



Notice of concurrence agency response Sections 3.3.16 and 3.3.18 *Integrated Planning Act 1997*

This notice is issued by the administering authority pursuant to sections 3.3.16 and 3.3.18 of the *Integrated Planning Act 1997*, to advise you of a decision or action.

Enquiries to: Karen Hopper
Telephone: 3225 8425 E-mail: Karen.Hopper@env.qld.gov.au
Your reference: BLD/02/01596
Our reference: 26783 Part 1 File No.:900449

CC: Darling Downs Foods
PO Box 157

BASE PARCEL: LOT 3 AND LOT 10/RP17543
Toowoomba City Council AND LOT 10/RP17544
PO Box 3021 Village Fair Post Office
TOOWOOMBA QLD 4350

TOOWOOMBA

ENR Updated 20/9/02

sch4p4(6) Personal information

Attention: Carl Martin

Re: Application (No. BLD/02/01596) for development approval for assessable development to be carried out at Mort Street, Toowoomba Qld 4350 (Lot 1 on SP116255).

Pursuant to the following items of Schedule 2 of the *Integrated Planning Regulation 1998*, the Environmental Protection Agency is a concurrence agency for the development application:

- ☐ Item 3 of Schedule 2 of the *Integrated Planning Regulation 1998* (for Environmentally Relevant Activities)
- ☒ Item 4 of Schedule 2 of the *Integrated Planning Regulation 1998* (for contaminated land)

The Environmental Protection Agency (EPA), acting as a concurrence agency under the *Integrated Planning Act 1997*, provides its response to the application detailed above as attached.

It would be appreciated if Council could provide a signed hard copy of the final development approval issued by Council (which includes the Agency's concurrence conditions).

The EPA has not provided a notification to native title parties for this application. The State's Native Title Work Procedures indicate that responsibility for assessment of native title issues for an IDAS application rest with the Assessment Manager. It is recommended that you undertake an assessment using your own guidelines to determine if a native title notification is required for this application.

Should you require any further information please do not hesitate to contact the above officer on the telephone number or e-mail address provided.

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Signed

Date

**Delegate of Administering Authority
*Environmental Protection Act 1994.***

Concurrence agency response

Sections 3.3.16 and 3.5.18 *Integrated Planning Act 1997*

Applicant:	Darling Downs Foods
Council Application Number:	BLD/02/01596
EPA Application Number:	26783 Part 1
Date application received by EPA:	23/08/2002
Relevant Laws and Policies:	<i>Environmental Protection Act 1994</i>
Jurisdiction:	Chapter 7, Part 8 <i>Environmental Protection Act 1994</i>

Development Description:

Material Change of Use

where:

- ☐ the existing use of the land is, or if the land is vacant land with no existing use the most recent use of the land was, for a notifiable activity under the *Environmental Protection Act 1994*.
- ☐ the proposed use of the land is for child care, educational, recreational, residential or similar purposes and the existing use of the land is, or if the land is vacant land with no existing use the most recent use of the land was, for an industrial activity.
- ☒ the land is on the Environmental Management Register or Contaminated Land Register under the *Environmental Protection Act 1994*.
- ☐ the land is wholly or partly within an area for which an Area Management Advice for industrial activity or natural mineralisation has been issued and the proposed use of the land is for child care, educational, recreational, residential or similar purposes.
- ☐ the land is wholly or partly in an area for which an Area Management Advice for unexploded ordnance has been issued.

at the following place(s):

Mort Street, Toowoomba Qld 4350
(Lot 1 on SP116255)

Response to Development Application

The Environmental Protection Agency, acting as a concurrence agency under the *Integrated Planning Act 1997*, provides its response to the application detailed above.

The concurrence agency response is that

- ☐ conditions must attach to any development approval
- ☐ any approval must be for part only of the development
- ☐ any approval must be a preliminary approval only
- ☒ there are no concurrence agency requirements;
- ☐ the application must be refused

Conditions of the development approval

The following concurrence agency condition(s) is/are to be attached to any development approval issued for this application:

Not applicable

Reasons for inclusion of development conditions or refusal

Not applicable

Additional comments or advice about the application

The removal of any contaminated soil from this site requires prior approval from the Environmental Protection Agency (EPA) (Contaminated Land Unit) under the *Environmental Protection Act 1994* (EP Act).

Additional information for applicants

This concurrence response pursuant to Chapter 7, Part 8 of the *Environmental Protection Act 1994* applies only to contaminated land issues and does not remove the need to obtain any further approval for this development which may be required by this or other legislation, State and/or Commonwealth. Applicants are advised to check with all relevant statutory authorities for such approvals as may be required.

~ End Of Concurrence Agency Response ~

IPA APPLICATION – 1 Mort Street, Toowoomba QLD 4350 (Lot 1 on SP116255)

Applicant: Darling Down Foods
App'n No: 26783
File No: 900449

On EMR for: Lot 1 on SP116255 is a child parcel of Lot 3 on SP17543 which is listed for Landfill

Any ERA's?: no
Referral Coordination?: no

Proposal: MCU to install a demountable office to accommodate 15 new staff.

Current Use: Fully constructed, permanent buildings already exist on site. Spoke to Carl Martin at Toowoomba City Council 5 September 2002. He said that these buildings have been here for many years and probably pre-IPA (hence the reason why we have not seen the MCU's for the buildings that are already there).

Recommendation:

Since this proposal involves only a demountable building: –

Issue concurrence response. No conditions. Advice re soil disposal permits.

sch4p4(6) Personal information

Katrina Lindsay
09.09.02

sch4p4(6) Personal information

12/9/02

Memorandum

To _____ File Reference _____
From KATRINA LINDSAY
Subject EVIDENCE OF REFERRAL Co-ordination for PREVIOUS APPLICATIONS Date 12/9/02 Notes _____

Correspondence dated 25/6/02 outlines material forwarded to EPA (former Department of the Environment) for Referral Co-ordination.

The Contaminated Land unit has no record of receiving any application relating to this site previously.

Deems appl'n was made shortly after the introduction of IDAS.

Other buildings were constructed on the site prior to 1997.

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12-9-02



TOOWOOMBA CITY COUNCIL

ABN 69 653 021 471

Development Assessment Branch, 543 Ruthven Street, Toowoomba
P O Box 3021 Village Fair Post Office, Toowoomba. Facsimile: 0746 886436CONTAMINATED
LAND SECTION

09 SEP 2002

FACSIMILE TRANSMISSION

To: Katrina Lindsay	
At: EPA	Fax No: 32 47 327 8
From: Colleen	Contact No.: 46 88 682 8
Date: 9/9/02	No of Pages: 10 total
Subject: Darling Downs Foods- Mort Street, T.	

Message:

Evidence of referral coordination for the
above site.

Would appreciate your response to the current
proposal ASAP.

Thanks

Colleen

PREVIOUS DA NOT FORWARDED TO CLU

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Warning:

The image produced by fax machines normally lasts only a few years. Where information is to be filed or kept for longer periods, the fax should be photocopied and the photocopy kept.

Development Assessment:
Contact Phone Numbers:
Building Services: 07 4688 6763
Plumbing Services: 07 4688 6762
Town Planning: 07 4688 6737
Environmental Services: 07 4688 6637
Development Services: 07 4688 6713

Address all Correspondence to:
The Chief Executive Officer
Toowoomba City Council
P O Box 3021 Village Fair
TOOWOOMBA QLD 4350



Queensland Department of
LOCAL GOVERNMENT & PLANNING
incorporating
RURAL COMMUNITIES

Your Reference:
Our Reference: TPA20745
Enquiries: Kylie Craig
Extension: (07) 3237 1770

PLANNING SERVICES

25 June 1998

ADDRESSEES AS ATTACHED

Dear Sir or Madam

RE: APPLICATION FOR REFERRAL COORDINATION

The Department has received an application for referral coordination under transitional arrangements of the Integrated Planning Act for the following proposal:

APPLICANT:	Civil and Civil Pty Ltd
DESIGNATED DEVELOPMENT:	Abattoir Facility
LOCATION:	Mort Street, Toowoomba
LOCAL GOVERNMENT:	Toowoomba City Council

Based on the information provided, it would be appreciated if your organisation could advise on whether an information request needs to be made to assist in assessment of the application.

To assist you, we have enclosed information regarding the proposal. We have also enclosed a draft Information Request Guidelines for this type of development.

Could you please advise of your contribution to any information request by 14th July 1998. If a reply has not been received by this time, it will be assumed your organisation has no comments to offer.

Further information or assistance may be obtained from the above contact officer.

Yours sincerely

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Kylie Craig
Referral Coordination Unit

IAU 25/06/98 5:28 PM \\File1\\files\\PSUA\\Referral Coordination\\Letter to advisory bodies\\20745ABATTOIR.doc



Address correspondence to:
PO Box 187, BRISBANE ALBERT STREET Q 4002
Telephone (07) 3235 4062 Facsimile (07) 3235 4586

Release

Chief Executive Officer
Toowoomba City Council
PO Box 3021
TOOWOOMBA QLD 4350
Attention: Town Planning Officer
Fax No.: (07 4638 3830

District Manager (Southwestern)
Department of Environment
PO Box 731
TOOWOOMBA QLD 4350
Attention: Glen Brown

Regional Director (South)
Department of Primary Industries
PO Box 102
TOOWOOMBA QLD 4350
Attention: Sandra Baxendell

District Manager
Department of Main Roads
PO Box 645
TOOWOOMBA QLD 4350
Attention: Ian Guthrie

Regional Director (Darling Downs)
Regional Health District
PO Box 215
TOOWOOMBA QLD 4350
Attention: Virgil Kelk

District Manager
Department of Natural Resources
P O Box 318
TOOWOOMBA QLD 4350
Attention: Yvonne Orlando

Regional Advisor (Southern)
Queensland Transport
P O Box 645
TOOWOOMBA QLD 4350
Attention: Amanda Flint

Release

**Draft Information Request Guidelines
for an
ABATTOIR
(Designated Development No. 1)**

APPLICANT:	Civil and Civil Pty Ltd
DESIGNATED DEVELOPMENT:	Abattoir Facility
LOCATION:	Mort Street, Toowoomba
LOCAL GOVERNMENT:	Toowoomba City Council

PREAMBLE

Under S6.1.35C of the IPA, referral coordination is required for applications for a material change of use for a designated development or applications for a material change of use (other than for a dwelling house, outbuilding or farm building) on prescribed land or for the reconfiguration of a lot that is prescribed land. Designated development and prescribed land are defined terms and relate to those developments and areas previously mentioned in Schedule 1 and Schedule 2 of the Local Government (Planning and Environment) Regulation 1991.

An abattoir is generally considered to mean the use of premises for the slaughtering, cleaning and preparation of animals, fish or birds (including poultry birds) or for the cleaning, preparation or other handling of the dead carcasses of animals, fish or birds or any one or more of them.

Potential problems associated with abattoir operations include odours from manure and from rendering, pollution of surface and ground-waters and odours associated with effluent disposal, paunch manure disposal and disposal of manure from stockyards and holding pens as well as noise from transport operations.

DEGREE OF DETAIL

In responding to any Information Request made through the referral coordination process, it is advisable that the applicant address the impacts of the proposal to the degree necessary to enable the local government to be informed of all relevant impacts of the proposal. The level and nature of investigations should be relative to the likely extent and scale of impacts. It is suggested that the applicant/consultant contact the Local Government and relevant State agencies to clarify the nature and level of investigations.

It should be noted that the preparation of an Information Request does not indicate approval or support in any way, nor does it indicate approval in principle.

CONTENTS

The response should address the following matters and also generally follow the format suggested in this document.

1. Summary

A concise summary generally following the format of the Information Request should be included.

