development would therefore be less than previously assessed and approved.

6.3.6 *Principles of Construction Traffic Management*

The series of road and intersection works required by conditions of consent for the approved Freeway North Business Park (MP 06_0199) will be undertaken by the land owner and in place prior to the opening of the proposed warehouse and distribution centre. The previously approved road works, which were identified as appropriate for the approved development, are therefore also appropriate for the proposed development.

A Traffic Management Plan will be prepared prior to the commencement of work, taking into account relevant consent conditions. Traffic management during construction will be undertaken in accordance with the overall principles for traffic management outlines within the Transport and Accessibility report at Appendix F.

6.3.7 *Consultation*

Colston Budd Hunt and Kafes Pty Ltd undertook consultation with both the RTA and Newcastle City Council regarding the proposed development, the details of which are provided within the Transport and Accessibility Report at Appendix F.

6.3.8 *Director-General's Requirements*

The Director-General's Requirements (MP 10_0042) for traffic and parking are adequately addressed in the Transport and Accessibility report prepared by Colston Budd Hunt and Kafes Pty Ltd and the discussion of traffic and parking issues in the sections above.

6.3.9 *Summary*

The Transport and Accessibility Report concludes that the approved road works (MP 06_0199) have been identified to cater for the traffic generation of the approved subdivision, including the subject site.

- The proposed parking provision is considered appropriate.
- Traffic generation of the proposed ALDI distribution centre will be less than previously assessed for the site in the approved development, therefore the previously approved road works are also appropriate for the proposed development.
- Access servicing and layout arrangements will be provided in accordance with AS 2890.1:2004 and AS 2890.2-2002.

6.4 Stormwater Management and Flooding

A Water Management Report including Stormwater and Soil Erosion Management Plan has been prepared by Robert Bird Group and is attached as Appendix G. The report addresses issues of flooding, site stormwater management, control of discharge from the site, water quality and water usage management.

6.4.1 *Flooding*

Robert Bird Group obtained flood levels for the site from a report prepared by Parsons Brinckerhoff (PB) for the overall Freeway North Business Park site in 2007. The report concludes that the ALDI site will not be affected by flood waters and is not within the flood envelope. As such the proposed development will not adversely affect the existing flood storage volumes of either Scotch Dairy Creek or Viney Creek.

The PB report concludes that the proposed development of the site will alter the critical time of concentration, thus reducing the Peak discharge flow from the site. This means that the proposed development will assist in reducing the flood extents in the Scotch Dairy Creek.

Newcastle City Council requires habitable areas to have a minimum freeboard of 500mm above the 100-year ARI flood level in creeks and open channels. The PB report confirms that the 100 year flood level at the upstream extent of the site is 9.90m. At the lowest habitable floor (RL 23.75 AHD) the actual freeboard provided at least 13.85m for flooding within Scotch Dairy Creek. The lowest external pavement level of approximately RL 20.00m provides a freeboard of 10.10m.

6.4.2 *Stormwater Drainage*

There is no existing stormwater drainage system within the site, and the site currently discharges as overland flow to the Scotch Dairy Creek.

It is proposed that all stormwater drainage from the site discharge at a single location on the north western boundary of the site.

Stormwater from roofed areas will be collected by gutters running generally east-west along the southern and northern building eaves. The roofwater drainage system of gutters, downpipes and in-ground pipework will be designed in accordance with AS/NZS 3500.3.2 *National Plumbing and Drainage Part 3.2: Stormwater Drainage – Acceptable Solutions.*

Stormwater runoff from the southern paved areas will be directed by pavement falls towards kerbs and gutters and collected by inlet pits at regular intervals. Runoff from the eastern pavements will also be directed by pavement flows but will fall to the centre of the pavement and be collected by surface inlet pits.

In general the in-ground drainage system will be designed to convey runoff from their respective catchments to the peak 20-year ARI storm event, meeting the requirements set by Newcastle City Council as set out in their *Stormwater and Water Efficiency for Development Technical Manual* dated 2004.

The southern pavement drainline system will be designed to a higher standard to convey runoff from the peak 100-year ARI storm event.

In general, stormwater runoff in excess of the capacity of the piped drainage system will be conveyed across the site by overland flow.

Newcastle City Council's Design Guidelines specify that design of drainage systems must take into account runoff from storms up to the 100-year design storm. The underground culvert running around the car park will be designed to have sufficient capacity to convey the 100 year peak discharge flow from the eastern truck pavement. Any flows which exceed the 20 year design flows will run as overland flow down the centre of the eastern pavement and drain into the inlet structure located at the northern end of the pavements.

Peak stormwater discharge from the site will be reduced by on-site retention of roofwater for re-use on site.

6.4.3 Water Quality

Stormwater quality will be improved by the use of combined gross pollutant trap / oil and silt arrestor structures (Ecosol in-line units of the RSF 4000 series or equivalent) to provide filtration and sedimentation in accordance with Newcastle City Council policies. These will be located at the east of the office building and north-west of the car park and will be cleaned by eduction equipment (i.e suction pumps) mounted on a tanker truck.

6.4.4 Erosion and Sediment Control

Erosion and Sediment Controls will be provided during the construction phase in accordance with Council guidelines and the guidelines in the "Blue Book" – Managing Urban Stormwater – Soils and Construction (Landcom) (please refer to the Erosion and Sediment Control Plan attached as an appendix to the Water Management Report at Appendix G).

6.4.5 Rainwater Harvesting

Two underground rainwater harvesting tanks of 200,000 Litres capacity will be provided at key locations on the site, one being located adjacent to the south-west of the truck wash under the truck pavement and being used for truck washing, and the other being located to the west of the office building below the car park pavement and being used for toilet flushing and irrigation.

6.4.6 Water Re-Use

Waste water generated on site will predominantly consist of domestic sewage and can discharge to Hunter Water sewers without pre-treatment.

Trade waste will be generated on site at the Truck Wash and Refuse Collection areas. On-site treatment will be provided prior to discharge in accordance with Hunter Water Trade Waste Division requirements.

Grey water will not be re-used on site.

6.4.7 *Water Usage Efficiency*

To minimise water usage the following measures will be implemented:

1. Dual flush toilets will be provided.

2. All water-using appliances, taps and showers will be AAA rated.

3. Flow control will be provided to all tapware to control flows to 8 l/min at basins and sinks, and 9 l/m at showers.

4. Native vegetation will be provided in all landscaped areas to minimise the necessity for irrigation.

6.5 Infrastructure and Services

An Electrical, Hydraulic and Fire Services Report has been prepared by Wood & Grieve Engineers, and is located at Appendix I. Wood & Grieve Engineers has consulted with Energy Australia and Hunter Water Corporation in the preparation of their report.

The report indicates that the proposed development will be provided with connection to all essential services, including power, water, sewer, and telecommunications. There are currently no gas mains serving the proposed development site, however under the current tender between ALDI and Hunter Land, Hunter Land is to provide natural gas connection to the development. If the proposed gas connections are not provided then ALDI will consider the use of on-site LPG storage.

In summary, the report provides details in respect to all services to the building including:

- Electrical Services
  - Power Supply and Usage
  - External Lighting
  - Communications
  - Master Antenna Television (MATV)
- Hydraulic Services
  - Sewer Drainage
  - Water Supply
  - Trade Waste
  - Gas Services
- Fire Services
  - Automatic Fire Sprinkler System

- Fire Detection System
- Emergency Warning and Intercommunications System
- Water Supply
- Fire Hydrant System
- Fire Hose Reel System
- Portable Fire Extinguishers
- Fire Trip

The provision of the above services to the site and proposed new building is not considered to have any significant environmental impacts.

6.6 Noise and Vibration

A Noise Impact Assessment was prepared by Environmental Resources Management Australia Pty Ltd (ERM), and is located at Appendix J. The report was prepared in accordance with the Department of Environment, Climate Change and Water (DECCW) Industrial Noise Policy (EPA, 2000). Traffic generation associated with the proposal on public roads was assessed in accordance with the DECCW's Environmental criteria for Road Traffic Noise (EPA, 1999). Construction noise was assessed in accordance with the DECCW's Interim Construction Noise Guidelines (2009).

The report prepared by ERM identifies potential acoustic impacts associated with the construction, operation and traffic generating activities of the proposed development. The report looks at the noise impact assessment criteria and policy, the existing acoustic environment, existing meteorological environment, project specific noise levels, noise modelling methodology, and the noise assessment, including operational noise, sleep disturbance, road traffic noise, construction noise, recommendations, and construction management plan.

The outcomes of the Noise Impact Assessment are summarised as follows:

- The operational noise levels from the development are predicted to comply with the project specific noise levels at all noise sensitive receivers under calm and inversion conditions during peak deliveries for all operational periods.

- The development is predicted to comply with relevant sleep-disturbance criteria during night time operations.

- Traffic noise generation associated with the development are identified to comply with the relevant ECRTN criteria for all periods, furthermore, noise levels are not expected to increase by more than 2 dB(A) compared to existing levels.

- Noise levels generated by construction activities associated with the development are predicted to comply with relevant criteria for all stages of construction.

The following measures are recommended in order to quantify the noise levels associated with the development and to manage any impacts on noise sensitive receivers:

- A validation monitoring assessment (attended) should be conducted at the nearest potentially affected three receivers.

- It is recommended that construction be limited to Monday to Saturday and works be undertaken in accordance with the construction schedule outlines in section 7.8 of the Noise Impact Assessment. Any complaints regarding environmental noise emissions should be investigated and responded to in an appropriate manner.

- All works should be undertaken in accordance with the DECCW's Interim Construction Noise Guidelines.

6.7 Waste Management

A waste / refuse storage and removal area is located to the south of the warehouse building on the eastern side. This includes areas specifically designated for waste storage and separation, recycling and cardboard compaction. The refuse area is shown on the proposed site plan (refer to Figure 3), and the photos below of the Prestons ALDI warehouse and distribution centre provide a visual example of the proposed waste storage and removal area for the Beresfield development.



Photo 36: View of plastic only waste storage at Prestons ALDI warehouse and distribution centre.



Photo 37: View of open storage bin for general waste at Prestons ALDI warehouse and distribution centre.



Photo 38: View of open storage bin for steel only at Prestons ALDI warehouse and distribution centre.



Photo 39: View of cardboard only waste storage at Prestons ALDI warehouse and distribution centre.

6.8 Construction Impacts & Management

6.8.1 Noise and Vibration

The Noise Impact Assessment prepared by Environmental Resources Management Australia Pty Ltd (ERM) (Appendix J) notes that traffic noise generation associated with the development are identified to comply with the relevant ECRTN criteria for all periods, furthermore, noise levels are not expected to increase by more than 2 dB(A) compared to existing levels.

Construction activities associated with the development are predicted to comply with relevant criteria for all stages of construction.

The following measures are recommended in order to quantify the noise levels associated with the development and to manage any impacts on noise sensitive receivers:

- A validation monitoring assessment (attended) should be conducted at the nearest potentially affected three receivers.

- It is recommended that construction be limited to Monday to Saturday and works are undertaken in accordance with the construction schedule outlines in section 7.8 of the Noise Impact Assessment. Any complaints regarding environmental noise emissions should be investigated and responded to in an appropriate manner.

- All works should be undertaken in accordance with the DECCW's Interim Construction Noise Guidelines.

6.8.2 *Stormwater Management*

The Water Management Report prepared by Robert Bird Group (Appendix G) notes that Erosion and Sediment Controls will be provided during the construction phase in accordance with Council guidelines. An Erosion and Sedimentation Control Plan has been prepared for submission as an appendix within the Water Management Report. The plan includes measures such as sediment fences at the downstream edges of all disturbed areas, filters at all existing pits collecting stormwater runoff from disturbed areas, and a truck shaker tray at each point of access to the work area. Sedimentation basins have been provided, sized in accordance with the guidelines in the "Blue Book" – Managing Urban Stormwater – Soils and Construction (Landcom).

Final details of Erosion and Sediment Control measures will be documented in the drawings to be prepared for the Construction Certificate.

6.8.3 *Dust Impacts*

The Air Quality Impact Assessment prepared by Environmental Resources Management Australia Pty Ltd (ERM) (Appendix K) notes that there is the potential for dust emissions to be generated during construction. Activities which may result in a temporary increase in emissions surrounding the site include construction traffic and excavation works.

Construction activities will predominantly be undertaken on compacted land cleared of vegetation. Construction phase activities will not result in significant increases in traffic volumes therefore associated emissions from construction equipment and work vehicles are anticipated to be minor in comparison to the existing surrounding industrial and traffic sources that contribute to the ambient air quality environment.

Combustion emissions of carbon monoxide, carbon dioxide, particulate matter and nitrogen oxides will also occur from construction vehicle exhaust emissions on site.

Notwithstanding, the implementation of standard management measures to minimise any cumulative impacts associated with dust emissions should be considered during the proposed construction.

The following mitigation measures are recommended to be implemented during construction to reduce any potentially adverse air quality impacts associated with the development:

- Limiting disturbance areas, including vehicle access, to defined areas in order to minimise dust generation potential;
- Supervision of construction and excavation activities to identify the onset of dust generation;
- Watering of unsealed roads to stabilise the source of dust in the event dust generation is identified;

- Sealing of proposed roads as early as possible to eliminate the generation of wheel generated dust from vehicles;

- Trucks accessing the site to be maintained in accordance with manufacturers specification to comply with relevant regulations;

- Installation of truck wheel wash to minimise off site dust and sediment transport; and

- Establishment of working areas and access roads as soon as practicable to minimise the potential for dust generation.

The following monitoring strategies are recommended to be implemented for the duration of construction activities in order to minimise potential air quality impacts:

- Spot monitoring using a Dust Trak or equivalent to assess peak PM_{10} concentrations as a screening tool during anticipated periods of high dust generating activity; and

- Supplementary operator-attended monitoring of PM_{10} levels on a monthly basis and in response to any complaints received or exceedances reported.

6.8.4 Waste Management

A Waste Management Plan for construction wastes will be prepared. It will identify the types and amount of wastes that will be generated and proposals to reduce, re-use, recycle or dispose of the waste.

The plan will be provided prior to the commencement of works. All wastes generated on-site during the construction and operation of the development will be classified and re-used on-site or disposed of in accordance with the NSW DECCW's *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes*.

6.8.5 Traffic and Pedestrian Access Management

At this stage a builder has not been appointed, and the overall construction methodology, process and staging has not been defined. The builder will be responsible for the preparation of a traffic management plan, which will be prepared prior to the commencement of work, taking into account relevant consent conditions.

Construction of the development will commence with site preparation works, with construction access from Road 1 within the approved Freeway North Business Park subdivision. There will be appropriate room on site for construction vehicles to enter, turn around and exit in a forward direction.

Pedestrian footpaths adjacent to the site, to the extent that they exist during construction of the development, will be maintained. Class A construction fencing will be erected around the perimeter of the building, with overhead protection where required.

Indicative peak construction traffic flows have been estimated, based on information provided by the study team. Peak daily traffic flows during construction would be up to some 300 vehicles two-way. These flows would include deliveries of construction materials of some 60 to 70 deliveries per day.

Based on a nine hour working day, the peak traffic generation of 300 vehicles per day is equivalent to an average of some 30 to 35 vehicles per hour two-way. This is less than the traffic generation of the proposed development once operational, and the surrounding road network will be able to cater for these relatively small traffic movements.

The overall principles for traffic management during construction are as follows:

- Provide a convenient and appropriate environment for pedestrians;
- Minimise effects on pedestrian movements and amenity;
- Provide appropriate safety fencing/hoardings around the perimeter of the construction site;
- Manage and control vehicular movements to and from the site;
- Maintain other existing on-street parking in the vicinity of the site;
- Restrict construction vehicle activity to designated truck routes through the area (to be identified by the appointed builder);
- Construction vehicles to enter and exit the site in a forward direction;
- Construction activity to be carried out in accordance with the approved hours of construction;
- Maintain safety for workers; and
- The preparation of the construction traffic management plan, signage detail, control of pedestrians, and control and management of construction vehicles in the vicinity of the site will be the responsibility of the appointed builder.

6.9 Air Quality

An Air Quality Impact Assessment was prepared by Environmental Resources Management Australia Pty Ltd (ERM), and is located at Appendix K.

The report prepared by ERM identifies potential air quality impacts and constraints associated with the construction and operation of the proposed development, notably those engendered by excavation works and construction and operational traffic.

Construction activities will predominantly be undertaken on compacted land cleared of vegetation. Construction phase activities will not result in significant increases in traffic volumes, therefore associated emissions from construction equipment and work vehicles are anticipated to be minor in comparison to the existing surrounding industrial and traffic sources already contributing to the ambient air quality.

Air quality impacts associated with the proposed operations are primarily associated with diesel fuel combustion products released by cars and heavy vehicles. It is considered that these emissions will be negligible, particularly in comparison with the existing Freeway South Business park operations and current vehicle volumes experienced on the nearby New England Highway. Notwithstanding, potential air quality impacts should be managed with appropriate mitigation measures.

The following mitigation measures are recommended to be implemented during the construction and operation activities to reduce any potentially adverse air quality impacts associated with the development:

- Limiting disturbance areas, including vehicle access, to defined areas in order to minimise dust generation potential;
- Supervision of construction and excavation activities to identify the onset of dust generation;
- Watering of unsealed roads to stabilise the source of dust in the event dust generation is identified;
- Sealing of proposed roads as early as possible to eliminate the generation of wheel generated dust from vehicles;
- Trucks accessing the site to be maintained in accordance with manufacturers specification to comply with relevant regulations;
- Installation of truck wheel wash to minimise off site dust and sediment transport;
- Establishment of working areas and access roads as soon as is practicable to minimise the potential for dust generation;
- All machinery and plant should be turned off when not in use;
- Implementing appropriate procedures and using appropriate and well maintained transfer hoses and equipment with airtight seals; and
- Implementing appropriate preventative and mitigation measures to minimise spillage and ensure any spillages are contained and cleaned up immediately.

The following monitoring strategies are recommended to be implemented for the duration of construction activities in order to minimise potential quality impacts:

- Spot monitoring using a Dust Trak or equivalent to assess peak PM_{10} concentrations as a screening tool during anticipated periods of high dust generating activity; and

- Supplementary operator-attended monitoring of PM_{10} levels on a monthly basis and in response to any complaints received or exceedances reported.

The Air Quality Report concludes that the potential air quality impacts associated with the construction and operational activities of the development are minimal and can be effectively managed through the implementation of a series of mitigation and monitoring measures.

6.10 Bushfire

A Bushfire Protection Assessment was prepared by Australian Bushfire Protection Planners Pty Ltd (ABPP), and is located at Appendix L.

The report prepared by ABPP provides advice on the bushfire protection measures required for the construction of the proposed development.

Land to the west of the site within Lot 1 DP 838310, forms the vegetated buffer zone to the Four Mile Creek Colliery, and contains Dry Sclerophyll Low Open Forest vegetation which is recorded on the Newcastle Bushfire Prone Land Map as Category 1 Bushfire Prone Vegetation. Whilst the subdivision works approved under MP 06_0199 will remove the bushfire prone vegetation on the development site and adjoining lots, the vacant land to the west will retain bushfire prone vegetation and the proposed building will be subject to the impact from future bushfires that occur in this vegetation.

The proposed warehouse and distribution centre is located 26 metres from the western boundary with a perimeter fire access road and car parking located to the north of the building.

The Fuel Fill and Truck Wash Bay is located adjacent to the southern boundary of the site and more than 145 metres from the bushfire hazard on the land to the west.

The western section of the building contains a Cool House which is setback 26 metres from the bushfire prone vegetation on the land to the west in order to address the flame zone width setback and defendable space requirement to the western wall of the building.

The Director-General's Requirements (DGRs) for the preparation of the Environmental Assessment require that the development demonstrate that the project meets the requirements of the BCA and *Planning for Bushfire Protection 2006*. The DGRs also require consultation be undertaken with *'relevant local, State or Commonwealth Government Authorities, service providers, community groups and affected landowners'*. To address this requirement ABPP have held discussions with the NSW Rural Fire Service.

The Bushfire Protection Assessment undertaken by ABPP assesses the bushfire protection measures required to address the bushfire risk to the future warehouse and distribution centre, consistent with the specifications of *Planning for Bushfire Protection 2006*. The assessment provides a suite of site specific recommendations that address the outcome of the standards regarding setbacks (defendable space), provision of water supply, fuel management protocols and other matters considered necessary to mitigate the potential bushfire threat to persons, property and the environment from the danger that may arise from a bushfire within the adjoining Dry Sclerophyll Low Open Forest on the vacant land to the west of the ALDI site.

The following strategies are identified to mitigate the potential bushfire risk to the future warehouse and distribution centre:

- Provision of defendable space to ALDI warehouse and distribution centre.

  Provide a minimum 26 metre wide defendable space (Asset Protection Zone (APZ)) between the bushfire prone vegetation on the land to the west of the ALDI site and the Coolhouse western wall.

  The defendable space shall be maintained as an Inner Protection Area in accordance with the specifications of Appendix A2.5 of *Planning for Bushfire Protection 2006*.

- Landscape Management

  Management of the landscape areas within the development site shall comply with the following:

  - Maintain a clear area of low cut lawn or pavement adjacent to the buildings;
  - Keep areas under shrubs and trees raked and clear of combustible fuels;
  - Utilise non-flammable materials such as Scoria, pebbles and recycled crushed bricks as ground cover to landscaped gardens in close proximity to buildings; and
  - Trees and shrubs should be maintained in such a manner that tree canopies are separated by 2 metres and understorey vegetation is not continuous (retained as clumps).

- Constructions Standards to the ALDI Warehouse and Distribution Centre

  The following protection measures will be implemented in the construction of the building:

  - The construction of the western wall of the Coolhouse is proposed to be precast concrete wall panels to the ceiling height above. It is proposed to clad the wall in 6mm thick fibre cement sheeting in order to maintain the fire safety integrity of the western wall of the building against the possible flame contact and high levels of radiant heat for long periods during bushfire events in the adjacent vegetation;
  - External doors to the Coolhouse and Goods Out Docks shall be protected against the entry of embers – threshold, stile and head seals shall be fitted to doors;
  - Any external vents, ventilation louvres or grilles to the Coolhouse and the Ambient Warehouse shall have stainless steel mesh (or perforated metal) with a maximum aperture of 2mm square fitted to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm;

- Roof gutters shall be provided with a protection device (corrosion resistant steel mesh or perforated metal with 2mm holes) which minimises the accumulation of combustible litter. Such device shall be non combustible when measured in accordance with the testing procedures of A.S. 1503.2;

- Any operable windows to the building shall be fitted with stainless steel mesh flyscreens having a maximum mesh aperture size of 2mm;

- Access doors (PA / Fire Exit and Vehicle) to the building shall be fitted with seals that seal the bottom, stiles and head of the door against the opening / frame to prevent the entry of embers into the building;

- Fire Exit doors shall be fitted with non-hold opening door closers;

- Roof ventilators shall be fitted with stainless steel flymesh (2mm aperture) to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm; and

- No combustible materials are to be stored external to the building.

- Construction Standards to Truck Wash Bay / Fuel Fill / Generator / Substation

  This facility shall also be equipped with ember protection as recommended for the main building, including the fitting of 2mm aperture stainless steel mesh to prevent ember entry into the fuel tank exhaust stacks and the removal of combustible materials and spilt fuels.

- Water Supplies for Fire Fighting Operations

  A reticulated water supply, for fire fighting operations, shall be provided to the development in accordance with Australian Standard A.S. 2419.1 – 2005. Hydrants shall have a flow rate of 10 litres / second.

- Evacuation Planning

  An Evacuation Plan shall be prepared which addresses the protocols for the timely relocation of staff / visitors in the event that an emergency occurs, both within the site or within the local area. A copy of the Evacuation Plan shall be provided to the Local Emergency Management Committee / Police, NSW Fire Brigade and NSW Rural Fire Service.

  The Evacuation Plan shall comply with AS 3745 – 2002 *"Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces".*

  An Emergency Procedures Manual shall be prepared by ALDI for the facility, and shall include particulars of the operational procedures required to address the potential impacts of bushfires on the site. Areas addressed will include the location of vehicles parked along the southern boundary of the

site in close proximity to the bushfire prone vegetation on the land to the south of the development site, and the closure of doors likely to be exposed to potential ember attack.

The Bushfire Protection Assessment prepared by ABPP (Appendix L) concludes that implementation of the strategies outlined above are considered necessary to provide the level of protection required for the future development, and to ensure compliance with legislative requirements with respect to the provision of Defendable Space / Asset Protection Zones to the Bushfire Prone Vegetation within the adjoining land.

Furthermore, the assessment of the bushfire protection requirements and potential levels of bushfire attack on the proposed building indicates that the development of the site can be undertaken in a manner that balances development opportunities and the protection of life, property, and the environment.

In addition, Graham Swain of Australian Bushfire Protection Planners Pty Ltd provided Mr. Jason Hulston, Development Assessment & Planning Officer with the NSW Rural Fire Service, with a copy of the Bushfire Protection Assessment report and undertook subsequent discussions with Mr. Hulston.

Mr. Hulston provided comment, by way of email communication, that *"given that a defendable space is provided, the western façade is entirely constructed of pre-fabricated concrete with fibre cement sheeting to the upper section; adequate access and water are provided, the development should not have any problems being approved".*

6.11 Revised Subdivision Plan (MP 06_0199) – Concept Plan and Project Approval

Appendix B includes a revised subdivision plan as well as a report by RPS which summarises the proposed amendments as they relate to the approved subdivision layout, and also makes an assessment of the key impacts in relation to the proposed amendments. Appendix B also includes a letter requesting correction of a minor administrative error relating to Condition A5 of Schedule 2 of the Concept Plan Approval.

At the time of lodging the major project application for the proposed 90 lot industrial subdivision (MP 06_0199) the demand for large industrial parcels greater than two hectares was not envisaged. The proposed amendments to the subdivision are a result of the proposal by ALDI to locate their regional distribution warehouse within the site.

6.11.1 Road and Lot Layout

The revised subdivision and staging plan (Figure 4) outlines the changes to the road and lot layout as well as the staging of the subdivision. Figure 4a shows the approved subdivision plan. The proposed site for the ALDI Regional Distribution Warehouse is proposed Lot 124 and is approximately 15 hectares. In addition to the revised lot layout there are a number of amendments to the road layout which include:

- Road 3 is relocated such that it aligns with road 2 and continues along the alignment of the approved road 2 (now referred to on the modified subdivision plan as Parish Drive);
- Road 4 to the west of approved road 3 is incorporated into proposed lot 124;

- Part of road 6 is incorporated into proposed lot 124, with the western extremity deleted; and
- Road 1 (Canavan Drive) and road 5 (Elwell Close) will remain in their original positions.

As a result of the revised road layout and the amalgamation of lots, some minor reconfiguration of the surrounding allotments will also be required. This includes the removal of the detention basin, as it is no longer required. It is considered that the reconfiguration will have no additional environmental impact to that of the already approved 90 lot industrial subdivision.

6.11.2 Staging

The Freeway North Business Park was approved over 4 stages to ensure that a logical development of the site is achieved. As a result of the proposed modification to the layout it is now intended to develop the site over 3 stages. Figure 4 shows the revised staging, which includes:

- Stage 1 – Lots 101-124 (15 hectare ALDI site).
- Stage 2 – Lots 201-217, with lot 217 being a drainage reserve and dedicated to Council.
- Stage 3 – Lots 301-317, with lot 317 being a drainage reserve and dedicated to Council.

Recent consultation with the RTA has confirmed that roadworks may be staged consistent with the above proposed staging. Staging of the roadworks will allow for a Subdivision Certificate for Stage 1 of the development to be released, after completion of the roundabout and its approaches and departures to the satisfaction of the RTA. This will allow the proposed ALDI project to proceed at an early time.

The report by RPS includes discussion in respect to road improvements and RTA requirements as well as the proposed changes to stormwater drainage for the subdivision. Correspondence from the RTA and a detailed stormwater drainage report are included in Appendix 3 and 4 respectively.

The RPS report concludes that the proposed amendments to the approved subdivision will have no negative impacts upon the previously approved industrial subdivision and that it merely seeks to amend the subdivision layout and staging to allow for the subdivision to accommodate the ALDI Warehouse and Distribution Centre.

The proposed modification of the subdivision (amalgamation of lots) does not alter the nature of the approved major project 06_0199. The modification seeks to amend the staging and the release of Subdivision Certificates in accordance with the RTA approval. The proposed modification poses no additional environmental impact and is therefore considered consistent with the approved project.

7.0 Draft Statement of Commitments

7.1 Introduction

The following section outlines the proponent's commitment to implement construction and operational strategies relating to environmental management and mitigation measures. The section details how the proposal and its environmental safeguards will be implemented and managed in an integrated and feasible manner.

The construction impacts associated with the proposed development are likely to be more significant than the operational impacts. Construction impacts are short-term, and can be managed through appropriate measures. These measures include keeping the local community informed of proposed construction activities.

An Environmental Management Plan (EMP) will be prepared for the construction and operation of the proposed facility once approval has been granted and the detailed designs are complete. The EMP will ensure that the commitments made in the EAR, and the requirements under subsequent approval and licence conditions, are fully implemented. It will provide a framework for managing and mitigating the environmental impacts for the construction of the facility, and will also make provision for auditing the effectiveness of the proposed environmental protection measures and procedures.

The EMP will clearly outline who is responsible, and when the commitments associated with mitigation and monitoring strategies should be implemented / undertaken.

For the purpose of the EAR the level of detail contained in a comprehensive EMP is not considered necessary, and as such the draft Statement of Commitments is provided. The Statement of Commitments will guide the preparation of the Environmental Management Plan and Environmental Monitoring Plan.

For ease of reference the commitments are provided in order of the key issues listed within section 6 of this report.

7.2 Architectural Design and Visual Considerations

The building, associated works and operations of the new warehouse and distribution centre will be carried out generally in accordance with the EAR (including Appendices) and architectural plans BER-A-2030 – 0001W to BER-A-2030 – 3000W (Woodhead Architects) dated July 2010 (Appendix C). If there is any inconsistency between the plans, the EAR, and conditions imposed by the consent authority then the conditions will prevail to the extent of the inconsistency.

The internal road network and parking will be designed, constructed and maintained in accordance with the latest versions of the Australian Standards *AS 2890.1:2004* and *AS 2890.2:2002.*

7.3 Landscaping

The proposed landscaping design and works will be carried out in accordance with the recommendations of the Landscape Design Report and Landscape Design Plan 20100021 SK01 (SCAPE) dated the 28th June 2010 (Appendix E).

Landscape management will be carried out in accordance with the recommendations included in the Landscape Design Report.

The plant species selection will predominantly be of native woodland character, with endemic native trees and native grasses. Shrub planting will be used in locations where access for mower maintenance is not achievable due to level restrictions. High quality material selections will complement the architecture, providing a practical, and low-maintenance regime.

Car park landscaping works will be designed and carried out in accordance with the proposed Landscape Plan and Landscape Design Report (Appendix E).

A minimum 26 metre wide defendable space (Asset Protection Zone (APZ)) between the bushfire prone vegetation on the land to the west of the ALDI site and the Coolhouse western wall will be provided.

The defendable space will be maintained as an Inner Protection Area in accordance with the specifications of Appendix A2.5 of *Planning for Bushfire Protection 2006*.

Outdoor lighting will be unobtrusive and functional. Typically outdoor lighting will comprise:

- Wall mounted low-powered lights to egress doorways and to outdoor staff areas;
- Internally illuminated pylon signage 5.5m high to truck entry and carpark entry;
- Internally illuminated ALDI logo façade signage;
- Soffit lights to main entry awning;
- Low height bollard lighting adjacent office building to provide way finding at night;
- Carpark security lighting comprising typically 12m high pole mounted high efficiency fittings shining downwards; and
- Truck pavement lighting comprising 12m to 15m pole mounted, downward facing, high efficiency lighting to provide appropriate levels of lighting to the goods in and goods out truck pavements as well as main vehicle accessway.

7.4 BCA and Access

BCA

The proposed new warehouse and distribution centre will comply with either the 'deemed to satisfy' provisions of the Building Code of Australia, or alternatively provide a performance-based solution identified by a suitably qualified person.

Access

The proposed new warehouse and distribution centre will comply with the recommendations made within the Disability Access Report (Philip Chun Accessibility) dated 15th July 2010 (Appendix H), as well as the following Access Legislation:

- The Disability Discrimination Act 1992;
- The Building Code of Australia 2007 – Section D3: Access for People with Disabilities;
- Australian Standards AS1428.1, AS1428.2, AS1428.4 – Design for Access and Mobility;
- Australian Standard AS2890.1 – Parking Facilities – Off-street Carparking 1993; and
- Australian Standard AS1735.12 – Lifts, Escalators and Moving Walks: Facilities for Persons with Disabilities.

7.5 Traffic and Parking

The internal road network and 302 parking spaces to be provided will be designed, constructed and maintained in accordance with the latest versions of the Australian Standards *AS 2890.1:2004* and *AS 2890.2:2002*.

The proposed development will provide 32 bicycle parking spaces and 18 motorcycle parking spaces.

7.6 Stormwater Management and Flooding

Drainage systems will be designed in accordance with AS/NZS 3500.3.2 *National Plumbing and Drainage Part 3.2: Stormwater Drainage – Acceptable Solutions.*

Prior to the commencement of any works, appropriate sediment and erosion control measures will be installed. They will be maintained in a functional condition for a period of 6 months after the completion of works. They will include measures such as sediment fences at the downstream edges of all disturbed areas, filters at all existing pits collecting stormwater runoff from disturbed areas, and a truck shaker tray at each point of access to the work area. Sedimentation basins have been provided, sized in accordance with the guidelines in the "Blue Book" – Managing Urban Stormwater – Soils and Construction (Landcom).

Final details of Erosion and Sediment Control measures will be documented in the drawings to be prepared for the Construction Certificate.

Pollution Control Structures, including gross pollutant traps, will be monitored on a regular basis. Initial maintenance checks will be at 6-monthly intervals, for the first twelve months after completion, and thereafter as appropriate, but no less often than annually.

Two underground rainwater harvesting tanks of 200,000 Litres capacity will be provided at key locations on the site, one being located adjacent to the south-west of the truck wash under the truck pavement and being used for truck washing, and the other being located to the west of the office building below the car park pavement and being used for toilet flushing and irrigation.

On-site treatment of trade waste from the Truck Wash and Refuse Collection areas will be provided prior to discharge, in accordance with Hunter Water Trade Waste Division requirements.

The following measures will be implemented to minimise water usage:

1. Dual flush toilets will be provided.

2. All water-using appliances, taps and showers will be AAA rated.

3. Flow control will be provided to all tapware to control flows to 8 l/min at basins and sinks, and 9 l/m at showers.

4. Native vegetation will be provided in all landscaped areas to minimise the necessity for irrigation.

7.7 Infrastructure and Services

All service providers will be consulted in regard to the approved project. Documentary evidence of liaison with relevant public utility authorities, confirming their requirements, will be provided prior to the commencement of any excavation or building works.

Suitable easements for services shall be created, as required.

The following infrastructure work will be designed and carried out in accordance with the Electrical, Hydraulic and Fire Services Report prepared by Wood & Grieve Engineers (Appendix I) and will comply with the BCA, relevant Australian Standards; and Relevant Authority Regulations:

- Electrical Services
    - Power Supply and Usage
    - External Lighting
    - Communications
    - Master Antenna Television (MATV)

- Hydraulic Services
    - Sewer Drainage
    - Water Supply
    - Trade Waste
    - Gas Services

- Fire Services

    - Automatic Fire Sprinkler System
    - Fire Detection System
    - Emergency Warning and Intercommunications System
    - Water Supply
    - Fire Hydrant System
    - Fire Hose Reel System
    - Portable Fire Extinguishers
    - Fire Trip

7.8 Noise and Vibration

The following measures will be implemented in order to monitor and mitigate any potential noise impacts from the proposed development on nearby sensitive receivers:

- A validation monitoring assessment (attended) should be conducted at the nearest potentially affected three receivers.

- It is recommended that construction be limited to Monday to Saturday and works undertaken in accordance with the construction schedule outlines in section 7.8 of the Noise Impact Assessment. Any complaints regarding environmental noise emissions should be investigated and responded to in an appropriate manner.

- All works should be undertaken in accordance with the DECCW's Interim Construction Noise Guidelines.

7.9 Waste Management

A waste / refuse storage and removal area is located to the south of the warehouse building on the eastern side. This includes areas specifically designated for waste storage and separation, recycling and cardboard compaction.

A Waste Management Plan for construction wastes will be prepared. It will identify the types and amount of wastes that will be generated and proposals to reduce, re-use, recycle or dispose of the waste.

The plan will be provided prior to the commencement of works. All wastes generated on-site during the construction and operation of the development will be classified and re-used on-site or disposed of in accordance with the NSW DECCW's *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes*.

7.10 Construction Impacts

A Construction and Site Management Plan, including Dust Management Plan and Noise Management Plan, will be prepared and submitted to the NSW Department of Planning prior to construction.

7.10.1 Noise and Vibration

The following measures are recommended in order to quantify the noise levels associated with the development and to manage any impacts on noise sensitive receivers:

- A validation monitoring assessment (attended) should be conducted at the nearest potentially affected three receivers.
- It is recommended that construction be limited to Monday to Saturday and works undertaken in accordance with the construction schedule outlines in section 7.8 of the Noise Impact Assessment. Any complaints regarding environmental noise emissions should be investigated and responded to in an appropriate manner.
- All works should be undertaken in accordance with the DECCW's Interim Construction Noise Guidelines.

7.10.2 Stormwater Management

Appropriate Erosion and Sediment Controls will be provided during the construction phase in accordance with Council guidelines. An Erosion and Sedimentation Control Plan has been prepared for submission as an appendix within the Water Management Report. The plan includes measures such as sediment fences at the downstream edges of all disturbed areas, filters at all existing pits collecting stormwater runoff from disturbed areas, and a truck shaker tray at each point of access to the work area. Sedimentation basins have been provided, sized in accordance with the guidelines in the "Blue Book" – Managing Urban Stormwater – Soils and Construction (Landcom).

Final details of Erosion and Sediment Control measures will be documented in the drawings to be prepared for the Construction Certificate.

7.10.3 Dust and Erosion Control

The mitigation measures and monitoring strategies included in Section 7.11 will be implemented for the duration of the construction activities to reduce any potentially adverse air quality impacts associated with the development.

7.10.4 Construction Waste Management

A Waste Management Plan for construction wastes will be prepared. It will identify the types and amount of wastes that will be generated, and proposals to reduce, re-use, recycle or dispose of the waste.

The plan will be provided prior to the commencement of works. All wastes generated on-site during the construction of the development will be classified and re-used on-site or disposed of in accordance with the NSW DECCW's *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes*.

7.10.5 Traffic and Pedestrian Access Management

The builder will be responsible for the preparation of a traffic management plan, which will be prepared prior to the commencement of work, taking into account relevant consent conditions.

Construction of the development will commence with site preparation works, with construction access from Road 1 within the approved Freeway North Business Park subdivision. There will be appropriate room on site for construction vehicles to enter the site, turn around and exit in a forward direction.

Pedestrian footpaths adjacent to the site, to the extent that they exist during construction of the development, will be maintained. Class A construction fencing will be erected around the perimeter of the building, with overhead protection where required.

Indicative peak construction traffic flows have been estimated based on information provided by the study team. Peak daily traffic flows during construction would be up to some 300 vehicles two-way. These flows would include deliveries of construction materials of some 60 to 70 deliveries per day.

Based on a nine hour working day, the peak traffic generation of 300 vehicles per day is equivalent to an average of some 30 to 35 vehicles per hour two-way. This is less than the traffic generation of the proposed development once operational and the surrounding road network will be able to cater for these relatively small traffic movements.

The overall principles for traffic management during construction are as follows:

- Provide a convenient and appropriate environment for pedestrians;
- Minimise effects on pedestrian movements and amenity;
- Provide appropriate safety fencing/hoardings around the perimeter of the construction site;
- Manage and control vehicular movements to and from the site;
- Maintain other existing on-street parking in the vicinity of the site;
- Restrict construction vehicle activity to designated truck routes through the area (to be identified by the appointed builder);
- Construction vehicles to enter and exit the site in a forward direction;
- Construction activity to be carried out in accordance with the approved hours of construction;

- Maintain safety for workers; and

- The preparation of the construction traffic management plan, signage detail, control of pedestrians and control and management of construction vehicles in the vicinity of the site will be the responsibility of the appointed builder.

7.11 Air Quality

The following mitigation measures are recommended to be implemented during the construction and operation activities to reduce any potentially adverse air quality impacts associated with the development:

- Limiting disturbance areas, including vehicle access, to defined areas in order to minimise dust generation potential;

- Supervision of construction and excavation activities to identify the onset of dust generation;

- Watering of unsealed roads to stabilise the source of dust in the event dust generation is identified;

- Sealing of proposed roads as early as possible to eliminate the generation of wheel generated dust from vehicles;

- Trucks accessing the site to be maintained in accordance with manufacturers specification to comply with relevant regulations;

- Installation of truck wheel wash to minimise off site dust and sediment transport;

- Establishment of working areas and access roads as soon as practicable to minimise the potential for dust generation;

- All machinery and plant should be turned off when not in use;

- Implementing appropriate procedures and using appropriate and well maintained transfer hoses and equipment with airtight seals; and

- Implementing appropriate preventative and mitigation measures to minimise spillage and ensure any spillages are contained and cleaned up immediately.

The following monitoring strategies are recommended to be implemented for the duration of construction activities in order to minimise potential quality impacts:

- Spot monitoring using a Dust Trak or equivalent to assess peak PM_{10} concentrations as a screening tool during anticipated periods of high dust generating activity; and

- Supplementary operator-attended monitoring of PM_{10} levels on a monthly basis and in response to any complaints received or exceedances reported.

7.12 Bushfire

The following strategies will be implemented in order to mitigate the potential bushfire risk to the future warehouse and distribution centre:

- Provision of defendable space to ALDI warehouse and distribution centre.

  Provide a minimum 26 metre wide defendable space (Asset Protection Zone (APZ)) between the bushfire prone vegetation on the land to the west of the ALDI site and the Coolhouse western wall.

  The defendable space shall be maintained as an Inner Protection Area in accordance with the specifications of Appendix A2.5 of *Planning for Bushfire Protection 2006*.

- Landscape Management

  Management of the landscape areas within the development site shall comply with the following:

  - Maintain a clear area of low cut lawn or pavement adjacent to the buildings;
  - Keep areas under shrubs and trees raked and clear of combustible fuels;
  - Utilise non-flammable materials such as Scoria, pebbles and recycled crushed bricks as ground cover to landscaped gardens in close proximity to buildings; and
  - Trees and shrubs should be maintained in such a manner that tree canopies are separated by 2 metres and understorey vegetation is not continuous (retained as clumps).

- Vegetation Management

  A Vegetation Management Plan will be submitted prior to the commencement of works. The plan will outline how bushland is to be protected during both the construction and operation phases, and how proposed landscaping will be maintained after installation and during operation of the development, and will include provision for the following:

  - Protection of on-site and neighbouring bushland during construction;
  - Protection of bushland during operation of the site;
  - Weed management for the subject site and neighbouring bushland;
  - Feral animal management;

- Access to bushland;
- Bushfire mitigation for the site;
- Responsibilities for the management of bushland and new landscaping;
- Monitoring of proposed landscape quality;
- Maintenance of a clear area of low cut lawn or pavement adjacent to the buildings;
- Maintenance of areas under shrubs and trees raked and clear of combustible fuels; and
- Utilisation of non-flammable materials such as Scoria, pebbles and recycled crushed bricks as ground cover to landscaped gardens in close proximity to buildings.

- Constructions Standards to the ALDI Warehouse and Distribution Centre

  The following protection measures shall be implemented in the construction of the building:

  - The construction of the western wall of the Coolhouse is to be precast concrete wall panels to the ceiling height above. It is proposed to clad the wall in 6mm thick fibre cement sheeting in order to maintain the fire safety integrity of the western wall of the building against the possible flame contact and high levels of radiant heat for long periods during bushfire events in the adjacent vegetation;
  - External doors to the Coolhouse and Goods Out Docks shall be protected against the entry of embers – threshold, stile and head seals shall be fitted to doors;
  - Any external vents, ventilation louvres or grilles to the Coolhouse and the Ambient Warehouse shall have stainless steel mesh (or perforated metal) with a maximum aperture of 2mm square fitted to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm;
  - Roof gutters shall be provided with a protection device (corrosion resistant steel mesh or perforated metal with 2mm holes) which minimises the accumulation of combustible litter. Such device shall be non combustible when measured in accordance with the testing procedures of A.S. 1503.2;
  - Any operable windows to the building shall be fitted with stainless steel mesh flyscreens having a maximum mesh aperture size of 2mm;
  - Access doors (PA / Fire Exit and Vehicle) to the building shall be fitted with seals that seal the bottom, stiles and head of the door against the opening / frame to prevent the entry of embers into the building;

- Fire Exit doors shall be fitted with non-hold opening door closers;

- Roof ventilators shall be fitted with stainless steel flymesh (2mm aperture) to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm; and

- No combustible materials are to be stored external to the building.

- Construction Standards to Truck Wash Bay / Fuel Fill / Generator / Substation

  This facility shall also be equipped with ember protection as recommended for the main building including the fitting of 2mm aperture stainless steel mesh to prevent ember entry into the fuel tank exhaust stacks and the removal of combustible materials and spilt fuels.

- Water Supplies for Fire Fighting Operations

  A reticulated water supply, for fire fighting operations, shall be provided to the development, in accordance with Australian Standard A.S. 2419.1 – 2005. Hydrants shall have a flow rate of 10 litres / second.

- Evacuation Planning

  An Evacuation Plan shall be prepared which addresses the protocols for the timely relocation of staff / visitors in the event that an emergency occurs, both within the site and within the local area. A copy of the Evacuation Plan shall be provided to the Local Emergency Management Committee / Police, NSW Fire Brigade and NSW Rural Fire Service.

  The Evacuation Plan shall comply with AS 3745 – 2002 *"Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces".*

  An Emergency Procedures Manual shall be prepared by ALDI for the facility, and shall include particulars of the operational procedures required to address the potential impacts of bushfires on the site. Areas addressed will include the location of vehicles parked along the southern boundary of the site in close proximity to the bushfire prone vegetation on the land to the south of the development site, and the closure of doors likely to be exposed to potential ember attack.

7.13 Revised Subdivision Plan (MP 06_0199)

Appendix 5 of the RPS report (Appendix B) includes the revised Statement of Commitments for MP 06_0199.

8.0 Justification for the Proposal

8.1 Meeting Project Objectives

The main objective of the proposed development is to enable ALDI Foods Pty Ltd to expand their storage and distribution facilities within a suitable location that has good access to the wider road network and major transport routes.

The proposed development is considered to achieve this objective.

8.2 Ecological Sustainability

Ecologically sustainable development (ESD) has emerged as the primary objective of environmental protection in NSW. ESD is defined under the Local Government Act 1993 as requiring the effective integration of economic and environmental considerations in decision-making processes. Sustainability encompasses a range of considerations under the principles of ecologically sustainable development.

A warehouse building on a site nominated and zoned for industrial development is generally consistent with sustainable patterns of land use. The development overall is within an existing urban footprint. The building will provide significant social benefits thorough increased employment opportunities and economic benefits to the local and regional community, without adverse environmental effects.

No particular environmental threats have been identified as arising from the proposed warehouse and distribution centre development. Where issues have arisen, adequate management and mitigation measures are proposed. The potential effects of the development are such that the likelihood of environmental harm is very low. No unacceptable risks of development or environmental harm have been identified.

The proposal is subject to a rigorous and public environmental assessment process, which ensures that issues and risks to the environment are appreciated and understood. Consultation with the community and public authorities has commenced and will continue as part of the assessment process.

The proposed development is in keeping with the principles and practice of ecologically sustainable development. Specific matters under the principles of ecologically sustainable development are addressed below.

8.2.1 Integration

The development proposal integrates environmental social and economic considerations. The development proposed is consistent with applicable planning policies. The proposal provides for urban infrastructure development without significant environmental risk. The proposal achieves the balance generally sought by planning policy.

8.2.2 *Precautionary Principle*

A risk adverse approach to development is promoted by the precautionary principle.

Threats

There are no particular environmental threats arising from the proposed developments as adequate management and mitigation measures can be implemented. The development area is not flood prone and has adequate setbacks to the local bushfire hazards.

Risk

The likely effects of development are such that the likelihood of environmental harm is very low. The effects of the development can be adequately managed with standard mitigation measures and processes. The risk of loss of biodiversity or ecological integrity is very low.

Unacceptable risks

No unacceptable risks of development have been identified. Bushfire risks have been addressed via the application of asset protection zones.

Proportionality

The management measures proposed as part of the development are in proportion to the likely risk and potential effects.

8.2.3 *Inter-generational Equity*

The development does not involve a potential loss of opportunity or resources for future generations. Improved and increased employment opportunities through the proposed warehouse and distribution centre are an investment in the future.

8.2.4 *Conservation of Biodiversity and Ecological Integrity*

The proposal will not result in a loss of biodiversity. Ecological integrity will be protected through appropriate stormwater controls. The location of the development within an urban footprint is consistent with minimising ecological effects.

8.2.5 *Improved Valuation, Pricing and Incentive Mechanisms*

The developer will pay for the establishment of infrastructure and for appropriate environmental management measures on the development areas of the site. Longer term management costs will be borne by the operators of the facility consistent with the polluter pays principle.

8.2.6 Environmental Assessment

The proposal will be subject to a rigorous and public environmental assessment process under Part 3A of the Environmental Planning and Assessment Act. This includes assessment of matters under the Commonwealth Environmental Protection and Biodiversity Conservation Act. The EA process under Part 3A ensures that a broad range of issues are considered and weighed appropriately for the development.

8.2.7 Public Consultation

Consultation with the community and public authorities has commenced, and will continue as part of the assessment process. The consultation process provides for input from a diverse range of individuals, interest groups and statutory authorities consistent with the social aspects of sustainability.

8.2.8 Conclusion

The proposed warehouse and distribution facility is in keeping with the principles and practice of ecologically sustainable development.

8.3 Meeting Environmental Performance Requirements

The site is ideally suited to the proposed development, as it is not an area of particular environmental vulnerability, nor does it have special social or economic value for any other land use. As such, with the implementation of appropriate mitigation measures, the environmental performance requirements of the development during and post construction will be easily met. A monitoring program will be implemented to ensure the performance of construction of the facility, and contingency plans with appropriate responses and corrective actions will form part of the site Environmental / Construction Management Plan.

Appendix A

Director-General's Requirements & Clause 6 Opinion

NSW GOVERNMENT | Planning

Contact: Chris Ritchie
Phone: 02 9228 6413
Fax: 02 9228 6499
Email: chris.ritchie@planning.nsw.gov.au

Mr Anthony Alliston
ADW Johnson Pty Ltd
7/335 Hillsborough Road
WARNERS BAY NSW 2282

Dear Mr Alliston

Aldi Warehouse Project, Beresfield (MP 10_0042)

The Department has received your application for the Aldi Warehouse Project.

I have attached a copy of the Director-General's requirements for the project. These requirements have been prepared in consultation with the relevant agencies, based on the information you have provided to date. I have also attached a copy of the agencies' comments for your information.

Please note that the Director-General may alter these requirements at any time.

If your proposal is likely to have a significant impact on matters of National Environmental Significance, it will require an approval under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. It is your responsibility to contact the Department of Environment, Water, Heritage and the Arts in Canberra (6274 1111 or http://www.environment.gov.au) to determine if the proposal requires an approval under the EPBC Act. If it is subsequently determined that an approval is required under the EPBC Act, please contact the Department immediately as supplementary Director-General's requirements may need to be issued.

I would appreciate it if you would contact the Department at least two weeks before you propose to submit your Environmental Assessment for the project. This will enable the Department to determine the:

- applicable fee (see Division 1A, Part 15 of the Environmental Planning and Assessment Regulation 2000); and
- number of copies (hard-copy and CD-ROM) of the Environmental Assessment that will be required for exhibition purposes.

Once it receives the Environmental Assessment, the Department will review it in consultation with the relevant agencies to determine if it adequately addresses the Director-General's requirements, and may require you to revise it prior to public exhibition.

The Department is required to make all the relevant information associated with the project publicly available on its website. Consequently, I would appreciate it if you would ensure that all the documents you subsequently submit to the Department are in a suitable format for the web, and arrange for an electronic version of the Environmental Assessment to be hosted on a suitable website.

If you have any enquiries about these requirements, please contact Chris Ritchie at the details listed above.

Yours sincerely



David Kitto
Director
Mining & Industry Projects
As delegate for the Director-General

Director-General's Requirements

Section 75F of the *Environmental Planning and Assessment Act 1979*

Application Number	10_0042
Project	The Aldi Warehouse Project including: • establishment of a warehouse and distribution facility with a total building area of approximately 56,079m^2 and associated infrastructure; and • modifications to the internal road network for the Freeway North Business Park to accommodate the project.
Location	Weakleys Drive, Beresfield (15 hectare area within Lot 14 DP 207961, Lot E DP 388733 and Lot 14 DP 1091199)
Proponent	Aldi Food Pty Limited
Date of Issue	May 2010
General Requirements	The Environmental Assessment of the project must include: • an executive summary; • a detailed description of the project, including: – need for the project; – alternatives considered; – revised subdivision plan for the Freeway North Business Park; – the development to be carried out on site, including plans of all proposed building works; – likely staging of this development; and – details of how the project would be co-ordinated with construction and subdivision works approved under MP09_0199; • a risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment; • a detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (see above), which includes: – a description of the existing environment, using sufficient baseline data; – an assessment of the potential impacts of the project, including any cumulative impacts, taking into consideration any relevant guidelines, policies, plans and statutory provisions (see below); – a description of the measures that would be implemented to avoid, minimise, and if necessary offset the potential impacts of the project, including detailed contingency plans for managing any significant risks to the environment; • a suitable assessment of the other issues specified below, outlining the measures that would be implemented to minimise the potential impacts of the project; • a statement of commitments, outlining all the proposed environmental management and monitoring measures for the project; • a conclusion justifying the project on economic, social and environmental grounds, taking into consideration whether the project is consistent with the objects of the *Environmental Planning & Assessment Act 1979*; and • a signed statement from the author of the Environmental Assessment, certifying that the information contained within the document is neither false nor misleading.
Key Issues	• **Visual/Design –** including: - demonstration (including a photomontage of the building) that the

	project has regard for a high standard of architectural design including building heights, materials, articulation of the buildings, external appearance, setbacks, landscaping (including a detailed landscape plan), lighting, and signage; - demonstration that the project meets the requirements of the BCA and *Planning for Bushfire Protection 2006;* and - measures that would be implemented to minimise water and energy use on site; • **Traffic and Parking** – including: - predictions of the traffic volumes likely to be generated during construction and operation; - an assessment of the predicted impacts of this traffic on the capacity, efficiency, and safety of the surrounding road network, including modelling of key intersections; and - details of access to the site and car parking requirements. • **Soil & Water –** including: - sediment and erosion control during construction and stormwater management during operations; and - impacts of the project on flooding behaviour; • **Infrastructure** – demonstrate that suitable arrangements are in place, or will be put in place, to provide the necessary infrastructure for the project; • **Noise** – including construction, operational, and traffic noise; • **Waste Management** – including the quantity and type of all liquid and solid waste to be generated at the site and a description of how this waste would be handled, processed and, if necessary, disposed of; and • **Construction Management** – details of the measures that would be implemented during construction to minimise and manage potential impacts.
References	The environmental assessment of the key issues listed above must take into account relevant guidelines, policies, and plans. While not exhaustive, the following attachment contains a list of some of the guidelines, policies, and plans that may be relevant to the environmental assessment of this project.
Consultation	During the preparation of the Environmental Assessment, you should consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: • Roads and Traffic Authority; and • Newcastle City Council. The consultation process and the issues raised must be described in the Environmental Assessment.
Deemed Refusal Period	60 days

Policies, Guidelines & Plans

Risk	
	AS/NZS 4360 Risk Management (Standards Australia)
	HB 203:2006 Environmental Risk Management – Principals and Process
Site Design and Layout	
	Control of Obtrusive Effects of Outdoor Lighting (Standards Australia, 1997, AS 4282-1997)
	State Environmental Planning Policy No 64 - Advertising and Signage
	Guidelines for Energy Savings Action Plans (DEUS)
	Guidelines for Water Savings Action Plans (DEUS)
Transport and Access	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA)
	State Environmental Planning Policy (Infrastructure)
Soil and Waters	
Soils	Managing Urban Stormwater: Soils & Construction (Landcom)
	Soil and Landscape Issues in Environmental Impact Assessment (DLWC)
Flood Management	Floodplain Development Manual: the Management of Flood Liable Land (DIPNR)
	Floodplain Risk Management Guideline - Practical Consideration of Climate Change (DECC)
Surface Water	Managing Urban Stormwater: Council Handbook. Draft (EPA)
	Managing Urban Stormwater: Treatment Techniques (EPA)
	Managing Urban Stormwater: Source Control. Draft (EPA)
	Managing Urban Stormwater: Harvesting and Reuse (DEC)
	Storing and Handling Liquids: Environmental Protection - Participants Manual (DECC)
	Environmental Compliance Report: Liquid Chemical Storage, Handling and Spill Management - Part B Review of Best Practice and Regulation (DEC)
Noise	
	NSW Industrial Noise Policy (DECC)
	Environmental Criteria for Road Traffic Noise (NSW EPA)
	Interim Construction Noise Guideline (DECC)
Waste	
	Waste Avoidance and Resource Recovery Strategy (Resource NSW)
	Waste Classification Guidelines (DECC)

NSW GOVERNMENT | Planning

Record of Minister's opinion for the purposes of Clause 6(1) of the State Environmental Planning Policy (Major Development) 2005

I, the Director, Mining & Industry Projects of the Department of Planning, as delegate of the Minister for Planning under delegation executed on 25 January 2010, have formed the opinion that the development described in the Schedule below, is development of a kind that is described in Schedule 1 of *the State Environmental Planning Policy (Major Development) 2005* – namely clause 12 "development for the purpose of container storage facilities, or storage or distribution centres, with a capital investment value of more than $30 million" - and is thus declared to be a project to which Part 3A of the *Environmental Planning and Assessment Act 1979* applies for the purpose of section 75B of that Act.

Schedule 1

The Aldi Warehouse Project described generally in a letter dated 17 March 2010 to the Department of Planning.

David Kitto
Director
Mining & Industry Projects

Date: 24/3/10

Appendix B

Previous Subdivision Consent (MP 06_0199) & Amended Subdivision Plan, Report & Letter

21717

NSW GOVERNMENT
Department of Planning

RECEIVED
14 OCT 2008
BY:

7 October 2008

Contact: David Gibson
Phone: (02) 9228 6589
Fax: (02) 9228 6570
Email: david.gibson@planning.nsw.gov.au

Our ref: MP 06_1099
File: 9042757

Mr Rob Dwyer
Harper Somers O'Sullivan
PO Box 428
HAMILTON NSW 2303

Dear Mr Dwyer

RE: Determination of Freeway North Concept Plan & Project Application (MP 06_0199)

I refer to the above Major Project application lodged with the Department on 13 April 2007.

I am writing to inform you that the application has been granted approval, subject to modifications. The approval is on the basis of the attached Instrument of Approval.

Please note the approval operates from the date of the Minister's determination.

Should you have any enquiries regarding the above matter, please contact David Gibson on 9228 6589 or via email to david.gibson@planning.nsw.gov.au.

Yours sincerely

Michael File
Director, Strategic Assessment

ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

DETERMINATION OF FREEWAY NORTH CONCEPT PLAN AND PROJECT APPROVAL

Major Project No. 06_0199
(File No. 9042757)

I, the Minister for Planning, under the *Environmental Planning and Assessment Act 1979* ("the EP&A Act") determine:

(a) To approve, under section 75O(1) of the EP&A Act, the concept plan for the project as described in Schedule 1, subject to the modifications set out in Schedule 2.

(b) To approve, under section 75J(1) of the EP&A Act, the project application for subdivision and subdivision works described in Schedule 3, subject to the conditions set out in Schedule 4.

(c) That approval to carry out the remainder of the project is to be subject to Part 4 of the EP&A Act, under section 75P(1)(b) of the EP&A Act.

Kristina Keneally MP
Minister for Planning

Sydney, 29 September 2008

SCHEDULE 1

PART A — TABLE

Application made by:	Harper Somers O'Sullivan (on behalf of Thornton Land Company) PO Box 428 Hamilton NSW 2303
Application made to:	Minister for Planning
Major Project Number:	06_0199
On land comprising:	Lot 14 DP 1091199; Lot 14 DP 207961; and Lot E DP 388733
Local Government Area	Newcastle City Council
For the carrying out of:	An industrial business park and 90 lot subdivision, with associated services and infrastructure as described in Modification A1, Part A, Schedule 2
Capital Investment Value	$341 million
Type of development:	Concept approval under Part 3A of the Act
Determination made on:	
Determination:	Concept approval is granted subject to the modifications in the attached Schedule 2.
Date of commencement of approval:	This approval commences on the date of the Minister's approval.
Date approval is liable to lapse	5 years from the date of determination unless specified action has been taken in accordance with Section 75Y of the EP&A Act.

PART B — DEFINITIONS

In this approval the following definitions apply:

Act means the *Environmental Planning and Assessment Act, 1979* (as amended).

Council means Newcastle City Council.

Department means the Department of Planning or its successors.

Director General means the Director General of the Department of Planning.

Minister means the Minister for Planning.

Project means development that is declared under Section 75B of the Act to be a project to which Part 3A of the Act applies.

Proponent means the person proposing the carry out of development comprising all or any part of the project, and includes persons certified by the Minister to be the proponent.

Regulations means the Environmental Planning and Assessment Regulations, 2000 (as amended).

RTA means the Roads and Traffic Authority.

Subject Site has the same meaning as the land identified in Part A of this schedule.

Freeway North Business Park has the same meaning as the land identified in Part A of this schedule.

Freeway North Business Park Concept Plan means the project described in Schedule 2, Part A, Modification A1 and the accompanying plans and documentation described in Schedule 2, Part A, Modification A2.

SCHEDULE 2

MODIFICATIONS TO THE FREEWAY NORTH BUSINESS PARK CONCEPT PLAN MP NO. 06_0199

PART A – ADMINISTRATIVE MODIFICATIONS

A1. Development Description

Concept approval is granted only to the carrying out of the development solely within the concept plan area as described in the document titled *"Freeway North Business Park"* prepared by Harper Somers O'Sullivan (dated March 2007) including:

1. A 90 lot industrial business park subdivision;
2. Associated services and infrastructure; and
3. Conservation lands.

A2. Development in Accordance with Plans and Documentation

The development shall also be generally consistent with the following plans and documentation:

a) ***Freeway North Business Park Concept Plan and Environmental Assessment*** and supporting Appendices A-H, dated March 2007; except as amended by ***Preferred Project Report*** and supporting Appendices A & B, dated November 2007;

b) ***Statement of Commitments*** prepared by Harper Somers O'Sullivan, dated 9 July 2008; and

c) ***Aboriginal Heritage Impact Assessment*** and associated ***Aboriginal Heritage Management Plan*** prepared by South East Archaeology and dated July 2008;

except for otherwise provided by the Department's modifications of approval as set out in Schedule 2, Part B and the proponent's Statement of Commitments.

A3. Inconsistency Between Documentation

In the event of any inconsistency between the modifications of this concept approval and the plans and documentation described in Modification A2, Part A, Schedule 2 referred to above, the modifications of this concept approval prevail.

A4. Lapsing of Approval

Approval of MP No. 06_0199 (concept plan) shall lapse 5 years after the determination date in Part A of Schedule 1 unless an application is submitted to carry out a project or development for which concept approval has been given.

A5. Determination of Future Applications

The determination of future applications for development is to be generally consistent with the terms of approval of MP No. 06_0199 as described in Part A of Schedule 1 and subject to the modifications of approval set out in Parts A and B of Schedule 2. Future applications for development are subject to Part 4 of the EP&A Act except where Schedule 2 of State Environmental Planning Policy (Major Projects) 2005 applies.

PART B – DEPARTMENT OF PLANNING'S MODIFICATIONS

B1. Newcastle Development Control Plan 2005

The Freeway North Business Park is to be developed generally in accordance with the *objectives* and *specific provisions* of *Newcastle Development Control Plan 2005 – Element 7.3 South Beresfield Industrial Precinct*, with the exception of the *Access Concept Plan*, which has been amended with the consent of the RTA in this concept plan approval.

In this regard, where inconsistencies occur between Council policy and *Section 6 Development Design Principles* of the concept plan Environmental Assessment, Council policy shall prevail.

B2. Road Network and RTA Requirements

(1) The proposed subdivision layout includes an internal road reserve to the northwest of the Freeway North Business Park site (to Avalon Drive). An appropriate road reserve shall be provided within Lot 14 DP 1091199 to the RTA's satisfaction as part of the subdivision to allow for an ultimate public road connection to Avalon Drive and the New England Highway. This proposed road link should only cater for light vehicles, buses and garbage trucks, as it will connect to a residential precinct.

(2) The subject property is affected by a road widening for Weakleys Drive. The following shall be complied with:

- Any new buildings or structures are erected clear of the land identified above.
- This land and any land required for the roundabout and left in/left out intersections is set aside as public road.
- The land affected by road widening is dedicated as public road reserve at no cost to the RTA or Council.

B3. Conservation Agreement

A Conservation Agreement under Part 4 Division 12 of the National Parks andWildlife Act 1974, between the Minister administering the National Parks and Wildlife Act 1974 and Hunter Land (the Proponent) is to be entered into over the land known as Lots 2 to 4 DP 1061633. Execution of a Voluntary Conservation Agreement for Lots 2 to 4 DP 1061633 is required to offset vegetation removal on Freeway North and Freeway South Business Parks lands.

B4. Aboriginal Cultural Heritage

The salvage program outlined in the Aboriginal Heritage Management Plan (July 2008) is to be developed in consultation with the Mindarriba Local Aboriginal Land Council (MLALC) and the Lower Hunter Wonnaruna Council Inc (LHWC) and any other relevant Aboriginal groups. Representatives from all of these groups shall be provided the opportunity to participate in the collection program, including the temporary and long-term storage of artefacts.

B5. Bushfire Protection

The development shall meet the aims and objectives of *Planning for Bush Fire Protection 2006*, as detailed in a required Bushfire Management Plan, the provisions of which include:

- Suitable aggress/access throughout the proposed development as outlined *within Planning for Bushfire Protection 2006.*
- Adequate future water supplies for bushfire suppression operations.
- Minimising the vulnerability of buildings to ignition from radiation and ember attack by addressing the construction of assets in accordance with Australian Standard 3959 Building in Bush Fire Prone Areas.
- Reducing the rate of heat output (intensity) of a bushfire close to a development through the control of fuel levels.
- The future management of areas of hazard remaining within the subject area. This should focus on the level of hazard posed to future development by the land or adjacent land. The Plan of Management will need to include fuel management within the development and maintenance of asset protection zones in accordance with *Planning for Bushfire Protection 2006.*
- Minimising the impact of radiant heat and direct flame contact by separating the development from the bushfire hazard and identifying the extent to which future development can provide for asset protection zones (APZ) in accordance with *Planning for Bushfire Protection 2006.*

SCHEDULE 3

PART A — TABLE

Application made by:	Harper Somers O'Sullivan (on behalf of Thornton Land Company) PO Box 428 Hamilton NSW 2303
Application made to:	Minister for Planning
Major Project Number:	06_0199
On land comprising:	Lot 14 DP 1091199; Lot 14 DP 207961; and Lot E DP 388733
Local Government Area	Newcastle City Council
For the carrying out of:	Subdivision and subdivision works as described in Condition A1, Part A, Schedule 4.
Capital Investment Value	$31 million
Type of development:	Project approval under Part 3A of the EP&A Act
Determination made on:	
Determination:	Project approval is granted subject to the conditions in the attached Schedule 4.
Date of commencement of approval:	This approval commences on the date of the Minister's approval.
Date approval is liable to lapse	5 years from the date of determination unless specified action has been taken in accordance with Section 75Y of the EP&A Act.

PART B — DEFINITIONS

In this approval the following definitions apply:

Act means the *Environmental Planning and Assessment Act, 1979* (as amended).

Council means Newcastle City Council.

Department means the Department of Planning or its successors.

Director General means the Director General of the Department of Planning

Minister means the Minister for Planning.

Project means development that is declared under Section 75B of the EP & A Act to be a project to which Part 3A of the Act applies.

Proponent means the person proposing the carry out of development comprising all or any part of the project, and includes persons certified by the Minister to be the proponent.

Regulations means the Environmental Planning and Assessment Regulations, 2000 (as amended).

Subject Site has the same meaning as the land identified in Part A of this schedule.

Freeway North Business Park site has the same meaning as the land identified in Part A of this schedule.

Major Project No. 06_0199 means the project described in Condition A1, Part A, Schedule 4 and the accompanying plans and documentation described in Condition A2, Part A, Schedule 4.

SCHEDULE 4

CONDITIONS OF APPROVAL – FREEWAY NORTH BUSINESS PARK PROJECT APPROVAL MP NO. 06_0199

PART A – ADMINISTRATIVE CONDITIONS

A1. Development Description

Project approval is granted only to carrying out the development described in detail below:

1. A 90 lot subdivision and construction of associated works including streets, stormwater management works, utility services, and bulk earthworks;
2. Public domain improvements, including street trees; and
3. The use of the land for industrial business park related purposes and environmental conservation.

A2. Development in Accordance with Plans and Documentation

The development shall be in accordance with the following plans and documentation:

a) Freeway North Business Park ***Preferred Project Report*** and supporting Appendices A & B, dated November 2007;

b) ***Statement of Commitments*** prepared by Harper Somers O'Sullivan, dated 9 July 2008; and

c) Freeway North Business Park ***Indicative Lot Layout***, prepared by Harper Somers O'Sullivan, Job ref: 21717, dated 30 July 2008;

except for otherwise provided by the Department's conditions of approval as set out in Schedule 4, Part B and the proponent's Statement of Commitments.

A3. Inconsistency Between Plans and Documentation

In the event of any inconsistency between conditions of this project approval and the plans and documentation described in Condition A2, Part A, Schedule 4 referred to above, the conditions of this project approval prevail.

A4. Lapsing of Approval

Approval of Major Project No. 06_0199 (project approval) shall lapse 5 years after the determination date in Part A of Schedule 1 unless specified action has been taken in accordance with Section 75Y of the EP&A.

A5. Prescribed Conditions

The Applicant shall comply with the prescribed conditions of project approval under Clause 75J (4) of the Act.

A6. Determination of Future Applications

The determination of future applications for development is to be generally consistent with the terms of approval of MP No. 06_0199 as described in Part A of Schedule 1 and subject to the conditions of approval set out in Parts A and B of Schedule 2.

PART B – DEPARTMENT OF PLANNING'S CONDITIONS OF APPROVAL

B1. Weakleys Drive Intersection and RTA Roadworks Requirements

(1) A roundabout and associated works shall be designed and constructed in accordance with the RTA's Road Design Guide and relevant Austroads guidelines at the proposed new access to the Freeway North Business Park on Weakleys Drive between Balook Drive and the New England Highway, approximately in the location identified in Newcastle Council's Development Control Plan for the area, to the satisfaction of the RTA. The following shall be included, as a minimum, as part of the works:

- The roundabout shall be constructed as a 2-lane dual circulating roundabout.
- Two lane approach and departures shall be provided on all legs of the roundabout.
- The northern leg of the roundabout on Weakleys Drive shall be extended through to the two-lane section of the Weakleys Drive grade separated interchange project, currently being undertaken by

the RTA. Two-lanes northbound and southbound shall be provided between the proposed roundabout and the New England Highway interchange along Weakleys Drive. A raised central concrete median shall be included in the upgrade of the road.

- The southern approach leg of the roundabout on Weakleys Drive shall be extended from the roundabout to the south of the proposed left in/left out access to the Freeway North Business Park. The two-lane (northbound) approach shall be extended south beyond the left in/left out intersection to an extent to ensure safe merging/diverging of traffic northbound on Weakleys Drive.
- The southern departure leg (southbound) of the roundabout shall be constructed as two lanes to a length of 200m from the roundabout, excluding tapers.

(2) The proposed left in/left out intersection to the subject site on Weakleys Drive between the proposed roundabout and Balook Drive shall be designed and constructed in accordance with the RTA's Road Design Guide and relevant Austroads guidelines with an exclusive left turn deceleration lane outside of the proposed two lane section of Weakleys Drive.

(3) There shall be no direct vehicular access to any of the proposed lots off Weakleys Drive. All vehicular access to the proposed lots shall be via the two proposed intersections on Weakleys Drive and the internal local road network.

(4) The subdivision certificate is not to be released until the proponent has fully constructed all road works on Weakleys Drive to the satisfaction of the RTA.

(5) All work associated with the proposed development shall be undertaken at full cost to the Developer.

(6) The proponent is required to enter into a Works Authorisation Deed (WAD) with the RTA. In this regard the proponent is required to submit detailed design plans and all relevant additional information, as may be required in the RTA's WAD documentation, for each specific change to the state road network for the RTA's assessment and final decision concerning the work.

B2. Road, Drainage and Pavement Works

Subdivision work for each stage, in accordance with this approval, must not be commenced until a Construction Certificate for the relevant work has been issued by Council or an accredited certifier.

All road, drainage and pavement works shall be designed in accordance with the relevant requirements of Council and the RTA and in accordance with the approved Statement of Commitments. Final road design plans shall be prepared by a qualified practising Civil Engineer and submitted to the relevant Certifying Authority prior to the issue of a Construction Certificate for the relevant stage.

B3. Erosion and Sediment Control

All erosion and sediment control measures are to be effectively maintained at or above design capacity for the duration of the construction works and until such time as all ground disturbed by the works has been stabilised and rehabilitated so that it no longer acts as a source of sediment.

B4. Disposal of Seepage and Stormwater

Any seepage or rainwater collected on-site during construction shall not be pumped to any street stormwater system unless separate prior approval is given in writing by Council.

B5. Dedication of Roads

Prior to the issue of the Subdivision Certificate, the Principal Certifying Authority is to issue a Compliance Certificate that the roads and drainage have been designed and constructed to relevant Council and AUSTROADS standards, and in accordance with the Construction Certificate requirements.

Final road design plans shall be prepared by a qualified practising Civil Engineer and submitted to Council for their records upon approval of the relevant Construction Certificate.

Council is to be notified of the intended construction timetable and kept up to date as work progresses. The subdivision works will be inspected during construction by the Principal Certifying Authority, or other suitably qualified person(s) at the discretion of the Principal Certifying Authority, and documentary evidence of

compliance with the terms of this consent and relevant Construction Certificate(s) will be obtained and forwarded to Council prior to proceeding to the subsequent stages of construction.

B6. Access

Documentary easements for access must be created over the appropriate lots in the subdivision to provide for public access, and created pursuant to Section 88B of the *Conveyancing Act 1919*.

B7. Services

Documentary easements for services, drainage, support and shelter, use of plant, equipment, loading areas and service rooms, repairs, maintenance or any other encumbrances and indemnities required for joint or reciprocal use of part or all of the proposed lots as a consequence of the subdivision, must be created over the appropriate lots in the subdivision pursuant to Section 88B of the *Conveyancing Act 1919*.

Any Section 88B Instrument creating restrictions as to user, rights of carriageway or easements which benefit Council shall contain a provision enabling such restrictions, easements or rights of way to be revoked, varied or modified only with the consent of Council.

B8. Environmental Management Plan

Prior to any works commencing, the Developer will prepare an Environmental Management Plan (EMP) such to be designed and implemented to manage all environmental aspects associated with the construction, including off site impacts such as transport to and from the site. Two copies of the EMP will be provided to the Certifying Authority prior to issue of the Construction Certificate for Stage 1 of the development. The EMP will be maintained on site during all site works and be made available to Authorised Officers upon request.

The EMP will include but not be limited to:

a) A site management program, identifying and addressing issues such as environmental health and safety, site security, and traffic management;
b) A water management program detailing all erosion and sediment control, management of soil stockpiles, control and management of surface water and controls for the reworking of the existing water course;
c) A dust management program, detailing procedures to minimise dust generation, with particular reference to control techniques and operational limits under adverse meteorological conditions (This program is to be cross-referenced with the water management program);
d) A noise vibration management program, detailing measures to minimise the impact of the construction phase on residential amenity, with noise and vibration monitoring during the construction phase incorporated into the program as necessary.

B9. Bushfire Management Plan

A Bushfire Management Plan will be prepared for the development (or each stage) and certified by a suitably qualified consultant or the NSW Rural Fire Service as complying with the requirements of the document *Planning for Bushfire Protection* and the requirements of the NSW Rural Fire Service. The required Plan will include, but not be limited to, the following and will be submitted with documentation accompanying the Construction Certificate application in respect of each stage:

a) Location of permanent Asset Protection Zones (APZ) and fire trails;
b) Location of temporary APZs and fire trails such that adequate protection is provided to the subdivision at all times during development;
c) APZ establishment methods;
d) Location of habitat trees to be retained;
e) Areas of vegetation to be retained, removed or reinstated;
f) Existing topography, adjacent to development and open space;
g) Access to services;
h) Extent of cut and fill, access points and 'links' to public areas;
i) Existing and proposed plant species; and
j) Archaeological heritage.

B10. Landscape Plans

Prior to any site works commencing, Landscape Plans will be prepared for the relevant stage by a suitably qualified person and submitted to the certifying authority for approval. Each landscape plan will indicate existing vegetation to be retained and removed, existing topography, adjacent development and open space, existing services, revegetation methods, public amenities, extent of cut and fill, access points and 'links' to open space, plant species, locations and landscape design principles, location of trees to be retained and removed and the criteria for habitat tree removal prior to works commencing. The Plan will also comply with the following:

a) Existing trees on the site, which are to be retained, will have no cut or fill under their canopy areas and the location of these trees will be clearly identified on the Landscape Management Plan and Engineering Plans;
b) A flora and fauna management/regeneration program, addressing areas of bush to be preserved/buffer areas, habitat trees, vegetation links, introduction of weed propagules, measures to be implemented to manage the identification, management and protection of flora and in particular, fauna, which is located both during initial site clearing and ongoing construction works.
c) Areas of restricted access and fence detail to be erected during construction and areas proposed for storage/stockpile of plant and materials will be identified;
d) Will specify
   - Establishment methods for all new plantings;
   - Maintenance scheduling for all new plants;
   - Weed eradication program;
   - Reporting methods.
e) Street trees will be provided with a nominated minimum 100 litre pot size, or as otherwise approved by Council, to be installed prior to the certification of the subdivision plan;
f) All street trees will be selected and certified by the supplier to comply with the current NATSPEC guide with respect to root development, height, trunk diameter and branch structure and balance (Refer to Specifying Trees, Construction Information Systems Australia PL, Clark, R 2003); and
g) Street trees will be protected with suitable tree guards.

B11. Subdivision Certificate

A Subdivision Certificate application will be submitted in respect of each stage of the development, accompanied by the appropriate fee. Each application will be supported by the following documentation, together with any other documentation required under the Statement of Commitments:

a) A survey plan of subdivision prepared by a Registered Surveyor;
b) Instruments prepared under s88B of the Conveyancing Acts as appropriate, setting out the terms of easements and/or rights of carriageway and/or restrictions as to user required for the subdivision, in respect of the following where applicable:

   1) Interallotment drainage lines in favour of upstream properties utilising the lines;
   2) Easements for Asset Protection Zones;
   3) Easements for Fire Trails;
   4) Easements for pathways and cycleways;
   5) Restrictions on the Use of Land over temporary Asset Protection Zones;
   6) Restrictions on the Use of Land over temporary fire trails;
   7) Rights of carriageway in favour of the property serviced;
   8) Easements for services in favour of the property serviced and/or the appropriate utility provider; and
   9) Stormwater mains in favour of Council.

B12. Prior to Certification of Subdivision Plan

(1) Written certification from a suitably qualified consultant or the NSW Rural Fire Service that Asset Protection Zones, including temporary APZs, have been established for each stage, will be submitted to the Principal Certifying Authority prior to certification of the Subdivision Plan in respect of that stage.

(2) Written evidence of arrangements being made with the Hunter Water Corporation Limited, or other approved supplier, for the provision of individual water supply and sewerage services to all lots within each stage, will be submitted to the Principal Certifying Authority prior to certification of the Subdivision Plan in respect of that stage.

(3) Written evidence of arrangements being made with EnergyAustralia, or other approved supplier, for the provision of underground electricity supply to all lots and street lighting within each stage, will be submitted to the Principal Certifying Authority prior to certification of the Subdivision Plan in respect of that stage.

(4) Written evidence of arrangements being made with Telstra, or other approved supplier, for the provision of underground telephone services to all lots within each stage, will be submitted to the Principal Certifying Authority prior to certification of the Subdivision Plan in respect of that stage.

B13. Works as Executed Plans

Certified works-as-executed (WAE) plans and documentation will be lodged with the Principal Certifying Authority on completion of works for each stage. The required WAE plans will be provided on a full copy stamped Construction Certificate drawings and will include:

a) Details of any alterations made to the approved plans;
b) The location and type of service conduits;
c) The location and extent of any temporary Asset Protection Zones and Fire Trails;
d) Details of all kerbs and gutters, pits and pipelines and drainage swales; and
e) Certification by a Registered Surveyor that all pipes, services and access driveways within proposed lots are totally within their respective easements.

Where the WAE plans indicate variations between the works as installed and the approved plans, the Principal Certifying Authority is to determine whether the works are acceptable or require reconstruction.

B14. Inspections

The subdivision works will be inspected during construction by the Principal Certifying Authority, or other suitably qualified person(s) at the discretion of the Principal Certifying Authority, and documentary evidence of compliance with the terms of this consent and relevant Construction Certificate(s) will be obtained prior to proceeding to the subsequent stages of construction. Such inspections and documentation will be arranged at the following recommended key stages:

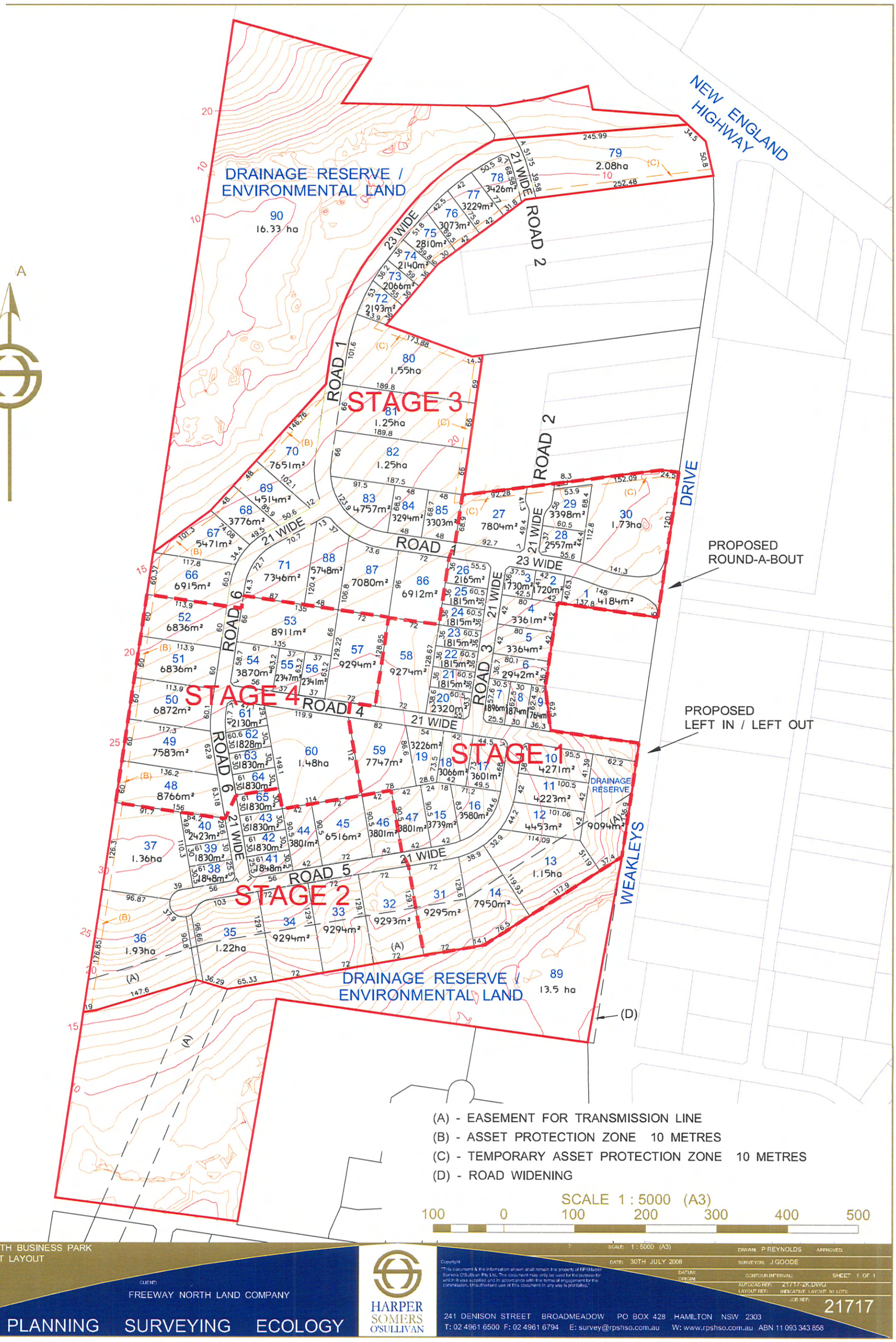
a) Sediment control	- Upon initial erection of sediment control devices and prior to all other works; - Upon erection of subsequent stage sediment controls nominated in the Land Management Plan; - Upon completion of stormwater drainage; and - Final inspection.
b) Earthworks	- Subgrade prior to laying of fill; and - Final inspection.
c) Road Construction	- Subgrade prior to laying of sub-base; - Sub-base prior to laying kerb and/or gutter; - Kerb and/or gutter prior to laying base course; - Base course prior to Benkleman Beam testing; - Base course immediately prior to prime sealing; - Prime seal prior to laying AC wearing surface; - Footpaths prior to turfing; and - Final inspection.
d) Footpaths/cycleways	- Subgrade prior to laying of base course; - Base course prior to laying of formwork; - Formwork/reinforcement before placing concrete; - After installation of curing methods; and - Final inspection.

e) Stormwater Drainage	-	Trench and bedding prior to laying of pipes;
	-	Pipes prior to backfill;
	-	Pits prior to backfill;
	-	Backfill prior to capping; and
	-	Final inspection.
f) Access handles	-	Subgrade prior to laying base course;
	-	Base course prior to laying of formwork;
	-	Formwork/reinforcement before placing concrete;
	-	After installation of curing methods; and
	-	Final inspection.
g) Landscaping	-	Prior to initial site works for each stage;
	-	Prior to any works within Public Reserves;
	-	Prior to removal of any trees outside the construction zone;
	-	Prior to commencement of landscape works;
	-	Final inspection;
	-	6 months post final inspection; and
	-	At the completion of the maintenance period.
h) Asset Protection Zones	-	Prior to the removal of any vegetation; and
	-	Final inspection.

Department of Planning

***Freeway North Project Approval (MP No. 06_0199)**, approved on **29 September 2008** by the Minister, in accordance with the Environmental Planning & Assessment Act 1979, subject to conditions of approval.*

Signed:



TITLE: FREEWAY NORTH BUSINESS PARK
INDICATIVE LOT LAYOUT

CLIENT: FREEWAY NORTH LAND COMPANY

PLANNING SURVEYING ECOLOGY

HARPER SOMERS O'SULLIVAN

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SCALE: 1 : 5000 (A3) DRAWN: P REYNOLDS APPROVED:
DATE: 30TH JULY 2008 SURVEYOR: J GOODE
DATUM: CONTOUR INTERVAL: SHEET 1 OF 1
ORIGIN: AUTOCAD REF: 21717-2K.DWG
LAYOUT REF: INDICATIVE LAYOUT 90 LOTS
JOB REF: 21717

241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
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Section 75W Modifications Report

Project Application No. 06_0199

Freeway North Business Park

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Contents

1	INTRODUCTION	4
2	PROPOSED MODIFICATION	5
2.1	Road and Lot Layout	5
2.2	Staging	5
2.3	Road Improvements (RTA Requirements)	6
2.4	Drainage	7
3	ASSESSMENT AND RECOMMENDATIONS	8
4	CONSISTENCY WITH THE PROJECT APPROVAL	9
5	CONCLUSION	10

Appendices

APPENDIX 1

Approved Subdivision Plan

APPENDIX 2

Proposed Subdivision & Staging Plan

APPENDIX 3

RTA Correspondence

APPENDIX 4

Stormwater Drainage Report

APPENDIX 5

Amended Statement of Commitments

1 Introduction

Major Project 06_0199 was approved by the Minister for Planning on 28 September 2008. The Concept Plan and Project Application subject of the approval covered the construction of a 90 Lot Industrial Business Park subdivision, with associated services and infrastructure, on Lot 14 DP 1091199, Lot 14 DP 207961 and Lot E DP 38873 Beresfield, in the Local Government Area of Newcastle City. The project site is referred to as the Freeway North Business Park. The approved subdivision plan or "Indicative Lot Layout" as per the conditions of approval of MP NO.06_0199 is contained in Appendix 1 and involved 4 stages of subdivision with lot sizes ranging from approximately 1800m^2 to 2ha.

At the time of lodgement of the Major Project Application the demand for large industrial parcels greater than 1.5 to 2 hectares was not envisaged. Since approval of the concept plan and project application, Aldi, a large supermarket company, has expressed interest in utilizing part of the subject site as a regional distribution warehouse. Such a warehouse requires a significant area of land, approximately 15 hectares, and therefore presents the need for an alternative to the existing approved subdivision layout.

The following information provides a summary of the proposed amendments as they relate to the approved subdivision layout, and an assessment of the key impacts in relation to project staging, traffic (RTA Requirements) and drainage.

2 Proposed Modification

2.1 Road and Lot Layout

In order to accommodate the Aldi Regional Distribution Warehouse on the land, amendments to both the road and lot layout will be required. These are illustrated in the proposed subdivision & staging plan contained in Appendix 2.

The proposed site for the Aldi Regional Distribution Warehouse (proposed Lot 124) is approximately 15ha and incorporates the following lots, as per the approved subdivision plan:

- Part 18-26, Part 49, 50-58, Part 59, Part 60, 61-62, Part 63, 66-67, Part 68 and Part 69, 71, 86-88 and part of the road reserve of Road 4 and Road 6.

In addition, the following amendments to the road layout of the approved subdivision plan are proposed:

- Road 3 is relocated such that it aligns with Road 2 and continues along the alignment of the approved Road 2 (now referred to on the modified subdivision plan as Parish Drive).
- Road 4, to the west of approved Road 3, is incorporated into proposed Lot 124 (i.e. the Aldi Regional Distribution Warehouse site). Part of Road 6 is incorporated into proposed Lot 124 and the western extremity deleted.
- Road 1 (now referred to on the modified subdivision plan as Canavan Drive) and Road 5 (Elwell Close) remain in their original positions.

As a result of the revised road layout and amalgamation of lots, some minor reconfiguration of the surrounding allotments will also be required. This includes the removal of the detention basin (shown as drainage reserve on the approved layout in Appendix 1) as it is no longer required as detailed in section 2.4 of this report and within the Stormwater Drainage Report in Appendix 4). Such reconfiguration will have no additional environmental impact to the already approved industrial subdivision.

2.2 Staging

Staging of Freeway North Business Park was approved over four stages to ensure that a logical development of the site is achieved with the appropriate release of land as required. As a result of the proposed modification to the approved industrial subdivision, it is now intended to develop the site over 3 stages. A modified Staging Plan has been prepared and is contained in Appendix 2. The modified Staging Plan includes:

Stage 1 – Lots 101 – 124 (Lot 124 being the 15ha allotment for the proposed Aldi Distribution Warehouse)

Stage 2 – Lots 201 – 217, with Lot 217 being a drainage reserve and dedicated to Council.

Stage 3 – Lots 301 – 317, with Lot 317 being a drainage reserve and dedicated to Council.

Recent consultation with the RTA has confirmed that roadworks may be staged as consistent with the above proposed staging. Staging of the roadworks will allow for a subdivision certificate for Stage 1 of the development to be released after completion of the roundabout and its approaches and departures to the satisfaction of the RTA, thereby allowing for development of the proposed Aldi Regional Distribution Warehouse to proceed at an early time.

The proposed staging as identified in Appendix 2 will result in a more orderly development of the site and the suitable release of land as required.

2.3 Road Improvements (RTA Requirements)

There will be no net additional impact in relation to traffic associated with the proposal. The proposal will result in the "amalgamation" of several allotments of land in comparison to the existing approval. The existing road layout and proposed future works to the surrounding road network are sufficient to accommodate the traffic associated with the distribution centre. We understand that the RTA has provided advice to the Department of Planning that they would not require the provision of any additional information for the proposed Aldi distribution centre application.

As a result of the proposed modification to the subdivision layout the following upgrades will be constructed in accordance with the RTA's requirements:

- A two lane roundabout at the Weakleys Drive/ subdivision access intersection,
- a left in / left out intersection to the south of this intersection; and
- additional lanes on Weakleys Drive connecting to the New England Highway / Weakleys Drive interchange.

These works will be constructed under the RTA's Works Authorisation Deed in stages, to meet the requirements of the proposed Aldi Regional Distribution Warehouse and the Freeway North Business Park subdivision. A copy of relevant RTA correspondence dated 22 June 2010 is contained in Appendix 3.

With regard to the above, there are a number of conditions imposed by the RTA within MP NO.06_0199 for the Freeway North Business Park Part 3A Approval that are not consistent with the detail design and proposed staging of the works in Weakleys Drive. Therefore a revised set of conditions has been prepared by the RTA and are contained in Appendix 3 as part of this Part 3A modification.

2.4 Drainage

Geoff Craig & Associates Pty Ltd has prepared a revised stormwater drainage report for the Freeway North Business Park site. The drainage report was prepared due to the change in flow regime resulting from a modified subdivision layout. The report addresses both water quality and water quantity requirements for the proposed development.

The site comprises 3 drainage catchments. Catchment 1 drains to the north west into Scotch Dairy Creek. Catchment 2 currently drains under Weakleys drive via a 600 mm culvert, while Catchment 3 drains to the south into Viney Creek.

The report proposes to divert the developed Catchment 2 towards Viney Creek (a detailed catchment plan is included in Figure 3 of the Stormwater Drainage Report in Appendix 4). The change in flow regime proves that the addition of flow from Catchment 2 does not increase the existing peak flow in the 100 year ARI event because Catchment 2 is located immediately upstream of the existing bridge in Weakleys Drive. For this reason, the provision of a detention basin in Stage 1 of the subdivision to cater for flows from Catchment 3 is no longer required.

A previous report by Parsons Brinckerhoff Australia Pty Ltd on Freeway North Business Park, "Flood Modelling and Stormwater Management Strategy", which was contained in the "Freeway North Business Park Concept Plan and Environmental Assessment" lodged with the Department of Planning, demonstrated that development within Catchment 1 (Scotch Dairy Creek) and Catchment 3 (Viney Creek) results in a decrease in the post-development flow rates in the downstream catchment compared to the pre-development flow rates. Hence, the provision of detention storage within these two catchments is not required.

A combination of treatment devices including gross pollutant traps and sand filters for water quality control are proposed for Catchment's 1, 2 and 3.

The stormwater drainage report clearly demonstrates that there are no impediments to developing the site with respect to provision of suitable water quality measures.

Part B2.of the Department of Planning's Conditions of Approval – Road, Drainage and Pavement Works – will remain the same whereby subdivision work for each stage must not be commenced until a Construction Certificate for the relevant work has been issued by Council or an accredited certifier.

3 Assessment and Recommendations

Having assessed the proposed amendments to the approved industrial subdivision it is considered that the proposed development will have no negative impacts upon the previously approved industrial subdivision in accordance with the requirements of Section 75W for the Director-General's and Minister's consideration.

Assessment of the proposed modification has revealed that the nature of the Project will not be altered but merely seeks to amend the subdivision layout in order to allow for a large industrial parcel to accommodate an Aldi Regional Distribution Warehouse. As a result of the modification a revised set of conditions relating to the RTA's roadworks requirements has been included with this submission.

It is recommended that the Department of Planning approve the following:

- the modifications to the subdivision and internal road network for the Freeway North Business Park identified in Appendix 2
- the proposed staging as identified in Appendix 2
- RTA's revised roadworks conditions to facilitate the above
- the amended Statement of Commitments as contained in Appendix 5.