Release

2. Description of the proposed development

A detailed description of the proposal should be provided as well as general background information on the proposal. Particular details that may be relevant include:

- . location (including a map at a suitable scale) of site;
- . site area in hectares;
- . map of the site indicating those areas to be used for buildings and other operations;
- . proximity to conservation reserves and to environmental, national and marine parks;
- . design and construction details:
 - building location, including distance from boundaries;
 - landscaping including shade features;
 - waste treatment containment and disposal methods including sizes and location/s of on-site measures;
 - fire management strategy;
 - any alteration to existing wastewater disposal system, including anaerobic ponds;
 - areas for any type of proposed irrigation (spray, flood, etc);
 - sludge disposal areas;
 - discharge points including any possible overflows;
 - buffer zones around property boundaries, dry gullies or water courses;
 - any storm diversion drains or interceptor traps;
 - any wet weather storage pond(s) for effluent disposal.
- . number of animals to be slaughtered on site and production output including types of product being produced per week and/or per year;
- . maximum number of animals to be kept on the overall site;
- . estimated mass balance showing all significant inputs and outputs per week and/or per year associated with the operation;
- . the extent of processing and packaging to be carried out at the abattoir, including any proposed expansion, staging and timing details;
- . type of machinery and equipment to be used, processing technology and alternatives;
- . economic significance of product(s);
- . expected life of the operation including plans for site rehabilitation suited for future land use;
- . number of persons to be employed;
- . hours of operation;
- . odour control;
- . pest control;
- . likely water consumption, including allowances for all uses on site.
- . identify, characterise and quantify any wastes (including method of disposal), such as:
 - influents (raw wastewaters);
 - effluent;
 - sludges;

Release

- wet weather storage, overflow etc;
- offal and hide; and
- other wastes;
- . detail any waste minimisation technologies considered or incorporated, such as the provision of fine nozzle spray jets to be used in the cleaning process or water recycling systems. Details of any wastewater minimisation technology or procedures intended to be used should be included;
- . detail the proposed wastewater treatment process, including the manner of disposal of effluent wastes from the anaerobic pond(s) to enable all wastewater to be contained on site. Provide details of any proposed irrigation (spray, flood etc) and any intended cropping practice. Include intended times and rates of application of wastewaters (i.e. the maximum proposed sprinkling rate - mm/hr.)
- . access arrangements (including truck routes, truck numbers, rail access, parking, etc.) of animals to the site and of products, by-products and wastes from the site;
- . site drainage and erosion controls;
- . water supply requirements including purposes, average and maximum daily quantities for each purpose as well as sources and quantities from each source;
- . ablution amenities;
- . existing infrastructure facilities available on and adjacent to the site.

The following details relevant to the proposed site should also be described:

- . local government planning controls, local laws and policies applying to the development;
- . approvals required for the project and expected program for approval applications;
- . land tenures affecting the site and adjacent areas that can be affected by the development; and
- . past and current usage of the site and surrounding area, including current applications or approvals,

3. Description of Environment and Assessment of Potential Impacts

Describe the environment in the vicinity of the proposed development site including information on:

- . buffer distances from the site to alternative land uses and location of closest residences and business premises.

As well, detail overall environmental protection measures incorporated in the design, siting, layout and associated works to minimise impacts on the environment. Taking into account the adequacy of controls and safeguards, assess the overall impact of the proposal.

Information required includes:

Topography

Describe the proposed site in relation to the catchment system and any waterways on or near the site.

Soils and Geology

Describe and map (at a suitable scale) areas to be disturbed with particular reference to those physical and chemical properties of the materials which may influence the quality of water leaving the site.

Describe the soils of the site and within the vicinity including drainage, soil structure, permeability and water holding capacity characteristics, disposal/irrigation of waste products, or the quality of water leaving the site. The description should be compiled according to the Australian Soils and Land Survey Field Handbook, McDonald et al (1990), Inkata Press, Melbourne.

Hydrology

Describe the surface and ground water quality and quantity in the vicinity of the project and give an indication of the water table in relation to the floor of the site. Describe the effects of the development's proposed water supply on any existing water supply systems in the vicinity.

Detail the need for water management including:

- . water requirements and the effects on the existing water supply system;
- . proposals for separating clean and contaminated run off before discharge;
- . water treatment;
- . quality and quantity of effluent for disposal;
- . possible contamination of surface water and groundwater;
- . possible contamination of soils in the vicinity; and
- . treatment and disposal of sludges and solid wastes.

Transportation

Assess the likely impacts of heavy transport on the surrounding road network, as well as short term impacts during the construction phase. Describe the access routes and service corridors associated with the development. Assess these routes on the basis of minimum noise impact to surrounding areas consistent with the needs of the development.

Air/Noise

Measure and discuss ambient noise levels in all areas likely to be affected by the construction and operation of the development. Indicate nearby land uses, dwellings, schools or hospitals which could be affected by the proposal.

List all noise sources including noise emissions from transport haulage vehicles and describe areas where noisy activity could be expected to occur as a result of the proposal. Determine and discuss impacts to existing air quality by odours and particulate matter that would emanate from the development, particularly after prolonged wet weather, including

Release

the wastewater disposal system, holding bins and storage areas for offal and hide. Describe the potential for dust nuisance associated with haulage roads.

Social Impacts

Discuss the impact on the visual amenity.

4. Environmental Management

In respect of impacts identified which need to be controlled, an environmental management program incorporating an Environmental Management Plan, Monitoring and Reporting should be considered. Where practicable, the costs of monitoring programs should be estimated and responsibility for monitoring programs specified. References should be made to relevant legislation and standards.

Monitoring programs should ensure safeguards are being effectively applied, including any unpredicted impacts requiring remedial measures.

Reporting programs should detail:

- . steps to be taken to correct detrimental effects identified by monitoring; and
- . procedures for reporting on monitoring programs and proposed recipients of reports.

Provide details of any proposed contingency plans e.g. mitigation systems such as surface aspirators or air scrubbing systems to abate nuisances caused in the event of atypical situations like power failures, plant breakdowns, fires/explosions etc.

5. Conclusions and Recommendations

As result of the findings of the Information Request, present a balanced overview of the proposal's net impact and provide recommendations on the proposal. This should include the identification of any alterations to the proposal considered to further mitigate environmental impacts.

6. Consultation

In preparing the Information Request, the applicant/consultant should consult affected and interest groups. The Information Request should detail any public comment sought from and any consultation conducted with any affected groups (e.g. community, environmental, industry) in developing the proposal and preparing the Information Request.

In relation to this Information Request, the following are advisory bodies which should be contacted:

- . the Council in relation to land use, town planning, engineering and traffic matters;

Release

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- . the Department of Environment in regard to air, water and noise impacts, relevant pollution control legislation requirements, especially requirements for land disposal, requirements under Section 31 of the Clean Waters Act, and guidelines for preparing submissions on noise for development and planning applications; and
- . the..... Regional Office of the Department of Primary Industries (Veterinary Services Branch) in relation to matters under relevant licensing procedures and general abattoir issues, and water resources issues, including both ground and surface water;
- . the Regional Health Authority in relation to environmental health issues;
- . the District Office of Department of Main Roads in relation to access, traffic, and transportation matters, and the impact of the proposal upon the existing or future transport infrastructure.

Consultation is beneficial both in helping to ensure that a development will cause a minimum of undesirable effects and in reducing delays in the latter stages of planning or design.

7. Advisory Bodies

Chief Executive Officer
Toowoomba City Council
PO Box 3 021
TOOWOOMBA QLD 4350
Attention: Planning Dept.

Director-General
Department of Local Government and Planning
PO Box 187
BRISBANE ALBERT STREET QLD 4002
Attention: Manager, Referral Coordination Unit

District Manager (Southwestern)
Department of Environment
PO Box 731
TOOWOOMBA QLD 4350
Attention: Glen Brown

Regional Director (South)
Department of Primary Industries
PO Box 102
TOOWOOMBA QLD 4350
Attention: Sandra Baxendell

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District Manager
Department of Main Roads
PO Box 645
TOOWOOMBA QLD 4350
Attention: Ian Guthrie

Regional Director (Darling Downs)
Regional Health District
PO Box 215
TOOWOOMBA QLD 4350
Attention: Virgil Kell

District Manager
Department of Natural Resources
P O Box 318
TOOWOOMBA QLD 4350
Attention: Yvonne Orlando

Regional Advisor (Southern)
Queensland Transport
P O Box 645
TOOWOOMBA QLD 4350
Attention: Amanda Flint

RTI DL RELEASE - EHP

Darling Downs Foods

A.B.N. 50 051 834 309

Cont Sites

**CONTAMINATED
LAND SECTION**

26 AUG 2002

22 August 2002

Environmental Protection Agency
Contaminated Lands
PO Box 155
BRISBANE ALBERT STREET QLD 4002

**ENVIRONMENTAL PROTECTION
AGENCY**

23 AUG 2002

BNE 200 2/11964

Dear Sir,

Re: STAFF RELOCATION PROJECT

Please find enclosed documentation for your assessment. This project involves relocating 15 staff from the Brisbane office to the factory site in Toowoomba.

Should you require any further details, please do not hesitate to contact me on [redacted] (6) Personal information

Your earliest attention to this matter would be appreciated.

Yours sincerely,

[redacted]
sch4p4(6) Personal information

R Emmerson
Manager - Engineering Services

Enc.

APPLICATION NUMBER: 26783
FILE NUMBER: 900449
REFERRAL DATE: 23/8/02
DATE INFO REQUEST DUE: 6/9/02
BCU No. [redacted]
OFFICER: [redacted]

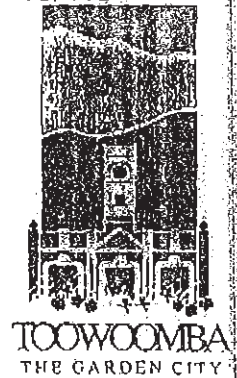
Release

ABN 69 653 021 471

Enquiries: MR CARL MARTIN/MRS MICHELLE MILTON
 Our Reference: REF NO : BLD/02/01596
 Your Reference:

20 AUGUST 2002

DARLING DOWNS FOODS LTD
 MORT STREET
 TOOWOOMBA QLD 4350



ATTENTION: ROY EMMERSON

Dear Sir,

DEVELOPMENT APPLICATION ACKNOWLEDGMENT NOTICE
INTEGRATED PLANNING ACT 1997 SECTIONS 3.2.5 & 3.2.6

Location: LOT 1 MORT STREET, TOOWOOMBA QLD 4350
Real Property Description: LOT 1 SP 116255
 COUNTY OF AUBIGNY, PARISH OF DRAYTON

Please be advised that your Development Application was deemed properly made and accepted by Council on 15/08/2002. Please confirm that all details are correct and refer any discrepancies to the Assessment Manager.

1. Applicant Contact Details

Phone No: 07 46906000

Fax No: 07 4690 6096

2. Property Owners Details

Name: DARLING DOWNS FOODS LTD

Postal Address: MORT STREET, TOOWOOMBA QLD 4350

Development Approval

The following approvals are being sought:

Preliminary Approval	☐	Development Permit	☒	To carry out Building Works
	☐		☒	To Carry out Plumbing or Drainage Works
	☐		☐	To carry out Operational Works
	☐		☐	To Reconfigure a Lot
	☐		☒	To make a Material Change of Use of a Premises

3. Code Assessment

Will Code Assessment be required?

☐ No☒ Yes

Applicable Code/s for the Development	☒	Standard Building Regulation
	☒	Building Code of Australia
	☒	Sewerage and Water Supply Act
	☒	Town Planning Scheme
	☒	Toowoomba City Council Local Laws and Policies
	☐	EDROC Regional Standards Manual
	☐	AS2890 Parking Facilities

ABN 69 653 021 471
 Administration Building
 153 Herries Street
 Toowoomba Qld 4350

Address all communications to
 The Chief Executive Officer
 P.O. Box 3021
 Toowoomba Village Fair
 Qld 4350

Telephone: (07) 4688 6811
 Facsimile: (07) 4638 3830

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D.A. NO : BLD/02/01596

1. Impact Assessment

Will Impact Assessment be required:

☒ No☐ Yes**2. Public Notification**

What is required for Public Notification:

☒ Not Required☐ Refer Appendix A attached**3. Referral Agencies**

Will any Referral Agencies be required?

☐ No☒ Yes

Name of Agencies – if applicable:

1. The District Officer
Queensland Department of Main Roads
P O Box 645
Toowoomba QLD 4350

2. Environmental Protection Agency
Contaminated Lands
P O Box 155
Brisbane Albert Street QLD 4002

4. Referral Coordination

Is referral coordination required:

☒ No

☐ Yes, refer application to:
Chief Executive
Department of Local Government &
Planning
PO Box 187 Brisbane Albert Street
Qld 4002

5. Information Request

An information request may be made by the Assessment Manager.

6. Superseded Planning Scheme

The application will be assessed under the Existing Planning Scheme.

This application is being made during the Transitional Development period under Section 6 of the Integrated Planning Act 1997.

Yours faithfully

sch4p4(6) Personal information

MR CARL MARTIN
Building Surveyor

sch4p4(6) Personal information

MRS MICHELLE MILTON
Senior Planner

Form 1 Development Application

idas

INTEGRATED DEVELOPMENT
ASSESSMENT SYSTEM

PART

A

Common details
for all applications

Lot 1.