4 Consistency with the Project Approval

Despite the changes to the subdivision layout, the nature of the industrial subdivision remains the same as that approved by Major Project 06_0199. Proposed Lot 124 will be used for industrial purposes as permitted upon the site. Environmental effects associated with the Aldi development upon the site are addressed in the Environmental Assessment undertaken by ADW Johnson.

In our opinion the proposed modification of the subdivision (amalgamation of Lots) does not alter the nature of approved Major Project 06_0199. The modification seeks to amend the staging and the release of subdivision certificates in accordance with RTA approval. The proposed modification poses no additional environmental impact and is therefore considered consistent with the Approved Project.

5 Conclusion

In our opinion the modifications to Major Project 06_0199 and the approved Statement of Commitments is minor. The conditions proposed to be modified do not have an effect on the overall development as approved.

As presently worded the proposed modification to the Department of Planning's Conditions of Approval only relate to *B1. Weakleys Drive intersection and RTA Roadworks* requirements. It is proposed to revise the conditions to allow for development to occur in 3 Stages as opposed to the 4 stages previously approved.

To provide clarity to the modifications sought an amended Statement of Commitments is contained in Appendix 5.

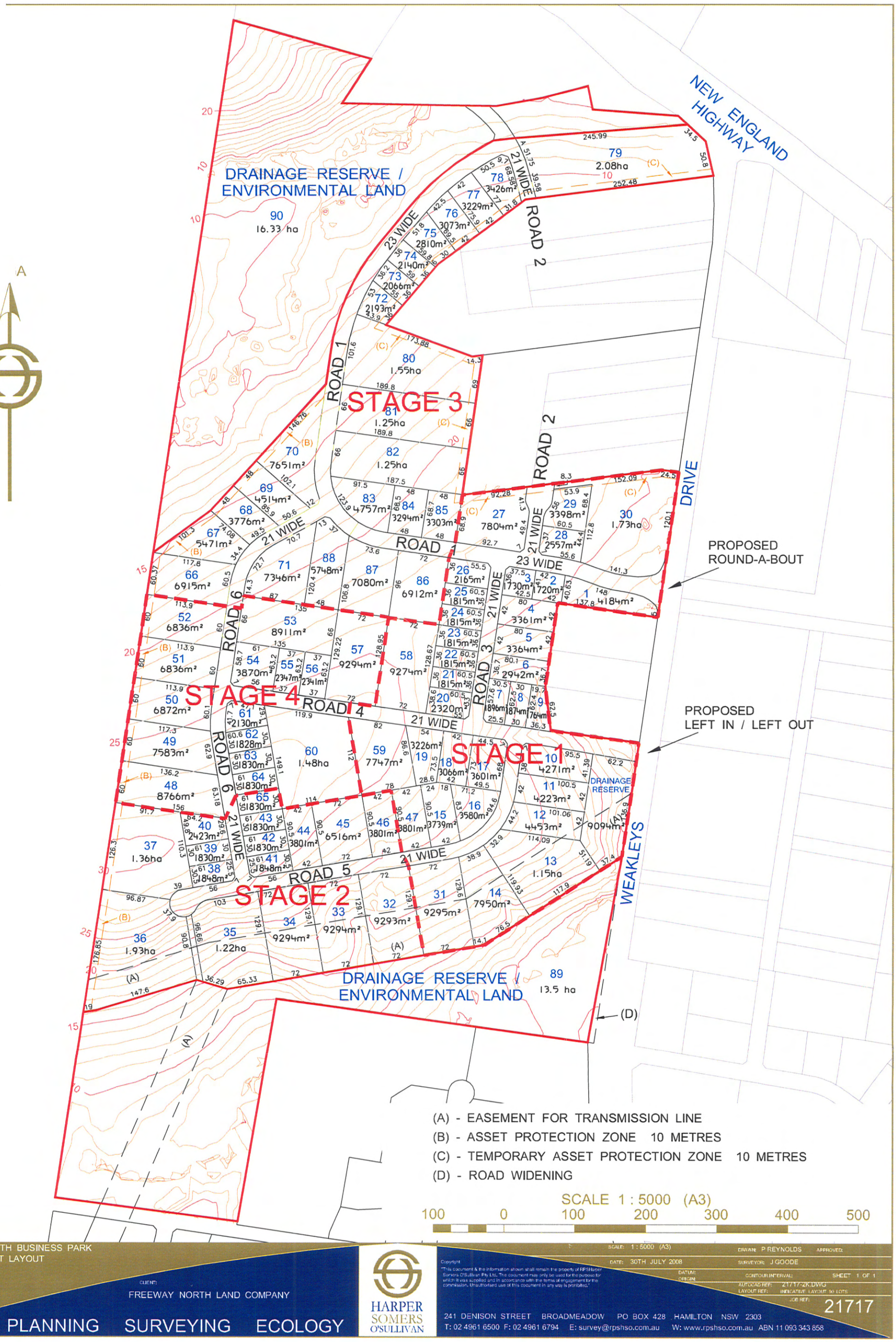
Appendix 1

Approved Subdivision Plan

Department of Planning

***Freeway North Project Approval (MP No. 06_0199)**, approved on **29 September 2008** by the Minister, in accordance with the Environmental Planning & Assessment Act 1979, subject to conditions of approval.*

Signed:



TITLE: FREEWAY NORTH BUSINESS PARK
INDICATIVE LOT LAYOUT

CLIENT: FREEWAY NORTH LAND COMPANY

PLANNING SURVEYING ECOLOGY

HARPER SOMERS O'SULLIVAN

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SCALE: 1 : 5000 (A3) DRAWN: P REYNOLDS APPROVED:
DATE: 30TH JULY 2008 SURVEYOR: J GOODE
DATUM: CONTOUR INTERVAL: SHEET 1 OF 1
ORIGIN: AUTOCAD REF: 21717-2K.DWG
LAYOUT REF: INDICATIVE LAYOUT 90 LOTS
JOB REF: 21717

241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4961 6500 F: 02 4961 6794 E: survey@rpshso.com.au W: www.rpshso.com.au ABN 11 093 343 858

Appendix 2

Proposed Subdivision & Staging Plan

MGA

208
1.99 ha
(1.24 ha)

209
1.06 ha

210
1.8 ha

207
1.31 ha
(6324m²)

211
9849m²

206
1.05 ha
(4592m²)

212
9470m²

205
9288m²
(4320m²)

213
8292m²

204
9288m²
(4320m²)

214
5103m²

203
9171m²
(3782m²)

215
5125m²

202
9605m²
(3576m²)

216
7182m²

201
1.189 ha
(6283m²)

217
DRAINAGE
RESERVE

109
5331m²

108
1.91 ha
(1.29 ha)

124
15 ha

317
DRAINAGE
RESERVE

307
9634m²

308
5934m²

303
4757m²

304
1.25 ha

305
1.25 ha

306
1.55 ha

302
3294m²

301
3303m²

119
3140m²

120
3454m²

309
2193m²

310
2067m²

311
2140m²

312
2810m²

313
3073m²

314
3229m²

315
3426m²

316
2.6 ha

110 2109m² | 111 2100m² | 112 2100m² | 113 1800m² | 114 1800m² | 115 1500m² | 116 1500m² | 117 1500m² | 118 1837m²

107 2056m² | 106 1917m² | 105 1800m² | 104 1800m² | 103 2100m² | 102 2225m²

101
4099m²

121
2758m²

122
3379m²

123
1.829ha

22 DP532814 | 16 DP510628 | 15 DP510628

CANAVAN DRIVE

ELWELL CLOSE

PARISH DRIVE

BOWDEN WAY

CANAVAN DRIVE

WEAKLEYS DRIVE

WWPS

6
DP226431

1
DP390543

9
DP509255

DP203406 | DP416248 | DP506747 | DP416248 | DP396036 | DP388733 | DP1091199 | DP1091199

27 DP1070843 | 28 | 29 DP1070843 | 24 DP1070843 | 20 DP1025870 | 60 DP523177

NEW ENGLAND HIGHWAY

STAGE 1
STAGE 2
STAGE 3

0 50 100 200
SCALE 1 : 4000 (A3)

NOTE :

ALL DIMENSIONS , AREAS AND EASEMENTS ARE SUBJECT TO FINAL SURVEY

TITLE:	PROPOSED SUBDIVISION PLAN LOT 14 DP 1091199	LOCATION:	WEAKLEYS DRIVE BERESFIELD	DATUM: PROJECTION:	MGA	DATE: PURPOSE:	1ST JULY 2010 SUBDIVISION
AUTOCAD REF: VERSION (PLAN BY):	21717 - 2T PROPOSED SUBDIVISION						

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CLIENT: FREEWAY NORTH LAND COMPANY
JOB REF: 21717

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

creativepeople
making a difference

RPS

Appendix 3

RTA Correspondence

325RZ1; 2
10/909
SH

RECEIVED
23 JUN 2010
BY:.....

RTA

Hunter Land Pty Ltd
PO Box 42
THORNTON NSW 2322

Attention: Michael O'Sullivan

WEAKLEYS DRIVE (HW9) – PART 3A PROJECT APPLICATION, FREEWAY NORTH BUSINESS PARK – (MP06_199)

Dear Mr O'Sullivan Michael

I refer to your letter dated 13 May 2010 and 9 June 2010 regarding RTA requirements for the Freeway North Business Park.

It is noted that you propose to submit a modification to the Department of Planning's conditions of approval, to enable Hunter Land Pty Ltd to deliver the required road works on Weakleys Drive in stages to meet your subdivision/development needs.

The RTA would not object to the modification of the Conditions of Consent, generally as you have proposed in your letter dated 9 June 2010. The following preliminary advice is provided to enable you to make the submission:

B1. Weakleys Drive intersection and RTA Roadwork's requirements.

1. A roundabout and associated works shall be designed and constructed in accordance with the RTA's Road Design and relevant Austroads guidelines at the proposed new access to the Freeway North Business Park on Weakleys Drive between Balook Drive and the New England Highway, approximately in the location identified in Newcastle Council's Development Control Plan for the area, to the satisfaction of the RTA. The following shall be included, as a minimum, as part of the works.

    - A roundabout shall be designed and constructed as a two (2) lane dual circulating roundabout.

    - Two (2) lane approaches and departures shall be provided on all legs of the roundabout or as determined by the RTA.

    - The northern leg of the roundabout on Weakleys Drive shall be extended through to the two-lane section of the New England Highway/Weakleys Drive interchange. Two (2) lanes northbound and southbound shall be provided between the proposed roundabout and the interchange along Weakleys Drive. A raised concrete median shall be included in the upgrade of the road.

- The southern approach leg of the roundabout on Weakleys Drive shall be extended from the roundabout to the south of the proposed left in/left out access to the Freeway North Business Park. The two (2) lane (northbound) approach shall be extended south beyond the left in/left out intersection to an extent to ensure safe merging/diverging of traffic northbound on Weakleys Drive.

- The southern departure leg (southbound) of the roundabout shall be designed and constructed as two (2) lanes to a length of 200 metres from the roundabout, excluding tapers.

- The above works may be staged, with the approval of the RTA, but must include the roundabout and the approaches/departures in Stage 1 construction. The remainder of the works (Stages 2 & 3) must be completed immediately after Stage 1 – there shall be no cessation of works.

2. The proposed left in/left out intersection to the subject site on Weakleys Drive between the proposed roundabout and Balook Drive shall be designed and constructed in accordance with the RTA's Road Design Guide and relevant Austroads guidelines with an exclusive left turn declaration lane outside of the proposed two lane section of Weakleys Drive.

3. There shall be no direct vehicular access to any of the proposed lots off Weakleys Drive. All vehicular access to the proposed lots shall be via two proposed intersections on Weakleys Drive and internal local road network.

4. A subdivision certificate is not to be released until the proponent has fully constructed all road works on Weakleys drive to the satisfaction of the RTA, unless the works are staged to the satisfaction of the RTA or the subdivision certificate relates to road widening in Weakleys Drive. If the RTA agrees to stage the works, a subdivision certificate for Stage 1 of the development may be released after completion of the roundabout and its approaches and departures to the satisfaction of the RTA. No further subdivision certificate is to be released for any stage of the development until the proponent has fully constructed all remaining road works in Weakleys Drive to the satisfaction of the RTA. A subdivision certificate for road widening in Weakleys Drive may be released prior to completion of any works.

5. All works associated with the proposed development shall be undertaken at full cost to the developer, to the satisfaction of the RTA.

6. The proponent is required to enter into a Works Authorisation Deed (WAD) with the RTA. In this regard the proponent is required to submit detailed design plans and all the relevant information, as may be required in the RTA's WAD documentation, for each specific change to the State road network, for the RTA's assessment and final decision concerning the work.

Please note that these requirements may be subject to change at the time the modification is referred to the RTA by the consent authority.

Please contact me on (02) 4924 0240 if you have any queries.

Yours sincerely

Dave Young
Manager, Land Use Development
Hunter Operations and Engineering Services

22 June 2010

Cc. Mr James Cross
Newcastle City Council

Appendix 4

Stormwater Drainage Report

PROPOSED INDUSTRIAL SUBDIVISION

FREEWAY NORTH BUSINESS PARK

WEAKLEYS DRIVE, BERESFIELD

STORMWATER DRAINAGE REPORT

APRIL 2010

Geoff Craig & Associates Pty Ltd
Consulting Engineers & Project Managers
A.B.N. 92 086 017 745

1 Hartley Drive
Thornton NSW 2322

Phone: 4964 1811
Fax: 4964 1822

PO Box 3337
Thornton NSW 2322

TABLE OF CONTENTS

1 INTRODUCTION *4*

1.1 BACKGROUND **4**

1.2 STUDY AREA **4**

1.3 SCOPE OF WORK **6**

1.3.1 Water Quantity (Detention) 6

1.3.2 Water Quality 6

1.3.3 Conveyance of Major Flows through the Site 6

2 METHODOLOGY *7*

2.1 PROPOSED METHODOLOGY **7**

2.2 PROPOSED WATER QUANTITY MEASURES **9**

2.2.1 Modelling 10

2.2.1.1 Natural and Existing State 11

2.2.1.2 Developed State 11

2.2.1.3 Future State 12

2.3 PROPOSED WATER QUALITY MEASURES **13**

3 RESULTS *14*

3.1 WATER QUANTITY **14**

4 SUMMARY AND CONCLUSIONS *18*

LIST OF APPENDICES

APPENDIX A - FIGURES

APPENDIX B - DRAINS DATA SPREADSHEET

APPENDIX C - DRAINS RESULTS SPREADSHEET

APPENDIX D - SAND FILTER DESIGN

LIST OF TABLES

Table 1 – Peak Flows in Natural State *14*

Table 2 – Peak Flows in Existing State *14*

Table 3 – Peak Flows in Developed State *15*

Table 4 – Peak Flows in Future State *15*

LIST OF FIGURES

Figure 1 – Locality Layout

Figure 2 – Site Plan

Figure 3 – Detailed Catchment Plan

Figure 4 – DRAINS Nodal Layout

1 INTRODUCTION

1.1 BACKGROUND

Geoff Craig & Associates Pty Ltd has been engaged to revise a stormwater drainage report for a Development Application approved industrial subdivision located off Weakleys Drive Beresfield, to be known as Freeway North Business Park. The drainage report was revised due to the change in flow regime. This report addresses both water quality and water quantity requirements for the proposed development.

1.2 STUDY AREA

The proposed development is bounded by the New England Highway to the north and Weakleys Drive to the east. The site comprises Lot 14 DP 207961, Lot E DP 388733 and Lot 23 DP 532814. The ultimate development site is approximately 86.6 ha in area. The locality layout and site plan is shown in **Figure 1** and **Figure 2** respectively in **Appendix A**.

The majority of the runoff from the site flows toward the north western side of the catchment and drains into Scotch Dairy Creek (Catchment 1, refer **Figure 3**). Catchment 1 has a gentle north-westerly grade and contains slopes typically in the order of 2% to 4%. Scotch Dairy Creek drains beneath the New England Highway via triple 2700mm wide x 2700mm high reinforced concrete box culverts.

A small portion of the site drains to an existing gully situated to the north of the Weakleys Drive Bridge in its existing state (Catchment 2, refer **Figure 3**). The existing gully is drained by an existing 600mm diameter concrete pipe beneath Weakleys Drive, with an existing inlet headwall invert level of R.L 6.236 AHD. The existing 600mm diameter concrete pipe is proposed to be grout filled and this would change the flow regime for Catchment 2. The runoff from Catchment 2 will then flow into Viney Creek and drain beneath Weakleys Drive via an existing bridge structure.

The runoff from the southern portion of the site (Catchment 3, refer **Figure 3**) flows into Viney Creek. Catchment 3 contains slopes typically in the order of 7% to 10%. Viney Creek drains beneath Weakleys Drive via an existing bridge structure. **Figure 3**, in **Appendix A,** shows the location of the catchment boundaries.

1.3 SCOPE OF WORK

1.3.1 Water Quantity (Detention)

1. To design the subdivision such that the Post Development flow is limited to 100% of the Pre Development flow for Average Recurrence Intervals (ARI) from 1 to 100 years for Catchment 2 and Catchment 3 when Catchment 2 flow is diverted to Viney Creek, in accordance with Flood Modelling and Stormwater Management Strategy, Freeway North Business Park, March 2007 by Parsons Brinckerhoff Australia Pty Ltd and Stormwater Management Plan, Freeway Business park, February 2002 by PPK Environment & Infrastructure Pty Ltd.
2. To calculate the pre-developed and post-developed flowrates from the site in order to determine detention requirements.

1.3.2 Water Quality

1. To provide adequate water quality control facilities for the site to minimise the effects of the development on the receiving waterway and to ensure that the existing level of water quality present on the site is not detrimentally affected by the proposed subdivision development.

1.3.3 Conveyance of Major Flows through the Site

1. To ensure that major flows are conveyed through the site with minimal impact on the proposed allotments.

2 METHODOLOGY

2.1 PROPOSED METHODOLOGY

Previous reports by Parsons Brinckerhoff Australia Pty Ltd on Freeway North Business Park, "Flood Modelling and Stormwater Management Strategy", and PPK Environment & Infrastructure Pty Ltd on Freeway Business Park, "Stormwater Management Plan", concluded that development within Catchment 1 (Scotch Dairy Creek) and Catchment 3 (Viney Creek) results in a decrease in the post-development flow rates in the downstream catchment compared to the pre-development flow rates (Table 3.4, Page 8, Flood Modelling and Stormwater Management Strategy by Parsons Brinckerhoff and Table 4.1, Page 14, Stormwater Management Plan by PPK). Hence, the provision of detention storage within the two catchments is not required. However, the PB report stated that there is a need for water quality measures and it proposed an end of line Gross Pollutant Trap (GPT) and sand filter for both Catchments 1 and 3, with the treatment train capable of treating runoff from the 3 month ARI storm event.

For Catchment 2 (Weakleys Drive), it is evident from the report by Parsons Brinckerhoff Australia Pty Ltd on Freeway North Business Park, "Flood Modelling and Stormwater Management Strategy", that the development in the catchment will result in substantial increase in peak flows at Weakleys Drive existing 600mm diameter pipe culvert (Table 3.5, Page 8, Stormwater Management Strategy by Parsons Brinckerhoff).

The report by Parsons Brinckerhoff Australia Pty Ltd on Freeway North Business Park, "Flood Modelling and Stormwater Management Strategy", suggested that the increase in peak flows in Catchment 2 could be manage by diverting part of the developed catchment towards Viney Creek and/or a provision of detention storage within Catchment 2. It is proposed to divert the developed Catchment 2 towards Viney Creek and this can be easily achieved by site regrading the existing low point in the natural surface to direct flows south toward Viney Creek. The existing 600mm diameter concrete pipe culvert would be then grout filled in accordance with current RTA directions.

The report by Parsons Brinckerhoff Australia Pty Ltd on Freeway North Business Park, "Flood Modelling and Stormwater Management Strategy", proposed a combination of treatment devices including gross pollutant traps and sand filters for water quality control for Catchment 1 and Catchment 3.

The provision of a Gross Pollutant Trap is proposed, to treat, at a minimum, the runoff from the 3 month ARI storm event with flows in excess of the 3 month ARI storm event bypassing the device.

2.2 PROPOSED WATER QUANTITY MEASURES

Hydrological assessment for Viney Creek Catchment was carried out for four different scenarios using the DRAINS – Urban Drainage Model. The data provided in the report by PPK Environment & Infrastructure Pty Ltd on Freeway Business Park, "Stormwater Management Plan" was utilised. Drainage layouts were adopted for flows calculated at the outlet of the existing bridge. Firstly, the catchment was modelled in the natural state to calibrate the runoff. Secondly, as an existing catchment where the model includes the addition of existing roads (John Renshaw Drive and Blackhill Road) within the catchment prior to development of Freeway Business Park. Thirdly, the developed scenario which utilised the same catchment but allowed for future development on the proposed site. Fourthly, the developed scenario which included Catchment 2 being diverted into Viney Creek upstream of the existing bridge under Weakleys Drive. In DRAINS the RAFTS model was used to determine the 10, 20, 50 and 100 year ARI peak flows for the catchment in its "natural", "existing", "developed", and "developed with diversion" states.

This model was then evaluated for design storms with durations varying from 5 minutes to 4.5 hours, and Average Recurrence Interval of 10 to 100 years. The relevant Intensity Frequency Duration (IFD) data was obtained from the tables supplied in "*Australian Rainfall and Runoff*" and is listed below.

Latitude = 32.93 ^{o} S

Longitude = 151.75 ^{o} E

Skewness = 0.03

2-year ARI,	1 hour intensity =	35.00 mm/hr
	12 hour intensity =	7.00 mm/hr
	72 hour intensity =	2.30 mm/hr
50-year ARI,	1 hour intensity =	67.00 mm/hr
	12 hour intensity =	14.00 mm/hr
	72 hour intensity =	4.90 mm/hr

The critical storm was then selected for each ARI, based on the peak discharge from the site. The flows were calculated at the outlet of the existing bridge.

2.2.1 Modelling

The following parameters were utilised in the model:

Storage Multiplier, Bx	= 1.4
Pervious Area Initial Loss	= 15mm
Pervious Area Continuing Loss	= 5mm
Impervious Area Initial Loss	= 1.5mm
Impervious Area Continuing Loss	= 0mm

2.2.1.1 Natural and Existing State

The following data was utilised for the natural and exsiting catchment:

Impervious Percentage	= 0%
Pervious Manning's n	= 0.1

A copy of the data spreadsheets from DRAINS used for the analysis has been included in **Appendix B**.

2.2.1.2 Developed State

The following data was utilised for the existing catchment:

<u>Proposed Industrial Lot Area</u>	
Impervious Percentage	= 85%
Pervious Manning's n	= 0.06
Impervious Manning's n	= 0.015

A copy of the data spreadsheets from DRAINS used for the analysis has been included in **Appendix B**.

2.2.1.3 Developed with Diversion State

The following data was utilised for the existing catchment:

Proposed Industrial Lot Area

Impervious Percentage	= 85%
Pervious Manning's n	= 0.06
Impervious Manning's n	= 0.015

A copy of the data spreadsheets from DRAINS used for the analysis has been included in **Appendix B**.

2.3 PROPOSED WATER QUALITY MEASURES

A GPT and sand filter are to be placed prior to the outlet of Catchments 1, 2 and 3 and it is proposed that individual allotments within Catchments 1, 2 and 3 will be required to provide sediment / nutrient / oil and grease removal during their individual development phase. This will ensure that specific usages on individual allotments will provide pre-treatment at the source with differing levels of treatment depending on the source of potential pollutants.

The sand filter sizing criteria has been determined utilising the EPA's "Managing Urban Stormwater – Treatment Techniques" publication and the Engineers Australia publication "Australia Runoff Quality". The sizing calculation and criteria are contained in **Appendix D**.

3 RESULTS

3.1 WATER QUANTITY

The model for Viney Creek Catchment was run for various design storm durations. The peak discharges for the various ARIs in its natural state and from the report by PPK Environment & Infrastructure Pty Ltd on Freeway Business Park, "Stormwater Management Plan" (Table 2.2, Page 4) for model calibration are shown below in **Table 1**.

Table 1 – Peak Flows in Natural State

ARI	Peak Flow (Natural State – PPK report) (m^3/s)	Peak Flow (Natural State – DRAINS model) (m^3/s)
10	45.40	44.50
20	58.77	58.10
50	74.35	74.50
100	88.26	88.90

The peak discharges for the various ARIs in its existing state are shown in **Table 2**.

Table 2 – Peak Flows in Existing State

ARI	Peak Flow (Existing State – PPK report) (m^3/s)	Peak Flow (Existing State – DRAINS model) (m^3/s)
10	47.69	45.90
20	61.43	60.20
50	77.03	77.10
100	91.20	92.20

The peak discharges for the various ARIs in its developed state are shown in **Table 3**.

Table 3 – Peak Flows in Developed State

ARI	Peak Flow (Developed State – PPK report) (m^3/s)	Peak Flow (Developed State – DRAINS model) (m^3/s)
10	47.21	45.90
20	60.58	60.40
50	75.95	76.90
100	89.79	91.80

The developed with diversion state was modelled with the inclusion of Catchment 2 in the developed state model. The peak discharges for the various ARIs in its developed with diversion state and in comparison with the existing state are shown in **Table 4.**

Table 4 – Peak Flows in Developed with Diversion State

ARI	Peak Flow (Existing State – DRAINS model) (m^3/s)	Peak Flow (Developed with Diversion State – DRAINS model) (m^3/s)	Percentage Change (%)
10	45.90	46.40	+1.0%
20	60.20	60.70	+0.8%
50	77.10	77.20	+0.1%
100	92.20	92.10	-0.1%

Table 4 illustrates that the proposed changes in flow regime of Catchment 2 results in a decrease in peak flow for 100 year ARI and a small increase in peak flow for 10, 20 and 50 year ARI (under 1%) at the existing bridge in Weakleys Drive. This is to be expected given that the development of Catchment 2 is located immediately upstream of the existing bridge in Weakleys Drive. The introduction of impervious surfaces in Catchment 2 increases the rate of runoff from the lower portion of the catchment allowing runoff to pass under the existing bridge prior to the overall catchment flood peak. The slight flowrate increase of less than 1% is considered insignificant in the 10, 20, and 50 year ARI event, and with a flowrate decrease in the 100 year event, the provision of a detention basin in Catchment 2 is not required.

The DRAINS output spreadsheets for the 10 year and 100 year ARIs for the catchment in the natural, existing, developed and developed with diversion states are shown in **Appendix C**.

3.2 WATER QUALITY

A GPT and sand filter are to be placed prior to the outlet of Catchments 1, 2 and 3 and it is proposed that individual allotments within Catchments 1, 2 and 3 will be required to provide sediment / nutrient / oil and grease removal during their individual development phase. This will ensure that specific usages on individual allotments will provide pre-treatment at the source with differing levels of treatment depending on the source of potential pollutants.

4 SUMMARY AND CONCLUSIONS

This stormwater drainage report for the development to be known as Freeway North Business Park proposes to divert the developed Catchment 2 towards Viney Creek. The change in flow regime proves that the addition of flow from Catchment 2 does not increase the existing peak flow in the 100 year ARI event because Catchment 2 is located immediately upstream of the existing bridge in Weakleys Drive. For this reason, the provision of a detention basin is not required.

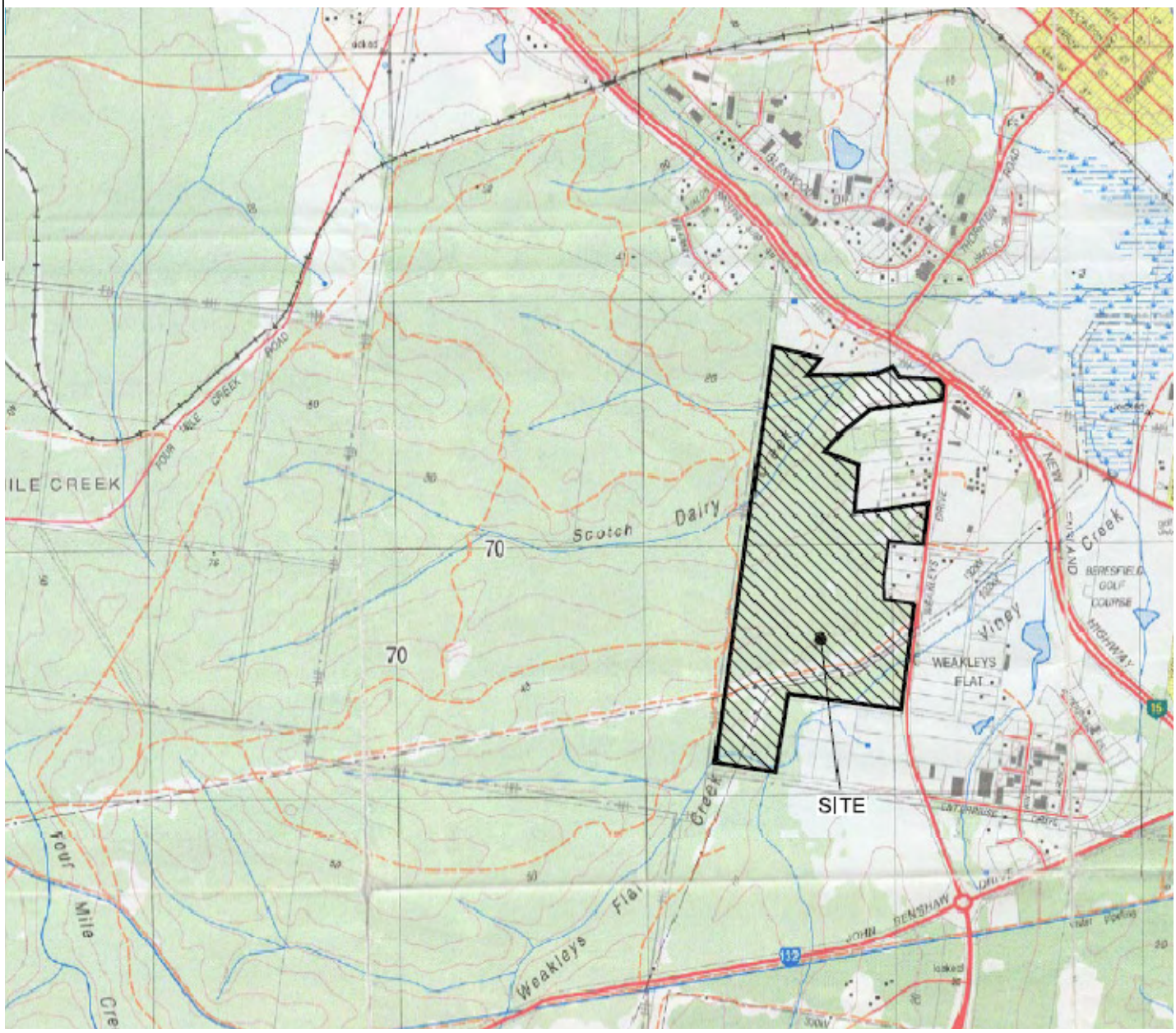
A previous report by Parsons Brinckerhoff Australia Pty Ltd on Freeway North Business Park, "Flood Modelling and Stormwater Management Strategy", demonstrated that development within Catchment 1 (Scotch Dairy Creek) and Catchment 3 (Viney Creek) results in a decrease in the post-development flow rates in the downstream catchment compared to the pre-development flow rates. Hence, the provision of detention storage within these two catchments is not required.

A combination of treatment devices including gross pollutant traps and sand filters for water quality control are proposed for Catchment's 1, 2 and 3.

This stormwater drainage report clearly demonstrates that there are no impediments to developing the site with respect to provision of suitable water quality measures.

APPENDIX A - FIGURES

Geoff Craig & Associates Pty Ltd
Consulting Engineers & Project Managers



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500

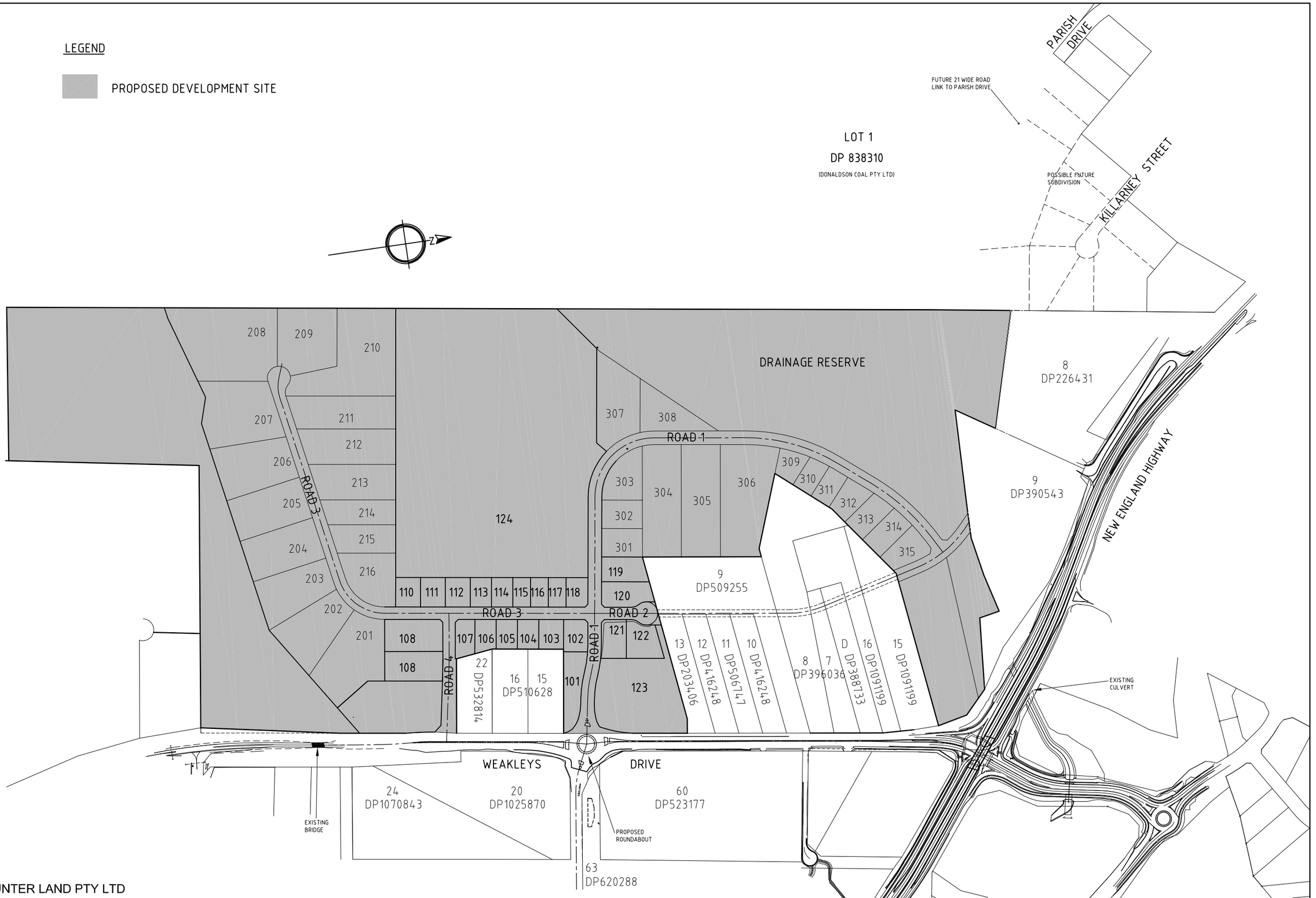
Client: HUNTER LAND PTY LTD
Project: PROPOSED INDUSTRIAL SUBDIVISION
Location: WEAKLEYS DRIVE BERESFIELD

PROJECT NUMBER: 07307C dF01r2
DATE: 13.04.10

LOCALITY PLAN
FIGURE 1

LEGEND

PROPOSED DEVELOPMENT SITE



Client: HUNTER LAND PTY LTD

Project: PROPOSED INDUSTRIAL SUBDIVISION

Location: WEAKLEYS DRIVE BERESFIELD

PROJECT NUMBER: 07307C dFO2r2
DATE: 13.04.10

Geoff Craig & Associates Pty Ltd
Consulting Engineers & Project Managers

SITE PLAN

FIGURE 2

LEGEND

CATCHMENT 1

CATCHMENT 2

CATCHMENT 3

LOT 1
DP 838310
(DONALDSON COAL PTY LTD)

PARISH DRIVE

FUTURE 21 WIDE ROAD LINK TO PARISH DRIVE

POSSIBLE FUTURE SUBDIVISION

KILLARNEY STREET

DRAINAGE RESERVE

SCOTCH DAIRY CREEK

VINEY CREEK

ROAD 1

ROAD 2

ROAD 3

ROAD 4

8 DP226431

9 DP390543

9 DP509255

NEW ENGLAND HIGHWAY

EXISTING CULVERT

WEAKLEYS DRIVE

24 DP1070843

20 DP1025870

60 DP523177

63 DP620288

EXISTING BRIDGE

PROPOSED ROUNDABOUT

Client: HUNTER LAND PTY LTD

Project: PROPOSED INDUSTRIAL SUBDIVISION

Location: WEAKLEYS DRIVE BERESFIELD

PROJECT NUMBER: 07307C dFO3r2
DATE: 13.04.10

Geoff Craig & Associates Pty Ltd
Consulting Engineers & Project Managers

DETAILED CATCHMENT PLAN

FIGURE 3

LEGEND

VINEY CREEK CATCHMENT

FREEWAY NORTH BUSINESS PARK

FREEWAY & FREEWAY SOUTH BUSINESS PARK

A1 DRAINS NODE

DRAINS OVERFLOW ROUTE

A1 A2 A3 A4 A5 A6 WF1 WF2 WF3 WF4 WF5 EOB EO BLACK 1 BLACK 2

FREEWAY AND FREEWAY SOUTH BUSINESS PARK

FREEWAY NORTH BUSINESS PARK

Viney Creek

Blue Gum Creek

Four Mile Creek

Scotch Dairy Creek

Weakleys Flat Creek

Woods Gully

IRONBARK MINE SUBSIDENCE DISTRICT

MAITLAND

Client: HUNTER LAND PTY LTD

Project: PROPOSED INDUSTRIAL SUBDIVISION

Location: WEAKLEYS DRIVE BERESFIELD

PROJECT NUMBER: 07307C dFO4r2
DATE: 13.04.10

Geoff Craig & Associates Pty Ltd
Consulting Engineers & Project Managers

1:25000 0 500 1000 1500 500

DRAINS NODAL LAYOUT

FIGURE 4

APPENDIX B - DRAINS DATA SPREADSHEET

Natural Catchment

DRAINS Data Spreadsheet

Natural Catchment Data

PIT / NODE DETAILS Version 9

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id
A1	Node					35		0		799.857	-1597.98		29
BLACK1	Node					17		0		1491.781	-1159.2		205
BLACK2	Node					14		0		1503.836	-951.864		229
EO	Node					10		0		1513.479	-763.815		256
EOB	Node					18		0		1130.148	-720.419		266
WF1	Node					18		0		821.555	-949.453		287
OUT	Node					0		0		1807.607	128.213		328
A2	Node					25		0		1004.782	-1482.26		145
A3	Node					20		0		1310.965	-1330.37		170
A4	Node					17		0		1351.95	-1084.46		178
A5	Node					14		0		1349.539	-881.948		179
A6	Node					10		0		1351.95	-698.721		180
WF2	Node					10		0		1004.782	-621.572		284
WF3	Node					8		0		1156.668	-344.321		290
WF4	Node					5		0		1349.539	-79.123		181
WF5	Node					3		0		1503.836	29.367		301

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area	Impervious Area	Avg Slope(%)	Hydrological Model
CatA1	A1	95.44	0	6	Newcastle RAFTS
CatBlack1	BLACK1	58.125	0	5	Newcastle RAFTS
CatBlack2	BLACK2	48.72	0	5	Newcastle RAFTS
CatE0	EO	40	0	5	Newcastle RAFTS
CatEOB	EOB	17.5	0	5	Newcastle RAFTS
CatWF1	WF1	265.7	0	6	Newcastle RAFTS
CatA2	A2	124.49	0	6	Newcastle RAFTS
CatA3	A3	218.53	0	6	Newcastle RAFTS
CatWF2	WF2	179.9	0	5	Newcastle RAFTS
CatWF3	WF3	143.6	0	5	Newcastle RAFTS
CatWF4	WF4	142.7	0	5	Newcastle RAFTS
CatWF5	WF5	33.2	0	5	Newcastle RAFTS

OVERFLOW ROUTE DETAILS

Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storm (m)	Safe Depth Minor Storm (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %
OFBlack1	BLACK1	A4	6				overflow	0.3	0.3	0.4	1	0
OFBlack2	BLACK2	A5	6				overflow	0.3	0.3	0.4	1	0
OFEO	EO	A6	6				overflow	0.3	0.3	0.4	1	0
OFEOB	EOB	A6	6				overflow	0.3	0.3	0.4	1	0
DUMMYOU	WF5	OUT	6				overflow	0.3	0.3	0.4	1	0

Name	From	To	Length (m)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storm (m)	Safe Depth Minor Storm (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %
OFA1	A1	A2	500				overflow	0.3	0.3	0.4	1	0
OFWF1	WF1	WF2	600				overflow	0.3	0.3	0.4	1	0
OFA2	A2	A3	1100				overflow	0.3	0.3	0.4	1	0
OFA3	A3	A4	700				overflow	0.3	0.3	0.4	1	0
OFA4	A4	A5	350				overflow	0.3	0.3	0.4	1	0
OFA5	A5	A6	300				overflow	0.3	0.3	0.4	1	0
OFA6	A6	WF4	900				overflow	0.3	0.3	0.4	1	0
OFWF2	WF2	WF3	1000				overflow	0.3	0.3	0.4	1	0
OFWF3	WF3	WF4	500				overflow	0.3	0.3	0.4	1	0
OFWF5	WF4	WF5	450				overflow	0.3	0.3	0.4	1	0

Existing Catchment

DRAINS Data Spreadsheet

Existing Catchment Data

PIT / NODE DETAILS Version 9

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id
A1	Node					35		0		799.857	-1597.98		29
BLACK1	Node					17		0		1491.781	-1159.2		205
BLACK2	Node					14		0		1503.836	-951.864		229
EO	Node					10		0		1513.479	-763.815		256
EOB	Node					18		0		1130.148	-720.419		266
WF1	Node					18		0		821.555	-949.453		287
OUT	Node					0		0		1807.607	128.213		328
A2	Node					25		0		1004.782	-1482.26		145
A3	Node					20		0		1310.965	-1330.37		170
A4	Node					17		0		1351.95	-1084.46		178
A5	Node					14		0		1349.539	-881.948		179
A6	Node					10		0		1351.95	-698.721		180
WF2	Node					10		0		1004.782	-621.572		284
WF3	Node					8		0		1156.668	-344.321		290
WF4	Node					5		0		1349.539	-79.123		181
WF5	Node					3		0		1503.836	29.367		301

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area	Impervious Area	Avg Slope(%)	Hydrological Model
CatA1	A1	95.44	1	6	Newcastle RAFTS
CatBlack1	BLACK1	58.125	0	5	Newcastle RAFTS
CatBlack2	BLACK2	48.72	0	5	Newcastle RAFTS
CatE0	EO	40	0	5	Newcastle RAFTS
CatEOB	EOB	17.5	0	5	Newcastle RAFTS
CatWF1	WF1	265.7	1	6	Newcastle RAFTS
CatA2	A2	124.49	1	6	Newcastle RAFTS
CatA3	A3	218.53	1	6	Newcastle RAFTS
CatWF2	WF2	179.9	1	5	Newcastle RAFTS
CatWF3	WF3	143.6	1	5	Newcastle RAFTS
CatWF4	WF4	142.7	0	5	Newcastle RAFTS
CatWF5	WF5	33.2	0	5	Newcastle RAFTS

OVERFLOW ROUTE DETAILS

Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storm (m)	Safe Depth Minor Storm (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %
OFBlack1	BLACK1	A4	6				overflow	0.3	0.3	0.4	1	0
OFBlack2	BLACK2	A5	6				overflow	0.3	0.3	0.4	1	0
OFEO	EO	A6	6				overflow	0.3	0.3	0.4	1	0
OFEOB	EOB	A6	6				overflow	0.3	0.3	0.4	1	0
DUMMYOU	WF5	OUT	6				overflow	0.3	0.3	0.4	1	0

Name	From	To	Length (m)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storm (m)	Safe Depth Minor Storm (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %
OFA1	A1	A2	500				overflow	0.3	0.3	0.4	1	0
OFWF1	WF1	WF2	600				overflow	0.3	0.3	0.4	1	0
OFA2	A2	A3	1100				overflow	0.3	0.3	0.4	1	0
OFA3	A3	A4	700				overflow	0.3	0.3	0.4	1	0
OFA4	A4	A5	350				overflow	0.3	0.3	0.4	1	0
OFA5	A5	A6	300				overflow	0.3	0.3	0.4	1	0
OFA6	A6	WF4	900				overflow	0.3	0.3	0.4	1	0
OFWF2	WF2	WF3	1000				overflow	0.3	0.3	0.4	1	0
OFWF3	WF3	WF4	500				overflow	0.3	0.3	0.4	1	0
OFWF5	WF4	WF5	450				overflow	0.3	0.3	0.4	1	0

Developed Catchment

DRAINS Data Spreadsheet

Developed Catchment Data

PIT / NODE DETAILS Version 9

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id
A1	Node					35		0		799.857	-1597.98		29
BLACK1	Node					17		0		1491.781	-1159.2		205
BLACK2	Node					14		0		1503.836	-951.864		229
EO	Node					10		0		1513.479	-763.815		256
EOB	Node					18		0		1130.148	-720.419		266
WF1	Node					18		0		821.555	-949.453		287
OUT	Node					0		0		1807.607	128.213		328
A2	Node					25		0		1004.782	-1482.26		145
A3	Node					20		0		1310.965	-1330.37		170
A4	Node					17		0		1351.95	-1084.46		178
A5	Node					14		0		1349.539	-881.948		179
A6	Node					10		0		1351.95	-698.721		180
WF2	Node					10		0		1004.782	-621.572		284
WF3	Node					8		0		1156.668	-344.321		290
WF4	Node					5		0		1349.539	-79.123		181
WF5	Node					3		0		1503.836	29.367		301

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area	Impervious Area	Avg Slope(%)	Hydrological Model
CatA1	A1	95.44	1	6	Newcastle RAFTS
CatBlack1	BLACK1	58.125	0	5	Newcastle RAFTS
CatBlack2	BLACK2	48.72	0	5	Newcastle RAFTS
CatE0	EO	40	0	5	Newcastle RAFTS
CatEOB	EOB	17.5	0	5	Newcastle RAFTS
CatWF1	WF1	265.7	1	6	Newcastle RAFTS
CatA2	A2	124.49	1	6	Newcastle RAFTS
CatA3	A3	218.53	1	6	Newcastle RAFTS
CatWF2	WF2	179.9	1	5	Newcastle RAFTS
CatWF3	WF3	143.6	1	5	Newcastle RAFTS
CatWF4	WF4	142.7	43	2	Newcastle RAFTS
CatWF5	WF5	33.2	0	5	Newcastle RAFTS

OVERFLOW ROUTE DETAILS

Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storm (m)	Safe Depth Minor Storm (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %
OFBlack1	BLACK1	A4	6				overflow	0.3	0.3	0.4	1	0
OFBlack2	BLACK2	A5	6				overflow	0.3	0.3	0.4	1	0
OFEO	EO	A6	6				overflow	0.3	0.3	0.4	1	0
OFEOB	EOB	A6	6				overflow	0.3	0.3	0.4	1	0
DUMMYOUT	WF5	OUT	6				overflow	0.3	0.3	0.4	1	0

Name	From	To	Length (m)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storm (m)	Safe Depth Minor Storm (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %
OFA1	A1	A2	500				overflow	0.3	0.3	0.4	1	0
OFWF1	WF1	WF2	600				overflow	0.3	0.3	0.4	1	0
OFA2	A2	A3	1100				overflow	0.3	0.3	0.4	1	0
OFA3	A3	A4	700				overflow	0.3	0.3	0.4	1	0
OFA4	A4	A5	350				overflow	0.3	0.3	0.4	1	0
OFA5	A5	A6	300				overflow	0.3	0.3	0.4	1	0
OFA6	A6	WF4	900				overflow	0.3	0.3	0.4	1	0
OFWF2	WF2	WF3	1000				overflow	0.3	0.3	0.4	1	0
OFWF3	WF3	WF4	500				overflow	0.3	0.3	0.4	1	0
OFWF5	WF4	WF5	450				overflow	0.3	0.3	0.4	1	0

Developed with Diversion Catchment

DRAINS Data Spreadsheet

Future Catchment Data

PIT / NODE DETAILS Version 9

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id
A1	Node					35		0		799.857	-1597.98		29
BLACK1	Node					17		0		1491.781	-1159.2		205
BLACK2	Node					14		0		1503.836	-951.864		229
EO	Node					10		0		1513.479	-763.815		256
EOB	Node					18		0		1130.148	-720.419		266
WF1	Node					18		0		821.555	-949.453		287
OUT	Node					0		0		1807.607	128.213		328
A2	Node					25		0		1004.782	-1482.26		145
A3	Node					20		0		1310.965	-1330.37		170
A4	Node					17		0		1351.95	-1084.46		178
A5	Node					14		0		1349.539	-881.948		179
A6	Node					10		0		1351.95	-698.721		180
WF2	Node					10		0		1004.782	-621.572		284
WF3	Node					8		0		1156.668	-344.321		290
WF4	Node					5		0		1349.539	-79.123		181
WF5	Node					3		0		1503.836	29.367		301

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area	Impervious Area	Avg Slope(%)	Hydrological Model
CatA1	A1	95.44	1	6	Newcastle RAFTS
CatBlack1	BLACK1	58.125	0	5	Newcastle RAFTS
CatBlack2	BLACK2	48.72	0	5	Newcastle RAFTS
CatE0	EO	40	0	5	Newcastle RAFTS
CatEOB	EOB	17.5	0	5	Newcastle RAFTS
CatWF1	WF1	265.7	1	6	Newcastle RAFTS
CatA2	A2	124.49	1	6	Newcastle RAFTS
CatA3	A3	218.53	1	6	Newcastle RAFTS
CatWF2	WF2	179.9	1	5	Newcastle RAFTS
CatWF3	WF3	143.6	1	5	Newcastle RAFTS
CatWF4	WF4	142.7	47.8	2	Newcastle RAFTS
CatWF5	WF5	49.5	36.4	2	Newcastle RAFTS

OVERFLOW ROUTE DETAILS

Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storm (m)	Safe Depth Minor Storm (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %
OFBlack1	BLACK1	A4	6				overflow	0.3	0.3	0.4	1	0
OFBlack2	BLACK2	A5	6				overflow	0.3	0.3	0.4	1	0
OFEO	EO	A6	6				overflow	0.3	0.3	0.4	1	0
OFEOB	EOB	A6	6				overflow	0.3	0.3	0.4	1	0
DUMMYOU	WF5	OUT	6				overflow	0.3	0.3	0.4	1	0

Name	From	To	Length (m)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storm (m)	Safe Depth Minor Storm (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %
OFA1	A1	A2	500				overflow	0.3	0.3	0.4	1	0
OFWF1	WF1	WF2	600				overflow	0.3	0.3	0.4	1	0
OFA2	A2	A3	1100				overflow	0.3	0.3	0.4	1	0
OFA3	A3	A4	700				overflow	0.3	0.3	0.4	1	0
OFA4	A4	A5	350				overflow	0.3	0.3	0.4	1	0
OFA5	A5	A6	300				overflow	0.3	0.3	0.4	1	0
OFA6	A6	WF4	900				overflow	0.3	0.3	0.4	1	0
OFWF2	WF2	WF3	1000				overflow	0.3	0.3	0.4	1	0
OFWF3	WF3	WF4	500				overflow	0.3	0.3	0.4	1	0
OFWF5	WF4	WF5	450				overflow	0.3	0.3	0.4	1	0

APPENDIX C - DRAINS RESULTS SPREADSHEET

Natural Catchment

DRAINS Results Spreadsheet

Natural 10 year ARI Result

DRAINS results prepared 13 April, 2010 from Version 2009.07

SUB-CATCHMENT DETAILS

Name	Max Flow (cu.m/s)	Due to Storm
CatA1	3.555	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatBlack1	2.223	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatBlack2	1.946	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatE0	1.671	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatEOB	0.876	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatWF1	7.897	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatA2	4.385	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatA3	6.819	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF2	5.346	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF3	4.51	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF4	4.494	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF5	1.436	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1

Outflow Volumes for Total Catchment (0.00 impervious + 1368 pervious = 1368 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
AR&R 10 year, 5 minutes storm, average 160 mm/h, Zone 1	182387.3	0.00 (0.0%)	0.00 (0.0%)	0.00 (0.0%)
AR&R 10 year, 10 minutes storm, average 123 mm/h, Zone 1	280420.5	10439.68 (3.7%)	-58178.45 (0.0%)	68618.13 (24.5%)
AR&R 10 year, 15 minutes storm, average 103 mm/h, Zone 1	352235.5	26483.05 (7.5%)	-109876.76 (0.0%)	136359.81 (38.7%)
AR&R 10 year, 20 minutes storm, average 90 mm/h, Zone 1	410371.5	41140.58 (10.0%)	-149491.13 (0.0%)	190631.70 (46.5%)
AR&R 10 year, 25 minutes storm, average 81 mm/h, Zone 1	461668	54638.17 (11.8%)	-183060.86 (0.0%)	237699.03 (51.5%)
AR&R 10 year, 30 minutes storm, average 73 mm/h, Zone 1	499285.3	63091.44 (12.6%)	-206612.47 (0.0%)	269703.91 (54.0%)
AR&R 10 year, 45 minutes storm, average 59 mm/h, Zone 1	605298.1	103714.64 (17.1%)	-259340.58 (0.0%)	363055.22 (60.0%)
AR&R 10 year, 1 hour storm, average 50 mm/h, Zone 1	683952.5	145262.84 (21.2%)	-282703.63 (0.0%)	427966.47 (62.6%)
AR&R 10 year, 1.5 hours storm, average 39 mm/h, Zone 1	800224.4	223989.41 (28.0%)	-286418.94 (0.0%)	510408.34 (63.8%)
AR&R 10 year, 2 hours storm, average 32.5 mm/h, Zone 1	889138.3	294965.97 (33.2%)	-279047.84 (0.0%)	574013.81 (64.6%)
AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1	1030033	419537.09 (40.7%)	-232647.09 (0.0%)	652184.19 (63.3%)
AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1	1188025	543828.55 (45.8%)	-183438.52 (0.0%)	727267.06 (61.2%)

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OFA1	3.555	3.577	4.777	0.157	0.3	12.03	1.9	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFBlack1	2.223	2.223	4.777	0.118	0.19	12.02	1.57	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFBlack2	1.946	1.946	4.777	0.108	0.16	12.02	1.5	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFEO	1.671	1.671	4.777	0.099	0.14	12.02	1.4	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFEOB	0.876	0.876	4.777	0.067	0.07	12.01	1.09	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFWF1	7.897	8.037	4.777	0.255	0.67	12.05	2.62	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA2	7.95	8.071	4.777	0.256	0.67	12.05	2.62	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA3	14.876	14.876	4.777	0.373	1.24	12.07	3.32	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA4	17.016	17.016	4.777	0.404	1.41	12.08	3.5	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFA5	18.938	18.938	4.777	0.432	1.57	12.09	3.64	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFA6	21.4	21.4	4.777	0.465	1.78	12.09	3.82	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFWF2	13.382	13.67	4.777	0.353	1.14	12.07	3.22	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF3	18.124	18.124	4.777	0.42	1.51	12.08	3.58	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF5	43.271	43.271	4.777	0.719	3.58	12.14	4.98	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
DUMMYOU	44.509	44.509	4.777	0.732	3.69	12.15	5.04	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1

CONTINUITY CHECK for AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Ch (cu.m)	Difference %
A1	41230.25	41230.25	0	0
BLACK1	25409.15	25409.15	0	0
BLACK2	21680.49	21680.49	0	0
EO	18115.43	18115.43	0	0
EOB	8431.01	8431.01	0	0
WF1	99206.76	99206.76	0	0
OUT	522582.3	522582.3	0	0
A2	92838.2	92838.24	0	0
A3	176085.3	176085.5	0	0
A4	202159.4	202159.2	0	0
A5	222059	222059.1	0	0
A6	247213	247212.6	0	0
WF2	166332.1	166332.1	0	0
WF3	221911	221910.9	0	0
WF4	518698.7	518698.9	0	0
WF5	530975.9	530975.9	0	0

Natural 100 year ARI Result

DRAINS results prepared 13 April, 2010 from Version 2009.07

SUB-CATCHMENT DETAILS

Name	Max Flow (cu.m/s)	Due to Storm
CatA1	7.133	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatBlack1	4.433	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatBlack2	3.844	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatE0	3.282	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatEOB	1.7	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
CatWF1	16.094	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatA2	8.812	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatA3	13.699	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatWF2	10.901	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatWF3	9.052	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatWF4	9.002	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatWF5	2.82	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

Outflow Volumes for Total Catchment (0.00 impervious + 1368 pervious = 1368 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
AR&R 100 year, 5 minutes storm, average 237 mm/h, Zone 1	270161.3	8694.16 (3.2%)	-49510.32 (0.0%)	58204.49 (21.5%)
AR&R 100 year, 10 minutes storm, average 182 mm/h, Zone 1	414931.2	46707.48 (11.3%)	-152400.83 (0.0%)	199108.31 (48.0%)
AR&R 100 year, 15 minutes storm, average 153 mm/h, Zone 1	523223.7	81958.27 (15.7%)	-222024.92 (0.0%)	303983.19 (58.1%)
AR&R 100 year, 20 minutes storm, average 134 mm/h, Zone 1	610997.5	111910.31 (18.3%)	-276296.97 (0.0%)	388207.28 (63.5%)
AR&R 100 year, 25 minutes storm, average 120 mm/h, Zone 1	683952.5	135664.84 (19.8%)	-320456.75 (0.0%)	456121.59 (66.7%)
AR&R 100 year, 30 minutes storm, average 109 mm/h, Zone 1	745508.3	154947.06 (20.8%)	-357225.22 (0.0%)	512172.28 (68.7%)
AR&R 100 year, 45 minutes storm, average 88 mm/h, Zone 1	902817.3	238957.25 (26.5%)	-418613.25 (0.0%)	657570.50 (72.8%)
AR&R 100 year, 1 hour storm, average 75 mm/h, Zone 1	1025929	324945.53 (31.7%)	-440878.97 (0.0%)	765824.50 (74.6%)
AR&R 100 year, 1.5 hours storm, average 58 mm/h, Zone 1	1190077	474775.63 (39.9%)	-421291.00 (0.0%)	896066.63 (75.3%)
AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1	1335076	615028.38 (46.1%)	-399773.50 (0.0%)	1014801.88 (76.0%)
AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1	1551204	838753.16 (54.1%)	-326214.47 (0.0%)	1164967.63 (75.1%)
AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1	1797427	1062598.00 (59.1%)	-263460.75 (0.0%)	1326058.75 (73.8%)

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OFA1	7.133	7.255	4.777	0.24	0.6	12.05	2.52	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFBlack1	4.433	4.433	4.777	0.178	0.37	12.04	2.07	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFBlack2	3.844	3.844	4.777	0.164	0.32	12.03	1.96	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFEO	3.282	3.282	4.777	0.149	0.27	12.03	1.83	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFEOB	1.7	1.7	4.777	0.1	0.14	12.02	1.41	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
OFWF1	16.094	16.094	4.777	0.391	1.34	12.08	3.42	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFA2	16.066	16.416	4.777	0.395	1.36	12.08	3.45	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA3	29.967	29.967	4.777	0.573	2.49	12.11	4.34	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA4	34.367	34.367	4.777	0.623	2.85	12.12	4.57	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA5	38.163	38.163	4.777	0.665	3.16	12.13	4.75	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA6	42.832	42.832	4.777	0.715	3.55	12.14	4.96	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFWF2	26.776	26.776	4.777	0.535	2.22	12.11	4.16	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFWF3	35.465	35.465	4.777	0.636	2.94	12.13	4.62	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFWF5	86.439	86.439	4.777	1	7.14	12.2	7.14	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
DUMMYOL	88.943	88.943	4.777	1	7.35	12.2	7.35	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

CONTINUITY CHECK for AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Ch (cu.m)	Difference %
A1	64132.73	64132.73	0	0
BLACK1	39571.23	39571.23	0	0
BLACK2	33833.83	33833.83	0	0
EO	28347.76	28347.76	0	0
EOB	13261.89	13261.89	0	0
WF1	151827.2	151827.2	0	0
OUT	789113.8	789113.8	0	0
A2	144754.4	144754.3	0	0
A3	273868.4	273867.8	0	0
A4	308837.9	308838.1	0	0
A5	340374.3	340374.2	0	0
A6	379856.4	379855.7	0	0
WF2	252223.5	252223.3	0	0
WF3	331379	331378.4	0	0
WF4	787587	787585.1	0	0
WF5	807135.5	807135.3	0	0

Existing Catchment

DRAINS Results Spreadsheet

Existing 10 year ARI Result

DRAINS results prepared 13 April, 2010 from Version 2009.07

SUB-CATCHMENT DETAILS

Name	Max Flow (cu.m/s)	Due to Storm
CatA1	3.737	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatBlack1	2.223	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatBlack2	1.946	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatE0	1.671	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatEOB	0.876	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatWF1	8.313	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatA2	4.575	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatA3	7.16	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF2	5.628	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF3	4.732	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF4	4.494	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF5	1.436	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1

Outflow Volumes for Total Catchment (10.3 impervious + 1358 pervious = 1368 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
AR&R 10 year, 5 minutes storm, average 160 mm/h, Zone 1	182387.3	0.00 (0.0%)	0.00 (0.0%)	0.00 (0.0%)
AR&R 10 year, 10 minutes storm, average 123 mm/h, Zone 1	280420.5	10926.70 (3.9%)	-57176.00 (-2714.0%)	68102.70 (24.5%)
AR&R 10 year, 15 minutes storm, average 103 mm/h, Zone 1	352235.5	27724.22 (7.9%)	-107611.13 (-4066.6%	135335.34 (38.7%)
AR&R 10 year, 20 minutes storm, average 90 mm/h, Zone 1	410371.5	43072.50 (10.5%)	-146126.98 (-4739.8%	189199.48 (46.5%)
AR&R 10 year, 25 minutes storm, average 81 mm/h, Zone 1	461668	57199.47 (12.4%)	-178714.02 (-5152.7%	235913.48 (51.5%)
AR&R 10 year, 30 minutes storm, average 73 mm/h, Zone 1	499285.3	66058.83 (13.2%)	-201619.48 (-5375.1%	267678.31 (54.0%)
AR&R 10 year, 45 minutes storm, average 59 mm/h, Zone 1	605298.1	108585.73 (17.9%)	-251738.39 (-5535.9%	360324.13 (60.0%)
AR&R 10 year, 1 hour storm, average 50 mm/h, Zone 1	683952.5	152002.06 (22.2%)	-272747.69 (-5308.1%	424749.75 (62.6%)
AR&R 10 year, 1.5 hours storm, average 39 mm/h, Zone 1	800224.4	233925.28 (29.2%)	-272637.44 (-4535.0%	506562.72 (63.8%)
AR&R 10 year, 2 hours storm, average 32.5 mm/h, Zone 1	889138.3	307154.44 (34.5%)	-262531.31 (-3930.2%	569685.75 (64.6%)
AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1	1030033	433435.55 (42.1%)	-213852.64 (-2763.6%	647288.19 (63.3%)
AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1	1188025	557077.03 (46.9%)	-164750.66 (-1845.9%	721827.69 (61.2%)

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OFA1	3.737	3.759	4.777	0.162	0.31	12.03	1.94	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFBlack1	2.223	2.223	4.777	0.118	0.19	12.02	1.57	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFBlack2	1.946	1.946	4.777	0.108	0.16	12.02	1.5	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFEO	1.671	1.671	4.777	0.099	0.14	12.02	1.4	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFEOB	0.876	0.876	4.777	0.067	0.07	12.01	1.09	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFWF1	8.313	8.456	4.777	0.263	0.7	12.05	2.67	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA2	8.319	8.443	4.777	0.263	0.7	12.05	2.67	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFA3	15.521	15.521	4.777	0.382	1.29	12.08	3.37	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA4	17.366	17.366	4.777	0.41	1.44	12.08	3.52	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA5	19.254	19.254	4.777	0.436	1.6	12.09	3.67	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA6	21.599	21.599	4.777	0.468	1.79	12.09	3.83	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF2	14.076	14.377	4.777	0.365	1.19	12.07	3.27	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF3	19.079	19.079	4.777	0.434	1.58	12.09	3.65	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF5	44.668	44.668	4.777	0.734	3.7	12.15	5.04	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
DUMMYOL	45.915	45.915	4.777	0.747	3.8	12.15	5.09	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1

CONTINUITY CHECK for AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Ch (cu.m)	Difference %
A1	34115.84	34115.84	0	0
BLACK1	20452.8	20452.8	0	0
BLACK2	17620.33	17620.33	0	0
EO	14883.23	14883.23	0	0
EOB	7159.57	7159.57	0	0
WF1	77929.68	77929.68	0	0
OUT	403890.7	403890.7	0	0
A2	75986.71	75986.78	0	0
A3	141348.5	141348.7	0	0
A4	160314.8	160314.7	0	0
A5	176184.8	176185.1	0	0
A6	196693.1	196693	0	0
WF2	130254.9	130255	0	0
WF3	173407.2	173407	0	0
WF4	405370.8	405371.5	0	0
WF5	414716.2	414715.6	0	0

Existing 100 year ARI Result

DRAINS results prepared 13 April, 2010 from Version 2009.07

SUB-CATCHMENT DETAILS

Name	Max Flow (cu.m/s)	Due to Storm
CatA1	7.41	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatBlack1	4.433	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatBlack2	3.844	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatE0	3.282	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatEOB	1.7	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
CatWF1	16.68	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatA2	9.189	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatA3	14.274	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatWF2	11.298	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatWF3	9.443	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatWF4	9.002	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatWF5	2.82	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

Outflow Volumes for Total Catchment (10.3 impervious + 1358 pervious = 1368 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
AR&R 100 year, 5 minutes storm, average 237 mm/h, Zone 1	270161.3	9096.89 (3.4%)	-48670.34 (-2398.0%)	57767.23 (21.5%)
AR&R 100 year, 10 minutes storm, average 182 mm/h, Zone 1	414931.2	48880.31 (11.8%)	-148732.53 (-4771.3%	197612.84 (48.0%)
AR&R 100 year, 15 minutes storm, average 153 mm/h, Zone 1	523223.7	85744.84 (16.4%)	-215954.63 (-5493.9%	301699.47 (58.1%)
AR&R 100 year, 20 minutes storm, average 134 mm/h, Zone 1	610997.5	117092.41 (19.2%)	-268198.72 (-5842.8%	385291.13 (63.5%)
AR&R 100 year, 25 minutes storm, average 120 mm/h, Zone 1	683952.5	141956.47 (20.8%)	-310738.75 (-6047.5%	452695.22 (66.7%)
AR&R 100 year, 30 minutes storm, average 109 mm/h, Zone 1	745508.3	162116.66 (21.7%)	-346209.63 (-6181.5%	508326.28 (68.7%)
AR&R 100 year, 45 minutes storm, average 88 mm/h, Zone 1	902817.3	249854.38 (27.7%)	-402777.94 (-5938.4%	652632.31 (72.8%)
AR&R 100 year, 1 hour storm, average 75 mm/h, Zone 1	1025929	339314.69 (33.1%)	-420749.88 (-5459.0%	760064.56 (74.6%)
AR&R 100 year, 1.5 hours storm, average 58 mm/h, Zone 1	1190077	493675.47 (41.5%)	-395666.41 (-4425.5%	889341.88 (75.3%)
AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1	1335076	636461.31 (47.7%)	-370702.56 (-3696.0%	1007163.88 (76.0%)
AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1	1551204	860067.72 (55.4%)	-296151.53 (-2541.3%	1156219.25 (75.1%)
AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1	1797427	1081259.91 (60.2%)	-234901.34 (-1739.6%	1316161.25 (73.8%)

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OFA1	7.41	7.543	4.777	0.246	0.63	12.05	2.55	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFBlack1	4.433	4.433	4.777	0.178	0.37	12.04	2.07	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFBlack2	3.844	3.844	4.777	0.164	0.32	12.03	1.96	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFEO	3.282	3.282	4.777	0.149	0.27	12.03	1.83	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFEOB	1.7	1.7	4.777	0.1	0.14	12.02	1.41	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
OFWF1	16.68	16.68	4.777	0.399	1.39	12.08	3.47	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFA2	16.723	17.108	4.777	0.406	1.42	12.08	3.5	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA3	31.313	31.313	4.777	0.588	2.6	12.12	4.41	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA4	35.732	35.732	4.777	0.639	2.96	12.13	4.63	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA5	39.547	39.547	4.777	0.68	3.28	12.14	4.82	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA6	44.251	44.251	4.777	0.73	3.67	12.15	5.02	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFWF2	27.793	27.793	4.777	0.546	2.31	12.11	4.22	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFWF3	36.844	36.844	4.777	0.651	3.05	12.13	4.69	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFWF5	89.684	89.684	4.777	1	7.41	12.2	7.41	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
DUMMYOU	92.24	92.24	4.777	1	7.62	12.2	7.62	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

CONTINUITY CHECK for AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Ch (cu.m)	Difference %
A1	65714.31	65714.31	0	0
BLACK1	39571.23	39571.23	0	0
BLACK2	33833.83	33833.83	0	0
EO	28347.76	28347.76	0	0
EOB	13261.89	13261.89	0	0
WF1	157689.3	157689.3	0	0
OUT	811328.3	811328.3	0	0
A2	148672.9	148672.5	0	0
A3	282634.4	282634.8	0	0
A4	317715.6	317715.7	0	0
A5	349270.3	349270.5	0	0
A6	388770.9	388770.6	0	0
WF2	261935.2	261934.9	0	0
WF3	344142.3	344142.7	0	0
WF4	809357.6	809359.1	0	0
WF5	828966.1	828966.1	0	0

Developed Catchment

DRAINS Results Spreadsheet

Developed 10 year ARI Result

DRAINS results prepared 13 April, 2010 from Version 2009.07

SUB-CATCHMENT DETAILS

Name	Max Flow (cu.m/s)	Due to Storm
CatA1	3.737	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatBlack1	2.223	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatBlack2	1.946	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatE0	1.671	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatEOB	0.876	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatWF1	8.313	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatA2	4.575	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatA3	7.16	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF2	5.628	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF3	4.732	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF4	21.802	AR&R 10 year, 2 hours storm, average 32.5 mm/h, Zone 1
CatWF5	1.436	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1

Outflow Volumes for Total Catchment (71.6 impervious + 1296 pervious = 1368 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
AR&R 10 year, 5 minutes storm, average 160 mm/h, Zone 1	182387.3	6148.39 (3.4%)	6148.39 (64.4%)	0.00 (0.0%)
AR&R 10 year, 10 minutes storm, average 123 mm/h, Zone 1	280420.5	24333.76 (8.7%)	-40690.87 (-277.1%)	65024.63 (24.5%)
AR&R 10 year, 15 minutes storm, average 103 mm/h, Zone 1	352235.5	46714.74 (13.3%)	-82503.78 (-447.3%)	129218.52 (38.7%)
AR&R 10 year, 20 minutes storm, average 90 mm/h, Zone 1	410371.5	66384.02 (16.2%)	-114263.79 (-531.7%)	180647.81 (46.5%)
AR&R 10 year, 25 minutes storm, average 81 mm/h, Zone 1	461668	84079.47 (18.2%)	-141171.20 (-583.9%)	225250.67 (51.5%)
AR&R 10 year, 30 minutes storm, average 73 mm/h, Zone 1	499285.3	95521.36 (19.1%)	-160058.42 (-612.1%)	255579.78 (54.0%)
AR&R 10 year, 45 minutes storm, average 59 mm/h, Zone 1	605298.1	144614.14 (23.9%)	-199424.77 (-629.1%)	344038.91 (60.0%)
AR&R 10 year, 1 hour storm, average 50 mm/h, Zone 1	683952.5	191596.80 (28.0%)	-213959.14 (-597.3%)	405555.94 (62.6%)
AR&R 10 year, 1.5 hours storm, average 39 mm/h, Zone 1	800224.4	276058.61 (34.5%)	-207613.83 (-495.4%)	483672.44 (63.8%)
AR&R 10 year, 2 hours storm, average 32.5 mm/h, Zone 1	889138.3	349863.70 (39.3%)	-194074.48 (-416.8%)	543938.19 (64.6%)
AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1	1030033	474347.78 (46.1%)	-143683.16 (-266.4%)	618030.94 (63.3%)
AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1	1188025	596337.83 (50.2%)	-92857.61 (-149.2%)	689195.44 (61.2%)

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OFA1	3.737	3.759	4.777	0.162	0.31	12.03	1.94	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFBlack1	2.223	2.223	4.777	0.118	0.19	12.02	1.57	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFBlack2	1.946	1.946	4.777	0.108	0.16	12.02	1.5	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFEO	1.671	1.671	4.777	0.099	0.14	12.02	1.4	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFEOB	0.876	0.876	4.777	0.067	0.07	12.01	1.09	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFWF1	8.313	8.456	4.777	0.263	0.7	12.05	2.67	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA2	8.319	8.443	4.777	0.263	0.7	12.05	2.67	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFA3	15.521	15.521	4.777	0.382	1.29	12.08	3.37	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA4	17.366	17.366	4.777	0.41	1.44	12.08	3.52	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA5	19.254	19.254	4.777	0.436	1.6	12.09	3.67	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA6	21.599	21.599	4.777	0.468	1.79	12.09	3.83	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF2	14.076	14.377	4.777	0.365	1.19	12.07	3.27	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF3	19.079	19.079	4.777	0.434	1.58	12.09	3.65	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF5	44.548	44.548	4.777	0.733	3.69	12.15	5.03	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
DUMMYOUT	45.911	45.911	4.777	0.747	3.8	12.15	5.09	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1

CONTINUITY CHECK for AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Ch (cu.m)	Difference %
A1	34115.84	34115.84	0	0
BLACK1	20452.8	20452.8	0	0
BLACK2	17620.33	17620.33	0	0
EO	14883.23	14883.23	0	0
EOB	7159.57	7159.57	0	0
WF1	77929.68	77929.68	0	0
OUT	445919.5	445919.5	0	0
A2	75986.71	75986.78	0	0
A3	141348.5	141348.7	0	0
A4	160314.8	160314.7	0	0
A5	176184.8	176185.1	0	0
A6	196693.1	196693	0	0
WF2	130254.9	130255	0	0
WF3	173407.2	173407	0	0
WF4	446285.1	446285.6	0	0
WF5	455784.6	455784.8	0	0

Developed 100 year ARI Result

DRAINS results prepared 13 April, 2010 from Version 2009.07

SUB-CATCHMENT DETAILS

Name	Max Flow (cu.m/s)	Due to Storm
CatA1	7.41	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatBlack1	4.433	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatBlack2	3.844	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatE0	3.282	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatEOB	1.7	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
CatWF1	16.68	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatA2	9.189	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatA3	14.274	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatWF2	11.298	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatWF3	9.443	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatWF4	37.544	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
CatWF5	2.82	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

Outflow Volumes for Total Catchment (71.6 impervious + 1296 pervious = 1368 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
AR&R 100 year, 5 minutes storm, average 237 mm/h, Zone 1	270161.3	21604.70 (8.0%)	-33551.63 (-237.1%)	55156.32 (21.5%)
AR&R 100 year, 10 minutes storm, average 182 mm/h, Zone 1	414931.2	72340.86 (17.4%)	-116340.42 (-535.4%)	188681.28 (48.0%)
AR&R 100 year, 15 minutes storm, average 153 mm/h, Zone 1	523223.7	116805.38 (22.3%)	-171257.84 (-625.0%)	288063.22 (58.1%)
AR&R 100 year, 20 minutes storm, average 134 mm/h, Zone 1	610997.5	154106.83 (25.2%)	-213770.02 (-668.1%)	367876.84 (63.5%)
AR&R 100 year, 25 minutes storm, average 120 mm/h, Zone 1	683952.5	183783.72 (26.9%)	-248451.00 (-693.6%)	432234.72 (66.7%)
AR&R 100 year, 30 minutes storm, average 109 mm/h, Zone 1	745508.3	207920.88 (27.9%)	-277431.28 (-710.6%)	485352.16 (68.7%)
AR&R 100 year, 45 minutes storm, average 88 mm/h, Zone 1	902817.3	303407.09 (33.6%)	-319726.59 (-676.2%)	623133.69 (72.8%)
AR&R 100 year, 1 hour storm, average 75 mm/h, Zone 1	1025929	396545.03 (38.7%)	-329170.41 (-612.7%)	725715.44 (74.6%)
AR&R 100 year, 1.5 hours storm, average 58 mm/h, Zone 1	1190077	550949.09 (46.3%)	-298189.09 (-478.4%)	849138.19 (75.3%)
AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1	1335076	692827.75 (51.9%)	-268817.50 (-384.5%)	961645.25 (76.0%)
AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1	1551204	911547.83 (58.8%)	-192406.05 (-236.8%)	1103953.88 (75.1%)
AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1	1797427	1129574.92 (62.8%)	-127065.33 (-135.0%)	1256640.25 (73.8%)

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OFA1	7.41	7.543	4.777	0.246	0.63	12.05	2.55	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFBlack1	4.433	4.433	4.777	0.178	0.37	12.04	2.07	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFBlack2	3.844	3.844	4.777	0.164	0.32	12.03	1.96	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFEO	3.282	3.282	4.777	0.149	0.27	12.03	1.83	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFEOB	1.7	1.7	4.777	0.1	0.14	12.02	1.41	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
OFWF1	16.68	16.68	4.777	0.399	1.39	12.08	3.47	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFA2	16.723	17.108	4.777	0.406	1.42	12.08	3.5	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA3	31.313	31.313	4.777	0.588	2.6	12.12	4.41	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA4	35.732	35.732	4.777	0.639	2.96	12.13	4.63	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA5	39.547	39.547	4.777	0.68	3.28	12.14	4.82	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA6	44.251	44.251	4.777	0.73	3.67	12.15	5.02	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFWF2	27.793	27.793	4.777	0.546	2.31	12.11	4.22	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFWF3	36.844	36.844	4.777	0.651	3.05	12.13	4.69	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFWF5	89.179	89.179	4.777	1	7.37	12.2	7.37	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
DUMMYOUT	91.846	91.846	4.777	1	7.59	12.2	7.59	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

CONTINUITY CHECK for AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Ch (cu.m)	Difference %
A1	65714.31	65714.31	0	0
BLACK1	39571.23	39571.23	0	0
BLACK2	33833.83	33833.83	0	0
EO	28347.76	28347.76	0	0
EOB	13261.89	13261.89	0	0
WF1	157689.3	157689.3	0	0
OUT	864699.2	864699.2	0	0
A2	148672.9	148672.5	0	0
A3	282634.4	282634.8	0	0
A4	317715.6	317715.7	0	0
A5	349270.3	349270.5	0	0
A6	388770.9	388770.6	0	0
WF2	261935.2	261934.9	0	0
WF3	344142.3	344142.7	0	0
WF4	860845.8	860846.6	0	0
WF5	880681.1	880679.9	0	0

Developed with Diversion Catchment

DRAINS Results Spreadsheet

Future 10 year ARI Result

DRAINS results prepared 13 April, 2010 from Version 2009.07

SUB-CATCHMENT DETAILS

Name	Max Flow (cu.m/s)	Due to Storm
CatA1	3.737	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatBlack1	2.223	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatBlack2	1.946	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatE0	1.671	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatEOB	0.876	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
CatWF1	8.313	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatA2	4.575	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatA3	7.16	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF2	5.629	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF3	4.731	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
CatWF4	24.74	AR&R 10 year, 2 hours storm, average 32.5 mm/h, Zone 1
CatWF5	8.022	AR&R 10 year, 2 hours storm, average 32.5 mm/h, Zone 1

Outflow Volumes for Total Catchment (96.5 impervious + 1288 pervious = 1384 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
AR&R 10 year, 5 minutes storm, average 160 mm/h, Zone 1	184560.7	9015.70 (4.9%)	9015.70 (70.1%)	0.00 (0.0%)
AR&R 10 year, 10 minutes storm, average 123 mm/h, Zone 1	283762	29879.87 (10.5%)	-34715.00 (-175.5%)	64594.86 (24.5%)
AR&R 10 year, 15 minutes storm, average 103 mm/h, Zone 1	356432.8	54248.14 (15.2%)	-74116.33 (-298.3%)	128364.47 (38.7%)
AR&R 10 year, 20 minutes storm, average 90 mm/h, Zone 1	415261.5	75436.80 (18.2%)	-104016.98 (-359.3%)	179453.78 (46.5%)
AR&R 10 year, 25 minutes storm, average 81 mm/h, Zone 1	467169.3	94433.45 (20.2%)	-129328.42 (-397.1%)	223761.88 (51.5%)
AR&R 10 year, 30 minutes storm, average 73 mm/h, Zone 1	505234.8	106826.17 (21.1%)	-147064.53 (-417.5%)	253890.70 (54.0%)
AR&R 10 year, 45 minutes storm, average 59 mm/h, Zone 1	612510.8	158106.42 (25.8%)	-183658.39 (-430.1%)	341764.81 (60.0%)
AR&R 10 year, 1 hour storm, average 50 mm/h, Zone 1	692102.6	206267.95 (29.8%)	-196607.86 (-407.5%)	402875.81 (62.6%)
AR&R 10 year, 1.5 hours storm, average 39 mm/h, Zone 1	809760	291847.83 (36.0%)	-188629.42 (-334.1%)	480477.25 (63.8%)
AR&R 10 year, 2 hours storm, average 32.5 mm/h, Zone 1	899733.3	366353.95 (40.7%)	-173988.61 (-277.4%)	540342.56 (64.6%)
AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1	1042306	491867.30 (47.2%)	-122079.95 (-168.0%)	613947.25 (63.3%)
AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1	1202182	615512.39 (51.2%)	-69121.11 (-82.5%)	684633.50 (61.2%)

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OFA1	3.737	3.759	4.777	0.162	0.31	12.03	1.94	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFBlack1	2.223	2.223	4.777	0.118	0.19	12.02	1.57	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFBlack2	1.946	1.946	4.777	0.108	0.16	12.02	1.5	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFEO	1.671	1.671	4.777	0.099	0.14	12.02	1.4	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFEOB	0.876	0.876	4.777	0.067	0.07	12.01	1.09	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFWF1	8.313	8.456	4.777	0.263	0.7	12.05	2.67	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA2	8.32	8.443	4.777	0.263	0.7	12.05	2.67	AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1
OFA3	15.521	15.521	4.777	0.382	1.29	12.08	3.37	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA4	17.366	17.366	4.777	0.41	1.44	12.08	3.52	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA5	19.255	19.255	4.777	0.436	1.6	12.09	3.67	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFA6	21.6	21.6	4.777	0.468	1.79	12.09	3.83	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF2	14.078	14.378	4.777	0.365	1.19	12.07	3.28	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF3	19.08	19.08	4.777	0.434	1.58	12.09	3.65	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
OFWF5	44.501	44.501	4.777	0.732	3.69	12.15	5.04	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1
DUMMYOUT	46.39	46.39	4.777	0.751	3.84	12.15	5.11	AR&R 10 year, 4.5 hours storm, average 19.3 mm/h, Zone 1

CONTINUITY CHECK for AR&R 10 year, 3 hours storm, average 25.1 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Ch (cu.m)	Difference %
A1	34116.81	34116.81	0	0
BLACK1	20453.78	20453.78	0	0
BLACK2	17621.42	17621.42	0	0
EO	14884.48	14884.48	0	0
EOB	7160.46	7160.46	0	0
WF1	77929.96	77929.96	0	0
OUT	463631.3	463631.3	0	0
A2	75988.09	75988.17	0	0
A3	141350.1	141350.3	0	0
A4	160317.1	160317.2	0	0
A5	176188.7	176188.6	0	0
A6	196698.7	196698.7	0	0
WF2	130264.2	130264.1	0	0
WF3	173398.2	173398.8	0	0
WF4	448303	448303.8	0	0
WF5	473318.7	473318	0	0

Future 100 year ARI Result

DRAINS results prepared 13 April, 2010 from Version 2009.07

SUB-CATCHMENT DETAILS

Name	Max Flow (cu.m/s)	Due to Storm
CatA1	7.41	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatBlack1	4.433	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatBlack2	3.844	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatE0	3.282	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatEOB	1.7	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
CatWF1	16.68	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatA2	9.19	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatA3	14.274	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatWF2	11.298	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
CatWF3	9.443	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
CatWF4	41.269	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
CatWF5	13.73	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1

Outflow Volumes for Total Catchment (96.5 impervious + 1288 pervious = 1384 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
AR&R 100 year, 5 minutes storm, average 237 mm/h, Zone 1	273380.5	26798.29 (9.8%)	-27993.48 (-146.9%)	54791.77 (21.5%)
AR&R 100 year, 10 minutes storm, average 182 mm/h, Zone 1	419875.5	81385.41 (19.4%)	-106048.80 (-362.3%)	187434.22 (48.0%)
AR&R 100 year, 15 minutes storm, average 153 mm/h, Zone 1	529458.4	128484.02 (24.3%)	-157675.17 (-427.2%)	286159.19 (58.1%)
AR&R 100 year, 20 minutes storm, average 134 mm/h, Zone 1	618278.2	167872.67 (27.2%)	-197572.67 (-458.3%)	365445.34 (63.5%)
AR&R 100 year, 25 minutes storm, average 120 mm/h, Zone 1	692102.6	199257.44 (28.8%)	-230120.34 (-476.9%)	429377.78 (66.7%)
AR&R 100 year, 30 minutes storm, average 109 mm/h, Zone 1	754391.8	224842.14 (29.8%)	-257302.27 (-489.2%)	482144.41 (68.7%)
AR&R 100 year, 45 minutes storm, average 88 mm/h, Zone 1	913575.4	322889.38 (35.3%)	-296125.13 (-464.9%)	619014.50 (72.8%)
AR&R 100 year, 1 hour storm, average 75 mm/h, Zone 1	1038154	417433.38 (40.2%)	-303485.44 (-419.3%)	720918.81 (74.6%)
AR&R 100 year, 1.5 hours storm, average 58 mm/h, Zone 1	1204258	572913.03 (47.6%)	-270611.03 (-322.3%)	843524.06 (75.3%)
AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1	1350984	715966.41 (53.0%)	-239321.72 (-254.1%)	955288.13 (76.0%)
AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1	1569689	936397.28 (59.7%)	-160260.84 (-146.4%)	1096658.13 (75.1%)
AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1	1818845	1157102.87 (63.6%)	-91226.26 (-71.9%)	1248329.13 (73.8%)

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OFA1	7.41	7.543	4.777	0.246	0.63	12.05	2.55	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFBlack1	4.433	4.433	4.777	0.178	0.37	12.04	2.07	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFBlack2	3.844	3.844	4.777	0.164	0.32	12.03	1.96	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFEO	3.282	3.282	4.777	0.149	0.27	12.03	1.83	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFEOB	1.7	1.7	4.777	0.1	0.14	12.02	1.41	AR&R 100 year, 2 hours storm, average 48.8 mm/h, Zone 1
OFWF1	16.68	16.68	4.777	0.399	1.39	12.08	3.47	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFA2	16.723	17.108	4.777	0.406	1.42	12.08	3.5	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA3	31.313	31.313	4.777	0.588	2.6	12.12	4.41	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA4	35.732	35.732	4.777	0.639	2.96	12.13	4.63	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA5	39.547	39.547	4.777	0.68	3.28	12.14	4.82	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFA6	44.251	44.251	4.777	0.73	3.67	12.15	5.02	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
OFWF2	27.793	27.793	4.777	0.546	2.31	12.11	4.22	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFWF3	36.846	36.846	4.777	0.651	3.05	12.13	4.69	AR&R 100 year, 4.5 hours storm, average 29.2 mm/h, Zone 1
OFWF5	89.077	89.077	4.777	1	7.36	12.2	7.36	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1
DUMMYOUT	92.094	92.094	4.777	1	7.61	12.2	7.61	AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

CONTINUITY CHECK for AR&R 100 year, 3 hours storm, average 37.8 mm/h, Zone 1

Node	Inflow (cu.m)	Outflow (cu.m)	Storage Ch (cu.m)	Difference %
A1	65714.78	65714.78	0	0
BLACK1	39571.68	39571.68	0	0
BLACK2	33834.28	33834.28	0	0
EO	28348.27	28348.27	0	0
EOB	13262.87	13262.87	0	0
WF1	157690	157690	0	0
OUT	889843.3	889843.3	0	0
A2	148673.5	148673.4	0	0
A3	282635.1	282635.4	0	0
A4	317716.8	317717	0	0
A5	349271.9	349272.1	0	0
A6	388774.2	388773.8	0	0
WF2	261938.6	261938.2	0	0
WF3	344139	344138.6	0	0
WF4	862990.1	862991.8	0	0
WF5	905546.8	905546.6	0	0

APPENDIX D - SAND FILTER DESIGN

SAND FILTER DESIGN CALCULATIONS

Volume of Stormwater to be Filtered

Volume, V= $Q_{3months}$ (m^3/s) × $t_{c\ 1\ year}$ (mins) × 60 secs

where $Q_{3months}$ = $0.25 \times Q_{1year}$

$t_{c\ 1year}$ = adoption of 1 year ARI time of concentration

Surface Area Required for Sand Filter

$$A = \frac{Vd}{Kt(h+d)}$$ (EPA's Managing Urban Stormwater – Treatment Techniques pg63)

Where A = surface area of filter (m^2)

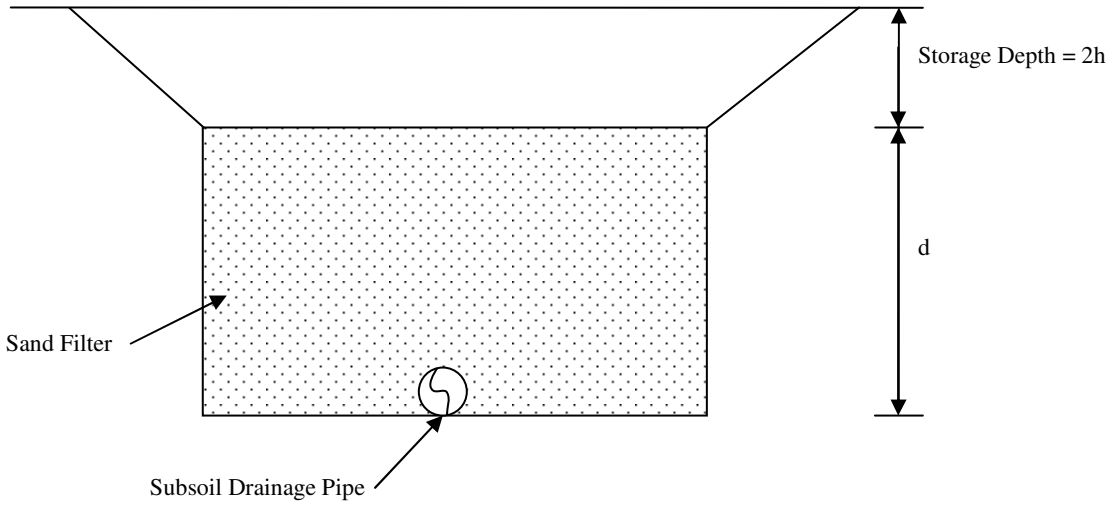
V = volume to be infiltrated (m^3)

K = hydraulic conductivity (m/h)

t = drainage time (h)

h = average head above filter [half the storage depth] (m)

d = depth of filter (m)



Sand Filter Typical Section

Appendix 5

Amended Statement of Commitments

STATEMENT OF COMMITMENTS

In response to submissions received during the public exhibition period, the Statement of Commitments contained in the exhibited Environmental Assessment Report has been reviewed and amended.

The following commitments are made by Hunter Land Holdings Pty Limited to manage and minimise potential impacts arising from the Freeway North Business Park.

A.1 Commitments restricting the terms of approval

A.1.1 The proposed development, including its staging, will be carried out strictly in accordance with the details set out on the approved subdivision plans prepared by RPS, dated 30th June 2010, ref:21717- 2T, except as otherwise provided by this Statement of Commitments.

A.1.2 The proposed development will implement the design principles and guidelines as outlined in Newcastle City Council's Development Control Plan 2005 (DCP 2005) except as otherwise provided by the Statement of Commitments.

A.1.3 Prior to the issue of a Construction Certificate for a particular stage, all general commitments, and all specific commitments relating to the Construction Certificate for the particular stage will be complied with.

A.1.4 Prior to the endorsement of a Subdivision Certificate for a particular stage, all general commitments, and all specific commitments relating to the Subdivision Certificate for the particular stage will be complied with.

A.2 Commitments comprising payment of a monetary contribution, dedication of land/carrying out of off site works

A.2.1 Dedication to Council, and at no cost to Council, that land along Weakleys Drive identified by the Roads and Traffic Authority as required for Road Widening including lands required for construction of the proposed Round-a-bout.

A.2.2 All internal proposed roads in the subdivision are to be dedicated as Public Road with the approved road names being indicated on the plan lodged with the Subdivision Certificate application.

A.2.3 The proposed reserves are to be dedicated to the public as Drainage Reserves upon completion of the rehabilitation works as set out in the Vegetation Management Plan.

A.2.4 A Positive Covenant is to be created in the first stage of the subdivision over that part of Parish Road located within the Drainage Reserve to be dedicated in Stage 3 that is proposed to form a future link with Parish Drive to the west. The positive covenant will ensure that the land may not be used for any purpose other than future road and that Council may acquire the land at any time at no cost to Council.A.2.5 A Conservation Agreement under Part 4 Division 12 of the National Parks and Wildlife Act 1974, between the Minister administering the

National Parks and Wildlife Act 1974 and Hunter Land Eco Trades Pty Ltd "the owner" will be entered into over the land known as Lots 2 to 4 DP 1061633. Execution of a Voluntary Conservation Agreement for Lots 2 to 4 DP 1061633 is required to offset vegetation removal on Freeway North and Freeway South Business Parks lands.

A.3 Commitments comprising details in documentation for a Construction Certificate and prior to commencement of works.

A.3.1 Road infrastructure including pavement, kerb and gutter, drainage, services, landscaping and street trees, street lighting, signage and markings will be provided to each stage of the subdivision, in accordance with the Council's requirements, except as otherwise provided by the Statement of Commitments. Comprehensive engineering design plans being submitted for approval being composed of the following minimum details:

a) Details of Earthworks

Plans will indicate the full extent of any earthworks proposed (cut and fill). All topsoil and unsuitable material will be nominated to be removed prior to placement of fill. All topsoil removed will be stockpiled for reuse on the development site.

Maximum nominated thickness of fill layer	- 150mm in road reserve areas - 300 mm in other areas
Maximum nominated compaction of fill	-100% standard in road reserve areas - 95% standard in other areas

Compaction of earthworks associated with gully crossings will be carried out under Level 1 supervision as per AS3798-1996 'Guidelines on earthworks for commercial and residential developments' and a report submitted to the Principal Certifying Authority with documentation accompanying the respective Subdivision Certificate application.

b) Road Design Plans

Plans, longitudinal sections and cross sections for the proposed subdivision roads will comply with the following requirements and will be annotated accordingly:

Road design requirements:

Road Hierarchy	Reserve Width	Carriageway	Footpath	Kerb Type
Road 1	23.0m	14.0m	None	Upright (Barrier)
Road 2	21.0m	12.0m	None	Upright (Barrier)
Road 3	21.0m	12.0m	None	Upright (Barrier)
Road 4	21.0m	12.0m	None	Upright (Barrier)
Road 5	21.0m	12.0m	None	Upright (Barrier)
Road 6	21.0m	12.0m	None	Upright (Barrier)

Standard design vehicle for all roads will be a B-Double vehicle (Austroad) or equivalent including bus routes. Road 1 is an identified bus route.

Plans will be accompanied by a pavement design report prepared and certified by a practising geotechnical engineer. Traffic Loadings are to be determined for a minimum design life of 20yrs and are to be a minimum of $5x10^6$ ESA's for all roads.

Roads will be designed generally with a desirable maximum grade of 12% and an absolute maximum grade of 16%.

Side road intersections with a through road will have at least 10 metre vertical curves.