The completion of all questions on Part A is mandatory for all applications. For further information refer to the guide for completing the application form available from the assessment manager or on the IPA website at www.ipa.qld.gov.au

1. Description of land

The description must identify all land subject of the application including land/easements over which access is to be obtained.

The lot & plan details (eg. SP / RP) are shown on title documents or a rates notice.

If the plan is not registered by title, provide previous lot and plan details.

Street address (include no., street, suburb / locality & postcode)

Mort Street
Toowoomba

Postcode 4350

Lot & plan details (Attach list if necessary)

Lot 1 SP 116255

Shop / tenancy no. (If applicable)

Storey / level (If applicable)

Total area of land (m² / ha)106500 m²

In which local government area is the land situated?

Toowoomba City Council

2. Proposal

Provide details of the proposal (eg. new house / apartment building etc, demolition / removal of a house, extension to existing shop, new carport etc).

Details of the existing use of the land (Attach proposal report if necessary)

Abattoir & Smallgoods Factory

Details of the proposal (Attach proposal report if necessary)

Demountable Office

3. Other parts of the form completed

Complete all other parts of the form applicable to your application.

What other parts of the form are attached (eg. Part B: if the application involves assessment against the Building Act, Part D: if the application involves assessment against the planning scheme for material change of use, Part F: if the application involves reconfiguring a lot)

4. Applicant details

Clearly identify who is making the application. The applicant need not be the owner of the land.

If the applicant is a company, a contact person must be shown.

Name

Darling Downs Foods

Contact person

Ray Emmerson

Phone no.

46906000

Mobile no.

Fax no.

Email address

sch4p4(6) Personal information

46906096

rennerson@ddfoods.com.au

Signature

Date

sch4p4(6) Personal information

14-8-02

All correspondence will be mailed to this address.

Postal address

PO Box 157
Toowoomba

Postcode 4350

5. Consent of land owner/s

Completion of this section provides the owner's consent to the lodgement of this application.

If there are multiple owners, the consent of each owner is required.

If the owner is a company refer to the guide for completing the application form.

Name (In full) (Attach list if necessary)

Darling Downs Foods

Signature/s (Or if a company, the ACN plus signature/s or company seal & signatures)

Date

sch4p4(6) Personal information

14.8.02

Contact details (Optional)

Ray Emmerson

OFFICE USE ONLY (applicable to assessment manager, alternative assessment manager and private certifier)

FEE (\$)

DATE
RECEIVEDRECEIVING
OFFICER'S NAME/SREFERENCE
NUMBERS

15 AUG 2002

BY:

Notification of Engagement of Private Certifier (Optional format for private certifiers)

To: Council. I have been engaged as a private certifier for the building work referred to in this application.

Date of engagement: / / Accreditation Number

Name: R14-211

Signature:

File A_BNE26547

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Form 1 Development Application

idas

INTEGRATED DEVELOPMENT
ASSESSMENT SYSTEM

PART
B

Complete if this application involves
assessment against the

Building Act

(includes for example assessment of structural elements of the building work)

Completion of all relevant questions on Part B of this form is mandatory for all applications assessed against the Building Act.
This application must be accompanied by the plans and other documents prescribed in the Standard Building Regulation

Nature of the building work

The information requested in questions 1 to 7 is required by the Australian Bureau of Statistics (ABS).

1. What is the nature of the work? (Tick applicable box/es)

☒ New building / structure ☐ Alterations / additions ☐ Demolition ☐ Removal

2. What is the floor area? (m²)

New: 180m²

Existing:

3. How many storeys? 1

Construction details

The numbers in brackets are for use by the ABS only.

4. Indicate the proposed construction materials for the following: (Tick applicable box/es)

External walls ☐ Double brick (11) ☐ Brick veneer (12) ☐ Stone / concrete (20)
☒ Fibre cement (30) ☐ Timber (40) ☐ Curtain glass (50)
☒ Steel (60) ☐ Aluminium (70) ☐ Other (80)

Frame ☐ Timber (40) ☒ Steel (60) ☒ Aluminium (70) ☐ Other

Floor ☒ Timber (40) ☐ Concrete (20) ☐ Other (80)

Roof covering ☐ Tiles (10) ☐ Slate / concrete (20) ☐ Fibre cement (30)
☒ Steel (60) ☐ Aluminium (70) ☐ Other (80)

Estimated value

Include the total value of the building work including GST and labour.

5. What is the total value of the building work? (\$) 68,000

Residential work

Complete for residential work only.

A "dwelling unit" is a self-contained abode of permanent residence (eg. house, flat, unit or townhouse).

An apartment building may contain a number of dwelling units.

6. What best describes the dwelling type? (Tick applicable box/es)

☐ Single detached house ☐ Kit house
☐ Transportable / relocatable house ☐ Semi-attached housing (ie. duplex / dual occupancy)
☐ Apartment, unit or flat attached to an existing house
☐ Apartment building / unit where units are layered one above another
☐ Attached housing (including row / terrace / townhouse)

7. For a proposal involving dwelling units, indicate each of the following: (If applicable)

(a) No. of existing dwelling units

(b) No. of dwelling units to be demolished

(c) No. of new / additional self-contained dwelling units

Builder's details (if known)

If more than one builder, attach details eg builder X for the house and builder Y for the pool.

8.

Name (In full):

ATCO

Contact details:

BSA Licence number:

If owner-builder, state owner-builder number:

Release of owner's details

9. Does the owner agree to the release of their name & the land address for marketing purposes?

☒ NO

☐ YES

This application cannot be accepted unless accompanied by Part A of the Development Application

OFFICE USE ONLY (applicable to assessment manager and private certifier)

DATE RECEIVED

REFERENCE NUMBERS

RECEIVED
15 AUG 2002

If the application is for residential construction work, provide the BSA insurance receipt no. (if applicable)

Owner-builder YES / NO

Approval No.

Building Classification BY:

The PLSL levy & WH&S fee are / are not applicable in this instance. If applicable, receipt number: Date

Form 1 Development Application

idas

INTEGRATED DEVELOPMENT
ASSESSMENT SYSTEMPART
DComplete if this application involves **assessment against the****Planning Scheme**

For material change of use of premises

Completion of all questions on Part D of this form is **mandatory** for all applications for a material change of use of premises including conceptual design for any associated works that require approval under the planning scheme.

Nature of the application

A development permit authorises development to occur, while a preliminary approval is a step in the approval process and does not authorise development to occur.

1. This application is for: (Tick one or more if applicable)

- ☐ Preliminary approval for a material change of use of premises including conceptual design for any associated works that require approval under the planning scheme (ie consideration of the proposal concept)

AND / OR

- ☒ Development permit for a material change of use of premises including conceptual design for any associated works that require approval under the planning scheme.

Referral triggers

This application may trigger referral to an IDAS referral agency. These questions help identify whether referral is required.

Referral coordination occurs - when an application involves 3 or more concurrence agencies; or under transitional arrangements. Referral coordination is further explained in the Referrals Checklist.

2. Does the application trigger referral to an IDAS referral agency? (Tick applicable box) (Use the Referrals Checklist to determine any possible referrals for this application).

☒ NO☐ YES If yes, attach Referrals Checklist

3. Does the application trigger referral coordination? (Tick applicable box) (Use the Referrals Checklist to determine if this application triggers referral coordination).

☒ NO☐ YES If yes, attach Referrals Checklist**Details of the land**

For the definition of "gross floor area" refer to the planning scheme against which the application will be assessed.

4. How is the subject land identified in the planning scheme? (Name the zone, precinct etc.)

DCP 2

5. Existing gross floor area (If applicable)

6. Are there any existing easements on the land? (Tick applicable box)

☐ NO☒ YES Attach plans of the location & purpose**Proposal details**

For the definition of "site cover" refer to the planning scheme against which the application will be assessed.

7. If the application is for preliminary approval for the use of the land, provide conceptual plans and other details / reports in support of the proposal.

8. If the application is for development permit for a material change of use of premises, including conceptual design for any associated works that require approval under the planning scheme, provide the following particulars on this application form, or alternatively clearly indicate on plans or in documents accompanying this application.

Site cover

25%

Proposed gross floor area

Number of on-site car parking spaces

Number of storeys / maximum height above natural ground

Number of employees

Hours and days the use will operate

Plans and documents

9. Is the application accompanied by: (Tick applicable box/es)

☒ Plans☐ Proposal Report☐ Other (Specify)

This application cannot be accepted by the assessment manager unless accompanied by Part A of the Development Application

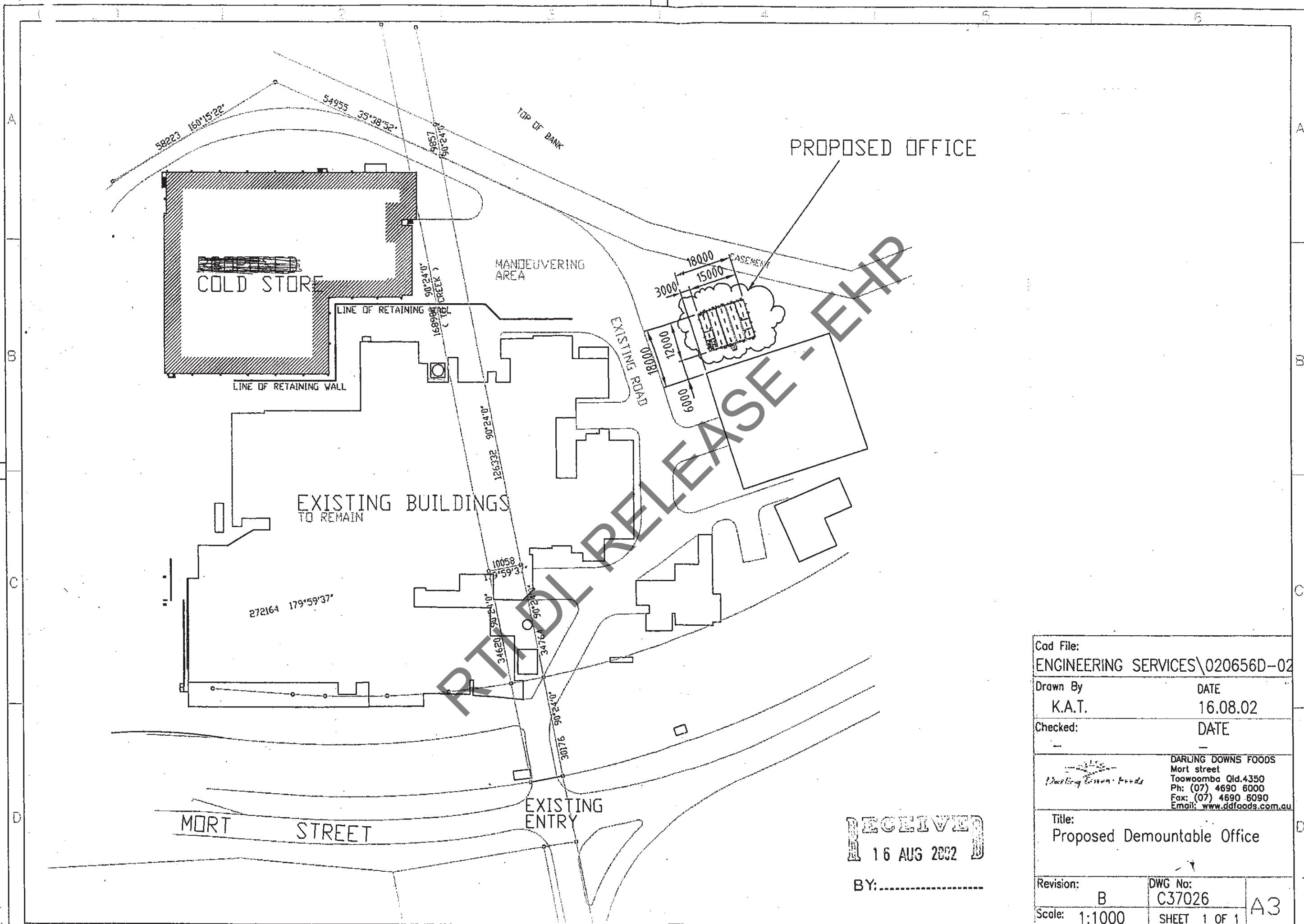
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15 AUG 2002

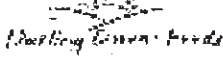
OFFICE USE ONLY (applicable to assessment manager)

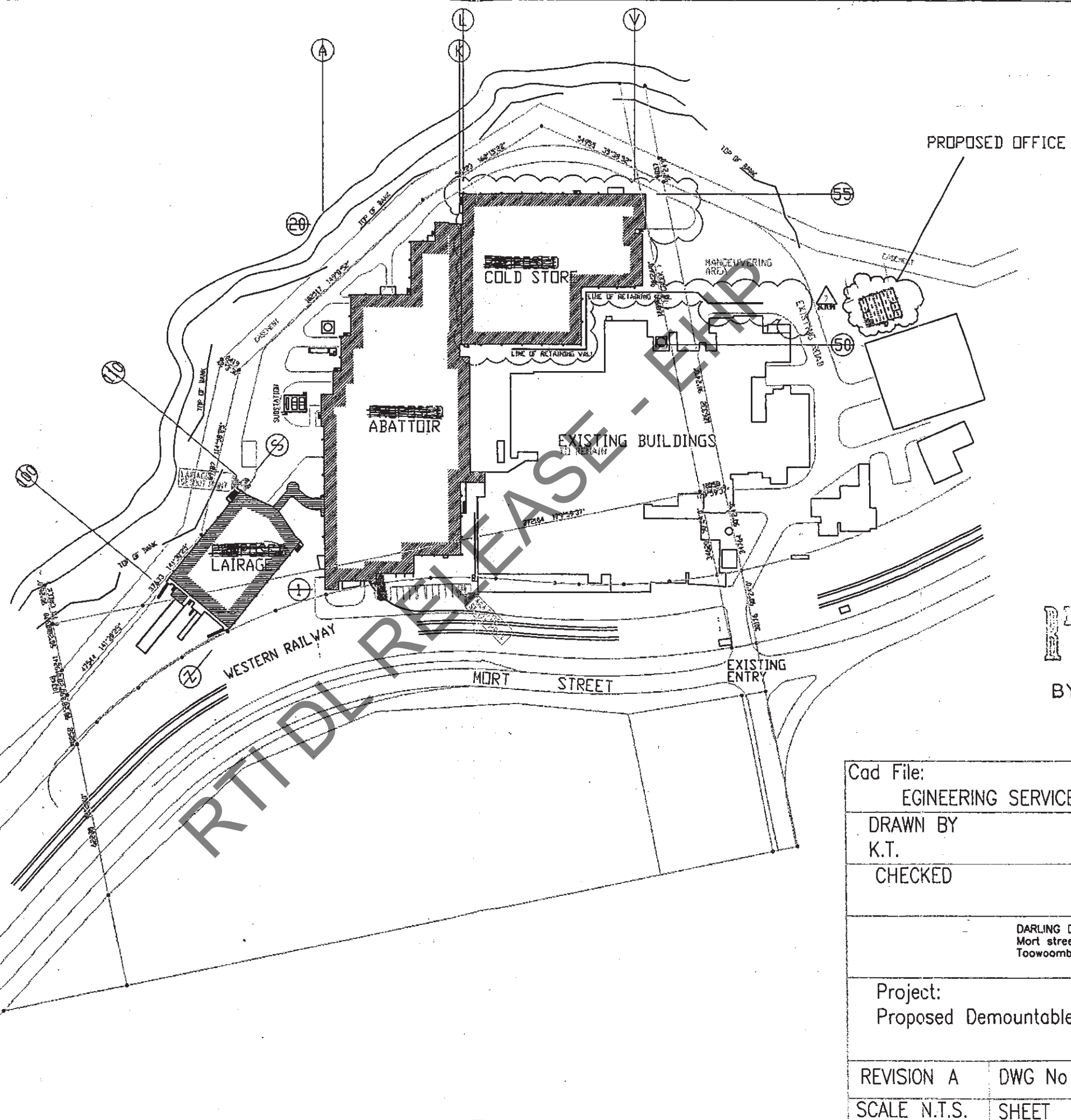
BY: _____

DATE RECEIVED

REFERENCE NUMBER/S



Cad File:	
ENGINEERING SERVICES\020656D-02	
Drawn By	DATE
K.A.T.	16.08.02
Checked:	DATE
 DARLING DOWNS FOODS Mort street Toowoomba Qld.4350 Ph: (07) 4690 6000 Fax: (07) 4690 6090 Email: www.ddfoods.com.au	
Title:	
Proposed Demountable Office	
Revision:	DWG No:
B	C37026
Scale: 1:1000	SHEET 1 OF 1
A3	



RECEIVED
16 AUG 2002

BY:

Cad File:		
ENGINEERING SERVICES\020656D-02		
DRAWN BY	DATE	
K.T.	16.08.02	
CHECKED	DATE	
DARLING DOWNS FOODS Mort street Toowoomba Qld.4350		
Project: Proposed Demountable Office		
REVISION A	DWG No C37026	A3
SCALE N.T.S.	SHEET 1 OF 1	

- 8 OCT 1998



Department of Environment

Hazardous Waste and Contaminated Sites Section
Department of Environment
PO Box 155
BRISBANE ALBERT STREET
QLD 4002
Ph: (07) 3225 1827 Fax: (07) 3227 8341

Site ID: 24554 entered as (N)
R.F. 12/10/98

Notification of Land

Sections 118E and 118F Environmental Protection Act (1994)

The following information should be supplied by people providing notification to the Department of Environment of contaminated land or land used for a notifiable activity under Schedule 3 of the Environmental Protection Act 1994.

Essential information

- Please complete all information • Please complete one form per lot Date: 23-9-98.
- Please refer to the reverse side for information on how to complete this form

1. Local government

Toowoomba city council

2. Information provided by

Name Andrew Brennen

Telephone 07 46 90 6000

Organisation Darling Downs Bacon Assoc.

Address Mort St Toowoomba

Postcode 4350

3. Name by which the property is

known locally

Darling Downs Bacon

4. Lot on Plan description of parcel of land

Lot 10 Plan RP 17544

Parish Orayton

5. Location

Street Address Mort St

Town/suburb Toowoomba

Postcode 4350

6. Name and postal address of land owner

As above.

Street Address _____

Town/suburb _____

Postcode _____

7. Area of parcel in square metres

(this information is used as a cross-check on the land description details)

26300 m²

8. Notification information (please refer to the reverse side of this form and Schedule 3 of the Environmental Protection Act 1994)

Description of the notifiable activity/ies for which the land is or has been and the source/s of the suspected contamination (please list all notifiable activities that the land has been used for and provide details).

Notifiable activity #20 - Landfill using construction material. Core samples + test 1 show slightly elevated levels of Cr Mn and Ni other heavy metal were satisfactory. Notifiable activity # 29 disused under ground petrol tanks > 200L. Decommissioned by fuel company. Core sample + testing showed no signs of Total Petroleum Hydrocarbons.

9. Map or locality plan (The processing of this information would be greatly assisted by the inclusion of a map or locality plan)

Signature of person providing notification information _____ sch4p4(6) Personal information _____

Register on EML (N) - ANN 12/10/98.

How to complete this form

1. Local Government

The local government of the land.
e.g. Brisbane City Council

2. Information provided by

Details of the person completing this form.

3. Name by which the property is known locally

e.g. Name of business or locality.

4. Lot on Plan description of parcel of land

These details can be obtained from the land title certificate, rates notice or the local government for the land

5. Location

This is the number and street address of the property.

6. Name and postal address of owner

The property owner's details

7. Area of parcel in square metres

These details can be obtained from the land title certificate, rates notice or the local government for the land

8. Notification information

- Refer to Schedule 3 of the *Environmental Protection Act 1994* for definitions and descriptions of notifiable activities.
- Please give specific details of the contamination and /or the notifiable activity involved.
- Please list all notifiable activities that have occurred on the site (both past and present).
- Please provide details of, for example, storage quantities, type of storage (ie. above/below ground), usage quantities, types of chemicals used/stored, etc.
- Example - Notifiable activity #29 - above ground storage of 30 000 L of diesel plus #23 - spray painting external to booth occurs on this site, using 50 L of paint per week.
- Sites contaminated by hazardous contaminants such as Wool scours and chemical spills should also be notified to the Department of Environment.

9. Map or locality plan

Map showing the location of site being notified to DoE.

Schedule 3 of EP Act (1994)

Notifiable Activities - a summary (Refer to Schedule 3 of EP Act 1994 for definitions of Notifiable Activities)

1. Abrasive blasting
2. Aerial Spraying
3. Asbestos manufacture or disposal
4. Asphalt or bitumen manufacture
5. Battery manufacture
6. Chemical manufacture or formulation
7. Chemical storage (> 10 tonnes)
8. Coal fired power station
9. Coal gas works
10. Defence establishments or training areas
11. Drum reconditioning or recycling
12. Dry cleaning
13. Electrical transformers
14. Engine reconditioning works
15. Explosives production or storage
16. Fertiliser manufacture
17. Foundry operations
18. Gun, pistol or rifle range
19. Herbicide or pesticide manufacture
20. Landfill
21. Lime burner
22. Livestock dip or spray race operations
23. Metal treatment or coating
24. Mine wastes
25. Mineral processing
26. Paint manufacture or formulation
27. Pest control
28. Petroleum or petrochemical industries
29. Petroleum product or oil storage
(over limits in Schedule 3)
30. Pharmaceutical manufacture
31. Printing
32. Railway yards
33. Scrap yards
34. Service stations
35. Smelting or refining
36. Tannery, fellmongery or hide curing
37. Waste storage, treatment or disposal
38. Wood treatment and preservation

Need more information? - Contact the Department of Environment for assistance or to obtain information about contaminated land.

- 8 OCT 1998

sch4p4 (6) Personal information



QUEENSLAND GOVERNMENT

Department of Environment

Hazardous Waste and Contaminated Sites Section

Department of Environment

PO Box 155

BRISBANE ALBERT STREET

QLD 4002

Ph: (07) 3225 1827 Fax: (07) 3227 8341

Site ID: 24640 entered
as (U) R.T. 23/10/98

suppl change to "N" 30/11/98

Notification of Land

Sections 118E and 118F Environmental Protection Act (1994)

The following information should be supplied by people providing notification to the Department of Environment of contaminated land or land used for a notifiable activity under Schedule 3 of the Environmental Protection Act 1994.

Essential information

- Please complete all information • Please complete one form per lot Date: 23-9-98
- Please refer to the reverse side for information on how to complete this form

1. Local government

Toowoomba city council

2. Information provided by

Name Andrew Brennen

Telephone 07 46906000

Organisation Darling Downs Bacon

Address Mort st Toowoomba

Postcode 4350

3. Name by which the property is

known locally

Darling Downs Bacon

4. Lot on Plan description of parcel of land

Lot 3 Plan RP 17543

Parish Drayton Correction C15 P. R.T. 23/10

5. Location

Street Address Mort st ✓ Correction T.J. 23/10 R.T.

Town/suburb Toowoomba

Postcode 4350

6. Name and postal address of land owner

As Above

Street Address Darling Downs Bacon Co-op Ass. ✓ Correction T.J. 23/10 R.T.

Town/suburb

Postcode

7. Area of parcel in square metres

(this information is used as a cross-check on the land description details)

3 7960 m²

8. Notification information (please refer to the reverse side of this form and Schedule 3 of the Environmental Protection Act 1994)

Description of the notifiable activity/ies for which the land is or has been and the source/s of the suspected contamination (please list all notifiable activities that the land has been used for and provide details).

Notifiable activity #20 - Landfill using construction material. Core samples and testing show slightly elevated levels of Cr Mn and Ni other heavy metals were satisfactory

9. Map or locality plan (The processing of this information would be greatly assisted by the inclusion of a map or locality plan)

Signature of person providing notification information

sch4p4 (6) Personal information

9/10/98 spoke to Andrew Brennen. Lot 3 adjacent lot 4/10 RP 17544 have dev. app. for new facility. Test results in 150N report - DEH Timber already has copy - Kyrilla Bogoda PH 0746 398342.

13/10 Kyrilla-2 Bogoda will forward test results. Current use of land is abattoir. - ANM.

16/10 Kim, should this lot be added to EMR? NB - adjacent lot 10 RP 17544 on EMR (this lot has the UST) - ANM.

How to complete this form

1. Local Government

The local government of the land.
e.g. Brisbane City Council

2. Information provided by

Details of the person completing this form.

3. Name by which the property is known locally

e.g. Name of business or locality.

4. Lot on Plan description of parcel of land

These details can be obtained from the land title certificate, rates notice or the local government for the land

5. Location

This is the number and street address of the property.