Staged longitudinal sections to extend suitable distances at endpoints to permit connection to future stage works and provide for temporary turning bays.

All roads will be Benkelman Beam tested prior to prime sealing with a maximum permissible deflection of 1mm on subdivision roads being allowed or otherwise at the discretion of the PCA.

All roads will be primer sealed prior to asphalting.

The minimum wearing surface of all internal roads will be a 40mm compacted thickness layer of asphaltic concrete (AC 14).

Road name plates will be provided at all intersections

c) Stormwater Drainage Plan

The stormwater drainage design will incorporate a 1 in 10 year recurrence interval piped stormwater drainage system, with overland flow up to a 1 in 100 year recurrence interval event contained within road reserves and/or drainage reserves, and will comply with the following requirements, with the plans annotated accordingly:

Stormwater from the site will be treated and discharged in accordance with the Stormwater Drainage Report by Geoff Craig and Associates dated April 2010.

Drainage pipes will generally be located under kerb and gutter.

Sub-soil drainage will be located generally on the high side of all roads and on both sides of roads in cut and also at other locations at the discretion of the PCA. Where a subsoil drain is required, it will be installed under kerb and gutter and extend at least 500mm below the bottom of pavement.

All stormwater pipes will be rubber ring jointed reinforced concrete.

The determination, extent, depth and velocity of 100 year overland flow paths will be shown.

Pedestrian and vehicular stability and safety will be maintained for the critical storm events up to the 100 year ARI in accordance with the velocity depth product requirements set out in 'Stability of Cars *and Children in Flooded* Streets' Keller and Mitsch 1994.

All lots and/or building envelopes will be above adjacent 100 year ARI flood levels.

Interallotment drainage lines will be provided to service all lots not falling to public drainage systems. Interallotment drainage lines will be designed to cater for all water off the lot in the 1 in 10 year event, including water off pervious yard areas

The stormwater drainage facilities for each particular stage will be designed to ensure that all proposed drainage lines and outlets (both temporary and permanent) are covered by suitable easements.

The proposed development will not increase upstream or downstream flooding for floods over a range of storms from 1:1 to 1:100 year events.

A.3.2 Prior to any works commencing, Hunter Land Holdings will prepare an Environmental Management Plan (EMP) and such to be designed and implemented to manage all environmental aspects associated with the construction. The EMP will be maintained on site during all site works and be made available to Authorised Officers upon request.

The EMP will include but not be limited to:

a) A site management program, identifying and addressing issues such as environmental health and safety, site security, and traffic management.

b) A water management program detailing all erosion and sediment control, management of soil stockpiles, control and management of surface water and controls for the reworking of the existing water course.

c) A vegetation management plan, including detailed measures for rehabilitating the 7(b) conservation areas before they are dedicated to Newcastle City Council.

A.3.3 Prior to any site works commencing, Landscape Plans will be prepared for the relevant stage and submitted to the certifying authority for approval. Each landscape plan will indicate existing vegetation to be retained and removed, existing topography, adjacent development and open space, revegetation methods, access points and 'links' to open space, plant species, locations and landscape design principles. The Plan will also comply with the following:

a) Areas of restricted access and fence detail to be erected during construction and areas proposed for storage/stockpile of plant and materials will be identified;

b) Specify establishment methods for all new plantings and maintenance scheduling for all new plants;

c) Specify a weed eradication program and reporting methods

d) Street trees will be provided with a nominated minimum 100 litre pot size, or as otherwise approved by Council and protected with tree guards.

A.3.4 Prior to any site works commencing an Aboriginal Heritage Management Plan will be prepared in consultation with the Aboriginal stakeholders (Mindaribba Local Aboriginal Land Council and Lower Hunter Wonnarua). The plan will guide management of the Aboriginal heritage resource "in lieu" of a Section 90 consent.

The AHMP will include:

a) Method for the collection and recording of known sites in the development area.

b) Details of any proposed conservation area or final resting place of the artefacts and how those artefacts will be conserved after collection and relocation.

c) Site management details identifying and addressing actions required in the event previously unrecorded artefacts are discovered during works.

d) Prior to the civil earthworks commencing in proposed stages 1 and 3 clearing works will be undertaken within road reserves located in survey areas W15 and W20. These works will include clearing of existing trees and monitored grader scrapes of the topsoil along the centerline of the proposed road reserve under the supervision of nominated Land Council representatives and a qualified archaeologist.

A.3.5 All subdivision and associated works are to be designed in accordance with the Statement of Commitments and relevant publications. These publications include:

- AUSTROADS, *Guide to Traffic Engineering Practice;*
- Department *of* Housing, *Road Manual* 1987;
- *Roads and* Traffic Authority, *Road Design Guide;*
- Roads and Traffic Authority, Interim *Guide to* Signs and Markings;
- *Pavement* Design - A Guide to the *Structural* Design of Road Pavements,
- *A Guide to the Design of New Pavements for Light Traffic* - APRG Report No. 21;
- Newcastle City Council, Development *Control Plan* 2005.
- *Landcom's - Managing Urban Stormwater*
- Institution of Engineers, Australian *Rainfall and Runoff 1987*
- Environment Protection Authority, Managing *Urban Stormwater-Treatment* Techniques;

A.3.6 Plans of any proposed traffic management devices, linemarking and signposting works on existing or proposed public roads will be submitted to Council and approved by the Newcastle City Traffic Committee prior to the issue of a Construction Certificate for such work.

A.3.7 Prior to the commencement of any works, the developer will provide written notification to the adjoining landowners of the intention to start works, providing details of the scheduling of works and nominating a contact person. A legible prominent sign stating the name of the developer and contractor and a 24 hour contact telephone number will be displayed onsite during the construction period.

A.3.8 Prior to the commencement of any works, tree protection fencing, erosion and sediment control measures nominated as being required during construction in the approved Environmental Management Plan, will be installed on site and inspected by the Principal Certifying Authority.

A.4 Commitments to be resolved prior to Endorsement of Subdivision Plan.

A.4.1 A Subdivision Certificate application will be submitted in respect of each stage of the development, accompanied by the appropriate fee. Each application will be supported by a Survey Plan of Subdivision prepared by a Registered Surveyor accompanied by an Instruments prepared under s88B of the Conveyancing Acts as appropriate.

A.4.2 The appropriate notation will be placed on the plan of subdivision and an instrument under Section 88B of the Conveyancing Act will be submitted to Council setting out the terms of easements and/or rights of carriageway and/or restrictions as to user required for the subdivision, in respect of the following where applicable:

a) Interallotment drainage lines in favour of upstream properties utilising the lines;
b) Easements for Asset Protection Zones(APZ's);
c) Restrictions on the Use of Land over temporary APZ's if required;
d) Rights of carriageway in favour of the property serviced;
e) Easements for services in favour of the property serviced and/or the appropriate utility provider; and
f) Stormwater lines in favour of Council.

A.4.3 Written evidence of arrangements being made with the Hunter Water Corporation Limited, or other approved supplier, for the provision of individual water supply and sewerage services to all lots within each stage, will be submitted to the Principal Certifying Authority prior to certification of the Subdivision Plan in respect of that stage.

A.4.4 Written evidence of arrangements being made with Energy Australia, or other approved supplier, for the provision of electricity supply to all lots and street lighting within each stage, will be submitted to the Principal Certifying Authority prior to certification of the Subdivision Plan in respect of that stage.

A.4.5 Written evidence of arrangements being made with Telstra, or other approved supplier, for the provision of underground telephone services to all lots within each stage, will be submitted to the Principal Certifying Authority prior to certification of the Subdivision Plan in respect of that stage.

A.4.6 Certified works-as-executed (WAE) plans and documentation will be lodged with the Principal Certifying Authority on completion of works for each stage. The required WAE plans will be provided on a full copy stamped Construction Certificate drawings and will include:

- Details of any alterations made to the approved plans;
- The location and type of service conduits;
- The location and extent of any temporary Asset Protection Zones
- Details of all kerbs and gutters, pits and pipelines and drainage swales; and
- Certification by a Registered Surveyor that all pipes, services and access driveways within proposed lots are totally within their respective easements.

Where the WAE plans indicate variations between the works as installed and the approved plans, the Principal Certifying Authority is to determine whether the works are acceptable or require reconstruction.

A.4.7 Proposed street names will be submitted to Council (the Road Authority) for approval prior to the lodgement of any Subdivision Certificate applications involving new roads. Evidence of approval will be submitted with the corresponding Subdivision Certificate application.

A.4.8 A geotechnical assessment prepared by a suitably qualified geotechnical engineer will be submitted with the corresponding Subdivision Certificate application which:

a) gives the location, extent and suitability of any fill placed on site;
b) provides testing results of construction in relation to earthworks and road works.

A.4.9 A fauna presence/relocation report prepared by a suitably qualified person on the results of inspections made on trees prior to removal will be submitted with the corresponding Subdivision Certificate application.

A.4.10 The Developer will make good any damage caused to a public road or associated structures, including drains and kerb and gutter, as well as to private property, resulting from the subdivision works prior to certification of the Subdivision Certificate.

A.4.11 An Asset Protection Zone (APZ) 10 wide will be created along the Western Boundary of Lots 124, 208 to 210, 307 and 308in accordance with the report by Ecohub 18th December 2006 and the principles of Planning for Bushfire Protection 2006.

A.4.12 At the completion of the relevant stage, a Temporary Asset Protection Zone (APZ) 10 wide is to be provided along the rear boundary of Lots 119 to 123 , Lots 304 to 306 and Lots 309 to 316accordance with the report by Ecohub 18th December 2006 and the principles of Planning for Bushfire Protection 2006. The Temporary Asset Protection Zone (APZ) may be removed wholly or in part after preparation of a report from a suitably qualified consultant stating the hazard no longer exists and the report endorsed by NSW Rural Fire Service or the approval Authority.

A.4.13 A Restriction as to User will be placed on the plan of subdivision and associated instrument under Section 88B of the Conveyancing Act to ensure

a) No landscaping or vegetation is permitted in the Asset Protection Zone (APZ) unless that landscaping or vegetation meets the requirement of the New South Wales Rural Fire Services guidelines with respect to Asset Protection Zones.

b) No building or structure is permitted within the Asset Protection Zone (APZ) unless that building or structure is constructed of non-combustible materials

A.5 Commitments Detailing Works to be Undertaken in Weakleys Drive

A.5.1 A roundabout and associated works shall be designed and constructed in accordance with the RTA's Road Design Guide and relevant Austroads guidelines at the proposed new access to Freeway North Business Park on Weakleys Drive between Balook Drive and the New England Highway, approximately in the location identified in Newcastle Council's Development Control Plan for the area, to the satisfaction of the RTA. The following shall be included, as a minimum, as part of the works:

a) A roundabout shall be designed and constructed as a two (2)-lane dual circulating roundabout

b) Two (2) lane approaches and departures shall be provided on all legs of the roundabout or as determined by the RTA.

c) The northern leg of the roundabout on Weakleys Drive shall be extended through to the two-lane section of the New England / Weakleys Drive interchange. Two (2) lanes northbound and southbound shall be provided between the proposed roundabout and the interchange along Weakleys Drive. A raised concrete median shall be involved in the upgrade of the road.

d) The southern approach leg of the roundabout on Weakleys Drive shall be extended from the roundabout to the south of the proposed left in/left out access to the Freeway North Business Park. The two (2) lane (northbound) approach shall be extended south beyond the left in/left out intersection to an extent to ensure safe merging /diverging of traffic northbound on Weakleys Drive.

e) The southern departure leg (southbound) of the roundabout shall be constructed as two (2) lanes to a length of 200 metres from the roundabout, excluding tapers.

f) The above works may be staged, with the approval of the RTA, but must include3 the roundabout and the approaches/departures in Stage 1 construction. The remainder of the works (Stages 2 & 3) must be completed immediately after Stage 1 – there shall be no cessation of works.

A.5.2 The proposed left in/left out intersection to the subject site on Weakleys Drive between the proposed roundabout and Balook Drive shall be designed and constructed in accordance with the RTA's Road Design Guide and relevant Austroads guidelines with an exclusive left turn deceleration lane outside of the proposed two lane section of Weakleys Drive.

A.5.3 There shall be no direct vehicular access to any of the proposed lots off Weakleys Drive. All vehicular access to the proposed lots shall be via two proposed intersections on Weakleys Drive and the internal local road network.

A.5.4 A subdivision certificate is not be released until the proponent has fully constructed all road works on Weakleys Drive to the satisfaction of the RTA, unless the works are staged to the satisfaction of the RTA or the subdivision certificate relates to road widening in Weaklesy Drive. If the RTA agrees to stage the works, a subdivision certificate for Stage 1 of the development may be released after completion of the roundabout and its approaches and departures to the satisfaction of the RTA. No further subdivision certificate is to be released for any stage of the development until the proponent has fully constructed all remaining works in Weakleys Drive to the satisfaction of the RTA. A subdivision certificate for road widening in Weakleys Drive may be released prior to completion of any works.

A.5.5 All works associated with the proposed development shall be undertaken at full cost to the developer, to the satisfaction of the RTA.

A.5.6 The proponent is required to enter into a Works Authorisation Deed with the RTA. In this regard the proponent is required to submit detailed design plans and all relevant information, as may be required in the RTA's Works Authorisation Deed documentation, for each specific change to the State road network, for the RTA's assessment and final decision concerning the work.

A.6 General Commitments

A.6.1 A six month defect liability period will apply in respect of each Construction Certificate issued, prior to Council accepting maintenance responsibility for subdivision infrastructure, with the exception of the proposed landscaping. Each defect liability period will commence at the date of registration of the respective plan of subdivision.

In this regard, a cash bond or bank guarantee in an amount equivalent to 2.5% of the construction value of the subdivision works, or an alternative lesser amount as maybe agreed to by Council, together with an endorsed Defects Liability Agreement form, will be submitted to Council prior to certification of the Subdivision Plan in respect of each stage of the development.

A.6.2 A twelve month maintenance period will apply in respect of each applicable stage of the development prior to Council accepting maintenance responsibility for the proposed site landscaping. Each maintenance period will commence at the date of registration of the respective plan of subdivision.

In this regard a cash bond or bank guarantee in an amount equivalent to 2.5% of the contract value of landscaping and associated maintenance, or an alternative lesser amount as may be agreed to by Council, together with the required Landscape Establishment report, will be submitted to Council prior to certification of the Subdivision Plan in respect of each stage of the development.

A.6.3 The developer will be responsible for all adjustments to and/or relocation of public utilities. Any necessary alterations will be at the Developer's expense and to the requirements of the appropriate Authorities.

A.6.4 No work will be undertaken in any public road until a Road Opening Permit has been obtained from Council (the Road Authority).

A.6.5 The routes for import of any fill material or export of any spoil will be submitted to and agreed by Council prior to the commencement of haulage. Any deterioration or failures within public roads that can reasonably be attributable to such operations will be restored to the requirements of, and at no cost to, Council.

A.6.6 A Landscape Establishment Report will be submitted to Council fallowing completion of a twelve month maintenance period commencing from the date of registration of the relevant Subdivision Certificate in respect of each stage, verifying that satisfactory maintenance of the landscape works including street trees, revegetation and weeding, has been undertaken in accordance with the Landscape Management Plan and any necessary rectification measures have been carried out to a high professional standard.

A.6.7 All wetland and natural vegetated areas outside the boundaries of the proposed subdivision will be kept free from disturbance of machinery, parked vehicles and waste material.

A.6.8 Toilet facilities will be provided at or in the vicinity of the site on which work is being carried out at the rate of one toilet for every 20 persons or part of 20 persons employed at the site.

Each toilet provided will be:

a) A standard flushing toilet; and
b) Connected
    - To a public sewer; or
    - If connection to a public sewer is not practicable, to some other sewage management facility approved by the Council.

The required toilet facilities will be in place and operational prior to any other work being undertaken on the site.

A.6.9 Newcastle City Council will be indemnified in respect of any claims for damage to persons or property at all times while the work is in progress up until the

work is completed and the Subdivision Plan registered.

A.6.10 Construction/demolition work noise that is audible at other premises will be restricted to the following times:

- Monday to Friday 7 am to 6 pm
- Saturday 8 am to 1 pm
- No construction/demolition work noise is permitted on Sundays or Public Holidays

A.6.11 The operating noise level of machinery, plant and equipment during the course of any construction works will comply with Chapter 171 of the NSW EPA's Noise Control Manual. Construction operations will be confined to between the hours of 7 am to 6pm Monday to Friday and 8 am to 1 pm Saturday. No construction work will take place on Sundays or Public Holidays. Mechanical rock breaking or blasting will be confined to between 9 am to 3.30 pm Monday to Friday excluding any Public Holiday.

A.6.12 The Applicant will be responsible for meeting all expenses incurred in undertaking the development including expenses incurred in complying with conditions imposed under the terms of consent.

A.6.13 Any imported fill on to the site will be validated to ensure the imported fill is suitable for the proposed land use from a contamination perspective. Imported fill will be certified to verify that the material is not contaminated based upon analysis or the known history of the site from which the material was obtained.

A.6.14 Soil erosion and sedimentation control measures will be maintained at maximum operational capacity until the land is effectively rehabilitated and stabilised after construction.

MGA

208
1.99 ha
(1.24 ha)

209
1.06 ha

210
1.8 ha

207
1.31 ha
(6324m²)

211
9849m²

206
1.05 ha
(4592m²)

212
9470m²

205
9288m²
(4320m²)

213
8292m²

204
9288m²
(4320m²)

214
5103m²

203
9171m²
(3782m²)

215
5125m²

202
9605m²
(3576m²)

216
7182m²

201
1.189 ha
(6283m²)

217
DRAINAGE
RESERVE

109
5331m²

108
1.91 ha
(1.29 ha)

124
15 ha

110
2109m²

111
2100m²

112
2100m²

113
1800m²

114
1800m²

115
1500m²

116
1500m²

117
1500m²

118
1837m²

ELWELL CLOSE

PARISH DRIVE

BOWDEN WAY

107
2056m²

106
1917m²

105
1800m²

104
1800m²

103
2100m²

102
2225m²

101
4099m²

22
DP532814

16
DP510628

15
DP510628

307
9634m²

308
5934m²

317
DRAINAGE
RESERVE

CANAVAN DRIVE

303
4757m²

304
1.25 ha

305
1.25 ha

306
1.55 ha

309
2193m²

310
2067m²

311
2140m²

312
2810m²

313
3073m²

314
3229m²

315
3426m²

302
3294m²

301
3303m²

119
3140m²

120
3454m²

121
2758m²

122
3379m²

123
1.829ha

316
2.6 ha

WWPS

9
DP509255

13
DP203406

12
DP416248

11
DP506747

10
DP416248

8
DP396036

7

D
DP388733

16
DP1091199

15
DP1091199

6
DP226431

1
DP390543

WEAKLEYS DRIVE

NEW ENGLAND HIGHWAY

(A) (B) (C) (D) (E) (G) (H)

STAGE 1
STAGE 2
STAGE 3

0 50 100 200
SCALE 1 : 4000 (A3)

NOTE :

ALL DIMENSIONS , AREAS AND EASEMENTS ARE SUBJECT TO FINAL SURVEY

TITLE: PROPOSED SUBDIVISION PLAN
LOT 14 DP 1091199

LOCATION: WEAKLEYS DRIVE
BERESFIELD

DATUM:
PROJECTION: MGA

DATE: 1ST JULY 2010
PURPOSE: SUBDIVISION

AUTOCAD REF: 21717 - 2T
VERSION (PLAN BY): PROPOSED SUBDIVISION

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CLIENT: FREEWAY NORTH LAND COMPANY
JOB REF: 21717

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
241 DENISON STREET BROADMEADOW PO BOX 428 HAMILTON NSW 2303
T: 02 4940 4200 F: 02 4961 6794 www.rpsgroup.com.au

creativepeople
making a difference

RPS

RPS

Newcastle Office
Ground Floor, 241 Denison Street, Broadmeadow, NSW Australia 2292
PO Box 428, Hamilton, NSW Australia 2303
T +61 2 4940 4200 F +61 2 4961 6794 E newcastle@rpsgroup.com.au W rpsgroup.com.au

Our Ref: 21717:RD

14 September 2010

DIRECTOR GENERAL
NSW DEPARTMENT OF PLANNING
23-33 BRIDGE STREET
SYDNEY NSW 2000

ATTENTION: ANNA BRADLEY

Dear Madam,

RE: SECTION 75W APPLICATION – MINOR MODIFICATION TO FREEWAY NORTH BUSINESS PARK MAJOR PROJECT 06_0199 (FILE NO.9042757)

This letter has been written to support a modification to the Concept Plan Approval (No. 06_0199). Approval for this modification is sought in accordance with Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

On 29 September 2008 Concept Plan and Project Approval 06_0199 was granted by the Minister for a 90 lot industrial business park subdivision, associated services and infrastructure and conservation lands at Beresfield.

Condition A5 of Schedule 2 of the Concept Plan Approval states the following:

"The determination of future applications for development is to be generally consistent with the terms of approval of MP No.06-0199 as described in Part A of Schedule 1 and subject to the modifications of approval set out in Parts A and B of Schedule 2. Future applications for development are subject to Part 4 of the EP&A Act except where Schedule 2 of State Environmental Planning Policy (Major Projects) 2005 applies."

Recent discussions between officers of the Department of Planning, the proponent and RPS have highlighted an administrative error in Condition A5 of Schedule 2 in so far as the condition refers to Schedule 2 of *State Environmental Planning Policy* (SEPP) (Major Development) 2005. As a result of the error, any major projects which fall under Schedule 1 of the SEPP (Major Development) 2005 cannot be determined by the Department. Clearly this situation was not intended and if left as is would prevent proposals such as the recent Aldi Warehouse Project MP 10_0042 from proceeding. Accordingly this condition will need to be modified in accordance with the following (with strike throughs indicating deletion and bold underlined text indicating additional matter):

*"The determination of future applications for development is to be generally consistent with the terms of approval of MP No.06-0199 as described in Part A of Schedule 1 and subject to the modifications of approval set out in Parts A and B of Schedule 2. Future applications for development are subject to Part 4 of the EP&A Act except where Schedule ~~2~~ **1** of State Environmental Planning Policy (Major Projects) 2005 applies."*

Similarly to avoid doubt in the future, item (c) of the Instrument of Approval dated 29 September 2008, should also be amended to state (with bold underlined text indicating additional matter):

*(c) That approval to carry out the remainder of the project is to be subject to Part 4 of the EP&A Act under section 75P(1)(b) ~~of the EP&A Act~~, **except where Schedule 1 of SEPP (Major Projects) 2005 applies.***

Conclusion

The modification to the Concept Plan Approval will correct an administrative error within the stated conditions and its correction is considered to be minor in nature. It is therefore requested that the Department consider this modification favourably in accordance with Section 75 W of the EP&A Act.

If you have any further enquiries regarding the above please do not hesitate to contact the writer.

Yours faithfully
RPS

Robert Dwyer
General Manager
BSc, GDipURP, MPIA, CPP

Appendix C

Architectural Plans – Woodhead Architects

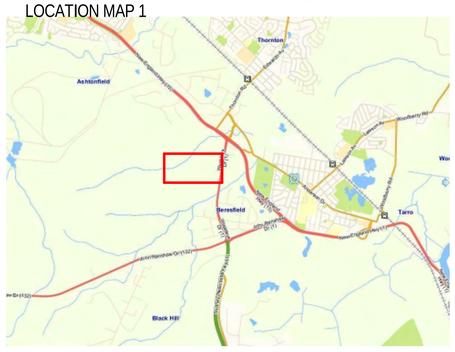
ALDI BERESFIELD DISTRIBUTION CENTRE

PROPOSED LOT 124

ENVIRONMENTAL APPLICATION



LOCATION MAP 1



LOCATION MAP 2



LOCATION MAP 3

ALDI Beresfield Distribution Centre

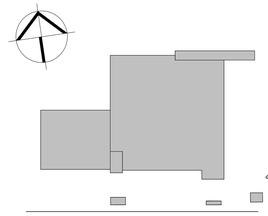
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BER-A-2030- 0001W	COVER SHEET
BER-A-2030- 0002W	SITE ANALYSIS
BER-A-2030- 0003W	SITE PLAN EXISTING
BER-A-2030- 0004W	SITE PLAN PROPOSED - ROOF PLAN
BER-A-2030- 0005W	SITE PLAN PROPOSED - GROUND FLOOR
BER-A-2030- 0006W	SUN STUDY - SHADOW DIAGRAMS
BER-A-2030- 0010W	PERSPECTIVES - OFFICE BUILDING
BER-A-2030- 1000W	PROPOSED GROUND FLOOR PLAN
BER-A-2030- 1040W	PROPOSED FIRST FLOOR PLAN
BER-A-2030- 2000W	PROPOSED ELEVATIONS
BER-A-2030- 3000W	PROPOSED SECTIONS

PRELIMINARY

NOTES

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Key Plan.



Issue	Revision Description	Date
E	PRLIMINARY EA SET	28/07/2010
D	PRELIMARY	20/07/10
C	PRELIMARY	13/07/10
B	PRELIMARY	06/07/10
A	PRELIMARY	29/06/10

Project Management
APP
02 4928 7600
SUITE 2, LEVEL 4, 6 NEWCOMEN STREET
NEWCASTLE NSW 2300

Quantity Surveyor
DAVIS LANGDON
02 9956 8822
LEVEL 5, 100 PACIFIC HIGHWAY
NORTH SYDNEY NSW 2060

Structural & Civil
ROBERT BIRD GROUP
02 8246 3200
LEVEL 5, 9 CASTLEREAGH STREET
SYDNEY NSW 2000

Mechanical, Fire, Electrica, Hydraulicsl
WOOD & GRIEVE ENGINEERS
02 8484 7000
LEVEL 3, 454-456 PACIFIC HWY
ST. LEONARDS, NSW 2065

BCA Consultant
PHILIP CHUN
02 9412 2322
SUITE 404, 44 HAMPDEN ROAD
ARTARMON NSW 2064

Refrigeration
ISECO
03 6227 9756
8 NORWOOD TERRACE
TARONA TAS 7053

Environmental
ERM
02 4964 2150
53 BOWVILLE AVENUE
THORNTON NSW 2322

Traffic
COLSTON BUDD HUNT KAFES
02 9411 2411
SUITE 801 - TOWER A ZENITH CENTRE
821 PACIFIC HIGHWAY

Planner
ADW Johnson
02 49788 5100
7/335 HILLSBOROUGH ROAD
WARNERS BAY NSW 2282

Client
ALDI FOODS
(A LIMITED PARTNERSHIP)
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Architects
woodhead
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F +612 9964 9663
ABN 61 007 747 748

Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description
BER
ALDI DISTRIBUTION FACILITY
BERESFIELD NSW

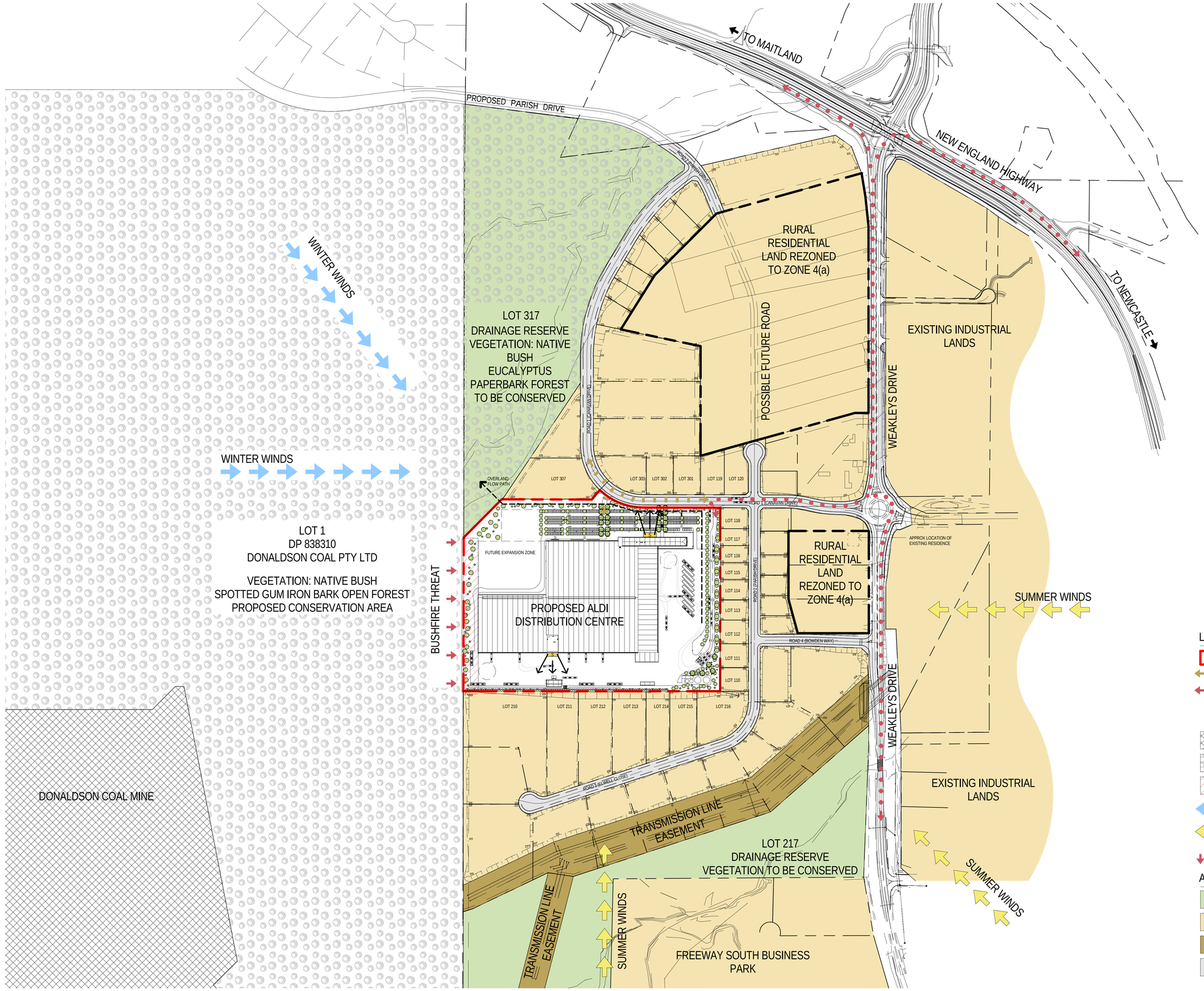
Project Number 10203002

Drawing Title
COVER SHEET

Scale
NTS

Drawing Number
BER-A-2030-0001W

Issue
E



1 SITE ANALYSIS
2000W 1 : 3000

LEGEND

- ALDI SITE
- CAR MOVEMENT TO AND FROM ALDI SITE
- TRUCK MOVEMENT TO AND FROM ALDI SITE
- STAFF BREAK OUT AREA WITH VISTA AS INDICATED
- COAL MINE
- NATIVE BUSH VEGITATION
- BUSHFIRE ASSET PROTECTION ZONE
- PREVAILING WINDS - WINTER
- PREVAILING WINDS - SUMMER
- BUSH FIRE THREAT

ADJACENT LAND ZONING

- 7(a) ZONE - ENVIRONMENTAL PROTECTION
- 4(a) ZONE - URBAN SERVICES
- TRANSMISSION LINE EASEMENT
- ROAD

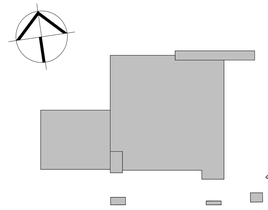
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PRELIMINARY

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Project Management: APP
02 4928 7600
SUITE 2, LEVEL 4, 6 NEWCOMEN STREET
NEWCASTLE NSW 2300

Quantity Surveyor: DAVIS LANGDON
02 9956 8822
LEVEL 5, 100 PACIFIC HIGHWAY
NORTH SYDNEY NSW 2060

Structural & Civil: ROBERT BIRD GROUP
02 8246 3200
LEVEL 5, 9 CASTLEREAGH STREET
SYDNEY NSW 2000

Mechanical, Fire, Electrica, Hydraulicsl: WOOD & GRIEVE ENGINEERS
02 8484 7000
LEVEL 3, 454-456 PACIFIC HWY
ST. LEONARDS, NSW 2065

BCA Consultant: PHILIP CHUN
02 9412 2322
SUITE 404, 44 HAMPDEN ROAD
ARTARMON NSW 2064

Refrigeration: ISECO
03 6227 9756
8 NORWOOD TERRACE
TAROONA TAS 7053

Environmental: ERM
02 4964 2150
53 BONVILLE AVENUE
THORNTON NSW 2322

Traffic: COLSTON BUDD HUNT KAFES
02 9411 2411
SUITE 801 - TOWER A ZENITH CENTRE
821 PACIFIC HIGHWAY

Planner: ADW Johnson
02 49788 5100
7/335 HILLSBOROUGH ROAD
WARNERS BAY NSW 2282

Client: ALDI FOODS
(A LIMITED PARTNERSHIP)
1 SARGENTS ROAD
MINCHINBURY NSW

Architects: woodhead
343 Pacific Highway
North Sydney NSW 2060
T +612 9964 9500
F +612 9964 9683
ABN 61 007 747 748

Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

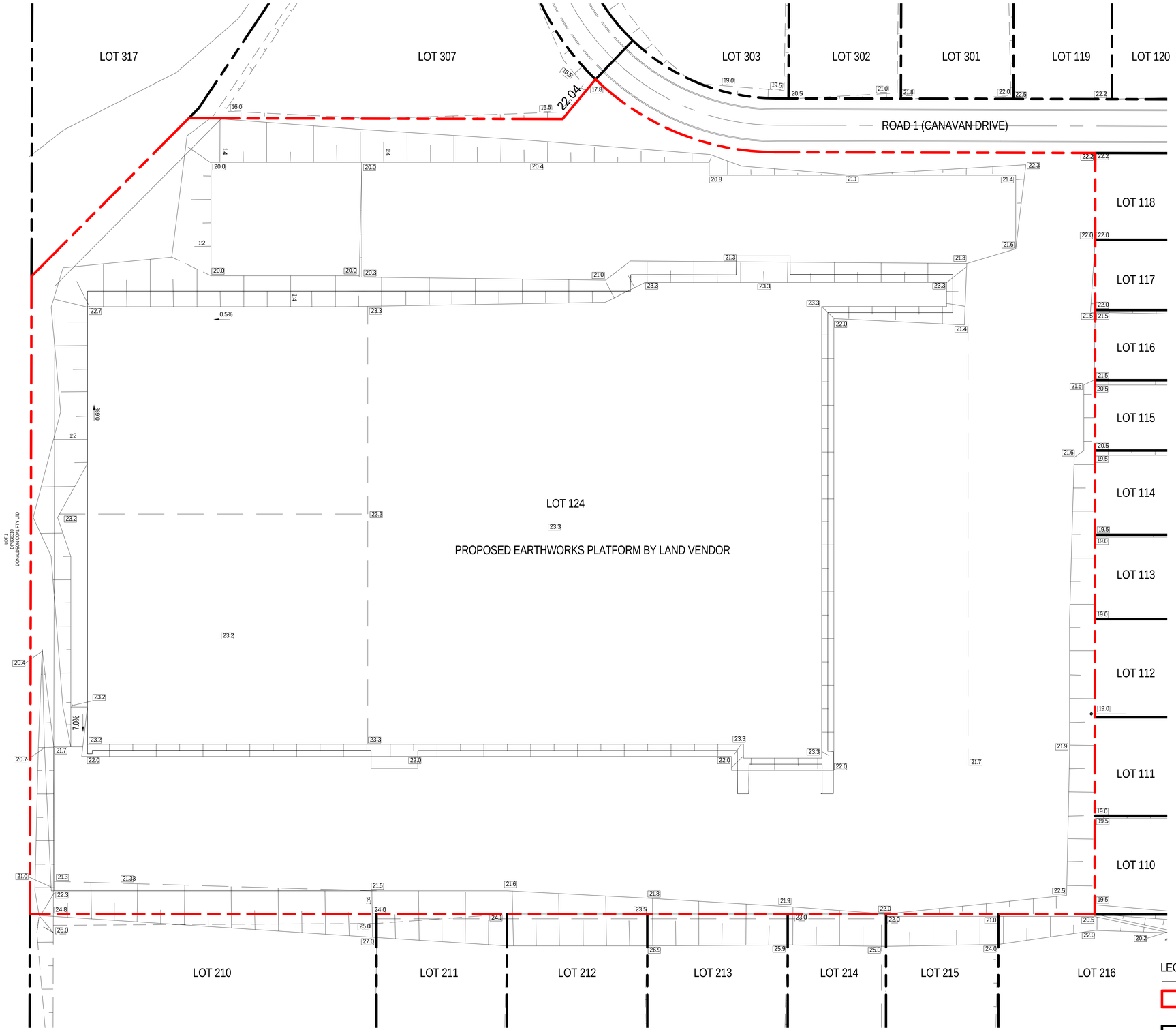
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BERESFIELD NSW

Project Number: 10203002

Drawing Title: SITE ANALYSIS
Scale: 1 : 3000

Drawing Number: BER-A-2030-0002W
Issue: E

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1 2000W EXISTING SITE PLAN
1 : 750

LEGEND

SITE BOUNDARY

BOUNDARY ADJACENT LOTS

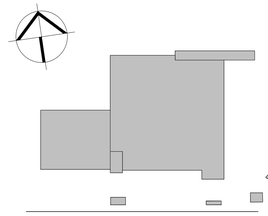
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PRELIMINARY

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Key Plan.



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C	PRELIMARY	23/07/10
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A	PRELIMINARY	06/07/10

Project Management
APP
02 4928 7600
SUITE 2, LEVEL 4, 6 NEWCOMEN STREET
NEWCASTLE NSW 2300

Quantity Surveyor
DAVIS LANGDON
02 9956 8822
LEVEL 5, 100 PACIFIC HIGHWAY
NORTH SYDNEY NSW 2060

Structural & Civil
ROBERT BIRD GROUP
02 8246 3200
LEVEL 5, 9 CASTLEREAGH STREET
SYDNEY NSW 2000

Mechanical, Fire, Electrics, Hydraulics
WOOD & GRIEVE ENGINEERS
02 8484 7000
LEVEL 3, 454-456 PACIFIC HWY
ST. LEONARDS, NSW 2065

BCA Consultant
PHILIP CHUN
02 9412 2322
SUITE 404, 44 HAMPDEN ROAD
ARTARMON NSW 2064

Refrigeration
ISECO
03 6227 9756
8 NORWOOD TERRACE
TARONA TAS 7053

Environmental
ERM
02 4964 2150
53 BONVILLE AVENUE
THORNTON NSW 2322

Traffic
COLSTON BUDD HUNT KAFES
02 9411 2411
SUITE 801 - TOWER A ZENITH CENTRE
821 PACIFIC HIGHWAY

Planner
ADW Johnson
02 49788 5100
7/335 HILLSBOROUGH ROAD
WARNERS BAY NSW 2282

Client
ALDI FOODS
(A LIMITED PARTNERSHIP)
1 SARGENTS ROAD
MINCHINBURY NSW

Architects
woodhead
343 Pacific Highway
North Sydney NSW 2060
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F +612 9964 9683
ABN 61 007 747 748

Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description
BER ALDI DISTRIBUTION FACILITY
BERESFIELD NSW

Project Number 10203002

Drawing Title: SITE PLAN EXISTING
Scale: 1 : 750

Drawing Number: BER-A-2030-0003W
Issue: D

SITE AREA SCHEDULE (F.E.C.A.)		
Number	Name	Area
1-1	OFFICE BUILDING GROUND FLOOR	1956 m²
1-2	OFFICE BUILDING FIRST FLOOR	1832 m²
2-1	AMBIENT WAREHOUSE	36628 m²
2-2	REFUSE	734 m²
2-3	FORKLIFT MAINTENANCE	548 m²
3-1	COOLHOUSE	12041 m²
4-1	MEZZ COOLHOUSE	631 m²
4-2	SPINE GROUND FLOOR	732 m²
4-3	SPINE FIRST FLOOR	454 m²
5-1	SPRINKLER TANK AND ASSOCIATED PUMP ROOMS	747 m²
5-2	GATEHOUSE	18 m²
5-3	MAINTENANCE WORKSHOP	154 m²
5-4	TRUCKWASH	356 m²
		56833 m²

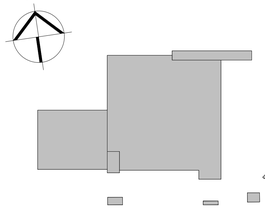
PARKING SCHEDULE	
Type	Count
5500 x 2600	296
5500 x 3900 ACCESSIBLE	6
Bicycle	32
Motorbike	18

PROPERTY SCHEDULE	
ALDI BERESFIELD	150000 m²

NOTES

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Key Plan.



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Project Management: APP
02 4928 7600
SUITE 2, LEVEL 4, 6 NEWCOMEN STREET
NEWCASTLE NSW 2300

Quantity Surveyor: DAVIS LANGDON
02 9956 8822
LEVEL 5, 100 PACIFIC HIGHWAY
NORTH SYDNEY NSW 2060

Structural & Civil: ROBERT BIRD GROUP
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ST. LEONARDS, NSW 2065

BCA Consultant: PHILIP CHUN
02 9412 2322
SUITE 404, 44 HAMPDEN ROAD
ARTARMON NSW 2064

Refrigeration: ISECO
03 6227 9756
8 NORWOOD TERRACE
TAROONA TAS 7053

Environmental: ERM
02 4964 2150
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Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description: ALDI DISTRIBUTION FACILITY
BERESFIELD NSW

Project Number: 10203002

Drawing Title: SITE PLAN PROPOSED - ROOF PLAN

Scale: 1 : 750

Drawing Number: BER-A-2030-0004W

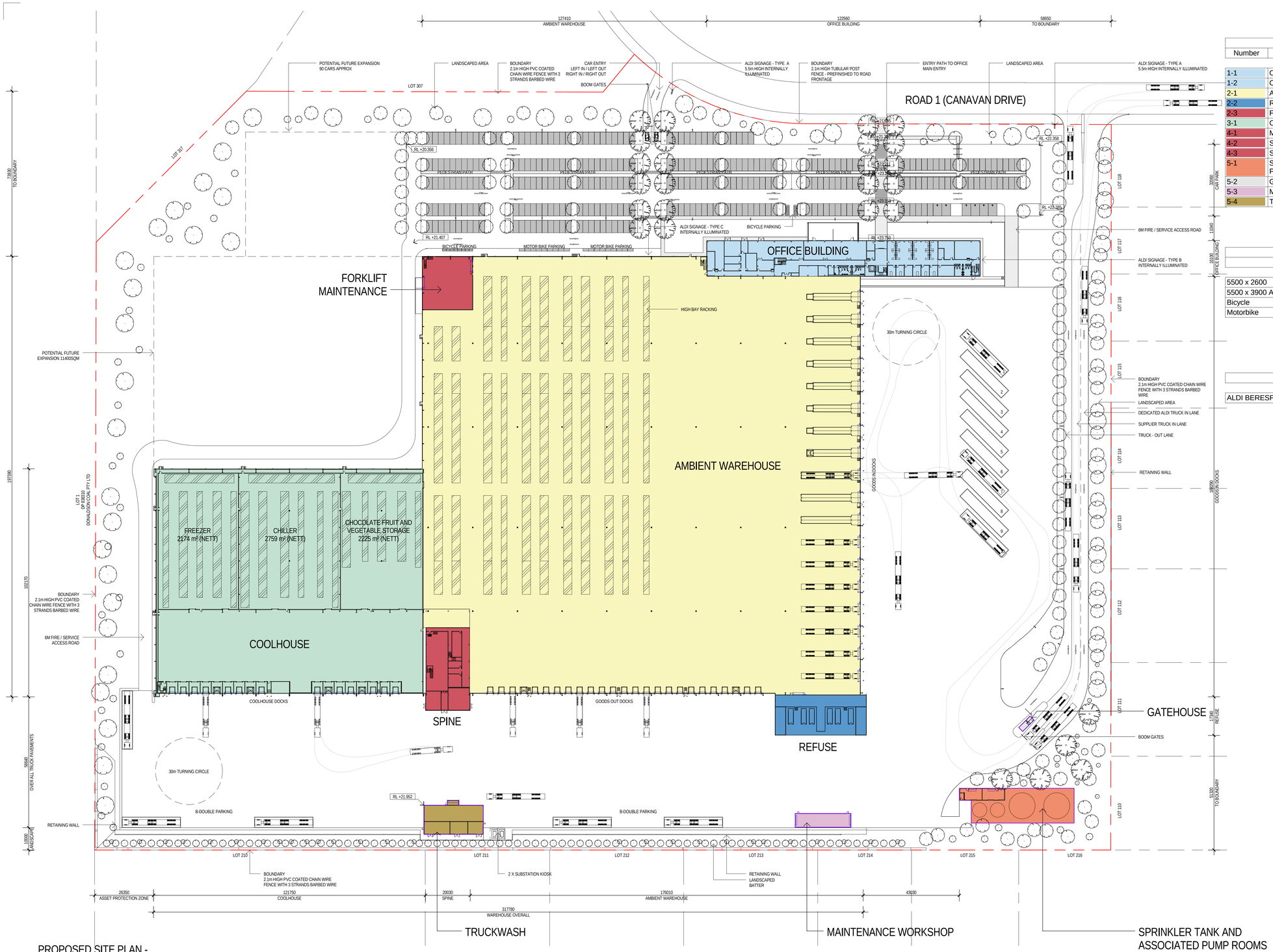
Issue: E

PRELIMINARY

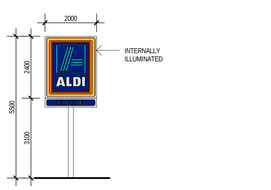
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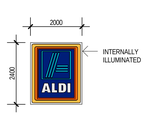
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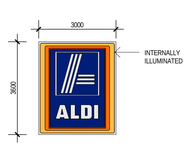
1 2000W
PROPOSED SITE PLAN - GROUND FLOOR
1 : 750



2
ALDI SIGN - TYPA A - PYLON SIGN
1 : 100



3 1040W
ALDI SIGN - TYPE B - WALL MOUNTED
1 : 100



4 1040W
ALDI SIGN - TYPE C - WALL MOUNTED
1 : 100

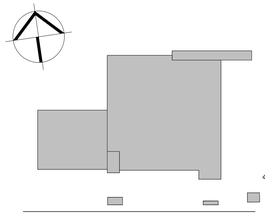
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		56833 m²

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Type	Count
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5500 x 3900 ACCESSIBLE	6
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Motorbike	18

PROPERTY SCHEDULE	
ALDI BERESFIELD	150000 m²

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Project Management	APP 02 4928 7600 SUITE 2, LEVEL 4, 6 NEWCOMEN STREET NEWCASTLE NSW 2300
Quantity Surveyor	DAVIS LANGDON 02 9956 8822 LEVEL 5, 100 PACIFIC HIGHWAY NORTH SYDNEY NSW 2060
Structural & Civil	ROBERT BIRD GROUP 02 8246 3200 LEVEL 5, 9 CASTLEREAGH STREET SYDNEY NSW 2000
Mechanical, Fire, Electrica, Hydraulics!	WOOD & GRIEVE ENGINEERS 02 8484 7000 LEVEL 3, 454-456 PACIFIC HWY ST. LEONARDS, NSW 2065
BCA Consultant	PHILIP CHUN 02 9412 2322 SUITE 404, 44 HAMPDEN ROAD ARTARMON NSW 2064
Refrigeration	ISECO 03 6227 9756 9 NORWOOD TERRACE TAROONA TAS 7053
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Traffic	COLSTON BUDD HUNT KAFES 02 9411 2411 SUITE 801 - TOWER A ZENITH CENTRE 821 PACIFIC HIGHWAY
Planner	ADW Johnson 02 49788 5100 7/335 HILLSBOROUGH ROAD WARNERS BAY NSW 2282
Client	ALDI FOODS (A LIMITED PARTNERSHIP) 1 SARGENTS ROAD MINCHINBURY NSW

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ABN 61 007 747 748

Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description
BER
ALDI DISTRIBUTION FACILITY
BERESFIELD NSW

Project Number 10203002

Drawing Title
SITE PLAN PROPOSED - GROUND FLOOR

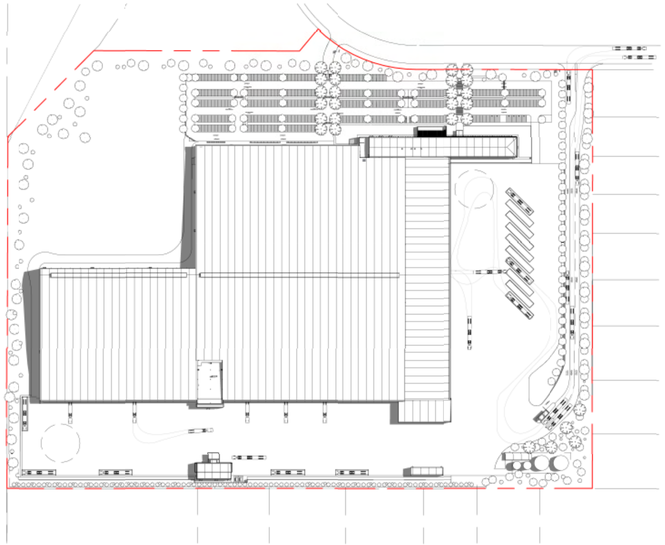
Scale
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Drawing Number
BER-A-2030-0005W

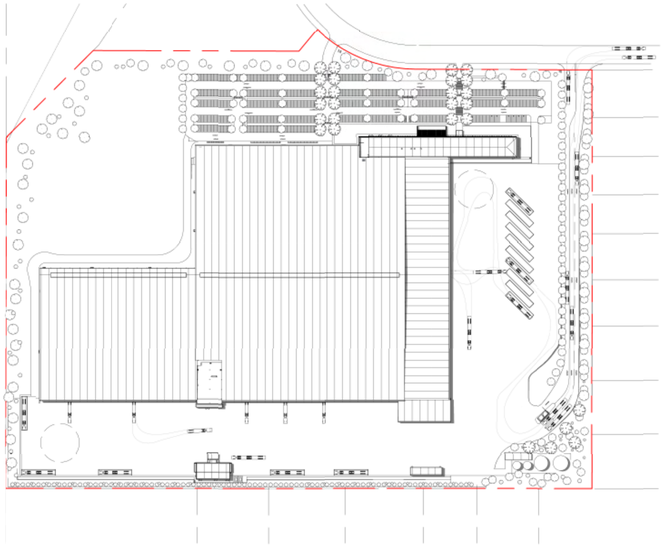
Issue
D

PRELIMINARY

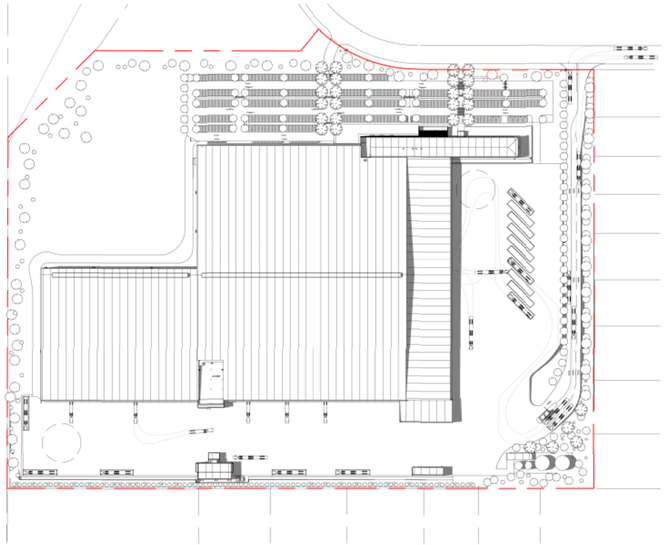
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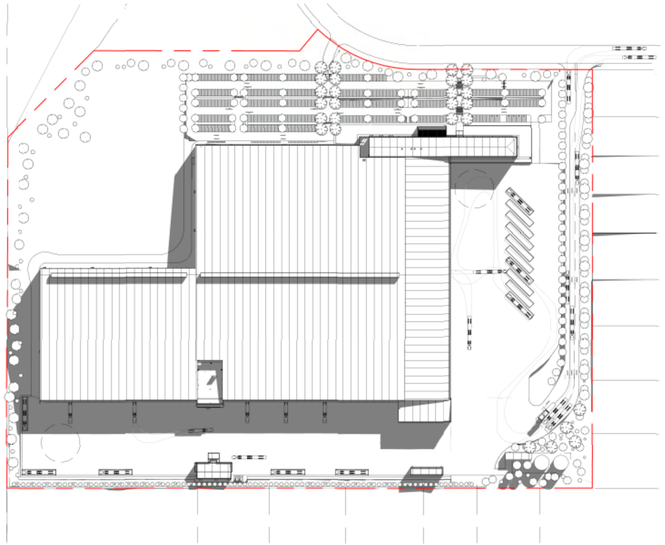
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1 : 2000



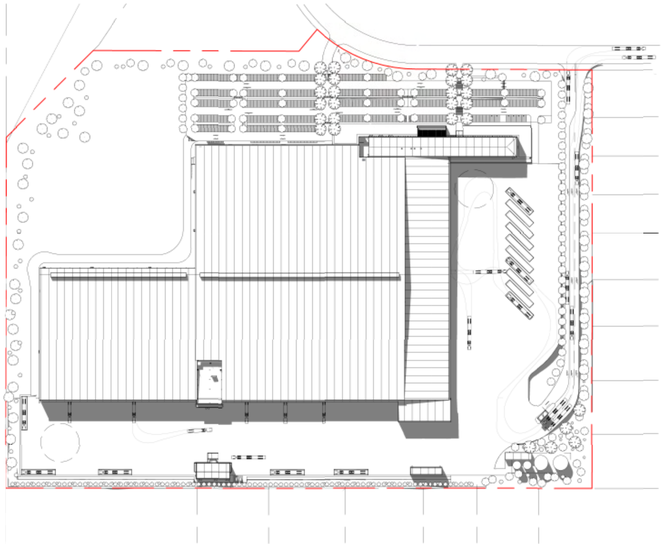
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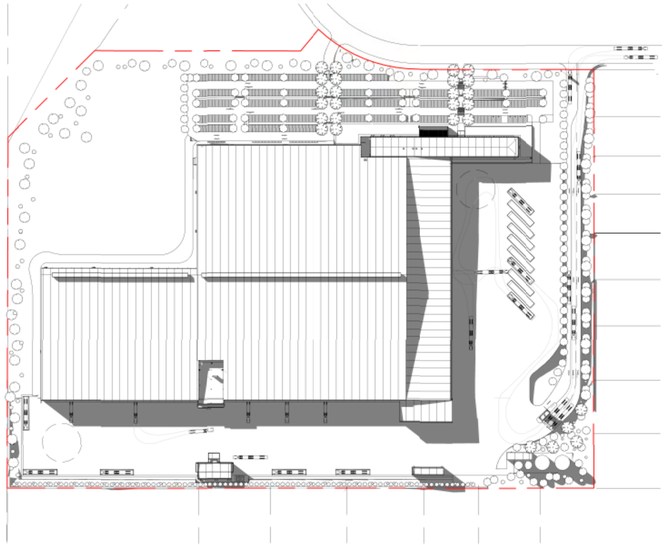
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4 2000W WINTER SOLSTICE 9 AM
1 : 2000



5 2000W WINTER SOLSTICE 1 PM
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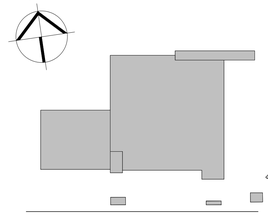


6 2000W WINTER SOLSTICE 3 PM
1 : 2000

NOTES

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Key Plan.



Issue	Revision Description	Date
A	PRILIMINARY EA SET	28/07/2010

Project Management	APP 02 4928 7600 SUITE 2, LEVEL 4, 6 NEWCOMEN STREET NEWCASTLE NSW 2300		
Quantity Surveyor	DAVIS LANGDON 02 9956 8822 LEVEL 5, 100 PACIFIC HIGHWAY NORTH SYDNEY NSW 2060		
Structural & Civil	ROBERT BIRD GROUP 02 8246 3300 LEVEL 5, 9 CASTLEREAGH STREET SYDNEY NSW 2000		
Mechanical, Fire, Electrica, Hydraulicsl	WOOD & GRIEVE ENGINEERS 02 8484 7000 LEVEL 3, 454-456 PACIFIC HWY ST. LEONARDS, NSW 2065		
BCA Consultant	PHILIP CHUN 02 9412 2322 SUITE 404, 44 HAMPDEN ROAD ARTARMON NSW 2064		
Refrigeration	ISECO 03 6227 9756 9 NORWOOD TERRACE TAROONA TAS 7053		
Environmental	ERM 02 4964 2150 53 BONVILLE AVENUE THORNTON NSW 2322		
Traffic	COLSTON BUDD HUNT KAFES 02 9411 2411 SUITE 801 - TOWER A ZENITH CENTRE 821 PACIFIC HIGHWAY		
Planner	ADW Johnson 02 49788 5100 7/335 HILLSBOROUGH ROAD WARNERS BAY NSW 2282		
Client	ALDI FOODS (A LIMITED PARTNERSHIP) 1 SARGENTS ROAD MINCHINBURY NSW		

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ABN 61 007 747 748

Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description

BER — ALDI DISTRIBUTION FACILITY
BERESFIELD NSW

Project Number 10203002

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Drawing Title — Scale

SUN STUDY - SHADOW DIAGRAMS — 1 : 2000

Drawing Number — Issue

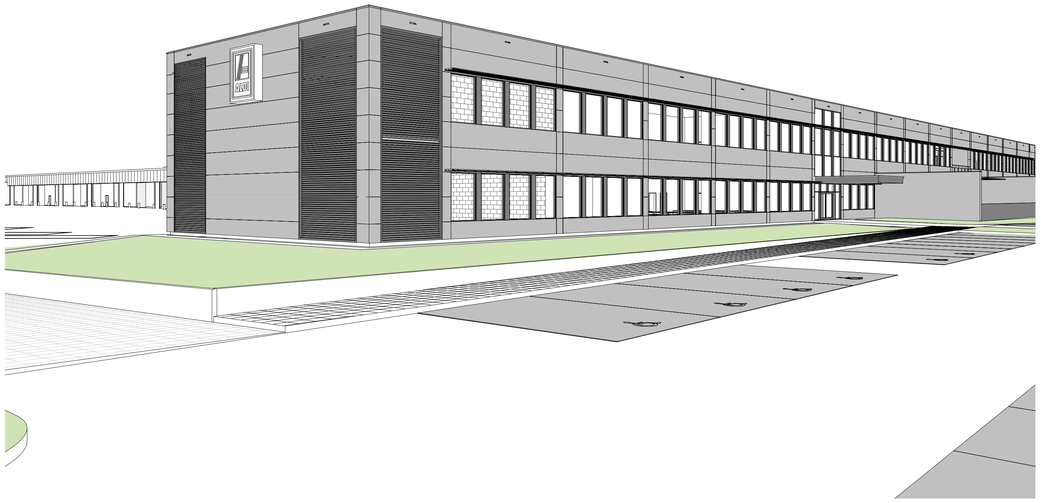
BER-A-2030-0006W — A

PRELIMINARY

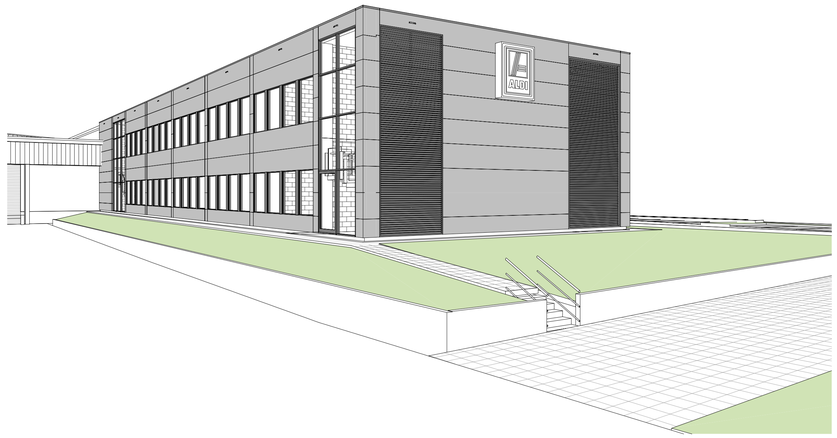
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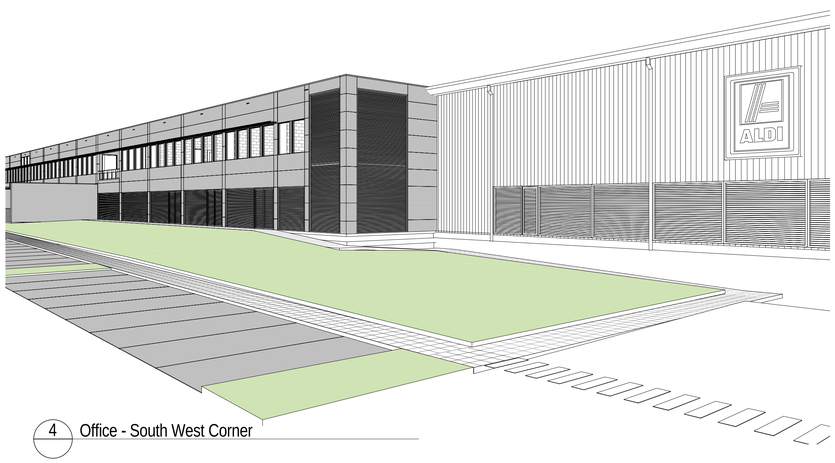
1 Carpark to Main Office Entry and Break out Space



2 Office - North East Corner



3 Office - South East Corner



4 Office - South West Corner



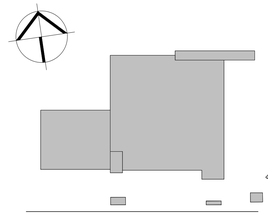
5 Office - Break Out Space and Balcony

PRELIMINARY

NOTES

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Issue	Revision Description	Date
E	PRLIMINARY EA SET	28/07/2010
D	PRELIMINARY	20/07/10
C	PRELIMINARY	13/07/10
B	PRELIMINARY	06/07/10
A	PRELIMINARY	29/06/10

Project Management
APP
07 4928 7600
SUITE 2, LEVEL 4, 6 NEWCOMEN STREET
NEWCASTLE NSW 2300

Quantity Surveyor
DAVIS LANGDON
02 9956 6822
LEVEL 5, 100 PACIFIC HIGHWAY
NORTH SYDNEY NSW 2060

Structural & Civil
ROBERT BIRD GROUP
02 8246 3200
LEVEL 5, 9 CASTLEREAGH STREET
SYDNEY NSW 2000

Mechanical, Fire, Electrica, Hydraulicsl
WOOD & GRIEVE ENGINEERS
02 8484 7000
LEVEL 3, 454-456 PACIFIC HWY
ST. LEONARDS, NSW 2065

BCA Consultant
PHILIP CHUN
02 9412 2322
SUITE 404, 44 HAMPDEN ROAD
ARTARMON NSW 2064

Refrigeration
ISECO
03 6227 9756
8 NORWOOD TERRACE
TAROONA TAS 7053

Environmental
ERM
02 4964 2150
53 BONVILLE AVENUE
THORNTON NSW 2322

Traffic
COLSTON BUDD HUNT KAFES
02 9411 2411
SUITE 801 - TOWER A ZENITH CENTRE
821 PACIFIC HIGHWAY

Planner
ADW Johnson
02 49738 5100
7/335 HILLSBOROUGH ROAD
WARNERS BAY NSW 2282

Client
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Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description
ALDI DISTRIBUTION FACILITY
BERESFIELD NSW

BER

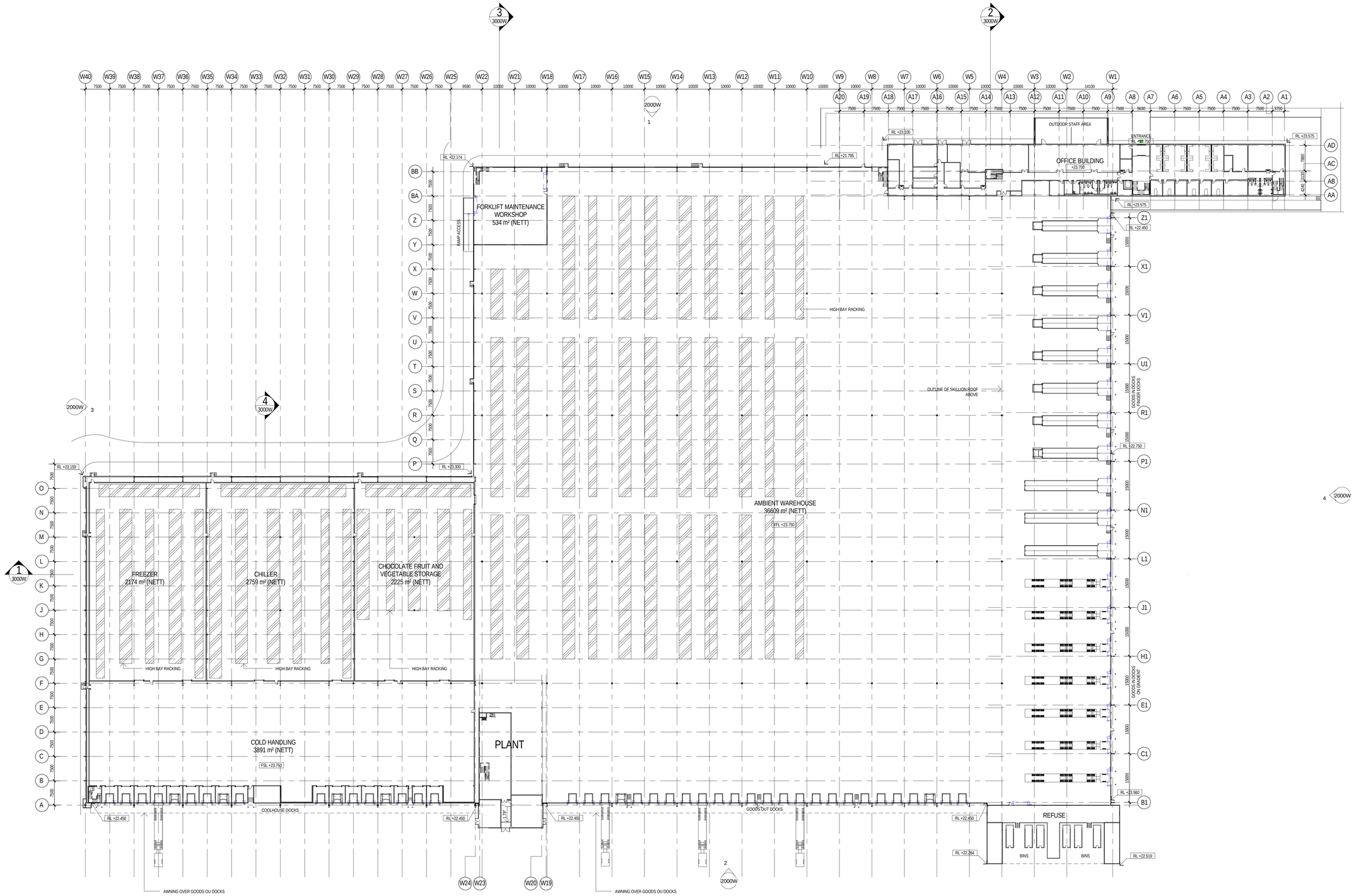
Project Number 10203002

Drawing Title
PERSPECTIVES - OFFICE BUILDING

Scale

Drawing Number
BER-A-2030-0010W

Issue
E



1 2000W — Proposed Ground Floor Plan
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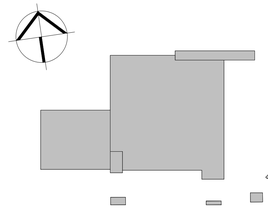
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PRELIMINARY

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Key Plan.



Issue	Revision Description	Date
E	PRLIMINARY EA SET	29/07/2010
D	PRELIMINARY	20/07/10
C	PRELIMINARY	13/07/10
B	PRELIMINARY	06/07/10
A	PRELIMINARY	29/06/10

Project Management	APP 07 4928 7600 SUITE 2, LEVEL 4, 6 NEWCOMEN STREET NEWCASTLE NSW 2300
Quantity Surveyor	DAVIS LANGDON 02 9956 6822 LEVEL 5, 100 PACIFIC HIGHWAY NORTH SYDNEY NSW 2060
Structural &Civil	ROBERT BIRD GROUP 02 8246 3200 LEVEL 5, 9 CASTLEREAGH STREET SYDNEY NSW 2000
Mechanical, Fire, Electrica, Hydraulicsl	WOOD & GRIEVE ENGINEERS 02 8484 7000 LEVEL 3, 454-456 PACIFIC HWY ST. LEONARDS, NSW 2065
BCA Consultant	PHILIP CHUN 02 9412 2322 SUITE 404, 44 HAMPDEN ROAD ARTARMON NSW 2064
Refrigeration	ISECO 03 6227 9756 8 NORWOOD TERRACE TAROONA TAS 7053
Environmental	ERM 02 4964 2150 53 BONVILLE AVENUE THORNTON NSW 2322
Traffic	COLSTON BUDD HUNT KAFES 02 9411 2411 SUITE 801 - TOWER A ZENITH CENTRE 821 PACIFIC HIGHWAY
Planner	ADW Johnson 02 49788 5100 7/335 HILLSBOROUGH ROAD WARNERS BAY NSW 2282
Client	ALDI FOODS (A LIMITED PARTNERSHIP) 1 SARGENTS ROAD MINCHINBURY NSW

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Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description: ALDI DISTRIBUTION FACILITY BERESFIELD NSW

Project Number: 10203002

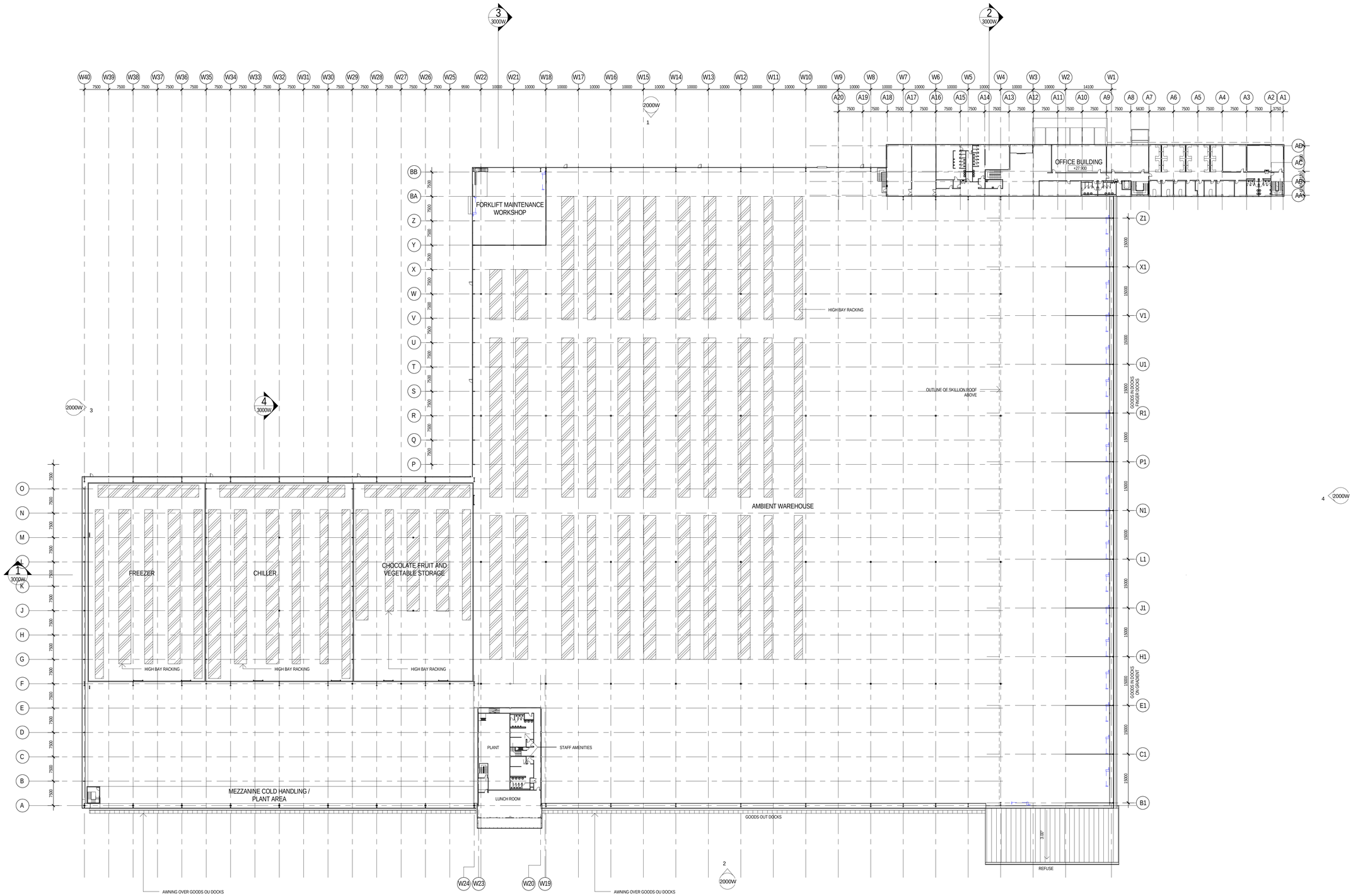
Drawing Title: PROPOSED GROUND FLOOR PLAN

Scale: 1 : 500

Drawing Number: BER-A-2030-1000W

Issue: E

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1 Proposed First Floor Plan
2000W 1 : 500

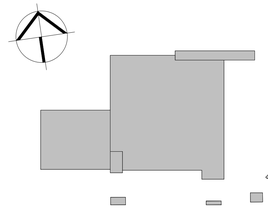
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PRELIMINARY

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Key Plan.



Issue	Revision Description	Date
E	PRLIMINARY EA SET	28/07/2010
D	PRELIMINARY	20/07/10
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B	PRELIMINARY	06/07/10
A	PRELIMINARY	29/06/10

Project Management
APP
02 4928 7600
SUITE 2, LEVEL 4, 6 NEWCOMEN STREET
NEWCASTLE NSW 2300

Quantity Surveyor
DAVIS LANGDON
02 9956 6822
LEVEL 5, 100 PACIFIC HIGHWAY
NORTH SYDNEY NSW 2060

Structural & Civil
ROBERT BIRD GROUP
02 8246 3200
LEVEL 5, 9 CASTLEREAGH STREET
SYDNEY NSW 2000

Mechanical, Fire, Electrics, Hydraulics
WOOD & GRIEVE ENGINEERS
02 8484 7000
LEVEL 3, 454-456 PACIFIC HWY
ST. LEONARDS, NSW 2065

BCA Consultant
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ARTARMON NSW 2064

Refrigeration
ISECO
03 6227 9756
8 NORWOOD TERRACE
TAROONA TAS 7053

Environmental
ERM
02 4964 2150
53 BONVILLE AVENUE
THORNTON NSW 2322

Traffic
COLSTON BUDD HUNT KAFES
02 9411 2411
SUITE 801 - TOWER A ZENITH CENTRE
821 PACIFIC HIGHWAY

Planner
ADW Johnson
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7/335 HILLSBOROUGH ROAD
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F +612 9964 9683
ABN 61 007 747 748

Drawn		Checked	
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description
BER
ALDI DISTRIBUTION FACILITY
BERESFIELD NSW

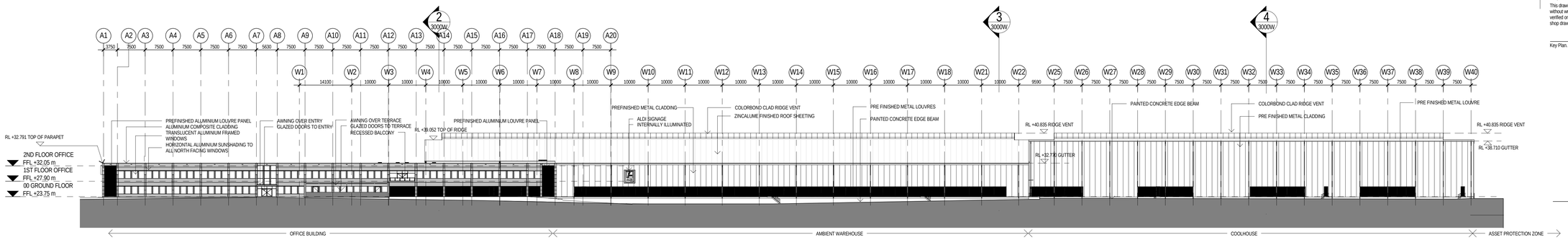
Project Number 10203002

Drawing Title
PROPOSED FIRST FLOOR PLAN

Scale 1 : 500

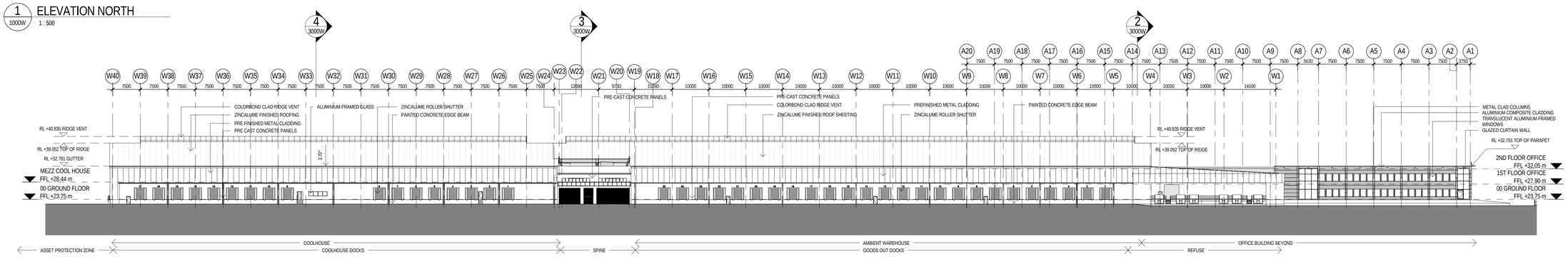
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Issue E



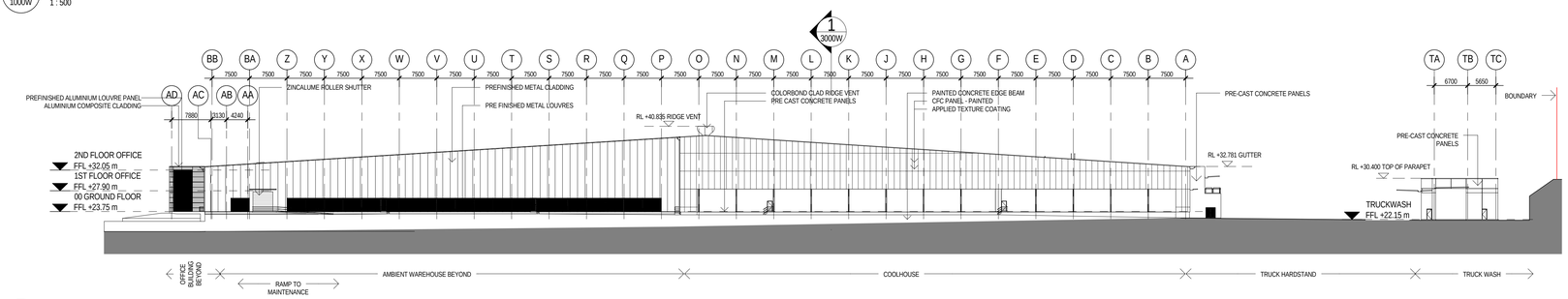
1 ELEVATION NORTH
1000W

1 : 500



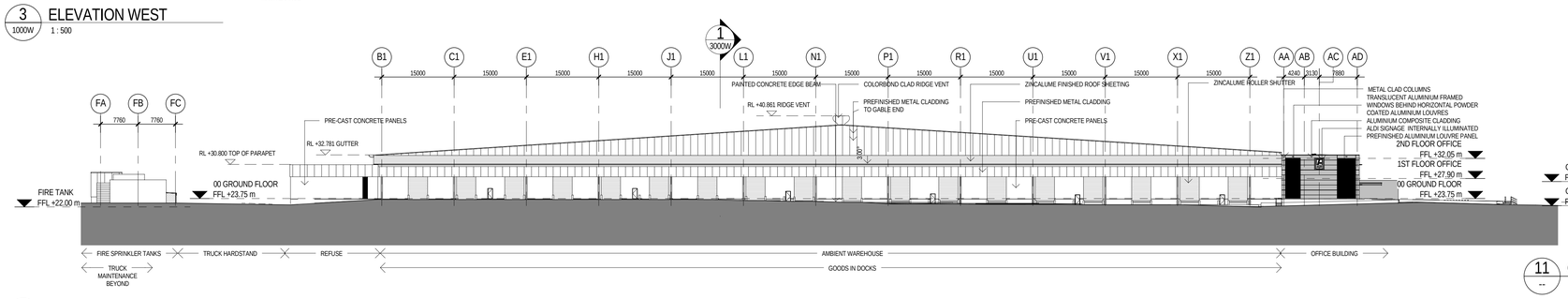
2 ELEVATION SOUTH
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1 : 500



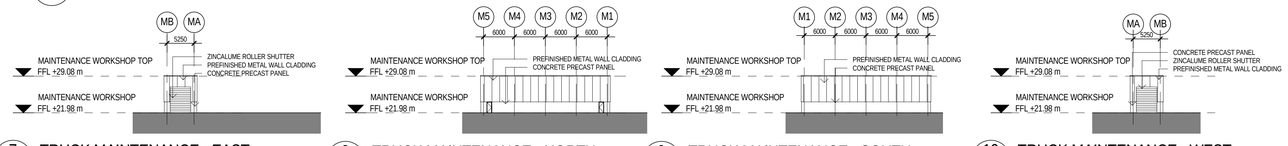
3 ELEVATION WEST
1000W

1 : 500



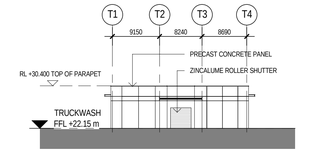
4 ELEVATION EAST
1000W

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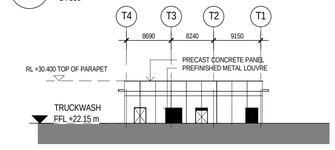
5 TRUCKWASH - NORTH
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1 : 500



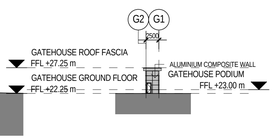
6 TRUCKWASH - SOUTH
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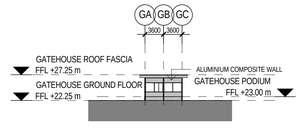
11 GATEHOUSE - NORTH
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1 : 500



12 GATEHOUSE - EAST
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1 : 500



7 TRUCK MAINTENANCE - EAST
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1 : 500

8 TRUCK MAINTENANCE - NORTH
--

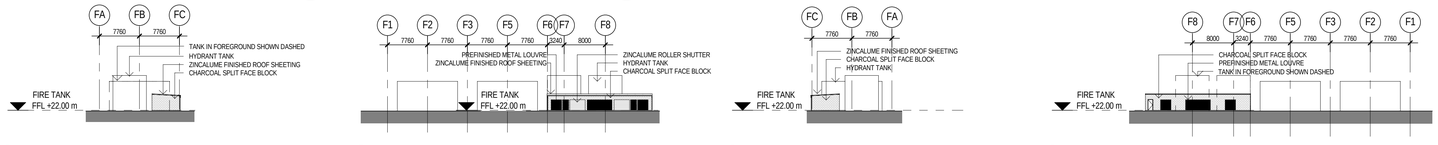
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9 TRUCK MAINTENANCE - SOUTH
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1 : 500

10 TRUCK MAINTENANCE - WEST
--

1 : 500



15 SPRINKLER TANKS - EAST
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1 : 500

16 SPRINKLER TANKS - NORTH
--

1 : 500

17 SPRINKLER TANKS - WEST
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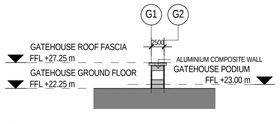
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18 SPRINKLER TANKS - SOUTH
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1 : 500

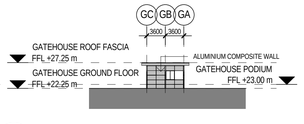
13 GATEHOUSE - SOUTH
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1 : 500



14 GATEHOUSE - WEST
--

1 : 500



0 2500 10000 20000 25000
1:500mm

PRELIMINARY

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Key Plan.

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E	PRLIMINARY EA SET	28/07/2010
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BCA Consultant	PHILIP CHUN	02 9412 2322 SUITE 404, 44 HAMPDEN ROAD ARTARMON NSW 2064
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Drawn	Author	Checked	Checker
Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description

ALDI DISTRIBUTION FACILITY
BERESFIELD NSW

Project Number 10203002

Drawing Title

PROPOSED ELEVATIONS

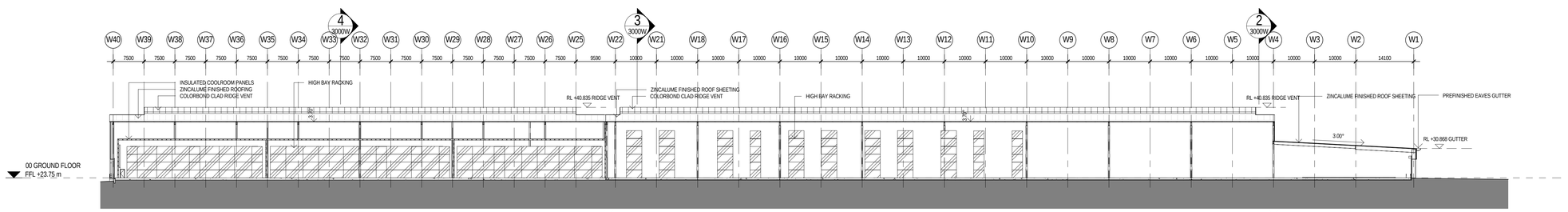
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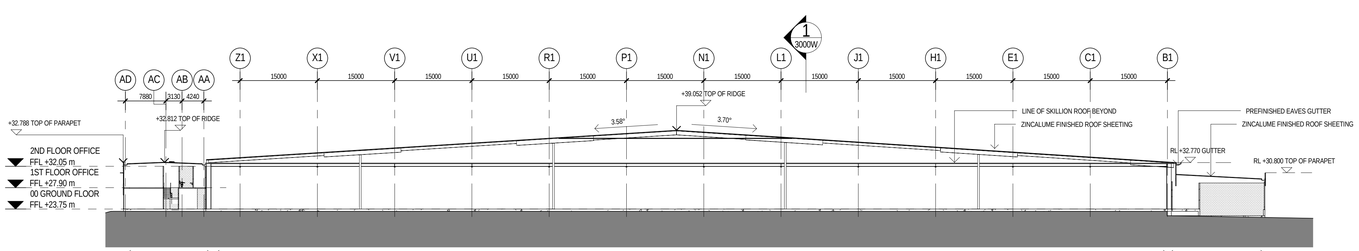
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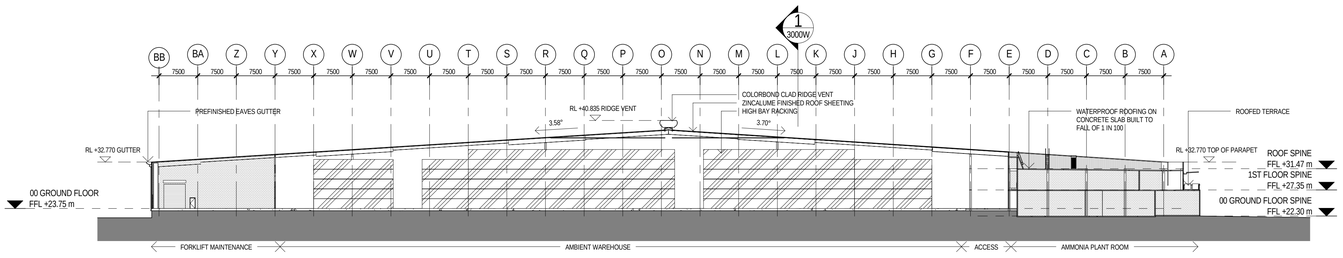
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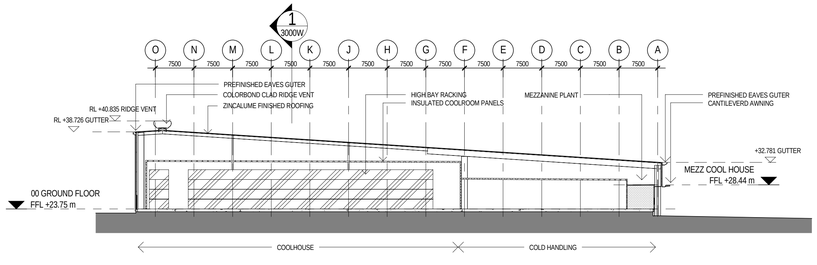
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NOTES

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Key Plan.

Issue	Revision Description	Date
E	PRLIMINARY EA SET	28/07/2010
D	PRELIMINARY	20/07/10
C	PRELIMINARY	13/07/10
B	PRELIMINARY	06/07/10
A	PRELIMINARY	29/06/10

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Design Verification		Project Director Approval	
Drawing Coordinated		Date Commenced	

Project Description
ALDI DISTRIBUTION FACILITY
BERESFIELD NSW

Project Number 10203002

Drawing Title
PROPOSED SECTIONS

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PRELIMINARY

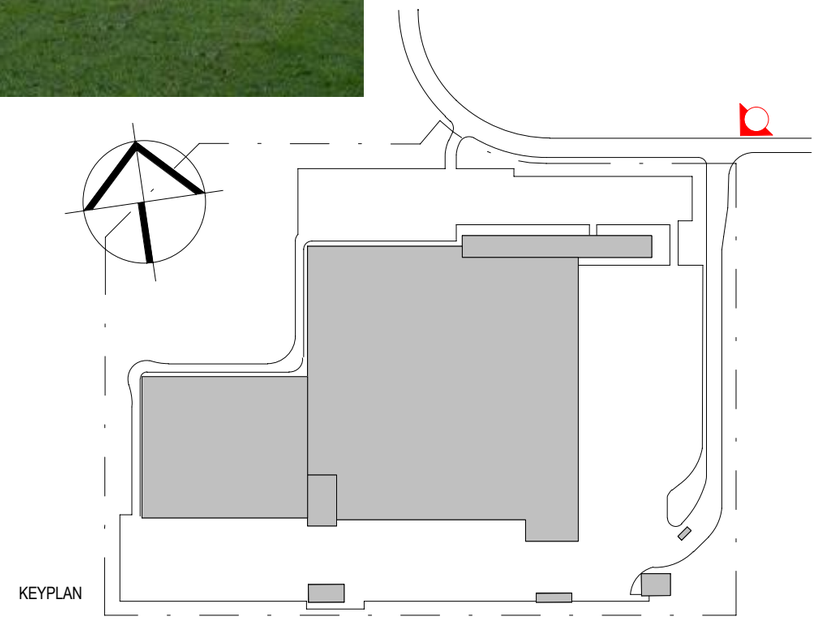
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1 Artist Impression - 1



KEYPLAN

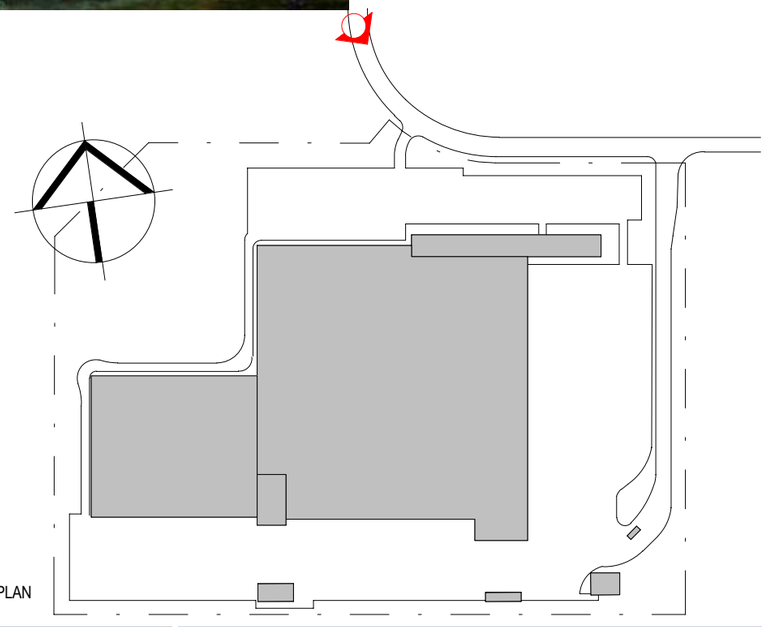
Australia
Asia
Europe

woodhead™

DRAWING TITLE: ARTIST IMPRESSION 1				
PROJECT NAME: ALDI DISTRIBUTION FACILITY BERESFIELD NSW		CLIENT NAME: ALDI FOODS (A LIMITED PARTNERSHIP)		
PROJECT NUMBER: 10203002	SCALE: NTS	DRAWING NUMBER: SK 02-08	DATE: 17/08/2010	REVISION NUMBER: A



1 Artist Impression - 2



KEYPLAN

Australia
Asia
Europe

woodhead™

DRAWING TITLE: ARTIST IMPRESSION 2

PROJECT NAME: ALDI DISTRIBUTION FACILITY BERESFIELD NSW

CLIENT NAME: ALDI FOODS (A LIMITED PARTNERSHIP)

PROJECT NUMBER:	SCALE:	DRAWING NUMBER:	DATE:	REVISION NUMBER
10203002	NTS	SK 02-09	17/08/2010	A

Appendix D

Architectural Design Statement – Woodhead Architects

Woodhead™



ALDI BERESFIELD DISTRIBUTION FACILITY

Architectural Design Statement

1.1 THE BUILDING

It is proposed to develop an ALDI Warehouse and Distribution Facility, in accordance with the ALDI distribution centre design format on a 15Ha allotment part of the Freeway North Business Park Subdivision off Weakleys Drive, Beresfield, NSW.

The Distribution Centre totals approximately 56,833m² in area (F.E.C.A) with the following components:

- Office Building Ground Floor. 1956m²
- Office Building First Floor 1832m²
- Ambient Warehouse 36628m²
- Refuse Area 734m²
- Forklift Maintenance Area 548m²
- Cool house 12041m²
- Mezzanine coolhouse 631m²
- Spine Ground Floor 732m²
- Spine first floor 454m²
- Sprinkler tank and associated pump rooms 747m²
- Gate house 18m²
- Maintenance workshop 154m²
- Truckwash / Fuel Fill 356m²

The Facility includes:

Loading areas include 25 docks for the loading of outgoing goods and 18 docks for incoming goods. Loading docks will be located along the southern and eastern facades of the building not visible from the new subdivision road. Coolhouse loading docks will also be on the south elevation.

An office/administration building will occupy approximately 3788 m^2 over two levels and will provide space for regional management, general administration, property and store management, plant and archive rooms. The office/administration building will also provide staff locker and change facilities and staff amenity areas.

Adjacent to the office/administration building just off the new subdivision road will be the staff and visitor carpark. This will also provide for spaces for disabled parking as well as parking bays for bicycles and motorcycles.

Substantial truck hardstand areas located to the south and east of Warehouse and Coolhouse will also be provided as part of this facility.



Figure 1 – Aerial View of ALDI Prestons (NSW) Distribution Centre showing overall arrangement and finishes similar to Beresfield. Note: Office Building in foreground with Goods In docks on right hand side. Note Prestons has higher roof height than that proposed for the Beresfield Distribution Centre.

1.2 BUILT FORM

The ALDI Distribution Facility design developed for Australia incorporates the interior layout from worldwide facilities but with a uniquely Australian exterior appearance. The design intent of the warehouse and offices is essentially to remain consistent with the high standard of design and construction of existing ALDI Distribution Facilities in Australia, an example of which is the ALDI Distribution Facility at Prestons NSW.(see Figure 1).

This is done by way of similar layout, and application of consistent materials, finishes and design elements. The reasoning behind this approach is to build upon and utilize successful elements of previous designs, and to continue to build ALDI's corporate identity through built form.

The layout of the office takes advantage of its ideal orientation. Solid components such as plant areas, toilets and stairs are placed on the eastern and western ends of the buildings to minimize solar heat gain from eastern and western sun. Clear office space then runs in between these "solar buffers". Glazing placed on the northern and southern facades enhances the internal amenity of the development by maximizing views and daylighting.