6. Name and postal address of owner

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- Please provide details of, for example, storage quantities, type of storage (ie. above/below ground), usage quantities, types of chemicals used/stored, etc.
- *Example - Notifiable activity #29 - above ground storage of 30 000 L of diesel plus #23 - spray painting external to booth occurs on this site, using 50 L of paint per week.*
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9. Map or locality plan

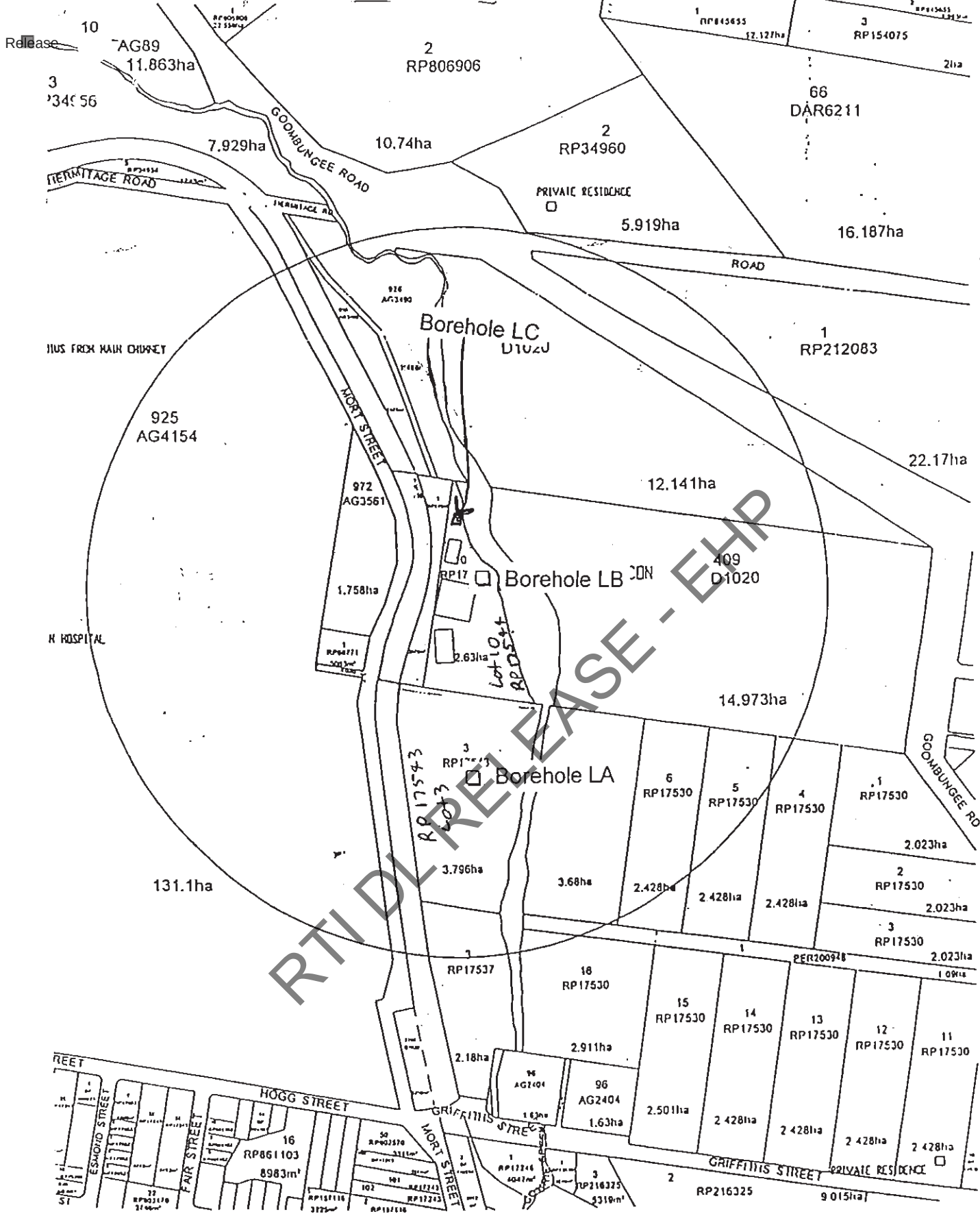
Map showing the location of site being notified to DoE.

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5. Battery manufacture
6. Chemical manufacture or formulation
7. Chemical storage (> 10 tonnes)
8. Coal fired power station
9. Coal gas works
10. Defence establishments or training areas
11. Drum reconditioning or recycling
12. Dry cleaning
13. Electrical transformers
14. Engine reconditioning works
15. Explosives production or storage
16. Fertiliser manufacture
17. Foundry operations
18. Gun, pistol or rifle range
19. Herbicide or pesticide manufacture
20. Landfill
21. Lime burner
22. Livestock dip or spray race operations
23. Metal treatment or coating
24. Mine wastes
25. Mineral processing
26. Paint manufacture or formulation
27. Pest control
28. Petroleum or petrochemical industries
29. Petroleum product or oil storage
(over limits in Schedule 3)
30. Pharmaceutical manufacture
31. Printing
32. Railway yards
33. Scrap yards
34. Service stations
35. Smelting or refining
36. Tannery, fellmongery or hide curing
37. Waste storage, treatment or disposal
38. Wood treatment and preservation

Need more information? - Contact the Department of Environment for assistance or to obtain information about contaminated land.



Locality Plan
+

Figure 2: Borehole Locations

Release

33 Castle Hill Street, Holland Park
Brisbane, Queensland 4121

ACN 010 856 158

ISON

Telephone: (07) 3849 4466

Fax: (07) 3349 0334

WILLOWBURN ABATTOIR SITE

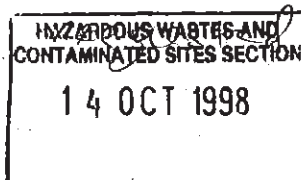
DARLING DOWNS BACON CO-OPERATIVE ASSOCIATION LTD

LAND CONTAMINATION ASSESSMENT

Ariane,

A copy of Darling Downs Bacon
Contamination ~~site~~ Assessment Report
is attached as
this morning.

Regards,



Kapila Boggs,
S.W. Region.

Prepared for:

**DARLING DOWNS BACON
CO-OPERATIVE ASSOCIATION LTD**

Prepared by:

Ison Environmental Planners

April, 1998

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FIGURE

- Figure 1 Borehole Location: Solids Disposal Area
Figure 2 Borehole Location: Underground Fuel Storage Tanks

PHOTOGRAPHS

APPENDIX

- Appendix 1 Chain of Custody Documentation
Appendix 2 Borehole Logs
Appendix 3 Chemical Laboratory Data
Appendix 4 Form: Notification of Contaminated Site

This report takes into account the particular instructions and requirements of our Client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

WILLOWBURN ABATTOIR SITE Land Contamination Assessment

Ison Environmental Planners
Page 1/6.

1. INTRODUCTION

Darling Downs Bacon Co-operative Association Limited operates a meat works and production facility located on Mort Street, Toowoomba, Queensland. The site is approximately 5 km north of the city in the Locality of Cranley, Parish of Drayton, County of Aubigny (Figure 1). The works area is zoned noxious industry. The paddocks to the east of the creek are zoned Rural/Light Industry and the car park area is zoned Special Purpose. Ison Environmental Planners was commissioned to prepare a Site Contamination Report at the Willowburn Abattoir site. A Phase 1 report was prepared in October 1997 and accepted. The initial Phase 1 site review and report was intended to provide an overview of the site and to highlight any areas of concern.

Ison Environmental Planners was then asked to proceed to Phase 2 by sampling the 2 areas of concern (fuel tanks and waste dump) identified in the Phase 1 study to confirm the presence or absence of contamination.

The following activities were required.

- ◆ Excavation of the solid waste dump to natural material at 3 representative sites to obtain samples for heavy metal and PAH (Polycyclic Aromatic Hydrocarbons) analysis to determine the likely presence of contamination. Initially analysis will be conducted on only 2 samples per site.
- ◆ The area adjacent to each of the 2 underground storage tanks on the works site be excavated and sampled for testing for the presence of Total Petroleum Hydrocarbons. Obtain multiple samples at each of 2 cores to be collected with 2 samples/drill core submitted for analysis.

Disposal of treated wastewater and assessment of the irrigated land is being addressed by others.

2. AREAS OF CONCERN

2.1 SOLIDS DISPOSAL AREA

It has been the practice at the works to dispose of all solid waste materials by dumping on site. The area used for dumping is the land between the works building and the creek (Figure 4). This practice has been in place for at least forty years. Materials dumped include boiler ash, scrap metal, scrap product tins, NCV (Non Commercial Value) sheep skins, sludge from the waste water treatment plant and pig hair. Ash from the old coal boiler was used to cover the disposal area. There is the potential that the wastes include contamination from heavy metals and PAH.

Also in the disposal area is a series of old concrete tanks that formed part of the original wastewater treatment plant. The tops of the walls can just be seen at ground level in some places.

None of the long-term employees can recollect the practice of burying dead animals to have been used at the works and there was no evidence of burial pits on the site. It was the usual practice for works with their own rendering plants to process dead animals through the rendering plant.

Currently an average of 1m³ of waste is dumped on the site each week. This is mainly material removed by the wastewater treatment plant comprising a mixture of solid materials from the rotary drum screens and fats and greases removed by the save-all. It is a concern that fats and greases are being buried on the site as these do not readily break down in the ground. An alternate disposal route should be investigated.

This area should not cause concern unless the site is sold and the disposal area is excavated. The presence of scrap metal and old concrete tanks will cause difficulties in excavation. The main concern is the presence of pig hair and NCV skins. Experience has shown that neither of these decompose when buried.

It was recommended that the area be sampled and tested for the presence of heavy metals and PAH.

2.2 UNDERGROUND FUEL STORAGE TANKS

There are 2 underground storage tanks on the works site, both previously used for storing petrol, one near the fitters shop and the other at the garage. Both tanks have been decommissioned by the petrol company that owns them. The tanks have been drained and broken open before filling with sand and capping with concrete.

There is the potential that fuel may have leaked from the tanks prior to their decommissioning. Because the tanks capacities were greater than 200 L they should be listed as probable contaminated sites under the Contaminated Land Act. It was recommended that the area be sampled and tested for the presence of Total Petroleum Hydrocarbons.

3. FIELD WORK

3.1 DRILLING AND SAMPLING

Field activities were conducted on Tuesday 18 November 1997 and included the drilling of 5 boreholes and sampling of fill and/or natural material. A meeting was held with Mr Andrew Brennan, manager of the Willowburn Abattoir at 7.30 am on Tuesday 18 November 1997. A brief inspection of the site with Mr Brennan identified areas to be investigated and approximate locations for each borehole such that site services including gas, water and electricity were avoided.

Boreholes were drilled using a vehicle mounted GEMCODRIL 210B rig with hollow stemmed auger and 2 man crew. A split barrel tube was used to collect samples from various depths. The barrel was washed in potable water and phosphate free detergent prior to collection of each fresh sample.

Samples were placed in 250 ml laboratory prepared glass jars with Teflon cap inserts and screw top lids. Once sealed the sample jars were stored in plastic bags, on ice, in a sealed esky. Upon return to Brisbane, the sample jars were removed from the esky and stored in a refrigerator until delivery to the laboratory.

Chain of custody documentation was completed for all samples and a copy of this documentation has been included in Appendix 1.

3.2 SOLIDS DISPOSAL AREA

Three boreholes were drilled at selected locations along an elongated section of suspected fill material along the western side of Gowrie Creek. Borehole LA was drilled to the south of the site and to the east of the grain shed. Borehole LB was drilled just north of the existing water treatment plant and Borehole LC was drilled north of the dry goods store and adjacent to the old incinerator to the far north of the site. The approximate locations of these boreholes are shown in Figure 2.

In general subsurface material observed in Boreholes LA, LB and LC appeared to comprise sandy to silty clays. Some resistance during drilling, thought to be attributable to the presence of fill material including metal stakes and possibly concrete blocks was encountered in Borehole LA and also in the original location of Borehole LC.

3.2.1 Borehole LA

Borehole LA was located in a paddock immediately east of the grain shed and an extensive area of fill material (Plate 3). Mr Brennan indicated that this fill material was placed relatively recently and had been obtained from construction sites in the area.

Two samples were obtained from Borehole LA before the borehole was abandoned at a depth of approximately 4.3m, as a result of drill refusal. Sample L1A was taken from approximately 1.25m to 1.75m and Sample L2A was taken from approximately 2.75m to 3.25m. Both samples appeared to consist of natural clayey material and inspection of the creek bank a short distance from the borehole location also suggested the presence of what appeared to be natural material. However, scrap metal and building debris was identified further down the bank and towards the water.