The location of the entry to the office provides an ideal central position to access the office component as a whole and ensures visibility from the carpark and presence to the new subdivision Road 1 (Canavan Drive).

Similarly truck access is provided near the North East Corner of the site with access just over 50m west of the subdivision Road 1 (Canavan Drive) intersection with Road 2 (Parish Drive).

Provision in terms of expansion has been made for future additions to the northwest of the site.

The Ambient Warehouse and Coolhouse are steel framed precast/colourbond metal clad buildings with East West central ridgeline. These components are articulated into smaller scale forms by exposed structural steel columns, Lower level concrete edge beams form a darker coloured visual building base and above this are ochre coloured exposed coloured precast concrete walls.

The office component comprises a two storey concrete framed building with aluminum panel cladding of high quality appearance. Windows are grey tinted performance glass with cantilever sunscreening to the North elevation.



Figure 2 – View of ALDI Dandenong (Victoria) Distribution Centre: Office Building showing quality of office façade and entry similar to that proposed for Beresfield Distribution Centre Note: Colours of office are similar to that proposed for ALDI Beresfield.



Figure 3 – Detailed View of ALDI Prestons (NSW) Distribution Centre Office Main Entry showing façade material, colours and sunscreening similar to that proposed for Beresfield Distribution Centre



Figure 4 – View of ALDI Prestons (NSW) Distribution Centre – Goods In Docks to Ambient Warehouse showing Docks , Truck Pavements and Warehouse Façade materials and colours similar to that proposed for Beresfield Distribution Centre.

1.3 CARPARKING

302 carspaces will be provided on site including spaces for disabled persons. Dedicated motorcycle and bicycle parking will also be provided. These numbers are based on previously built Australian ALDI facilities and have proved to be appropriate car parking numbers for staff and visitors for these types of facilities. The 302 carspaces provided compares favorably with the 240 carspaces provided at ALDI's similar warehouse facility at Prestons and the 300 spaces provided at ALDI's recently constructed Dandenong facility which is very similar in size. Refer separate Traffic Report prepared by Colston Budd Hunt and Kafes Traffic Consultants for additional information on carparking.

Designated paved pedestrian pathways are provided interlinking the street boundary with the main office front entry as well as an East- West pathway to provide a pedestrian interlinkage along the whole length of the carpark.

1.5 STREETSCAPE

The proposed site sits along a new Subdivision Road (Estate Road 1 (Canavan Drive) in the Freeway North Business park). High quality landscaping adjacent to the northern boundary of this site and fronting this road will buffer the development and the proposed carpark from the new Estate Road 1 (Canavan Drive).



Figure 5 – Perspective view taken from north east corner of proposed development showing truck access, car park and office building and indicative signage.

The location of the office building at the North East corner of the site maximizes presence to Road 1 (Canavan Drive) and allows for an aesthetically pleasing façade facing this road.

Primary car access into the carpark will be via the new car access cross over located at the North West of the site, while truck access will be provided west of Road 1 (Canavan Drive) and Road 2 (Parish Drive) intersection, at which point left in, right out lanes will be provided.



Figure 6 – Perspective view taken from new access road 1 (Canavan Drive) looking at north west corner of proposed development showing car access, ambient warehouse and office building and indicative pylon signage.

1.5 BUILDING HEIGHT AND FLOORSPACE

The height of an ALDI Distribution Facility at roof ridge is approximately 17 metres above the floor level to top of ridge vent.

Table A provides a summary of key development information relating to the proposal.

Table A – Key development information (F.E.C.A. Measurements)

Component	Proposal
Office Building Ground Floor.	1956m²
Office Building First Floor	1832m²
Ambient Warehouse	36628m²
Refuse Area	734m²
Forklift Maintenance Area	548m²
Cool house	12041m²
Mezzanine coolhouse	631m²
Spine Ground Floor	732m²
Spine first floor	454m²
Sprinkler tank and associated pump rooms	747m²
Gate house	18m²
Maintenance workshop	154m²
Truck Wash / Fuel Fill	356 m²

1.6 SIGNAGE

Reinforcing the strong corporate identity of ALDI Foods Pty Ltd, appropriate logo signage will be placed at integral points of the design. This will comprise two 5.5m high internally illuminated pylon signs to identify the separate truck and carparking entries to the facility as well as the provision of key branding via wall mounted internally illuminated ALDI logos to the façade. ALDI will also provide appropriate way finding signage to optimize the separate car and truck flows within the site. The pylon signs will include small non illuminated traffic guidance signs to identify carpark access and various areas of the Distribution Facility.

1.7 STAFF AMENITIES

Staff amenities will predominantly be housed within the office component of the design and will include:

- Office amenities ie WCs, Toilets, Tearooms for office staff
- WCs, showers and lockers to cater for ambient warehouse staff of approximately 94 females and 96 males.
- Staff common room, including kitchen and internal dedicated lunch rooms.
- Sheltered outdoor staff breakout area off the office and warehouse staff common room.
- Additional South facing first floor amenities area with outdoor terrace will be provided to the southern end of the Plant Area for Coolhouse staff and ALDI truck drivers.
- Separate WC amenities will be provided for Truck Drivers (non ALDI truck drivers).

1.8 VISUAL IMPACT AND AMENITY

The proposed Distribution Facility is located within a designated industrial subdivision (ie. South Beresfield Industrial Precinct). Landscaping within the site, including carparking areas and around buildings will be designed to maximize visual amenity of the site from the adjacent Subdivision Road 1(Canavan Drive) and surrounding sites.

The site has limited street frontage with only the northern boundary located against a street. By purposely locating the offices and landscaped carpark area to this street frontage, the proposed development provides a high quality corporate office aesthetic for public view.

Loading docks are located facing East (shielded from the street by the Office building and from neighboring industrial developments by a 10 metre landscape strip) or South which are also not visible from the street.

The proposed exterior finishes and materials for the construction are listed in Table B below and follow ALDI's corporate theme for Australian Distibution Centres. Refer to photos of ALDI Prestons and Dandenong Distribution Centres included in this report which used finishes and colours as those proposed for Beresfield.

Refer also to Architectural drawings accompanying this application.

Table B – External materials and finishes

Material	Finish
Metal wall cladding **-** Office	Prefinished – Colour: Metallic Silver
Profiled metal parapet/trim **-** Office	Prefinished – Colour: Metallic Silver
Precast concrete panels – Warehouse/Coolhouse	Coloured finish: Yellow/Ochre colour
Coolhouse steel columns – Warehouse/Coolhouse	Paint finish – Light Grey
Aluminum framing to glazing	Powdercoat – Colour: Dulux Old Pewter Grey
Double glazing to offices	Neutral grey performance glass
Aluminum louvres (plant/warehouse areas)	Powdercoat – Colour: Old Pewter Grey/Bluescope Steel “Vatican Grey”
Metal roof sheeting	Zincalume unpainted
Metal Wall Cladding **–** warehouse/coolhouse	Colorbond: Bluescope Steel “Vatican Grey”
Roller shutters	Zincalume/Unpainted



Figure 7 – View of ALDI Prestons Distribution Centre showing Goods Out Docks and Truck Pavements and Truck Wash Building. Note Docks, Warehouse and Truck Wash façade materials and colours for Beresfield Distribution Centre will be similar.



Figure 8 View of ALDI Dandenong (Victoria) Goods Out and Coolhouse Docks with Truck Wash building (on left hand side of photo). Also note high quality landscaping to facility.

1.9 LANDSCAPING

The site of the new ALDI Distribution Centre in Beresfield, near Maitland NSW is part of the South Beresfield Industrial Precinct. The site is currently vegetated with Lower Hunter Spotted Gum – Ironbark Forest. The project site is intended to be cleared of all existing vegetation and regraded to form a cut and fill platform as part of an approval obtained by the vendor of the site. Endemic species are proposed to be used as replacement planting around the boundary of the site affected by the clearing and earthworks.

The existing site topography is gently sloping towards the eastern boundary. A predominantly native landscape character will be implemented with local endemic tree selections and low maintenance native grassland, providing a water wise, natural landscape treatment complimentary with the adjacent woodland setting. Site top soils will be stored for re-use in the landscape works where possible and a low water planting regime will be adopted. The majority of the site will not be irrigated, with irrigation restricted to the feature exotic and native combination planting around the carpark and office building. The overall landscape concept will offer a pragmatic solution to rehabilitating the site with long term management and sustainability in mind. A new road (Canavan Drive) will be constructed by the Vendor to service the development. The landscape works associated with the road construction are outside the scope of this project.

Feature landscaping surrounding the office and carpark will be irrigated via large capacity onsite roof water storage tanks located underground. These tanks will collect roof water for reuse as landscape irrigation and truck wash water and also for toilet flushing.

1.9.1 PLANTING CONCEPT

The plant species selection will predominantly be a native woodland character with endemic native trees and native grasses. Shrub planting will be used to locations where access for mower maintenance is not achievable due to level restrictions. High quality material selections will complement the architecture providing a practical and low management regime.

A high level of landscape amenity will be provided to the office building entry, ground level staff lunch area and associated breakout spaces. Nominated species including Grevillea 'Honey Gem', Phormium tenax 'Purpurea' (Purple Flax), Photinia robusta (Photinia), Juniperus horizontalis (Creeping Juniper) and Lomandra longifolia 'Tanika' will be low maintenance and drought tolerant in keeping with the surrounding site character, however species will be carefully selected to also provide a variety of colour and texture to create a feature landscape. The planting will reflect the drainage characteristics of the site within the landscape. Plant and tree selections for the native buffer planting to all four boundaries will be drawn from locally endemic species with proven performance appropriate to the site conditions. These species have been identified from the Ecological Report prepared by Ecohub Pty Ltd and will include Corymbia maculata (Spotted Gum), Eucalyptus crebra (Narrow-leaved Ironbark) and Eucalyptus punctata (Grey Box) with an understorey to include Melaleuca linariifolia (Snow-in-Summer) and Melaleuca stypheloides (Prickly-leaved paperbark). It is intended to create a low management maintenance regime to the hydroseeded areas by developing a seed mix which is appropriate to the site and adheres to maintenance requirements.

The Preliminary Ecological Report by Ecohub Pty Ltd ecological consultants (prepared for rezoning in 2007) outlines the species found on site as part of the Lower Hunter Spotted Gum Ironbark Forest. Newcastle City Council have also prepared a Plant Matrix (5.3 Western Suburban Zone) which outlines a number of species which may be suitable for the area including those which are indicative to the Hunter Valley. These lists have been used as a guide, as well as review of species planted in other ALDI sites, to prepare a plant species list for the project.

1.9.2 CAR PARK LANDSCAPING

Bands of native tree planting will be provided along the northern frontage of the carpark to provide a landscape screen. Deciduous specimen trees will be used in the carpark planters to provide shade for vehicles including Jacaranda mimosifolia (Jacaranda) and Sapium sebiferum (Chinese Tallowood). The carpark surface will be bitumen, with feature coloured paving to the pedestrian paths in the car parking areas. The car park will be terraced with 900mm maximum high split faced coloured concrete block work walls. Planting will be placed atop the wall with hedging closest to the edge for safety. Pedestrian paths will provide access along the bottom of the walls to the main pedestrian routes to the office. The landscape will enhance the amenity of the site and optimise solar management to the northern aspect of the office building. The carpark landscape will be irrigated using a sub terrain drip irrigation system using harvested water from the proposed buildings roof.

1.9.3 ENTRY DRIVE AND SECURITY

Entry to the site will be from the east via the new access road with pylon mounted ALDI signage denoting the site entry. The northern boundary will incorporate a combination of low maintenance hydroseeding with organic shaped bands of native tree plantings as an entry feature to the site, reflective of the existing woodland vegetation adjacent to the site. The landscape treatment and signage will be integral with the boundary fencing. A palisade metal fence will flank the entry along the new subdivision road and will transition into a black PVC coated chain wire fence to secure the balance of the site on the southern, eastern and western boundaries. The truck and car vehicular access points are separate crossover entries from the new access road controlled by a Gatehouse and boom gates with intercom for truck and car access respectively. A separate pedestrian accessway from the street boundary through the carpark direct to the office building main entry will be provided.

1.9.4 OFFICE BUILDING

The design intent is to optimise the solar aspect to the north with a structured landscape which reinforces the building entry and carpark infrastructure. The landscape which surrounds the office building will be visually appealing from the higher levels, and will provide colour and interest as a feature around the building through a layered planting layout of hedging, grasses, and tree planting. A 1.5m wide coloured concrete paver path will provide pedestrian/service access around the office building.

1.9.5 BREAK OUT SPACE

The Staff break out space is located between staff lunch room amenities and the carpark. Simple formalised planting will enclose the space and accent planting will provide visual interest. The northern location of the break out spaces will optimise environmental amenity, providing an ideal location for indoor/outdoor staff amenity. This area will be hard paved with quality outdoor furniture. The landscape treatment adjoining to the terrace will provide visual screening to the carpark whilst optimising solar access. The pedestrian pathway lies adjacent to the the Break Out Space with a planter with ornamental shrubs providing a visual buffer from and a feature edge between the staff outdoor lunch area and the carpark.

1.9.6 ASSET PROTECTION ZONE (APZ)

The western boundary of the site requires a Bushfire Asset Protection Zone (APZ) as dense bushland will be retained on the adjacent property into the future. The APZ will need to conform to landscape planting recommendations as listed in the Planning for Bushfire Protection document published by the NSW Rural Fire Service. The species will be native species, planted at minimum mature canopy spacing of 2m, with the mature canopy no closer than 5m from the edge of the building. The landscape planting zone between the perimeter fire access road and the boundary will form the Outer Protection Zone for the site, with small groups of grasses and shrub understorey which can be easily maintained to reduce leaf litter to the ground plane.

1.10 OUTDOOR LIGHTING

Outdoor Lighting will be unobtrusive and functional. Typically outdoor lighting will comprise:

- Wall mounted low powered lights to egress door ways and to outdoor staff areas.
- Internally Illuminated pylon signage 5.5m high to truck entry, and carpark entry.
- Internally illuminated ALDI logo façade signage.
- Soffit lights to main entry awning.
- Low height bollard lighting adjacent office building to provide way finding at night.
- Carpark security lighting comprising typically 12m high pole mounted high efficiency fittings shining downwards.
- Truck pavement lighting comprising 12m pole mounted downward facing high efficiency lighting to provide appropriate levels of lighting to the Goods In and Goods Out truck pavements as well as main vehicle access way.

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Appendix E

Landscape Design Plan & Report – SCAPE



WESTERN BOUNDARY
- Endemic tree and grass species to be sourced or matched from adjacent woodland as appropriate;
- Embankment planted with trees at top of slope;
- Understorey to be hydroseeded with low maintenance native grasses to remainder of slope above retaining wall;
- Asset Protection Zone provided with native tree species planted with a mature canopies spacing of 2m and maintained no less than 5m from the edge of the building.

Hydroseeded low maintenance native grasses

NORTHERN BUFFER
- 18.0m wide buffer along boundary featuring groups of native trees;
- Hydroseeded understorey bands of native shrubs and low maintenance native grasses;
- Low swale to collect stormwater from the proposed culvert

MAIN CAR PARK ENTRANCE
- Ornamental trees and shrubs with seasonal interest to frame entrance to carpark and signage;
- Visibility splays maintained over low feature shrub planting.

CAR PARK
- Exotic trees and shrubs species with low water needs planted to carpark to minimise irrigation requirements;
- Stylestone path linking the road, through carpark to office for pedestrian access;
- 1.2m wide pathway between car parking bays, integrated with low hedge planting.

Main office entry

FEATURE PLANTING
- Exotic trees and shrubs to provide seasonal interest around office building;
- Formalised planting with hedges and selected tree species will aid screening of the car park while maintaining solar access;
- Species with low water needs planted to minimise irrigation requirements.

6.0m wide TurfPave emergency access route

Main truck entry

SOUTHERN BOUNDARY
- Endemic tree and grass species to be sourced or matched from adjacent woodland as appropriate;
- Embankment planted with trees at top of slope;
- 1:4 Embankment reinforced with geotextile;
- Understorey to be hydroseeded with low maintenance grasses to remainder of slope above retaining wall.

FIRE TANKS
- Dense 6.0m height minimum planting to screen fire tanks;
- 1.5m gravel strip to perimeter of tanks for maintenance access.

EASTERN BOUNDARY
- Avenue of native trees beside access road above retaining wall;
- Dense native tree and shrub planting along boundary to screen adjacent development;
- Understorey to be planted as semi-mature specimens to aid screening function.

TRUCK ENTRY DRIVE
- Median between driveway and hardstand to be avenue of Populus trees to create an avenue with the native planting to the boundary;
- Understorey to be low native grasses.

0 5 10 20 30 50M

STAGE 1 LANDSCAPE CONCEPT PLAN 1:1000

ALDI BERESFIELD
DESIGN STATEMENT – Concept Design Phase

INTRODUCTION
The site of the new ALDI Distribution Centre in Beresfield, near Maitland NSW is part of the South Beresfield Industrial Precinct. The site is currently vegetated with Lower Hunter Spotted Gum – Ironbark Forest. The project site is intended to be cleared of all existing vegetation and regraded to form a cut and fill platform as part of an approval obtained by the vendor of the site. Endemic species are proposed to be used as replacement planting around the boundary of the site affected by the clearing and earthworks.

The existing site topography is gently sloping towards the eastern boundary. A predominantly native landscape character will be implemented with local endemic tree selections and low maintenance native grassland, providing a water wise, natural landscape treatment complimentary with the adjacent woodland setting. Site top soils will be stored for re-use in the landscape works where possible and a low water planting regime will be adopted. The majority of the site will not be irrigated, with irrigation restricted to the feature exotic and native combination planting around the carpark and office building. The overall landscape concept will offer a pragmatic solution to rehabilitating the site with long term management and sustainability in mind. A new road will constructed by the vendor to service the development. The landscape works associated with the road construction are outside the scope of this project.

PLANTING CONCEPT
The plant species selection will predominantly be a native woodland character with endemic native trees and native grasses. Shrub planting will be used to locations where access for mower maintenance is not achievable due to level restrictions. High quality material selections will complement the architecture providing a practical and low management regime.

A high level of landscape amenity will be provided to the office building entry, ground level staff lunch area and associated breakout spaces. Nominated species including Grevillea ‘Honey Gem’, Phormium tenax ‘Purpurea’ (Purple Flax), Photinia robusta (Photinia), Juniperus horizontalis (Creeping Juniper) and Lomandra longifolia ‘Tanika’ will be low maintenance and drought tolerant in keeping with the surrounding site character, however species will be carefully selected to also provide a variety of colour and texture to create a feature landscape. The planting will reflect the drainage characteristics of the site within the landscape. Plant and tree selections for the native buffer planting to all four boundaries will be drawn from locally endemic species with proven performance appropriate to the site conditions. These species have been identified from the Ecological Report and will include Corymbia maculata (Spotted Gum), Eucalyptus crebra (Narrow-leaved Ironbark) and Eucalyptus punctata (Grey Box) with an understorey to include Melaleuca linariifolia (Snow-in-Summer) and Melaleuca stypheloides (Prickly-leaved paperbark). It is intended to create a low management maintenance regime to the hydroseeded areas by developing a seed mix which is appropriate to the site and adheres to maintenance requirements.

The Preliminary Ecological Report by Ecohub Pty Ltd ecological consultants (prepared for rezoning in 2007) outlines the species found on site as part of the Lower Hunter Spotted Gum Ironbark Forest. Newcastle City Council have also prepared a Plant Matrix (5.3 Western Suburban Zone) which outlines a number of species which may be suitable for the area including those which are indicative to the Hunter Valley. These lists have been used as a guide, as well as review of species planted in other ALDI sites, to prepare a plant species list for the project.

CAR PARK
Bands of native tree planting will be provided along the northern frontage of the carpark to provide a landscape screen. Deciduous specimen trees will be used in the carpark planters to provide shade for vehicles including Jacaranda mimosifolia (Jacaranda) and Sapium sebiferum (Chinese Tallowood). The carpark surface will be bitumen, with feature paving to the pedestrian paths in the car parking areas. The car park will be terraced with 900mm maximum high split faced coloured concrete block work walls. Planting will be placed atop the wall with hedging closest to the edge for safety. Pedestrian paths will provide access along the bottom of the walls to the main pedestrian routes to the office. The landscape will enhance the amenity of the site and optimise solar management to the northern aspect of the office building. The carpark landscape will be irrigated using a sub terrain drip irrigation system using harvested water from the proposed buildings roof.

ENTRY DRIVE AND SECURITY
Entry to the site will be from the east via the new access road with ALDI signage denoting the site entry. The northern boundary will incorporate a combination of low maintenance hydroseeding with organic shaped bands of native tree plantings as an entry feature to the site, reflective of the existing woodland vegetation adjacent to the site. The landscape treatment and signage will be integral with the boundary fencing. A palisade metal fence will flank the entry along the new subdivision road and will transition into a black PVC coated chain wire fence to secure the balance of the site on the southern, eastern and western boundaries. The truck and car vehicular access points are separate crossover entries from the new access road, with a separate pedestrian entry through the carpark direct to the office building.

OFFICE BUILDING
The design intent is to optimise the solar aspect to the north with a structured landscape which reinforces the building entry and carpark infrastructure. The landscape which surrounds the office building will be visually appealing from the higher levels, and will provide colour and interest as a feature around the building through a layered planting layout of hedging, grasses, and tree planting. A 1.5m wide coloured paver path around the office building will provide pedestrian/service access.

BREAK OUT SPACE
The break out space is located between staff lunch amenities and the carpark. Simple formalised planting will enclose the space and accent planting will provide visual interest. The northern location of the break out spaces will optimise environmental amenity, providing an ideal location for indoor/outdoor staff amenity. This area will be hard paved with quality outdoor furniture. The landscape treatment adjoining to the terrace will provide visual screening to the carpark whilst optimising solar access. The pedestrian pathway lies adjacent to the Break Out Space with a planter with ornamental shrubs providing a visual buffer from and a feature edge between the two zones for the staff.

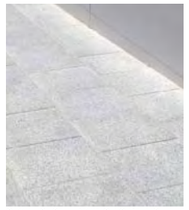
ASSET PROTECTION ZONE (APZ)
The western boundary of the site requires a Bushfire Asset Protection Zone as dense bushland will be retained on the adjacent property into the future. The APZ will need to conform to landscape planting recommendations as listed in the Planning for Bushfire Protection document published by the NSW Rural Fire Service. The species will be native species, planted at minimum mature canopy spacing of 2m, with the mature canopy no closer than 5m from the edge of the building. The landscape planting zone between the perimeter fire access road and the boundary will form the Outer Protection Zone for the site, with small groups of grasses and shrub understorey which can be easily maintained to reduce leaf litter to the ground plane.

INDICATIVE IMAGES OF SITE FINISHES (IMAGES GENERALLY FROM SIMILAR ALDI NSW & VIC FACILITIES)


TREES PLANTED IN PARKING BAYS


TUBULAR METAL SECURITY FENCE


CHARCOAL SPLIT STONE FACE FINISHED RETAINING WALL


STYLE STONE PAVING TO PATHS AROUND BUILDING

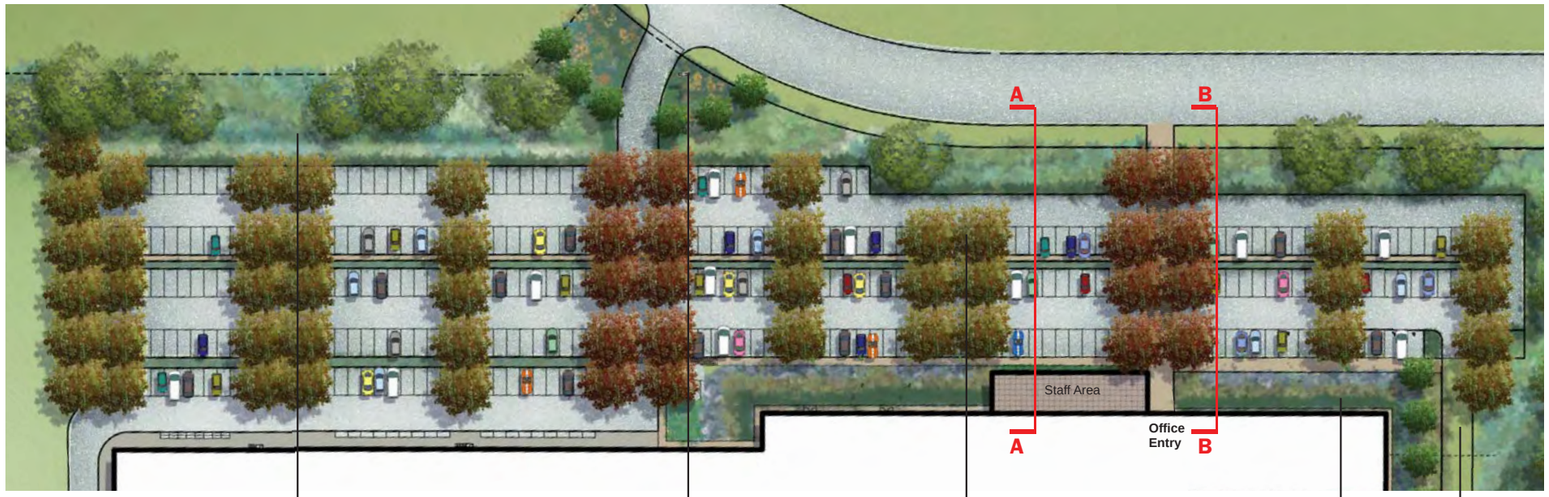

FEATURE PLANTING AROUND BUILDING

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DRAWING TITLE: LANDSCAPE MASTER PLAN
PROJECT NAME: ALDI DISTRIBUTION FACILITY
LOCATION: BERESFIELD NSW
JOB NUMBER: 20190021
SCALE: 1:1000 @ B1
DRAWING NUMBER: SK01
DATE: 28.06.10
REVISION NUMBER:



NORTHERN BUFFER
- 18.0m wide buffer along boundary featuring groups of native trees;
- Hydroseeded understorey bands of native shrubs and low maintenance native grasses;
- Low swale running west to collect stormwater from the proposed culvert.

MAIN ENTRANCE
- Small feature trees and shrubs with seasonal interest to frame entrance to carpark and signage;
- Visibility splays maintained over low feature shrub planting.

CAR PARK
- Exotic trees and shrubs species with low water needs planted to carpark to minimise irrigation requirements;
- Stylestone path linking the road, through carpark to office for pedestrian access;
- 1.2m wide pathways between carparking bays, integrated with low hedge planting.

FEATURE PLANTING
- Exotic trees and shrubs to provide seasonal interest around office building;
- Formalised planting with hedges and selected tree species will aid screening of the car park while maintaining solar access;
- Species with low water needs planted to minimise irrigation requirements.

6.0m wide TurfPave emergency access route

0 5 10 15 25M

STAGE 1 CAR PARK PLAN 1:500

STAFF AREA
- Railing to edge of area in front of planter
- Planted buffer as a feature edge between staff space and car park
  - Phormium tenax
  - Trachelospermum asiaticum

PATHWAY
- Feature coloured paving slabs along front of office building beside car park

CAR PARK
- Ornamental trees with shrub planting underneath
  - Jacaranda mimisofolia
  - Sapium sebiferum
  - Dietes grandiflora
  - Trachelospermum jasminiodes

PLANTED STRIP
- Split median between parking rows with upper strip planted with hedge and ground covers
- Split faced coloured concrete block wall
- Feature coloured paving slabs along front of wall

PLANTED BUFFER
- Groups of native trees planted in buffer zone
- Hedge planting to edge of car park area
- Buffer between hedge and site boundary planted with a mix of low maintenance native shrubs and grasses
  - Banksia ericifolia
  - Callistemon citrinus
  - Grevillea 'Honey Gem'
  - Lomandra longifolia

SITE BOUNDARY

STAFF AREA | PLANTED BUFFER | PATHWAY | CAR PARK ZONE | PLANTED STRIP AND PATHWAY | CAR PARK ZONE | PLANTED BUFFER

SECTION AA
SCALE 1:300

FEATURE PLANTED AREA
- Hedge planting beside access pathway
- Structured planting of ornamental and native shrubs under ornamental trees
  - Grevillea 'Honey Gem'
  - Photinia robusta
  - Phormium tenax
  - Banksia spinulosa

STEPPED ACCESS
- The car park has been divided into 2 levels requiring stepped access between levels
- Disabled access is provided by parking and dropoff to the upper level in front of the office
- An accessible route is provided along the pathways between the rows of parking

PLANTED BUFFER
- Groups of native trees planted in buffer zone
- Hedge planting to edge of car park area
- Buffer between hedge and site boundary planted with a mix of low maintenance native shrubs and grasses
  - Banksia ericifolia
  - Callistemon citrinus
  - Grevillea 'Honey Gem'
  - Lomandra longifolia

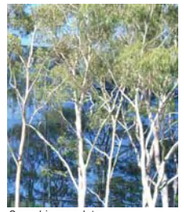
SITE BOUNDARY

PATHWAY | FEATURE PLANTED AREA | PATHWAY | CAR PARK ZONE | STEPPED ACCESS | CAR PARK ZONE | PLANTED BUFFER

SECTION BB
SCALE 1:300

RECOMMENDED PLANTING PALETTE


Angophora costata


Corymbia maculata


Eucalyptus ficifolia


Eucalyptus saligna


Eucalyptus puncatata


Jacaranda mimosifolia


Populus deltoides


Sapium sebiferum


Doryanthes excelsa


Grevillea 'Honey Gem'


Melaleuca linariifolia


Banksia ericifolia


Dietes grandiflora


Lomandra katrinus


Trachlespermum jasminoides

SPECIES SCHEDULE

Code	Botanical name	Common Name	Pot Size	Minimum Height and Spread	Spacings	Mix: percentage/ planting area
	Trees					
T1	Angophora costata	Smooth-Barked Apple	100L	2.4m		SP
T2	Casuarina cunninghamiana	River Oak	15L	1.2m		SP
T3	Corymbia maculata	Spotted Gum	100L	2.4m		SP
T4	Eucalyptus crebra	Narrow-leaved Ironbark	15L	1.2m		SP
T5	Eucalyptus ficifolia	Red Flowering Gum	45L	1.8m		SP
T6	Eucalyptus microcorys	Tallowwood	15L	1.2m		SP
T7	Eucalyptus pilularis	Blackbutt	15L	1.2m		SP
T8	Eucalyptus punctata	Grey Box	15L	1.2m		SP
T9	Eucalyptus saligna	Blue Gum	45L	1.8m		SP
T10	Jacaranda mimisofolia	Jacaranda	200L	3.5x3.0m		SP
T11	Populus deltoides	Eastern Cottonwood	100L	2.9x1.2m		SP
T12	Sapium sebiferum	Chinese Tallowwood	100L	1.2m		SP
	Mid Canopy					
	Callistemon viminalis	Weeping Bottlebrush	25L	600mm	1.0m	Individual species in groups of 4-7
	Grevillea hookerana	Hooker's Grevillea	300mm	750mm	1.0m	
	Grevillea x 'Ivanhoe'	Ivanhoe	300mm	750mm	1.0m	
	Melaleuca ericifolia	Swamp Paperbark	300mm	750mm	1.0m	
	Melaleuca linariifolia	Snow-in-Summer	25L	600mm	1.0m	
	Melaleuca nodosa	Prickly-leaved paperbark	25L	600mm	1.0m	
	Melaleuca stypheloides	Prickly-leaved paperbark	300mm	750mm	1.0m	
	Shrubs					
	Banksia ericifolia	Candle Sticks	300mm	750mm	1.0m	6%
	Banksia spinulosa	Hairpin Banksia	150mm	300mm	0.5m	6%
	Buxus japonica	Japanese Buxus	150mm	300mm	0.5m	2%
	Callistemon cintrinus	Lemon Scented Bottlebrush	300mm	750mm	1.0m	4%
	Doryanthes excesla	Gymea Lily	25L	750mm	1.0m	2%
	Grevillea 'Honey Gem'	Honey Gem	300mm	750mm	1.0m	5%
	Grevillea rosmarinifolia	Rosemary Grevillea	150mm	300mm	0.5m	4%
	Phormium tenax 'Purpurea'	Purple Flax	300mm	750mm	1.0m	3%
	Photinia robusta	Photinia	150mm	300mm	0.75m	5%
	Viburnum japonica	Japanese Viburnum	150mm	300mm	0.75m	3%
	Groundcovers					
	Dietes grandiflora	Wild Iris	150mm	300mm	0.5m	15%
	Juniperus horizontalis	Creeping Juniper	150mm	300mm	1.0m	3%
	Lomandra longifolia 'Katrinus'	Katrinus	150mm	300mm	0.5m	10%
	Lomandra longifolia 'Tanika'	Tanika	150mm	300mm	0.5m	10%
	Trachelospermum asiaticum	Yellow Star Jasmine	150mm	300mm	1.0m	1%
	Trachelospermum jasminoides	Star Jasmine	150mm	300mm	1.0m	1%
					Total	80%

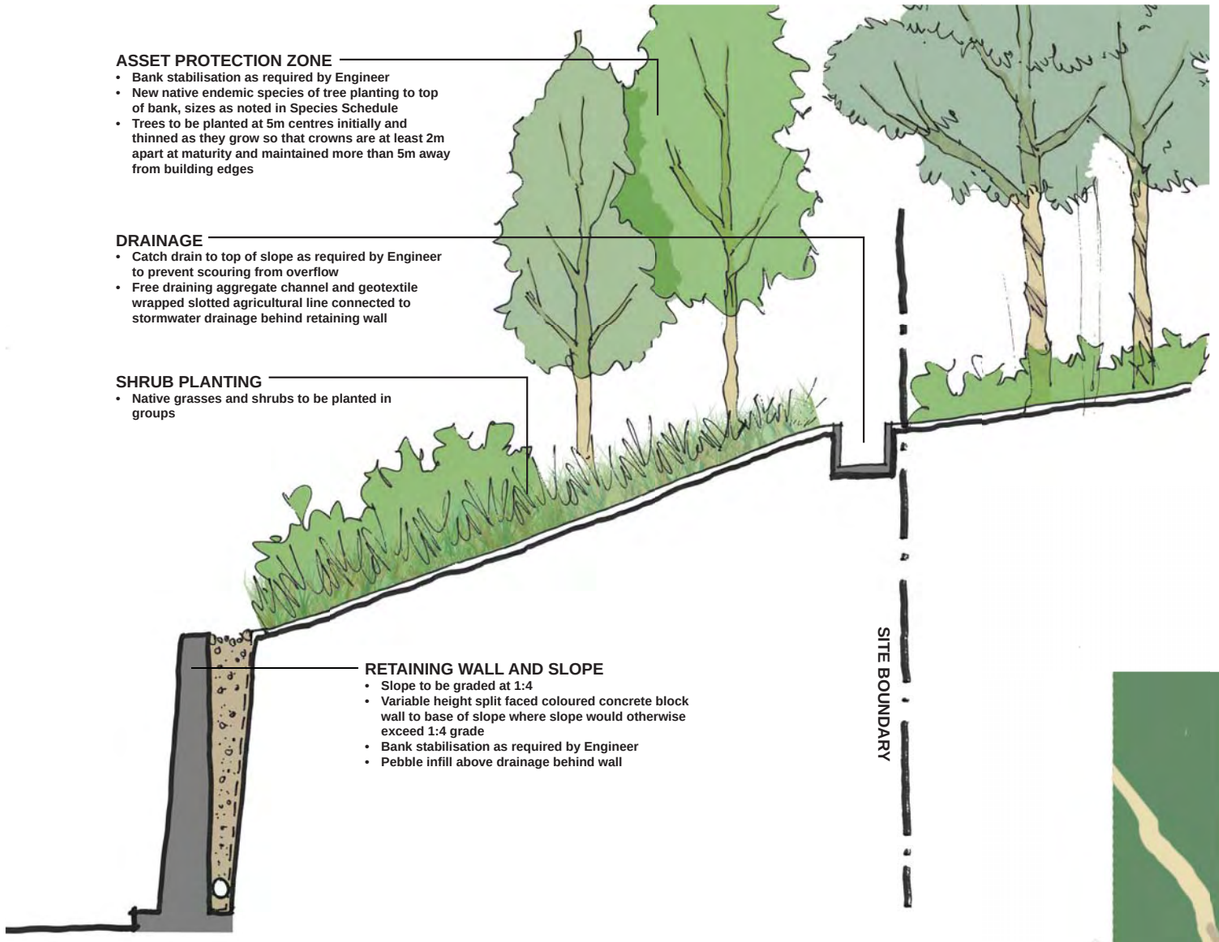
Notes:
1. The species mix percentages are estimates and require a detailed planting plan to confirm exact numbers and locations.
2. Hydroseeded grass mix to cover 13500m2 total.
3. Planted area to cover 24900m2 with the Native Buffer Area comprising 16000m2. It is proposed that mid-canopy species planted within the Native Buffer Area will be calculated as covering 20% of the total planted area with the remaining 80% planted with shrubs and ground covers.
4. The landscaped area around the Office Building and car park will receive greater density of plantings. Percentages for exotic and ornamental species relative to the overall area have been increased to accomodate this.

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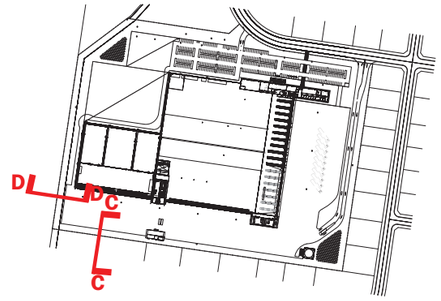
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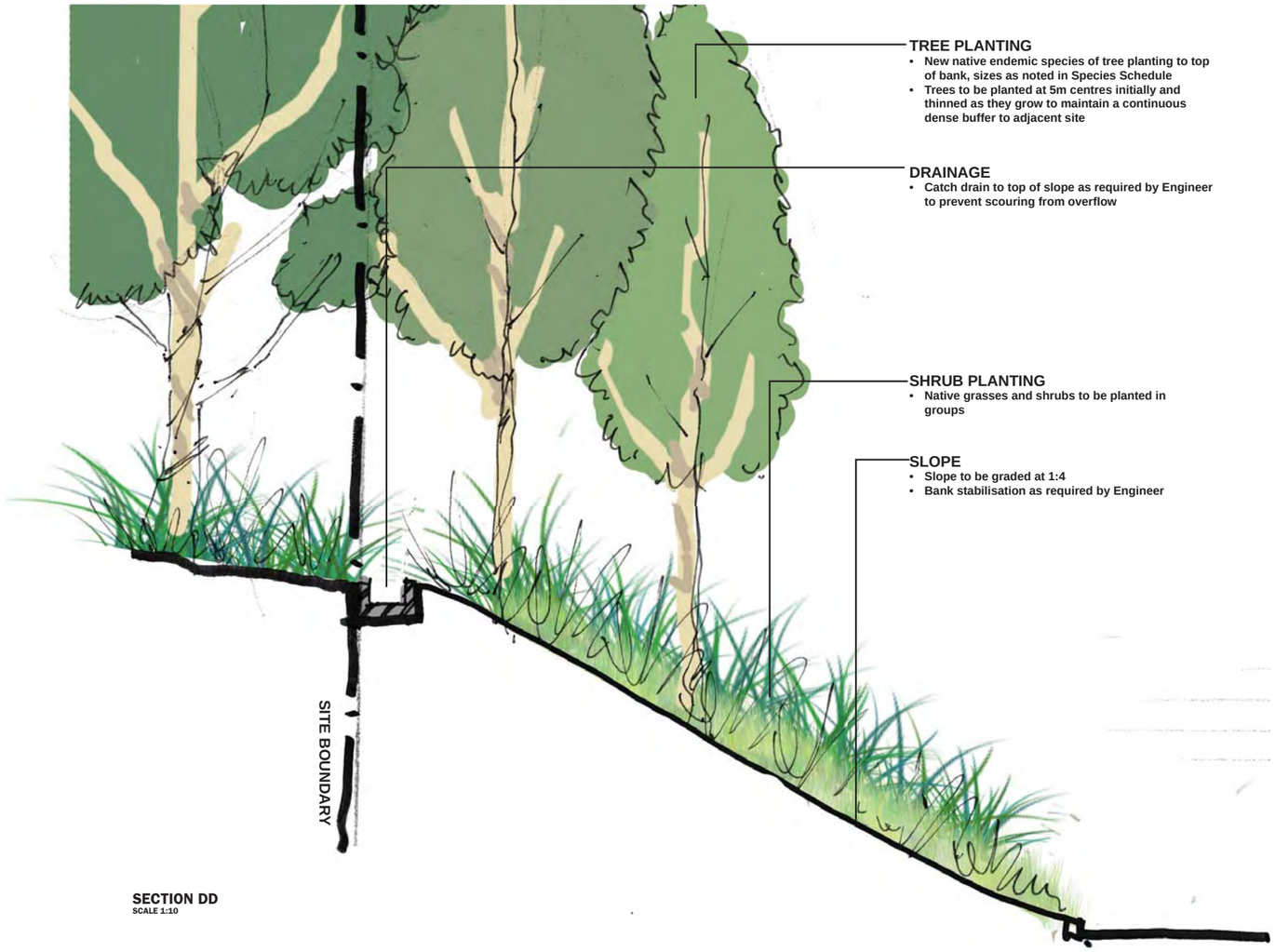
SCAPE | ALDI | woodhead TM

DRAWING TITLE: LANDSCAPE DETAIL PLAN
PROJECT NAME: ALDI DISTRIBUTION FACILITY
ADDRESS: LOT 1 DP 1242161
CLIENT NAME: ALDI STORES (A'SIA) PTY LTD
PROJECT NUMBER: 20100321 | SCALE: 1:1000 @ B1 | DRAWING NUMBER: SK02 | DATE: 28.06.10 | REVISION NUMBER:



SECTION CC
SCALE 1:10





SECTION DD
SCALE 1:10

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DRAWING TITLE
TYPICAL LANDSCAPE SECTIONS

PROJECT NAME		PROJECT NUMBER	
ALDI DISTRIBUTION FACILITY EDENSOR RD, NSW		ALDI FOODS (LIMITED PARTNERSHIP)	
PROJECT NUMBER	SCALE	DRAWING NUMBER	ISSUE
20100221	1:1000 @ B1	SK03	02.07.10



OFFICE ENTRY - ARTIST IMPRESSION

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SCAPE

ALDI

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ARTIST IMPRESSION			
PROJECT NAME: ALDI DISTRIBUTION FACILITY, MINCHINBURY, NSW		PLAN TITLE: ALDI FOODS (A DIVISION OF WOODHEAD)	
PROJECT NUMBER: 2010021	SCALE: 1:1000 @ B1	DRAWING NUMBER: SK04	ISSUE: 16.07.10



OFFICE BUILDING & FEATURE PLANTING - ARTIST IMPRESSION

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SCAPE

ALDI

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DRAWING TITLE
ARTIST IMPRESSION

PROJECT NAME		CLIENT NAME	
ALDI DISTRIBUTION FACILITY BERESFIELD NSW		ALDI FOODS & UNITED PASTRY CORP	
PROJECT NUMBER	SCALE	DRAWING NUMBER	DATE / REVISION NUMBER
20100221	1:1000 @ B1	SK05	16.07.10

Appendix F

Transport and Accessibility Assessment – Colston Budd Hunt & Kafes Pty Ltd

ALDI FOODS PTY LTD

TRANSPORT AND ACCESSIBILITY ASSESSMENT FOR PROPOSED ALDI WAREHOUSE AND DISTRIBUTION CENTRE, BERESFIELD

SEPTEMBER 2010

COLSTON BUDD HUNT & KAFES PTY LTD
ACN 002 334 296
Level 18 Tower A
Zenith Centre
821 Pacific Highway
CHATSWOOD NSW 2067

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REF: 7771/2

TABLE OF CONTENTS

1. INTRODUCTION 1
2. TRANSPORT CONTEXT 3
3. TRANSPORT AND ACCESSIBILITY ASSESSMENT 7

1. INTRODUCTION

1.1 Colston Budd Hunt and Kafes Pty Ltd has been commissioned by ALDI Foods Pty Ltd to prepare a transport and accessibility assessment for its proposed ALDI warehouse and distribution centre west of Weakleys Drive at Beresfield. The site location is shown in Figure 1.

1.2 The site is currently vacant and forms part of a larger site which has development consent for an industrial subdivision (Freeway North Business Park).

1.3 It is proposed to construct a warehouse on the site of some 56,833m^2 including an office component of some 3,788m^2. ALDI proposes to use the building as a distribution centre.

1.4 An amendment is proposed to the approved 90 lot industrial subdivision to accommodate the proposed distribution centre.

1.5 The Director-General's requirements for the project, dated 12 May 2010, include:

- ***Traffic and Parking*** *– including:*
  - *predictions of the traffic volumes likely to be generated during construction and operation;*
  - *an assessment of the predicted impacts of this traffic on the capacity, efficiency, and safety of the surrounding road network, including modelling of key intersections; and*
  - *details of access to the site and car parking requirements.*

During the preparation of the Environmental Assessment, you should consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners.

In particular, you must consult with:

- *Roads and Traffic Authority; and*
- *Newcastle City Council.*

1.6 Our assessment of the proposed development through the following chapters:

- Chapter 2 - describing the transport context; and
- Chapter 3 - setting down the transport and accessibility assessment.

2. TRANSPORT CONTEXT

Site Location and Road Network

2.1 The site is located west of Weakleys Drive at Beresfield and south of the New England Highway, as shown in Figure 1. It is some 15 hectares in size and is currently vacant. The site forms part of a larger site which has development consent for an industrial subdivision (Freeway North Business Park).

2.2 The road network in the vicinity of the site includes Weakleys Drive, New England Highway, John Renshaw Drive, the F3 Freeway and Yangan Drive/Enterprise Drive.

2.3 Weakleys Drive provides an undivided carriageway with one traffic lane in each direction, clear of intersections. It connects John Renshaw Drive and the F3 Freeway in the south with the New England Highway in the north. It also provides access to industrial development on both sides of the road.

2.4 North of the site, the New England Highway provides a generally east-west link, connecting the Pacific Highway at Hexham with Maitland and areas to the north-west. The intersection of New England Highway with Weakleys Drive is controlled by traffic signals. Through movements on New England Highway are grade separated.

2.5 South of the site, John Renshaw Drive provides an east-west connection between New England Highway in the east and Kurri Kurri in the west. The intersection of John Renshaw Drive with Weakleys Drive is controlled by a roundabout, with the

F3 Freeway forming a fourth (southern) approach to the intersection. The F3 provides a four lane divided carriageway which connects the area with the Central Coast and Sydney.

2.6 Enterprise Drive and Yangan Drive are south of the site. They provide access to industrial areas east and west of Weakleys Drive respectively. The intersection of Weakleys Drive with these roads is controlled by a roundabout.

Previous Work

2.7 As previously discussed, the site forms part of a larger site which has development consent for an industrial subdivision (Freeway North Business Park). Freeway North Business Park will provide some 45.5 hectares of industrial land.

2.8 A traffic report[1] was submitted with the application for the approved subdivision. That report assessed a traffic generation for the Freeway North Business Park of some 1,350 and 1,480 vehicles per hour two-way during weekday morning and afternoon peak hours respectively. This was based on 37.5 hectares of industrial land and eight hectares of commercial land.

2.9 The consent for Freeway North Business Park, dated 29 September 2008, includes the following conditions:

[1] "Freeway North and South Business Parks Transport Impact Assessment." Prepared for Hunter Land Pty Ltd by Maunsell Australia Pty Ltd, 20 November 2007.

B1. Weakleys Drive Intersection and RTA Roadworks Requirements

(1) A roundabout and associated works shall be designed and constructed in accordance with the RTA's Road Design Guide and relevant Austroads guidelines at the proposed new access to the Freeway North Business Park on Weakleys Drive between Balook Drive and the New England Highway, approximately in the location identified in Newcastle Council's Development Control Plan for the area, to the satisfaction of the RTA. The following shall be included, as a minimum, as part of the works:

- *The roundabout shall be constructed as a 2-lane dual circulating roundabout.*
- *Two lane approach and departures shall be provided on all legs of the roundabout.*
- *The northern leg of the roundabout on Weakleys Drive shall be extended through to the two-lane section of the Weakleys Drive grade separated interchange project, currently being undertaken by the RTA. Two-lanes northbound and southbound shall be provided between the proposed roundabout and the New England Highway interchange along Weakleys Drive. A raised central concrete median shall be included in the upgrade of the road.*
- *The southern approach leg of the roundabout on Weakleys Drive shall be extended from the roundabout to the south of the proposed left in/left out access to the Freeway North Business Park. The two-lane (northbound) approach shall be extended south beyond the left in/left out intersection to an extent to ensure safe merging /diverging of traffic northbound on Weakleys Drive.*
- *The southern departure leg (southbound) of the roundabout shall be constructed as two lanes to a length of 200m from the roundabout, excluding tapers.*

(2) The proposed left in/left out intersection to the subject site on Weakleys Drive between the proposed roundabout and Balook Drive shall be designed and constructed in accordance with the RTA's Road Design Guide and relevant Austroads guidelines with an exclusive left turn deceleration lane outside of the proposed two lane section of Weakleys Drive.

(3) There shall be no direct vehicular access to any of the proposed lots off Weakleys Drive. All vehicular access to the proposed lots shall be via the two proposed intersections on Weakleys Drive and the internal local road network.

(4) The subdivision certificate is not to be released until the proponent has fully constructed all road works on Weakleys Drive to the satisfaction of the RTA.

(5) All work associated with the proposed development shall be undertaken at full cost to the Developer.

(6) The proponent is required to enter into a Works Authorisation Deed (WAD) with the RTA. In this regard the proponent is required to submit detailed design plans and all relevant additional information, as may be required in the RTA's WAD documentation, for each specific change to the State Road network for the RTA's assessment and final decision concerning the work.

2.10 The overall traffic implications of the approved subdivision have therefore been previously assessed, and the approved road works have been identified to cater for the traffic generation of the approved subdivision, including the subject site.

2.11 The owner of the approved Freeway North Business Park subdivision will be constructing the approved road works on Weakleys Drive. As part of the agreement for purchase of the site by ALDI, these works will be in place prior to opening of the proposed ALDI distribution centre.

3. TRANSPORT AND ACCESSIBILITY ASSESSMENT

3.1 It is proposed to construct a warehouse on the site of some 56,833m^2 including an office component of some 3,788m^2. ALDI proposes to use the building as a distribution centre. On site parking will be provided for 300 cars. Vehicular access is proposed via the approved internal road network within the subdivision, from Road 1, for cars and service vehicles.

3.2 The transport and accessibility assessment is set down through the following sections:

- public transport;
- work place travel plan;
- parking provision;
- access, servicing and internal layout;
- traffic generation and effects;
- principles of construction traffic management;
- consultation;
- director-general's requirements;
- matters raised during review of adequacy; and
- summary.

Public Transport

3.3 Beresfield railway station is some 2.5 kilometres from the site. Services through Beresfield operate on the Main Northern Railway line between Newcastle and Telarah. Some three services per hour stop at Beresfield in each direction during peak hours. Other services provide connections to Scone, Muswellbrook and Dungog.

3.4 Weakleys Drive does not include bus stops and no regular services operate along Weakleys Drive. However, internal roads within the approved industrial subdivision will have the ability to accommodate potential future bus services.

Work Place Travel Plan

3.5 To encourage travel modes other than private vehicle, it is proposed to adopt a travel demand management approach, through a work place travel plan to meet the specific needs of the site and its employees. The number of employees, hours of work, shift times, etc., will be incorporated in the work place travel plan to support the objectives of encouraging the use of public transport.

3.6 The principles of the work place travel plan, to be developed by Aldi in consultation with Council, RTA and other stakeholders, will include the following:

- encourage the use of public transport, including rail services through Beresfield;
- subject to demand, provision of a shuttle bus service between Beresfield station and the site;
- work with public transport providers to improve services;
- encourage public transport by employees through the provision of information, maps and timetables;
- raise awareness of health benefits of walking (including maps showing walking routes);

- encourage cycling by providing safe and secure bicycle parking, including the provision of lockers and change facilities; and

- provide appropriate on-site parking provision, consistent with Council's controls and the government's objective of reducing traffic generation.

3.7 The travel plan may take a variety of forms including a green transport plan or preparation of a transport access guide. The work place travel plan will assist in delivering sustainable transport objectives by considering the means available for reducing dependence solely on cars for travel purposes, encouraging the use of public transport and supporting the efficient and viable operation of public transport services.

Parking Provision

3.8 Part 4.1 of the Newcastle Development Control Plan 2005 (Parking and Access) indicates that warehouses should provide parking at the greater of:

- one space per 200m^2; or

- one space per two employees.

3.9 These rates compare to those in the RTA's "Guide to Traffic Generating Developments" which suggests a parking rate of one space per 300m^2. The RTA guidelines also indicate that industrial developments can include up to 20 per cent as office area without generating a higher parking requirement. The proposed ALDI warehouse includes an office component of less than 10 per cent.

3.10 The proposed warehouse and distribution centre will have the capacity to operate 24 hours per day. The proposed development could have up to some 221 employees on site during the busiest shift (the morning shift), including some 162 warehouse employees/drivers and 59 office employees.

3.11 Based on the DCP rate of one space per 200m^2, the parking requirement is some 284 spaces. Based on the RTA rate of one space per 300m^2, the parking requirement is 189 spaces.

3.12 The Council DCP rate for offices is one space per 50m^2. If this component is treated separately, the parking requirement would be 76 spaces for the offices plus 265 spaces for the warehouse, totalling 341 spaces.

3.13 The proposed provision of 302 spaces satisfies the DCP and RTA requirement for warehouses of 284 and 189 spaces respectively. It will also readily cater for the parking demands of the 221 employees on site at one time. The proposed parking provision is therefore considered appropriate.

3.14 Newcastle DCP 2005 indicates that parking for motor cycles should be provided at a rate of one space per 20 car spaces. With 302 parking spaces proposed, 15 spaces would be required for motor cycles. 15 motor cycle parking spaces will be provided in accordance with this requirement.

3.15 Newcastle DCP 2005 indicates that bicycle parking should be provided at a rate of one space per 20 employees, for warehouses. With a maximum of 221 employees proposed, 11 bicycle parking spaces would be required. 11 bicycle parking spaces will be provided in accordance with this requirement.

Access, Servicing and Internal Layout

3.16 Vehicular access to the distribution centre is proposed via the approved internal road network within the Freeway North Business Park, from Road 1 (Canavan Drive). Separate access points are proposed for cars and service vehicles.

3.17 The eastern access will provide for trucks entering and exiting the facility. The service vehicle driveway will have separate entry and exit lanes, separated by a median. Inside the site, service vehicles will travel along a two-way circulation road prior to reaching a gate house and security point. There is queuing space to accommodate some 10 b-doubles or 14 semi trailers between Canavan Drive and the gate house.

3.18 Within the site, inbound goods will be delivered in docks on the eastern side of the building. Outbound goods will be distributed from docks on the southern side of the building. Dock aprons and manoeuvring areas will be provided to accommodate 19 metre semi trailers and 26 metre b-doubles, in accordance with the Australian Standard for Parking Facilities (Part 2: Off-street commercial vehicle facilities), AS 2890.2 – 2002.

3.19 A circulation road will be provided on the western side of the building for emergency vehicle access. This road will accommodate 12.5 metre large rigid trucks. Service vehicle swept paths, including semi trailers, b-doubles and large rigid trucks, are shown in Figures 2 to 11.

3.20 Separate access is proposed to and from the employee/visitor car park, in approximately the centre of the site. The proposed car park driveway will provide for two-way traffic. It is on the outside of a curve in Canavan Drive and thus will provide good sight lines in both directions for vehicles exiting the site.

3.21 A boom gate will control access to and from the car park. Queuing for some five to six vehicles will be provided between Road 1 and the control point, in accordance with the Australian Standard for Parking Facilities (Part 1: Off-street car parking), AS 2890.1:2004 for a car park of the size and type proposed.

3.22 Within the car park, parking spaces will be a minimum of 5.4 metres long by 2.6 metres wide, with an additional 0.3 metres width for spaces adjacent to structure to provide for doors to open. Circulation aisles will be a minimum of 5.8 metres wide. Disabled parking spaces will be a minimum of 2.4 metres wide, with an additional 2.4 metre wide area for loading/unloading a wheelchair. These dimensions are considered appropriate, being in accordance with AS 2890.1:2004 and AS 2890.6 – 2009.

Traffic Generation and Effects

3.23 Traffic generated by the proposed warehouse and distribution centre will have its greatest effects during morning and afternoon periods when it combines with commuter traffic.

3.24 We have undertaken traffic surveys of ALDI's existing distribution centre at Prestons. This centre is of a similar size to that proposed at Beresfield and currently services some 38 ALDI stores. The proposed distribution centre at Beresfield is anticipated to service up to some 75 stores.

3.25 The surveys found peak traffic generations of some 115 (60 cars and 55 trucks) and 60 (50 cars and 10 trucks) vehicles per hour two-way (sum of both directions) during the morning and afternoon peak hours respectively.

3.26 As discussed in Chapter 2, the previous traffic report for the approved Freeway North Business Park assessed a traffic generation of some 1,350 and 1,480 vehicles per hour two-way during weekday morning and afternoon peak hours respectively. These generations included some 760 and 920 vehicles per hour two-way for the industrial component during morning and afternoon peak hours respectively. As previously noted, the approved development is for 45.5 hectares of industrial land.

3.27 The industrial traffic generation was based on an FSR of some 0.35 and traffic generation rates of 0.58 and 0.7 vehicles per hour per 100m^2 two-way during morning and afternoon peak hours respectively.

3.28 With a site area of some 15 hectares, the generation previously assessed for the subject site is equivalent to some 305 and 370 vehicles per hour two-way during the morning and afternoon peak hours respectively.

3.29 As noted above, the surveyed traffic generation of ALDI's existing distribution centre at Prestons, which currently services some 38 stores, was some 115 and 60 vehicles per hour two-way during morning and afternoon peak hours. Based on 75 stores being serviced by the proposed distribution centre at Beresfield, the estimated traffic generation of the proposed development would be some 230 and 120 vehicles per hour two-way during morning and afternoon peak hours respectively.

3.30 Therefore, the proposed development would have a lower traffic generation than that previously assessed for the site. The traffic implications of the proposed development would therefore be less than previously assessed and approved.

3.31 As also previously discussed in Chapter 2, a series of road and intersection works is required by conditions of consent for the approved Freeway North Business Park. These works will be undertaken by the land owner and in place prior to opening of the proposed ALDI distribution centre.

3.32 The previously approved road works, which were identified as appropriate for the approved development, are therefore also appropriate for the proposed development.

3.33 By letter dated 22 June 2010, the RTA has provided subsequent advice to the land owner, as follows:

"It is noted that you propose to submit a modification to the Department of Planning's conditions of approval, to enable Hunter Land Pty Ltd to deliver the required road works on Weakleys Drive in stages to meet your subdivision/ development needs.

The RTA would not object to the modification of the Conditions of Consent, generally as you have proposed in your letter dated 9 June 2010. The following preliminary advice is provided to enable you to make the submission:

B1. Weakleys Drive intersection and RTA Roadwork's requirements.

1. *A roundabout and associated works shall be designed and constructed in accordance with the RTA's Rod Design and relevant Austroads guidelines at the proposed new access to the Freeway North Business Park on Weakleys Drive between Balook Drive and the New England Highway, approximately in the location identified in Newcastle Council's Development Control Plan for the area, to the satisfaction of the RTA. The following shall be included, as a minimum, as part of the works.*

- *A roundabout shall be designed and constructed as a two (2) lane dual circulating roundabout.*

- *Two (2) lane approaches and departures shall be provided on all legs of the roundabout or as determined by the RTA.*

- *The northern leg of the roundabout on Weakleys Drive shall be extended through to the two-lane section of the New England Highway/Weakleys Drive interchange. Two (2) lanes northbound and southbound shall be provided between the proposed roundabout and the interchange along Weakleys Drive. A raised concrete median shall be included in the upgrade of the road.*

- *The southern approach leg of the roundabout on Weakleys Drive shall be extended from the roundabout to the south of the proposed left in/left out access to the Freeway North Business Park. The two (2) lane (northbound) approach shall be extended south beyond the left in/left out intersection to an extent to ensure safe merging/diverging of traffic northbound on Weakleys Drive.*

- *The southern departure leg (southbound) of the roundabout shall be designed and constructed as two (2) lanes to a length of 200 metres from the roundabout, excluding tapers.*

- *The above works may be staged, with the approval of the RTA, but must include the roundabout and the approaches/departures in Stage 1 construction. The remainder of the works (Stages 2 and 3) must be completed immediately after Stage 1 – there shall be no cessation of works.*

2. *The proposed left in/left out intersection to the subject site on Weakleys Drive between the proposed roundabout and Balook Drive shall be designed and constructed in accordance with the RTA's Road Design Guide and relevant Austroads*

guidelines with an exclusive left turn deceleration lane outside of the proposed two lane section of Weakleys Drive.

3. *There shall be no direct vehicular access to any of the proposed lots off Weakleys Drive. All vehicular access to the proposed lots shall be via two proposed intersections on Weakleys Drive and internal local road network.*

4. *A subdivision certificate is not to be released until the proponent has fully constructed all road works on Weakleys drive to the satisfaction of the RTA, unless the works are staged to the satisfaction of the RTA or the subdivision certificate relates to road widening in Weakleys Drive. If the RTA agrees to stage the works, a subdivision certificate for Stage 1 of the development may be released after completion of the roundabout and its approaches and departures to the satisfaction of the RTA. No further subdivision certificate is to be released for any stage of the development until the proponent has fully constructed all remaining road works in Weakleys Drive to the satisfaction of the RTA. A subdivision certificate for road widening in Weakleys Drive may be released prior to completion of any works.*

5. *All works associated with the proposed development shall be undertaken at full cost to the developer, to the satisfaction of the RTA.*

6. *The proponent is required to enter into a Works Authorisation Deed (WAD) with the RTA. In this regard the proponent is required to submit detailed design plans and all the relevant information, as may be required in the RTA's WAD documentation, for each specific change to the State road network, for the RTA's assessment and final decision concerning the work."*

Principles of Construction Traffic Management

3.34 At this stage a builder has not been appointed and the overall construction methodology, process and staging has not been defined. The builder will be

responsible for the preparation of a traffic management plan, which will be prepared prior to the commencement of work, taking into account relevant consent conditions.

3.35 Construction of the development will commence with site preparation works, with construction access from Road 1 within the approved Freeway North Business Park subdivision. There will be appropriate room on site for construction vehicles to enter the site, turn around and exit in a forward direction.

3.36 Pedestrian footpaths adjacent to the site, to the extent that they exist during construction of the development, will be maintained. Class A construction fencing will be erected around the perimeter of the building, with overhead protection where required.

3.37 Indicative peak construction traffic flows have been estimated based on information provided by the study team. Peak daily traffic flows during construction would be up to some 300 vehicles two-way. These flows would include deliveries of construction materials of some 60 to 70 deliveries per day.

3.38 Based on a nine hour working day, the peak traffic generation of 300 vehicles per day is equivalent to an average of some 30 to 35 vehicles per hour two-way. This is less than the traffic generation of the proposed development once operational and the surrounding road network will be able to cater for these relatively small traffic movements.

3.39 The overall principles for traffic management during construction are:

- provide a convenient and appropriate environment for pedestrians;

- minimise effects on pedestrian movements and amenity;
- provide appropriate safety fencing/hoardings around the perimeter of the construction site;
- manage and control vehicular movements to and from the site;
- maintain other existing on-street parking in the vicinity of the site;
- restrict construction vehicle activity to designated truck routes through the area (to be identified by the appointed builder);
- construction vehicles to enter and exit the site in a forward direction;
- construction activity to be carried out in accordance with the approved hours of construction;
- maintain safety for workers; and
- the preparation of the construction traffic management plan, signage detail, control of pedestrians and control and management of construction vehicles in the vicinity of the site will be the responsibility of the appointed builder.

Consultation

3.40 In letters dated 9 April 2010 and 5 May 2010 respectively, the RTA and Newcastle Council have included the following comments:

- RTA

"The RTA has reviewed the information provided and would not require the developer to provide any additional information to the RTA as it is considered that all classified (State) road infrastructure requirements have been met as part of the Freeway North Business Park application.

For your information, the proponent is constructing a two lane roundabout at the Weakleys Drive / subdivision access intersection, a left in / left out intersection to the south of this intersection and additional lanes on Weakleys Drive connecting to the New England Highway / Weakleys Drive interchange. These works will be constructed under the RTA's Works Authorisation Deed in stages, to meet the requirements of the proposed ALDI development and the Freeway North Business Park subdivision."

3.41 These matters are noted and previously discussed in paragraphs 2.7 to 2.11 and 3.26 to 3.33.

- Council

"Heavy vehicles must not turn left when leaving the site. Schedule 2 Condition B2.(1) of the Ministers Concept Plan approval for Freeway North required "The proposed subdivision layout includes an internal road reserve to the northwest of the Freeway North Business Park site (to Avalon Drive). An appropriate road reserve shall be provided within Lot 14 DP 1091199 to the RTA's satisfaction as part of the subdivision to allow for an ultimate public road connection to Avalon Drive and the New England Highway. This proposed link road should only cater for light vehicles, buses, and garbage trucks, as it will connect to a residential precinct."

Accordingly all heavy vehicle access to the site is to be to from Weakleys Drive to the east of the site.

3.42 This matter is noted and could be included as a condition of consent.

3.43 Subsequent discussions with Council and RTA during the preparation of the environmental assessment have confirmed that these responses are still applicable.

Director-General's Requirements

- *predictions of the traffic volumes likely to be generated during construction and operation;*

3.44 Estimated traffic generations of the proposed development are discussed in paragraphs 3.29, 3.30, 3.37 and 3.38.

- *an assessment of the predicted impacts of this traffic on the capacity, efficiency, and safety of the surrounding road network, including modelling of key intersections;*

3.45 These matters are discussed in paragraphs 3.31, 3.32 and 3.38.

- *details of access to the site and car parking requirements.*

3.46 Site access is discussed in paragraphs 3.16, 3.17, 3.19 and 3.21. Car parking provision is discussed in paragraphs 3.8 to 3.15.

During the preparation of the Environmental Assessment, you should consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners.
In particular, you must consult with:
- *Roads and Traffic Authority; and*
- *Newcastle City Council.*

3.47 Responses from these authorities are discussed in paragraphs 3.41 to 3.43.

Matters Raised During Review of Adequacy

3.48 In a letter dated 9 September 2010, the Department of Planning has raised a number of matters. These matters, and our responses, are as follows.

Traffic

It is considered that the Transport and Accessibility Assessment contained in Appendix F is somewhat limited. In particular, the Department requests further information detailing:

- *the break down of vehicle types, including the number of heavy vehicles;*
- *daily traffic numbers; and*
- *if the assumptions in the original traffic assessment for the concept plan are consistent with the proposal (e.g. proportion of heavy vehicles).*

3.49 In relation to the first matter, as discussed in paragraph 3.29, the estimated traffic generation of the proposed development would be some 230 and 120 vehicles per hour two-way during morning and afternoon peak hours respectively. This would include, based on surveys at Prestons, some 110 trucks and 120 cars in the morning and some 20 trucks and 100 cars in the afternoon.

3.50 With regards to the second matter, the traffic surveys at Prestons counted two-way traffic flows of some 440 and 345 cars and trucks respectively over the day. On this basis, estimated two-way daily traffic flows for the proposed distribution centre at Beresfield would be some 880 and 690 cars and trucks respectively.

3.51 In relation to the third matter, the previous traffic report for the approved overall industrial subdivision assessed some 150 heavy vehicles per hour two-way during morning and afternoon peak hours (a total of 300 heavy vehicles for the two peak

hours combined). As previously discussed, the proposed Aldi site is some 15 hectares of a total industrial subdivision of 45.5 hectares. Therefore, the generation previously assessed for the subject site was some 100 heavy vehicles for the two peak hours combined.

3.52 By comparison, the estimated generation for the two peak hours combined for the proposed distribution centre is some 130 trucks. The number of trucks generated by the proposed distribution centre would therefore be similar to that previously assessed for the site.

Summary

3.53 In summary, the main points relating to the transport and accessibility assessment for the proposed development are as follows:

i) the site forms part of a larger site which has development consent for an industrial subdivision;

ii) a work place travel plan will be developed for the site;

iii) the overall traffic implications of the approved subdivision have been assessed in previous studies;

iv) approved road works have been identified to cater for the traffic generation of the approved subdivision, including the subject site;

v) these works will be constructed by the land owner prior to the opening of the proposed distribution centre;

vi) the proposed parking provision is considered appropriate;

vii) access, servicing and layout arrangements will be provided in accordance with AS 2890.1:2004 and AS 2890.2 – 2002;

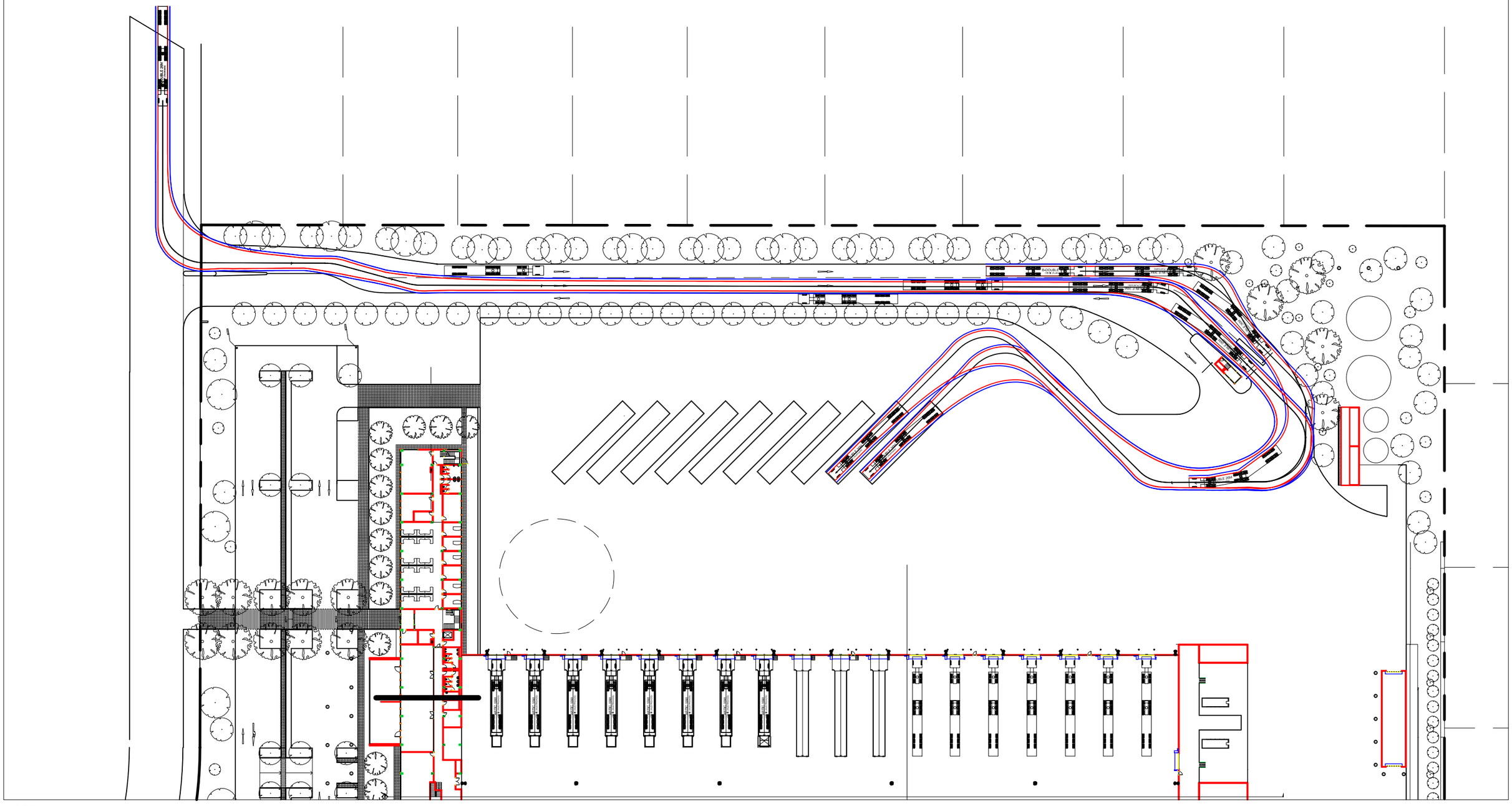
viii) traffic generation of the proposed distribution centre will be less than previously assessed for the site in the approved development;

ix) the previously approved road works are therefore also appropriate for the proposed development;

x) the director-general's requirements are discussed in paragraphs 3.44 to 3.47; and

xi) matters raised during the review of adequacy are discussed in paragraphs 3.49 to 3.52.


SITE
LOCATION
BERESFIELD
2322
WOODBERRY
2322
TARRO
2322
BERESFIELD
2322
Thornton
Thornton Pmy
Thornton Supa Centre
Beresfield Golf Course
Clubhouse
WR Lindsay Oval
Mem Pk
Skate Park
Tennis
Newcastle Memorial Park
Reserve
Blue Ribbon Bus Depot
Hunter Records Storage
Holmwood Business Park
Freeway Business Park
Palm Valley Home Village
Woodberry Swamp
Greenways
Creek
Viney
Newcastle
Maitland
Railway
Coal
Private
Road
Pipe
Line
F3 extension to
Proposed
Supply
HIGHWAY
RENSHAW
ANDERSON
WEAKLEYS
NEW ENGLAND
JOHN
THORNTON
EDWARDS
WATERLOO
HARTLEY
GLENWOOD
ENTERPRISE
BALOOK
YANGAN
PIPPITA
KULLARA
BABILLA
BERESFORD
ADDISON
LENOX
BLACKWOOD
ENRIGHT
ADELAIDE
LISTER
YARRUM
HUNTINGDALE
SANDRINGHAM
BONVILLE
FIREBRICK
PIPECLAY
WOODFORD
KOORALBYN
RFS
RAILWAY
NIGEL (Private)
Beresfield
Fred Hall Sports
Recreation
Memorial
Gate
Fiona John Park
Aston
Chichester
Tennyson
Ruskin
Percy
Lawson
Ogilvie
Newton
Milton
Landor
Kendall
Irving
Hawthorne
Greville
Delprat
Fletcher
Emerson
Darwin
Chaucer
Byron
Abelia
Pamela
Travis
Brazos
Hunter
Lennox
Jacqualine
Allendale
Casuarina
Pasedena
Ruby
Emerald
Opal
Sapphire
Christie
Aldwick
Thirlmere
Quarter Sessions
Burbank
Beverley
Tranwell
Western
Northern
Southern
Lang
Arcot
Beth
Carr
Rd
Cl
Dr
Av
St
Pl
Wy
Cct
Tce
Ct
Ave
Pmy
Cem
Park
Mem Pk
Oval
Golf Course
Business Park
Freeway Business Park
Holmwood Business Park
Skate Park
Tennis
Memorial Park
Reserve
Gate
Clubhouse
Beresfield Golf Course
Palm Valley Home Village
Fred Hall Sports
Greenways
Woodberry Swamp
Hunter Records Storage
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Thornton Supa Centre
Thornton Pmy
WR Lindsay Oval
Mem Pk
Skate Park
Tennis
Newcastle Memorial Park
Reserve

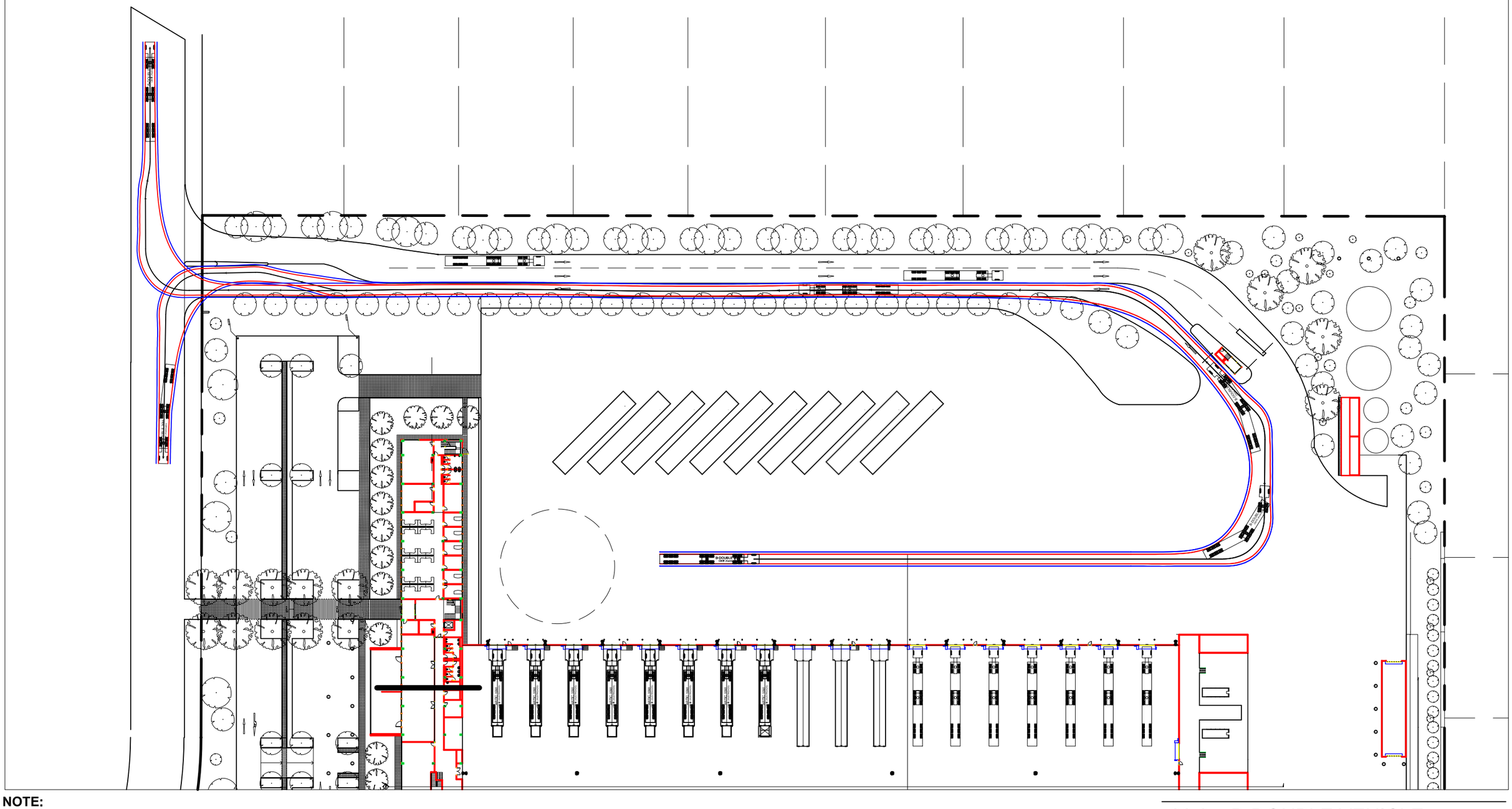


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26.0m B-DOUBLE VEHICLE SWEPT PATHS

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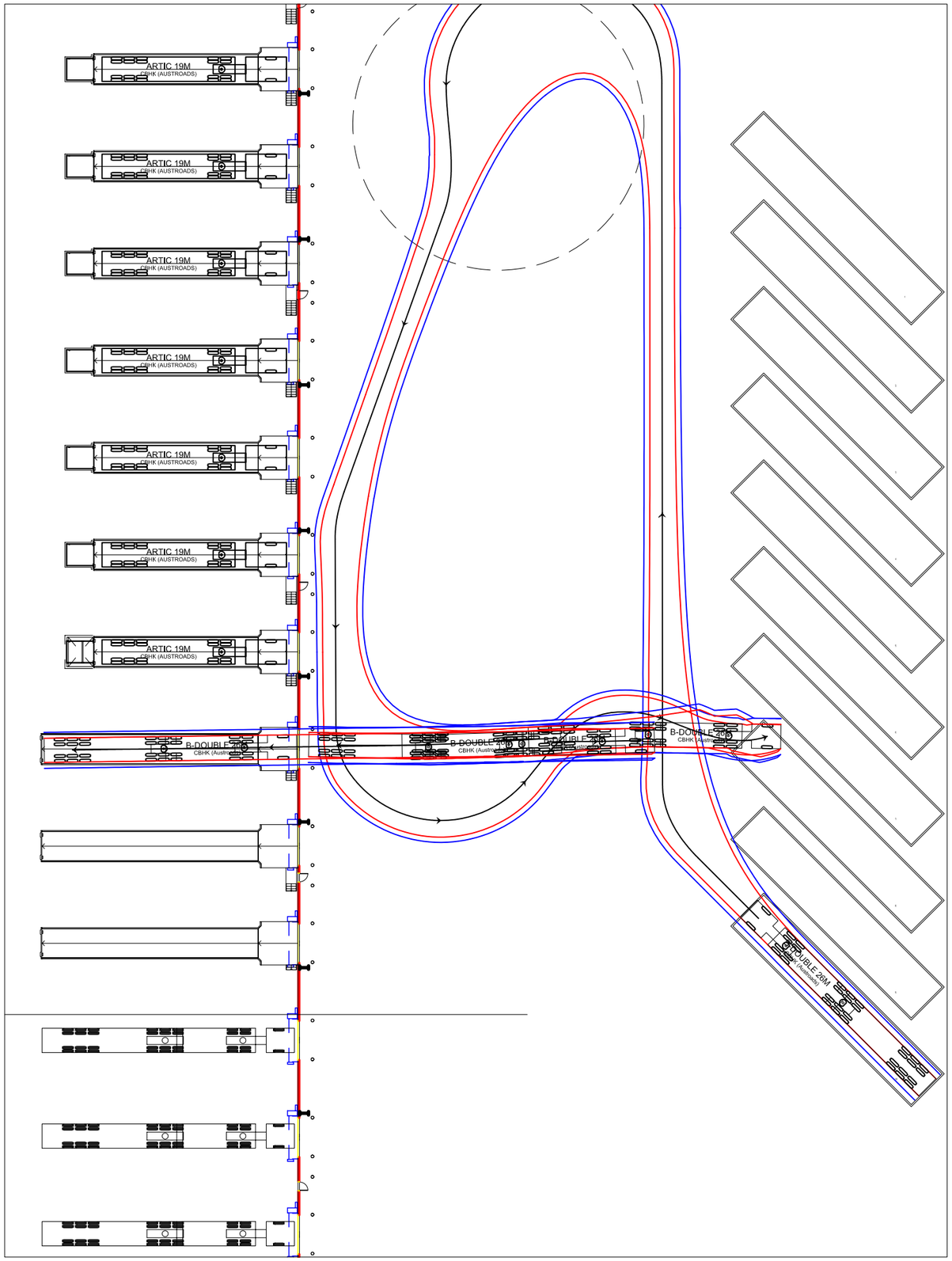


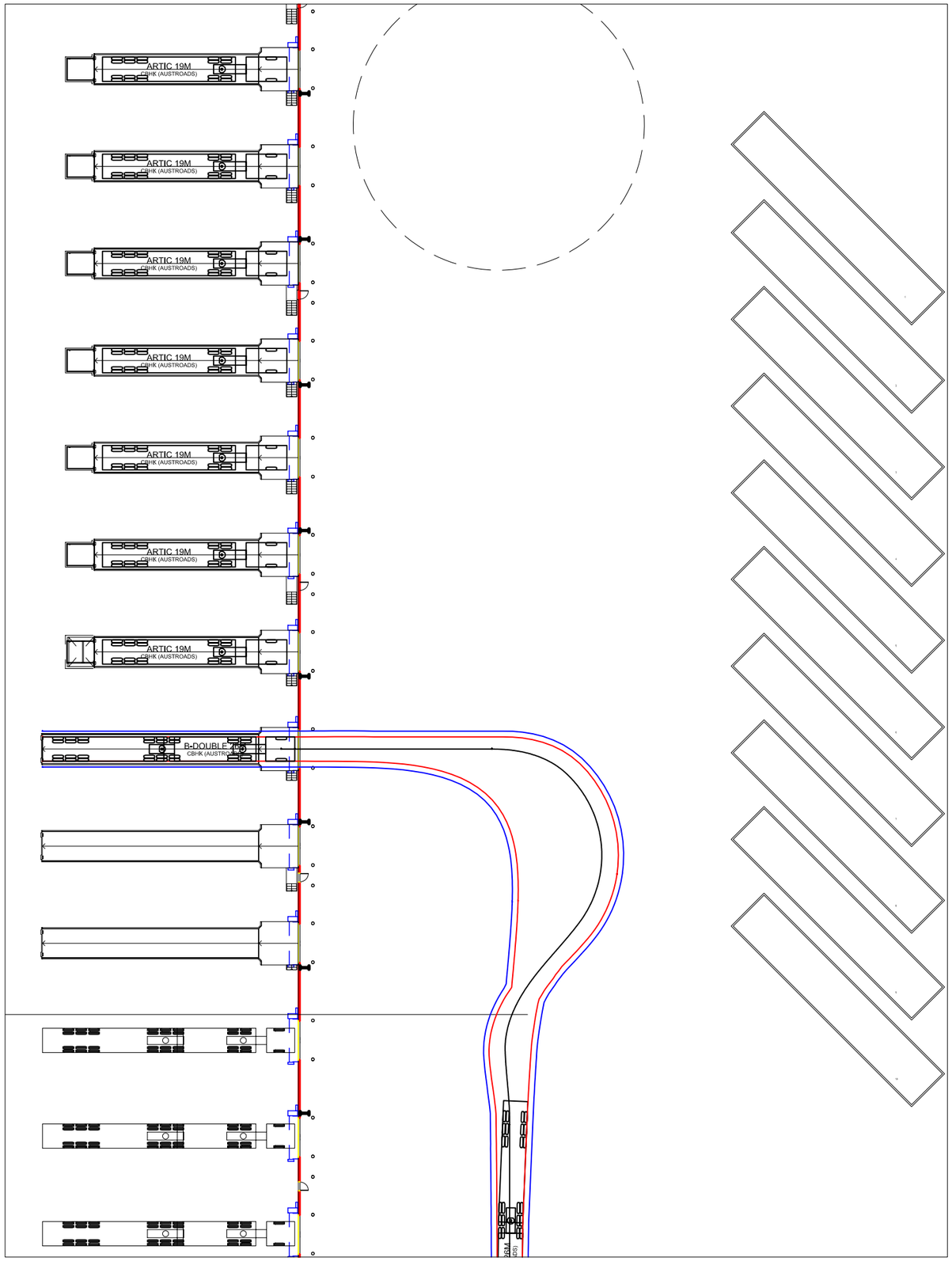
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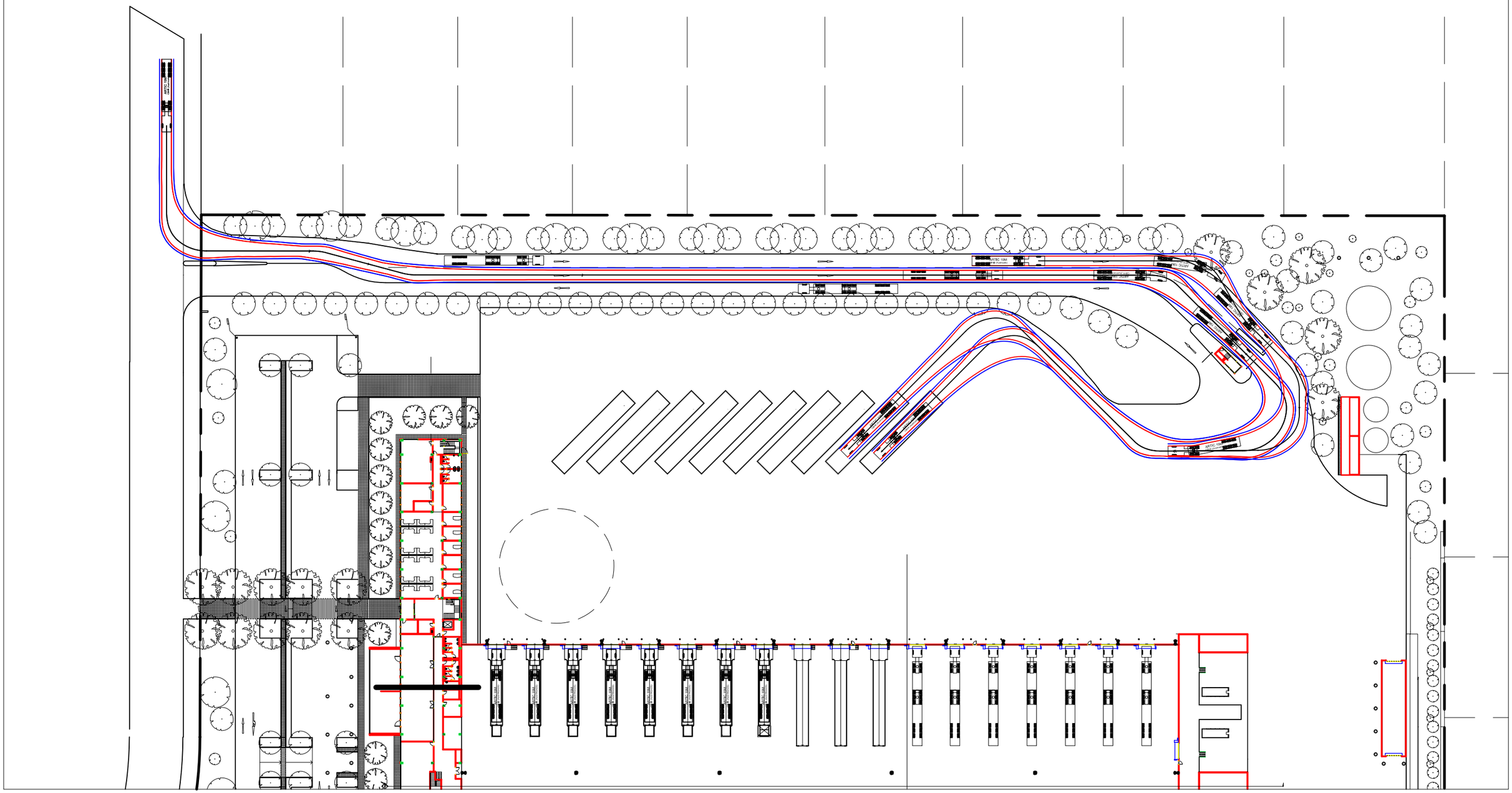


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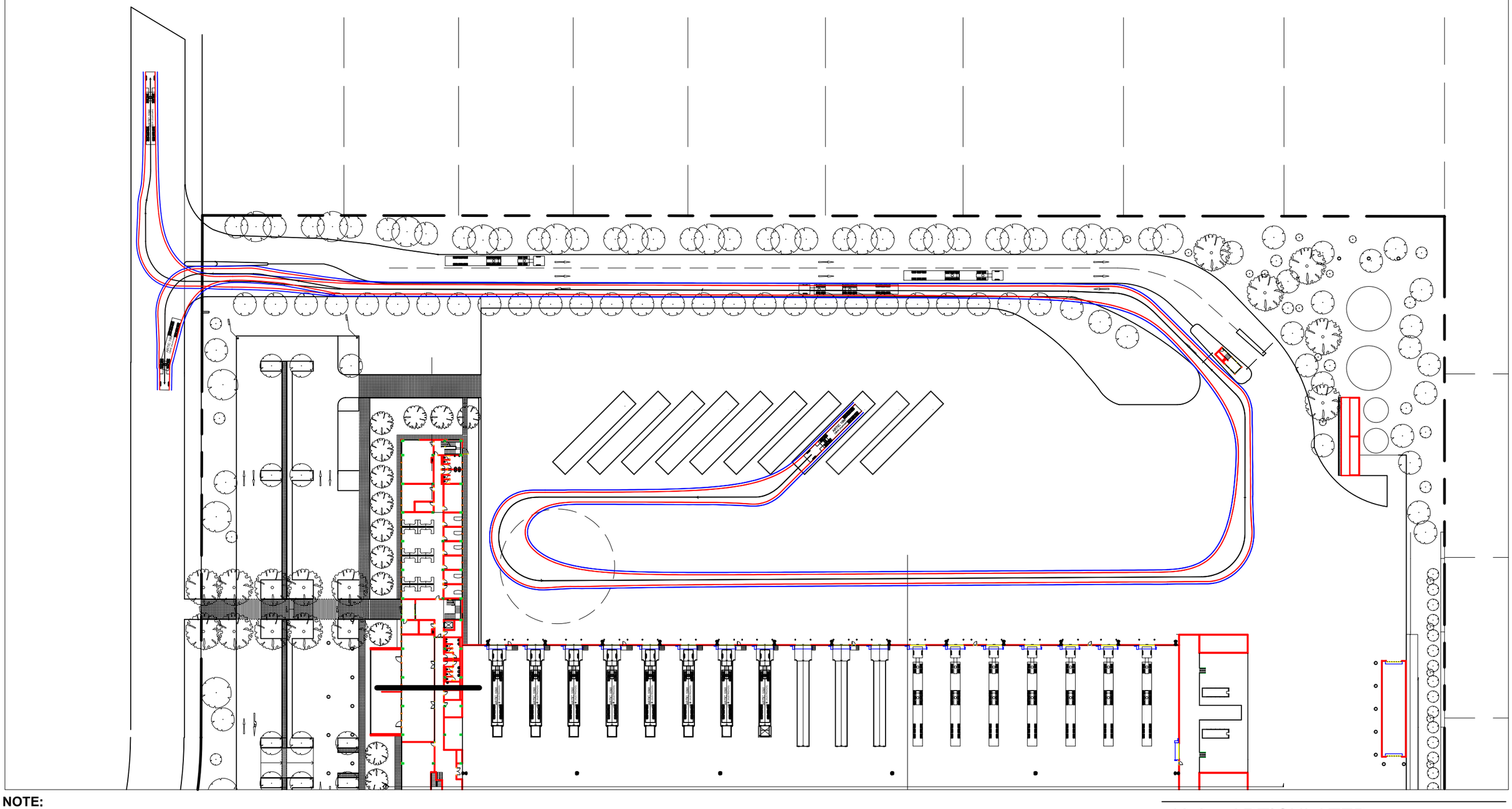


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19.0m ARTICULATED VEHICLE SWEPT PATHS

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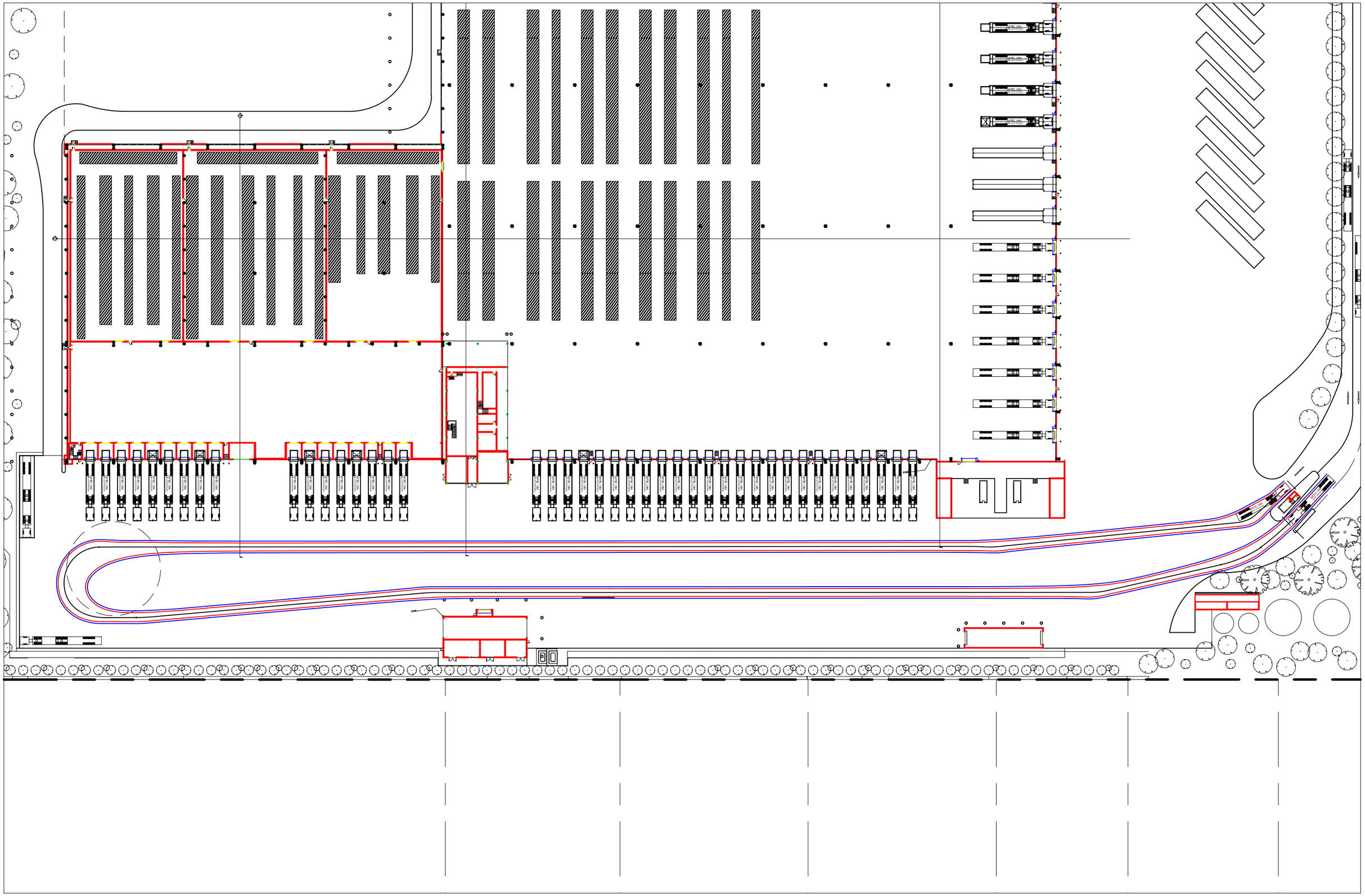
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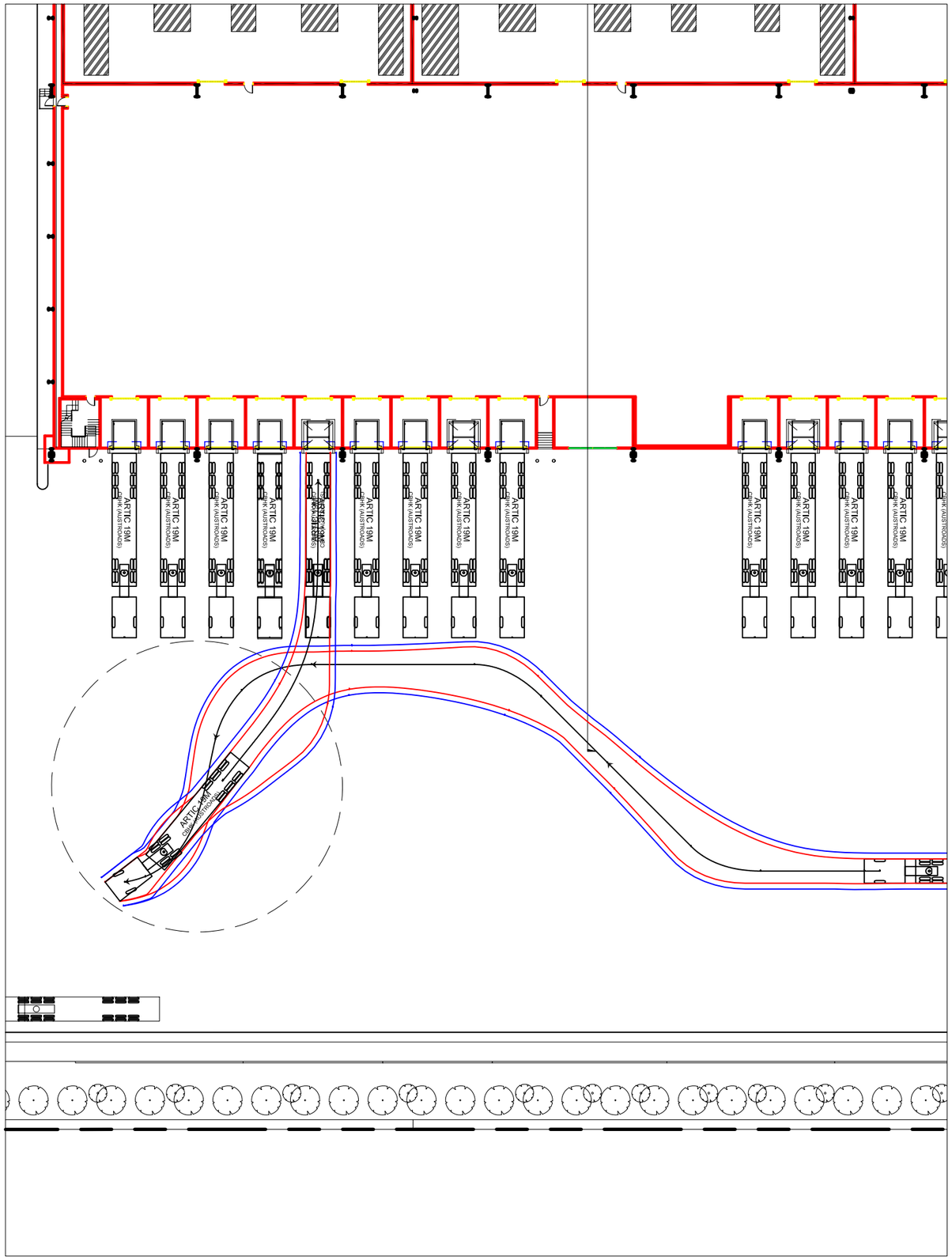


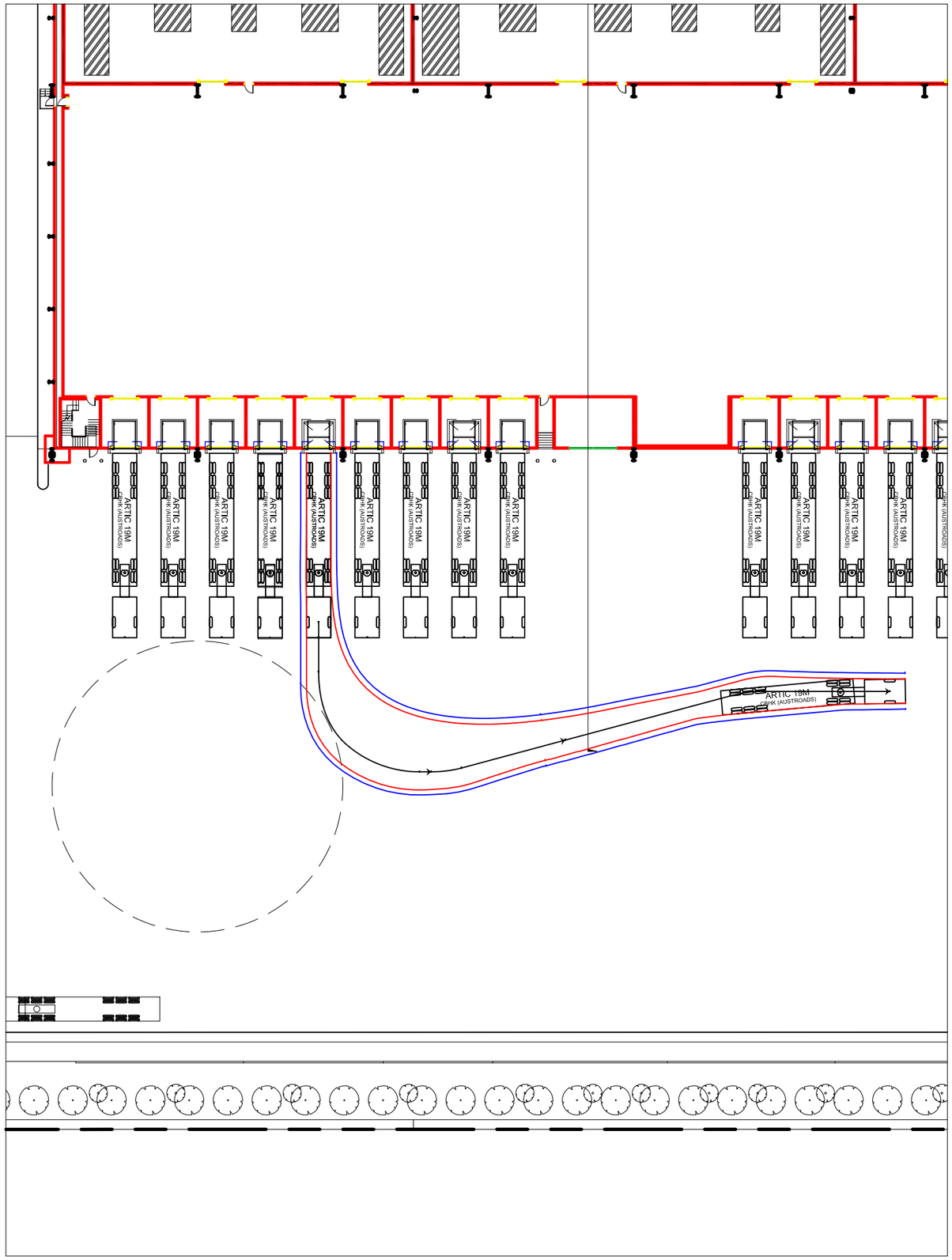
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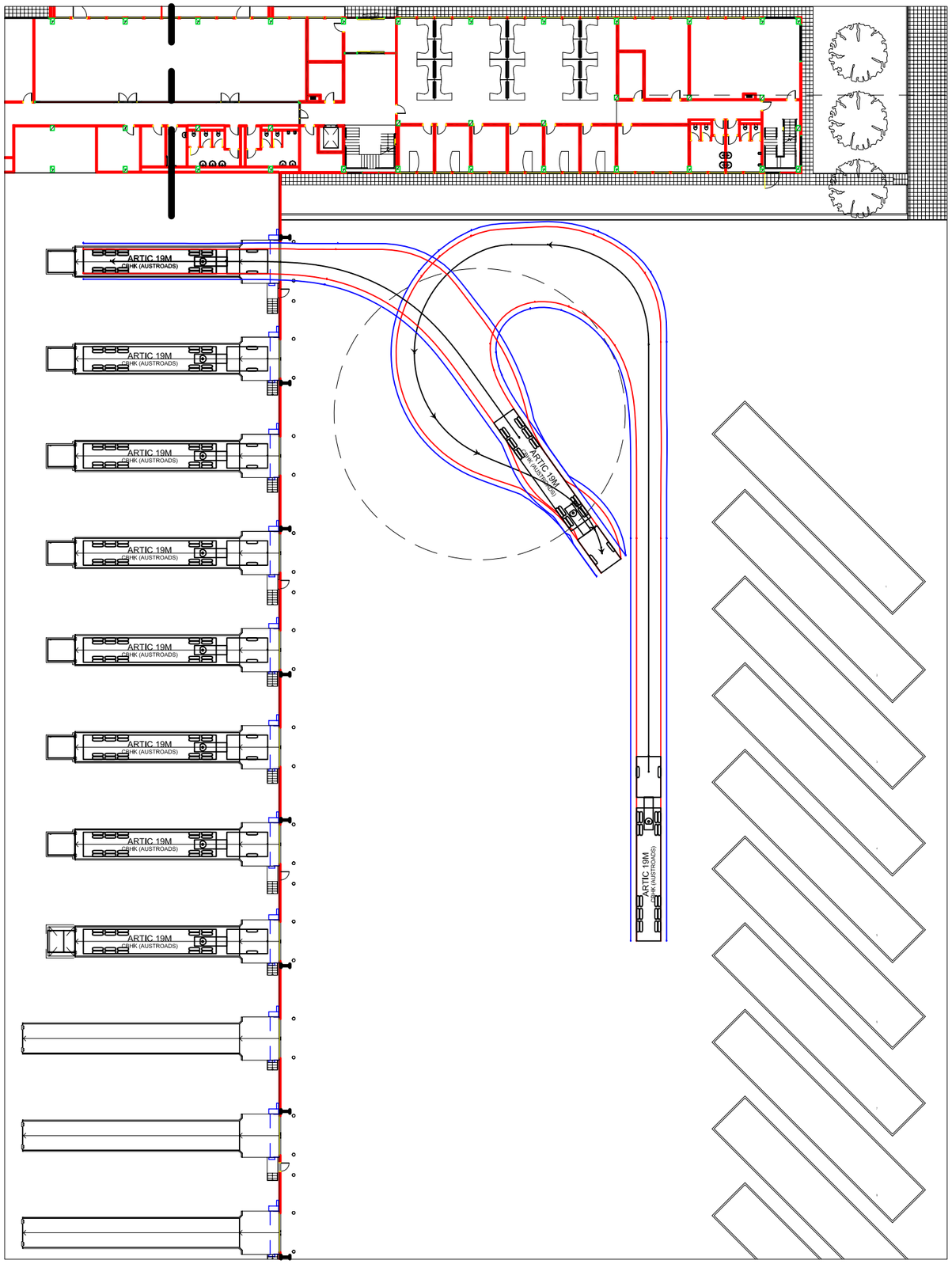


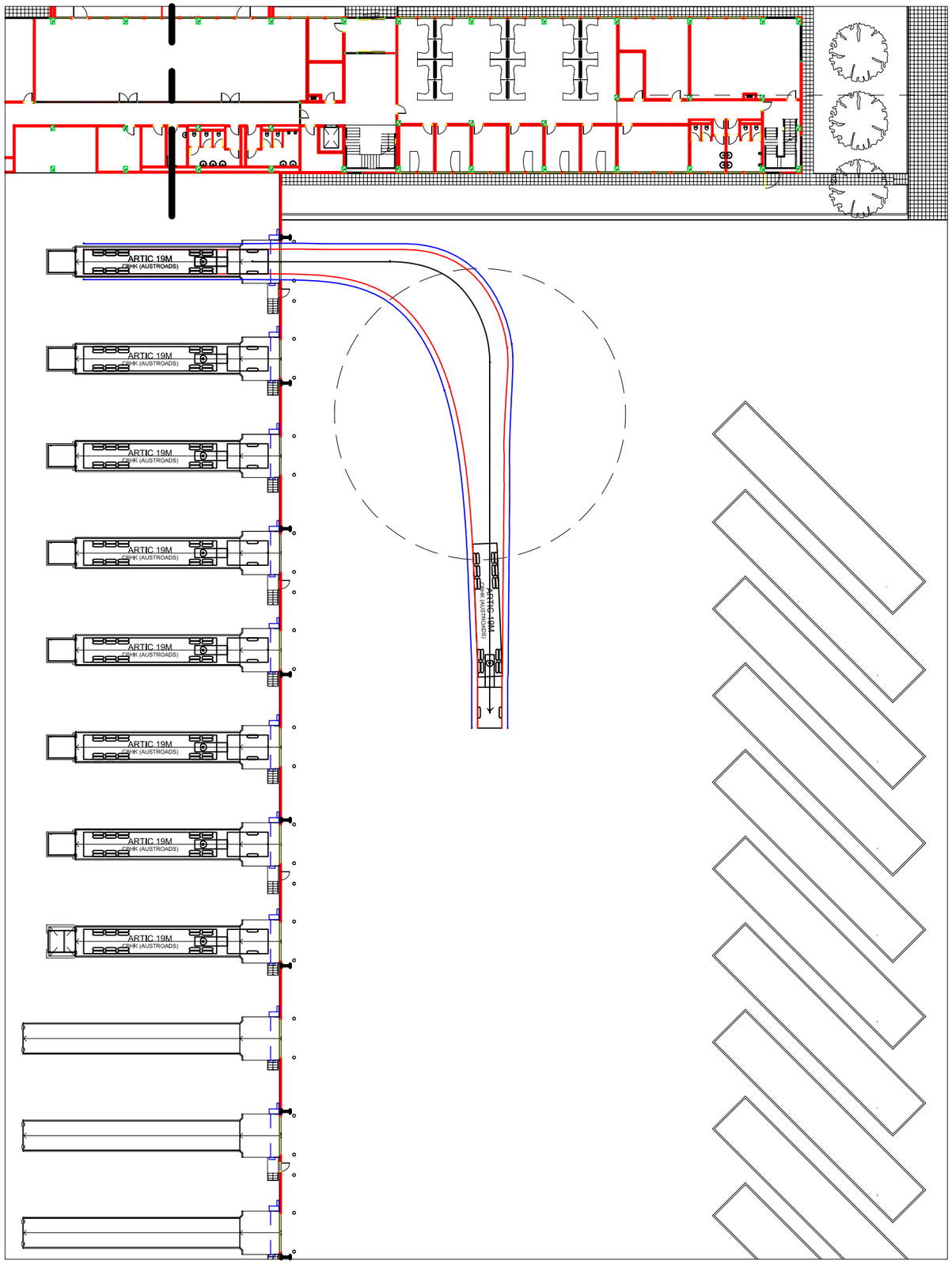
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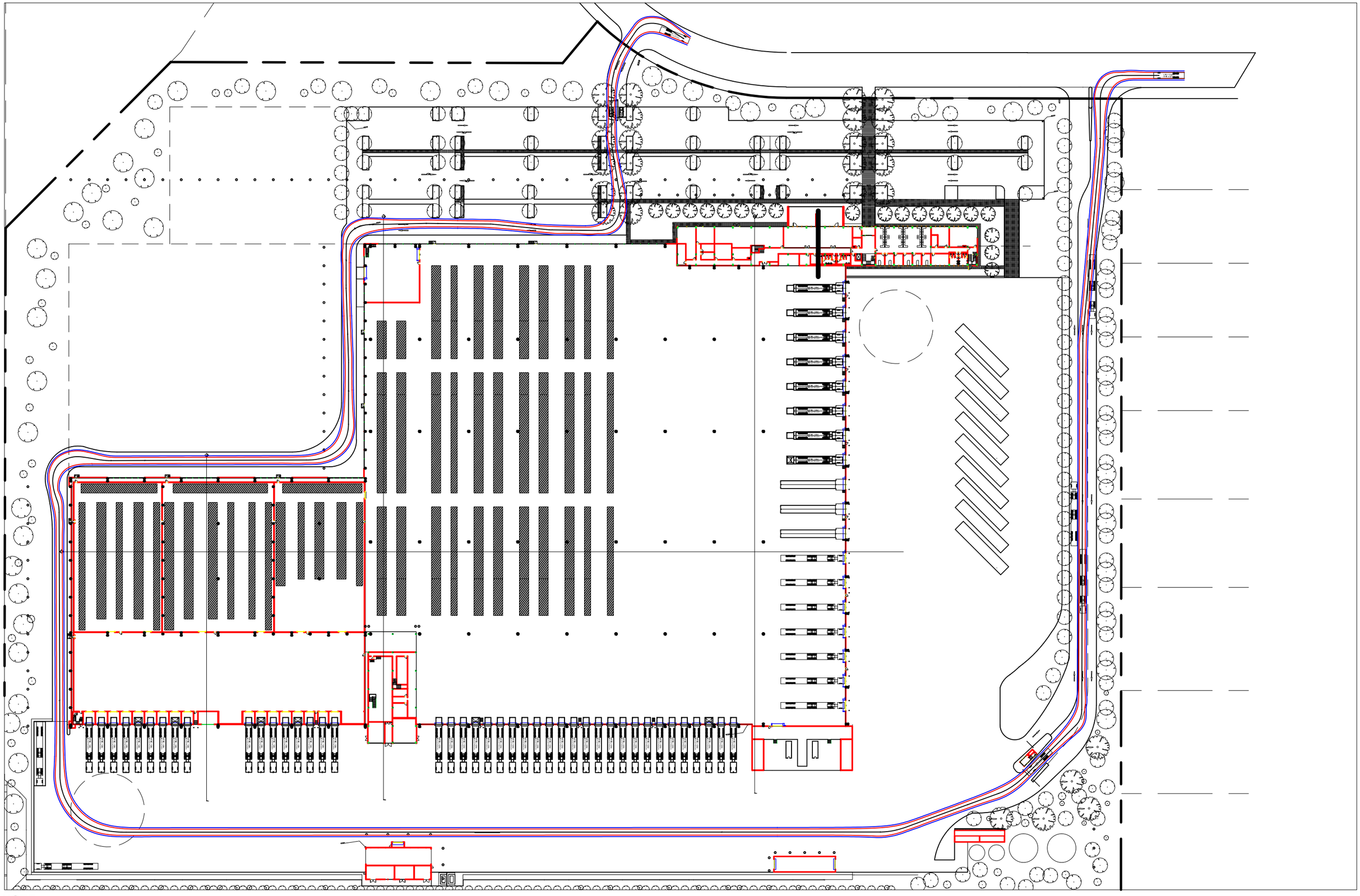




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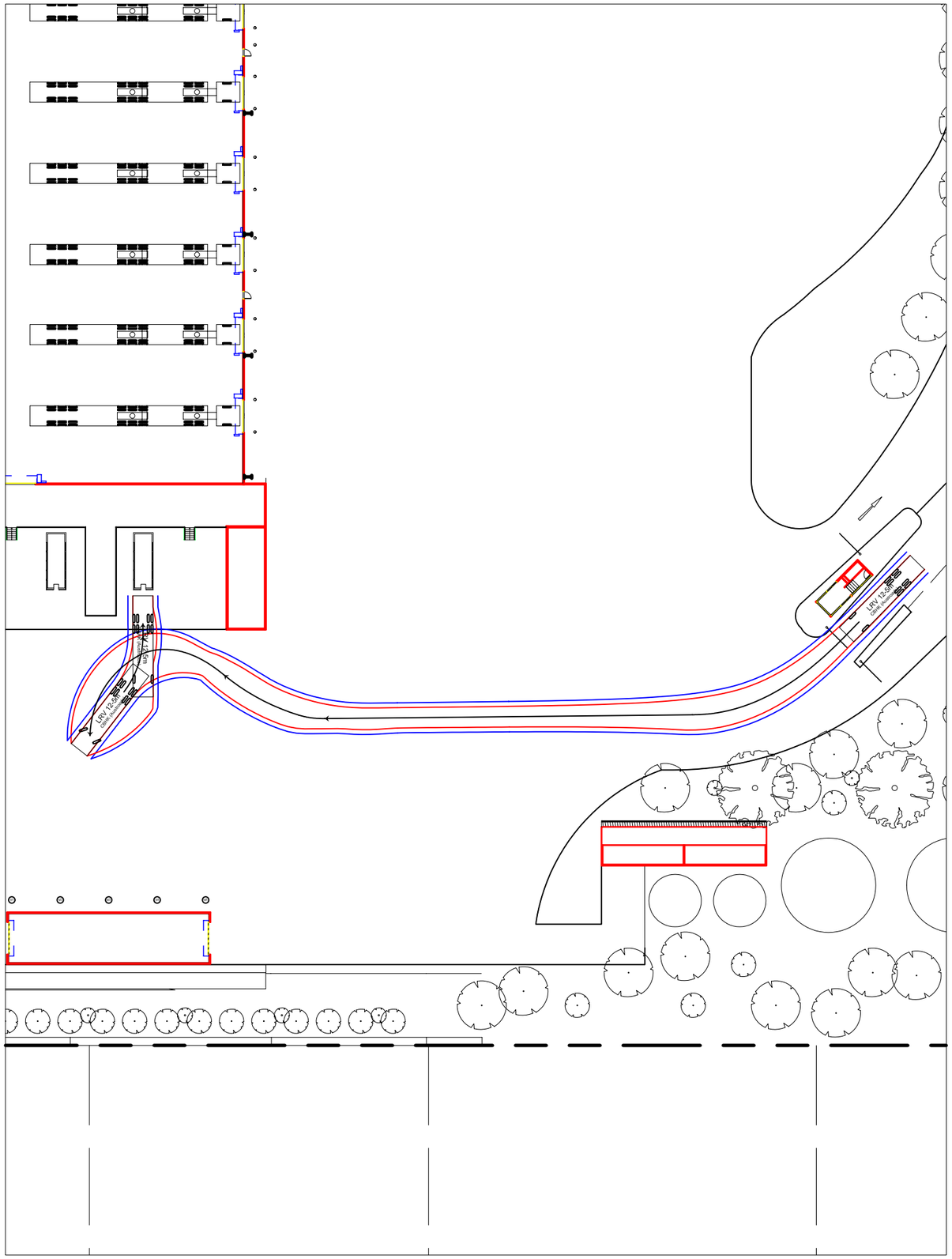


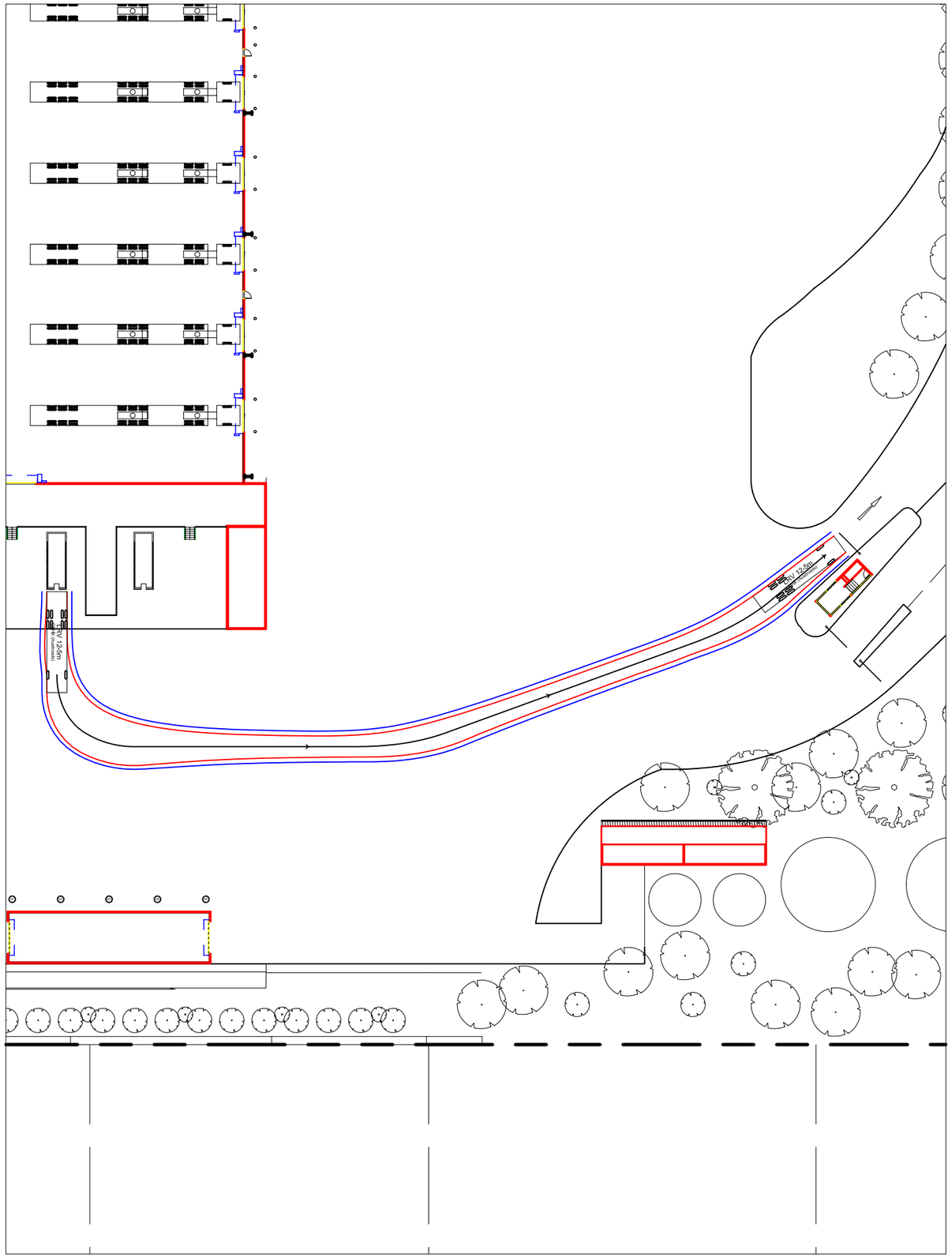
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12.5m LARGE RIGID VEHICLE SWEPT PATHS

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12.5m LARGE RIGID VEHICLE SWEPT PATHS

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11

Appendix G

Stormwater and Flooding – Robert Bird Group

BER

RobertBirdGroup

Water Management

(Including Stormwater
& Soil Erosion Management Plan)

Proposed Warehouse Distribution Centre Lot 124, Freeway North Business Park, Beresfield

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Table of Contents

1.0 Executive Summary....1

2.0 Introduction....1

3.0 Site Description....2

4.0 Flooding....3

5.0 Stormwater Drainage....4
- **5.1** Catchment Areas....4
- **5.2** Rainfall Intensities....4
- **5.3** Existing Infrastructure....4
- **5.4** Points of Discharge....5
- **5.5** Roof Drainage....6
- **5.6** Surface Drainage....6
- **5.7** In-Ground Drainage....6
- **5.8** Overland Flows....7
- **5.9** On-Site Detention....7

6.0 Water Quality....8

7.0 Erosion and Sediment Control....8

8.0 Rainwater Harvesting....9

9.0 Water Re-use....9

10.0 Water Usage Efficiency....9

Appendix

Calculations – Water Quality A1

Calculations – Sedimentation Basin A3

Rainfall Table – Newcastle
Graph – Runoff Coefficient Multiplier extrapolation
Graph – Rainfall Intensity extrapolation

Technical details - Ecosol RSF4450 Gross Pollutant Filter / Oil and Silt Arrestor

Robert Bird Group Drawing 10154-SKC11 Stormwater Catchment Plan
Robert Bird Group Drawing 10154-SKC20 General Arrangement Plan Sheet 1 of 8
Robert Bird Group Drawing 10154-SKC21 General Arrangement Plan Sheet 2 of 8
Robert Bird Group Drawing 10154-SKC22 General Arrangement Plan Sheet 3 of 8
Robert Bird Group Drawing 10154-SKC23 General Arrangement Plan Sheet 4 of 8
Robert Bird Group Drawing 10154-SKC24 General Arrangement Plan Sheet 5 of 8
Robert Bird Group Drawing 10154-SKC25 General Arrangement Plan Sheet 6 of 8
Robert Bird Group Drawing 10154-SKC30 General Arrangement Plan Sheet 7 of 8
Robert Bird Group Drawing 10154-SKC31 General Arrangement Plan Sheet 8 of 8
Robert Bird Group Drawing 10154-SKC103 Erosion and Sedimentation Control Plan

References:

1. Stormwater Management Plan, Freeway North Business Park, Weakleys Drive, Beresfield, Rev E – PPK Environment & Infrastructure Pty Ltd – Dated Feb. 2002

2. Flood Modelling and Stormwater Management Strategy, Freeway North Business Park, Weakleys Drive, Beresfield – Parsons Brinkerhoff – Dated March 2007

3. Director-Generals requirements, ALDI Warehouse Project, Beresfield (MP 10_0042) Dated May 2010.

Design References:

- Managing Urban Stormwater: Soils & Construction (Landcom)
- Soil and Landscape Issues in Environmental Impact Assessment (DLWC)
- Floodplain Development Manual: The Management of Flood Liable Land (DIPNR).
- Floodplain Risk Management Guideline – Practical Consideration of Climate Change (DECC)
- Managing Urban Stormwater: Council Handbook. Draft (EPA).
- Managing Urban Stormwater: Treatment Techniques (EPA).
- Managing Urban Stormwater: Source Control. Draft (EPA).
- Managing Urban Stormwater: Harvesting and Reuse (EPA).

1.0 Executive Summary

This report has been prepared by Robert Bird Group to support a Part 3A application to be submitted under the Environmental Planning and Assessment Act, 1979, for a proposed warehouse and distribution centre at Beresfield, NSW.

The report has been created in response to the Director Generals Requirements (10_0042 dated may 2010) in particular the section on soil and water.

The report addresses issues of flooding, site stormwater management, control of discharge from the site, water quality and water usage management.

Flood levels have been obtained from a report prepared by Parsons Brinkerhoff (Ref 2). The flood report demonstrates that the site is not located within the current 100 year flood envelope and as a result there will be no increase in flood levels caused by the proposed development. All building floor levels will have much more than 500mm freeboard above the estimated 100-year flood levels, and above overland flow paths.

Underground piped stormwater systems will be provided to cater with all stormwater runoff from roofed and paved areas, with overland flow paths defined to cater for safe disposal of runoff in excess of the pipe system capacity.

Peak stormwater discharge from the site will be reduced by on-site retention of roofwater for re-use on site.

Roofwater will be retained on site in two underground tanks of 200,000 litres capacity. The water in one tank will be used for truck washing. The water in the other tank will be used for toilet flushing and irrigation.

Stormwater quality will be improved by the use of combined gross pollutant trap / oil and silt arrestor to provide filtration and sedimentation in accordance with Newcastle City Council policies.

Water efficient tapware and fixtures will be used throughout.

Concept plans have been prepared showing the proposed extent of Stormwater Drainage and Erosion and Sedimentation Control works for the proposed development. These drawings are included in the Appendix to this report.

2.0 Introduction

It is proposed to develop a site adjacent to the New England Highway at Beresfield as a warehouse and distribution centre for ALDI Foods Pty. Ltd. The distribution centre will include a warehouse and office building and associated hardstand and car parking areas. As this project has been assessed as a project of State Significance, a Part 3A application is to be submitted for approval of the project under the Environmental Planning and Assessment Act, 1979.

This report has been prepared in support of this application. It combines the requirements for a Water Usage Report and a Stormwater Drainage Report, as these separate requirements have many elements in common.

3.0 Site Description

The real property description for the site is Lot 14 DP1091199, Lot E DP388733 and Lot 14 DP207961. The site is roughly rectangular in shape with a notch at the north western corner, and has a total area of approximately 15 hectares.

The site is located generally to the west of Weakleys Drive but currently has no direct access from the road. During the subdivision construction works the access roads will be constructed to provide vehicular access to the site.

Current site levels fall from approximately RL 27.0m at the south boundary to RL 14.0m at the north western corner and to RL 23.0m at the north-eastern corner. All levels are quoted to Australian Height Datum – (AHD). The land slopes more steeply at the north-western corner (approximately 1 in 10) and more gently at the northern boundary (approximately 1 in 17).

During the subdivision works approved by major project 06_0199 on the 28 September 2008 the site will undergo extensive bulk earthworks in order to provide a building platform for the ALDI project. The low point at the north western boundary of the site will be retained however the grading of the site will be revised to create a level building platform for the future works. A concept drawing of the proposed bulk earthworks has been included in the appendix of this report.

The site is currently vegetated with grass and scattered trees.

4.0 Flooding

Parsons Brinckerhoff (PB) was commissioned to investigate flood levels for the proposed Freeway North Business Park. The report concludes that the ALDI site will not be affected by flood waters and is not within the flood envelope, as such the proposed development will not adversely affect the existing flood storage volumes of neither Scotch Dairy Creek nor Viney Creek.

Subsequent information provided by Geoff Craig & Associates Pty Ltd concludes that the ALDI site is situated within the Scotch Dairy Creek catchment. The PB report concludes that by developing the site, the critical time of concentration for the development is altered thus reducing the Peak discharge flow from the site. This means that the proposed development will assist in reducing the flood extents in the Scotch Dairy Creek.

Newcastle City Council requires habitable areas to have a minimum freeboard of 500mm above the 100-year ARI flood level in creeks and open channels. The PB report confirms that the 100 year flood level at the upstream extent of the site is 9.90m. At the lowest habitable floor (RL 23.75 AHD) the actual freeboard provided is at least 13.85m for flooding within Scotch Dairy Creek. The lowest external pavement level of approximately RL 20.00m provides a freeboard of 10.10m.

5.0 Stormwater Drainage

5.1 Catchment Areas

The internal catchment area of the site is divided up as follows.

Land Use	Area (ha)
Building Roof	5.41
Pavements and gardens	5.36
Non-developed area	4.23 *
Total	**15.00**

Table 2. Catchment areas

* Includes fire access road within this zone.

5.2 Rainfall Intensities

Rainfall intensities have been measured and collated by the Bureau of Meteorology over many years in order to determine the statistical relationship between rainfall of a particular intensity and the frequency of its occurrence. The probability that a particular intensity might be exceeded in a storm in any one year is denoted as its *Annual Exceedance Probability* (AEP). Thus an intensity which has an AEP of 1% has a probability of 0.01 of being exceeded in any one year. This may also be considered as the intensity that might be exceeded on average once every 100 years (the inverse of 0.01). This intensity can thus also be termed as the 100-year *Average Recurrence Interval* (ARI) intensity, and the runoff generated from this rainfall would be termed the *Q100 peak runoff*.

Newcastle City Council has published rainfall intensity tables in their *Stormwater and Water Efficiency for Development Technical Manual* dated 2004. Accordingly, design rainfall intensities will be based on the Newcastle City Council table. This table is attached in the Appendix to this report.

5.3 Existing Infrastructure

There is no existing stormwater drainage system within the site.

The site currently discharges as overland flow to the Scotch Dairy Creek

5.4 Points of Discharge

It is proposed that all stormwater drainage from the site discharge at a single location on the north western boundary of the site as indicated on the subdivisional plans supplied by Hunter Land. This point of discharge is shown on the RBG drawing 10154-SKC31 General Arrangement Plan Sheet 8 of 8 included in the appendix of this report

The point of discharge will consist of headwall located on the boundary of the site at natural ground level (RL 14.0m). The stormwater run-of will be piped through an underground box culvert to the headwall. The culvert will be graded at 1 in 120.

The peak 100-year discharge has been calculated at 3.49 cumecs, with a velocity of 2.34 m/sec.

Scour protection will be provided at all points of discharge to the satisfaction of Newcastle City Council. The scour protection will reduce the discharge velocity below 1.5m/sec

5.5 Roof Drainage

Stormwater from roofed areas will be collected by gutters running generally east-west along the southern and northern building eaves. Gutters and downpipes will typically cater for the peak 1 in 20 year ARI runoff, with provision for overflow in the event of blockage or extreme rainfall events.

The roofwater drainage system of gutters, downpipes and in-ground pipework will be designed in accordance with AS/NZS 3500.3.2 *National Plumbing and Drainage Part 3.2: Stormwater Drainage – Acceptable Solutions*.

5.6 Surface Drainage

Stormwater runoff from the southern paved areas will be directed by pavement falls towards kerbs and gutters and collected by inlet pits at regular intervals. Runoff from the eastern pavements will also be directed by pavement flows but will fall to the centre of the pavement and be collected by surface inlet pits. Minimum surface gradients will be 0.75% on concrete paved areas and asphalt paved areas, and 0.5% in gutters. Preliminary design levels and gradients have been shown on the drawings in the Appendix to this report.

In truck pavements, grates to inlet pits and trench drains will be Class D (heavy duty) as defined in AS 3996 *Metal Access Covers, Road Grates and Frames*. Grates in other areas will be class B (medium Duty) as defined in AS 3996.

5.7 In-Ground Drainage

In general, the in-ground drainage system will be designed to convey runoff from their respective catchments up to the peak 20-year ARI storm event.

This meets the requirements set by Newcastle City Council, as set out in their *Stormwater and Water Efficiency for Development Technical Manual* dated 2004.

A preliminary design of the in-ground stormwater network has been carried out and shown on drawings 10154-SKC101 and 10154-SKC102 in the Appendix to this report. It should be noted that this design will be adjusted during detailed design, at which time surface levels will be finalised and conflicts between stormwater pipelines and other services resolved.

The southern pavement drainline system will be designed to a higher standard, to convey runoff from the peak 100-year ARI storm event. This is drainline A (and its branch lines), where the catchment does not have a defined overland flow path north of the truck pavement. Accordingly, that system will be designed to the higher standard with provision for 50% blockage of all inlets. Roofwater drainage connected to this system will also be designed to the same higher standard.

All in-ground stormwater drainage will be designed with full hydraulic calculations, including head losses at all junctions, demonstrating that the system can convey the design storms flows. The hydraulic gradeline (HGL) will be plotted on stormwater longitudinal sections which will show all crossing services. A minimum of 150mm freeboard above the calculated HGL level will be provided at all stormwater inlets.

5.8 Overland Flows

In general, stormwater runoff in excess of the capacity of the piped drainage system will be conveyed across the site by overland flow.

Newcastle City Council's Design Guidelines specify that design of drainage systems must take into account runoff from storms up to the 100-year design storm. The total 100-year runoff (Q100) from all internal catchments, assuming a typical time of concentration of 10.3 minutes, has been estimated as 5.46 cumecs.

The underground culvert running around the car park will be designed to have sufficient capacity to convey the 100 year peak discharge flow from the eastern truck pavement. Any flows which exceed the 20 year design flows will run as overland flow down the centre of the eastern pavement and drain into the inlet structure located at the northern end of the pavements.

As stated in Section 5.6 above, one catchment does not have an overland flow path, and accordingly drainline A will be designed to convey the Major design flow (100-year ARI).

5.9 On-Site Detention

Newcastle City Council requires the peak stormwater discharge from development sites to be limited using on-site detention. The requirements are set out in their *Stormwater and Water Efficiency for Development Technical Manual* dated 2004. However the PB report (ref 2) states that the development of the site will result in a reduction of the site peak discharge flow. As a result, no on-site detention will be required on the site.

The provision of two storage tanks for runoff from the entire roofed catchment will tend to reduce the discharge from the site and thereby further reduce flood effects in the downstream system.

6.0 Water Quality

The pollution control system will be required to treat the runoff from a "3-month return period" storm. (This is defined as the storm intensity that is exceeded on average 4 times per year.) Since rainfall intensity data is only available for return periods of 1 year or greater, the "3-month return period" design rainfall intensity has been derived by extrapolation of the published data on a logarithmic scale.

The specified level of treatment for the design flows (the Treatable Flow Rate) will be as follows:

- Removal of at least 95% of all particles greater than 3mm in size (eg cigarette butts or bigger).
- Settlement of suspended finer particles by filtration and/or velocity reduction.
- Removal of at least 95% of all floating oils and greases.
- Trapping of all retained materials to prevent re-mobilisation in extreme storm events.

The proposed stormwater drainage system incorporates measures for the trapping and removal of pollutants near the points of discharge. These measures consist of two combined Gross Pollutant Trap / Oil and Silt Arrestor structures, one servicing each drainline collecting runoff from paved areas.

The proposed structures will be Ecosol in-line units of the RSF 4000 series, or equivalent. These will be located at the east of the office building and north west of the car park.

Detailed calculations have been carried out and determined the required Treatable Flow Rate (TFR) 155 litres/second for the office GPT and 243 litres/second for the car park GPT. These calculations are included in the Appendix to this report. Suggested Ecosol units that provide TFRs well in excess of these requirements is the model RSF4450 for both areas.

It is important to note that, in addition to the treatment of pollutants up to the Treatable Flow Rate by the GPT, the pollutant control measures will remove trash and sediment for all return periods.

Cleaning of the pollutant control structure will be by eduction equipment (ie suction pumps) mounted on a tanker truck. The pollution control structures are located to be accessible to tanker trucks from the truck hardstand or fire access road.

The frequency of access for maintenance will depend on the rate of pollutant collections, and will be based on monitoring of the system. An initial maintenance check should be carried out 6 months after completion. Experience at other distribution centres indicates that the time between successive cleanouts could be approximately 5 years.

7.0 Erosion and Sediment Control

Erosion and sediment controls will be provided during the construction phase in accordance with Council guidelines. An Erosion and Sedimentation Control Plan has been prepared for submission with this report, and is included in the Appendix to this report. The plan includes measures such as sediment fences at the downstream edges of all disturbed areas, filters at all existing pits collecting stormwater runoff from disturbed areas, and a truck shaker tray at each point of access to the work area. Sedimentation basins have been provided, sized in accordance with the guidelines in the "Blue Book" - Managing Urban Stormwater - Soils and Construction (Landcom). Calculations are included in the Appendix to this report.

Final details of Erosion and Sediment Control measures will be documented in the drawings to be prepared for the Construction Certificate.

8.0 Rainwater Harvesting

Two rainwater harvesting tanks are proposed to be provided at a key location on site.

The first tank is located adjacent to the south-west of the truck wash under the truck pavement. The tank capacity (below the outlet pipe overflow level) would be not less than 200,000 litres (200 cubic metres). This tank would retain runoff from the southern half of the main warehouse roof, a total catchment area of 26,500 square metres. The water stored in this tank would be used for the truck wash.

A shower depositing just 7.54mm total rainfall would fill this tank. All roofwater would pass through a silt collector manhole before discharge into the rainwater collection tank.

The second tank is located to the west of the office building below the car park pavement. The tank capacity (below the outlet pipe overflow level) would be not less than 200,000 litres (200 cubic metres). This tank would retain runoff from the north-western part of the main warehouse roof and the roof of the office block, a total catchment area of 19,600 square metres. The water stored in this tank would be used for toilet flushing and irrigation

A shower depositing 10.20mm total rainfall would fill this tank. All roofwater would pass through a silt collector manhole before discharge into the rainwater collection tank.

The rainwater tanks would be topped up as necessary by potable water from Hunter Water mains, when the water level in the tanks drops below 25% capacity.

9.0 Water Re-Use

The waste water generated on site will predominantly consist of domestic sewage and can discharge to Hunter Water sewers without pre-treatment.

Trade waste will be generated on site at the Truck Wash and Refuse Collection areas. On-site treatment will be provided prior to discharge in accordance with Hunter Water Trade Waste Division requirements.

Grey water will not be re-used on site.

10.0 Water Usage Efficiency

To minimise water usage the following measures will be implemented.

1. Dual flush toilets will be provided.
2. All water-using appliances, taps and showers will be AAA rated.
3. Flow control will be provided to all tapware to control flows to 8 l/min at basins and sinks, and 9 l/min at showers.
4. Native vegetation will be provided in all landscaped areas to minimise the necessity for irrigation.

APPENDIX

Intensity frequency duration data

Average recurrence interval (years)									
Duration	**1**	**2**	**5**	**10**	**20**	**50**	**100**	**200**	**500**
5 mins	85.51	109.90	141.42	158.38	181.93	212.69	236.05	254.44	285.44
6	80.12	102.99	132.59	148.53	170.65	199.55	221.51	238.93	268.11
7	75.62	97.23	125.23	140.30	161.23	188.58	209.35	225.71	253.31
8	71.79	92.31	118.93	133.28	153.19	179.20	198.97	214.33	240.55
9	68.45	88.04	113.46	127.18	146.19	171.05	189.94	204.41	229.42
10	65.52	84.27	108.65	121.80	140.03	163.86	181.98	195.68	219.63
11	62.91	80.92	104.36	117.01	134.54	157.46	174.89	187.91	210.92
12	60.56	77.91	100.51	112.71	129.61	151.71	168.51	180.95	203.11
13	58.44	75.19	97.02	108.81	125.14	146.50	162.74	174.66	196.05
14	56.50	72.71	93.84	105.26	121.07	141.75	157.48	168.94	189.64
15	54.73	70.44	90.93	102.01	117.34	137.40	152.65	163.71	183.77
16	53.10	68.34	88.25	99.01	113.91	133.39	148.21	158.90	178.38
17	51.60	66.41	85.77	96.24	110.73	129.68	144.10	154.46	173.39
18	50.20	64.61	83.47	93.66	107.78	126.24	140.28	150.34	168.77
20	47.68	61.38	79.32	89.03	102.46	120.03	133.40	142.92	160.45
25	42.60	54.86	70.95	79.67	91.72	107.49	119.50	127.97	143.70
30	38.73	49.89	64.56	72.52	83.52	97.91	108.88	116.55	130.89
35	35.65	45.94	59.49	66.84	77.00	90.29	100.42	107.45	120.69
40	33.14	42.71	55.33	62.19	71.66	84.05	93.50	99.97	112.31
45	31.04	40.00	51.86	58.30	67.19	78.83	87.70	93.70	105.28
50	29.25	37.70	48.90	54.98	63.38	74.37	82.75	88.33	99.26
55	27.70	35.72	46.34	52.12	60.08	70.52	78.48	83.68	94.05
60	26.35	33.98	44.10	49.61	57.20	67.15	74.74	79.60	89.48
75	22.96	29.62	38.46	43.28	49.91	58.61	65.24	69.85	78.54
90	20.49	26.43	34.34	38.65	44.58	52.36	58.29	62.62	70.43
2 hours	17.08	22.04	28.65	32.25	37.22	43.73	48.69	52.51	59.08
3	13.17	17.00	22.13	24.93	28.77	33.82	37.68	40.76	45.89
4	10.95	14.13	18.41	20.74	23.95	28.16	31.38	34.01	38.30
5	9.48	12.25	15.96	17.99	20.77	24.44	27.23	29.57	33.31
6	8.44	10.89	14.20	16.01	18.50	21.76	24.26	26.40	29.76
8	7.01	9.06	11.82	13.33	15.41	18.13	20.22	22.14	24.98
10	6.08	7.86	10.26	11.57	13.38	15.75	17.56	19.38	21.88
12	5.41	7.00	9.13	10.31	11.92	14.03	15.65	17.43	19.68
14	4.93	6.37	8.33	9.40	10.87	12.81	14.28	15.96	18.03
16	4.54	5.88	7.68	8.68	10.04	11.83	13.20	14.81	16.74
18	4.23	5.47	7.16	8.08	9.35	11.02	12.30	13.87	15.69
20	3.96	5.13	6.71	7.59	8.78	10.35	11.55	13.09	14.81
22	3.74	4.84	6.33	7.16	8.29	9.77	10.91	12.43	14.07
24	3.54	4.58	6.00	6.79	7.86	9.27	10.35	11.86	13.43
36	2.74	3.55	4.66	5.27	6.11	7.21	8.05	9.52	10.81
48	2.26	2.93	3.85	4.37	5.06	5.98	6.68	8.10	9.20
60	1.94	2.51	3.30	3.75	4.35	5.14	5.74	7.07	8.05
72	1.70	2.20	2.90	3.29	3.81	4.51	5.05	6.27	7.14

I_{1hr}	= 34.0mm/hr	I_{1hr}	= 67.0mm/hr
I_{12hr}	= 7.0mm/hr	I_{12hr}	= 14.0mm/hr
I_{72hr}	= 2.2mm/hr	I_{72hr}	= 4.5mm/hr

Calculations - Water Quality

The pollution control system will be required to treat the runoff from a "3-month return period" from all paved areas.

Contributing catchment:

Draining to office GPT	2.089 ha
Draining to car park GPT	3.274 ha
Total paved catchment	**5.360 ha**

Rainfall Intensity:

Rainfall intensities have been published by Newcastle City Council for return periods of 1 to 100 years. Time of concentration has been calculated at 10 minutes. Extrapolation is necessary to obtain rainfall intensity for return period less than 1 year. Refer to attached graph.

Runoff Coefficient:

Runoff coefficients are derived from the runoff coefficient for paved areas for 10-year return period, multiplied by a factor for return periods greater or less than 10 years. The runoff coefficient for paved areas for 10-year ARI is 0.90. Australian Rainfall & Runoff published runoff coefficient multipliers for return periods between 1 and 100 years. Extrapolation is necessary to obtain runoff coefficient multiplier for return period less than 1 year. Refer to attached graph.

Summary of graph results:

Return Period (ARI) Years	Rainfall Intensity for Tc = 10.0 mm/h	Runoff Coefficient Multiplier
5	130	0.95
2	102	0.85
1	81	0.80
0.25 (3 month)	**43**	**0.69**

Calculated runoff therefore becomes as follows.

For office GPT:

Q = C. I. A

= 0.69 x 0.90 x 43 x 2.089 / 360

= **0.155 cumecs**.

For eastern GPT:

Q = C. I. A

= 0.69 x 0.90 x 43 x 3.274 / 360

= **0.243 cumecs**.

Pollutant Trap Selection:

Refer to attached excerpts from Ecosol GPT technical specification.

Office GPT

For Model RSF4450 the quoted Treatable Flow Rate is in the range 0.04-0.26 cumecs, for pipe sizes between 225mm and 900mm diameter.

The required standard is 0.115 cumecs.

Thus Ecosol RSF4450 should be OK for the office GPT.

Car Park GPT

For Model RSF4450 the quoted Treatable Flow Rate is in the range 0.04-0.26 cumecs, for pipe sizes between 225mm and 900mm diameter.

The required standard is 0.243 cumecs.

Thus Ecosol RSF4450 should be OK for the eastern GPT.

Confirmation of treatment capacity at the design levels and slopes will be sought from manufacturer prior to Construction Certificate issue.

Other pollutant traps of similar capability would be acceptable.

Calculations – Sediment Basin

One sediment basin is proposed, named SB1. Calculations are based on the "Blue Book" Managing Urban Stormwater – Soils and Construction (4th Edition, March 2004).

Contributing catchment:

Draining to SB1	15.0 ha
Total site catchment	**15.0 ha**

Site Data Sheet

Locality	Beresfield – Newcastle	(Council)
Soil Hydrologic Group	D	(Appendix C)
Percent of whole subsoil dispersible	100%	(Section 6.3.1)
5-day 75th percentile Rainfall Event	24.4 mm	(Table 6.3a)
1-hour 10-year ARI intensity ($^1I_{10}$)	49.61mm/hr	(Council)
Peak Flow Runoff Coefficient (C_{10})	0.42	(AR&R)
Volumetric Runoff Coefficient (C_v)	0.35	(Appendix F)
Rainfall Erosivity (R-factor)	2,565	(Appendix A)
Soil Erodibility (K-factor)	0.38	
length / gradient (LS-factor)	0.69	
erosion control practice (P-factor)	1.3	
ground cover (C-factor)	1.0	

Sediment Basin Volume – Type F & D Soils

Basin Volume = Settling Zone Volume + Sediment Storage Zone Volume

The settling zone volume for Type F & D Soils is calculated to provide capacity to contain all runoff expected from up to the 75th percentile rainfall event. The settling zone volume (V) can be determined by the following equation:

$$V = 10 \times C_v \times A \times R_{75th\ percentile,\ 5\ day} \text{ (cu.m.)}$$

Term	Description	Value
10	a unit conversion factor	10
C_v	the volumetric runoff coefficient, defined as that portion of rainfall that runs off as stormwater over a 5-day period.	0.35
$R_{75th\ percentile,\ 5\ day}$	the 5-day total rainfall depth (mm) which is not exceeded in 75 percent of rainfall events (see table in Section 6.3.3).	24.4
A	area of catchment in hectares (ha)	15.0

$$V = 10 \times C_v \times A \times R_{75th\ percentile,\ 5\ day}$$
$$= 10 \times 0.35 \times 15.0 \times 24.4$$
$$= 1{,}281 \text{cu.m.}$$

Therefore the settling zone volume for Type F & D Soils is V = 1281 cu.m.

Total Basin Volume = Settling Zone Volume + Sediment Storage Zone Volume

The Sediment Storage Zone Volume for Type F & D Soils has been stipulated as 50 percent of the Settling Zone Volume (Section 6.3.3) for soils that are not highly erodible. For highly erodible soils the Sediment Storage Zone Volume should be determined more precisely using the RUSLE outlined in the next section.

Sediment Basin Storage Volume – Soil Loss Calculation

The Sediment Storage Zone Volume has been calculated as equal to 100 percent of the settling zone for Type C Soils or 50 percent of the settling zone for Type F & D Soils. However, for highly erodible soils the Sediment Storage Zone Volume should be determined more precisely. This can be calculated as being equal to the average 2-month soil loss from the disturbed areas of the catchment. This volume (V) is determined by the Revised USL Equation (RUSLE) (Appendix A) as follows.

$$V = 0.17 \times A \times R \times K \times LS \times P \times C / 1.3 \text{ cu.m.}$$

Term	Description	Value
0.17	a factor converting annual estimated soil loss to the 2-month soil loss	0.17
A	disturbed area (ha)	15.0 ha
R	RUSLE R-factor (Appendix A)	2565
K	RUSLE K-factor (Appendix A)	0.38
LS	RUSLE LS-factor (Appendix A)	0.69
P	RUSLE P-factor (Appendix A)	1.30
C	RUSLE C-factor (Appendix A)	1.00
1.3	a factor to convert tonnes to cubic metres based on a typical density of saturated sediment of 1.3 tonnes/cu.m.	1.3

$V = 0.17 \times A \times R \times K \times LS \times P \times C / 1.3$

$= 0.17 \times 15 \times 2565 \times 0.38 \times 0.69 \times 1.3 \times 1.0 / 1.3$

$= 1{,}715$ cu.m.

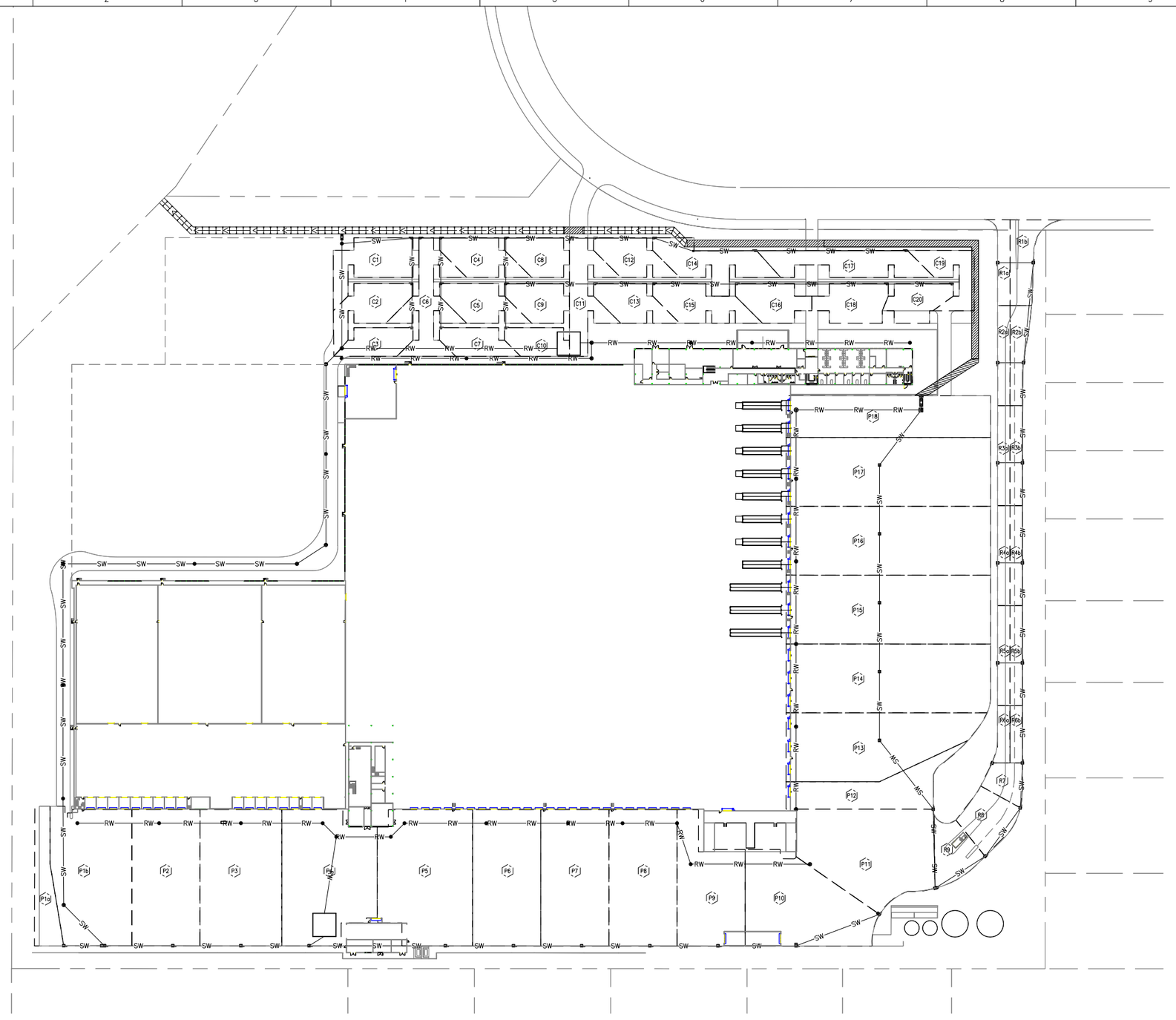
Therefore the sediment storage zone volume is V = 1,715 cu.m.

Total Basin Volume = Settling Zone Volume + Sediment Storage Zone Volume

= 1,281 + 1,715

= 2,996 cu.m.

Provide basin 60m x 45m x 1.2m deep (length to width ratio 1.33)



SITE CATCHMENT PLAN

SCALE 1:1000

0 10 20 30 40 50 m

PAVEMENT CATCHMENTS	
CATCH No.	AREA (ha)
P1a	0.0525
P1b	0.2050
P2	0.1800
P3	0.2180
P4	0.2230
P5	0.2370
P6	0.1800
P7	0.1800
P8	0.1800
P9	0.1430
P10	0.1867
P11	0.2130
P12	0.0975
P13	0.2130
P14	0.2725
P15	0.2730
P16	0.2730
P17	0.2730
P18	0.1655

ROAD CATCHMENTS	
CATCH No.	AREA (ha)
R1a	0.0216
R1b	0.0426
R2a	0.0243
R2b	0.0305
R3a	0.0242
R3b	0.0242
R4a	0.0242
R4b	0.0242
R5a	0.0242
R5b	0.0242
R6a	0.0146
R6b	0.0140
R7	0.0252
R8	0.0475
R9	0.0440

CAR PARK CATCHMENTS	
CATCH No.	AREA (ha)
C1	0.0638
C2	0.0525
C3	0.0343
C4	0.0470
C5	0.0470
C6	0.0689
C7	0.0346
C8	0.0399
C9	0.0399
C10	0.0320
C11	0.0593
C12	0.0425
C13	0.0425
C14	0.0665
C15	0.0535
C16	0.0431
C17	0.0694
C18	0.0480
C19	0.0408
C20	0.0393

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STORMWATER CATCHMENT PLAN

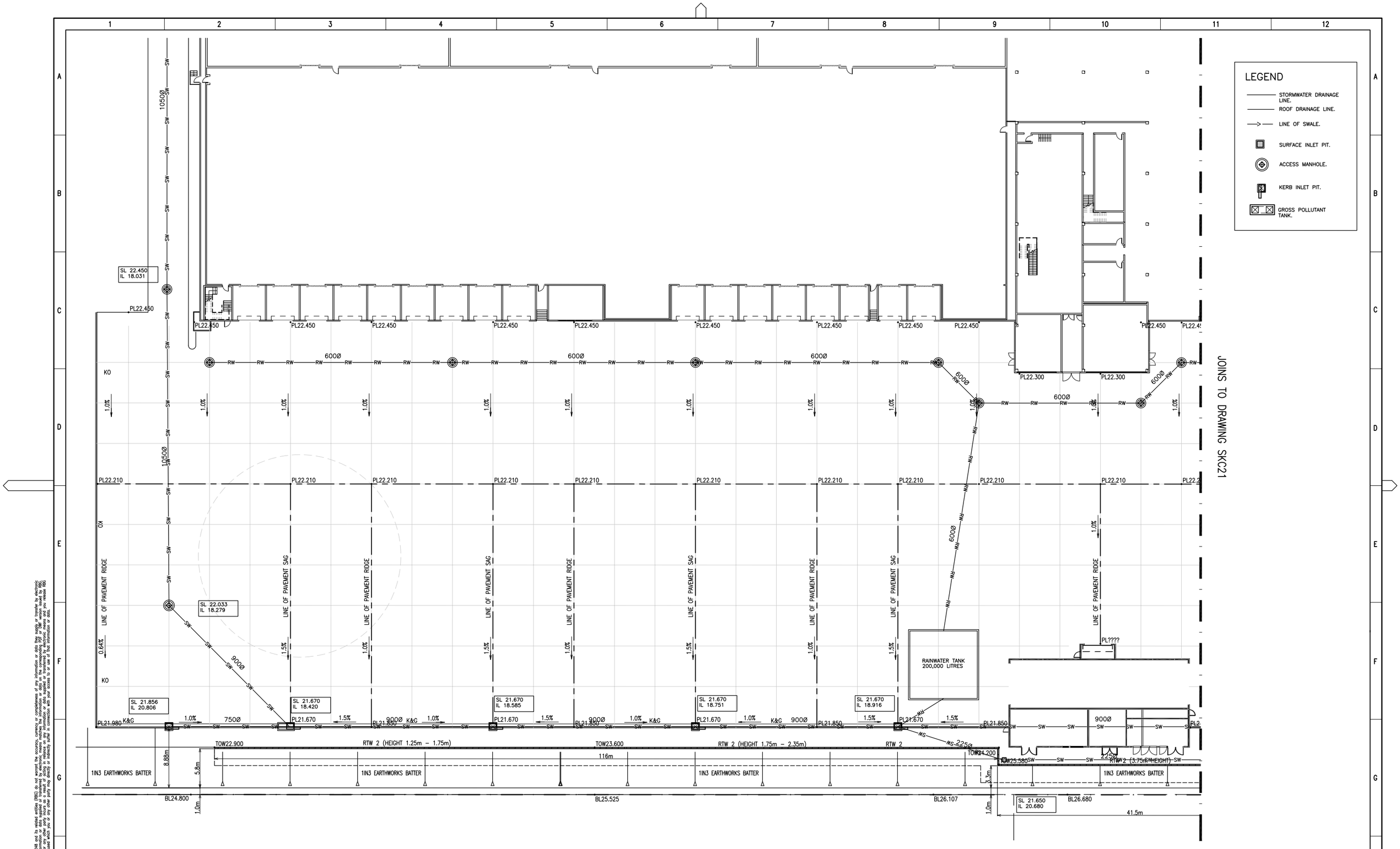
Project
ALDI DISTRIBUTION CENTRE,
BERESFIELD

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Date	Design	Checked
08.07.10	I. Harris	
Scale @ A1	Drawn	Approved
1:1000	I. Harris	
Job Number	Drawing Number	Revision
10154	SKC11	2

A1

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



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4	ISSUED FOR APPROVAL	IH	BG	22.07.10

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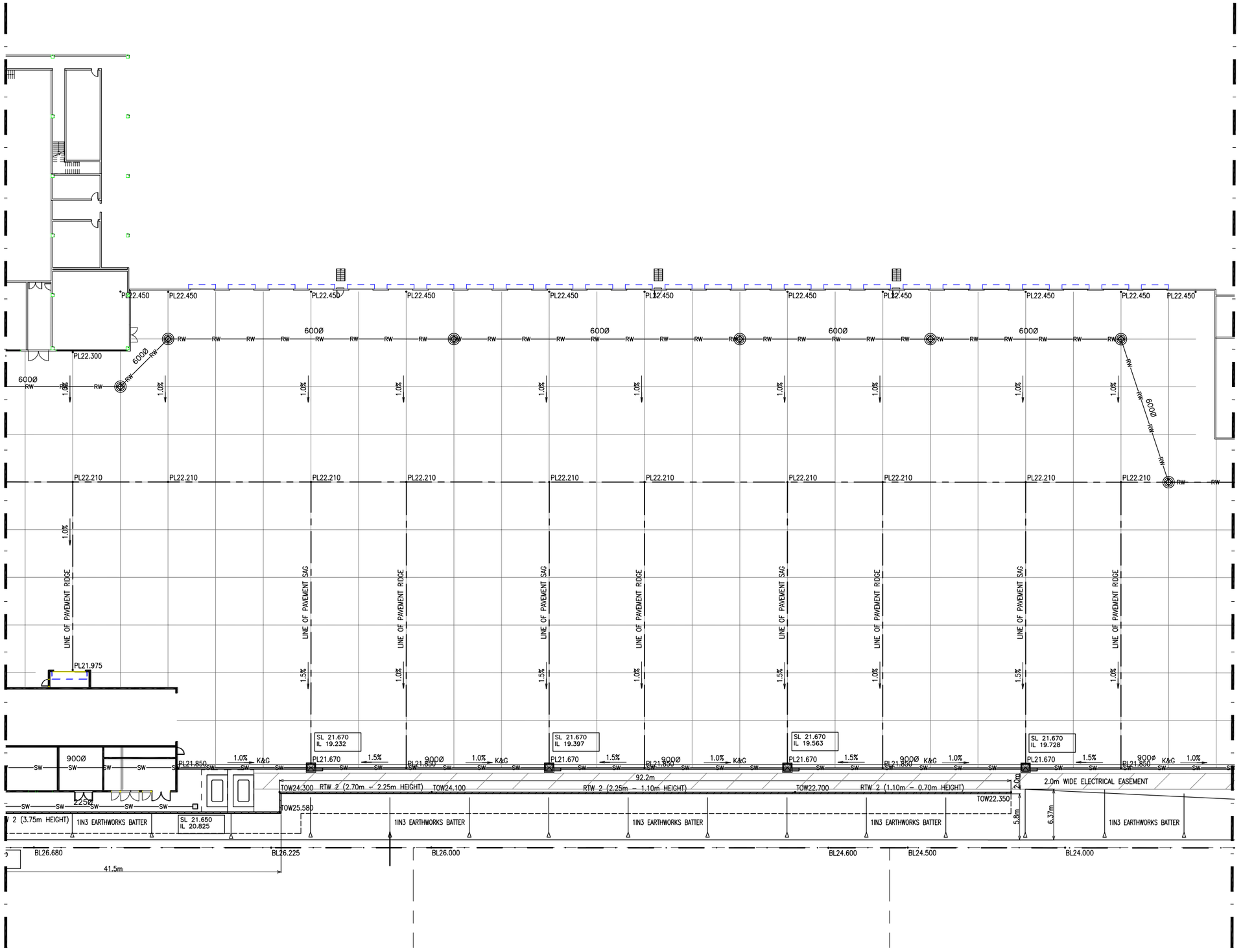
Title
GENERAL ARRANGEMENT PLAN
SHEET 1 OF 8

Project
ALDI DISTRIBUTION CENTRE,
BERESFIELD

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Date	Design	Checked
21.07.10	I. Harris	
Scale @ A1	Drawn	Approved
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10154	SKC20	4

A1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



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GENERAL ARRANGEMENT PLAN
SHEET 2 OF 8

Project
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22.07.10	I. Harris	
Scale @ A1	Drawn	Approved
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Job Number	Drawing Number	Revision
10154	SKC21	4

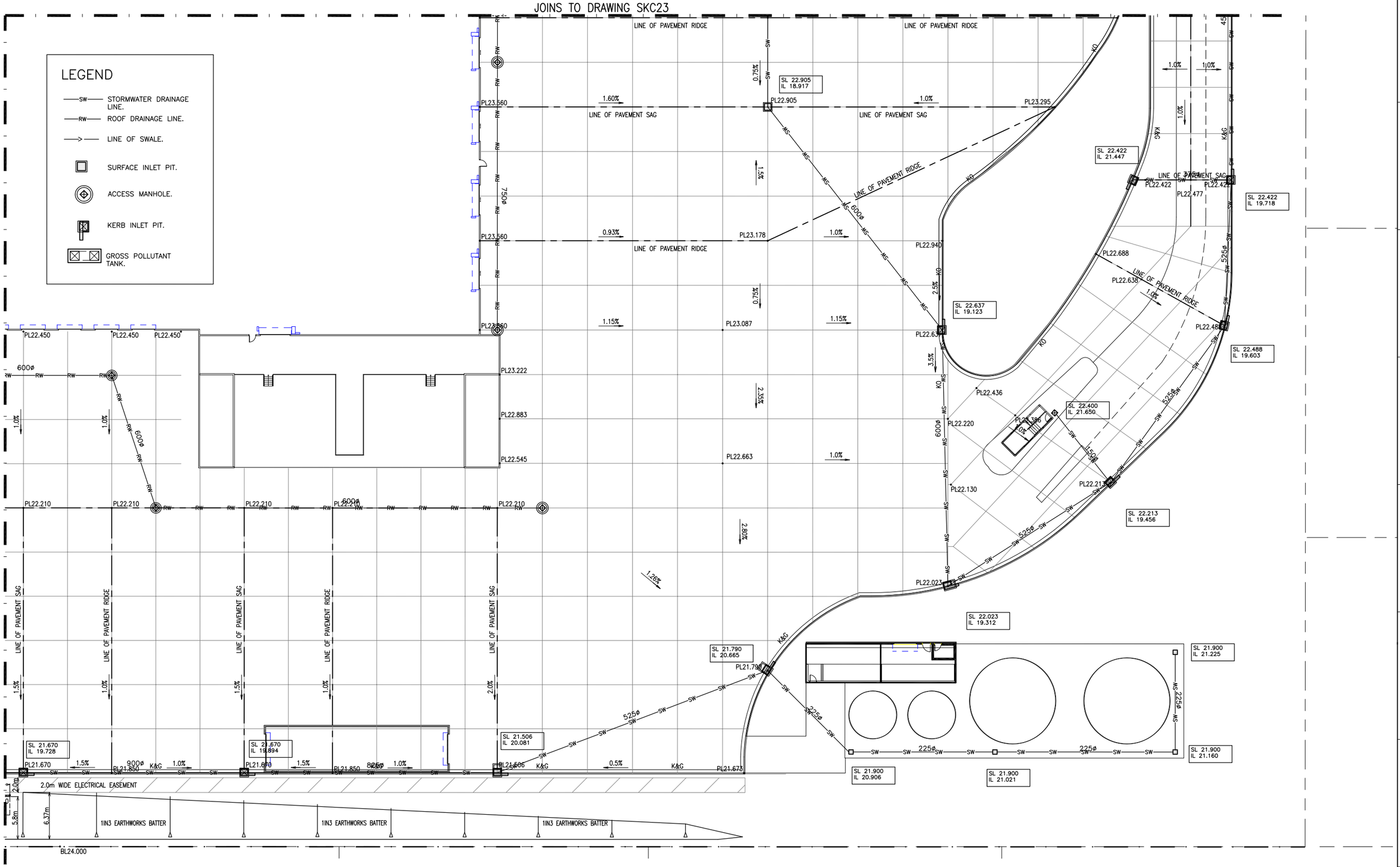
A1
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JOINS TO DRAWING SKC23

JOINS TO DRAWING SKC21

LEGEND

- SW — STORMWATER DRAINAGE LINE.
- RW — ROOF DRAINAGE LINE.
- LINE OF SWALE.
- SURFACE INLET PIT.
- ACCESS MANHOLE.
- KERB INLET PIT.
- GROSS POLLUTANT TANK.



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GENERAL ARRANGEMENT PLAN
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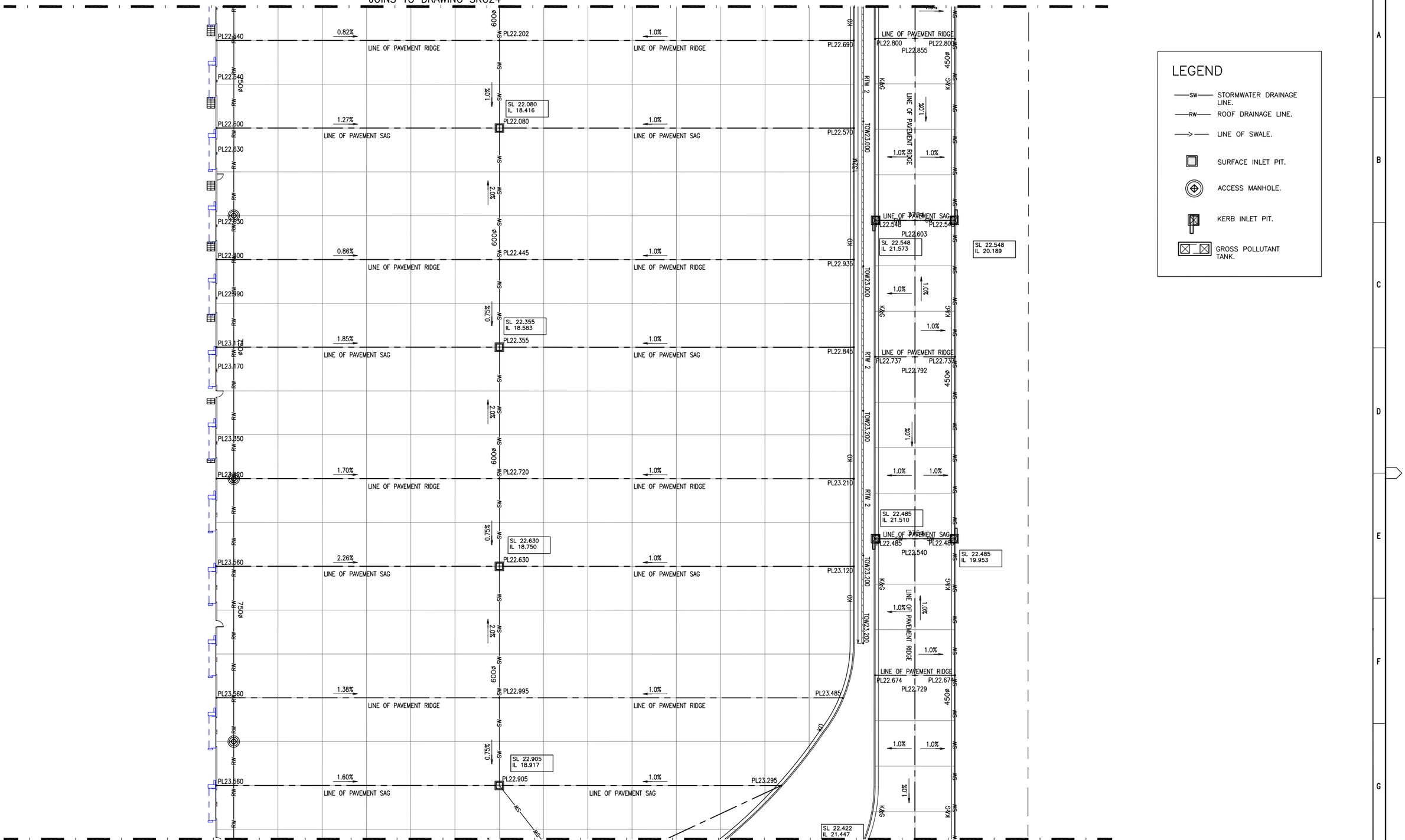
Project
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22.07.10	I. Harris	
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10154	SKC22	4

A1 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

JOINS TO DRAWING SKC24



JOINS TO DRAWING SKC22

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SHEET 4 OF 8

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Date	Design	Checked
21.07.10	I. Harris	
Scale @ A1 1:1000	Drawn I. Harris	Approved
Job Number	Drawing Number	Revision
10154	SKC23	4

A1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

JOINS TO DRAWING SKC25

JOINS TO DRAWING SKC23

LEGEND

- SW — STORMWATER DRAINAGE LINE.
- RW — ROOF DRAINAGE LINE.
- LINE OF SWALE.
- SURFACE INLET PIT.
- ACCESS MANHOLE.
- KERB INLET PIT.
- GROSS POLLUTANT TANK.

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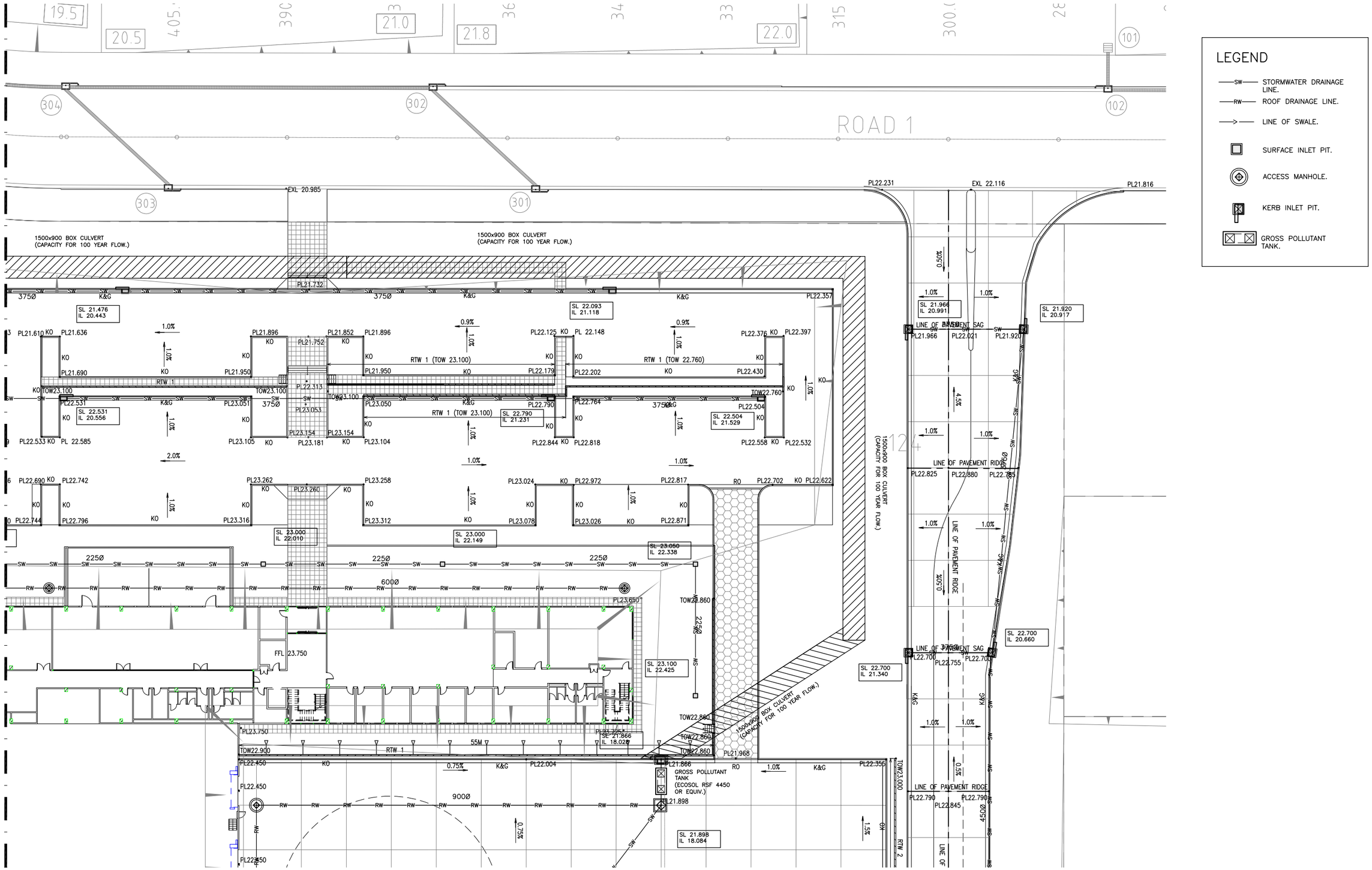
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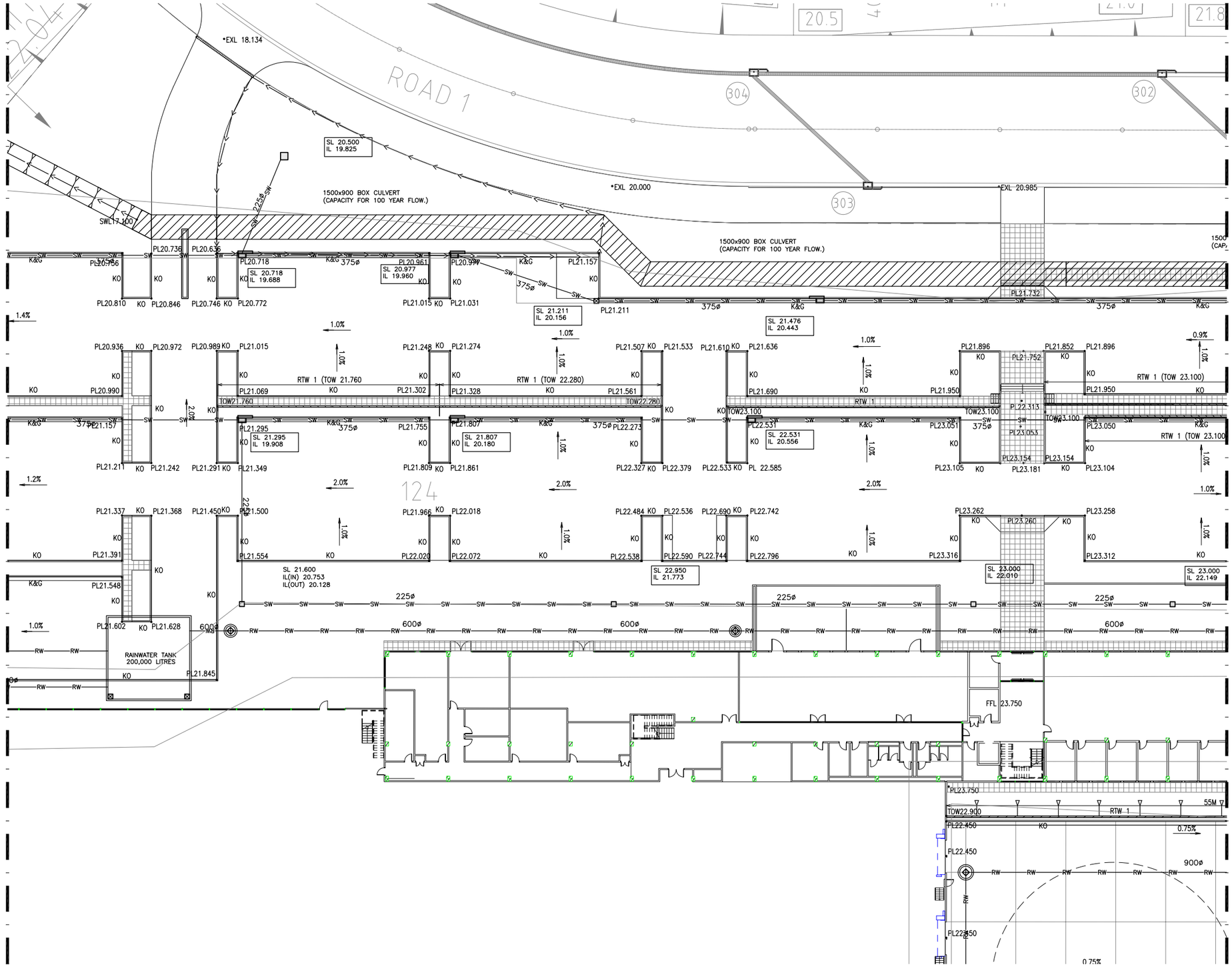
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GENERAL ARRANGEMENT PLAN
SHEET 6 OF 8

Project
ALDI DISTRIBUTION CENTRE,
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22.07.10	I. Harris	
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Job Number	Drawing Number	Revision
10154	SKC25	4

A1 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



LEGEND

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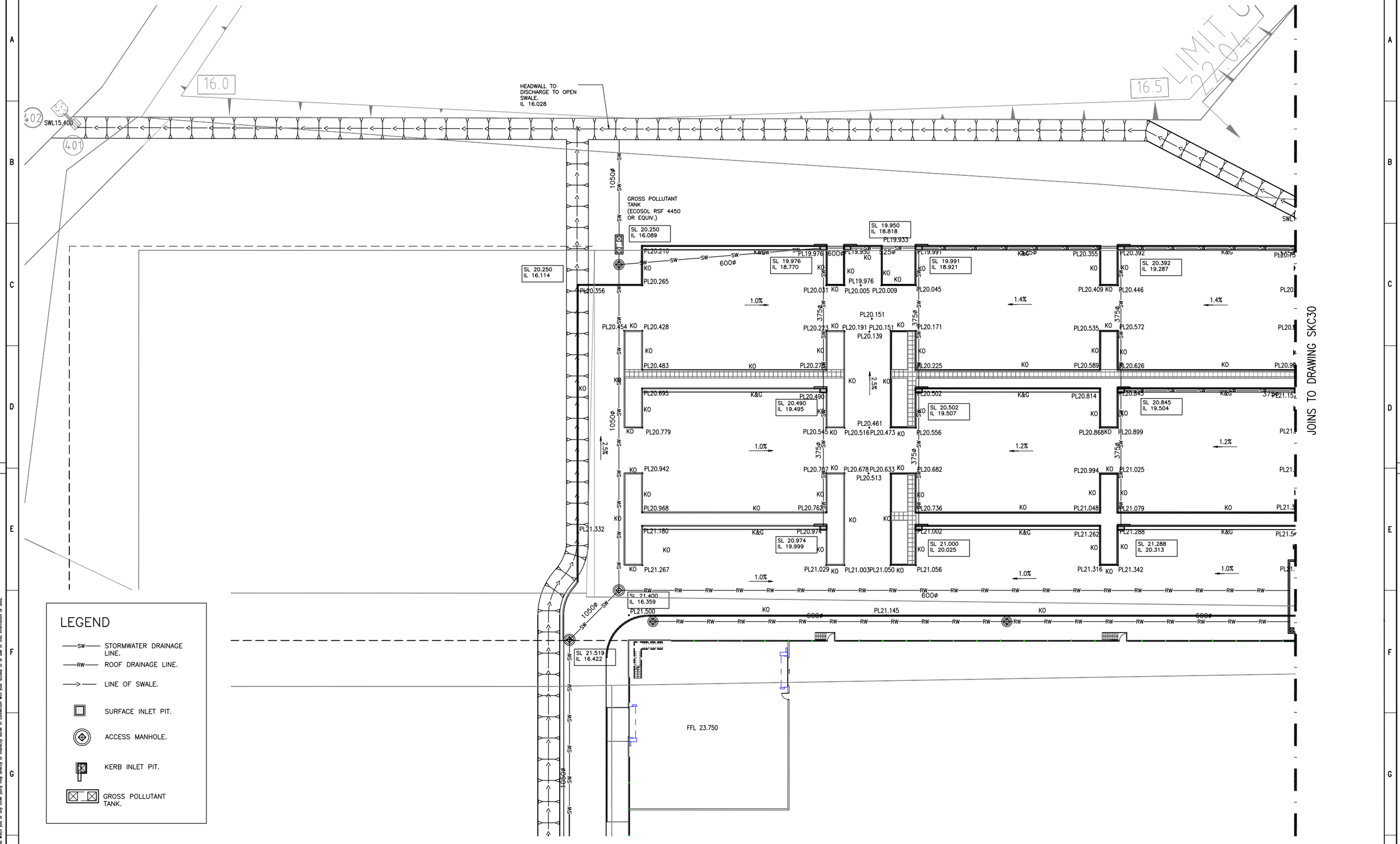
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GENERAL ARRANGEMENT PLAN
SHEET 7 OF 8

Project
ALDI DISTRIBUTION CENTRE,
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Date	Design	Checked
22.07.10	I. Harris	
Scale @ A1 1:1000	Drawn I. Harris	Approved
Job Number	Drawing Number	Revision
10154	SKC30	4

A1 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



LEGEND

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4	ISSUED FOR APPROVAL	IH	BG	22.07.10

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Client
ALDI FOODS LTD.

Title
GENERAL ARRANGEMENT PLAN
SHEET 8 OF 8

Project
ALDI DISTRIBUTION CENTRE,
BERESFIELD

NOT FOR CONSTRUCTION

Date	Design	Checked
22.07.10	I. Harris	
Scale @ A1 1:1000	Drawn I. Harris	Approved
Job Number	Drawing Number	Revision
10154	SKC31	4

A1
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

EROSION AND SEDIMENT CONTROL NOTES

1. ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH:
   (A) LOCAL AUTHORITY REQUIREMENTS,
   (B) EPA – POLLUTION CONTROL MANUAL FOR URBAN STORMWATER,
   (C) DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT MANUAL– "URBAN EROSION & SEDIMENT CONTROL".
2. EROSION AND SEDIMENT CONTROL DRAWINGS AND NOTES ARE PROVIDED FOR THE WHOLE OF THE WORKS. SHOULD THE CONTRACTOR STAGE THESE WORKS THEN THE DESIGN MAY REQUIRE TO BE MODIFIED. VARIATION TO THESE DETAILS MAY REQUIRE TO BE APPROVED BY THE RELEVANT AUTHORITIES. THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE IMPLEMENTED AND ADOPTED TO MEET THE VARYING SITUATIONS AS WORK ON SITE PROGRESSES.
3. MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
4. WHEN STORMWATER PITS ARE CONSTRUCTED PREVENT SITE RUNOFF ENTERING THE PITS UNLESS SILT FENCES ARE ERECTED AROUND PITS.
5. MINIMIZE THE AREA OF SITE BEING DISTURBED AT ANY ONE TIME.
6. PROTECT ALL STOCKPILES OF MATERIALS FROM SCOUR AND EROSION. DO NOT STOCKPILE LOOSE MATERIAL IN ROADWAYS, NEAR DRAINAGE PITS OR IN WATERCOURSES.
7. ALL SOIL AND WATER CONTROL MEASURES ARE TO BE PUT BACK IN PLACE AT THE END OF EACH WORKING DAY, AND MODIFIED TO BEST SUIT SITE CONDITIONS.
8. CONTROL WATER FROM UPSTREAM OF THE SITE SUCH THAT IT DOES NOT ENTER THE DISTURBED SITE.
9. ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE VIA THE APPROVED CONSTRUCTION ENTRY/EXIT ROUTE.
10. ALL VEHICLES LEAVING THE SITE SHALL BE CLEANED AND INSPECTED BEFORE LEAVING.
11. MAINTAIN ALL STORMWATER PIPES AND PITS CLEAR OF DEBRIS AND SEDIMENT. INSPECT STORMWATER SYSTEM AND CLEAN OUT AFTER EACH STORM EVENT.
12. CLEAN OUT ALL EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH STORM EVENT.
13. ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS HAVE BEEN COMPLETED.

SEQUENCE OF WORKS

1. PRIOR TO COMMENCEMENT OF EXCAVATION THE FOLLOWING SOIL MANAGEMENT DEVICES MUST BE INSTALLED.
   1.1. CONSTRUCT SILT CONTROL DEVICES BELOW THE SITE AND ACROSS ALL POTENTIAL RUNOFF SITES.
   1.2. CO-ORDINATE CONSTRUCTION ENTRY/EXIT ROUTES WITH PROJECT MANAGER. ARRANGE SUITABLE LOCATION FOR THE INSPECTION OF TRUCKS PRIOR TO LEAVING SITE AND DIVERT RUNOFF TO SUITABLE CONTROL SYSTEM.
   1.3. CONSTRUCT MEASURES TO DIVERT UPSTREAM FLOWS INTO EXISTING STORMWATER SYSTEM.
   1.4. PROVIDE SANDBAG SEDIMENT TRAPS UPSTREAM OF EXISTING PITS.
   1.5. LOCATE A 1.8 METRE CHAIN WIRE FENCE AROUND THE BOUNDARIES AND ATTACH HESSIAN CLOTH TO IT ON THE WINDWARD SIDE (TIES AT THE TOP CENTER AND BOTTOM AND AT 1 METRE INTERVALS.
2. DISTURBED AREAS ARE REGULARLY WATERED TO REDUCE DUST POLLUTION.
3. CONSTRUCT GEOTEXTILE FILTER PIT SURROUND AROUND ALL PROPOSED PITS AS THEY ARE CONSTRUCTED.
4. ON COMPLETION OF PAVEMENT PROVIDE SAND BAG KERB INLET SEDIMENT TRAPS AROUND PITS.
5. PROVIDE AND MAINTAIN A STRIP OF TURF ON BOTH SIDES OF ALL ROADS AFTER THE CONSTRUCTION OF KERBS.