It was decided to proceed with drilling at the remaining 2 borehole locations, further to the north, and attempt to drill an additional borehole in the vicinity of Borehole LA. However, more difficult drilling conditions encountered further to the north at Boreholes LB and LC prevented the drilling of additional boreholes in the vicinity of Borehole LA.

3.2.2 Borehole LB

The location of Borehole LB was selected on the basis of advice obtained from a site groundsman who had been involved in the burial of waste material in several cells near the water treatment plant (Plate 4). The borehole was extended to a depth of approximately 6m.

Four samples were collected from Borehole LB at the following depths:

- ◆ Sample LB1 1, 25m to 1.75m;
- ◆ Sample LB2 2, 75m to 3.25m;
- ◆ Sample LB3 4, 25m to 4.75m; and
- ◆ Sample LB4 5, 75m to 6m.

All samples collected appeared to consist of natural clayey material, although splinters or fragments of fibrous material were identified in Sample L3B.

WILLOWBURN ABATTOIR SITE Land Contamination Assessment

Ison Environmental Planners
Page 4/6.

3.2.3 Borehole LC

Borehole LC was drilled north of the dry goods store and adjacent to the old incinerator to the far north of the site.

The initial borehole location proved untenable due to the nature of fill material in that area, which prevented drilling beyond a depth of approximately 1m. A metal stake was withdrawn from the original borehole location prior to relocation of the drilling rig, approximately 2m to the west (Plate 5).

Samples collected from the final borehole location appeared to comprise largely natural material, although thin lenses of ash were detected in some material from the sample tube. Borehole LC was extended to a depth of approximately 4.5m.

Three samples were collected from Borehole LC at the following depths:

- ◆ Sample L1C, 0.75m to 1.25m;
- ◆ Sample L2C, 2.75m to 3.25m;
- ◆ Sample L3C, 4.25m to 4.75m;

An additional sample (Sample L4C) was collected from fill material exposed as a result of a land slip along the upper creek bank (Plate 6). The sample was collected from an ashy layer at a depth of between 0.5m and 0.7m.

3.3 UNDERGROUND FUEL STORAGE TANKS

One borehole, in the vicinity of each of the 2 decommissioned underground fuel storage tanks (UST) was drilled. Borehole FA was located to the north east and down slope of the UST near the fitters shop (Plate 1). Borehole FB was located approximately between what was identified by personnel on site as the UST and former bowser location near the garage (Plate 2). Figure 1 shows the approximate location of these boreholes.

Boreholes FA and FB were drilled to a depth of 4.5m and 5m respectively. Logs for Borehole FA and Borehole FB are located in Appendix 2.

No obvious signs of hydrocarbon contamination (odour or soil discolouration) were identified in samples collected from Borehole FA. Five samples in total were collected from this borehole at the following depths:

- ◆ Sample F1A, 1.25m to 1.75m;
- ◆ Sample F2A, 2.25m to 2.75m;
- ◆ Sample F3A, 3.25m to 3.75m;
- ◆ Sample F4A, 3.25m to 3.75m; and
- ◆ Sample F5A, 4.75m to 5m.

A faint hydrocarbon odour was detected in soil from Sample F1B. However, subsequent samples from Borehole FB displayed neither odour or discolouration that could be attributed to hydrocarbon contamination.

Four samples in total were collected from Borehole FB at the following depths:

- ◆ Sample F1B, 1.25m to 1.75m;
- ◆ Sample F2B, 2.25m to 2.75m;
- ◆ Sample F3B, 3.25m to 3.75m; and
- ◆ Sample F4B, 4.75m to 5m.

With the exception of Sample FB1, subsurface material examined during drilling of Boreholes FA and FB did not exhibit any obvious indications typically associated with hydrocarbon contamination.

4. RESULTS

Chain of custody documentation and 21 soil samples (stored in 250 ml glass jars, on ice) were delivered to Australian Laboratory Services on Thursday 20 November 1997.

It was considered prudent to collect additional samples at the time of drilling although initially only selected samples were analysed. All remaining samples were retained and appropriately stored until the results of the initial analysis were received and evaluated.

The following analysis was undertaken.

Site	Total number of samples	Number of samples for analysis	Analysis undertaken
waste dump	10 (3 representative areas)	6 (2 samples per area) L1A, L2A, LB2, LB4, L2C, L4C.	heavy metal and PAH (Polycyclic Aromatic Hydrocarbons)
underground fuel storage tanks	9 (2 cores)	4 (2 samples/drill core) F3A, F5A, F2B, F3B.	Total Petroleum Hydrocarbons

The Chemical Laboratory Data is presented as Appendix 3.

4.1 HEAVY METAL

Heavy metal analysis of samples from the waste dump had elevated levels of chromium (Cr), manganese (Mn) and nickel (Ni) above the investigation threshold.

The level of the remaining heavy metals tested {antimony (Sb), arsenic (As), cadmium (Cd), copper (Cu), lead (Pb), mercury (Hg), tin (Sn) and zinc (Zn)} were satisfactory.

4.2 PAH (POLYCYCLIC AROMATIC HYDROCARBONS)

Total Petroleum Hydrocarbons analysis of samples from the underground fuel storage tanks and the waste dump showed no signs of contamination and were satisfactory.

WILLOWBURN ABATTOIR SITE

Land Contamination Assessment

Ison Environmental Planners
Page 6/6.

5. RECOMMENDATION

Review of the results and discussions were held with officers of the Waste Management Branch, Department of Environment.

It was considered that the site in its current use and management does not pose an environmental risk. However, the site should be notified on the Contaminated Land Register to facilitate correct management of the site in the event of a change of landuse.

A form to facilitate notification is included as appendix 4.

?
b

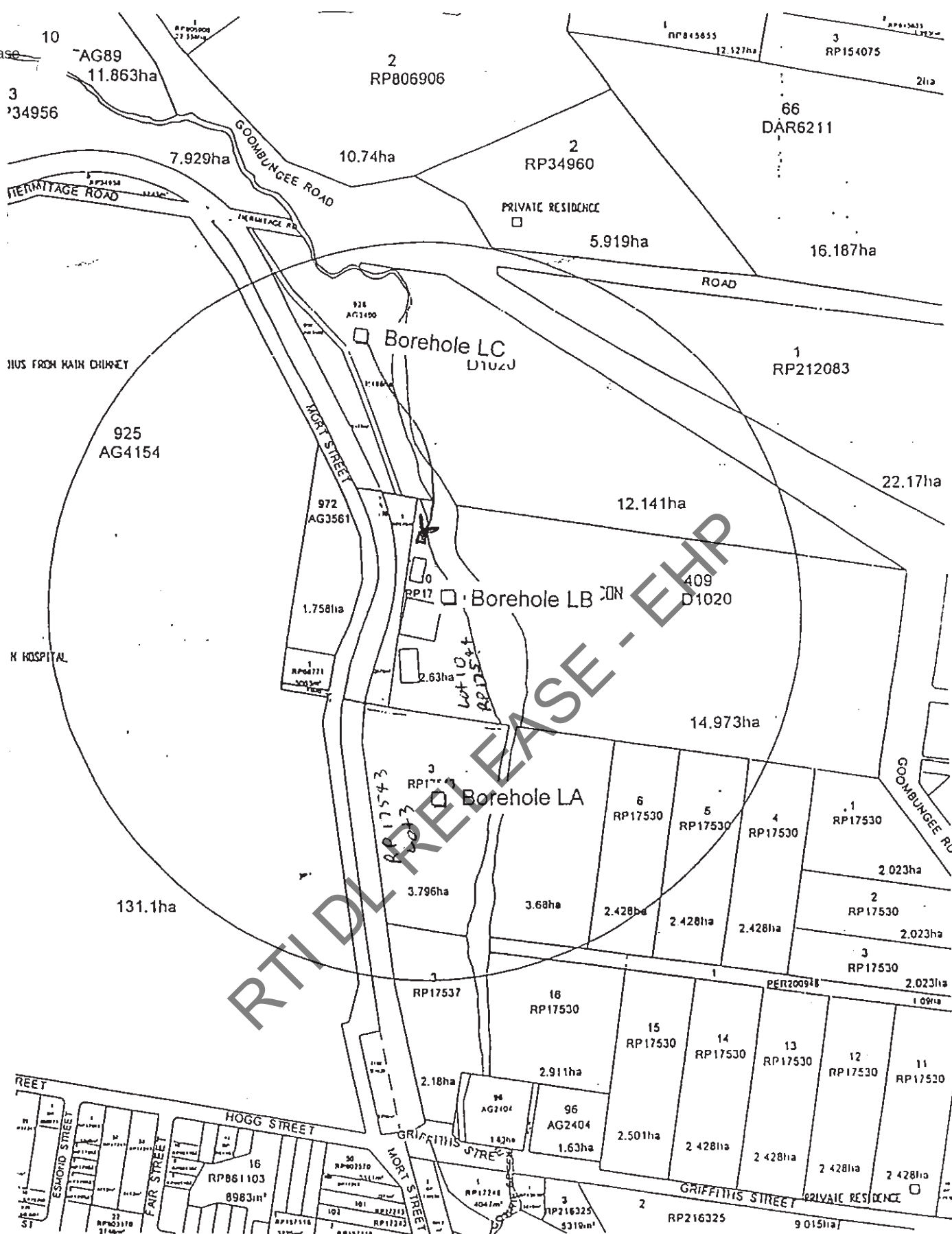
EMR

RTI DL RELEASE - EHP

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File A_BNE26547

Figure 1: Borehole Locations



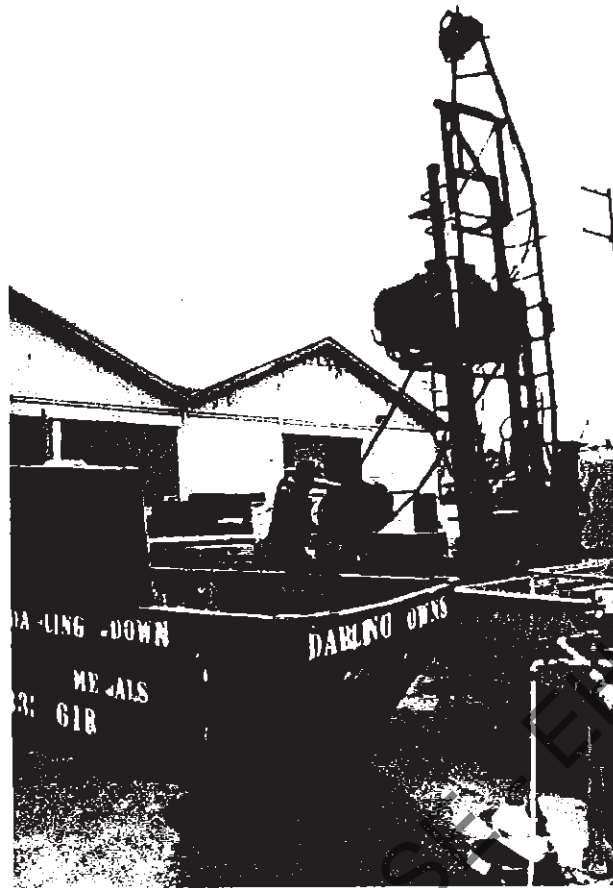


Plate 1: Location of Borehole FA, to the north east and down slope of UST location.



Plate 2: Location of Borehole FB, between UST and former bowser location.