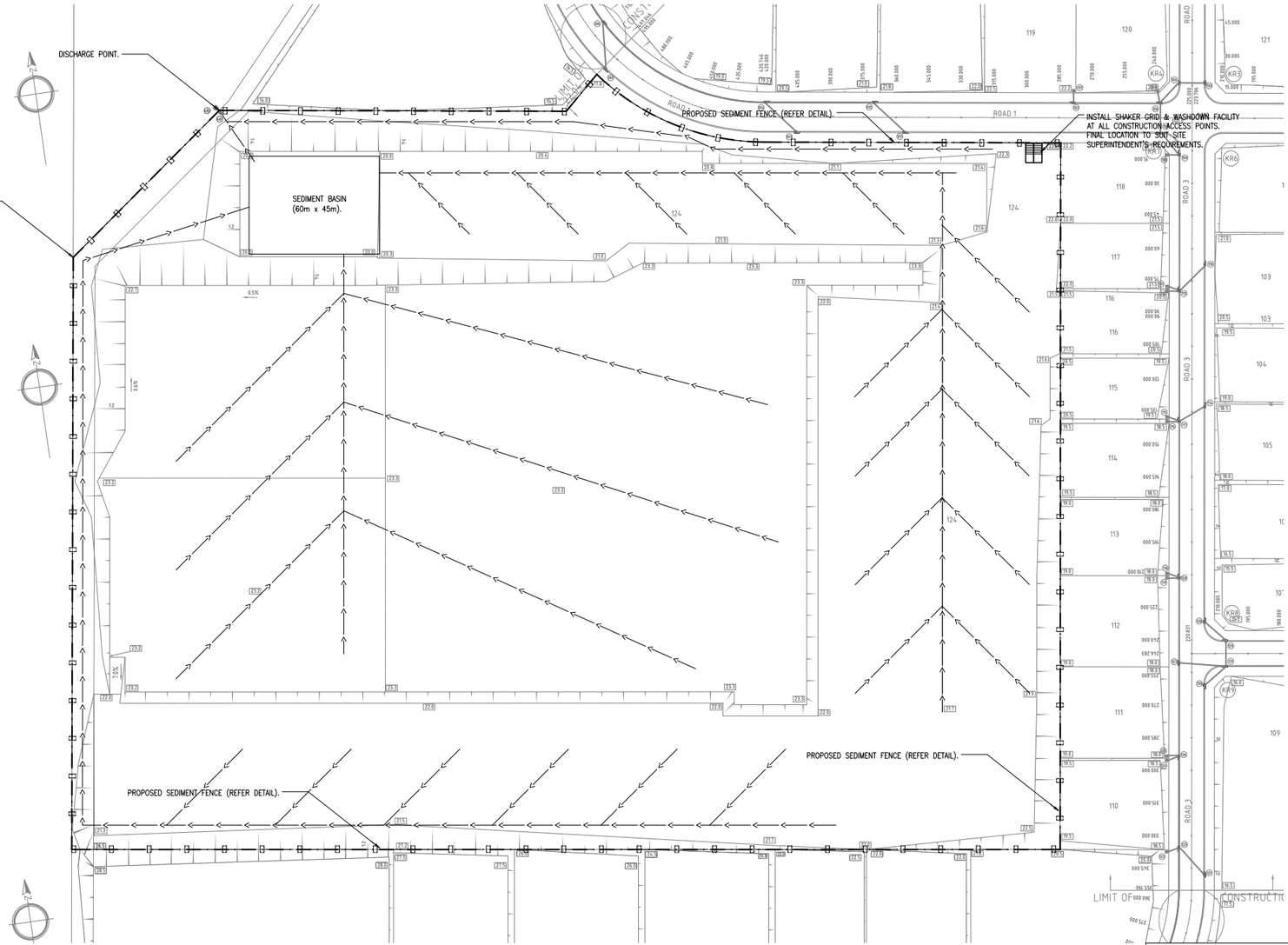
STOCKPILE NOTES

1. SPOIL & TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE. STOCKPILES TO BE SURROUNDED BY FILTER FENCE TO CHECK EROSION.
2. IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 30 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH MULCH OR WITH TEMPORARY VEGETATION.
3. FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATE AS SHOWN BELOW:

LEGEND

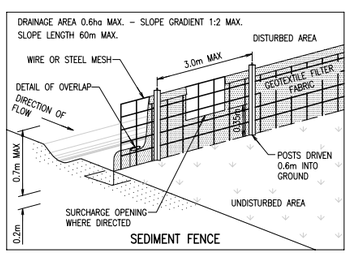
PROPOSED SEDIMENT FENCE ——[]——[]——

PROPOSED CATCH DRAIN —>——>——>—



NOTE:

1. REFER TO STORMWATER MANAGEMENT PLAN FOR SEDIMENT BASIN DESIGN.

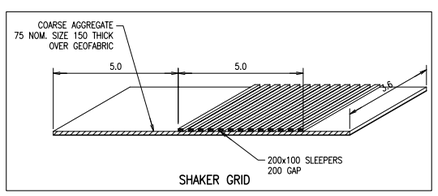


SEDIMENT FENCE

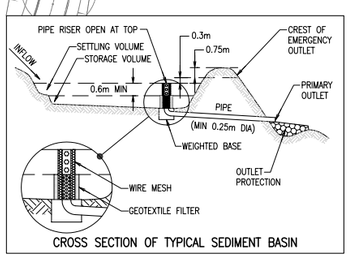
INSTALLATION

1. EXCAVATE A TRENCH 200mm DEEP.
2. DRIVE POSTS 500–700mm INTO GROUND AT A MAXIMUM SPACING OF 3.0m CENTRES.
3. PLACE AND FIX SUPPORT MESH (F52) TO POST.
4. LAY BIDIM GEOFABRIC (SF 2000) AGAINST THE SUPPORT MESH AND FIX BY TIE WIRE, STAPLES OR HOG RINGS.
5. PLACE BIDIM IN TRENCH AND BACKFILL WITH SOIL.

NOTE:
POSITION OF SEDIMENT FENCE AS DIRECTED BY SUPERINTENDENT. FENCE TO REMAIN IN PLACE UNTIL EXCAVATION IS BELOW FOOTPATH LEVEL. PROVIDE 2mx2m TURFED AREA ON DOWNSTREAM SIDE OF FENCE AT SURCHARGE OPENINGS.



SHAKER GRID



CROSS SECTION OF TYPICAL SEDIMENT BASIN

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DO NOT SCALE DRAWINGS, USE FIGURED DIMENSIONS

REFER COVER SHEET FOR NOTES UNLESS NOTED OTHERWISE

NOT FOR CONSTRUCTION

SCALE 1:1000

0 10 20 30 40 50 m

Rev	Revision Description	By.	App.	Date
1	ISSUED FOR APPROVAL	IH	BG	09.07.10

Structural & Civil Engineering Consultant

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Client
ALDI FOODS LTD.

Project
ALDI DISTRIBUTION CENTRE BERESFIELD

Title
EROSION & SEDIMENTATION CONTROL PLAN

Date	Design	Checked
08.07.10	I.Harris	
Scale @ B1	Drawn	Approved
AS NOTED	I.Harris	
Job Number	Drawing Number	Revision
10154	SKC 103	1

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Appendix H

BCA and Access – Phillip Chun & Associates

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BUILDING CODE OF AUSTRALIA CAPABILITY REPORT

PROPOSED ALDI DISTRIBUTION CENTRE

WEAKLEYS DRIVE, BERESFIELD, NSW

Report prepared for:	ALDI Stores C/- APP Corporation Pty Ltd Level 4, 6 Newcomen Street Newcastle NSW 2300 Attention: Andrew McSwann
Report prepared by:	Philip Chun Building Surveying Suite 404, 44 Hampden Road Artarmon NSW 2064 Contact: Philip Smillie
Report Ref:	R01_10114
Job Number:	N10114
Date.	28 July 2010

Introduction

At the request of APP acting for ALDI Stores we offer comments and recommendations in respect to Building Code of Australia compliance for the proposed new ALDI Distribution Store at Lot 124, Weakleys Drive Beresfield NSW.

The documentation assessed is as depicted in Architectural drawings prepared by Woodhead numbered:

- BER-A-2030: 0001W(D), 0002W(D), 0003W(C), 0004W(D), 0005W(c) 1000W(D), 1010W(C), 1040W(D), 1041W(C), 1085W(B), 2000W(D), 2100W(C), 3000W(C).

In accordance with Parts C, D, E, F and J of the Building Code of Australia 2010 this report is intended to bring to the attention of the client any areas of major regulatory concern.

Building Code of Australia 2010 Comments

1. **New Building Works**:
   It is proposed to construct a new ALDI Distribution Centre containing a warehouse area and cool house with adjoining two storey office accommodation. A fuel fill / truck wash and Maintenance workshop are to be located to the south of the site.

2. **Use and Class of Buildings**:
   The general Classes of the building is as follows:-
   - Class 7b – Ambient Warehouse & Cool House
   - Class 5 – Two storey Office
   - Class 10a – Fuel Fill / Truck Wash (286m^2)
   - Class 8 – Maintenance Workshop (138m^2)

3. **Type of Construction**:
   The proposed warehouse building part will have a rise in storeys of 2 and is required to be of not less than Type C construction when treated as a large isolated building. The office block portion is proposed to be non-sprinkler protected and fire separated from the warehouse. The office fire compartment size being approx 4255m^2 will need to be of Type B construction.

   The Fuel Fill / Truck Wash (286m^2) and Maintenance Workshop (138m^2) will both be separate buildings and may be Type C construction

4. **Fire Resistance**:
   Truck wash bay area is approx 7m away from the rear boundary and therefore does not require any fire rating to the external walls of the truck wash bay area.

   Maintenance Workshop area appears to be 10m away from the rear boundary and therefore does not require any fire rating to the external walls.

   The warehouse external walls are located more than 3 metres from the property boundary and hence these walls do not require a fire rating.

   The office external walls are more than 18 metres from the property boundary and more than 18 metres from the far side of the new link road and hence these walls are not required to be fire rated.

   The wall between the office and the warehouse is required to be a fire wall so as to separate between uses and between sprinkler protected and non sprinkler protected areas. The required fire rating for this wall is 120/120/120. As the office is to be constructed of type B construction the loadbearing columns and internal loadbearing walls are required to achieve a fire rating of 120/-/-.

The west external wall of the office and the north external wall of the ambient warehouse as well as the south external wall of the office and east wall of warehouse need to be fire rated for a length of 4m where the internal fire wall intersects with these external walls (Clause C3.3).

The walls bounding any boiler room and main switch room need to be fire separated from the remainder of the building. The fire rating required for these walls is 120/120/120. Other plant rooms will need to be fire rated if they contain lift motor rooms, emergency generators, boilers or batteries.

5. **Fire Compartmentation**:
Office: The fire compartment size limits for Type B buildings (Classification 5 - Offices) cannot exceed 5,500m^2 in area or 33,000m^3 in volume - *complies.* The total floor area for each office level is approximately 2,128m^2 at ground floor and 2,127m^2 at first floor resulting in a total of 4255m^2. This fall within the Type B limits.

Warehouse: The fire compartment size of the warehouse will be approximately 50,000m^2 floor area. While this exceeds the limits for a Type C Building (2000m^2 max), the intention is to consider the office and warehouse as a Large Isolated Building under Clause C2.3. For full compliance with BCA the entire building would need to be sprinkler protected and the warehouse part would require a smoke exhaust system. The current proposal is not to provide sprinkler protection to the office and to provide natural venting in lieu of smoke exhaust. These proposals are to be assessed as part of the fire safety engineering assessment for the building.

As part of the Large Isolated Building requirements an emergency vehicle access road is required around the perimeter. It is understood the design will except comply with Clause C2.4(b) except to the north side of the office where the distance of the outer side of the 6m wide vehicle path will be 23m in lieu of 18m maximum. The alternative solution will need to address Clause CP9.

The Fuel Fill / Truck Wash (286m^2) and Maintenance Workshop (138m^2) do not exceed the Type C construction limits

6. **Fire Separation and Protection of Openings**:
Openings require protection only where an external wall that requires an FRL is situated less than the following from a fire source feature: 3m from a side or rear allotment boundary 6m from the far boundary of a road adjoining the allotment 6m from another building on the allotment other than of Class 10. *Complies – No openings require protection under Clause C3.2.*

The west external wall of the office and the north external wall of the ambient warehouse as well as the south external wall of the office and east wall of warehouse need to be fire rated for a length of 4m where the internal fire wall intersects with these external walls. Any openings in these specific walls will require protection under Clause C3.3. Details to be assessed at the construction certificate stage.

Doorways within internal fire rated walls will need to achieve a fire rating of 120 minutes. Other openings within the internal fire rated walls (i.e. window openings, roller shutters etc.) may need to be assessed by the fire safety engineer.

7. **Access and Egress:**
The proposed plans have been checked and comments are as follows:
- Clause D1.4 of the BCA allows a maximum distance of travel 20m to a point where alternative egress is available and a total distance of travel of 40m to an exit. Based on the plans provided, the distance of travel to an exit in the warehouse will exceed this requirement. It is anticipated the fire engineered solution will need to allow up to 100m distance to a single exit.

- Clause D1.5 allows the maximum distance between alternative exits in the warehouse and office be limited to 60m. Based on the plans provided, the maximum travel between exits in the warehouse will exceed this requirement. It is anticipated the fire engineered solution will need to allow up to 195m distance between alternative exits.

- Disabled Access must be provided through the front entrance and from the accessible car spaces. Access for disabled persons is to meet the requirements of AS 1428.1. There must be no steps or ramps steeper than 1 in 14 at the entrance. Any kerb ramps and walkways are required to be accessible must comply with AS 1428.1. It appears that the required access will be available.

- Within the office accommodation, the circulation space at doorways needs to make allowance for disabled access with regard to the latchside clearance. Construction Certificate Door schedules will need to show the clear opening width is not less than 800mm. To achieve this, 870mm wide door leafs are required.

8. **Fire Hydrants & Fire Hose-reels:**
   A complying ring main is required to serve the building. The Hydraulic engineer should provide details of the proposed street hydrant service based on the capability of existing mains. The fire hydrant system must be installed in accordance with AS 2419.1-2005. *The fire hydrant booster assembly is to be located adjacent to the sprinkler tanks in south east corner of the site and not strictly within view of the main entry. NSWFB approval is needed for this under Performance Clause EP1.3.*

   Internal fire hose reels are required to serve fire compartments greater than 500m^2. They must be located within 4m of an exit or adjacent to fire hydrants so as to provide coverage complying with the requirements of AS 2441-2005. Details will be required to be provided at the Construction Certificate stage.

9. **Sprinklers:**
   An extensive sprinkler system will be required throughout the warehouse areas complying with BCA Spec E1.5, Clause C2.3(b) and AS 2118.1-1999. As the office will not be sprinkler protected, compliance with Clause C2.3(b) will not be achieved and a fire engineered alternative solution will be required addressing performance requirement EP1.4.

10. **Fire Control Centre:**
    As the warehouse is over 18,000m^2 in area, a fire control centre facility will be required. This must provide an area from which fire fighting operations or other emergency procedures can be directed or controlled. *The fire control centre is to be located adjacent to the sprinkler tanks in south east corner of the site and not strictly within view of the main entry. NSWFB approval is needed for this under Performance Clause EP1.6.*

11. **Extinguishers:**
    Fire extinguishers must be provided to all locations which are deemed a potential risk to the occupants of the building, i.e. areas such as main switchboards.

12. **Smoke Hazard Management:**
    Under Clause C2.3(b) and Table E2.2a, the size of the fire compartment within the warehouse may be exceeded if it is protected throughout with a sprinkler system and provided with perimeter vehicular access. In addition, if the ceiling height of the fire compartment is less than 12m, it will require a smoke exhaust system in accordance with Spec E2.2(b) or smoke-and heat vents. It is understood that the smoke exhaust system is intended to be deleted or reduced. A Fire Engineering alternative solution will be required address this at Construction Certificate Stage.

13. **Exit and emergency lighting**:
    Exit signs and emergency lights must be provided throughout the proposed building in accordance with Clauses E4.2, E4.5 and E4.6 and AS 2293.1 - 2005.

14. **Sanitary Facilities:**
    The number of persons working within the office and warehouse areas can either be estimated according to floor areas under Clause D1.13 or given from the Client. We understand that based on figures from ALDI a maximum of 400 persons will be accommodated. A unisex disabled person's toilet will also be required for the building. The disabled person's toilet is to comply with the requirements of AS1428.1

15. **Energy Efficiency Part J:**
    Being a new building, those areas with conditioned spaces (i.e. offices and cool rooms) require compliance with Part J. A report from a suitably qualified consultant will be required.

16. **Conclusion:**

    We have assessed the building preliminary design and have reviewed the scheme with respect to the Building Code of Australia 2010. Where meeting the deemed to satisfy provisions of the Building Code of Australia is not possible, alternative solutions will be required to meet the performance requirements.

    Of special note are the following non compliances:
    - Clause C2.4(b) is marginally contravened to the north side of the office where the distance of the outer side of the 6m wide vehicle path will be 23m in lieu of 18m maximum. An alternative solution will need to address BCA Performance Clause CP9.
    - Excessive travel distances within the warehouse and cold house area (DP4 and EP2.2);
    - Location of the Fire Control Centre and Hydrant Booster not within sight of the main entry (EP1.3 and EP1.6);
    - Provision of an automatic sprinkler system throughout the warehouse and office areas complying with C2.3(b) and AS 2118.1-1999 is required. If the office is not sprinkler protected an alternative solution will be required (EP1.4);
    - The required warehouse smoke exhaust system is understood to be proposed to be modified or deleted an alternative solution will be required (EP2.2).

PHILIP CHUN
ACCESSIBILITY

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Ref: AP_ALDI Beresfield rev1_20100715.doc

15 July 2010

Woodhead
343 Pacific Highway
North Sydney NSW 2060

Attention: **John Stefanatos**

Dear John

Re: **Accessibility Plan**
Project: **ALDI Beresfield**

Philip Chun Accessibility provides the following professional opinion in regards to access for people with disabilities to and throughout the proposed ALDI Distribution Centre, Beresfield.

1.0 INTRODUCTION

This access report has been prepared for Woodhead and represents a review of all aspects of access to and within the site with respect to the Building Code of Australia (BCA), Disability Discrimination Act 1992 (*Cth*) (DDA), and relevant Australian Standards as applicable to this project. This report confirms accessibility has been appropriately addressed in the associated planning documentation and confirms the Client's commitment to the development of an equitable and accessible environment for all.

The following documentation prepared by Woodhead was reviewed as part of our assessment:

Document No	Title	Revision
SK01A	Beresfield Option 1 ALDI Distribution Centre Template Documents	A

2.0 DISABILITY DISCRIMINATION ACT 1992 (*Cth*) (DDA)

The Disability Discrimination Act 1992 (*Cth*) (DDA) states it is unlawful to discriminate on the basis of disability, protecting persons with disability and their associates. Section 23 of the DDA relates to access to premises and facilities which the public may enter or use, and states it is unlawful to:

a) Refuse access to, or the use of, any premises, or the facilities within them.
b) Impose terms or conditions specific to persons with disability and their associates on the access and use of any premises or facilities;
c) Exclude access based on the provision of an appropriate means of access;

d) Request persons with disability or their associates to leave premises or cease use of facilities.

In contrast to building regulations, the DDA is not prescriptive and at this stage there are no specific DDA standards which can be adhered to, in order to ensure premises owners and facility providers meet the spirit and intent of the Act and eliminate their risk of attracting a complaint.

There is a misconception that compliance with the BCA equals compliance with the DDA; however there is a lack of uniformity between these legislative documents. The BCA stipulates minimum provisions for access and are by no means ideal. In order to provide guidance on this issue, the Australian Human Rights Commission (AHRC) have produced 'Advisory Notes on Access to Premises'[1] to assist designers, builders, owners, managers, operators, regulators and users in their understanding of the application of Section 23 of the DDA.

There is an intention for the Australian Building Codes Board (ABCB) to make considerable changes to the BCA, to form part of a new National Standard for access to premises. It is aimed that this Premises Standard will provide greater consistency between the Acts, clarifying the objectives of the DDA through the modification of the deemed to satisfy provisions of the BCA. Currently, this Standard is in draft and further deliberation is required to ensure its implementation will increase accessibility to premises and facilities without imposing undue burdens on the building industry.

In the interim, Philip Chun refers to the Advisory Notes produced by AHRC in addition to the Premises Standards, draft and current Australian Standards.

3.0 PROJECT DESCRIPTION

It is understood that the project is the construction of a new two storey Distribution Centre comprising of:

- Ambient warehouse
- Offices and training facilities
- Coolhouse
- Refuse
- Associated staff amenities
- Car parking

4.0 ACCESS PROVISION

The following areas of the development will be accessible by the public and staff, excluding maintenance and storage facilities, enabling safe, equitable and independent travel. It should also be noted that the ambient warehouse, coolhouse, plant areas and refuse area will not be fully accessible because of the particular purpose for which these areas are used i.e. it is envisaged that these areas to be used by able-bodied persons due to security and mobility issues. All other areas, office and training areas, will be accessible.

4.1 Parking Provisions

A total of 300 car parking spaces will be provided within the car park for the site for employees and visitors. A total of six accessible car parking spaces for use by people with disabilities are proposed within the car park. This is appropriate to meet the requirements of AS 1428.2:1992 Clause 14.1; AS 2890.1:1993 Table C1) which requires 2% of the total car parking spaces to be accessible for commercial facilities and therefore satisfy the recommendations under the DDA.

[1] Human Rights and Equal Opportunity Commission (HREOC), 'Advisory Notes of Access to Premises', 1996

Where appropriate all accessible car parking bays will be designed in accordance with AS 2890.6:2009 'Parking for People with Disabilities'. This proposed standard outlines changes for the design and provision of car parking for people with disabilities which exceeds current BCA requirements and enhances functionality for users. It is understood that this standard will be released and referenced under the BCA with the Premises Standards 2010.

All accessible car parking spaces for people with disabilities will be provided with appropriate dimensions of not less than 2400mm X 5400mm (dedicated space) with an adjacent space of 2400mm X 5400mm designated for loading and unloading (shared area) (per AS 2890.6:2009). The length of accessible car parking may be reduced to 4900mm where a 6400mm roadway is proposed.

Accessible car parking areas will be located within close proximity to the building entry limiting travel distance on the vehicular roadway. Vertical signage incorporating the international symbol for access will be installed, in addition to delineation on the surface of the parking area to meet the requirements of AS 1428.1:2009, AS 1428.2:1992, AS 2890.1:2004 and AS 2890.6:2009.

4.2 External Access to the Site

Widths of not less than 1500mm will be maintained to paths of travel and crossfall will not exceed 1:40, however wherever lengths are greater than 20m appropriate passing spaces of 1800mm x 2000mm. This includes the path of travel from the allotment boundary to the entry of the building and the path of travel from the accessible parking spaces to the entry of the building. External paths will be designed and constructed in accordance with AS 1428.1 (2001), AS 1428.2 (1992) and other accessibility guidelines relating to surface finish and path delineation.

4.3 Building Entrances and Internal Doors

Each entrance to the development will provide a clear opening width of not less than 850mm to not less than the operable leaf (minimum 920mm door leaf width). Approach to entrances will have landings no greater than 1:40 grade with sufficient area on either side of the door to enable independent access by wheelchair users, persons with ambulant disabilities and parents with prams, in accordance with AS 1428.1:2009.

All internal doors will enable independent access by all users, including clear opening widths of not less than 850mm to the operable leaf (minimum 920mm door leaf width) and appropriate circulation space for operation, per AS 1428.1:2009.

Door hardware and any security measures will be selected and installed to comply with the requirements of AS 1428.1:2009

4.4 Internal Paths of Travel

Internal paths of travel will be designed to enable safe and dignified travel by all. Continuous accessible paths of travel will be provided from the car parking area and building entrances.

All areas of the development, excluding service and maintenance areas are accessible by means of a lift and corridors will be provided with minimum widths of 1500mm with appropriate passing areas of 1800mm (width) X 2000mm (length) at intervals of not greater than 20m. It should be noted that the First Floor to the Spine area of the building is served by stairs only. This area is the amenities area (gender sanitary facilities, showers and lunch room) predominately for the use of ambient warehouse and cool house employees. As noted above, these workers will be ambulant to due the nature of the work. However on the Ground of the Spine there is some provision of

workstations for administrative roles. Therefore should a person with a disability be employed or an employee acquires a disability, ALDI are committed to facilitation people with disabilities and will allow for the future provision of a lift to this area to enable all employees to access the lunchroom. An accessible combined facility will be accommodated on the Ground Floor at this time however.

Finished surfaces, including wall, floor and door finishes will be selected to ensure adequate definition for people with varying degrees of vision impairment, such as minimum 30% luminance contrast between door and door frame, or door frame and adjacent wall. Appropriate visual indication which meets the compliance criteria of AS 1428.1:2009 will be installed to all frameless or fully glazed doors and sidelights, and any glazing which may be mistaken for a doorway or opening.

4.5 Stairs

All stairs used for communication purposes will be designed and constructed with tread and riser dimensions which meet the minimum requirements of the BCA. In addition, handrails will be installed to both sides of the stairs with appropriate and consistent heights, diameter, detail and profile in accordance with AS 1428.1:2009.

Hazard indication, including visual nosing to stair treads and warning tactile ground surface indicators will be installed to meet AS 1428.1:2009 and AS 1428.4.1:2009.

Stairs will be setback a minimum of 900mm from transverse paths of travel to accommodate handrails extensions and warning tactile ground surface indicators without posing hazard to passers by.

4.6 Lifts

The passenger lifts will be provided with appropriate internal dimensions of not less than 1400mm (width) X 1700mm (depth). Lifts will be provided with enhanced features for people with disabilities to meet the parameters of AS 1735.12 (1999), including however not limited to, handrails and tactile and Braille lift landing and car controls.

4.7 Accessible Sanitary and Shower Facilities

An accessible sanitary facility will be where gender facilities are provided and an accessible shower facility for people with disabilities will be provided wherever gender shower facilities are proposed.

The internal dimensions and layout of these facilities will be appropriate to ensure circulation of not less than 1900mm X 2300mm to the pan and 1600mm X 2350mm to the shower, in accordance with AS 1428.1:2009. The washbasin will not encroach greater than 100mm into these spaces.

All accessible facilities will be designed and constructed with appropriate selection and placement of fixtures and fittings which enable access by all users and meet the compliance requirements of AS 1428.1:2009 and AS 1428.2 (1992).

4.8 Hearing Augmentation

Hearing augmentation listening systems are essential to enable the vast majority of people with varying degrees of hearing loss. An appropriate assistive listening system, inclusive of tactile and Braille signage will be provided within the Training Rooms on the First Floor. Where an induction loop system is installed, not less than 80% of the floor area of the space must be served by the system. Where a system requires receivers, not less than 95% of the floor area of the space must be served by the system installed.

In addition to the above, the management of the facility will ensure access to computed aided real time captioning (CART) access to captioning on television and video display facilities will be made available to those requiring it on an as needs basis.

4.9 Kitchen Facilities

A kitchen facility and tea rooms are proposed throughout the building. Consideration to the design of kitchen facilities to enable access by people with disabilities will be undertaken. This includes consideration to a bench height of 870mm in lieu of 900mm, location of the sink and installation of pipework and selection and location of fixtures and appliances.

4.10 Office Utility Areas

There are a number of office utility areas located throughout the building. Consideration to the design of utility areas to enable access by people with disabilities will be undertaken. This includes consideration to a bench height of 870mm in lieu of 900mm, appropriate knee and foot clearance to the underside of utility benches and appropriate circulation space within the room.

4.11 Way-finding Strategy and Facility Signage

When development of the designs progress, a comprehensive review of the proposed way-finding strategy and signage package will be undertaken to ensure predictability and consistency of information which facilitates safe, independent and dignified travel by all.

The way-finding strategy will be developed with consideration to existing landmarks and visual features of the development, including the use of varied finished surfaces to differentiate areas of each building.

Tactile and Braille signage will be provided to meet the compliance requirements of the BCA and provisions outlined in AS 1428.1:2009 and AS 1428.2 (1992) including additional signage where deemed appropriate.

4.12 Emergency Evacuation

Limited detail has been provided at this stage regarding the proposed evacuation strategy, including the procedure for the evacuation of individuals with temporary and permanent impairments and high level mobility needs.

The complimentary use of lifts in addition to egress stairs is recommended to ensure prompt and safe evacuation of people with special needs. If incorporated into the evacuation strategy, additional provisions will be made in the design and construction to ensure the integrity of the lifts is not compromised in an emergency.

Philip Chun Access has endeavored to ensure all key aspects of access provision have been addressed and all reasonable attempts have been made to identify the main matters pursuant to the DDA. This professional opinion is subject to further assessment of detailed design documentation; to ensure the design principles are adhered to throughout subsequent stages of design and construction.

This statement confirms accessibility has been appropriately addressed in the associated concept application documentation, relative to the level of detail provided, and confirms the Client's commitment to the development of an equitable and accessible environment for all.

If you have any queries in regard to the above, please do not hesitate to contact the undersigned.

Yours sincerely,



Kara Chun
Director
PHILIP CHUN ACCESS

Appendix I

Infrastructure & Services – Wood & Grieve

WOOD & GRIEVE ENGINEERS

ALDI Warehouse and Distribution Facility Beresfield
Environmental Assessment
Electrical, Hydraulic and Fire Services

Prepared for:
ALDI Foods Pty Ltd

3rd August 2010

Prepared by Mark Mulholland and Antonio Lo Monte 22249-SYD-H
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CONTENTS

1. INTRODUCTION 2
2. ELECTRICAL SERVICES 3
3. HYDRAULIC SERVICES 4
4. FIRE SERVICES 5
5. SERVICES CONNECTION DRAWING 7

1. INTRODUCTION

Wood and Grieve Engineers have prepared this report to assist in the preparation of the Environmental Assessment document for the new ALDI Warehouse and Distribution Centre at Beresfield, NSW. The report addresses the infrastructure issues which will be designed and documented by Wood and Grieve Engineers including Electrical Services, Hydraulic Services and Fire Services.

2. Electrical services

ELECTRICAL SERVICES

General

Electrical systems will be designed in accordance with the following:

- The Building Code of Australia, including relevant clauses of Section J.
- Relevant Australian Standards.
- Energy Australia Rules and Installation Rules of New South Wales.
- Any additional requirements of regulatory authorities having jurisdiction over the works and electrical supplier.

Power Supply

- Two kiosk type 1000 kVA substations will be located in the Southern Area of the site in close proximity to the Truck Wash Building and underground high voltage cables will be routed in an easement from the road to the substations. The arrangement has in principal support from Energy Australia. The substations will have the required 3 metre clearance from any areas used for the storage of combustible material.
- A standby supply diesel generator will provide back up power to all plant and equipment essential to ALDI's operation in the event of a power failure. The generator will be located in a room in close proximity to the Truck Wash Building. As the generator will be located in a 2 hour fire rated room the proximity to the fuel fill area will not create a hazard
- Underground consumer's mains will be reticulated from the substations to the main switchboard which will be located in the Plant Spine on the southern side of the warehouse.
- Authority meters will be located adjacent to the main switchboard.
- The main switchboard will then distribute power to distribution boards located throughout the facility.

Power Usage

- Peak Demand is to be controlled and limited to a preset and adjustable peak value by smart load monitoring and shedding of low priority loads. Energy efficient long life lamps will be utilised together with zoned lighting controls to minimise energy use on site.

External Lighting

- External lighting will be designed utilising energy efficient luminaires and in accordance with the requirements of AS 4282, Control of Obtrusive Effects of Outdoor Lighting. In addition a combination of light sensor and time clock controlled switching will be utilised to minimise energy use.

Communications

- Incoming copper and fibre optic lead-in cables will be provided from the Northern Boundary to the Building Distributor room, which will accommodate the Building Distributor and Fibre Optic cabinets by the Telecommunications Service Provider.

MATV

- A Master Antenna Television (MATV) system will be provided to receive and distribute all free-to-air digital as well as analogue VHF and UHF transmissions available in the area. Thoughtful placement of the television aerial will avoid protrusion of the aerial into sight lines.

3. HYDRAULIC SERVICES

HYDRAULIC SERVICES

General

Hydraulic systems will be designed in accordance with the following:

- The Building Code of Australia, including relevant clauses of Section J.
- Relevant Australian Standards.
- Hunter Water Regulations
- New South Wales Plumbing Code of Practice

Sewer Drainage

Sanitary drainage will be provided to the office and warehouse areas as required on the Room Data Sheets. These will be prepared during the Developed Design. The sanitary drainage will discharge and connect to the sewer main provided by Hunter Water at the Northeast corner of the proposed development.

Water Supply

Preliminary discussions with Hunter Water have indicated that they will be providing a new 300mm water main to the front of the property consisting of 3 x 150mm connections provided for the Fire and Water Services.

As the proposed water mains have not been constructed, Hunter Water have only been able to provide indicative water main characteristics. The current indicative loads predicted that will be available for the site are 20L/S at 250kPA.

At present full storage will be required for both the Fire Hydrants and Fire Sprinkler System.

Trade Waste

Oil and silt arrestors will be provided (Truck Wash Area and Plant Room) as one system. In ground grease arrestors will be provided to Refuse Area, these will discharge to the Hunter Water, sewer main located at the North East corner of the property.

Gas Services

There are currently no gas mains serving the proposed development site, from preliminary discussions with Hunter Land. Jemena has made no comment to indicate the provision of gas services to the site. The current tender agreement between ALDI and Hunter Land indicates that Hunter Land will provide a natural gas connection to the front of the development which will cater for a 3000 MJ/hr connected load at 100kPA.

If the proposed gas connections are not provided then ALDI will need to consider the use of on-site LPG Storage for the gas appliances and fixtures at the Distribution Centre.

4. FIRE SERVICES

FIRE SERVICES

General

Fire systems will be designed in accordance with the following:

- Relevant current Australian Standards and codes
- Building Code of Australia, (BCA)
- Newcastle City Council
- Hunter Water
- New South Wales Fire Brigade
- New South Wales Rural Fire Brigade
- Fire engineered solutions and report
- Bush Fire Report

Automatic Fire Sprinkler System

- The installed automatic fire sprinkler system will comply with AS2118.1 - 1999.
- The fire sprinkler system will have full capacity storage provided on site at the rear of the property in the South East corner.

The sprinkler system will cover the following areas:

- Ambient warehouse
- Plant areas
- Cool house (Including within Freezer)
- Void area above the cool-house

The facility will be subject to the Fire Engineered solution to avoid the need for mechanical smoke exhaust to the warehouse and Cool house, also including the location of the Fire Hydrant and Fire Sprinkler Storage Tanks.

- ESFR Sprinkler have been allowed for in the ambient and chilled Warehouse area.

Fire Detection System

- An analogue fully addressable fire detection system will be installed in accordance with AS 1670 and AS 1668 where required by the Fire Engineering report and the BCA Consultant.
- A mimic panel will be located at the warehouse manager's office to produce an alarm notification via the addressable interface on the LCD display.
- Visual alarms are proposed for areas of high noise, i.e. plant rooms, cool stores, cold handling areas.
- Multi-point aspirating smoke detection system will be installed to the Freezer room. Location of the units will be such that condensation is not to form in the sampling chamber.
- The system will be designed to provide concise specific information on the fire alarm to allow fast response by the NSWFB and security personnel.
- Other equipment connected to the fire system will include sprinkler and hydrant valve monitoring devices, flow switches, magnetic door holders, duct probes and smoke hazard management systems.

Emergency Warning and Intercommunications System

The EWIS will be designed to AS 1670.4, and will comprise:

- Indicator panel located in the fire control room.
- Horn speakers
- Ceiling speakers
- Warden Intercom Points
- PA system

Water Supply

A water supply will extend from the new water main to be installed in the road bounding the north side of the project and supply the Fire hydrant service and the fire sprinkler service storage tanks. The tanks have not been designed to fight any bush fire's directly, their sole purpose is the active fire protection of the proposed distribution facility and its contents.

Fire Hydrant System

- External fire hydrants will be installed to a performance based design, in accordance with AS 2419.

Fire Hose Reel System

Fire hose reels will be 36-metre length, 25 mm hose and adjustable nozzles.

- All hose reels will be located within built-in cupboards in office areas. It is acceptable for hose reels to warehouse and Plant areas to be exposed.
- All hose reels will be installed generally to AS2441 or in accordance with the Fire Engineering report.
- All hose reels will be connected to the domestic water supply.

Portable Fire Extinguishers

- Portable fire extinguishers will be located to suit specific hazard and in plant areas, adjacent electrical switchboards. A 2.5 kg extinguisher will be fitted to each pallet jack/fork.

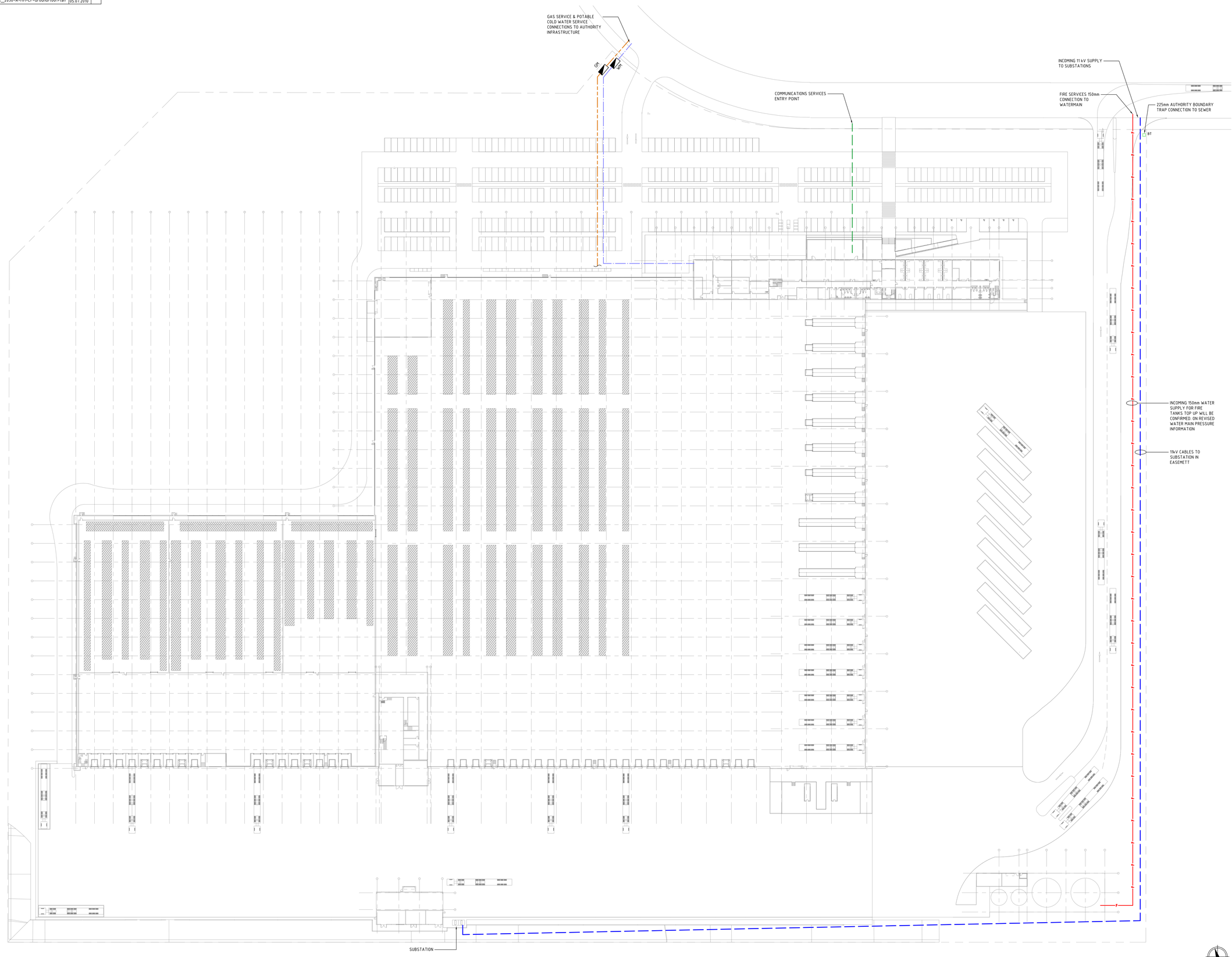
Fire Trip

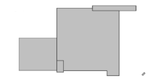
- A fire signal will trip all mechanical switchboards, ridge vents and operate in accordance with the design methodology with an override switch in the fire control room.
- A control panel to open / close louvers' in the Ambient Warehouse will be provided in the Fire Control Room.

5. SERVICES CONNECTION DRAWING

Attached is drawing No SK-05-EH, Site Entry points.

REFERENCE COORDINATION DRAWINGS			
DISCIPLINE	DRAWING No.	DATE	REV
MECHANICAL	NSW - A0 TITLE	05.07.2010	
ARCHITECTURAL	X_2030-A-MM-LF-GroundFloorPlan	05.07.2010	





REV.	DESCRIPTION	DRAWN	APP'D	DATE
A	PRELIMINARY	AHW	ALM	02.08.10

CLIENT:

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WOOD & GRIEVE ENGINEERS

PERTH
MELBOURNE
SYDNEY
BRISBANE
ALBANY
BUSSELTON

PROJECT:
ALDI BERESFIELD

TITLE:
HYDRAULIC SERVICES
GROUND FLOOR

PRELIMINARY
NOT FOR CONSTRUCTION

DESIGNED :	ALM	VERIFIED :	ALM
DRAWN :	AHW	APPROVED FOR TENDER :	---
SCALE :	1:500@A0	APPROVED FOR CONSTRUCTION :	---

CAD FILE: SK-05-EH.dwg PLOT DATE/TIME: 03.08.10 02:35 PM

PROJECT No.	DRAWING No.	REVISION
22249-SYD	SK-05-EH	A

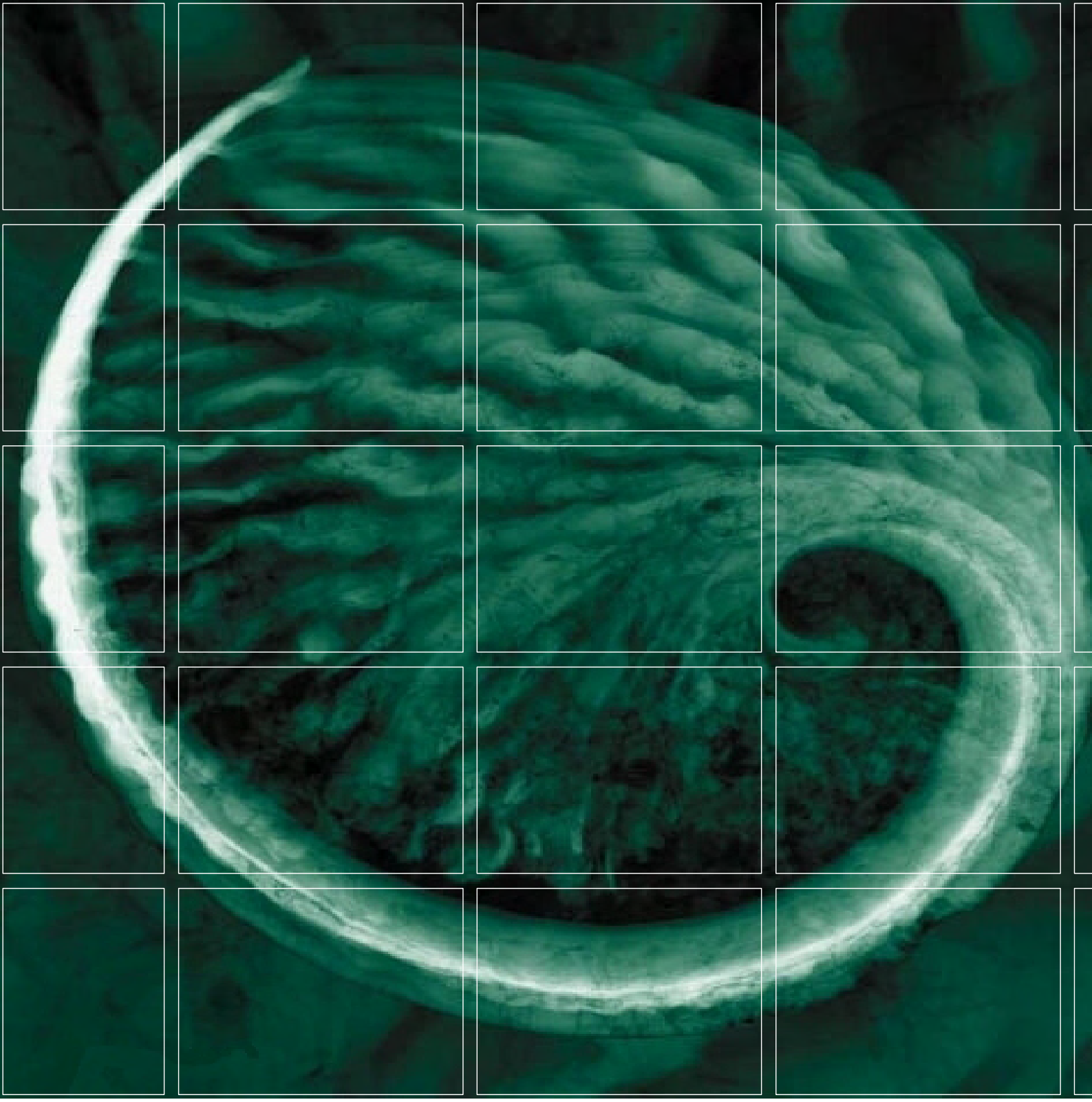
North

AO DRAWING – BUILDING SERVICES GROUP

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Appendix J

Noise Impact Assessment - ERM



ALDI Regional Warehousing & Distribution Facility, Freeway North Business Park, NSW

Noise Impact Assessment

ALDI Foods Pty Ltd

August 2010

0117126 Final

www.erm.com

ALDI Regional Warehousing & Distribution Facility, Freeway North Business Park, NSW

Noise Impact Assessment

Approved by:	*Rebecca Warren*
Position:	Project Manager
Signed:	
Date:	*13 August, 2010*
Approved by:	*Steve O'Connor*
Position:	Principle
Signed:	
Date:	*13 August, 2010*

Environmental Resources Management Australia Pty Ltd Quality System

Certified System
Quality
ISO 9001
SAI GLOBAL

Quality-ISO-9001-PMS302

ALDI Foods Pty Ltd

August 2010

0117126 Final

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This report has been prepared in accordance with the scope of services described in the contract or agreement between Environmental Resources Management Australia Pty Ltd ABN 12 002 773 248 (ERM) and the Client. The report relies upon data, surveys, measurements and results taken at or under the particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client. Furthermore, the report has been prepared solely for use by the Client and ERM accepts no responsibility for its use by other parties.

FINAL REPORT

ALDI Foods Pty Ltd

ALDI Beresfield Warehousing & Distribution Facility, Beresfield, NSW

Noise Impact Assessment

August 2010

Reference: 0117126 NIA

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CONTENTS

1	*INTRODUCTION*	
2	*PROPOSED OPERATIONS*	
2.1	*SITE DESCRIPTION*	*2*
2.2	*ADJOINING LAND USES*	*2*
2.3	*OVERVIEW OF PROPOSED OPERATIONS*	*4*
2.4	*CONSTRUCTION ACTIVITIES*	*5*
2.5	*SITE ACCESS*	*5*
3	*NOISE IMPACT ASSESSMENT CRITERIA AND POLICY*	
3.1	*OPERATIONAL NOISE CRITERIA – INDUSTRIAL NOISE POLICY (INP)*	*6*
3.1.1	*ASSESSING FOR INTRUSIVENESS*	*6*
3.1.2	*ASSESSING FOR AMENITY*	*6*
3.2	*ROAD TRAFFIC NOISE CRITERIA*	*8*
3.3	*SLEEP DISTURBANCE*	*8*
3.4	*CONSTRUCTION NOISE CRITERIA*	*8*
4	*EXISTING ACOUSTIC ENVIRONMENT*	
4.1	*NOISE SENSITIVE RECEIVERS*	*9*
4.2	*BACKGROUND NOISE ENVIRONMENT*	*11*
4.2.1	*UNATTENDED CONTINUOUS NOISE MONITORING*	*11*
4.2.2	*ATTENDED NOISE MONITORING*	*12*
4.2.3	*ROAD TRAFFIC MONITORING*	*13*
5	*EXISTING METEOROLOGICAL ENVIRONMENT*	
5.1	*METEOROLOGICAL CONDITIONS*	*14*
5.1.1	*WIND*	*14*
5.1.2	*TEMPERATURE INVERSION*	*15*
5.1.3	*DRAINAGE FLOW*	*16*
6	*PROJECT-SPECIFIC NOISE LEVELS*	
6.1	*OPERATIONAL NOISE CRITERIA*	*17*
6.2	*SLEEP DISTURBANCE*	*18*
6.3	*ROAD TRAFFIC NOISE CRITERIA*	*19*
6.4	*CONSTRUCTION NOISE IMPACTS*	*19*
6.4.1	*CONSTRUCTION NOISE CRITERIA*	*19*
7	*NOISE MODELLING METHODOLOGY*	
7.1	*NOISE MODELLING*	*21*
7.2	*METEOROLOGICAL PARAMETERS*	*21*
7.3	*OPERATIONAL NOISE SOURCES*	*21*
7.4	*OPERATIONAL MODELLING SCENARIOS*	*22*
7.5	*SLEEP DISTURBANCE*	*24*

CONTENTS

7.6	ROAD TRAFFIC NOISE	24
7.7	CONSTRUCTION NOISE SOURCES	25
7.8	CONSTRUCTION NOISE MODELLING SCENARIOS	25
8	NOISE ASSESSMENT	
8.1	OPERATIONAL NOISE ASSESSMENT	26
8.1.1	OPERATIONAL NOISE LEVELS	26
8.1.2	SLEEP DISTURBANCE	28
8.2	ROAD TRAFFIC NOISE ASSESSMENT	28
8.2.1	CONSTRUCTION PHASE	30
9	SUMMARY OF FINDINGS AND RECOMMENDATIONS	
9.1	OPERATIONAL NOISE	31
9.2	SLEEP DISTURBANCE	31
9.3	ROAD TRAFFIC NOISE	31
9.4	CONSTRUCTION NOISE	31
9.5	RECOMMENDATIONS	31
9.5.1	OPERATIONAL NOISE	31
9.5.2	CONSTRUCTION MANAGEMENT PLAN	32

REFERENCES

ANNEXES

ANNEX A	GLOSSARY OF TERMS
ANNEX B	UNATTENDED LOGGING GRAPHS
ANNEX C	SOUND POWER SPECTRAL DATA

LIST OF FIGURES

FIGURE 2.1	LOCALITY PLAN	3
FIGURE 4.1	NOISE SENSITIVE RECEIVERS	10
FIGURE 8.1	NOISE LEVELS FOR DAY TIME PEAK DELIVERIES/ DISPATCH - CALM CONDITIONS	27

LIST OF TABLES

TABLE 3.1	*AMENITY CRITERIA - RECOMMENDED LAEQ NOISE LEVELS FROM INDUSTRIAL NOISE SOURCES*	*7*
TABLE 4.1	*NOISE SENSITIVE RECEIVERS*	*9*
TABLE 4.2	*BACKGROUND NOISE MONITORING*	*11*
TABLE 4.3	*SUMMARY OF EXISTING AMBIENT BACKGROUND NOISE LEVELS*	*12*
TABLE 4.4	*SUMMARY OF 15 MINUTE ATTENDED NOISE MEASUREMENTS – 25 JUNE 2010*	*13*
TABLE 4.5	*SUMMARY OF AVERAGE WEEKDAY TRAFFIC SURVEYS AT WEAKLEYS DRIVE NEAR VINEY CREEK*	*13*
TABLE 5.1	*INP PREVAILING WIND ANALYSIS SUMMARY FOR WILLIAMTOWN BOM 061078*	*15*
TABLE 6.1	*PROJECT SPECIFIC NOISE LEVELS*	*18*
TABLE 6.2	*SLEEP DISTURBANCE CRITERIA*	*19*
TABLE 6.3	*TRAFFIC NOISE DESIGN GOALS*	*19*
TABLE 6.4	*CONSTRUCTION NOISE CRITERIA AT RESIDENTIAL RECEIVERS*	*20*
TABLE 6.5	*PROJECT SPECIFIC CONSTRUCTION NOISE CRITERIA*	*20*
TABLE 7.1	*SITE SPECIFIC METEOROLOGICAL CONDITIONS*	*21*
TABLE 7.2	*EQUIPMENT SOUND POWER LEVELS*	*22*
TABLE 7.3	*NIGHT TIME EQUIPMENT SOUND POWER LEVELS [1]*	*24*
TABLE 7.4	*CONSTRUCTION EQUIPMENT SOUND POWER LEVELS*	*25*
TABLE 8.1	*SCENARIO 1 OPERATIONAL NOISE LEVELS – PEAK DELIVERIES/ DISPATCH*	*26*
TABLE 8.2	*NIGHT-TIME INTERMITTENT NOISE LEVELS*	*28*
TABLE 8.3	*ROAD TRAFFIC NOISE IMPACTS*	*29*
TABLE 8.4	*CONSTRUCTION NOISE LEVELS –CALM CONDITIONS[1,2]*	*30*

1 INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) was engaged to undertake a noise impact assessment for the construction and operation of a proposed warehouse and distribution centre at the northern end of the F3 Freeway at Beresfield, NSW (hereafter referred to as 'the site'). The site comprises a 15 hectare (ha) parcel of land that is currently owned by Hunter Land Holdings Pty Ltd and located within the future Freeway North Business Park at Beresfield.

The noise impact assessment was conducted to identify potential acoustic impacts associated the construction, operation and traffic generating activities associated with proposed distribution centre ('the Project').

This assessment has been undertaken in accordance with the Department of Environment, Climate Change and Water (DECCW) (formerly the NSW EPA) Industrial Noise Policy (EPA, 2000) (hereafter referred to as the "INP"). Traffic generation associated with the proposal on public roads is assessed in accordance with the DECCW's Environmental Criteria for Road Traffic Noise (EPA, 1999) (hereafter referred to as the "ECRTN"). Construction noise has been assessed in accordance with the DECCW's Interim Construction Noise Guidelines (2009).

A glossary of terms, definitions and abbreviations used in this report is provided in *Annex A*.

2 PROPOSED OPERATIONS

2.1 SITE DESCRIPTION

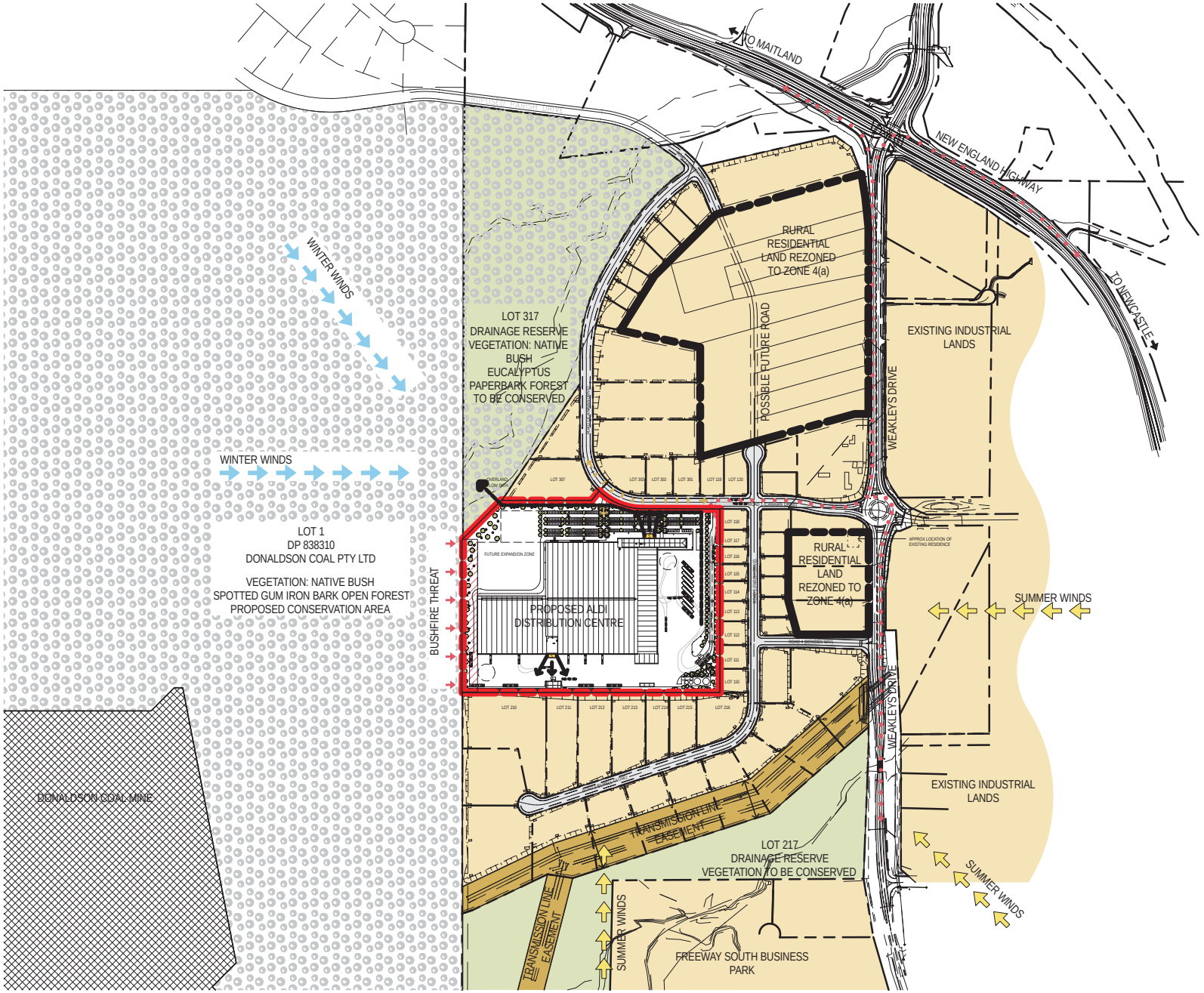
The site is located at the northern end of the F3 Freeway and southern end of the New England Highway, to the west of Weakleys Drive, Beresfield. The site is located within the Freeway North Business Park which was approved by the Minister for Planning on 29 September 2008 (MP06_019a).

The site has an area of approximately 15 hectares (ha) within the approved subdivision layout (refer to the locality plan in *Figure 2.1* and is currently vacant and heavily vegetated. It is understood that the site will be cleared of vegetation prior to construction activities as part of the subdivision works.

2.2 ADJOINING LAND USES

The site is surrounded by existing and future industrial and commercial land, including the following:

- vacant and cleared land to the north-east;
- bushland to the north-west;
- existing Thornton Industrial Estate to the north of the New England Highway, and vacant land that will accommodate further commercial / industrial uses;
- to the east of Weakleys Drive is a car wreckers, Koppers timber facility, new commercial / industrial developments and an Energy Australia work compound, part of which has recently been developed into a substation;
- existing rural residential development is located adjacent to the site along the western side of Weakleys Drive;
- the existing Freeway Business Park to the south, and a proposed industrial area to the south of John Renshaw Drive;
- bushland to the south-east; and
- Donaldson Coal Mine approximately 350 m to the south-west of the site. Existing bushland forms a buffer between the site and Donaldson Coal Mine.



Legend

- Aldi Site
- Car Movement to and from Aldi Site
- Car Movement to and from Aldi Site
- Staff Break Out Area with Vista as Indicated
- Coal Mine
- Native Bush Vegetation
- Bushfire Asset Protection Zone
- Prevailing Winds - Winter
- Prevailing Winds - Summer
- Bushfire Threat

Adjacent Land Zoning

- 7(a) Zone-Environmental Protection
- 4(a) Zone-Urban Services
- Transmission Line Easement
- Road

Source:

Woodhead Architects BER-A-2030-0002W-E

Suffix	*Revisions*	*Date*	*Init*
R0	Preliminary Issue	21-07-10	SP
R1		02-08-10	JD

Figure 2.1

Locality Plan

Client:	ALDI	
Project:	ALDI Beresfield Warehousing & Distribution Facility, Freeway North Business Park, NSW Noise Impact Assessment	
Drawing No:	0117126h_NIA_C002.cdr	
Date:	02/08/2010	Drawing size: A4
Drawn by:	JD	Reviewed by: OM
Scale:	Refer to Scale Bar	

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0 100,000 200,000 300,000m

Maps and figures contained within this document may be based on third party data, may not be to scale and is intended for use as a guide only. ERM does not warrant the accuracy of any such maps or figures.

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ERM

2.3 *OVERVIEW OF PROPOSED OPERATIONS*

The proposed new warehouse and distribution centre will include the following:

- ambient warehouse;
- cool house Area including;
    - chocolate storage;
    - cold handling;
    - cool room / chiller;
    - freezer;
- refuse area;
- office area;
- plant room;
- pump room / sprinkler tank;
- truck wash / refuelling area; and
- gatehouse.

The proposed site layout is presented in *Figure 2.1.*

The proposal will include 18 'goods in' docks, 25 'goods out' docks, 17 'coolhouse' docks, plus 5 future 'coolhouse' docks..

The proposal will also include 302 car parking spaces. The operation of the building will employ approximately 310 people.

Trucks will access the site via an access road to be constructed from Weakleys Drive. Deliveries will be removed by fork lift trucks and stored in the facility prior to being loaded by forklift and pallet movers onto ALDI product trucks for distribution to ALDI stores.

Operations will occur 24 hours per day, 7 days per week and 365 days per year.

2.4 *CONSTRUCTION ACTIVITIES*

Construction activities would involve site stripping, removal of vegetation, development of the site access road by Council, filling and compaction of the site, preparation of hardstand areas, concrete works, erection of buildings, installation and commissioning of plant and equipment.

Based on previous assessments it is considered that stripping, filling and compaction activities could take 6 to 8 months, and road development, concrete works, building erection and plant installation would take up to 15 months.

The main earthworks and building construction would be undertaken between 7.00am to 6.00pm on Monday to Friday, and 8.00am to 4.00pm on Saturday.

2.5 *SITE ACCESS*

The Site will be accessed via a road to be constructed from Weakley's Drive (refer to *Figure 2.1*). Separate access routes are to be constructed for trucks and cars.

3 NOISE IMPACT ASSESSMENT CRITERIA AND POLICY

3.1 OPERATIONAL NOISE CRITERIA – INDUSTRIAL NOISE POLICY (INP)

The DECC (2000), in its INP, gives guidelines for assessing industrial facilities. Assessment criteria depend on the existing amenity of areas potentially affected by a proposed development as outlined below.

Assessment criteria for sensitive receivers near industry are based on the following objectives:

- protection of the community from excessive intrusive noise; and
- preservation of amenity for specific land uses.

To meet these objectives, two separate criteria are prescribed by the DECC, namely the intrusiveness criteria and the amenity criteria. A fundamental difference between the intrusiveness and the amenity criteria is that the former is applicable over 15 minutes in any period, while the latter covers the entire assessment period (day, evening and night).

3.1.1 Assessing for Intrusiveness

The intrusiveness criterion requires that $L_{Aeq,15min}$ noise levels from a newly introduced source during the day, evening and night do not exceed the existing Rating Background Levels (RBL) by more than 5dB. This is expressed as:

$$L_{Aeq,15min} \leq RBL + 5 - K$$

where $L_{Aeq,15min}$ is the L_{eq} noise level from the source, measured over a 15 minute period and K is a series of adjustments for various noise characteristics. Where the RBL is less than 30 dB(A), a value of 30 dB(A) is used. For typical noise from the quarry, no adjustment factors are considered applicable.

3.1.2 Assessing for Amenity

The DECC's amenity criterion requires industrial noise to be within an acceptable level for the particular locality and land use. Where ambient noise is already high, the acoustic environment should not be deteriorated significantly. The strategy behind the amenity criterion is a holistic approach to noise, where all industrial noise (existing and future) received at a given receptor does not exceed the recommended goals.

Private residences and other potentially sensitive receivers potentially affected by the facility are covered by the DECC's varying amenity categories as presented in *Table 2.1* of the INP and are reproduced in *Table 3.1*.

Table 3.1 Amenity Criteria - Recommended L_{Aeq} Noise Levels from Industrial Noise Sources

Type of Receiver	Indicative Noise Amenity Area	Time of Day	Recommended LAeq(Period) Noise Level (dBA)	
			Acceptable	Recommended Maximum
Residence	Rural	Day	50	55
		Evening	45	50
		Night	40	45
	Suburban	Day	55	60
		Evening	45	50
		Night	40	45
	Urban	Day	60	65
		Evening	50	55
		Night	45	50
	Urban/Industrial Interface (for existing situations only)	Day	65	70
		Evening	55	60
		Night	50	55
School classrooms - internal	All	Noisiest 1 hour period when in use	35	40
Hospital wards - internal - external	All	Noisiest 1 hour period	35 50	40 55
Place of worship - internal	All	When in use	40	45
Area specifically reserved for passive recreation (eg National Park)	All	When in use	50	55
Active recreation area (eg school playground, golf course)	All	When in use	55	60
Commercial premises	All	When in use	65	70
Industrial premises	All	When in use	70	75

Note: Monday – Saturday Daytime 7.00 am to 6.00 pm; Evening 6.00 pm to 10.00 pm; Night-time 10.00 pm to 7.00 am. On Sundays and Public Holidays, Daytime 8.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night-time 10.00 pm - 8.00 am.

3.2 *ROAD TRAFFIC NOISE CRITERIA*

The Environment Protection Authority released the ECRTN in May 1999. The policy sets out noise criteria applicable to different road classifications for the purpose of defining traffic noise impacts.

3.3 *SLEEP DISTURBANCE*

While the INP does not specify a criterion for assessing sleep disturbance, the ENCM (1994) recommends that $L_{1,1minute}$ noise from a source should not exceed the existing background noise by more than 15dB . Depending on the measured background noise, the sleep disturbance criteria for the quietest location could be as low as 45 dB(A)L_1.

3.4 *CONSTRUCTION NOISE CRITERIA*

The construction noise guidelines contained in the Environmental Noise Control Manual (EPA 1994) have been superseded by the Interim Construction Noise Guideline (DECC, 2009) ('the Guideline'). The Guideline sets out procedures to identify and address the impacts of construction noise on residences and other sensitive land uses. It does this by presenting assessment approaches that are tailored to the scale of construction projects and indicate how work practices can be modified to minimise noise. The Guideline provides detailed advice on the range of work practices and regulatory approaches to manage construction noise.

Where construction noise is audible at residential premises, Section 2.2 of the Guideline recommends that construction should be limited to the following times:

- Monday to Friday, 7:00 am to 6:00 pm;
- Saturday, 8:00 am to 1:00 pm, otherwise 7:00 am to 1:00 pm if inaudible at residential premises; and
- no construction on Sundays or public holidays.

These operational hours are a primary form of construction noise management adopted by the DECCW. In conjunction with typical 'feasible' and 'reasonable' measures (refer to the Guideline) to minimise noise impacts – "*feasible work practices are practical to implement, while reasonable work practices take into account the balance of costs and benefits and community views*".

The criteria for noise from construction are assessed at residential properties and the criteria applicable during the proposed construction works have been derived in accordance with the Guideline.

4 EXISTING ACOUSTIC ENVIRONMENT

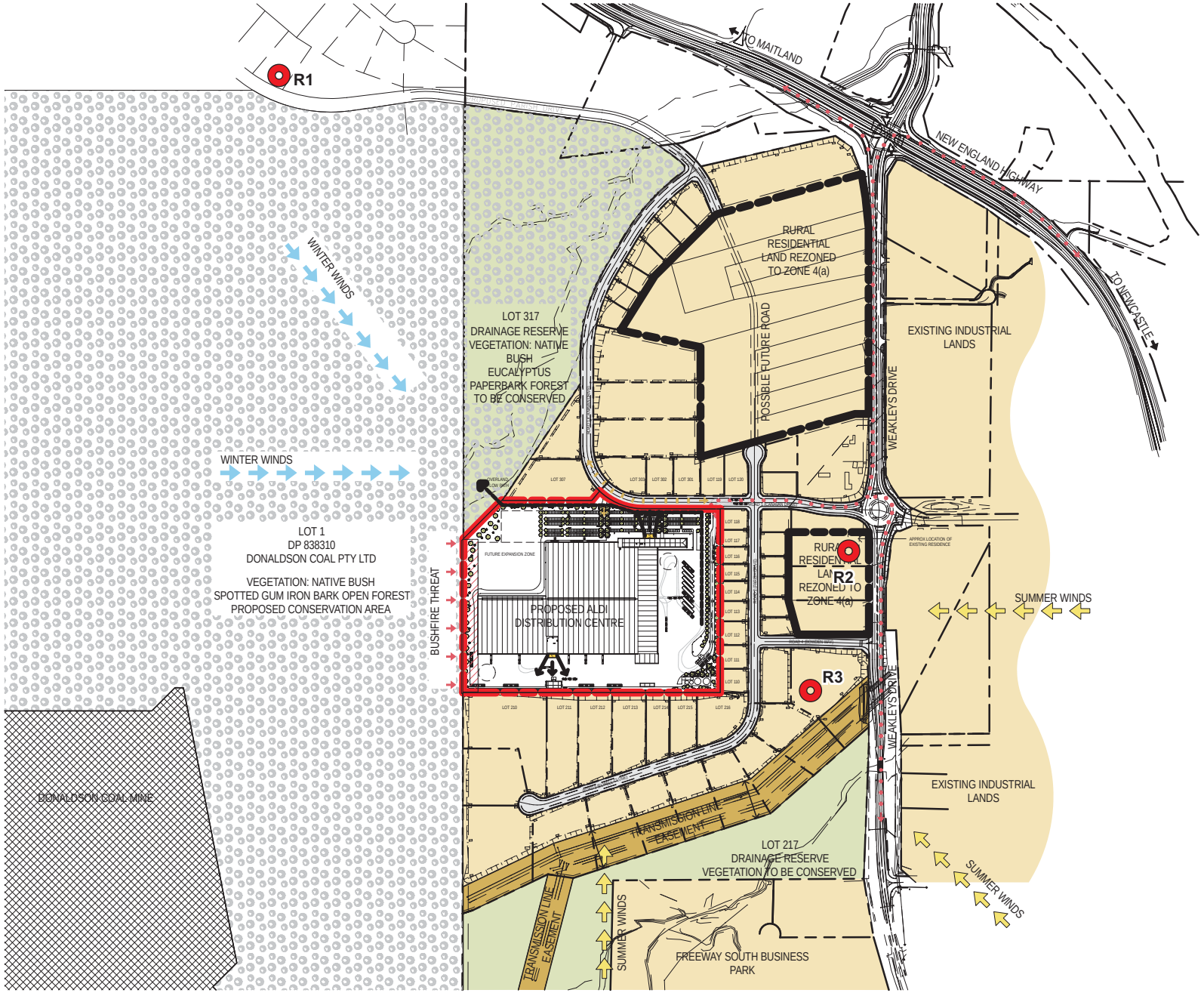
4.1 NOISE SENSITIVE RECEIVERS

The nearest residences to the site are located to east along Weakleys Drive and to the north and north-east in Parish Drive and Avalon Drive, Thornton. The nearest noise sensitive residences were chosen to provide an indication of the extent of potential noise emissions associated with the proposed development. Note, there are no schools or places of worship in the vicinity of the proposed development.

Noise monitoring locations and details are presented in *Table 4.1* and *Figure* 4.1

Table 4.1 Noise Sensitive Receivers

ID	Location	INP Classification	Coordinates (MGA 56)		RL m, AHD
			Easting	Northing	
R1	Cul de sac, end of Parish Drive, Thornton	Rural	371134	6370990	35.0
R2	Weakleys Drive (north), Beresfield	Suburban	372089	6369944	16.2
R3[1]	Weakleys Drive (south), Beresfield	Suburban	372007	6369834	12.3



Legend

- Aldi Site
- Car Movement to and from Aldi Site
- Car Movement to and from Aldi Site
- Staff Break Out Area with Vista as Indicated
- Coal Mine
- Native Bush Vegetation
- Bushfire Asset Protection Zone
- Prevailing Winds - Winter
- Prevailing Winds - Summer
- Bushfire Threat

Adjacent Land Zoning

- 7(a) Zone-Environmental Protection
- 4(a) Zone-Urban Services
- Transmission Line Easement
- Road
- Indicative Receiver Location (R1)

Source:
Woodhead Architects BER-A-2030-0002W-E

Suffix	*Revisions*	*Date*	*Init*
R0	Preliminary Issue	03-08-10	JD

Figure 4.1
Noise Sensitive Receivers

Client:	ALDI	
Project:	ALDI Beresfield Warehousing & Distribution Facility, Freeway North Business Park, NSW Noise Impact Assessment	
Drawing No:	0117126h_NIA_C003.cdr	
Date:	03/08/2010	Drawing size: A4
Drawn by:	JD	Reviewed by: OM
Scale:	Refer to Scale Bar	

N

0 100,000 200,000 300,000m

Maps and figures contained within this document may be based on third party data, may not be to scale and is intended for use as a guide only. ERM does not warrant the accuracy of any such maps or figures.

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ERM

4.2 BACKGROUND NOISE ENVIRONMENT

4.2.1 Unattended Continuous Noise Monitoring

Noise monitoring was undertaken by ERM using continuous noise loggers to determine existing ambient noise environment at the receiver locations identified in *Table 4.2*.

Details of the noise monitoring schedule are presented in *Table 4.2*. The background (L_{A90}) and amenity (L_{Aeq}) noise levels within the areas adjacent to the Beresfield site were assessed using the results of this monitoring.

The continuous noise loggers recorded:

- date, time and temperature;
- ambient background, L_{A90} noise levels and amenity, $L_{Aeq, 15min}$ levels;
- maximum and minimum noise levels; and
- statistical noise levels representative of the noise environment.

Table 4.2 Background Noise Monitoring

Monitoring ID	Logger Serial No.	Measurement Started	Measurement Stopped
End Parish Drive, Thornton	194675	16:15 11/06/2010	07:00 22/06/2010
Weakleys Drive (north), Beresfield	194437	16:30 11/06/2010	16:00 16/06/2010[1]
	194698	15:15 27/07/2010	11:00 03/08/2010

1: Logging period reduced due to logger failure from rainfall events.

The background data collected at Weakleys Drive was initially obtained over a five day period due to logger failure from heavy rain experienced at the beginning of the monitoring period. This data was supplemented with additional data collected over the period 27 July 2010 to 3 August 2010. Data that was affected by adverse weather was excluded from the analysis in accordance with Appendix B of the INP. The data analysed is representative of the Site which is dominated by road traffic from Weakleys Drive and from distant (constant) traffic from the New England Highway.

The Rating Background Level (RBL), intrusiveness criteria and amenity criteria for monitoring locations were determined in accordance with INP methodology.

A summary of the results of the unattended continuous noise monitoring are provided in *Table 4.3*. Noise data during any periods of rainfall and/or wind speeds in excess of 10 m/s at the weather station which samples at 10 metres

elevation (equating to 5 m/s or 18 km/h at the microphone) were discarded in accordance with INP weather-affected data exclusion methodology.

Graphical representations of the data used in the assessment are presented in *Annex A*.

Table 4.3 Summary of Existing Ambient Background Noise Levels

Location	Description [1]	Rating Background Noise Level (RBL), LA90 dB(A)	Measured Existing Ambient Noise Level, dB(A) $L_{eq,period}$
R1 End Parish Drive, Thornton	Morning[2] Shoulder	43	N/A
	Daytime	44	53
	Evening	46[3]	50
	Night	42	49
R2 Weakleys Drive (north), Beresfield	Morning[2] Shoulder	47	N/A
	Daytime	55	67[4]
	Evening	47	64[4]
	Night	38	63[4]

1. For Monday to Saturday, Daytime 7.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night-time 10.00 pm - 6.00 am. On Sundays and Public Holidays, Daytime 8.00 am - 6.00 pm; Evening 6.00 pm - 10.00 pm; Night-time 10.00 pm - 8.00 am. Morning Shoulder is from 6.00 am - 7.00 am Monday - Saturday.
2. The morning shoulder (6:00am-7:00am) has been adopted as the midpoint between day and night periods, in accordance with Section 3.3 of the INP to account for steadily rising background noise levels due to traffic.
3. Adjustments are to be made to the Project Specific Noise Criteria to account for evening noise levels being 2 dB(A) higher than daytime, in accordance with the DECC's Application Notes for the INP.
4. Ambient noise levels were controlled by traffic noise. An assessment of noise for high traffic areas (in accordance with Section 2.2.3 of the INP and associated application notes) has been undertaken and corrections are applied, as levels are more than 10 dB above the recommended acceptable amenity levels for Weakleys Drive receivers.

4.2.2 Attended Noise Monitoring

To better understand the existing noise environment, ERM conducted attended noise monitoring to ascertain dominant ambient noise sources and to quantify existing industrial noise contributions. The findings of the survey are presented in *Table 4.4*.

Table 4.4 Summary of 15 Minute Attended Noise Measurements – 25 June 2010

Location	Time/Date	Measured Noise Levels, dB(A)		Industrial Contribution dB(A)	Noise Sources
		Leq	L90		
R1 Parish Drive, Beresfield	22 June 2010 15:35	51	49	Not Audible	Birds, insects, distant road traffic
R2 Weakleys Drive (north), Beresfield	22 June 2010 15:13	65	52	Not Audible/Traffic	Constant road traffic noise 65-73 dB(A)

1. Weather conditions during attended measurements: calm, slightly cloudy.

Attended measurements verify that the area to the north-west at Parish drive is typical of a rural environment, and to the east at Weakley's Drive is classified as suburban, as defined in Section 2.2.1 of the INP(DECC, 2000). Noise amenity criteria for rural and suburban environments have been adopted for the respective noise sensitive receivers for this assessment.

4.2.3 Road Traffic Monitoring

Road traffic monitoring was undertaken as part of the *Freeway North and South Business Parks Traffic Impact Assessment* undertaken by Maunsell Australia in November 2007. The Project will generate significantly less traffic than assessed in previous studies and therefore additional surveys have not been undertaken.

A summary of the traffic surveys reported in this assessment is presented *in Table 4.5*. This data was recorded near Viney Creek and provides data on hourly traffic movements and indicates peak hours and corresponding flows along Weakleys Drive.

Table 4.5 Summary of average weekday traffic surveys at Weakleys Drive near Viney Creek

Survey Duration	Peak Hours	Traffic Volume		
		Northbound	Southbound	Two-way
12/08/2003 – 18/08/2003	7.00am - 8.00am	746	713	1,458
	4.00pm - 5.00pm	811	848	1,659
13/08/2007 – 19/08/2007	7.00am - 8.00am	837	833	1,670
	4.00pm - 5.00pm	854	931	1,784

Source: Maunsell, October 2007 (from data provided by NTPE)

5 EXISTING METEOROLOGICAL ENVIRONMENT

5.1 METEOROLOGICAL CONDITIONS

Noise propagation over distance can be significantly affected by the prevailing weather conditions. Of most interest are source to receiver winds, the presence of temperature inversions and drainage flow effects, as these conditions can enhance received noise levels. To account for these phenomena, the INP specifies meteorological analysis procedures to determine the prevalent weather conditions that enhance noise propagation in a particular area, with a view to determining whether they can be described as a feature of the Project area.

5.1.1 Wind

Wind has the potential to increase noise impacts at a receiver when it is light and stable and blows from the direction of the noise source. As the strength of the wind increases the noise produced by the wind usually obscures noise from most industrial and transport sources.

The prevailing wind directions in the area have been determined in accordance with Section 5 of the INP. The INP requires that winds below 3m/s with an occurrence greater than 30 per cent of the time be assessed.

The prevailing wind directions during 1 June 2009 to 25 June 2010 have been analysed for Bureau of Meteorology (BOM) station Williamtown RAAF (61078), NSW, located approximately 20 km to the east of the Site. The prevailing wind analysis for Williamtown RAAF (61078) is shown in *Table 5.1*.

Table 5.1 INP Prevailing Wind Analysis Summary for Williamtown BOM 061078

DAYTIME					
Period	**Wind Direction**	**Calm**	**0.5 to 2 m/s**	**2 to 3 m/s**	**0.5 to 3 m/s**
Summer	NNW±45	0.8%	0.6%	4.3%	4.9%
Autumn	NW±45	2.6%	1.0%	7.2%	8.2%
Winter	NNW±45	2.8%	2.4%	7.9%	10.3%
Spring	NNW±45	0.8%	0.8%	3.7%	4.5%
EVENING					
Period	**Wind Direction**	**Calm**	**0.5 to 2 m/s**	**2 to 3 m/s**	**0.5 to 3 m/s**
Summer	NE±45	0.8%	0.3%	3.6%	3.9%
Autumn	NNE±45	14.6%	3.9%	9.3%	13.2%
Winter	NNE±45	14.0%	7.4%	12.9%	20.3%
Spring	NE±45	4.4%	2.7%	8.0%	10.7%
NIGHT TIME					
Period	**Wind Direction**	**Calm**	**0.5 to 2 m/s**	**2 to 3 m/s**	**0.5 to 3 m/s**
Summer	NE±45	13.0%	3.5%	12.0%	15.5%
Autumn	NW±45	19.4%	5.2%	13.7%	18.9%
Winter	NW±45	17.7%	5.1%	14.3%	19.4%
Spring	NW±45	20.4%	4.0%	9.4%	13.4%

The results of this analysis, shown in *Table 5.1*, indicate there are no prevailing winds applicable to the site and noise modelling assessment.

5.1.2 Temperature Inversion

Temperature inversion data was not available at the Bureau of Meteorology stations assessed, therefore the percentage occurrence of inversion conditions for the Beresfield area was sourced from Appendix F of the INP. The INP indentified that the percentage occurrence winds for the site would be between 25% to 35%. Therefore default F class inversion conditions were assessed in order to provide a conservative estimate of potential meteorological impacts associated with the Project.

Appendix C of the INP states that F class inversion conditions can increase noise levels by up to 1 dB for receivers within 300 metres of the source, and 1.5 dB for receivers approximately 1.5 km from the source.

5.1.3 Drainage Flow

In areas where temperature inversions are a feature of the meteorological environment, drainage flow winds may occur. Drainage flows may occur when a development is at a higher altitude than a residential receiver with no intervening topography. When source to receiver winds occur during a temperature inversion, noise levels may be increased due the focusing of sound waves at the receiver.

Drainage flow winds are not considered to be applicable for this assessment as the area around the site is relatively flat and has intervening building or topography between the source and receivers.

6 PROJECT-SPECIFIC NOISE LEVELS

6.1 OPERATIONAL NOISE CRITERIA

The noise emission criteria for the proposed development have been set in accordance with Section 2 of the INP. The intrusiveness and amenity design criteria have been set based on logging measurements conducted at the nearest noise sensitive receivers. The results are shown in *Table 4.1.*

Background noise levels for establishing the intrusiveness noise criteria have been determined in the absence of any noise from industrial noise sources.

The existing L_{Aeq} in the area surrounding the site is dominated by rural noise sources to the north-west and traffic noise to the east along Weakleys Drive and to a lesser extent (but continuous) traffic from the New England Highway, no acoustic contribution was measured above the overall background noise at either monitoring location from nearby Donaldson Coal Mine or other industrial sources, even during breaks in traffic. Therefore this industrial contribution is estimated to be 10 dB(A) or greater below the measured (L_{A90}) background noise level.

The acoustical environment to the north and north-west is typical of a rural environment, and to the east of the site it is typical of a suburban environment especially considering the through traffic from the F3 freeway along Weakleys Drive that is dominant during peak periods. An assessment of transport noise in accordance with Section 2.2.3 of the INP (and relevant application notes) identified that corrections to the amenity criteria to account for high traffic noise is applicable, as levels are more than 10 dB above the recommended acceptable amenity levels. The Amenity criteria has been adjusted to account for these impacts.

The project specific noise levels (PSNL) for operational noise are given in *Table 6.1.*

Table 6.1 Project Specific Noise Levels

Location	Period	Intrusiveness Criteria LAeq(15minute)	Amenity Criteria LAeq(Period)
R1 - Parish Drive, Thornton	Day	**49**	50
	Evening	49[2]	**45**
	Night	47	**40**
	Morning Shoulder[3]	48	**45**
R2 - Weakleys Drive (north), Beresfield R3 - Weakleys Drive (south), Beresfield	Day	60	**57** (Traffic)[4]
	Evening	**52**	54 (Traffic)[4]
	Night	**43**	53 (Traffic)[4]
	Morning Shoulder[3]	**51**	55

1. Weekdays and Saturdays - Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night the remaining period. Sundays -Daytime 8:00 am - 6:00 pm; Evening 6:00pm - 8:00am; Night the remaining period. Morning shoulder period – 6.00 – 7.00 am.
2. Applicable project specific design criteria are in bold and are the lower of the intrusiveness and amenity criteria in each instance. Adjustments have been made to the Project Specific Noise Criteria to account for daytime noise levels being quieter than evening periods in accordance with the DECC's Application Notes for the INP.
3. The morning shoulder (6.00 am-7.00 am) has been adopted as the midpoint between day and night periods, in accordance with Section 3.3 of the INP to account for steadily rising background noise levels due to traffic.
4. An assessment of noise for high traffic areas (in accordance with Section 2.2.3 of the INP and associated application notes) has been undertaken and corrections are applied to the ANL.

Morning shoulder criteria have been developed in accordance with Section 3.3 of the INP and are based on the midpoint between the rating background levels of the two assessment periods that are on either side of the shoulder period.

6.2 *SLEEP DISTURBANCE*

The DECCW has acknowledged that the relationship between maximum noise levels and sleep disturbance is not currently well defined.

While the INP does not specify a criterion for assessing sleep disturbance, the ENCM (1994) recommends that the $L_{1,\,1min}$ noise level from a source should not exceed the existing background noise by more than 15 dB. Depending on the measured background noise, the sleep disturbance criteria for the quietest location could be as low as 45 dB(A) $L_{1,\,1min}$.

The relevant sleep disturbance criterion for the residential receivers surrounding the area is presented in *Table 6.2*.

Table 6.2 Sleep Disturbance Criteria

Location	RBL LA90,15min, dB(A)	Noise Level L1, 1min, dB(A)
R1 - Parish Drive, Thornton	42	57
R2 - Weakleys Drive, Beresfield R3 - Weakleys Drive (south), Beresfield	38	53

6.3 ROAD TRAFFIC NOISE CRITERIA

The NSW DECC ECRTN recommends external and internal traffic noise goals. The proposed facility will be near to several major roadways including the F3 Freeway, New England Highway and Weakleys Drive. Traffic noise impacts have been assessed for receivers located off Weakleys Drive (which is anticipated to be used by all vehicles accessing the site).

The ECRTN refers to roads that are situated in a built-up area that collects local traffic leaving a locality and connects to a sub-arterial road are Collector roads.

Therefore the traffic noise impact assessment has adopted noise goals for *'land use developments with the potential to create additional traffic on a collector road*, in accordance with the ECRTN and reproduced in *Table 6.3*.

Table 6.3 Traffic Noise Design Goals

Location	Road Classification	Traffic Noise Goal	
		Daytime LAeq(1hour)	Night LAeq(1hour)
Weakleys Drive Receivers	Collector	60dBA	55dBA

1. Daytime: 07:00 am – 10:00 pm, Night : 10:00 pm to 07:00 am.

Further, the ECRTN identifies that traffic arising from the development should not lead to an increase in existing noise levels of more than 2 dBA.

6.4 CONSTRUCTION NOISE IMPACTS

6.4.1 Construction Noise Criteria

Construction noise has been assessed in accordance with the Section 4 of the DECCW's Interim Construction Noise Guidelines (2009) (the Guideline) Interim. The Guideline sets out procedures to identify and address the impacts of construction noise on residences and other sensitive land uses. It

does this by presenting assessment approaches that are tailored to the scale of construction projects and indicate how work practices can be modified to minimise noise. The Guideline provides detailed advice on the range of work practices and regulatory approaches to manage construction noise.

The aim of the ICNG is to provide guidance on managing construction works to minimise noise, including air and ground borne noise and blasting, from construction works noise regulated by DECCW, and is used to assist DECCW in setting statutory conditions in licences. Construction regulated by DECCW under the Protection of the Environment Operations Act 1997 (POEO Act) includes scheduled development work that will enable scheduled activities to be carried out (section 47 of the POEO Act). The ICNG criteria are shown in *Table 6.4*.

Table 6.4 Construction Noise Criteria at Residential Receivers

Noise Management Level	Noise Goal
Noise affected	RBL + 10dB
Highly noise affected	75 dB(A)

The L_{Aeq} noise level during construction should not exceed the background L_{A90} level by more than 10 dB. The proposed project specific construction noise criteria are presented in *Table 6.5*.

Table 6.5 Project Specific Construction Noise Criteria

Location	RBL, L_{A90}	Noise Level $L_{Aeq, 15min}$ dB(A) [1]
R1 - Parish Drive, Thornton	44	54
R2 - Weakleys Drive(north), Beresfield R3 - Weakleys Drive (south), Beresfield	55	65

1. Assuming construction is during day time hours only.

7 NOISE MODELLING METHODOLOGY

7.1 NOISE MODELLING

Noise level predictions must take into account all significant noise sources associated with the construction and operation of the proposed development. One method of determining the impact of numerous noise sources at a receiver is to develop a computer model of the proposed operations using a commercially available software package. The model used for this assessment was Version 7.01 of Brüel & Kjær Predictor Type 7810 computer noise modelling software using ISO9613.1 and 9613.2 Industry (International method for general purpose) noise propagation algorithms with CONCAWE meteorological factors for predicting noise impacts from industrial noise sources. Note for the inversion scenario, Appendix C of the INP was adopted for indicative F class inversion noise enhancement.

The model incorporated identifiable noise sources, meteorological data, surrounding terrain characteristics and the barrier effects of proposed barriers. The model uses this information to predict the contributed noise levels from the proposed operations at the nearest noise sensitive receivers.

7.2 METEOROLOGICAL PARAMETERS

The noise model was used to predict noise levels based on the meteorological conditions presented in *Table 7.1*.

Table 7.1 Site Specific Meteorological Conditions

Assessment Conditions	Temperature °C	Wind Speed / Direction	Relative Humidity	Inversion Conditions
Daytime - Calm	15 °C	n/a	60%	n/a
Evening - Calm	15 °C	n/a	80%	n/a
Night – Calm	10 °C	n/a	90%	n/a
Night – inversion[1]	10 °C	n/a	90%	F class

Note [1] : Noise enhancement for and F Class Stability adopted as per Appendix C of the INP.

7.3 OPERATIONAL NOISE SOURCES

Sound Power Levels (SWL) of acoustically significant plant and equipment associated with the Project were adopted from previous assessments for similar facilities as provided by the client. This data is presented in *Table 7.2*.

Table 7.2 Equipment Sound Power Levels

Typical Item	Sound Power Level dB(A) (SWL)
AC Cassette Condensers x12 (offices)	70
EF-1 (plant room)	84
EF-2 (plant room)[2]	74
CU-1 & CU-2	87
CU-3 & CU-4	91
Ref CU-1 &Ref CU-2	93
Supplier Truck (moving)	104
Supplier Truck (idle)	97
Forktruck (unloading-exposed)	99
Forktruck (unloading-shielded)	91
ALDI Truck (moving)	101
ALDI Truck (idle-with ref)	99
Unloading (rear south docks)	95
Airbrake release[3]	120
Car passby	91

1. Refer to *Annex C* for spectral data used for noise modelling.
2. Assumed inlet and discharge attenuators providing minimum 15dB(A) reduction in accordance with ALDI Stapylton specification
3. Sleep Disturbance Assessment - Night time only.

7.4 OPERATIONAL MODELLING SCENARIOS

Plant and equipment will operate 24 hours a day, 7 days a week. The assumptions used in modelling the operational phase of the Project include the following:

- all acoustically significant plant and equipment operates simultaneously;
- stationary plant in the plant room is located approximately three (3) metres lower that the adjacent roof and walls;
- air conditioning units are located on the roof of the first floor of the office building; and

- electric forktrucks operate within the warehouse facility building.

An emergency back-up diesel generator may be used up to once a month in the event of power failure; this is not considered to present a significant acoustic source and has not been analysed in this assessment.

The noise model was run using peak traffic movements for the Project based on peak AM and PM traffic predictions provided by Colston Budd Hunt & Kafes Pty Ltd (June 2010). For the purposes of this assessment it was assumed that AM peak hour occurs during daytime periods, and PM peak hour occurs in the morning shoulder period (6.00 am to 7.00am).

Peak delivery/ despatch predictions were modelled for day, evening and morning shoulder periods to provide the worst-case impacts relating to traffic movements. Adopting these assumptions has resulted in modelled noise levels that should be considered conservatively high.

Noise modelling outputs were generated based on the following scenarios, derived from traffic breakdowns from previous ALDI assessments.

Daytime Operations : Peak Deliveries/ Dispatch

- typically 72 truck movements per hour;
- peak daytime movements occur during day periods;
- 50% of vehicles are cars and 50 % are trucks; and
- 80% of trucks are supplier trucks and 20 % outgoing deliveries from ALDI trucks.

Evening Operations : Peak Deliveries/ Dispatch

- typically 13 trucks per hour;
- PM peak hour: 80% of vehicles are cars and 20 % are trucks; and
- 80% of trucks are supplier trucks and 20 % outgoing deliveries from ALDI trucks.

Morning Shoulder Operations : Peak Deliveries/ Dispatch

- typically 13 trucks per hour;
- peak night time predictions relate to the morning shoulder period of 6am to 7am;
- PM peak hour: 80% of vehicles are cars and 20 % are trucks; and
- 80% of trucks are supplier trucks and 20 % outgoing deliveries from ALDI trucks.

Night time Operations

- typically 5 trucks per hour;
- peak traffic movements will not occur during night time periods (10.00 pm to 6.00am); and
- night time traffic movements adopted from previous ALDI facilities, based on 5 truck movements per hour and 10 car movements per hour.

Additionally, the modelling adopted up to 150 small car passby's travelling to site, that represents a shift change at the site. It is not likely that the shift change would occur within a fifteen minute period and therefore all of the site's 302 car parks are not assumed to be used.

The noise model is considered to provide conservative estimates of noise impacts as the equipment used in operations has been modelled at locations to represent the maximum potential impact on the nearest noise sensitive receivers. The operational model accounts for the effect of proposed buildings that are to be constructed within the future Freeway North Business Park between the Project and the noise sensitive receivers prior to the operation of the warehouse distribution centre.

7.5 SLEEP DISTURBANCE

The Project would operate 24 hours a day and may result in the generation of intermittent night-time activities with the potential to cause sleep disturbance. As a result the noise source presented in *Table 7.3* was modelled for night-time operations. This model was run for calm and inversion meteorological conditions.

Table 7.3 Night Time Equipment Sound Power Levels [1]

Typical Item	Sound Power Level dB(A)
Truck Brake	112

1: $L_{A1,1min}$ noise level

7.6 ROAD TRAFFIC NOISE

A road traffic noise assessment was undertaken using the United States Federal Highway Administration (USFHWA) L_{Aeq} calculation method (reference) (US EPA Report 550/9-74-004, (March 1974) as modified, based on equations in Appendix A-13 & CoRTN amendments).

7.7 CONSTRUCTION NOISE SOURCES

The model involved the simulation of typical construction methods for industrial developments, assuming construction hours are limited to those outlined by ICNG.

Construction phase activities will involve the use of machinery and equipment as shown in *Table 7.4*.

Table 7.4 Construction Equipment Sound Power Levels

Typical Item	Sound Power Level dB(A) (SWL)
Dozers	112
Compactors	110
Cranes	106
Trucks	109
Water Cart	105
Concrete trucks/pumps	112
Generators	97

1. Refer to *Annex C* for spectral data used for noise modelling.

Noise emissions from these activities were incorporated into the noise model to determine potential noise impacts at the nearest noise sensitive receivers during the day periods.

7.8 CONSTRUCTION NOISE MODELLING SCENARIOS

Several scenarios were modelled for the construction model based on those of assessments for similar facilities:

- **Scenario 1**: bulk Earthworks: 2 x dozers, 2 x compactors, 3 x 30t dump trucks and 1 x water cart;
- **Scenario 2**: concrete hardstand: 5 x concrete trucks/pumps, 2 x cranes; and
- **Scenario 3**: building erection: 4 x cranes, 4 x trucks and 2 x generators.

8 NOISE ASSESSMENT

8.1 OPERATIONAL NOISE ASSESSMENT

8.1.1 Operational Noise Levels

The noise model was used to determine noise levels at the nearest noise sensitive receivers under the meteorological conditions described in Section 7.2.

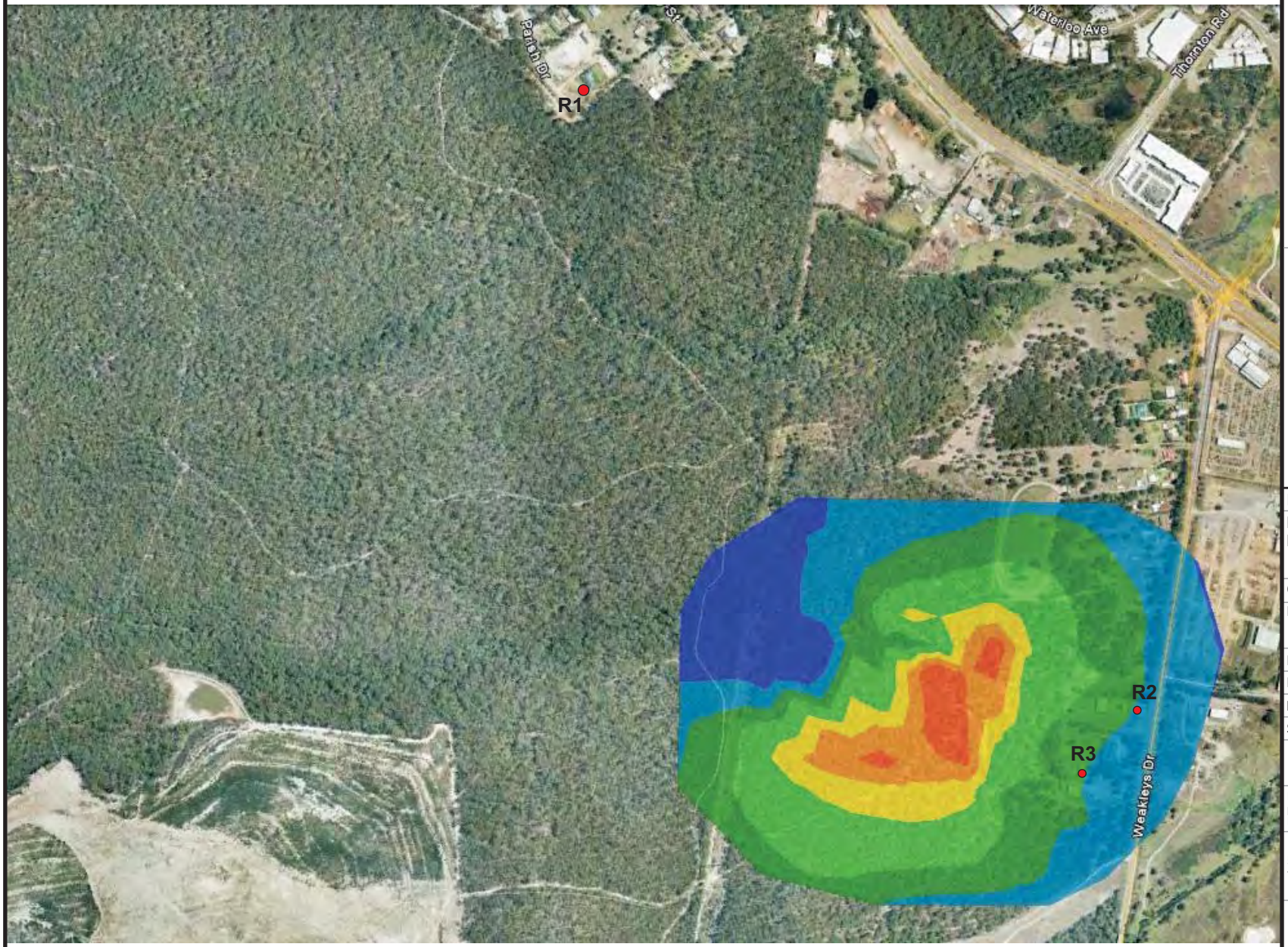
The Single Point Calculation results for the peak deliveries are presented in *Table 8.1* and are compared to the respective PSNLs. Calm and inversion conditions were modelled to provide worst-case potential noise impacts during the night time periods, however the percentage occurrence of F Class inversions conditions to occur on site is not greater than 30%.

Table 8.1 Scenario 1 Operational Noise Levels – Peak Deliveries/ Dispatch

ID	Period	PSNL LAeq, 15min	Predicted Noise Level LAeq, 15min	
			Calm Conditions[1]	Inversion Conditions[2] LAeq, 15min
R1 - Parish Drive, Thornton	Morning Shoulder	45	<35	-
	Day	49	<35	-
	Evening	45	<35	-
	Night [3]	40	<35	<35
R2 - Weakleys Drive (north), Beresfield	Morning Shoulder	51	40	-
	Day	57	45	-
	Evening	52	38	-
	Night [3]	43	37	40
R3 - Weakleys Drive (south), Beresfield	Morning Shoulder	51	41	-
	Day	57	45	-
	Evening	52	40	-
	Night [3]	43	39	41

1: Calm conditions only during daytime periods.
2: Inversions only during night time periods
3: Peak flows do not occur during night time periods. Night time traffic movements based on other ALDI facilities.
Criteria exceedences are in bold.

Noise levels are predicted to meet the project specific noise levels at all noise sensitive receivers under calm conditions during peak deliveries during all operational periods. The predicted noise contours around the site for calm conditions during peak deliveries/ dispatch during daytime periods are presented in *Figure 8.1*.



Legend

R2 Noise Receptor

Noise Levels

- 65 - 99dBA
- 60 - 65dBA
- 57 - 60dBA
- 49 - 57dBA
- 45 - 49dBA
- 40 - 45dBA
- 0.00 - 40dBA

Suffix	*Revisions*	*Date*	*Init*
R0	Preliminary Issue	21-07-10	SP

Figure 8.1

Noise Levels for Day Time Peak Deliveries Dispatch - Calm Conditions

Client:	ALDI	
Project:	ALDI Beresfield Warehousing & Distribution Facility, Freeway North Business Park, NSW Noise Impact Assessment	
Drawing No:	0117126h_NIA_C001.cdr	
Date:	21/07/2010	Drawing size: A4
Drawn by:	SP	Reviewed by: OM
Scale:	Not to Scale	

N

Maps and figures contained within this document may be based on third party data, may not be to scale and is intended for use as a guide only. ERM does not warrant the accuracy of any such maps or figures.

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Notwithstanding the finding of the noise assessment above, impacts may be managed by the implementation of noise management and mitigation practices as outlined in Section 9.

8.1.2 Sleep Disturbance

The Single Point Calculation results for night-time intermittent activities are presented in *Table 8.2* and are compared to the relevant criteria.

Table 8.2 Night-time Intermittent Noise Levels

Location	Sleep Disturbance Criteria LA1,1min dB(A)	Calm Conditions LAeq, 15min	Inversion Conditions[1] LAeq, 15min
R1 - Parish Drive, Thornton	57	39	43
R2 - Weakleys Drive, Beresfield	53	45	48
R3 - Weakleys Drive (south), Beresfield	53	43	46

The results in *Table 8.2* indicate that the activities associated with the Project are not predicted to generate any sleep-disturbance during night time operations.

8.2 ROAD TRAFFIC NOISE ASSESSMENT

The US Environment Protection Agency's method was used to predict the LAeq noise levels from traffic travelling along Weakleys Drive, at residences adjacent to this route. It is an internationally accepted theoretical traffic noise prediction model which takes into account the vehicle noise levels (light and heavy), receiver offset distance, passby duration, vehicle speed, ground absorption (based on the ratio of soft ground and average height of propagation), number of vehicle movements, receiver height, truck exhaust height and the height and location of any intervening barriers.

For this assessment, it has been conservatively assumed that all site traffic travel along Weakleys Drive, in one direction to and from site, up to 75 heavy vehicle movements per hour were adopted for heavy vehicles and up to 300 light vehicle movements were adopted to represent shift change, that may occur within a one hour period on site, note the site has 302 spaces, therefore, 150 vehicle movements each way were adopted for the traffic noise assessment. Results of the traffic noise assessment are presented in *Table 8.3*. These results show that the predicted traffic noise from existing traffic (determined from noise logger data analysed into hourly data) plus additional vehicle movements from the Project would remain below the relevant ECRTN criteria at the nearest receivers to Weakleys Drive. Note the morning shoulder peak has been adopted for the night time period for this assessment (13 heavy vehicle movements per hour). Additionally it can be seen that Project traffic will not increase existing noise levels by more than 2 dB(A).

Table 8.3 Road Traffic Noise Impacts

Location	Measured Existing 1hr LAeq Traffic Noise	Calculated Maximum Traffic Noise Contribution of Project	Calculated Existing + Project Traffic Noise	Noise Design Criteria	Overall Increase dB(A)
Parameter			LAeq(1hour) Day		
Weakleys Drive at 30 metres	67.0 dBA	59.6 dBA	67.7 dBA	60 dBA	0.7
Parameter			LAeq(1hour) Night		
Weakleys Drive at 30 metres	62.7 dBA	55.5 dBA	63.5 dBA	55 dBA	0.8

8.2.1 Construction Phase

Noise levels predicted during the construction activities at the Project are shown in *Table 8.4*. The predicted noise levels assume attenuation from geometrical spreading only and neutral meteorological conditions (zero wind and temperature gradients). Other factors such as ground effects, air absorption and shielding due to natural topography and other nearby buildings have not been considered, hence the results are conservative.

Table 8.4 Construction Noise Levels –Calm Conditions[1,2]

Location	Construction Noise Criteria LAeq, 15min dB(A)	Predicted Noise Level LAeq, 15min		
		Stage 1	Stage2	Stage 3
R1 - Parish Drive, Thornton	54	39	36	32
R2 - Weakleys Drive, Beresfield	65	49	40	38
R3 - Weakleys Drive (south), Beresfield	65	52	39	35

1: Day time only
2: Calm conditions only
All levels in dB(A).

The results in *Table 8.4* indicate that the construction activities associated with the Project are predicted to comply with relevant criteria during calm daytime conditions.

9 SUMMARY OF FINDINGS AND RECOMMENDATIONS

ERM has undertaken a Noise Impact Assessment for construction and operation of a proposed distribution centre at the northern end of the F3 Freeway at Beresfield, NSW. The outcomes of the NIA are summarised below.

9.1 OPERATIONAL NOISE

The operational noise levels from the Project noise are predicted to comply with the project specific noise levels at all noise sensitive receivers under calm and inversion conditions during peak deliveries for all operational periods.

9.2 SLEEP DISTURBANCE

The Project is predicted to comply with relevant sleep-disturbance criteria during night time operations.

9.3 ROAD TRAFFIC NOISE

Traffic noise generation associated with the Project are identified to comply with the relevant ECRTN criteria for all periods, furthermore, noise levels are not expected to increase my more than 2 dB(A) compared to existing levels.

9.4 CONSTRUCTION NOISE

Construction activities associated with the Project are predicted to comply with relevant criteria for all stages of construction.

9.5 RECOMMENDATIONS

The following measures are recommended in order to quantify the noise levels associated with the Project and to manage any impacts on noise sensitive receivers.

9.5.1 *Operational Noise*

A validation monitoring assessment (attended) should be conducted at the nearest potentially affected three receivers.

9.5.2 Construction Management Plan

It is recommended that construction be limited to Monday to Saturday and works are undertaken in accordance with the construction schedule outlined in Section *7.8*. Any complaints regarding environmental noise emissions should be investigated and responded to in an appropriate manner.

All works should be undertaken in accordance with the DECCW's Interim Construction Noise Guideline.

REFERENCES

Transport And Accessibility Assessment For Proposed Distribution Centre, Beresfield Prepared By Colston Budd Hunt & Kafes Pty Ltd (June 2010).

Freeway North and South Business Parks Traffic Impact Assessment (November 2007) undertaken by Maunsell Australia for Hunter Land Pty Ltd.

Annex A

Glossary of Terms

A.1 GLOSSARY AND DEFINITIONS - ACOUSTICS

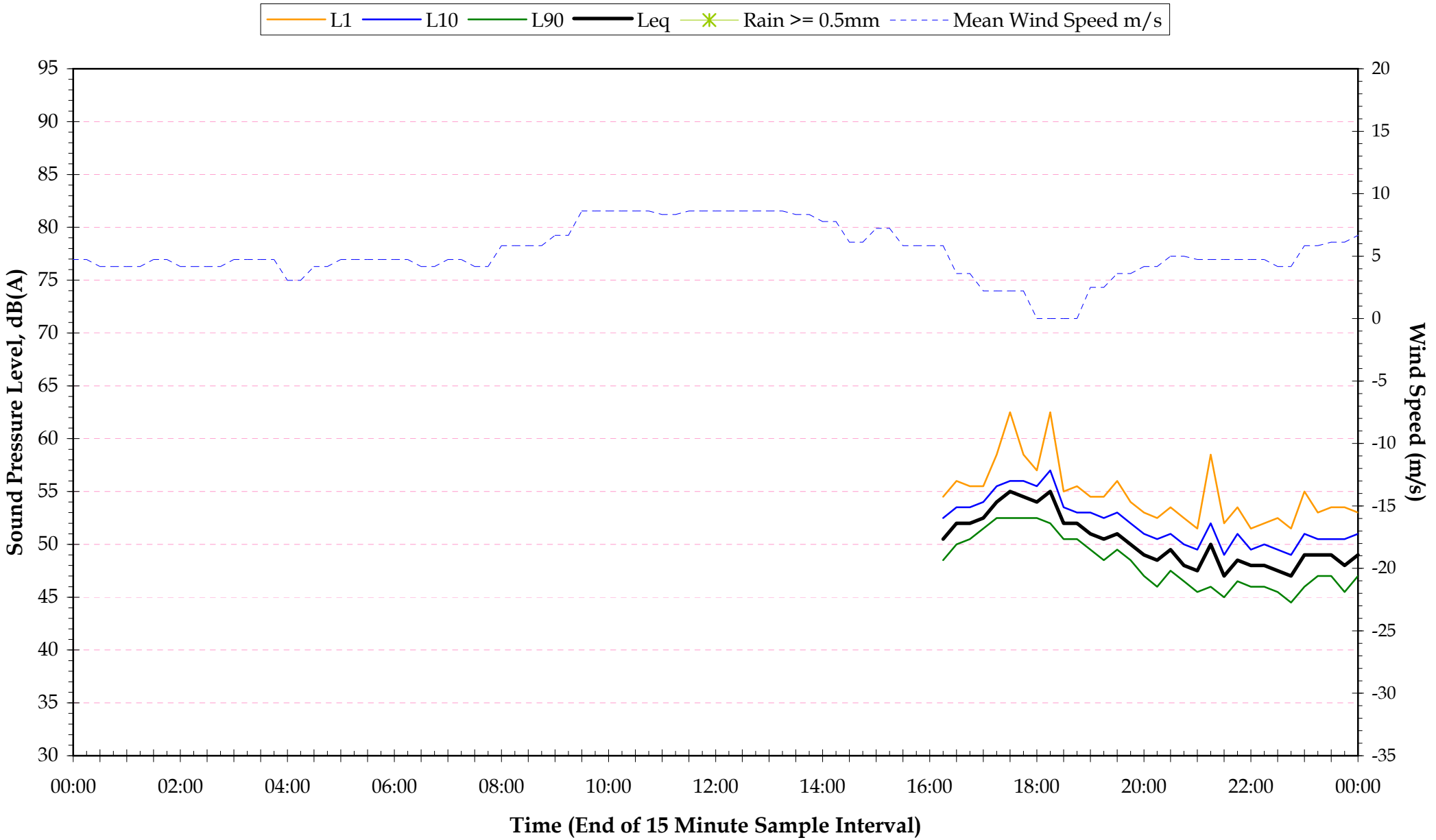
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment background level - A single-figure background level representing each assessment period – day, evening and night (that is, three assessment background levels are determined for each 24-h period of the monitoring period). It is determined by taking the lowest 10th percentile of the L_{90} level for each assessment period.
Airblast	Sound wave from blasting (overpressure) .
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dB(A), dBA	Decibels A-weighted.
dB(Z), dB(L)	Decibels Linear or decibels Z-weighted.
Decibel (dB)	The units of sound level and noise exposure measurement where a step of 10 dB is a ten-fold increase in intensity or sound energy and actually sounds a little more than twice as loud.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
L_{A10}	The percentile sound pressure level exceeded for 10% of the measurement period with 'A' frequency weighting calculated by statistical analysis. Typically used to assess the impact of an existing operation on a receiver area and is referred to as the cumulative noise levels at the receiver attributable to the noise source.
L_{A90}	Background Noise Level. The percentile sound pressure level exceeded for 90% of the measurement period with 'A' frequency weighting calculated by statistical analysis.
L_{Max}	The maximum of the sound pressure levels recorded over an interval of 1 second.

$L_{A1, 1min}$	The measure of the short duration high-level noises that cause sleep arousal. The noise level is measured as the percentile sound pressure level that is exceeded 1 per cent of measurement period with 'A' frequency weighting calculated by statistical analysis during a measurement time interval of 1 minute.
$L_{Aeq,t}$	Equivalent continuous sound pressure level - The value of the sound pressure level of a continuous steady noise that, a measurement interval of time (t), has the same mean square sound pressure as the sound under consideration whose level varies with time. Usually measured in dB with 'A' weighting.
L_{An}	Percentile level - A measure of the fluctuation of the sound pressure level which is exceeded 'n' per cent of the observation time.
MIC	Maximum explosive charge mass (kg) detonated per delay (any 8ms interval).
PVS (mm/s)	Peak Vector Sum.
PPV (mm/s)	Peak Particle Velocity.
RBL	Rating background level - The overall single figure background level representing each assessment period over the whole monitoring period determined by taking the median of the ABLs found for each assessment period.
SD (m)	The scaled distance for airblast and ground vibration from the charge to the receiver.
SPL, Lp	Sound pressure level - The basic measure of noise loudness. The level of the root-mean-square sound pressure in decibels given by: $SPL = 10.\log10 (p/p_o)^2$ where p is the rms sound pressure in pascals and p_o is the sound reference pressure at 20 μPa. decibels.
SWL, Lw	Sound power level - A measure of the energy emitted from a source as sound and is given by: $SWL = 10.\log10 (W/W_o)$ where W is the sound power in watts and W_o is the sound reference power at 10^{-12} watts.

Annex B

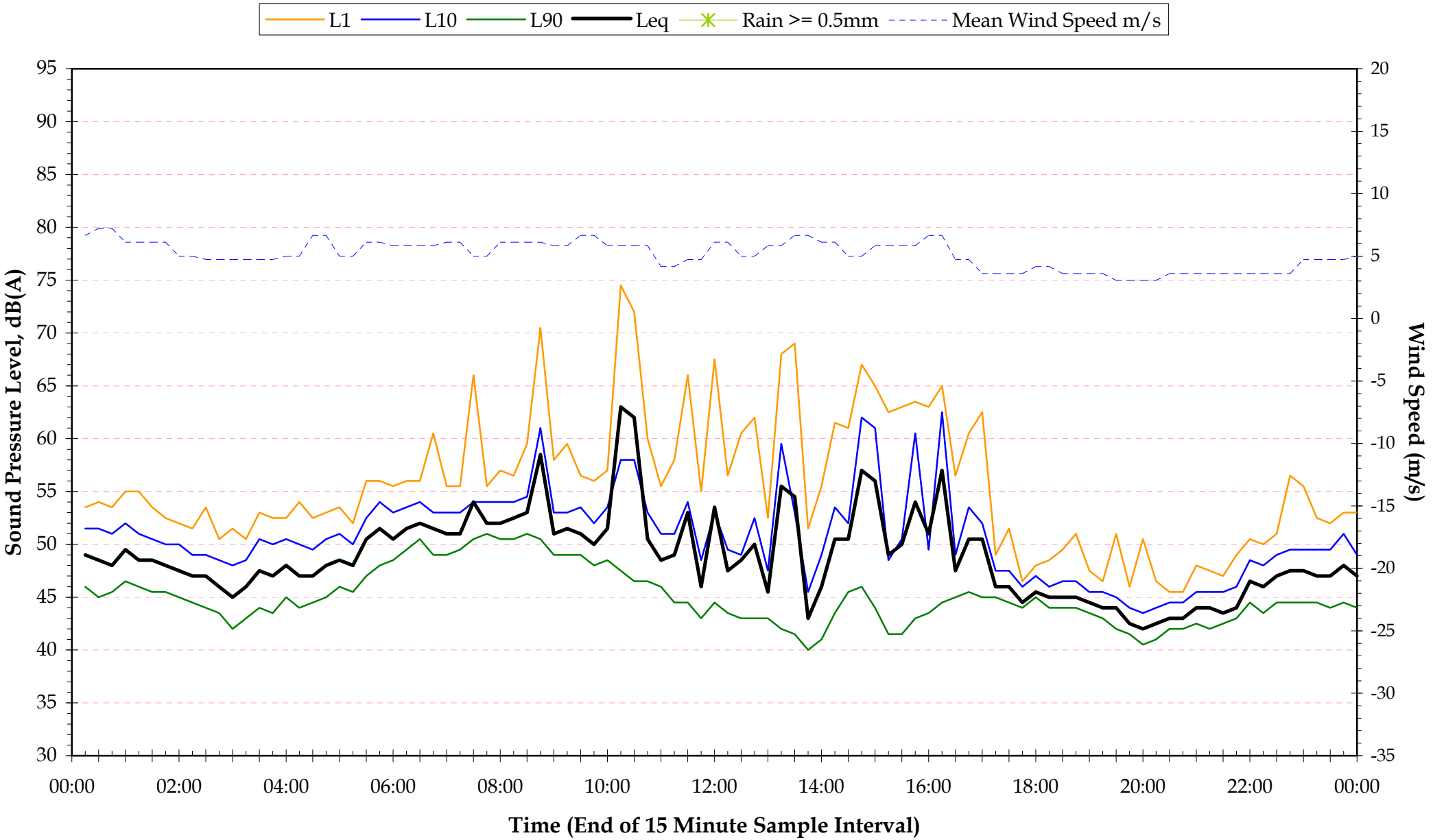
Unattended Logging Graphs

Statistical Noise Levels
Parish Drive - Friday 11 June 2010



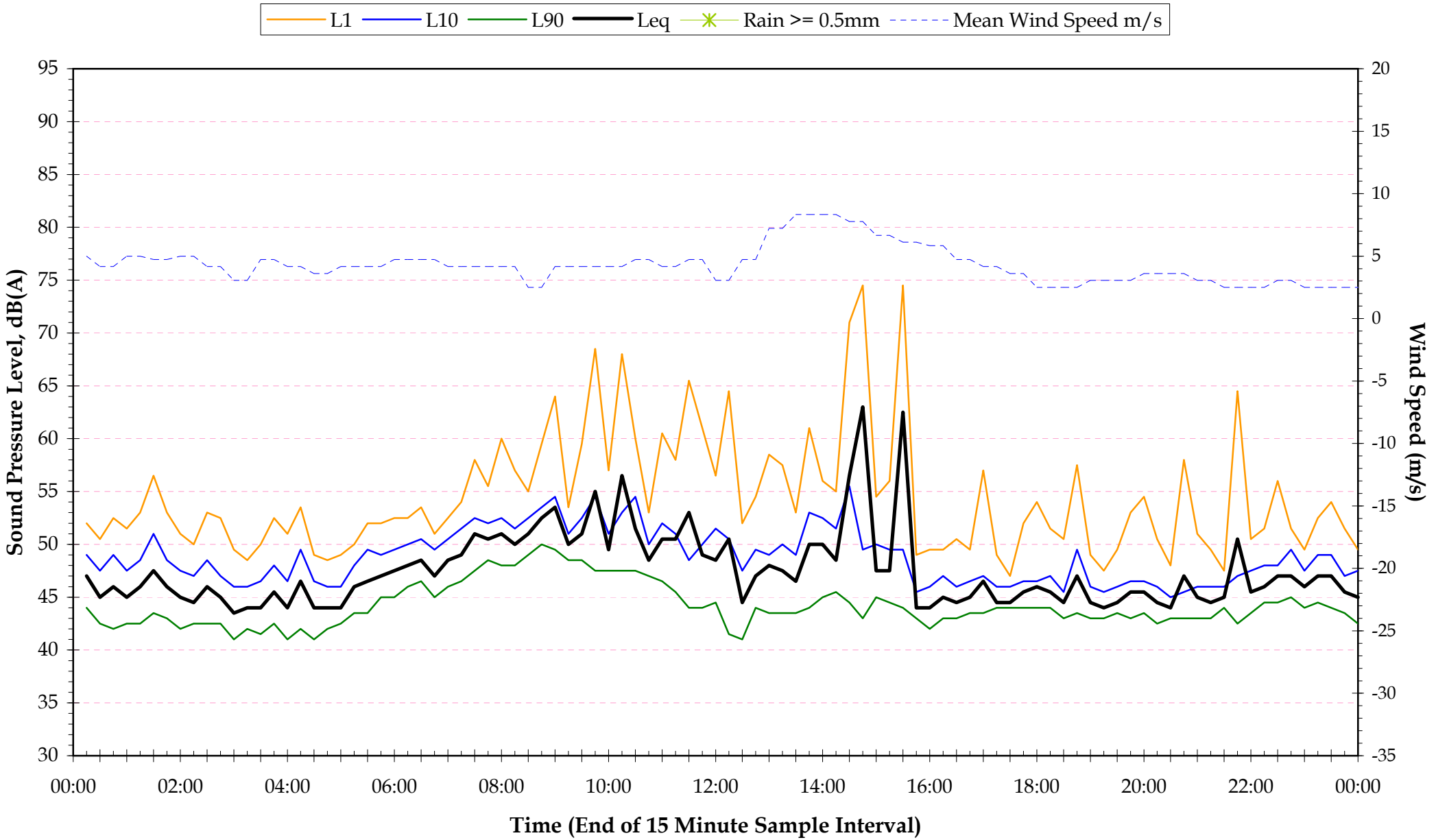
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Statistical Noise Levels
Parish Drive - Saturday 12 June 2010



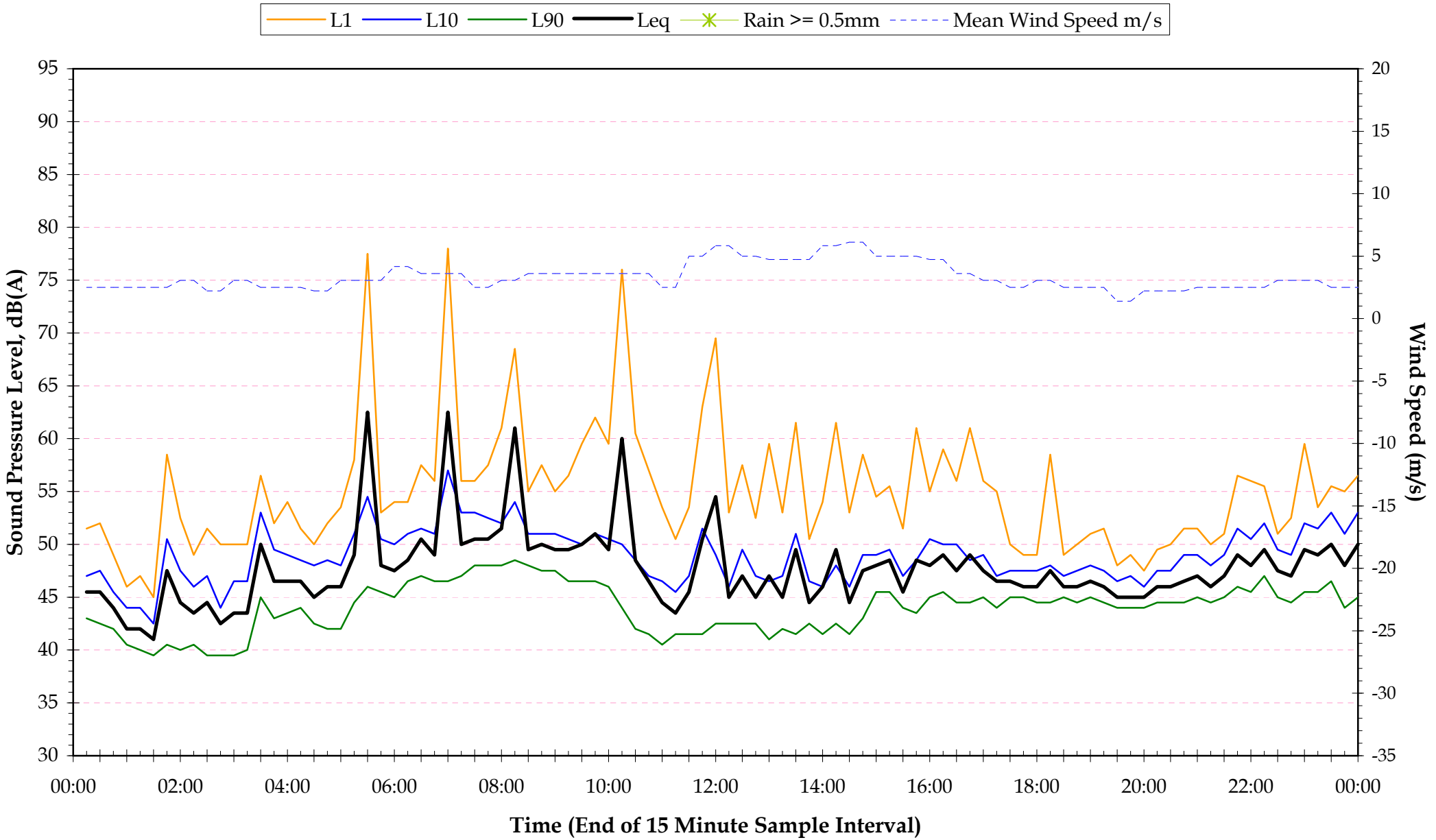
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Statistical Noise Levels
Parish Drive - Sunday 13 June 2010



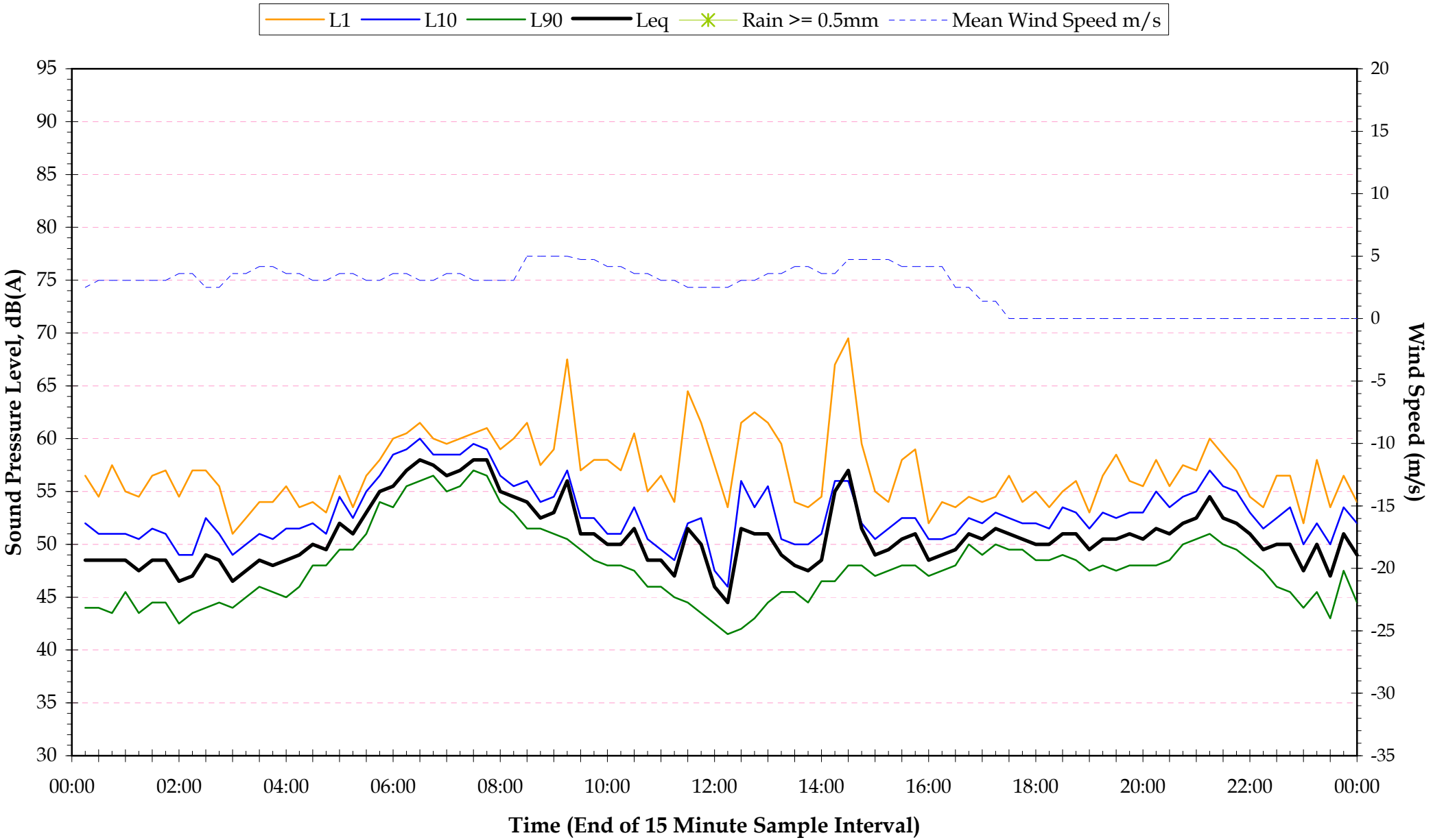
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Statistical Noise Levels
Parish Drive - Monday 14 June 2010



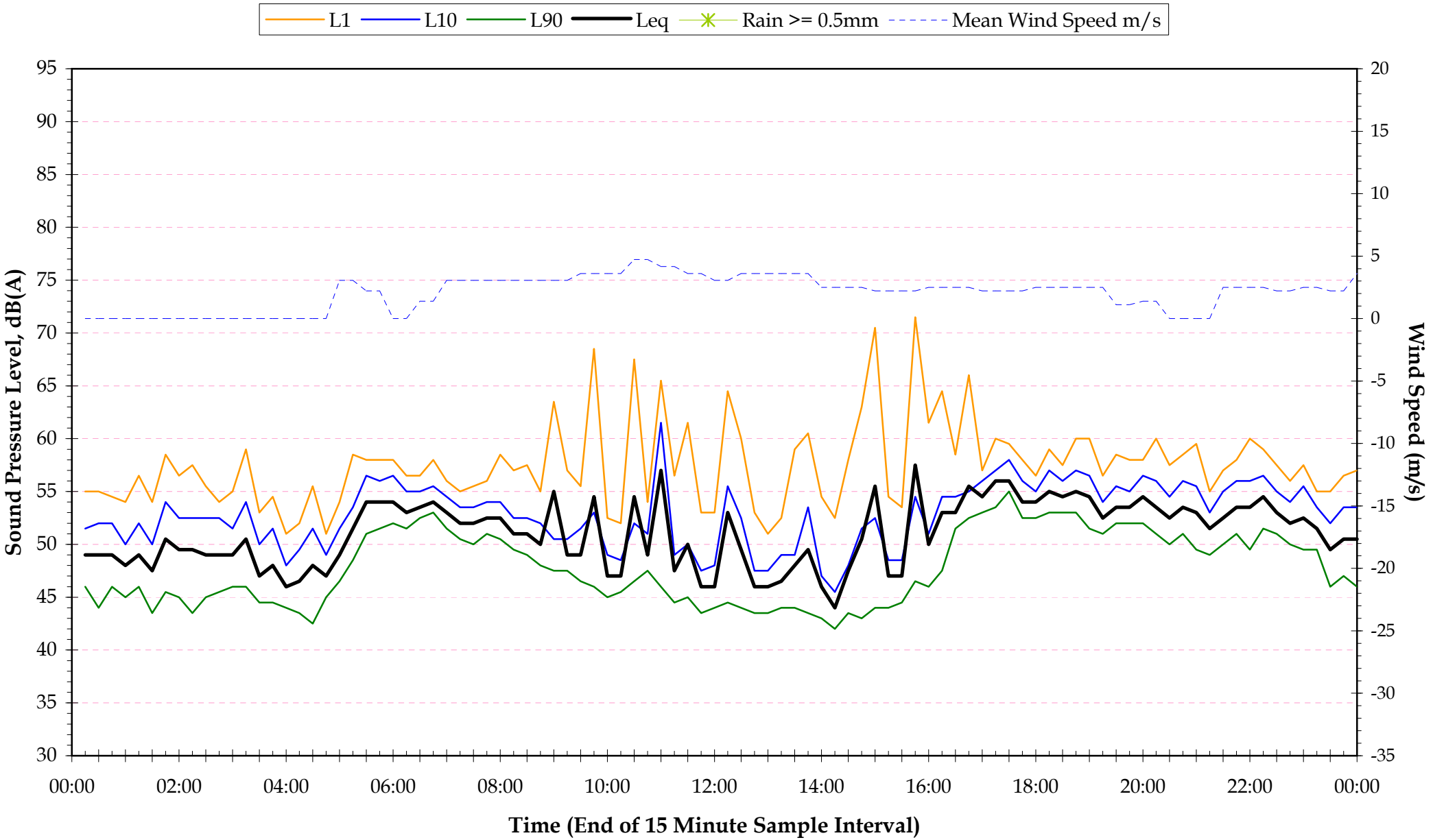
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Statistical Noise Levels
Parish Drive - Tuesday 15 June 2010



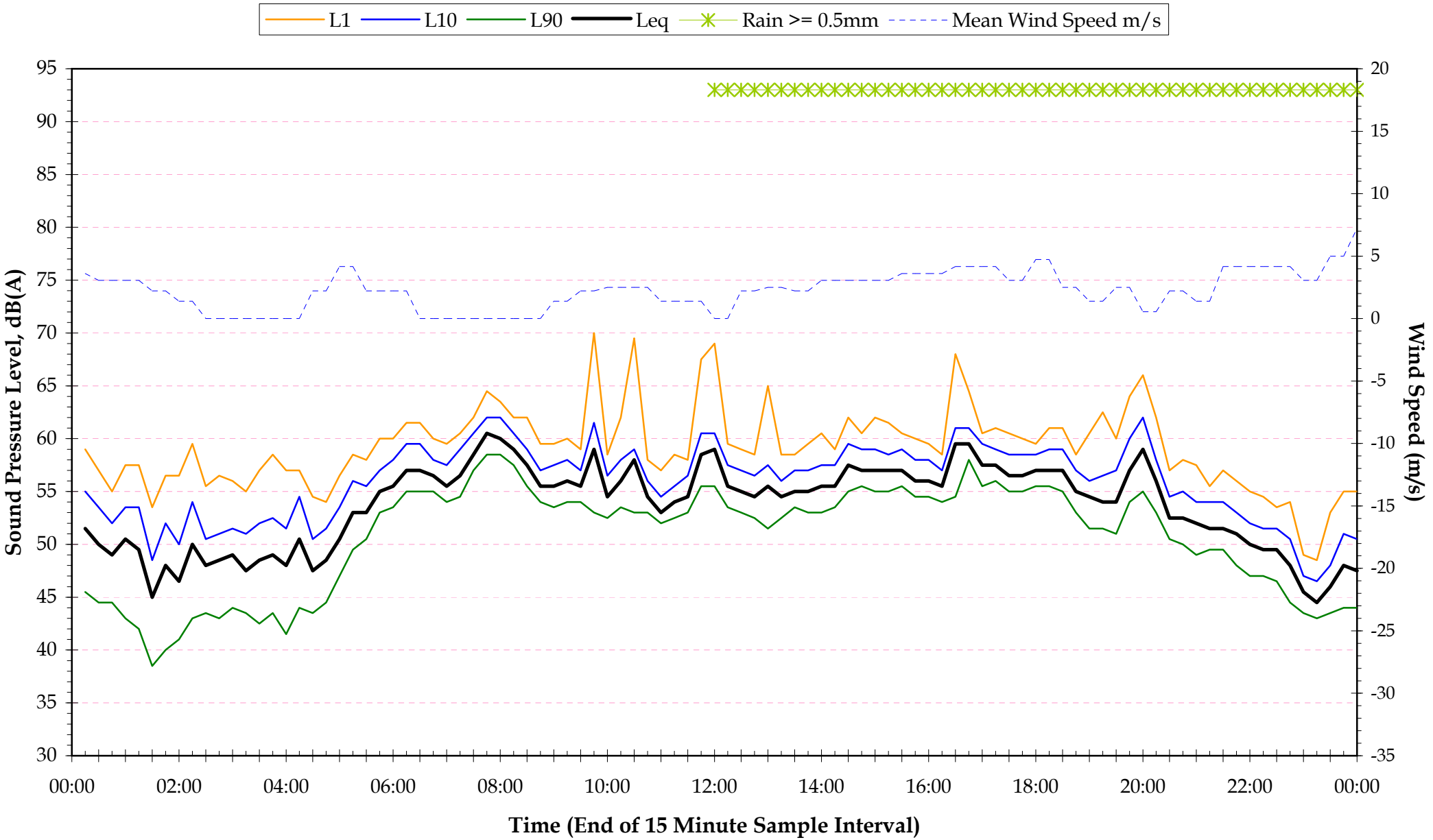
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Statistical Noise Levels
Parish Drive - Wednesday 16 June 2010



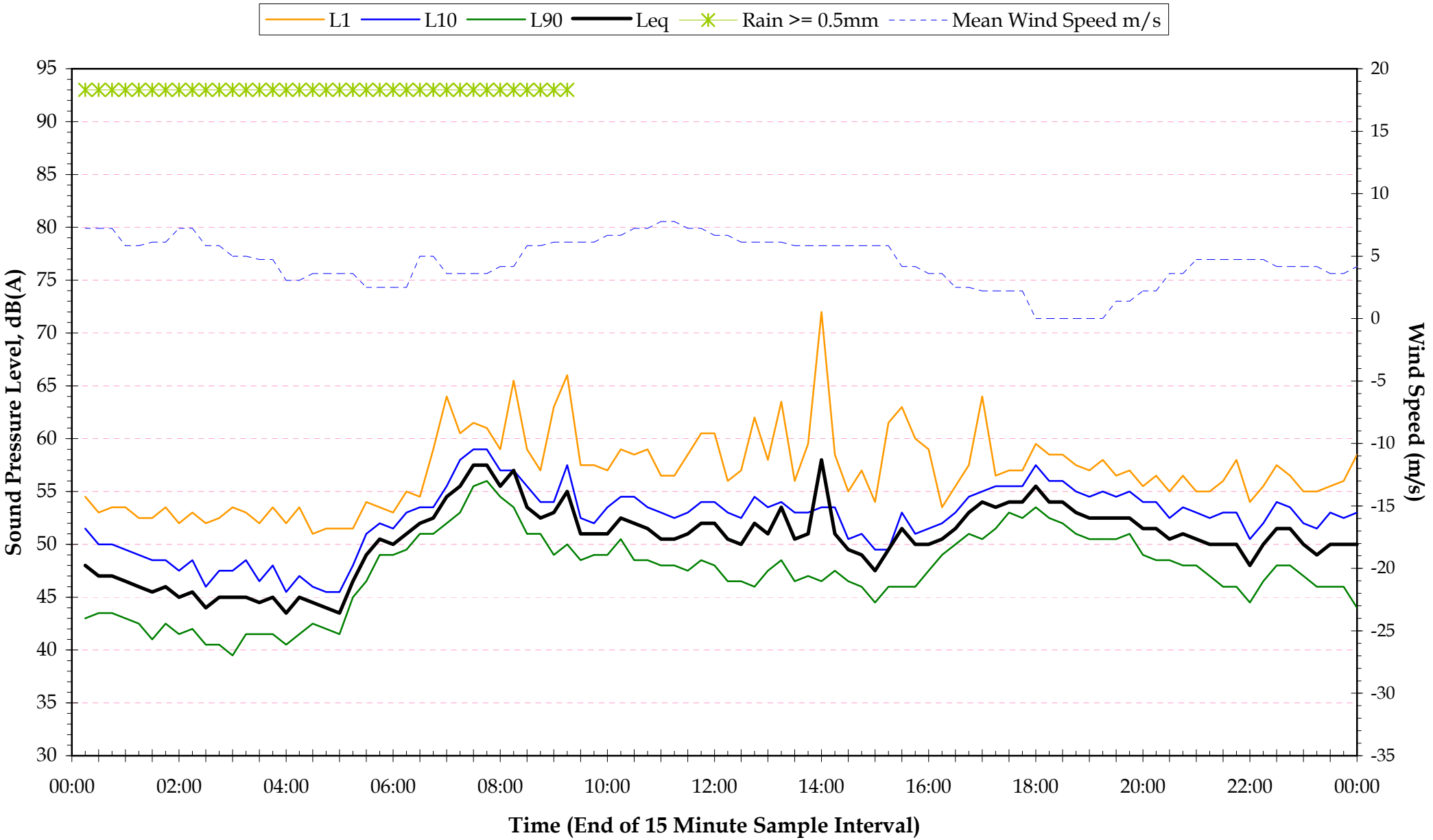
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Statistical Noise Levels
Parish Drive - Thursday 17 June 2010



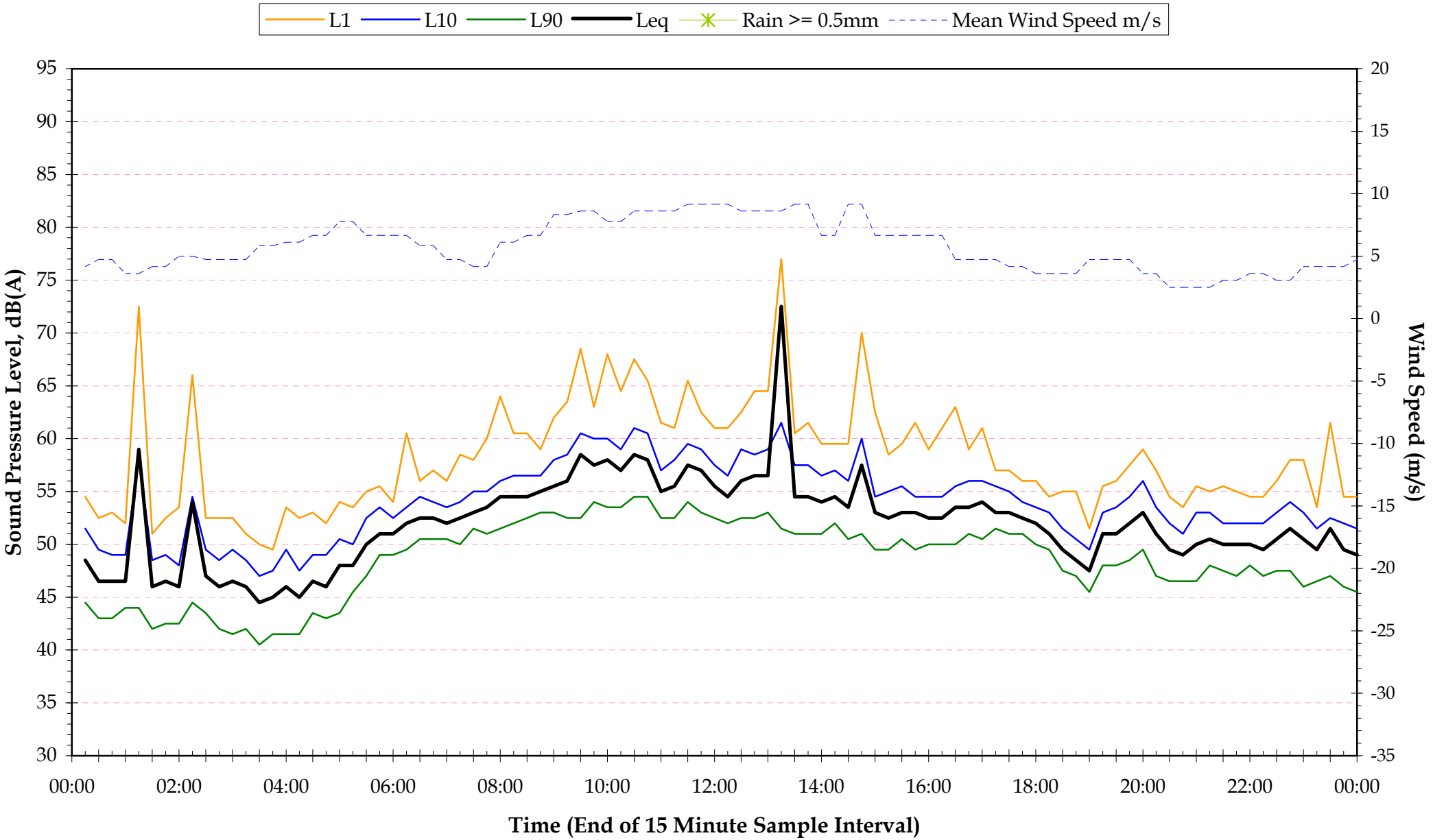
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Statistical Noise Levels
Parish Drive - Friday 18 June 2010



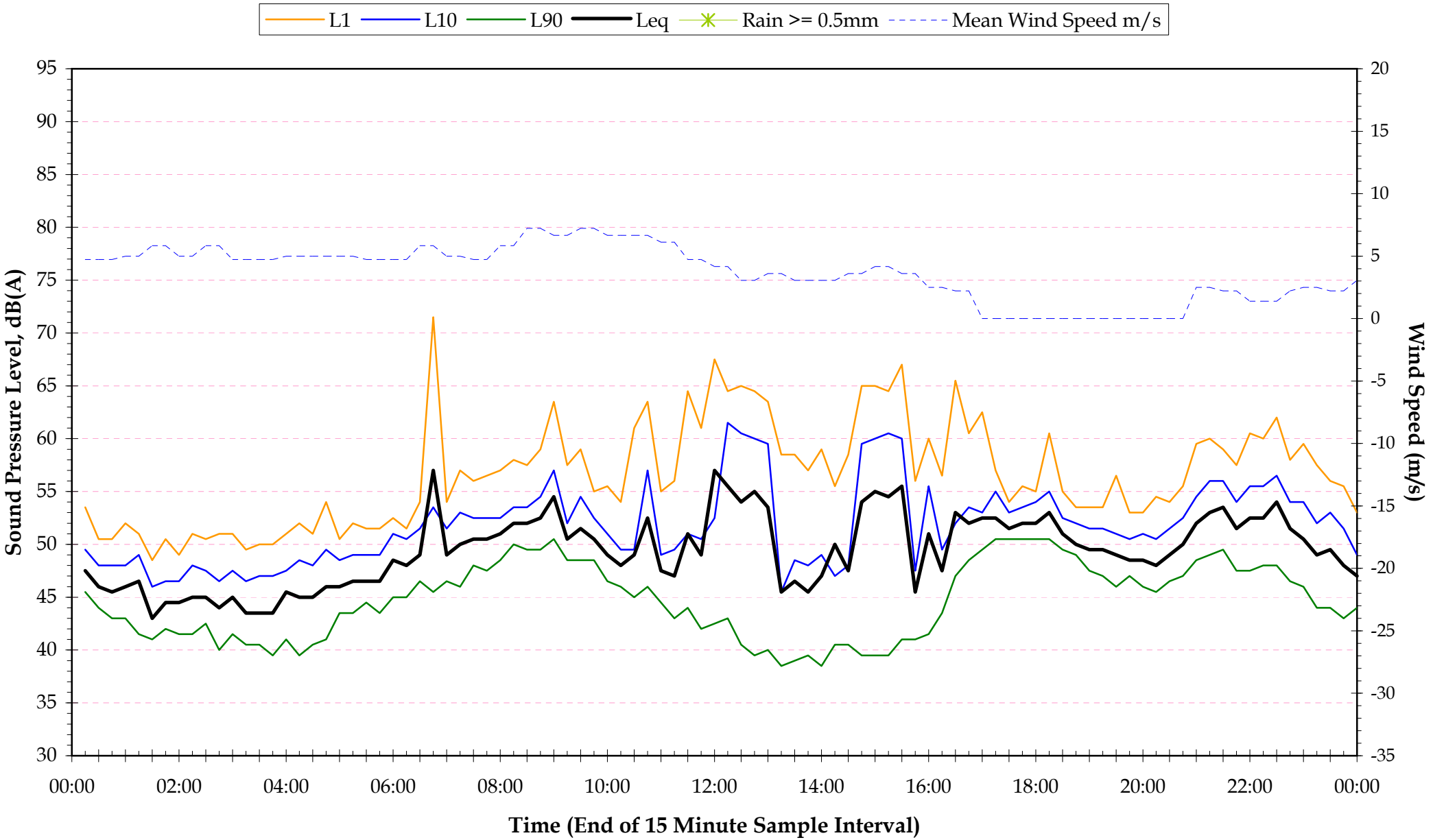
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Statistical Noise Levels
Parish Drive - Saturday 19 June 2010



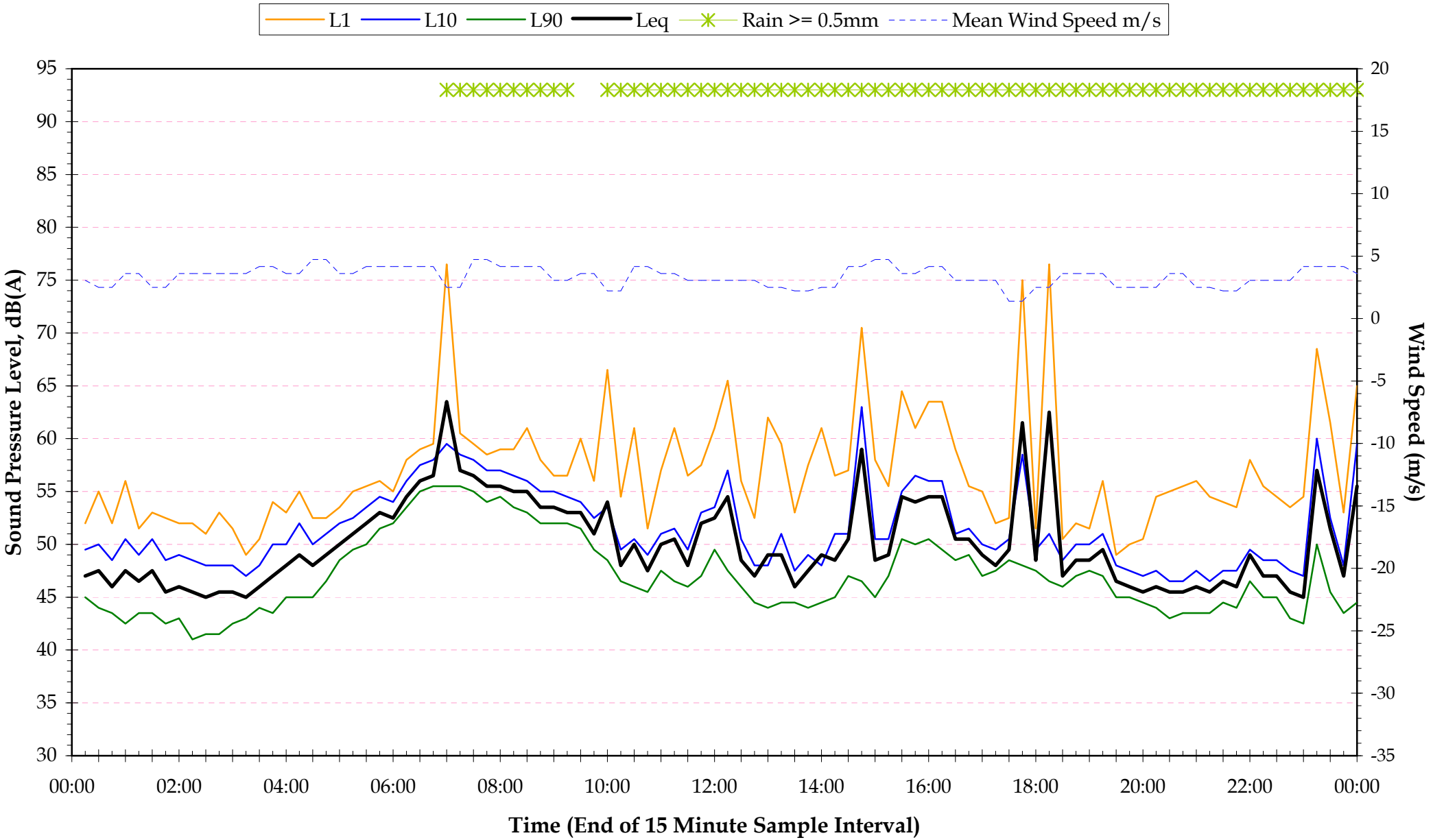
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Statistical Noise Levels
Parish Drive - Sunday 20 June 2010



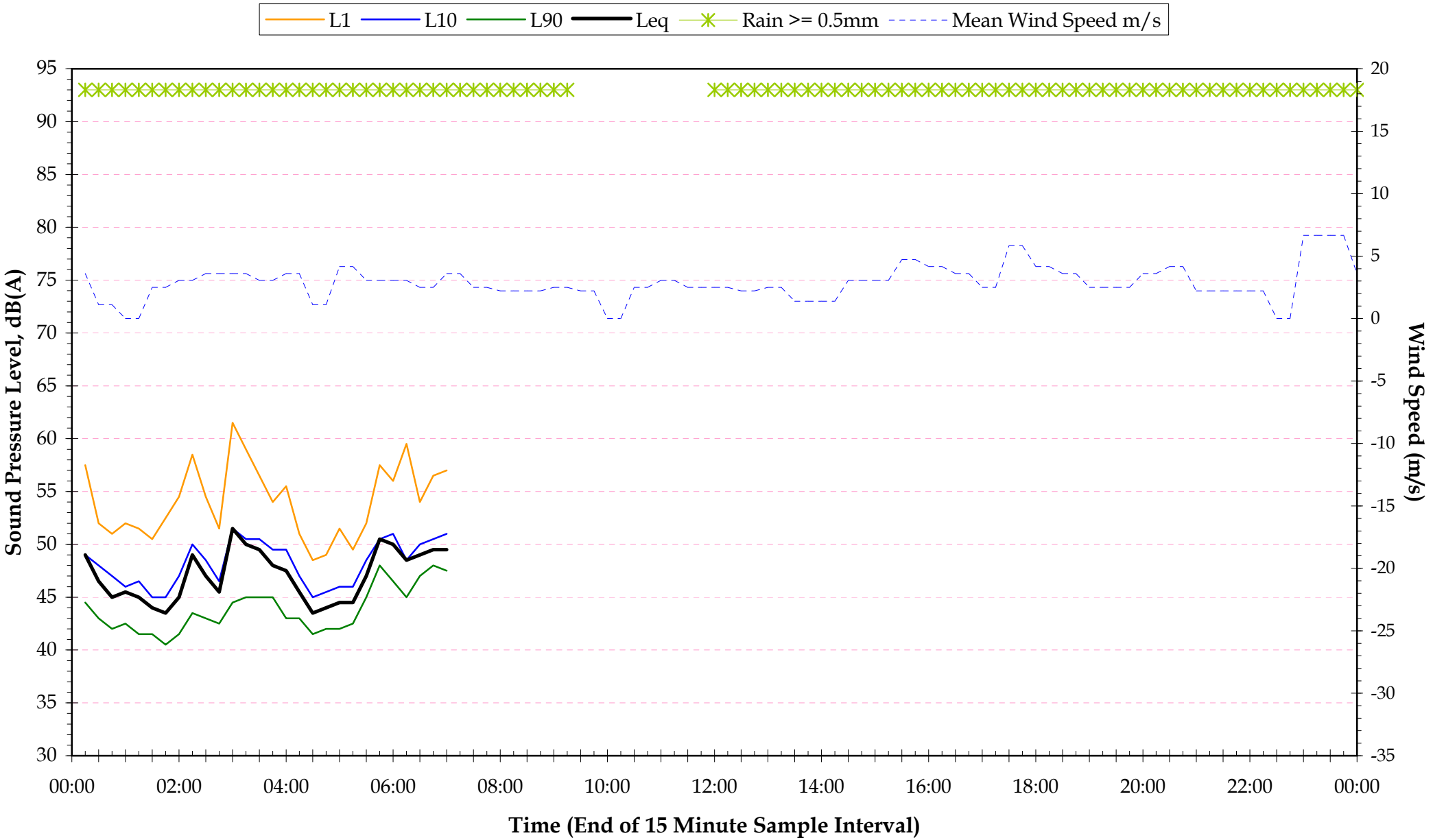
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Statistical Noise Levels
Parish Drive - Monday 21 June 2010



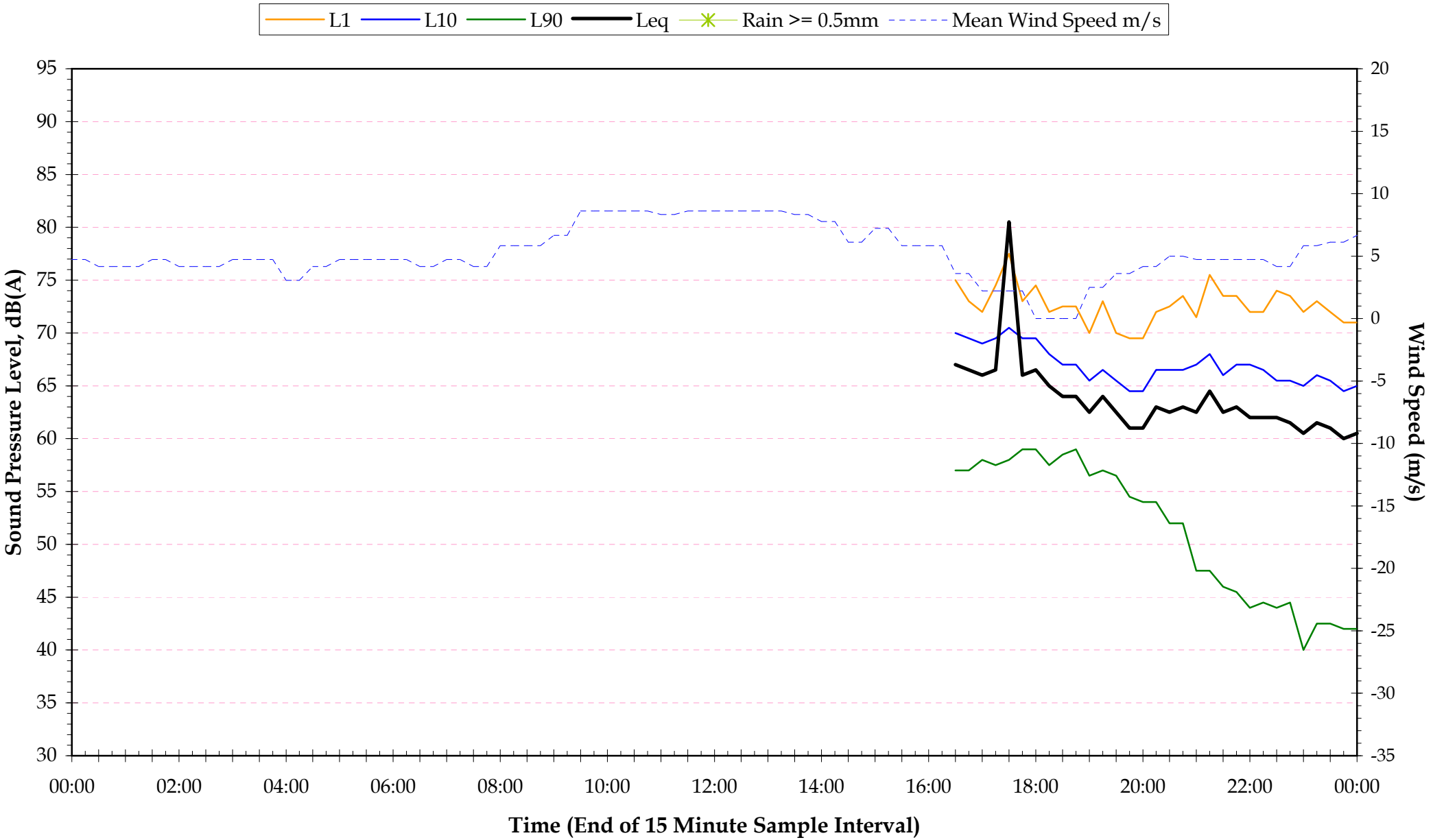
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Statistical Noise Levels
Parish Drive - Tuesday 22 June 2010



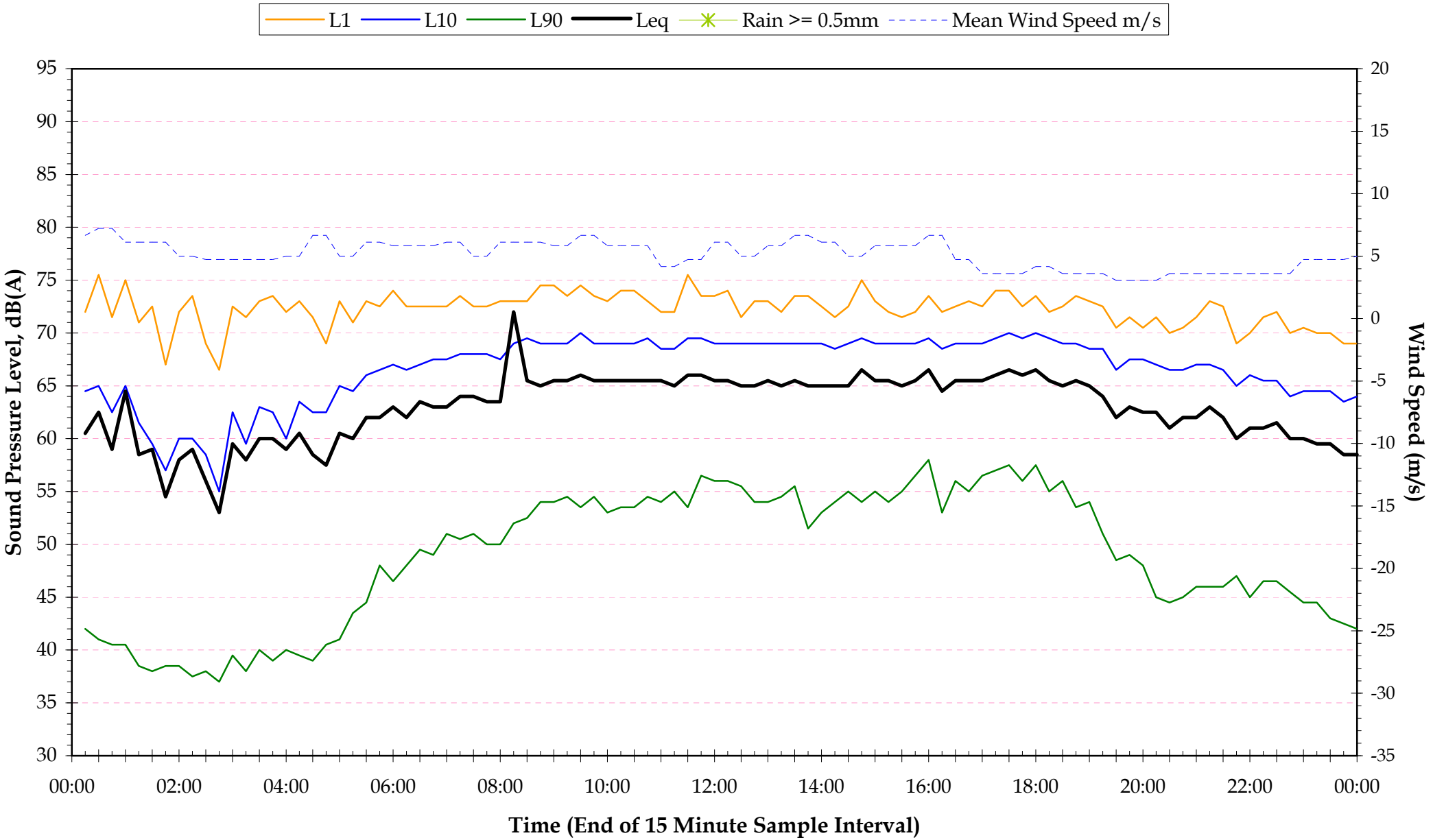
Environmental Resources Management (ERM) Australia Pty Ltd

Statistical Noise Levels
Weakleys Drive - Friday 11 June 2010



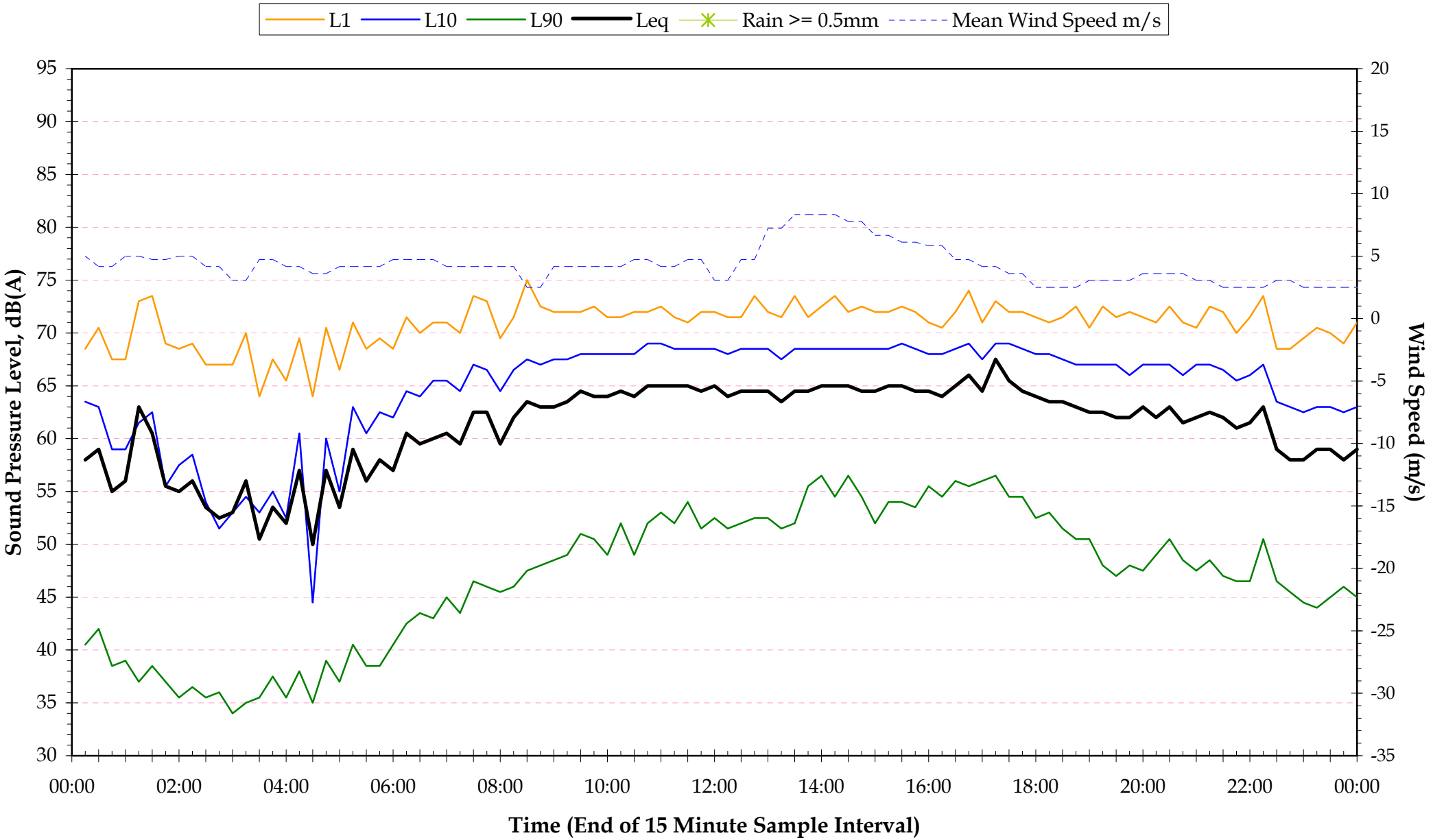
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Statistical Noise Levels
Weakleys Drive - Saturday 12 June 2010



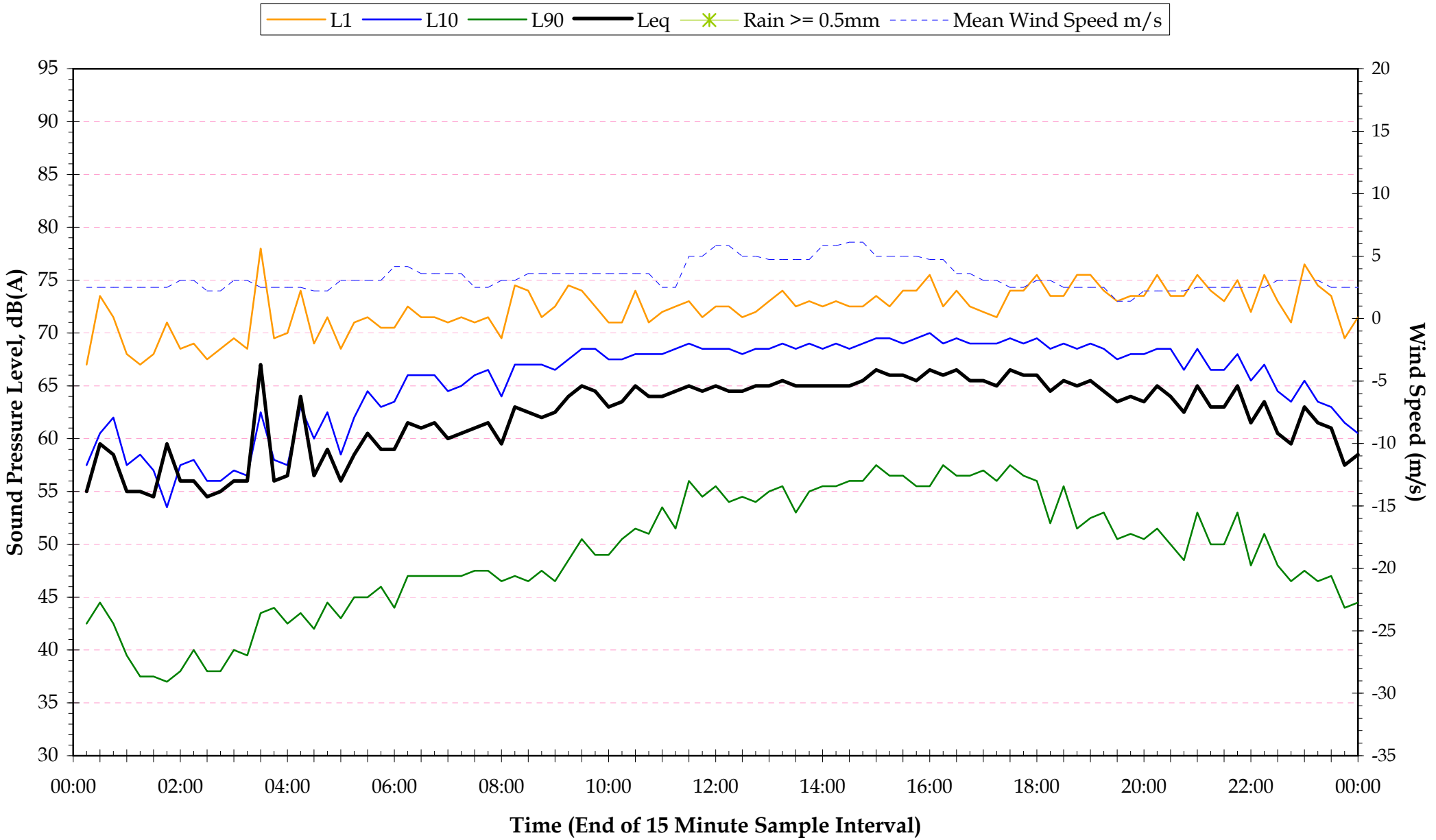
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Statistical Noise Levels
Weakleys Drive - Sunday 13 June 2010



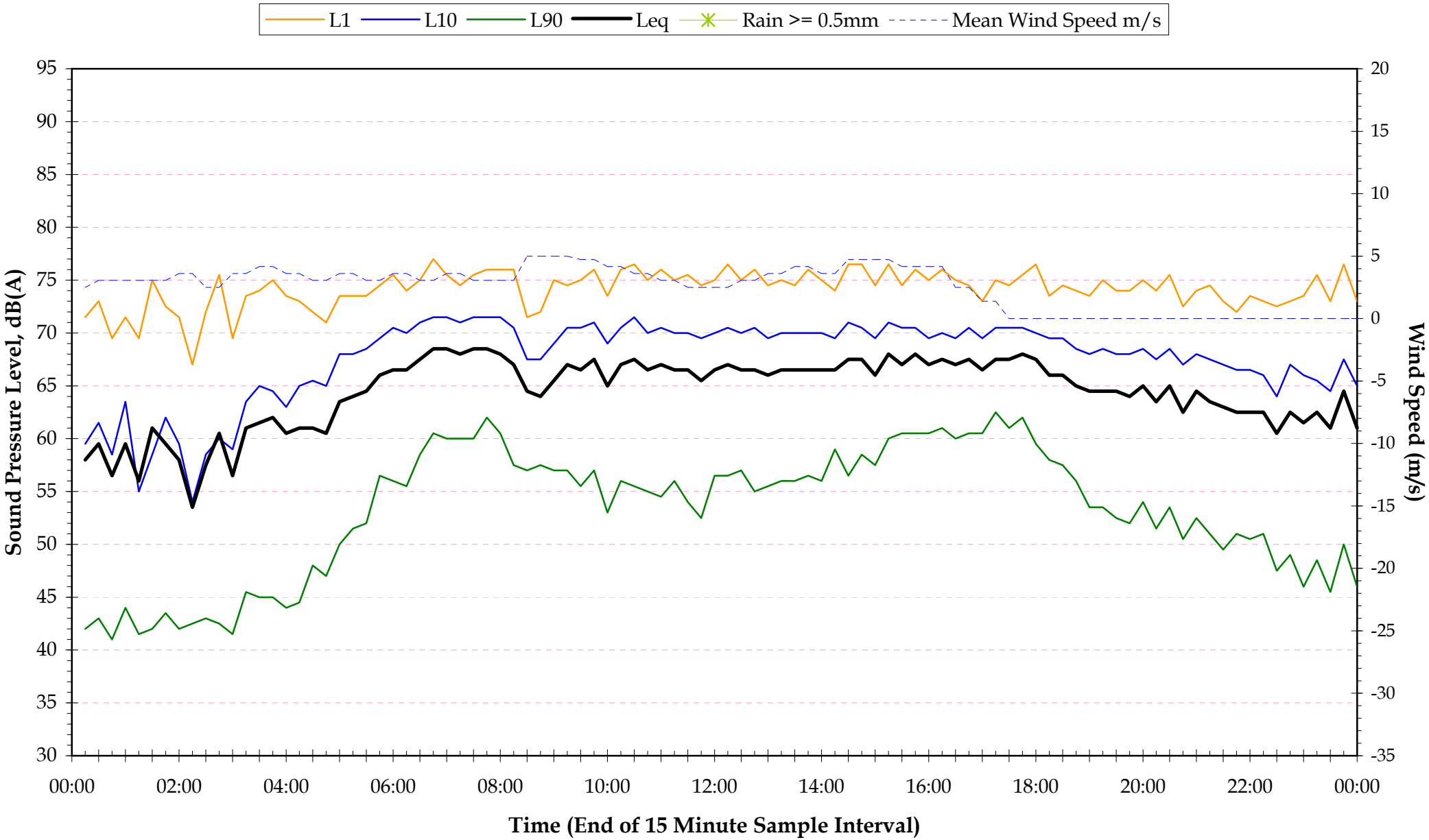
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Statistical Noise Levels
Weakleys Drive - Monday 14 June 2010



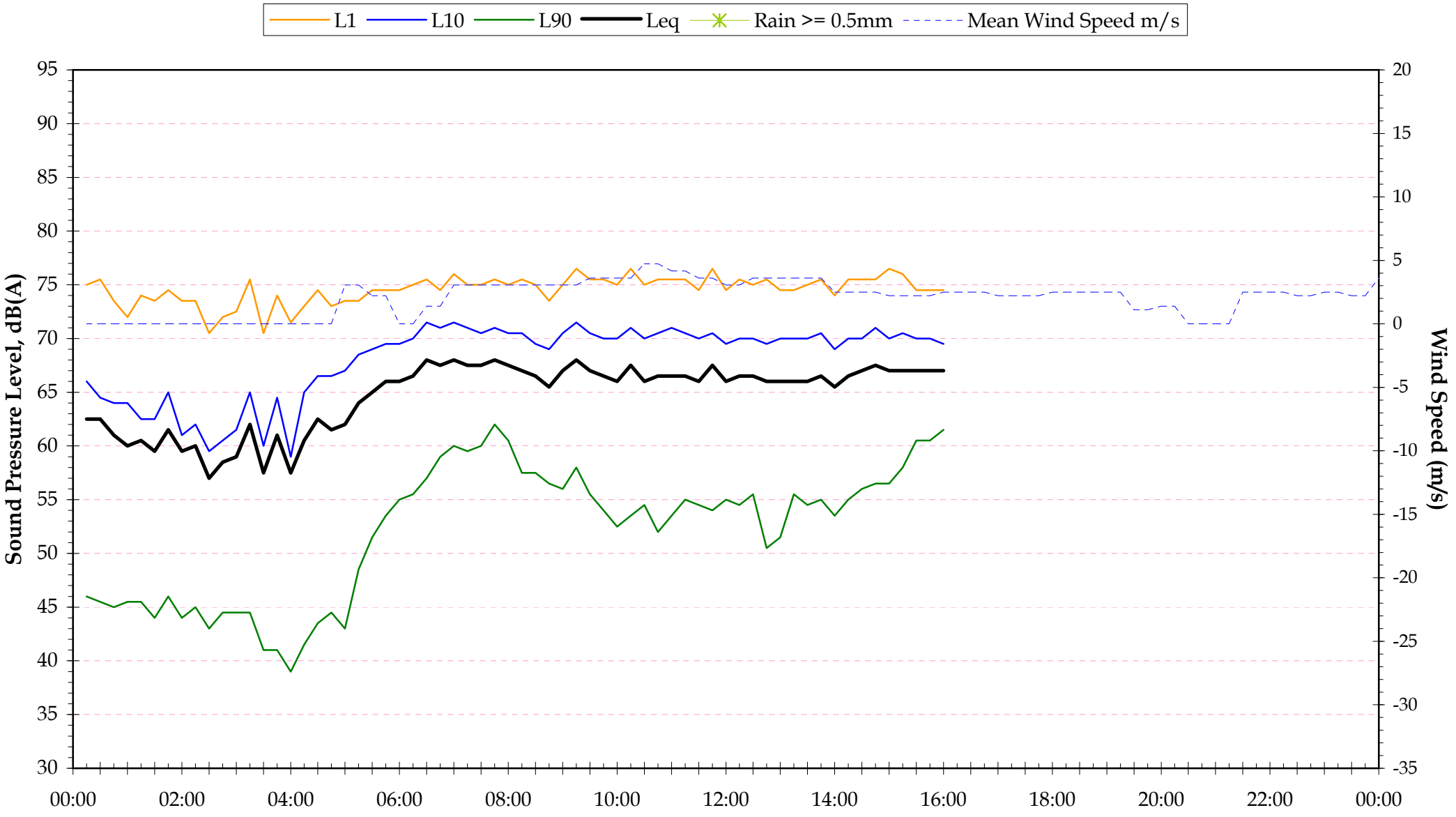
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Statistical Noise Levels
Weakleys Drive - Tuesday 15 June 2010



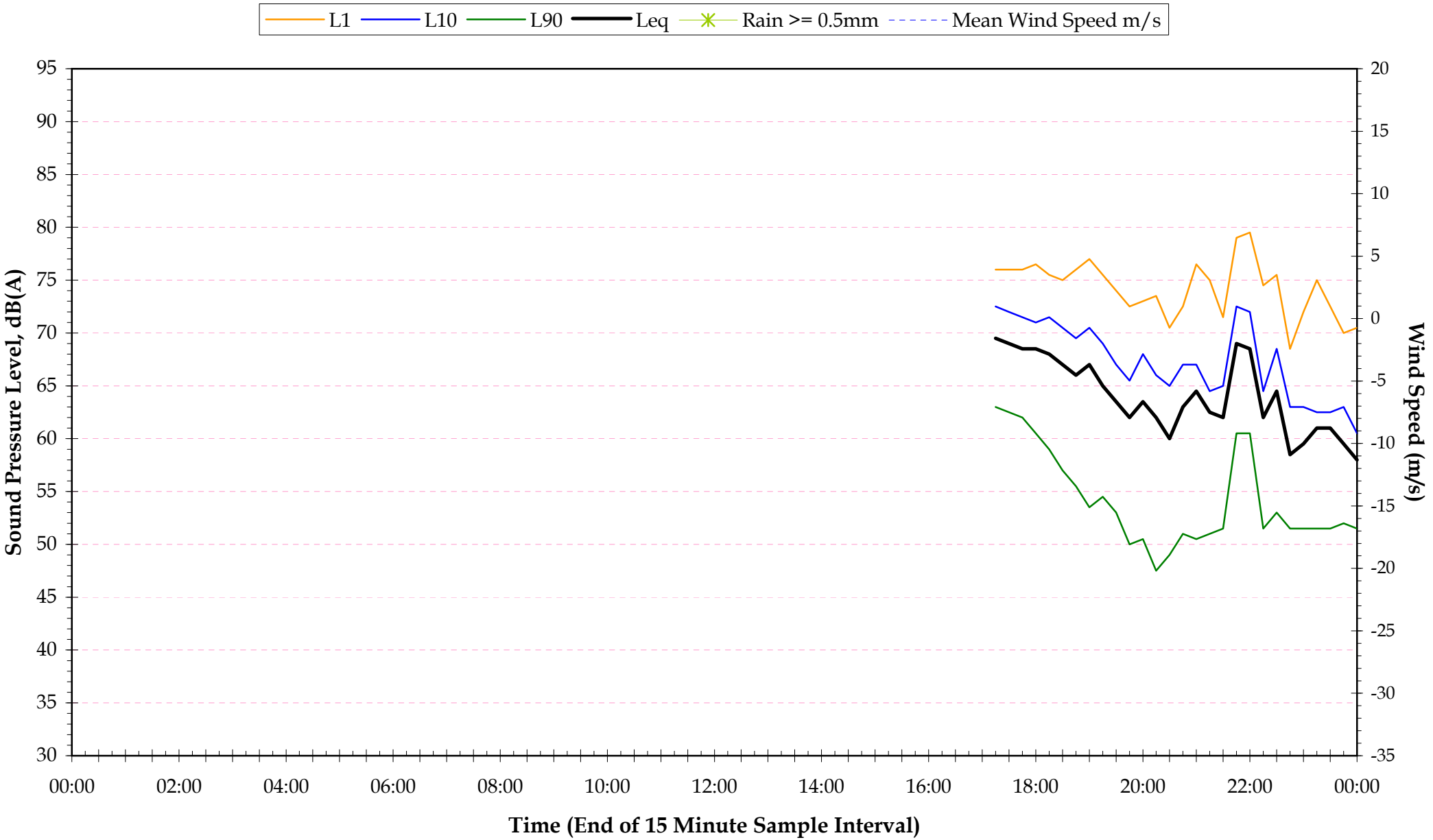
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Statistical Noise Levels
Weakleys Drive - Wednesday 16 June 2010

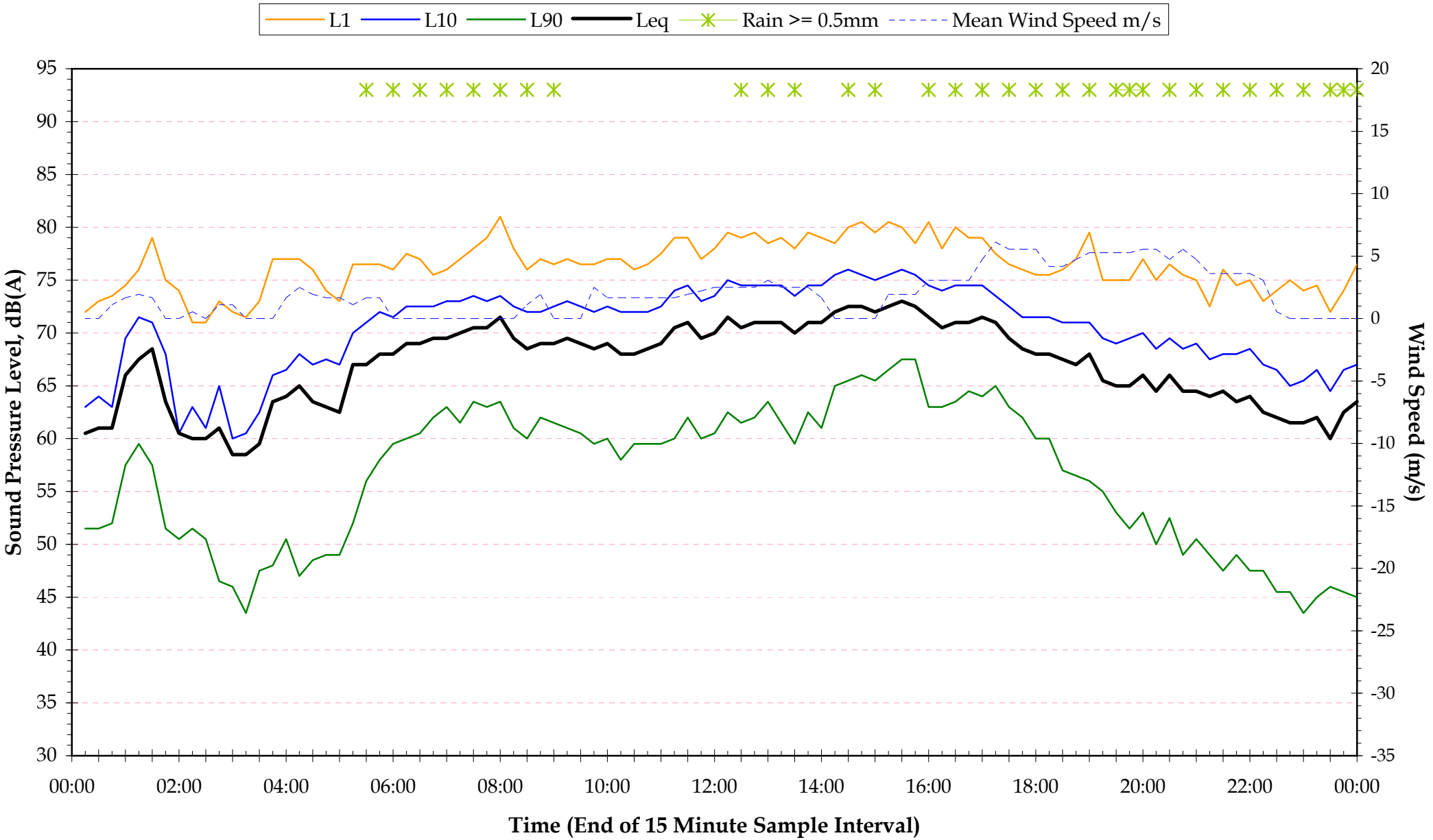


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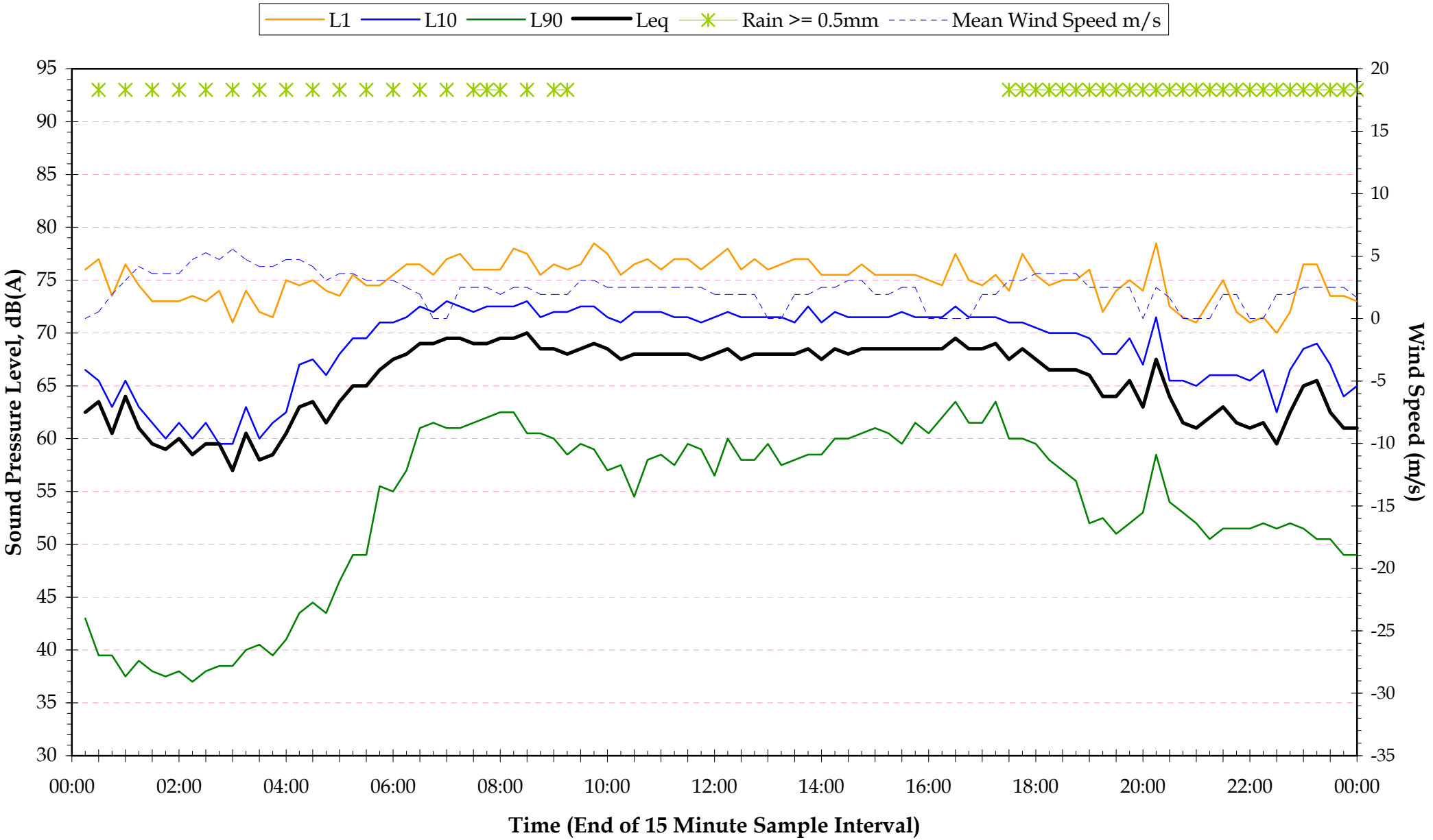
Statistical Noise Levels
Weakleys Drive - Tuesday 27 July 2010



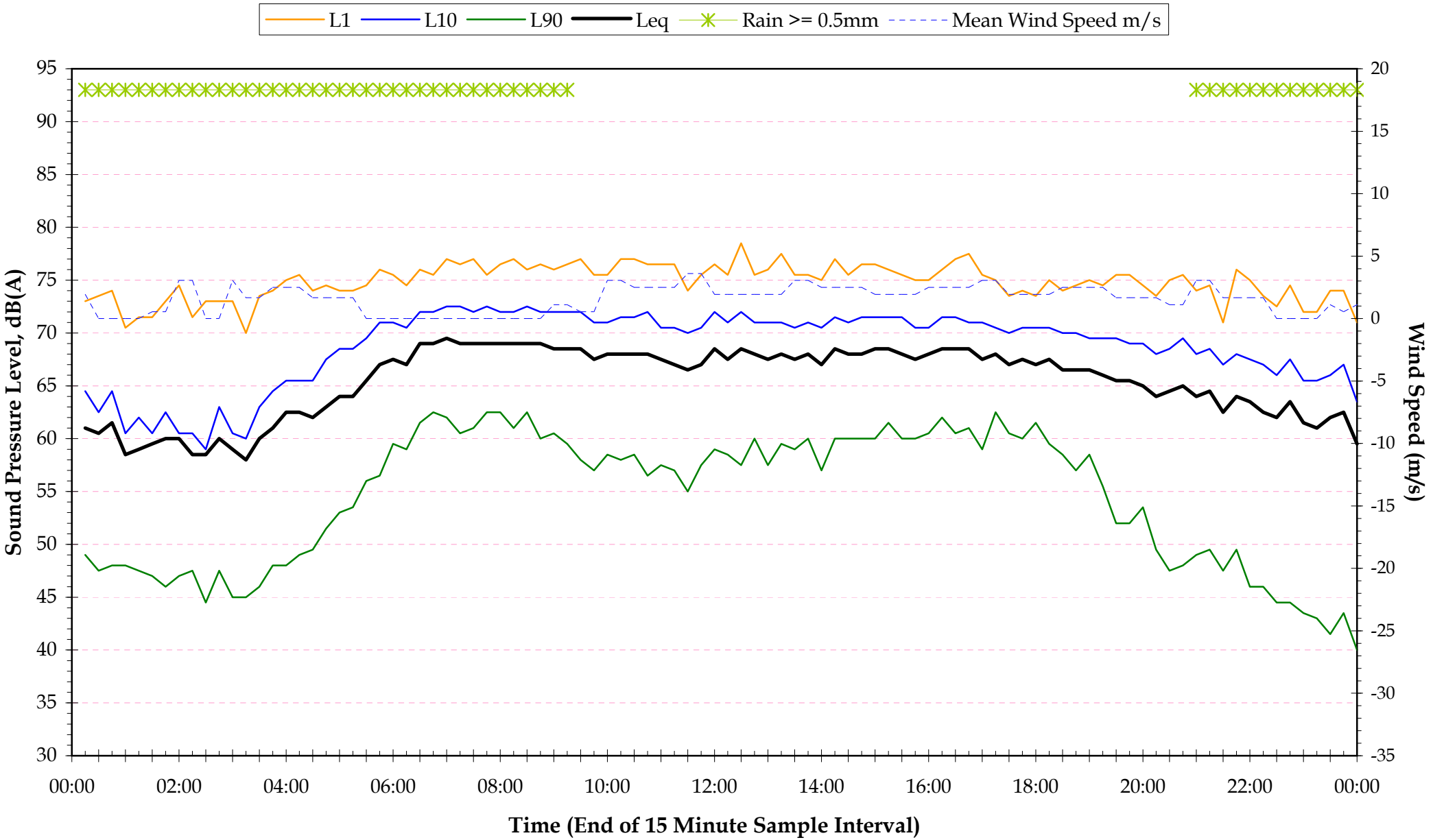
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Weakleys Drive - Wednesday 28 July 2010