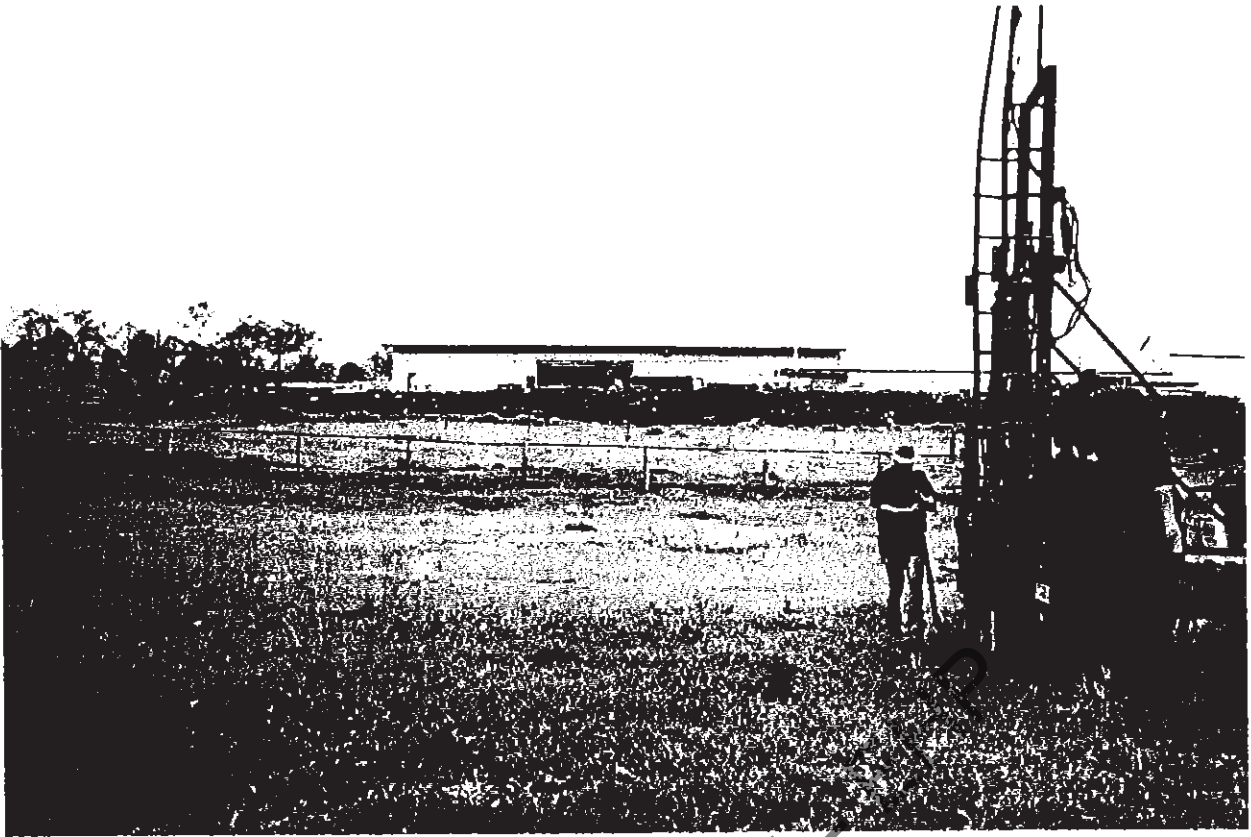


Plate 3: Location of Borehole LA, with the grain shed and new fill material visible in the background.



Plate 4: Location of Borehole LB, with the water treatment plant located to the right.

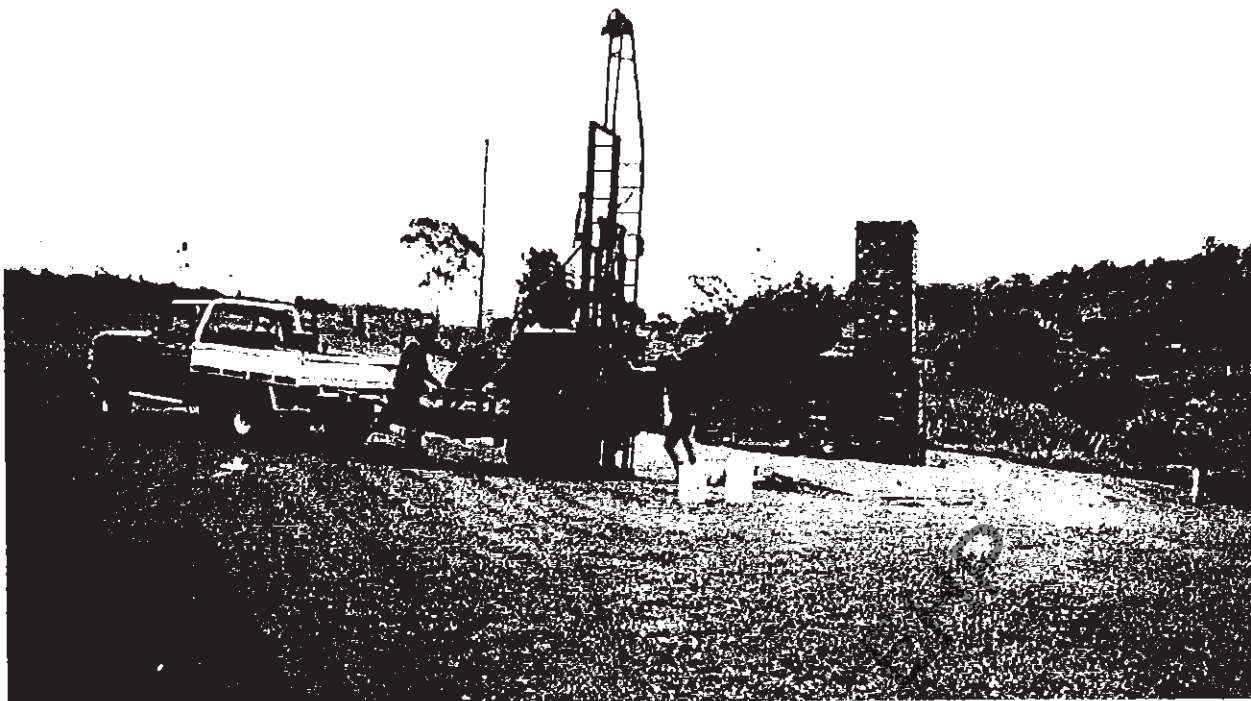


Plate 5: Final location of Borehole LC with old incinerator in the background.



Plate 6: Land slip in the bottom right corner. Sample L4C was taken from the fill material exposed as a result of this slip.

APPENDIX 1

CHAIN OF CUSTODY DOCUMENTATION

WILLOWBURN ABATTOIR SITE

DARLING DOWNS BACON CO-OPERATIVE ASSOCIATION LTD

LAND CONTAMINATION ASSESSMENT

CHAIN OF CUSTODY FORM

Investigator: Kristine Taylor					Sample Matrix				Sample Preservation				Container			
Project No: 621543		Project Name: KR00 Toonacomba			Water	Soil	Sludge	Other	Ice	HNO ₃	HCL	Unpreserved	Other	Glass	Plastic Bag	Other
Project Location: Toonacomba																
Laboratory: ALS (?)																
Investigator Signature: [Redacted] sch4p4(6) Personal information																
Sample ID	Location	Depth	Sampling		Water	Soil	Sludge	Other	Ice	HNO ₃	HCL	Unpreserved	Other	Glass	Plastic Bag	Other
			Date	Time												
F1A	Fuel Tank South	1.25-1.75	18/11/97	0900		✓			✓					✓		
F2A	Fuel Tank South	2.25-2.75	18/11/97	0915		✓			✓					✓		
* F3A (7)	"	3.25-3.75	18/11/97	0930		✓			✓					✓		
F4A	"	3.25-3.75	18/11/97	0940		✓			✓					✓		
* F5A (8)	"	4.25-4.75	18/11/97	0955		✓			✓					✓		
F1B	Fuel Tank North	1.25-1.75	18/11/97	1030		✓			✓					✓		
* F2B (9)	"	2.25-2.75	18/11/97	1045		✓			✓					✓		
* F3B (10)	"	3.25-3.75	18/11/97	1100		✓			✓					✓		
F4B	Fuel Tank North	4.75-5	18/11/97	1125		✓			✓					✓		
Relinquished By: [Redacted] sch4p4(6) Personal information			Date: 19/11/97	Time:	Received By: [Redacted] sch4p4(6) Personal information			Date: 20-11-97	Time: am							
Relinquished By:			Date:	Time:	Received By:			Date:	Time:							

PAGE 1 OF 2

* ANALYSIS of TPH

EB11900 5 (C) 2011 (ORG) (PL)

CHAIN OF CUSTODY FORM

Investigator: Kristine Taylor					Sample Matrix				Sample Preservation				Container			
Project No: 62/543		Project Name: KR00 Tooncomba			Water	Soil	Sludge	Other	Ice	HNO ₃	HCL	Unpreserved	Other	Glass	Plastic Bag	Other
Project Location: Tooncomba																
Laboratory: AHS																
Investigator Signature: [Redacted]																
Sample ID	Location	Depth	Sampling		Water	Soil	Sludge	Other	Ice	HNO ₃	HCL	Unpreserved	Other	Glass	Plastic Bag	Other
			Date	Time												
* L1A (1)	South LF	1.25-1.75	18/11/97	12:15					✓					✓		
* L2A (2)	South LF	2.75-3.25	18/11/97	12:30		✓			✓					✓		
L81	Mid LF	1.25-1.75	18/11/97	13:00		✓			✓					✓		
* L82 (3)	Mid LF	2.75-3.25	18/11/97	13:20		✓			✓					✓		
L83	Mid LF	4.25-4.75	18/11/97	13:40		✓			✓					✓		
* L84 (4)	Mid LF	5.75-6	18/11/97	14:00		✓			✓					✓		
L1C	North LF	0.75-1.25	18/11/97	14:20 15:00		✓			✓					✓		
* L2C (5)	North LF	2.75-3.25	18/11/97	15:30		✓			✓					✓		
L3C	North LF	4.25-4.75	18/11/97	15:50		✓			✓					✓		
* L4C (6)	North LF	0.5-0.7	18/11/97	16:00		✓			✓					✓		
Relinquished By: [Redacted]			Date: 19/11/97	Time:	Received By: [Redacted]			Date: 20/11/97			Time: 09:00					
Relinquished By:			Date:	Time:	Received By:			Date:			Time:					

NOT FROM BOREHOLE TAKEN FROM EXPOSED

FILL FOLLOWING LAND SLIP

RTI 14-211

* ANALYSIS for PAH's & METAL SCAN File A_BNE26547

- 1 PAH

- 2 TPH

PAGE ___ OF ___

APPENDIX 2

BOREHOLE LOGS

WILLOWBURN ABATTOIR SITE

DARLING DOWNS BACON CO-OPERATIVE ASSOCIATION LTD

LAND CONTAMINATION ASSESSMENT

BOREHOLE RECORD

SHEET 1

HOLE BHFA

OF 1

PROJECT Willowburn Abattoir

LOGGED BY KT

DATES 18/11/97

CONTRACTOR Braithwaite Drilling

ANGLE 90

GROUND LEVEL TBA

DRILL MODEL GEMCODRILL 210B

BEARING

EASTING NA

MOUNTING 4WD & Trailer

DIAMETER 75mm

NORTHING NA

DRILLING		STRATA		MATERIAL DESCRIPTION		CONDITION		OBSERVATION	
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL	LEGEND	SOIL TYPE Colour, Plasticity, Grain Size, Minor Components	WATER / MOISTURE	CONSISTENCY		SOIL ORIGIN, STRUCTURE, ETC.
	AHD	m					COHESIVE	NON COHESIVE	
		0.2	SW		Gravelly SAND to Clayey GRAVEL: grey, coarse no hydrocarbon odour detected.				
Sample F1A		1.5	CL		Silty CLAY: orange brown, dry.				
Sample F2A		2.5	CL		Silty CLAY: orange brown, with yellow flecks.				
Sample F3A, F4A		3.5	SC		Clayey SAND: orange yellow, with inclusions of more clayey material throughout.				
Sample F5A		4.3	SC		Clayey SAND: orange brown, including fragments of weathered phyllite rock.				
		4.5			End of Borehole FA at 4.5m.				
		5							
		6							

NOTES

1. No hydrocarbon odour of discolouration detected in any samples collected during drilling.
2. Borehole located in area down slope of suspected fuel tank location, north east of the buildings.

JOB

10288/4

BOREHOLE RECORD

HOLE BHFB

SHEET 1
OF 1

PROJECT Willowburn Abattoir

LOGGED BY KT
DATES 18/11/07

CONTRACTOR	Braithwaite Drilling
DRILL MODEL	GEMCODRILL 210B
MOUNTING	4WD & Trailer

ANGLE	90
BEARING	
DIAMETER	75mm

GROUND LEVEL	TBA
EASTING	NA
NORTHING	NA

DRILLING	STRATA				MATERIAL DESCRIPTION		CONDITION		OBSERVATION
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL	LEGEND	SOIL TYPE Colour, Plasticity, Grain Size, Minor Components	WATER / MOISTURE	CONSISTENCY		SOIL ORIGIN, STRUCTURE, ETC.
	AHD	m					COHESIVE	NON COHESIVE	
		0.2	CL		Bitumen				
					Sandy to Silty CLAY: orange brown, with thin lense of medium to dark grey moist to very moist gravelly SAND. No hydrocarbon odour detected.				
Sample F1A		1.5	CL		Silty CLAY: brown to dark brown and moist, slight hydrocarbon odour detected.				
		2							
Sample F2A		2.5	CL		Silty to Sandy CLAY: light brown to dark brown, with thin gravelly band, moist.				
		3							
Sample F3A		3.5	CL		Silty to Sandy CLAY: light brown to dark brown, moist.				
		4							
Sample F4A		4.8	SM		Silty SAND: brown with orange flecks, moist with gravelly fragments.				
		5			End of Borehole FB at 5m.				
		6							

NOTES

1. Borehole FB located between suspected fuel tank location and former bowser location. Sited following discussions with site personnel.