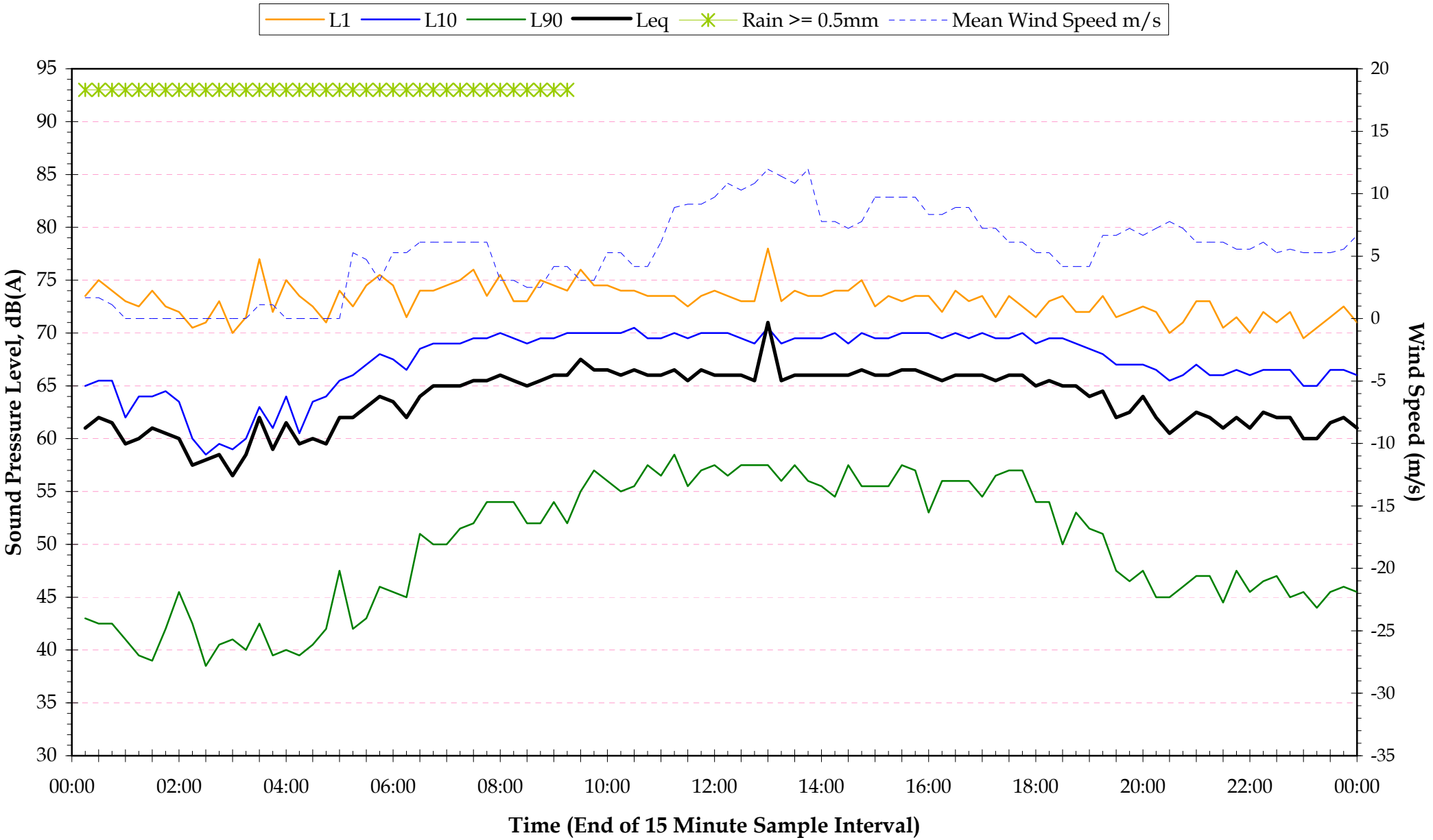
Statistical Noise Levels
Weakleys Drive - Thursday 29 July 2010



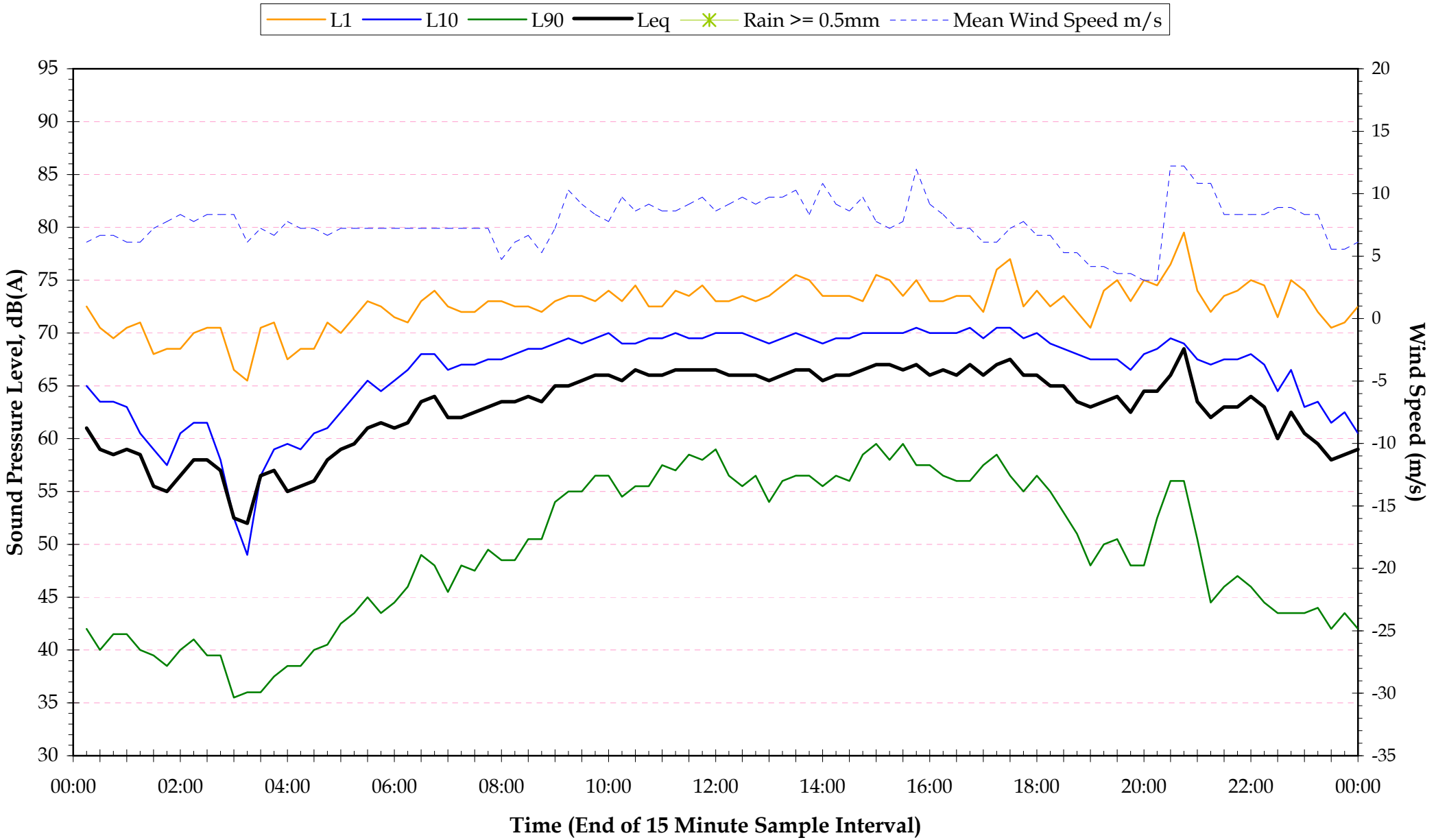
Statistical Noise Levels
Weakleys Drive - Friday 30 July 2010



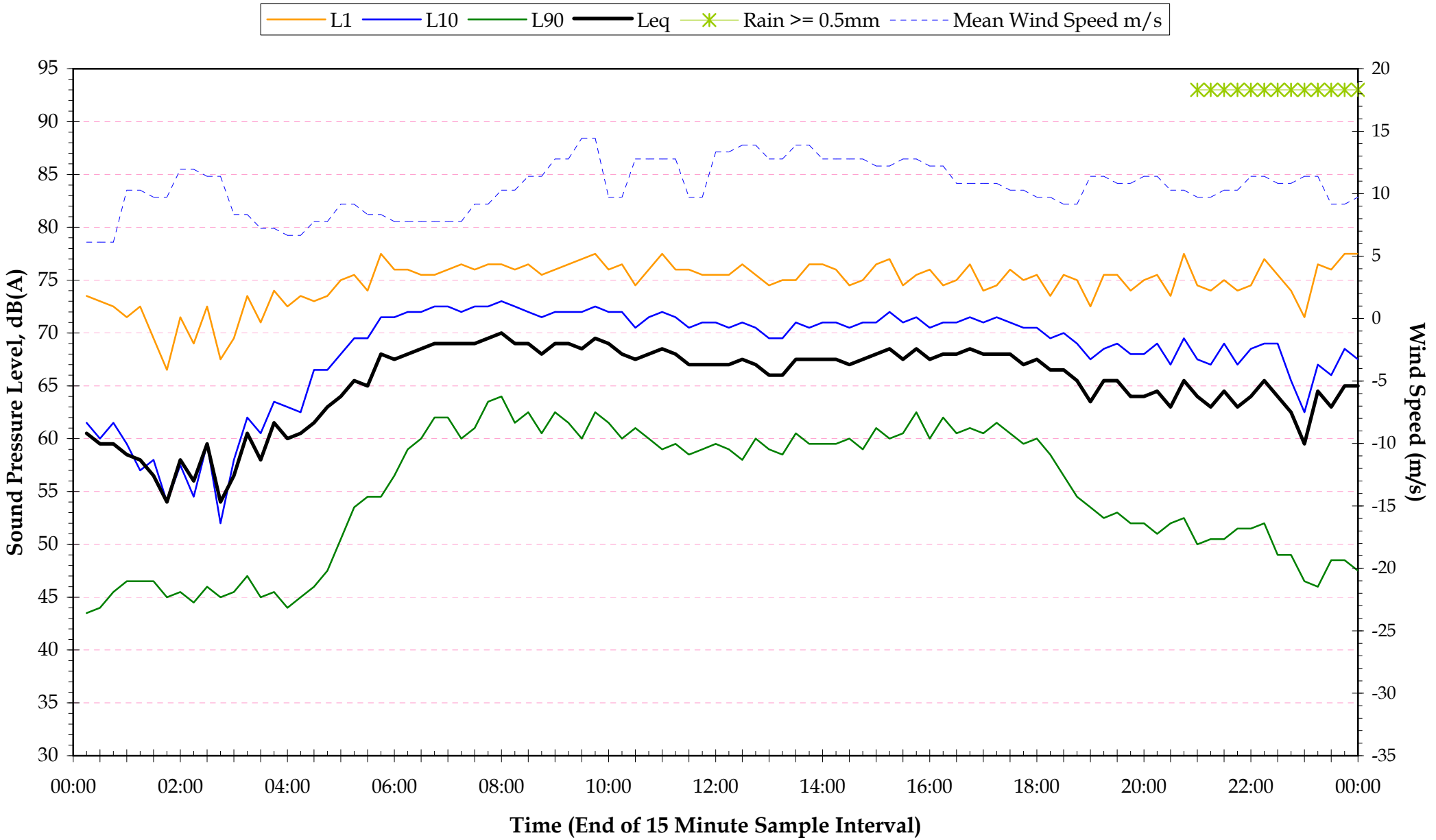
Statistical Noise Levels
Weakleys Drive - Saturday 31 July 2010



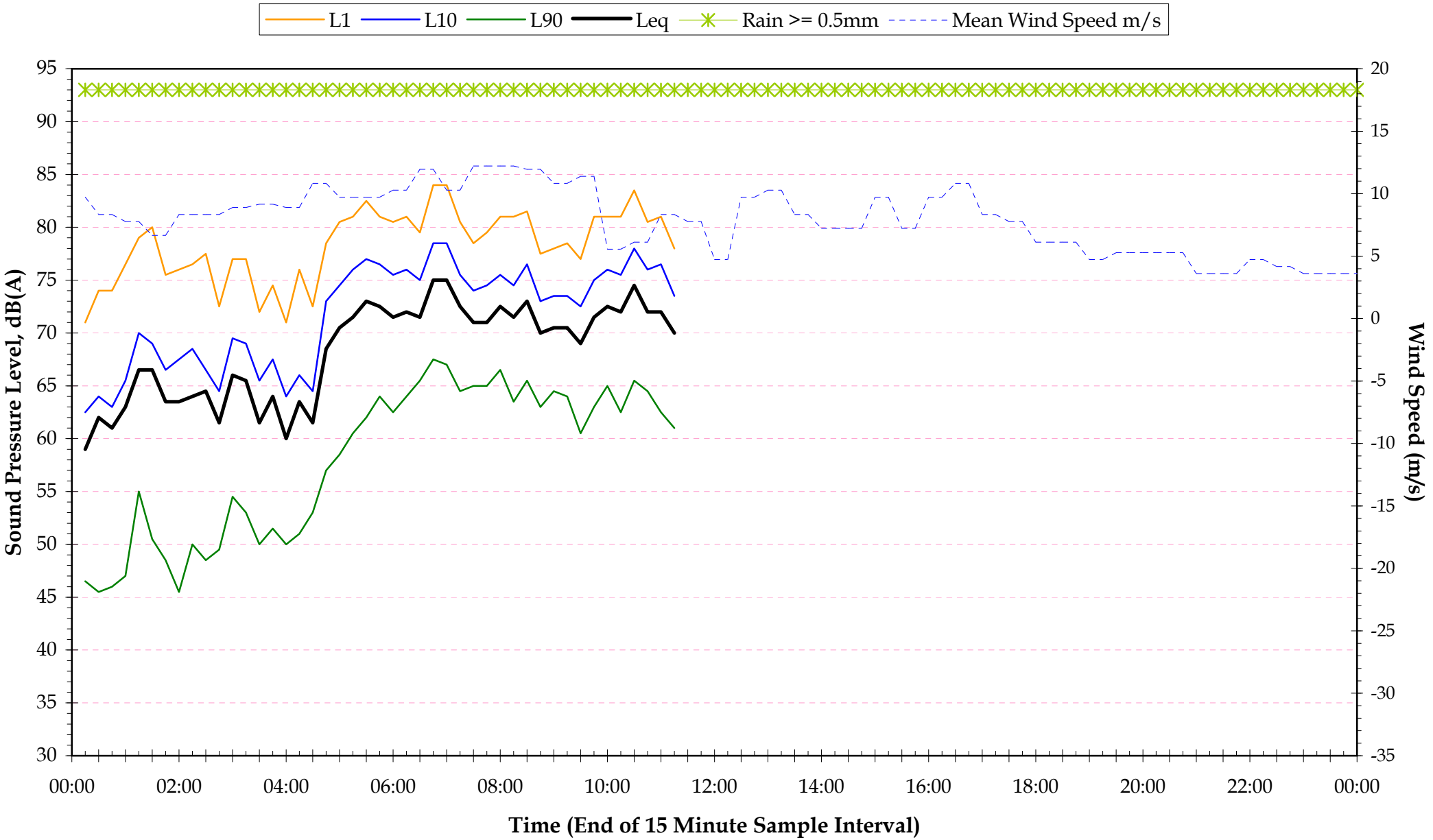
Statistical Noise Levels
Weakleys Drive - Sunday 1 August 2010



Statistical Noise Levels
Weakleys Drive - Monday 2 August 2010



Statistical Noise Levels
Weakleys Drive - Tuesday 3 August 2010



Annex C

Sound Power Spectral Data

Table C.1 Equipment Leq Sound Power Level Spectral Data, dB

Item	Frequency (Linear)								A-weighted
	63.0	125.0	250.0	500.0	1000.0	2000.0	4000.0	8000.0	
Operational Noise									
AC Cassette Condensers x12 (offices)	77	79	71	69	63	58	55	47	**70**
EF-1 (plant room)	75	68	74	77	80	78	73	66	**84**
EF-2 (plant room)[1]	62	64	72	68	69	67	65	61	**74**
CU-1 & CU-2	-	91	87	83	80	76	72	65	**87**
CU-3 & CU-4	100	97	94	88	86	80	74	60	**91**
Ref CU-1 &Ref CU-2	-	99	92	88	87	87	73	71	**93**
Supplier Truck (moving)	106	106	102	100	99	96	94	96	**104**
Supplier Truck (idle)	99	99	95	93	92	89	87	89	**97**
Forktruck (unloading-exposed)	95	96	93	95	94	94	89	-	**99**
Forktruck (unloading-shielded)	87	88	85	87	86	86	81	-	**91**
Aldi Truck (moving)	98	102	101	97	94	94	91	80	**101**
Aldi Truck (idle-with ref)	96	100	99	95	92	92	89	78	**99**
Unloading (rear south docks)	91	92	89	91	90	90	85	-	**95**
Airbrake release	116	117	114	116	115	115	110		**120**
Car	62	76	82	84	84	85	82	69	**91**
Construction Noise									
Dozers	108	115	112	108	109	103	95	87	**112**
Compactors	107	110	105	107	105	104	96	94	**110**
Cranes	90	98	98	102	101	100	97	88	**106**
Trucks	104	105	102	104	103	103	98	93	**109**
Water Cart	100	101	98	100	99	99	94	89	**105**
Concrete trucks/pumps	107	108	105	107	106	106	101	96	**112**
Generators	94	93	90	92	91	91	86	81	**97**

1: Assumed inlet and discharge attenuators providing minimum 15dB(A) reduction in accordance with ALDI Stapylton specification

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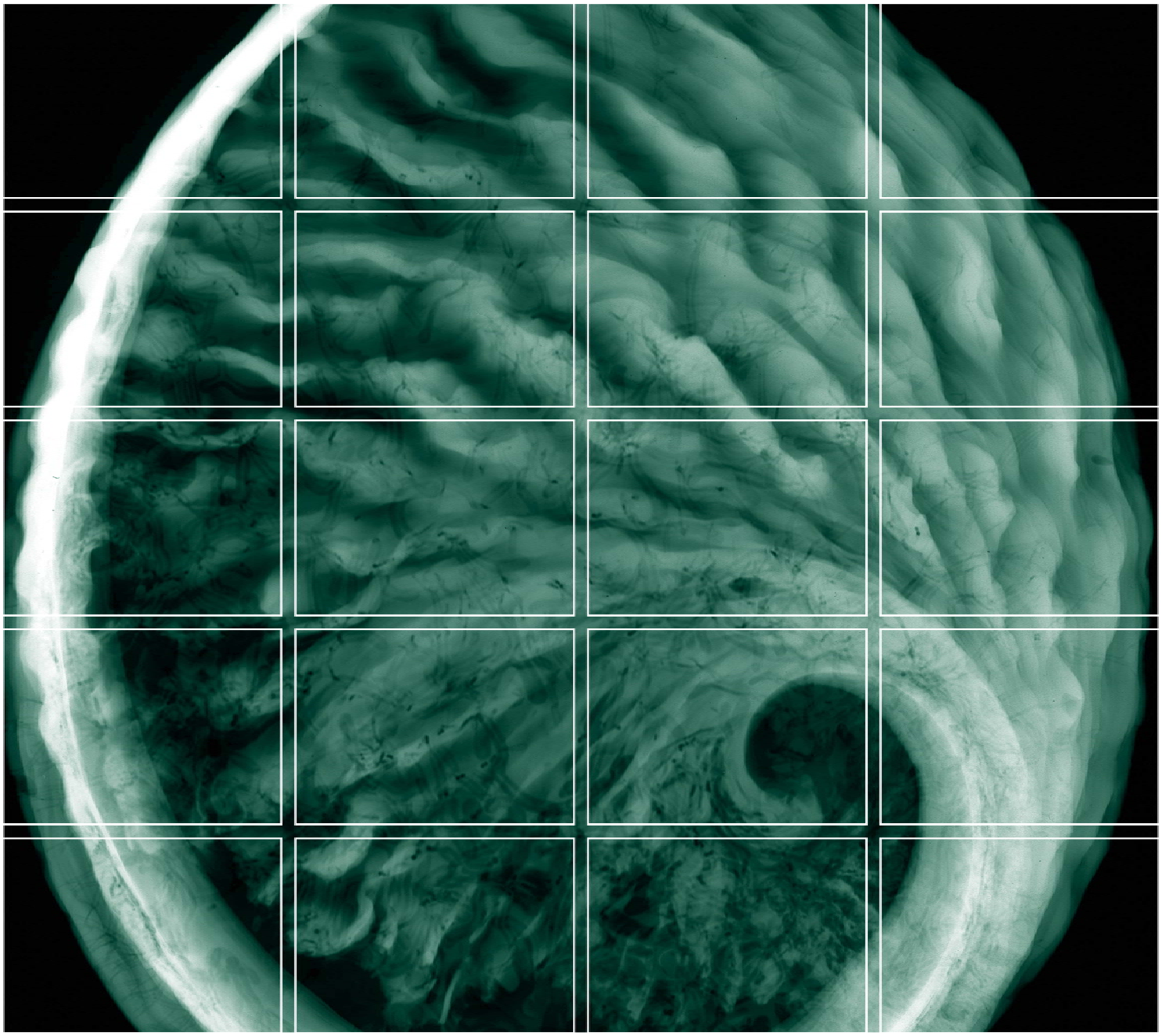
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Appendix K

Air Quality Assessment - ERM



ALDI Regional Warehousing & Distribution Facility, Freeway North Business Park, NSW

Air Quality Impact Assessment

ALDI Foods Pty Ltd

August 2010

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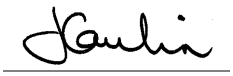
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ALDI Regional Warehousing & Distribution Facility, Freeway North Business Park, NSW

Air Quality Impact Assessment

ALDI Foods Pty Ltd

Approved by:	*Jacinta Coulin*
Position:	Project Manager
Signed:	
Date:	*3 August, 2010*
Approved by:	*Steve O'Connor*
Position:	Principal Consultant
Signed:	
Date:	*3 August, 2010*

Environmental Resources Management Australia Pty Ltd Quality System

August 2010

0117126

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Final REPORT

ALDI Foods Pty Ltd

ALDI Regional Warehousing & Distribution Facility, Beresfield, NSW

Air Quality Impact Assessment

August 2010

Reference: 0117126_RP02

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CONTENTS

1	INTRODUCTION	
1.1	SCOPE OF WORKS	1
2	LOCALITY DESCRIPTION AND PROPOSED OPERATIONS	
2.1	SITE DESCRIPTION	2
2.2	SURROUNDING LAND USES	2
2.3	PROPOSAL	3
2.3.1	CONSTRUCTION	3
3	AIR QUALITY STANDARDS AND OBJECTIVES	
3.1	AMBIENT AIR QUALITY OBJECTIVES	4
4	EXISTING AIR QUALITY AND METEOROLOGICAL ENVIRONMENT	
4.1	BACKGROUND AIR QUALITY	5
4.2	PREVAILING WIND CONDITIONS	6
5	PROPOSED OPERATIONS AND POTENTIAL IMPACTS	
5.1	CONSTRUCTION PHASE ACTIVITIES	7
5.2	OPERATION PHASE ACTIVITIES	7
5.3	MITIGATION AND MANAGEMENT MEASURES	7
5.3.1	MITIGATION MEASURES	7
5.3.2	MONITORING MEASURES	8
6	CONCLUSION	

LIST OF TABLES

TABLE 3.1	RELEVANT AIR QUALITY CRITERIA	4
TABLE 4.1	SUMMARY OF BERESFIELD MAXIMUM 24-HOUR MONTHLY PM_{10} LEVELS FOR 2010	5

1 INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) was engaged to undertake a qualitative air quality impact assessment associated with the construction and operation of a proposed warehouse and distribution centre at the northern end of the F3 Freeway at Beresfield, NSW (hereafter referred to as 'the site'). The site comprises a 15 hectare (ha) parcel of land that is currently owned by Hunter Land Holdings Pty Ltd and is located within the future Freeway North Business Park at Beresfield.

This air quality assessment was conducted to identify potential air quality impacts and constraints associated with the construction and operation of the proposed warehouse and distribution centre ('the Project'). This assessment was prepared on behalf of ALDI Foods Pty Ltd to support the Environmental Assessment (EA) which is currently being prepared as part of the Part 3A Project Application process under the Environmental Planning and Assessment Act 1979 (EP&A Act).

1.1 SCOPE OF WORKS

The activities with the potential to result in dust generation associated with the Project include excavation works and traffic during the construction and operational phases.

Due to the activities involved, the impacts of this Project on the air quality environment in the vicinity of the site are considered to be relatively minor. As a result a qualitative assessment of the potential air quality impacts has been undertaken including the provision of recommended mitigation measures to manage any potential dust issues.

2 LOCALITY DESCRIPTION AND PROPOSED OPERATIONS

2.1 SITE DESCRIPTION

The proposed development site is located at the northern end of the F3 Freeway and southern end of the New England Highway, to the west of Weakleys Drive, Beresfield. The proposed development site is located within the Freeway North Business Park which was approved by the Minister for Planning on 29 September 2008.

The site has an area of approximately 15 hectares (ha), within the approved subdivision layout for the future Freeway North Business Park. It is understood that the Project will be undertaken following the construction of the roads and other infrastructure associated with Stage 1 of the business park subdivision.

The nearest residences to the site are located approximately 250 metres to the east along Weakleys Drive and approximately 950 metres to the north and north-east in Parish Drive and Avalon Drive, Thornton.

The residences in Weakleys Drive are located in an area recently rezoned Industrial 4(a).

2.2 SURROUNDING LAND USES

The site is surrounded by existing and proposed industrial and commercial land, including:

- vacant and cleared land to the north-east and bushland to the north-west and south-east;
- an existing industrial estate to the north and land proposed for industrial land uses;
- commercial / industrial developments to the east and south;
- land proposed for industrial purposes to the south; and
- Donaldson Coal Mine approximately 350 m to the south-west of the site. Existing bushland forms a buffer between the site and Donaldson Coal Mine.

2.3 *PROPOSAL*

The Project involves the construction of a warehouse and distribution centre, including the following:

- buildings including ambient warehouse, cool house area and plant room;
- office area and amenities;
- truck wash / refuelling area;
- gatehouse; and
- 302 car parking spaces.

The total building area will be 56,079m^2 and will include an area for future expansion of approximately 11,400m^2.

Trucks will access the site via a sealed access road to be constructed from Weakleys Drive. Deliveries will be removed from trucks by fork lifts and stored in the facility prior to being loaded by forklift and pallet movers onto ALDI product trucks for distribution to ALDI stores.

Operations will occur 24 hours per day, 7 days per week and 365 days per year.

Vehicle access to the site will be via a road to be constructed from Weakleys Drive. There will be separate entry/exit driveways for cars and trucks.

2.3.1 *Construction*

Construction of the Project will involve the following activities:

- soil stripping;
- cut and fill activities to level the site; and
- construction of the distribution centre.

It has been anticipated that the hours of construction will be:

- Monday to Friday (inclusive): 7am-6pm;
- Saturday: 8am – 4pm;
- no work on Sundays or Public holidays.

The construction phase is anticipated to be of approximately 24 months duration.

3 AIR QUALITY STANDARDS AND OBJECTIVES

3.1 AMBIENT AIR QUALITY OBJECTIVES

The National Environment Protection Council's *National Environment Protection Measure (Ambient Air Quality) 1998* (NEPM) is a Commonwealth Government initiative which aims to achieve nominated standards of air quality within ten years. Air quality standards for six major air pollutants (carbon monoxide, nitrogen dioxide, photochemical oxidants, sulphur dioxide, lead and small airborne particles) have been set.

All Australian states and territories, including NSW, have adopted the NEPM air quality goals for pollutants. The criteria relating to potential emissions from the Project are outlined in *Table 3.1*. These standards are legally binding on all levels of government.

The DECCW (formerly DEC) regulates air quality in NSW. The NEPM criteria have been incorporated into the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DECCW, 2005) are shown in *Table 3.1* for the key pollutants relating to this project, namely PM_{10} and total suspended particulates (TSP).

Table 3.1 Relevant Air Quality Criteria

Pollutant	Averaging Period	Concentration (µg/m3)
Fine particulates - PM_{10}	24 hours	50
	Annual	30
Total Suspended Particulates	Annual	90

Sources: (DECCW 2005) Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.

The DECCW also specifies dust deposition goals, which are relevant to the construction period of the Project. The maximum total dust deposited over a 12 month period at any location due to all sources should not exceed 4 g/m^2/month, but any particular project should not add more than 2 g/m^2/month of dust.

4.1 BACKGROUND AIR QUALITY

Background air quality is a measure of the existing air quality in the absence of the Project activity. In the context of this assessment, 'background air quality' is used to describe sources (natural or man made) other than those originating from the Site. It is important to consider background air quality when considering cumulative impacts on sensitive receptors in the area.

Air quality in the vicinity of the Site is affected by pollutants emitted regionally. The main influences on air quality at the site are vehicular emissions and particulate matter from the nearby New England Highway.

Pollution levels are measured by the Department of Environment, Climate Change and Water (DECCW), which operates air quality monitoring stations around the region. The closest DECCW monitoring site to the Site is at Beresfield approximately 2.5 km east of the Site.

The station monitors NO_2, SO_2, ozone (O_3) and PM_{10}. Due to the activities associated with the Project, this assessment has been limited to the consideration of PM_{10} levels. TSP is not monitored at this station however annual average TSP levels would be less than the short-term PM_{10} levels.

Table 4.1 provides a summary of air quality monitoring data from Beresfield.

Table 4.1 Summary of Beresfield Maximum 24-hour Monthly PM_{10} Levels for 2010

Year	PM_{10} ($\mu g/m^3$) [1] 24-hour average
DECCW Goal	50.0
January	50.0
February	30.2
March	40.6
April	37.3
May	28.1
June	22.7

1. Values are maximum for each month to provide indicative PM_{10} levels.

Source: DECCW, 2010.

Table 4.1 indicates that maximum 24-hour PM_{10} levels for each month are below the relevant criteria (with the exception of January 2010), with levels generally approximately 60% of the criteria.

The criteria for PM_{10} are more stringent than that of total suspended particles (TSP), and compliance with these levels would indicate TSP levels are below the relevant criteria.

4.2 PREVAILING WIND CONDITIONS

Wind observations are based on a review of wind speed and direction data collected at the DECCW Beresfield monitoring station. The wind regime is considered representative of the Site, being approximately 2.5 km east of the Site. On an annual basis, winds are predominantly from the north-west, with smaller contributions from the south-east.

Seasonal variation are summarised as follows:

- during summer, predominant winds are from the south and south-east, with smaller contributions from the east;
- during autumn, predominant winds are from the north-west, with smaller contributions from the south-east;
- during winter, predominant winds are from the north-west; and
- during spring, predominant winds are from the north-west, with smaller contributions from the south-east and south.

This wind assessment indicates that generally, during summer periods when dust generation may be more significant, winds are generally away from the nearest potential receptors.

5 PROPOSED OPERATIONS AND POTENTIAL IMPACTS

5.1 CONSTRUCTION PHASE ACTIVITIES

There is the potential for dust emissions to be generated during construction. Activities which may result in a temporary increase in emissions surrounding the site include construction traffic and excavation works.

Construction activities will predominantly be undertaken on compacted land cleared of vegetation. Construction phase activities will not result in significant increases in traffic volumes therefore associated emissions from construction equipment and work vehicles are anticipated to be minor in comparison to the existing surrounding industrial and traffic sources that contribute to the ambient air quality environment.

Combustion emissions of carbon monoxide, carbon dioxide, particulate matter and nitrogen oxides will also occur from construction vehicle exhaust emissions on site.

Notwithstanding, the implementation of standard management measures to minimise any cumulative impacts associated with dust emissions should be considered during the proposed construction. These measures are outlined in *Section 5.3*.

5.2 OPERATION PHASE ACTIVITIES

Air quality impacts associated with the proposed operations are primarily associated with diesel fuel combustion products released by cars and heavy vehicles. It is considered that these emissions will be negligible, particularly in comparison with the existing Freeway South Business Park operations and current vehicle volumes experienced on the nearby New England Highway. Notwithstanding, potential air quality impacts should be managed with the mitigation measures outlined in *Section 5.3*.

5.3 MITIGATION AND MANAGEMENT MEASURES

5.3.1 Mitigation Measures

The following mitigation measures are recommended to be implemented during the construction and operation activities to reduce any potentially adverse air quality impacts associated with the Project:

- limiting disturbance areas, including vehicle access, to defined areas in order to minimise dust generation potential;

- supervision of construction and excavation activities to identify the onset of dust generation;
- watering of unsealed roads to stabilise the source of dust in the event dust generation is identified;
- sealing of proposed roads as early as possible to eliminate the generation of wheel generated dust from vehicles;
- trucks accessing the site to be maintained in accordance with manufacturers specification to comply with relevant regulations;
- installation of truck wheel wash to minimise off site dust and sediment transport;
- establishment of working areas and access roads as soon as practicable to minimise the potential for dust generation;
- all machinery and plant should be turned off when not in use;
- implementing appropriate procedures and using appropriate and well maintained transfer hoses and equipment with airtight seals;
- implementing appropriate preventative and mitigation measures to minimise spillage and ensure any spillages are contained and cleaned up immediately.

5.3.2 Monitoring Measures

It is recommended that the following monitoring strategies are implemented for the duration of construction activities in order to minimise potential quality impacts:

- spot monitoring using a Dust Trak or equivalent to assess peak PM_{10} concentrations as a screening tool during anticipated periods of high dust generating activity; and
- supplementary operator-attended monitoring of PM_{10} levels on a monthly basis and in response to any complaints received or exceedances reported.

6 *CONCLUSION*

ERM has undertaken a qualitative air quality impact assessment for the construction and operation of a proposed warehouse and distribution centre at the northern end of the F3 Freeway at Beresfield, NSW. The assessment has found that the potential air quality impacts associated with the construction and operational activities of the Project are minimal and can be effectively managed through the implementation of a series of mitigation and monitoring measures.

REFERENCES

DECCW (2005) **Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales**

National Environment Protection Council (1998) - **National Environment Protection (Ambient Air Quality) Measure**

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Appendix L

Bushfire Assessment Report - ABPP

BUSHFIRE PROTECTION ASSESSMENT

FOR THE CONSTRUCTION OF A

NEW WAREHOUSE & DISTRIBUTION CENTRE

ON

LOT 124 CREATED IN THE SUBDIVISION

OF

LOT E in DP 388733, LOT 14 in DP 207961

&

LOT 14 in DP 1091199

WEAKLEYS DRIVE,
BERESFIELD

FOR

ALDI FOODS PTY LTD.

Australian Bushfire Protection Planners Pty Limited

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BUSHFIRE PROTECTION ASSESSMENT

FOR THE CONSTRUCTION OF A

NEW WAREHOUSE & DISTRIBUTION CENTRE

ON

LOT 124 CREATED IN THE SUBDIVISION

OF

LOT E in DP 388733, LOT 14 in DP 207961

&

LOT 14 in DP 1091199

WEAKLEYS DRIVE, BERESFIELD

FOR

ALDI FOODS PTY LTD.

Report Number	Document	Preparation Date	Issue Date	Directors Approval
B101233 - 3	Final	25.6.2010	4.8.2010	*G.L.Swain*

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EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has been commissioned by ALDI Foods Pty Ltd to prepare a Bushfire Protection Assessment to provide advice on the bushfire protection measures required for the construction of a new Warehouse & Distribution Centre on Lot 124 in the subdivision of Lot 14 in DP 1091199, [No. 102], Lot E in DP 388733 [No.74] and Lot 14 in DP 207961 [No. 82] Weakleys Drive, Beresfield for ALDI Stores Pty Ltd.

The ALDI development site contains 15.0 hectares of land located adjacent to the western boundary of Lot 14 in DP 1091199 in the subdivision. Access to the ALDI site will be via a new roundabout on Weakleys Drive and internal estate road.

The land to the west of the subdivision and therefore west of the ALDI site, within Lot 1 in DP 838310, forms the vegetated buffer zone to the Four Mile Creek Colliery.

Future industrial development will occupy the land to the north, east and south whilst a Drainage Reserve in proposed Lot 317 will maintain vegetation along Scotch Dairy Creek, to the northwest of the ALDI site.

The vacant land to the west, within Lot 1 in DP 838310, contains Dry Sclerophyll Low Open Forest vegetation which is recorded on the Newcastle Bushfire Prone Land Map as Category 1 Bushfire Prone Vegetation. Whilst the construction of the subdivision will remove the bushfire prone vegetation on the development site and adjoining lots, the vacant land to the west will retain the bushfire prone vegetation and the proposed building will be subject to the impact from future bushfires that occur in this vegetation.

A Major Project Application [MP10_0042] has been prepared under Part 3A of the *Environmental Planning & Assessment Act - 1979* and locates the proposed Warehouse & Distribution Centre building 26 metres from the western boundary with a perimeter fire access road and carparking located to the north of the building.

The Fuel Fill & Truck Wash Bay is located adjacent to the southern boundary of the site and more than 145 metres from the bushfire hazard on the land to the west.

The western section of the building contains a Cool House which is setback 26 metres from the bushfire prone vegetation on the land to the west in order to address the flame zone width setback and defendable space requirement to the western wall of the building.

The NSW Department of Planning [DOP] issued [on the 12.5.2010] the Director General's Requirements [DGRs] for the preparation of the Environmental Assessment for the project. Under 'Key Issues', the DGRs require that the development demonstrate that the projects meets the requirements of the BCA and *Planning for Bushfire Protection 2006.*

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The DGR's also require consultation be undertaken with *'relevant local, State or Commonwealth Government Authorities, service providers, community groups and affected landowners'.* To address this requirement ABPP have held discussions with the NSW Rural Fire Service.

This Bushfire Protection Assessment undertakes an assessment of the bushfire protection measures required to address the bushfire risk to the future Warehouse & Distribution Centre development on the site, consistent with the specifications of *Planning for Bushfire Protection 2006,* and provides a suite of site specific recommendations that address the outcome of the standards regarding setbacks [defendable space], provision of water supply, fuel management protocols and other matters considered necessary to mitigate the potential bushfire threat to persons, property and the environment from the danger that may arise from a bushfire within the adjoining Dry Sclerophyll Low Open Forest on the vacant land to the west of the ALDI site.

The characteristics of the site as discussed in this report, together with the recommendations contained in this assessment, provide that the site is suitable in terms of its intended use.



Graham Swain
Managing Director,
Australian Bushfire Protection Planners Pty Limited.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY **3**

TABLE OF CONTENTS **5**

SECTION 1 ..... **7**
INTRODUCTION 7
1.1 Development Proposal. 7
1.2 Aims of this Assessment. 8
1.3 Statutory Requirements. 9
1.3.1 Legislation. 9
1.3.2 Planning Policies. 10
1.4 Documentation Reviewed. 10
1.5 Site Inspection. 11

SECTION 2 ..... **12**
DESCRIPTION OF DEVELOPMENT SITE 12
2.1 Location & Description. 12
2.2 Existing & Proposed Land Use. 13
2.3 Adjoining Land Use. 14
2.4 Topography. 15
2.5 Vegetation Communities on the land within the Development Site. 16
2.6 Vegetation Communities adjoining the land within the ALDI Development Site. 17
2.7 Significant Environmental Features on the land within the ALDI Development Site. 17
2.8 Known Threatened Species, Populations, Endangered Ecological Communities or Critical Habitat on the land within the ALDI Development Site. 17
2.9 Details of Aboriginal/European Heritage within the ALDI Development Site. ... 17

SECTION 3 ..... **18**
FIRE MANAGEMENT RESPONSIBILITIES 18
3.1 Newcastle City Council. 18
3.2 New South Wales Rural Fire Service. 18
3.3 New South Wales Fire Brigade. 18
3.4 Public Authorities & owners/occupiers of land. 18
3.5 Management of the Defendable Spaces [Asset Protection Zones] to the Development. 21

SECTION 4 ..... **22**
BUSHFIRE HAZARD ASSESSMENT 22
4.1 Certified Bushfire Prone Land Map. 22

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SECTION 5 24
BUSHFIRE PROTECTION ASSESSMENT 24
5.1 Introduction. 24
5.2 The Provision of a Defendable Space to the ALDI Distribution Centre. 25
5.3 Construction Measures to Buildings. 26
5.3.1 Additional Construction Measures to the Building. 27
5.3.2 Construction Standards to Truck Wash Bay/Fuel Fill / Generator / Substation. 28
5.4 Access for Firefighting Operations. 28
5.5 Water Supplies for Firefighting Operations. 29
5.6 Emergency Management for Fire Protection / Evacuation. 29
5.7 Bushfire Hazard Management. 29

SECTION 6 31
BUSHFIRE MANAGEMENT STRATEGIES 31
6.1 Strategy 1 – Provision of Defendable Space to ALDI Distribution Centre. 31
6.2 Strategy 2 – Landscape Management. 31
6.3 Strategy 3 – Construction Standards to the ALDI Distribution Centre 31
Building. 31
6.4 Strategy 4 – Construction Standards to Truck Wash Bay/Fuel Fill / Generator / Substation. 32
6.5 Strategy 5 – Water Supplies for Firefighting Operations. 33
6.6 Strategy 6 – Evacuation Planning. 33

SECTION 7 34
CONCLUSION 34

REFERENCES: 35

SECTION 8 – PLAN OF DEFENDABLE SPACES TO THE PROPOSED ALDI DISTRIBUTION CENTRE. 36

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SECTION 1

INTRODUCTION

1.1 Development Proposal.

This Bushfire Protection Assessment has been prepared, at the request of ALDI Foods Pty Ltd, for the construction of a new Warehouse & Distribution Centre on Lot 124 in the subdivision of Lot 14 in DP 1091199, [No. 102], Lot E in DP 388733 [No.74] and Lot 14 in DP 207961 [No. 82], Weakleys Drive, Beresfield for ALDI Stores Pty Ltd.

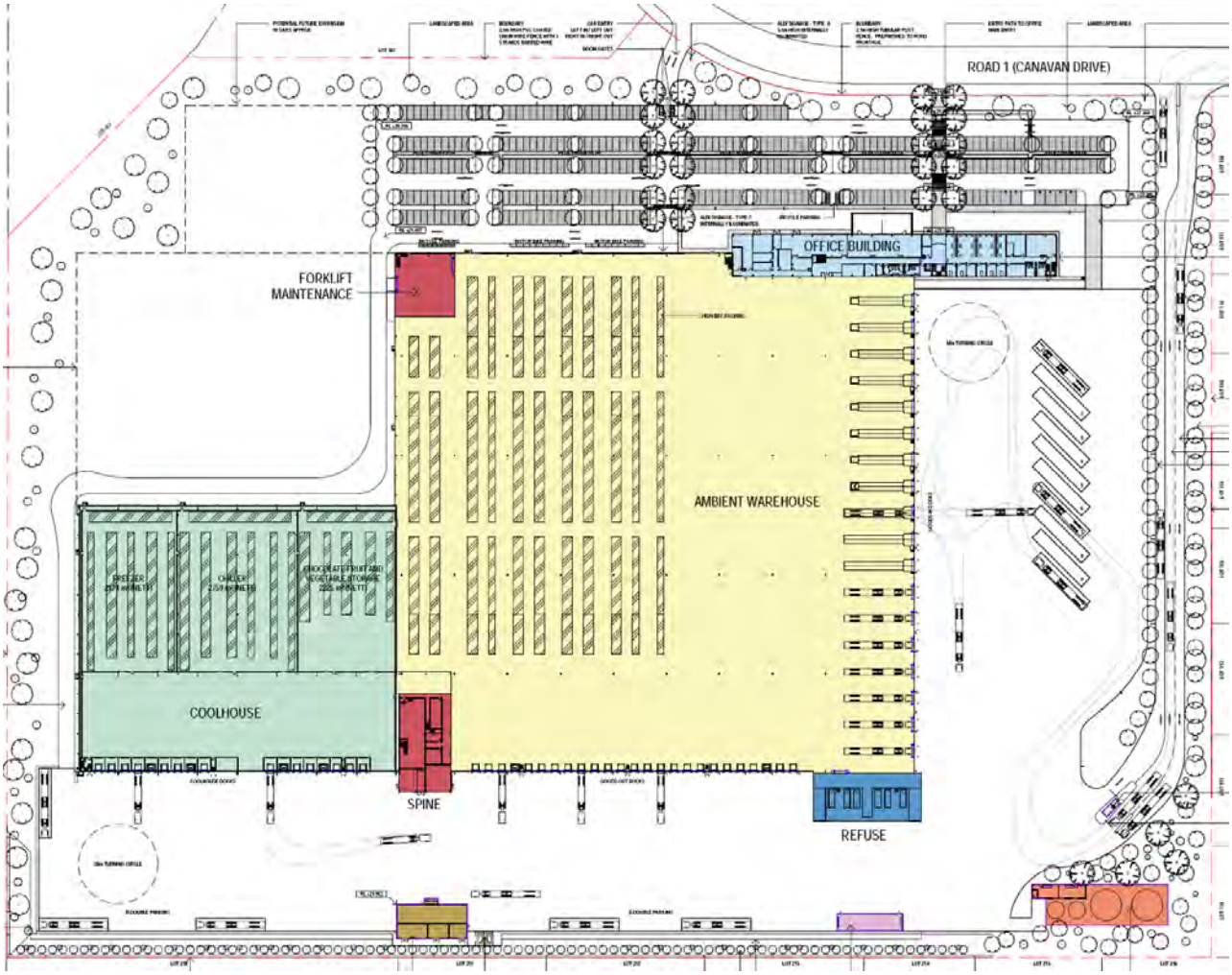
The Warehouse & Distribution Centre accommodates an Ambient Warehouse, Freezer, Chiller, Chocolate & Fruit & Vegetable Storage, Offices and Amenities. Vehicular access is provided to the centre from Weakleys Drive via a new internal estate road [Road No. 1], to the north of the site with car parking within the northern portion of the site and articulated truck access to loading docks along the eastern aspect of the building.

The development proposal provides for a 26.0 metre wide defendable space setback to the proposed Cool House from the bushfire prone vegetation on the vacant land to the west and a 24 metre wide defendable space between the vegetation in the Drainage Reserve [within Lot 317] to the northwest of the future Cool House extension.

[Refer to Figure 1 – Plan of proposed Distribution Centre on page 8]

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Figure 1 – Plan of Proposed Distribution Centre.



1.2 Aims of this Assessment.

The aims of this Bushfire Protection Assessment are to:

- Review the Certified Newcastle Bushfire Prone Land Map;
- Undertake a Bushfire Hazard Assessment of the mapped Bushfire Prone Vegetation within the adjoining vacant land to the south of the site;
- Determine the classification of the vegetation on and surrounding the site in accordance with the vegetation classification system contained in *Planning for Bushfire Protection 2006*;
- Undertake an assessment to determine the slope of the land on and surrounding the development site;
- Undertake a Bushfire Protection Assessment to determine bushfire protection strategies for the proposed development that address the following matters:

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(i) The provision of building setbacks (Defendable Space) from vegetated areas and the siting of buildings to minimize the impact of radiant heat and direct flame contact;
(ii) Fire fighting water supplies;
(iii) Access requirements for emergency service vehicles;
(iv) Construction standards to be used for the future buildings within the proposed development to minimize the vulnerability of buildings to ignition from radiation and ember attack;
(v) Land management responsibilities; and
(vi) Evacuation management.

1.3 Statutory Requirements.

This assessment has been prepared having regard to the following legislative and planning requirements:

1.3.1 Legislation.

***(a) Environmental Planning and Assessment Act - 1979* (EPA Act)**

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 1997* (EPA Act). Part 3A [Major Developments] of the Act commenced on the 1st August 2005 and consolidated the assessment and approval regime for all major projects previously addressed under Part 4 [Development Assessment] or Part 5 [Environmental Assessment] of the Act.

Under the provisions of Part 3A, proponents of major developments are required to address the requirements of the Environmental Assessment determined by the Director General of the Department of Planning.

(b) Rural Fires Act 1997

The objectives of the *Rural Fires Act* are to provide:

- The prevention, mitigation and suppression of fires;
- Coordination of bushfire fighting and prevention
- Protection of people and property from fires; and
- Protection of the environment.

In relation to the management of bushfire fuels on public and private lands within NSW, the following section of the Act applies:

- Sections 63(1) and 63(2) require public authorities and owners / occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimize the danger of the spread of bushfires.

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(c) Rural Fires Regulation 2008.

The *Rural Fires Regulation 2008*, August 2002, repeals the *Rural Fires Regulation 1997* and restates with some modifications, the provisions of the old Regulation and contains new provisions relating to bushfire prone land and bushfire hazard reduction.

(d) Threatened Species Conservation Act 1995 (TSC Act).

The TSC Act aims to protect and encourage the recovery of threatened species, populations and communities as listed under the Act. The TSC Act is integrated with the EP&A Act and requires consideration of whether a development or an activity (such as the implementation of hazard reduction and asset protection) is likely to significantly affect threatened species, populations and ecological communities or their habitat.

(e) Native Vegetation Act 2003 (NV Act).

The *N.V. Act* states indigenous vegetation within 20 metres of the bed or bank of a river or lake, or on slopes over 18 degrees, requires clearing consent under the *NV Act,* unless during an emergency fire event as authorized under the *Rural Fires Act 1997.*

1.3.2 Planning Policies.

Planning for Bushfire Protection – 2006. (NSW Rural Fire Service)

This document provides guidance on the planning and development control processes in relation to bushfire protection measures for residential subdivision, "Special Fire Protection" and Industrial Developments in bushfire prone areas.

1.4 Documentation Reviewed.

The following documents were reviewed in the preparation of this assessment:

- Site Plan of the proposed ALDI Distribution Centre, prepared by Woodhead Pty Ltd, dated 28.7. 2010;
- Subdivision Plan prepared by RPS Australia East Pty Ltd, dated 1. 7.2010;
- Aerial Photograph of the site;
- Newcastle Council Certified Bushfire Prone Land Map;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service.

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1.5 Site Inspection.

Graham Swain of *Australian Bushfire Protection Planners Pty. Limited* inspected the development property on the 23rd February 2010 to assess the topography, slopes, vegetation classification and land use within and adjoining the development site. Visual assessment was undertaken to determine likely fire runs, influence of terrain on wind patterns within the bushfire prone vegetation and an assessment of access and egress to the development site. Adjoining properties were also inspected to determine the surrounding land use / land management.

1.6 Consultation with NSW Rural Fire Service.

Graham Swain of *Australian Bushfire Protection Planners Pty Limited* undertook discussions with Mr. Jason Hulston, Development Assessment & Planning Officer with the NSW Rural Fire Service with Mr. Hulston being provided with a copy of this report.

Mr. Hulston provided comment, by way of email communication, that *"given that a defendable space is provided, the western façade is entirely constructed of pre-fabricated concrete with fibre cement sheeting to the upper section; adequate access and water are provided the development should not have any problems being approved".*

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SECTION 2

DESCRIPTION OF DEVELOPMENT SITE

2.1 Location & Description.

The development site consists of Lot 124 in the subdivision of Lot 14 in DP 1091199, [No. 102]; Lot E in DP 388733 [No.74] and Lot 14 in DP 207961 [No. 82], Weakleys Drive, Beresfield.

The ALDI development site contains 15.0 hectares of land within proposed Lot 124 in the subdivision which is located adjacent to the western boundary of the new industrial estate. Access to the ALDI site will be via a new roundabout on Weakleys Drive and internal estate road [Road No. 1].

The land to the west of the subdivision and therefore west of the ALDI site, within Lot 1 in DP 838310, forms the vegetated buffer zone to the Four Mile Creek Colliery. Future industrial development will occupy the land to the north, east and south whilst a Drainage Reserve in proposed Lot 317 will maintain vegetation along Scotch Dairy Creek, to the northwest of the ALDI site.

Figure 2 – Subdivision Layout.



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Figure 3 – Location of the ALDI Development Site.



2.2 Existing & Proposed Land Use.

The ALDI development site is currently vacant undeveloped land which is zoned 4(a) – Urban Services under the Newcastle City Council 2003 LEP. The proposed landuse is a Warehouse & Distribution Centre for ALDI Foods Pty Ltd.

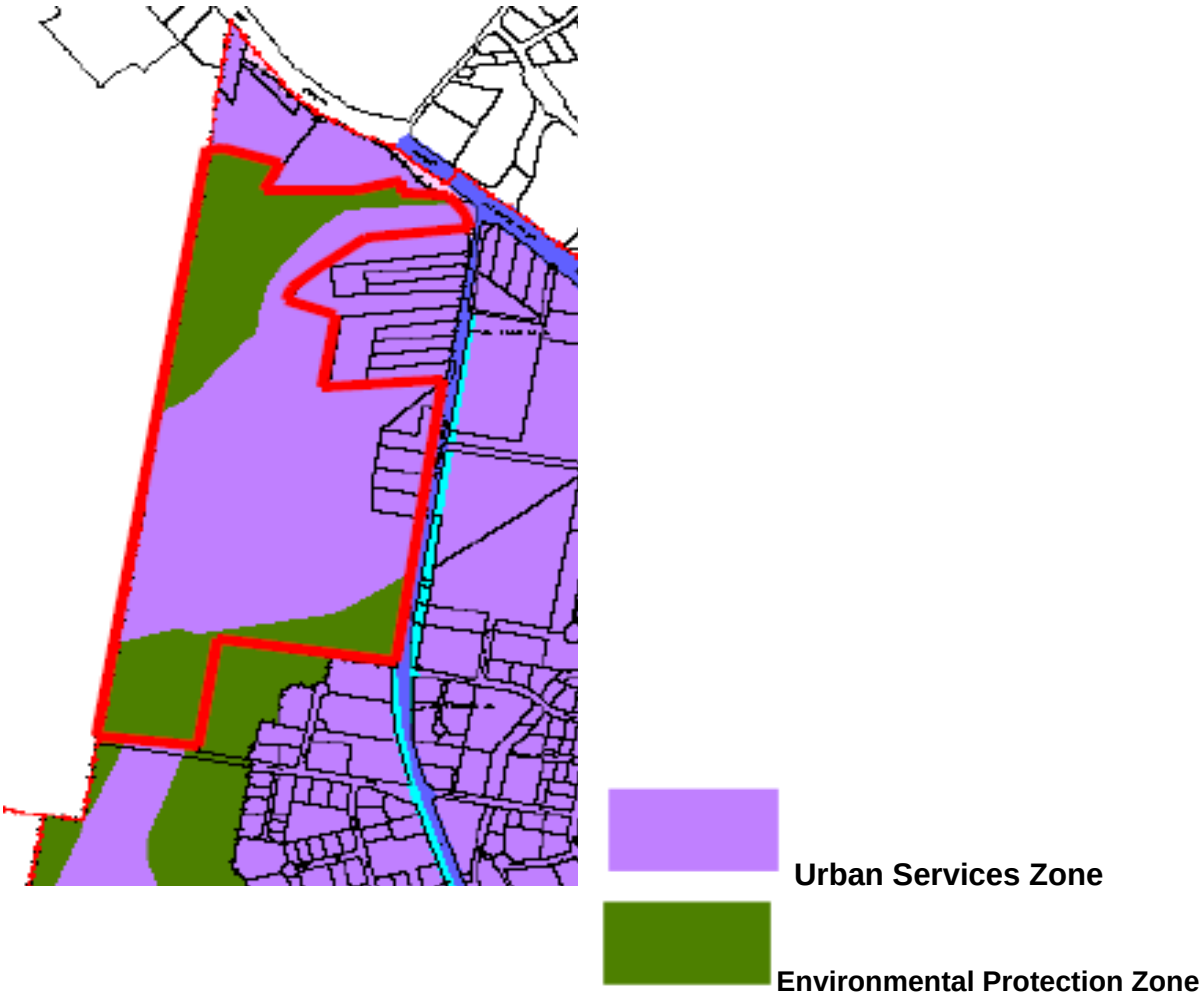
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2.3 Adjoining Land Use.

The land to the north of the ALDI site consists of 4(a) Urban Services zoned land with 7(b) Environmental Protection zoned land within the Drainage Reserve to Scotch Dairy Creek which adjoins the north-western boundary of the ALDI site.

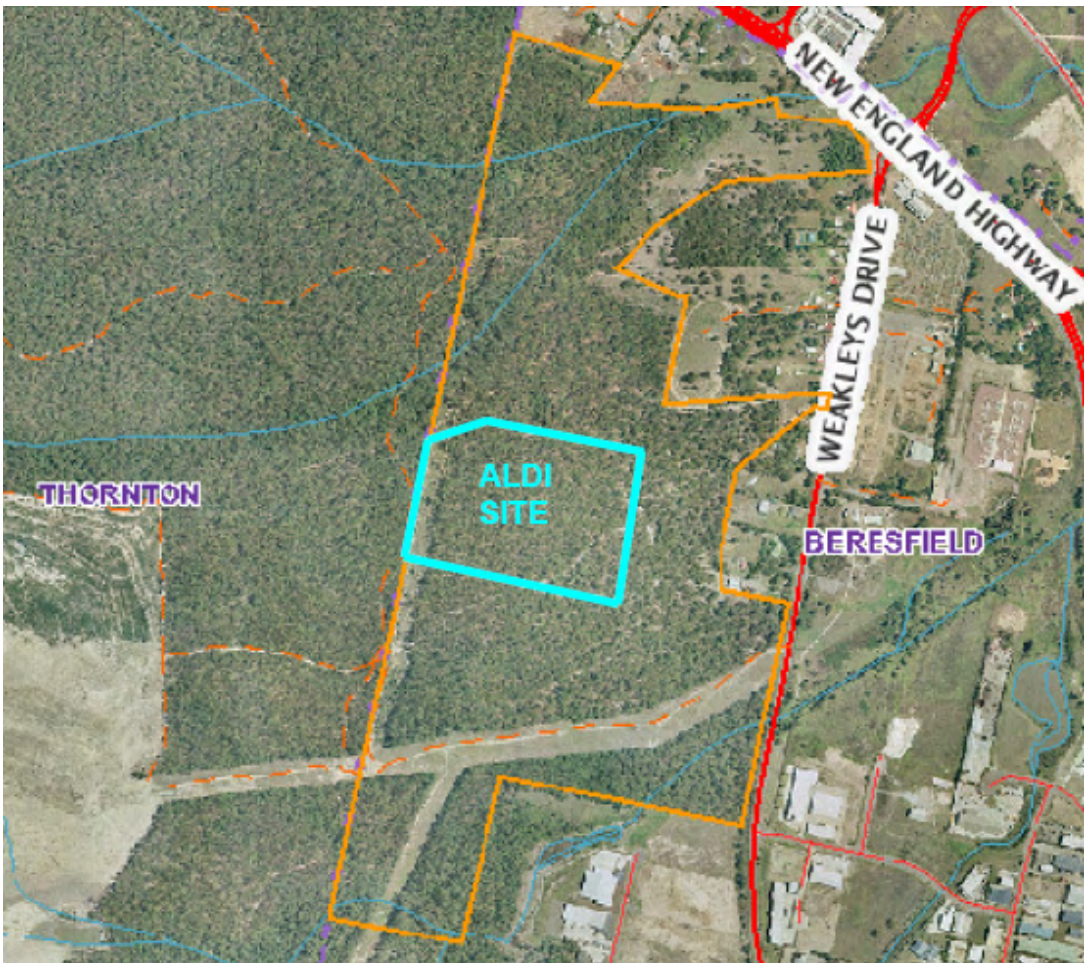
The land to the east and south of the ALDI site is also zoned 4(a) Urban Services whilst the land to the west falls within the Cessnock City LGA and forms the buffer zone to the Four Mile Creek Colliery.

Figure 3 – Zoning Map – Newcastle City Council LEP 2003.



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Figure 4 – Aerial Photograph of proposed ALDI Site and adjoining lands.



2.4 Topography.

Appendix 2 of *Planning for Bushfire Protection 2006* states that slopes should be assessed, over a distance of at least 100m from a development site and that the gradient of the land should be determined which will most significantly influence the fire behaviour on the site.

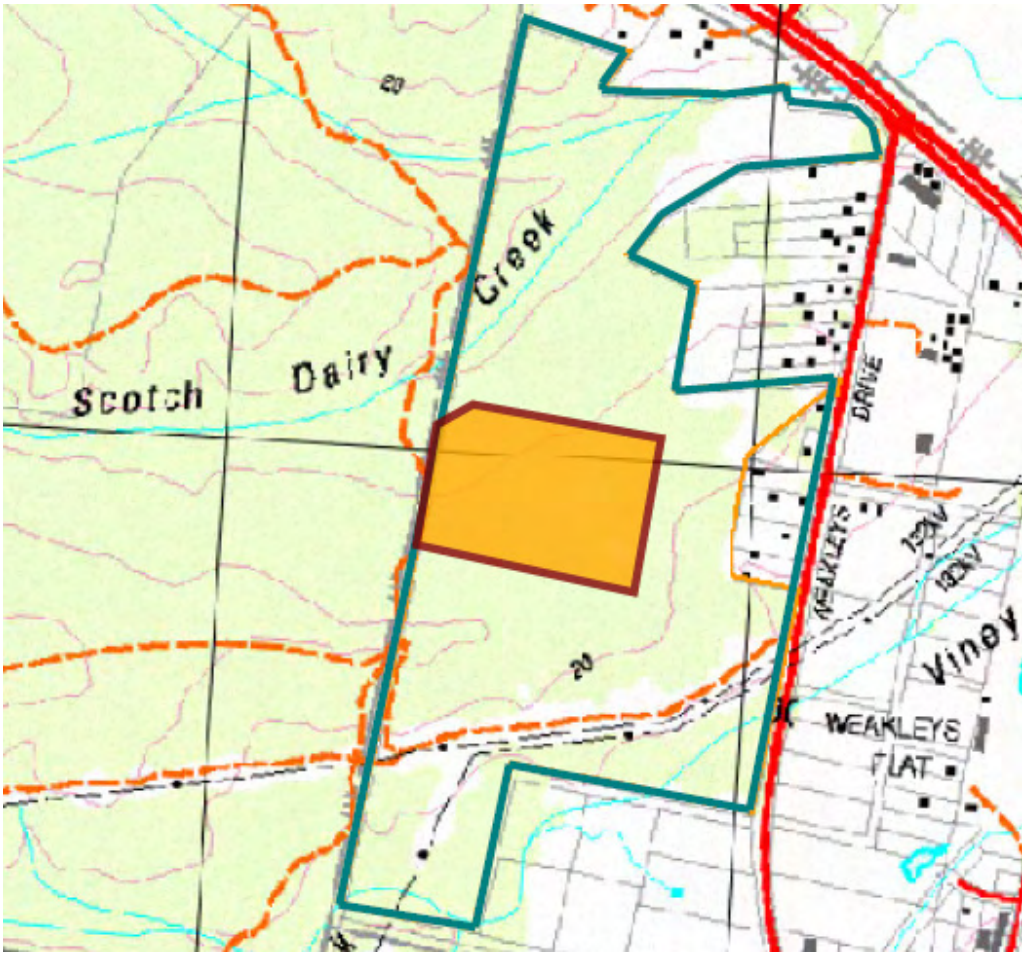
The topography of the land within the ALDI development site forms the northern face of a broad ridgeline that runs northeast to southwest across the western portion of the land within the industrial estate. The current landform within the ALDI site falls to the northwest from RL 27m to RL 15m on the north-western boundary. The bulk earthworks will modify the existing landform to provide a level building pad.

The topography of the land within the Drainage Reserve to the northwest falls into Scotch Dairy Creek at < 3 degrees.

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The topography of the land to the west of the ALDI site follows the ridgeline to the west and is level whilst the gradient of the land in a south-westerly direction falls to the southwest at 5 degrees.

Figure 5 – Topographic Map of Subdivision Site and adjoining lands.



2.5 Vegetation Communities on the land within the Development Site.

Appendix A2.3 of *Planning for Bushfire Protection 2006* provides a methodology for determining the predominant bushfire prone vegetation for at least 140 metres in all directions from the proposed building.

Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection 2006,* which classifies vegetation types into the following groups:

(a) Forests [wet & dry sclerophyll forests];
(b) Woodlands;
(c) Plantations – being pine plantations not native plantations;

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(d) Forested Wetlands;
(e) Tall Heaths;
(f) Freshwater Heaths;
(g) Short Heaths;
(h) Alpine Complex;
(i) Semi – arid Woodlands;
(j) Arid Woodlands; and
(k) Rainforests.

The vegetation on the ALDI site currently consists of Dry Sclerophyll Low Open Forest. This vegetation community will be removed as part of the previous subdivision approval [MP06_0199] prior to commencement of the proposed ALDI development.

2.6 Vegetation Communities adjoining the land within the ALDI Development Site.

The development site is adjoined to the northwest and west by Low Open Forest within the Drainage Reserve and the buffer zone to Four Mile Creek Colliery.

The vegetation on the industrial land to the remaining aspects of the ALDI site will be removed as part of the subdivision works.

2.7 Significant Environmental Features on the land within the ALDI Development Site.

The ALDI development site does not contain any significant environmental features such as SEPP 14 – Coastal Wetlands; SEPP 26 Littoral Rainforests; SEPP 44 – Koala Habitat; areas of geological interest; steep lands [>18 degrees]; land slip areas; National Parks Estate or riparian corridors.

2.8 Known Threatened Species, Populations, Endangered Ecological Communities or Critical Habitat on the land within the ALDI Development Site.

There are no known threatened species, populations, endangered ecological communities or critical habitat within the ALDI development site.

2.9 Details of Aboriginal/European Heritage within the ALDI Development Site.

There are no known Aboriginal sites, relics or European heritage within the ALDI development site.

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SECTION 3
FIRE MANAGEMENT RESPONSIBILITIES

Fire management within the development site is the responsibility of:

3.1 Newcastle City Council.

The Newcastle City Council has responsibility, under Section 66 of the *Rural Fires Act*, to issue a notice in writing requiring an owner / occupier of any land within the Newcastle Local Government Area [LGA] to carry out bushfire hazard reduction works on that land. Section 100E of the *Rural Fires Act* requires Council to issue bushfire hazard reduction certificates for hazard reduction to be undertaken on private lands.

3.2 New South Wales Rural Fire Service.

The NSW Rural Fire Service (RFS) has the responsibility for undertaking fire suppression activities, hazard management activities and other functions relative to emergency management, within its areas of operation. *Section 73* of the *Rural Fires Act (1997)* enables the Commissioner to carry out bush fire hazard reduction works on any land as required by a bush fire risk management plan if the work has not been carried out satisfactorily. Incurred costs can be recovered as a debt owed to the Crown.

3.3 New South Wales Fire Brigade.

The NSW Fire Brigade has the responsibility for undertaking fire suppression activities, and other functions relative to emergency management, within its area of operation and through Mutual Aid Agreements, provide assistance to the NSW Rural Fire Service, particularly for structural fire operations within the NSW Rural Fire Brigade Districts. Hazmat management within New South Wales is the responsibility of the NSW Fire Brigade.

3.4 Public Authorities & owners/occupiers of land.

The Rural Fires Act, 1997 provides several legislative opportunities to require Public Authorities, land owners and occupiers to manage hazardous fuels. These are listed below:

- ***Section 63(1)*** states that it is the duty of a public authority to take any practicable steps to prevent the occurrence of bushfires on, and to minimise the danger of the spread of a bushfire on or from:

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(a) any land vested in or under its control or management, or

(b) any highway, road, street, land or thoroughfare, the maintenance of which is charged on the authority.

- ***Section 63(2)*** states that *'it is the duty of the owner or occupier of land to take the notified steps (if any) and any other practicable steps to prevent the occurrence of fires on, and to minimise the danger of the spread of fires on or from that land'.*

- ***Section 65A*** states that the *'Commissioner may nominate a member of the Service as a hazard management officer'.*

- ***Section 65(2)*** states that *'an authorised person may, with the permission of the fire fighting authority or other authority responsible for unoccupied Crown land or managed land or a person nominated by the authority to give such permission, enter the land and carry out bushfire hazard reduction work with the assistance of such other persons as the authorised person considers to be necessary for the purpose'.*

- ***Section 65(3)*** states that *'the authority responsible for unoccupied Crown land or managed land is to be taken to have given the permission under this section to the extent necessary to give effect to a bushfire risk management plan'.*

- ***Section 65(4)*** states that *'if permission under this section is given subject to conditions, the conditions must be complied with'.*

- ***Section 66(1)*** states that *'a hazard management officer may, by notice in writing, require the owner or occupier [not being a public authority] of any land to carry out bushfire hazard reduction work specified in the notice on the land'.*

- ***Section 66(2)*** states that *'a hazard management officer must serve a notice under this section if required to do so by a bushfire risk management plan applicable to the land that is in force'.*

- ***Section 66(3)*** states that *'a hazard management officer must issue a bushfire hazard reduction certificate in respect of any bushfire hazard reduction work required by a notice issued in accordance within section (2)'.*

- ***Section 66(6)*** states that *'the requirements and conditions so specified must include any requirements in a bushfire risk management plan that is applicable to the land and is in force and may include a requirement or condition that the burning of fire breaks or of combustible material:*

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(a) *must in fire district constituted under the Fire Brigades Act 1989 be carried out by or under the supervision of the fire brigade or an officer in charge of the fire brigade;*

(b) *must outside a fire district, be carried out by or under the supervision of the rural fire brigade specified in the notice or an appropriate officer of the rural fire brigade or any hazard management officer.*

- ***Section 66(7)*** states that *'a notice requiring the establishment of a firebreak cannot require an occupier or owner to kill or remove any trees that are reasonably necessary for shade, shelter, windbreak or fodder purposes or the protection of threatened species, populations, ecological communities or critical habitats within the meaning of the 'Threatened Species Conservation Act 1995'.*

- ***Section 66(8)*** states that *'an occupier or owner to whom a bushfire hazard reduction notice is given must, despite the fact that a fire permit has not been granted under Division 5, comply with the requirements specified in the notice'.*

- ***Section 70(2)*** states that *'if within the time specified in the relevant notice the owner or occupier to whom it is given fails to comply with any requirement of the notice, the Commissioner may, without prejudice to liability of the owner or occupier, enter on the land and carry out the bushfire hazard reduction work the owner or occupier was required to do under the notice'.*

- ***Section 70(3)*** states that *'any costs incurred by the Commissioner in carrying out such work may be recovered from the owner or occupier of the land as a debt due to the Crown in a court of competent jurisdiction'.*

- ***Section 87*** allows the removal of hazards in the bush fire danger period by the provision of a permit system. The permits are valid for 21 days, excluding TOBAN [Total Fire Ban] days.

  Section 10 permits are not required to adhere to *Part V* provisions of the EPA Act 1979 in the assessment of impact, except for public authorities. An owner/occupier of private land must obtain from the NSW Rural Fire Service, a bushfire hazard reduction certificate before undertaking hazard reduction works on that land (Section 100E of the *Rural Fires Act 1997*).

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3.5 Management of the Defendable Spaces [Asset Protection Zones] to the Development.

The management of the Asset Protection Zone/Defendable Space within the development site shall remain the responsibility of the owner of the land.

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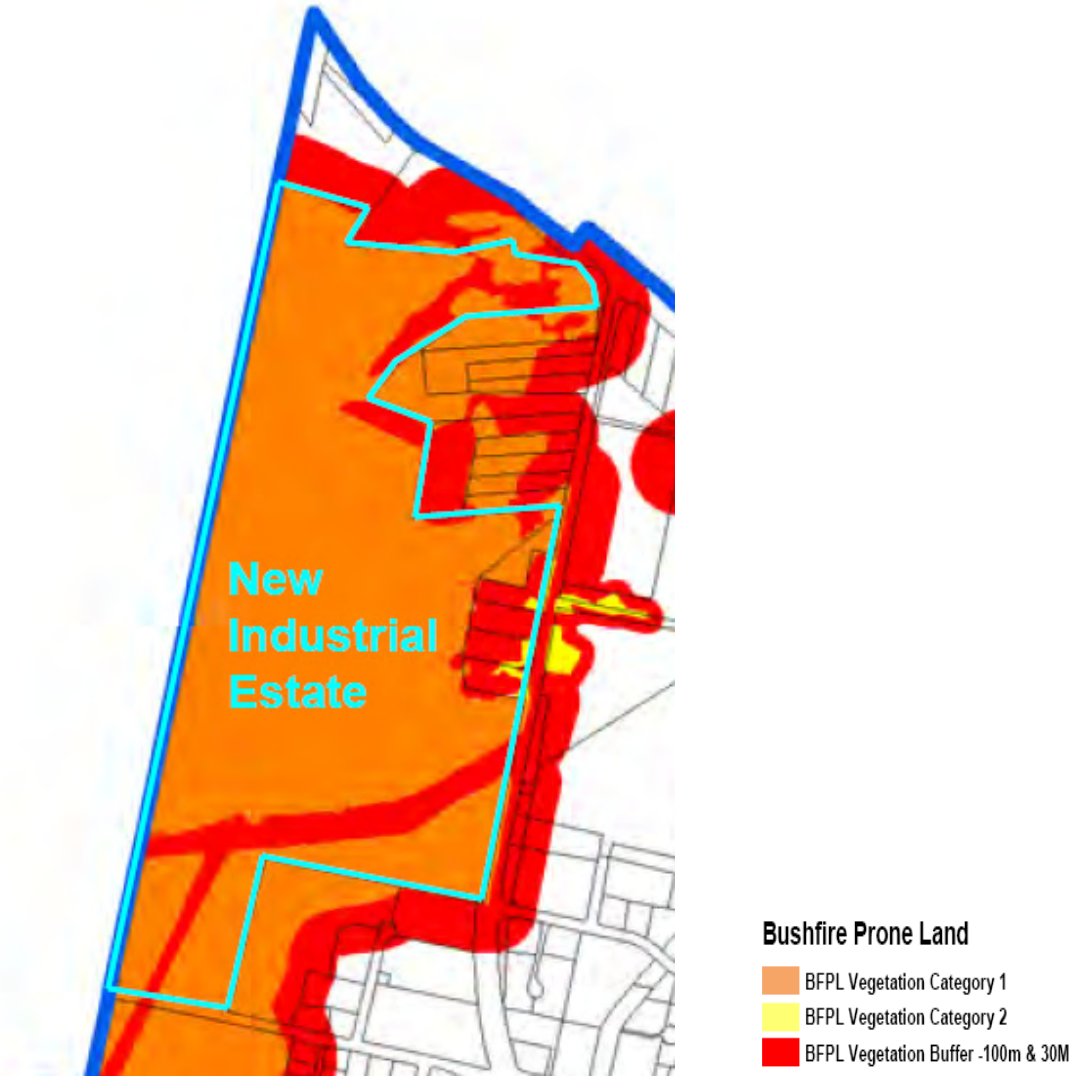
SECTION 4

BUSHFIRE HAZARD ASSESSMENT

4.1 Certified Bushfire Prone Land Map.

Section 146 of the *Environmental Planning & Assessment Act 1979* requires councils, where a Bushfire Risk Management Plan applies, to prepare a Bushfire Prone Land Map in consultation with the Commissioner of the NSW Rural Fire Service. The Commissioner will designate lands to be Bushfire Prone within an area and, when satisfied that the lands have been recorded on a map, will certify the map as a Bushfire Prone Land Map for the purposes of this or any other Act.

Figure 6 – Extract from the Newcastle Bushfire Prone Land Map



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The Newcastle BFPLM map shows that the site contains Category 1 [Orange colour] Bushfire Prone Vegetation. The Map does not show the Category 1 Bushfire Prone Vegetation on the land to the west as this land is located within the Cessnock City Council Local Government Area [LGA].

The Map accurately records the extent of the bushfire prone vegetation currently on the land within the subdivision precinct. This vegetation will be removed or modified as part of the subdivision development works and will vegetation remaining will no longer represent a bushfire hazard.

However, the forest vegetation on the vacant land to the west of the ALDI site will remain and be a hazard to the future development on the lots adjoining the western boundary – including the proposed ALDI Distribution Centre.

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SECTION 5

BUSHFIRE PROTECTION ASSESSMENT

5.1 Introduction.

Chapter 1 of *Planning for Bushfire Protection 2006* states that the aim of the document is to use the NSW development assessment system to provide for protection of human life [including fire-fighters] and to minimize impacts on property from the threat of bushfire, while having due regard to development potential, on-site amenity and protection of the environment.

The objectives of the document are:

- *Afford occupants of any building adequate protection from exposure to the impacts of a bushfire;*
- *Provide for a defendable space to be located around buildings;*
- *Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;*
- *Ensure that safe operational access/egress for emergency service personnel and occupants relocating is provided and/or available;*
- *Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads within the Asset Protection Zone/s;*
- *Ensure that utility services are adequate to meet the needs of fire-fighters [and others assisting in bushfire fighting operations].*

Chapter 1, Section 1.3 of *Planning for Bushfire Protection 2006* states that the construction of Class 5 – 8 buildings on bushfire prone land, or land impacted by bushfire prone land, must meet the aim and objectives of the document.

Chapter 4, Section 4.3.6(f) discusses the bushfire protection to buildings of Class 5 to 8 and 10b of the Building Code of Australia and states:

"The BCA does not provide for any bushfire specific performance requirements and as such A.S.3959 – 1999 does not apply as a set of 'deemed to satisfy provisions'. The general fire safety construction provisions for this class of building are taken as acceptable solutions, but the aim and objective of Planning for Bushfire Protection 2006 apply in relation to access and water supply for fire-fighting operations, emergency planning [evacuation] and landscaping / vegetation management".

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Planning for Bushfire Protection 2006 provides a methodology to determine the Asset Protection Zones [defendable space] and Bushfire Attack [Construction Standards] required for *habitable buildings* in development for *residential purposes* that are designated as bushfire prone.

The document does not provide deemed to satisfy solutions for Class 5 – 8 buildings constructed in bushfire prone areas but states that where the aim and objectives of the document are not met, then the construction requirements for bushfire protection will need to be considered on a case by case basis.

Sections 5.2 and 5.3 of this report examine the layout of the development in relation to the provision of a suitable "defendable space" between the bushfire hazard and the structure/s and the protection of these structures against the potential impacts of a future fire occurrence in the bushfire prone vegetation adjoining the site, and provides recommendations on the construction standards required to be implemented in the building to mitigate the likely impact.

The provision of access and water supplies for fire-fighting operations; management of the defendable space [Asset Protection Zone] and evacuation planning are examined in Sections 5.4 – 5.9 of this report.

5.2 The Provision of a Defendable Space to the ALDI Distribution Centre.

Appendix 3 of *Planning for Bushfire Protection 2006* provides the following procedure for determining the level of bushfire attack [radiant heat] on a building:

(a) Determine vegetation formations as follows:

- Identify vegetation in all directions from the site for a distance of 140 metres;
- Consult Table A2.1 to determine the predominant vegetation type; and
- Select the predominant vegetation formation as described in Table A2.1.

(b) Determine the distance between each vegetation formation and the building;

(a) Determine the effective slope of the land under the predominant vegetation Class.

(d) Determine the appropriate fire [weather] area in Table A2.3.

(e) Consult Table A3.3/A3.4 and determine the level of bushfire attack on the building.

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Table 1 examines the defendable space provisions for the proposed building using the above assessment methodology.

Table 1. Examination of Defendable Space to the ALDI Warehouse & Distribution Centre. Fire Danger Index [FDI] for the site = 100

Aspect	Vegetation within 140m of development	Predominant Vegetation Formation Class *[Table A2.1 PfBFP]*	Effective Slope of Land	Flame Zone width [Determined by calculation]	Available Defendable Space
West	Dry Sclerophyll Open Forest on vacant land to the west	Forest	Level	21 metres flame zone width	26 metre wide defendable space inside development site provided between western boundary and western wall of building
South west	Dry Sclerophyll Open Forest on vacant land to the west	Forest	5 degrees downslope to the southwest	26 metres flame zone width	> 26 metres defendable space inside development site from the western boundary to the western wall of the building
North west	Dry Sclerophyll Open Forest on the Drainage Reserve to the northwest	Forest	3 degrees downslope to the northwest	24 metres flame zone width	> 100 metre wide defendable space inside development site provided between north-western boundary and the Ambient Warehouse

Review of Defendable Space Provisions:

The assessment to determine the minimum defendable space width to the proposed ALDI Warehouse & Distribution Centre building has determined that the minimum prescribed flame zone width of defendable space has been provided to the west of the proposed building.

5.3 Construction Measures to Buildings.

The assessment provided in Table 1 identifies that the minimum 'flame zone' Defendable Space width required to be provided between the proposed ALDI Warehouse & Distribution Centre building and the adjoining bushfire prone vegetation to the west and northwest [in order to minimise flame contact on the structure] is exceeded to the north-western and western aspects of the building – which after the removal or modification of the bushfire prone vegetation within the new industrial estate will remain the only bushfire hazard to the estate.

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The minimum Defendable Space width has been found to be 26 metres to the west of the Cool House Building, resulting in a radiant heat loading of < 40.0 kW/m^2 on the building from a bushfire event in the Dry Sclerophyll Low Open Forest on the vacant land to the west of the ALDI development site. This level of radiant heat loading on the building requires that the western elevation of the proposed Cool House shall be constructed to withstand a radiant heat loading of $40kW/m^2$.

The construction of the western wall of the Cool House is proposed to be precast concrete wall panels to the ceiling height above which it is proposed to clad the wall in 6mm thick fibre cement sheeting in order to maintain the fire safety integrity of the western wall of the building against the possible flame contact and high levels of radiant heat for long periods during bushfire events in the adjacent vegetation

5.3.1 Additional Construction Measures to the Building.

Whilst the type of construction proposed for the remainder of the Distribution Centre building addresses the potential radiant heat levels from a future bushfire in the vegetation on the land to the west of the development site, the following construction standards shall be implemented to safe guard the building against burning ember attack:

- External doors to the Cool House and Goods Out Docks shall be protected against the entry of embers – threshold, stile and head seals shall be fitted to doors;

- Any external vents, ventilation louvres or grilles to the Cool House and the Ambient Warehouse shall have stainless steel mesh [or perforated metal] with a maximum aperture of 2mm square fitted to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm;

- Roof gutters shall be provided with a protection device [corrosion resistant steel mesh or perforated metal with 2mm holes] which minimizes the accumulation of combustible litter. Such device shall be non combustible when measured in accordance with the testing procedures of A.S 1503.2;

- Any operable windows to the building shall be fitted with stainless steel mesh flyscreens having a maximum mesh aperture size of 2mm;

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- Access doors [PA/Fire Exit and Vehicle] to the building shall be fitted with seals that seal the bottom, stiles and head of the door against the opening/frame to prevent the entry of embers into the building;

- Fire Exit doors shall be fitted with non-hold opening door closers;

- Roof ventilators shall be fitted with stainless steel flymesh [2mm aperture] to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm;

- No combustible materials are to be stored external to the building.

5.3.2 Construction Standards to Truck Wash Bay/Fuel Fill / Generator / Substation.

This facility is located on the southern boundary of the ALDI development site, approximately 145 metres from the bushfire prone vegetation on the land to the west and therefore beyond the influence of radiant heat given off by a bushfire.

However, this facility remains exposed to ember attack. Therefore, this facility shall also be equipped with ember protection as recommended for the main building including the fitting of 2mm aperture stainless steel mesh to prevent ember entry into the fuel tank exhaust stacks and the removal of combustible materials and spilt fuels.

5.4 Access for Firefighting Operations.

Chapter 4, Section 4.2 “Access” of *Planning for Bushfire Protection 2006* provides specifications on the access provisions for firefighting operations within developments which are subject to bushfire attack.

The main access to the ALDI Warehouse & Distribution Centre will extend west from a new roundabout to be constructed on Weakleys Drive. This new Public Road will be constructed to provide access for heavy articulated vehicles including B Doubles.

Similar access provisions are proposed within the ALDI Distribution Centre including a perimeter fire access road along the western aspect to the Cool House building, therefore ensuring emergency access to the full perimeter of the building.

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The proposed road layout, widths of roads and the type of construction adequately addresses the deemed to satisfy access provisions of Section 4.1.3 of *Planning for Bushfire Protection 2006.*

5.5 Water Supplies for Firefighting Operations.

A reticulated water supply is to be installed in the public road network in the new estate. In addition to this supply, the development will be fully sprinkler compliant with the provisions of the Building Code of Australia.

No additional water supplies are therefore required to address the potential loss of water supply during a bushfire event in the local area.

5.6 Emergency Management for Fire Protection / Evacuation.

The management of evacuation of the staff/visitors will be addressed in the preparation of a site specific Evacuation Plan for the facility.

The Evacuation Plan shall address the protocols for the timely relocation of staff/visitors in the event that an emergency occurs, both within the site or within the local area. A copy of the Evacuation Plan shall be provided to the Local Emergency Management Committee/Police, NSW Fire Brigade and NSW Rural Fire Service.

The Evacuation Plan shall comply with AS 3745 -2002 *"Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces".*

An Emergency Procedures Manual shall be prepared for the facility by ALDI and shall include operational procedures required to address the potential impacts of bushfires on the site – particularly the location of vehicles parked adjacent to the western and north-western boundaries of the site, in close proximity to the bushfire prone vegetation on the land to the vacant west and within the Drainage Reserve to the northwest of the development site and the closure of doors likely to be exposed to potential ember attack.

5.7 Bushfire Hazard Management.

The intention of bushfire hazard management is to prevent flame contact to a structure, reduce radiant heat to below the ignition thresholds for various elements of a building, to minimize the potential for wind driven embers to cause ignition and to reduce the effects of smoke on occupants and firefighters.

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Careful attention shall be given to species selection within the landscaping, their location relative to their flammability, avoidance of continuity of vegetation [separation horizontally and vertically] and ongoing maintenance to remove flammable fuels. Species selection shall include those with high moisture or salt content in their leaves.

5.7.1 Fuel Management.

A diligent approach to the management of bushfire fuel levels is required to the land within the future development. Management of the Asset Protection Zones shall comply with the recommendations of Appendix A5.4 & Appendix A5.5 of *Planning for Bushfire Protection 2006* and *Standards for Asset Protection Zones*.

Management of the landscaped areas within the development shall comply with the following:

- Maintain a clear area of low cut lawn or pavement adjacent to the buildings;
- Keep areas under shrubs and trees raked and clear of combustible fuels;
- Utilise non-flammable materials such as Scoria, pebbles and recycled crushed bricks as ground cover to landscaped gardens in close proximity to buildings;
- Trees and shrubs should be maintained in such a manner that tree canopies are separated by 2 metres and understorey vegetation is not continuous [retained as clumps];

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SECTION 6
BUSHFIRE MANAGEMENT STRATEGIES

Strategies to mitigate the potential bushfire risk to the future Distribution Centre are as follows:

6.1 Strategy 1 – Provision of Defendable Space to ALDI Distribution Centre.

Provide a minimum twenty six (26) metre wide defendable space [Asset Protection Zone] between the bushfire prone vegetation on the land to the west of the ALDI development site and the Cool House western wall.

The Defendable Space shall be maintained as an Inner Protection Area in accordance with the specifications of Appendix A2.5 of *Planning for Bushfire Protection 2006.*

6.2 Strategy 2 – Landscape Management.

Management of the landscaped areas within the development site shall comply with the following:

- Maintain a clear area of low cut lawn or pavement adjacent to the buildings;
- Keep areas under shrubs and trees raked and clear of combustible fuels;
- Utilise non-flammable materials such as Scoria, pebbles and recycled crushed bricks as ground cover to landscaped gardens in close proximity to buildings;
- Trees and shrubs should be maintained in such a manner that tree canopies are separated by 2 metres and understorey vegetation is not continuous [retained as clumps];

6.3 Strategy 3 – Construction Standards to the ALDI Distribution Centre Building.

The following protection measures shall be implemented in the construction of the building:

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- External doors to the Cool House and Goods Out Docks shall be protected against the entry of embers – threshold, stile and head seals shall be fitted to doors;

- Any external vents, ventilation louvres or grilles to the Cool House and the Ambient Warehouse shall have stainless steel mesh [or perforated metal] with a maximum aperture of 2mm square fitted to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm;

- Roof gutters shall be provided with a protection device [corrosion resistant steel mesh or perforated metal with 2mm holes] which minimizes the accumulation of combustible litter. Such device shall be non combustible when measured in accordance with the testing procedures of A.S 1503.2;

- Any operable windows to the building shall be fitted with stainless steel mesh flyscreens having a maximum mesh aperture size of 2mm;

- Access doors [PA/Fire Exit and Vehicle] to the building shall be fitted with seals that seal the bottom, stiles and head of the door against the opening/frame to prevent the entry of embers into the building;

- Fire Exit doors shall be fitted with non-hold opening door closers;

- Roof ventilators shall be fitted with stainless steel flymesh [2mm aperture] to prevent the entry of embers into the building or be fitted with a louvre system which can be closed in order to maintain a maximum aperture or gap of no more than 2mm;

- No combustible materials are to be stored external to the building;

6.4 Strategy 4 – Construction Standards to Truck Wash Bay/Fuel Fill / Generator / Substation.

This facility shall also be equipped with ember protection as recommended for the main building including the fitting of 2mm aperture stainless steel mesh to prevent ember entry into the fuel tank exhaust stacks and the removal of combustible materials and spilt fuels.

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6.5 Strategy 5 – Water Supplies for Firefighting Operations.

A reticulated water supply, for firefighting operations, shall be provided to the development, in accordance with Australian Standard A.S 2419.1 – 2005. Hydrants shall have a flow rate of 10 litres/second.

6.6 Strategy 6 – Evacuation Planning.

An Evacuation Plan shall be prepared which addresses the protocols for the timely relocation of staff/visitors in the event that an emergency occurs, both within the site or within the local area. A copy of the Evacuation Plan shall be provided to the Local Emergency Management Committee/Police, NSW Fire Brigade and NSW Rural Fire Service.

The Evacuation Plan shall comply with AS 3745 -2002 *"Emergency Control Organisation and Procedures for Buildings, Structures and Workplaces".*

An Emergency Procedures Manual shall be prepared by ALDI for the facility and shall include operational procedures required to address the potential impacts of bushfires on the site – particularly the location of vehicles parked along the southern boundary of the site in close proximity to the bushfire prone vegetation on the land to the south of the development site and the closure of doors likely to be exposed to potential ember attack.

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SECTION 7

CONCLUSION

The development proposal is for the construction of a new Warehouse & Distribution Centre for ALDI Foods Pty Ltd on land at Beresfield.

The development site is Lot 124 in the industrial estate created in the subdivision of Lot 14 in DP 1091199, [No. 102]; Lot E in DP 388733 [No.74] and Lot 14 in DP 207961 [No. 82], Weakleys Drive, Beresfield.

The ALDI development site will be located adjacent to unmanaged bushfire prone vegetation on the vacant land to the west of the new industrial estate. The proposed development is therefore triggered by this vegetation and the bushfire prone vegetation within the site [which will be modified/removed by the proposed development] and must comply with the provisions of *Planning for Bushfire Protection 2006.*

This assessment has reviewed the bushfire threat to the complex, from the bushfire prone vegetation remaining on the land to the west, and made recommendations on the provision a “defendable space” to the western aspect of the Cool House part of the building and the provision of construction measures to increase the protection of the building against the potential impact of radiant heat on the exterior cladding of the building and the impact from burning embers.

Implementation of the strategies provided in Section 6 of this report are considered necessary to provide the level of protection required to the future development and to ensure compliance with legislative requirements in respect to the provision of Defendable Space/Asset Protection Zones to the Bushfire Prone Vegetation within the adjoining land.

The assessment of the bushfire protection requirements and potential levels of bushfire attack on the proposed building indicates that the development of the site can be undertaken in a manner that balances development opportunities and the protection of life, property and the environment.

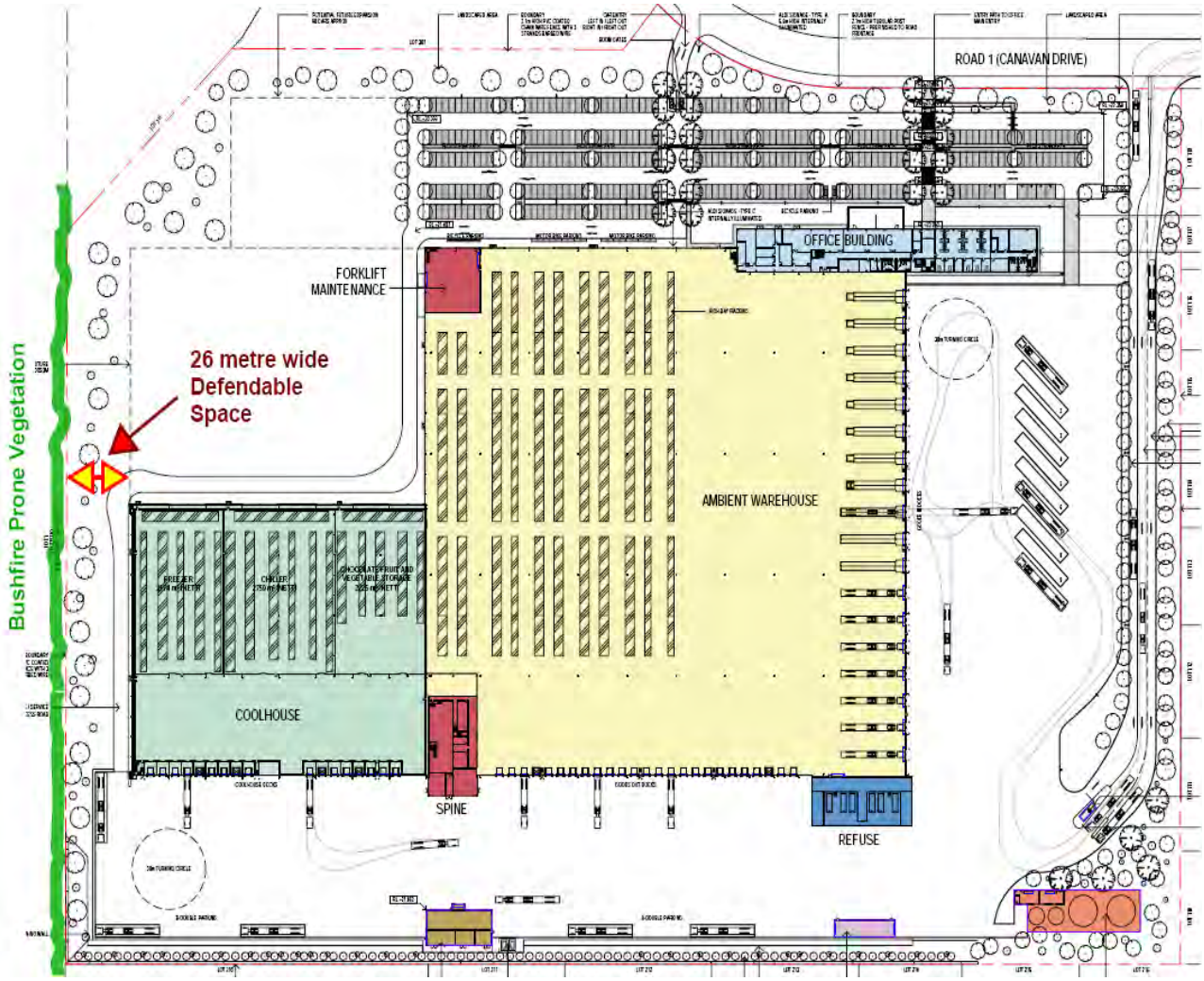
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REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- *Environmental Planning & Assessment Act – 1979;*
- *Rural Fires Act – 1997;*
- *Rural Fires and Environmental Assessment Legislation Amendment Act 2002;*
- *Rural Fires Regulation 2008;*
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2002;*
- *Threatened Species Conservation Act 1995;*
- *Native Vegetation Act;*
- *Bushfire Environmental Assessment Code 2003;*
- Building Code of Australia;
- Australian Standard A.S 3959-2009 "*Construction of Buildings in Bushfire Prone Areas".*
- *Newcastle Bushfire Prone Land Map.*

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SECTION 8 – Plan of Defendable Spaces to the proposed ALDI Distribution Centre.



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