JOB

10288/4

BOREHOLE RECORD

SHEET 1

HOLE BHLA

OF 1

PROJECT Willowburn Abattoir					LOGGED BY KT DATES 18/11/97						
CONTRACTOR Braithwaite Drilling		DRILL MODEL GEMCODRILL 210B		MOUNTING 4WD & Trailer		ANGLE 90 BEARING DIAMETER 75mm		GROUND LEVEL TBA EASTING NA NORTHING NA			
DRILLING	STRATA				MATERIAL DESCRIPTION				CONDITION	OBSERVATION	
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL	LEGEND	SOIL TYPE Colour, Plasticity, Grain Size, Minor Components	WATER / MOISTURE	CONSISTENCY				SOIL ORIGIN, STRUCTURE, ETC.
	AHD	m					COHESIVE	NON COHESIVE			
		0.2	CL		TOPSOIL: dark brown to red brown, moist.						
		0.45	CL								
Sample F1A		1.5	CL		Silty CLAY: black with red (rusty) flecks and rootlets.						
Sample F2A		3.0	CL		Sandy to Silty CLAY: light brown to orange, some organic material observed, no obvious signs of imported fill material.						
		4.3			End of Borehole LA, drill refusal at approximately 4.3m.						

NOTES

JOB

10288/4

BOREHOLE RECORD

HOLE BHLB

SHEET 1

OF 1

PROJECT Willowburn Abattoir

LOGGED BY KT

DATES 18/11/97

CONTRACTOR Braithwaite Drilling

ANGLE 90

DRILL MODEL GEMCODRILL 210B

BEARING

MOUNTING 4WD & Trailer

DIAMETER 75mm

GROUND LEVEL TBA

EASTING NA

NORTHING NA

DRILLING		STRATA			MATERIAL DESCRIPTION		CONDITION		OBSERVATION	
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL	LEGEND	SOIL TYPE Colour, Plasticity, Grain Size, Minor Components	WATER / MOISTURE	CONSISTENCY		SOIL ORIGIN, STRUCTURE, ETC.	
	AHD	m					COHESIVE	NON COHESIVE		
		0.4	CL		TOPSOIL: red grading to dark black and grey, increasing clay content with depth.					
Sample F1A					Sandy CLAY: red brown in colour with thin layer of gravelly fragments. Some organic material observed.					
		2								
		2.5	CL		Silty CLAY: black/grey and moist.					
Sample F2A		3								
		3.0	CL		Sandy CLAY: light brown to grey, more difficult drilling.					
		4								
Sample F3A, F4A		4.5	CL		Silty CLAY: grey/black, some fibrous inclusions observed, possible timber fragments or splinters.					
		5								
Sample F5A		5.8	CL		Silty CLAY: grey black with flecks of red towards lower depths					
		6			End of Borehole LB at 6.0m.					

NOTES

- Borehole location identified by site groundsman who was responsible for the burial of waste material in cells located in the vicinity of Borehole LB.

JOB

10288/4

ARUP Geotechnics		BOREHOLE RECORD				HOLE BHLC		SHEET 1 OF 1	
PROJECT Willowburn Abattoir						LOGGED BY KT DATES 18/11/87			
CONTRACTOR Braithwaite Drilling		DRILL MODEL GEMCODRILL 210B		MOUNTING 4WD & Trailer		ANGLE 80 BEARING DIAMETER 75mm		GROUND LEVEL TBA EASTING NA NORTHING NA	
DRILLING	STRATA		MATERIAL DESCRIPTION			CONDITION		OBSERVATION	
SAMPLE, TEST, BIT, SUPPORT, ETC.	R.L.	DEPTH	GROUP SYMBOL	LEGEND	SOIL TYPE Colour, Plasticity, Grain Size, Minor Components	WATER / MOISTURE	CONSISTENCY		SOIL ORIGIN, STRUCTURE, ETC.
	AHD	m					COHESIVE	NON COHESIVE	
					TOPSOIL/FILL: Difficulty drilling, dark sandy gravel with suspected ash component.				
Sample F1A		1.0	CL		Silty CLAY to Sandy CLAY: light brown with red flecks, some gravelly fragments observed.				
Sample F2A		3.0	CL		Silty CLAY: orange brown with flecks of grey, appears to be natural material.				
Sample F3A, F4A		4.3 4.5	CL		Sandy CLAY: orange brown with flecks of red, grey and yellow, fairly dry.				
					End of Borehole BHLC at 4.5m.				
NOTES									JOB
1. Initial location of Borehole abandoned due to drill refusal at approximately 1m depth. New location approximately 3m west of original location. 2. Sample also taken from fill material exposed as a result of land									10288/4

APPENDIX 3:

CHEMICAL LABORATORY DATA

WILLOWBURN ABATTOIR SITE

DARLING DOWNS BACON CO-OPERATIVE ASSOCIATION LTD

LAND CONTAMINATION ASSESSMENT



ANALYTICAL REPORT

PAGE 1 of 1

CONTACT: MR R ISON
CLIENT: ISON ENVIRONMENTAL PLANNERS
ADDRESS: 33 CASTLE HILL STREET
HOLLAND PARK QLD 4121

LABORATORY: ENV BRISBANE
BATCH NUMBER: EB11900
SUB BATCH: 2
No. OF SAMPLES: 4
DATE RECEIVED: 20/11/97
DATE COMPLETED: 28/11/97

ORDER No.: 62/543

SAMPLE TYPE: SOIL

PROJECT: KRDD TOOWOOMBA

Method	Analysis description	Units	LOR	F3A 18/11/97	F5A 18/11/97	F2B 18/11/97	F3B 18/11/97
EA-055	Moisture Content (dried @ 103°C)	%	0.1	12.5	13.1	25.2	25.3
EP-071-SS	TOTAL PETROLEUM HYDROCARBONS						
	C6 - C9 Fraction	ng/kg	2	<2	<2	<2	<2
	C10 - C14 Fraction	ng/kg	50	<50	<50	<50	<50
	C15 - C28 Fraction	ng/kg	100	<100	<100	<100	<100
	C29 - C36 Fraction	ng/kg	100	<100	<100	<100	<100
EP-080S-SS	VOLATILE TPH/BTEX COMPOUND SURROGATES						
	1,2-Dichloroethane-D4	%	1	102	100	101	95
	Toluene-D8	%	1	104	99	99	95
	4-Bronofluorobenzene	%	1	97	94	92	90

COMMENTS:

sch4p4(6) Personal information

Samples analysed on an as received basis. Results reported on a dry weight basis.

• This is the Final Report which supersedes any preliminary reports with this batch number.

• Results apply to sample(s) as submitted by client

RTI 14-211

Brisbane
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Melbourne
Phone: (03) 9853 5299 Fax: (03) 9853 0730
Perth
Phone: (09) 249 2966 Fax: (09) 249 2942

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ANALYTICAL REPORT

PAGE 1 of 2

CONTACT: MR R ISON
 CLIENT: ISON ENVIRONMENTAL PLANNERS
 ADDRESS: 33 CASTLE HILL STREET
 HOLLAND PARK QLD 4121

LABORATORY: ENV BRISBANE
 BATCH NUMBER: EB11900
 SUB BATCH: 0
 No. OF SAMPLES: 6
 DATE RECEIVED: 20/11/97
 DATE COMPLETED: 28/11/97

ORDER No.: 62/543

SAMPLE TYPE: SOIL

PROJECT: KRDD TOOWOOMBA

Method	Analysis description	Units	LOR	L1A 18/11/97	L2A 18/11/97	LB2 18/11/97	LB4 18/11/97
EA-055	Moisture Content (dried @ 103°C)	%	0.1	43.7	28.5	25.1	38.0
EG-005T	Arsenic - Total	ng/kg	1	<1	<1	<1	<1
	Cadmium - Total	ng/kg	1	<1	<1	<1	<1
	Chromium - Total	ng/kg	1	76	183	86	140
	Copper - Total	ng/kg	1	27	45	35	43
	Manganese - Total	ng/kg	1	1630	752	396	112
	Nickel - Total	ng/kg	1	105	158	67	65
	Lead - Total	ng/kg	1	6	29	5	8
	Zinc - Total	ng/kg	1	41	73	45	65
EG-020T	Mercury - Total	ng/kg	0.1	<0.1	<0.1	<0.1	<0.1
	Antimony - Total	ng/kg	1	<1	<1	<1	<1
EG-092T	Tin - Total	ng/kg	5	<5	<5	<5	5

COMMENTS:

Samples as received digested by USEPA method 3051 prior to the determination of metals. Tin determined on dried, pulverised samples by XRF. Results reported on a dry weight basis.

sch4p4(6) Personal information

• This is the Final Report which supersedes any preliminary reports with this batch number.

• Results apply to sample(s) as submitted by client

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 Sydney
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 Melbourne
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ANALYTICAL REPORT

PAGE 2 of 2

CONTACT: MR R ISON
CLIENT: ISON ENVIRONMENTAL PLANNERS
ADDRESS: 33 CASTLE HILL STREET
HOLLAND PARK QLD 4121

LABORATORY: ENV BRISBANE
BATCH NUMBER: EB11900
SUB BATCH: 0
No. OF SAMPLES: 6
DATE RECEIVED: 20/11/97
DATE COMPLETED: 28/11/97

ORDER No.: 62/543

SAMPLE TYPE: SOIL

PROJECT: KRDD TOOWOOMBA

Method	Analysis description	Units	LOR	L2C	L4C
				18/11/97	18/11/97
EA-055	Moisture Content (dried @ 103°C)	X	0.1	26.8	17.0
EG-005T	Arsenic - Total	ng/kg	1	<1	<1
	Cadmium - Total	ng/kg	1	<1	<1
	Chromium - Total	ng/kg	1	178	54
	Copper - Total	ng/kg	1	42	25
	Manganese - Total	ng/kg	1	239	325
	Nickel - Total	ng/kg	1	148	39
	Lead - Total	ng/kg	1	5	31
	Zinc - Total	ng/kg	1	71	111
EG-020T	Mercury - Total	ng/kg	0.1	<0.1	<0.1
	Antimony - Total	ng/kg	1	<1	<1
EG-092T	Tin - Total	ng/kg	5	10	5

COMMENTS:

sch4p4(6) Personal information

• This is the Final Report which supersedes any preliminary reports with this batch number.

• Results apply to sample(s) as submitted by client.

Brisbane
Phone: (07) 3243 7222 Fax: (07) 3243 7218
Sydney
Phone: (02) 9841 9500 Fax: (02) 9841 9530
Melbourne
Phone: (03) 9853 5299 Fax: (03) 9853 0730
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ANALYTICAL REPORT

PAGE 1 of 2

CONTACT: MR R ISON
 CLIENT: ISON ENVIRONMENTAL PLANNERS
 ADDRESS:
 33 CASTLE HILL STREET
 HOLLAND PARK QLD 4121

LABORATORY: ENV BRISBANE
 BATCH NUMBER: EB11900
 SUB BATCH: 1
 No. OF SAMPLES: 6
 DATE RECEIVED: 20/11/97
 DATE COMPLETED: 28/11/97

ORDER No.: 62/543

SAMPLE TYPE: SOIL

PROJECT: KRDD TOOWOOMBA

Method	Analysis description	Units	LOR	L1A 18/11/97	L2A 18/11/97	L82 18/11/97	L84 18/11/97
EA-055	Moisture Content (dried @ 103°C)	%	0.1	43.7	28.5	35.1	38.0
EP-075B-SS	POLYNUCLEAR AROMATICS						
	Naphthalene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	2-Methylnaphthalene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	2-Chloronaphthalene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthylene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Acenaphthene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Fluorene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Phenanthrene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Anthracene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Fluoranthene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Pyrene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	N-2-Fluorenylacetanide	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Benz(a)anthracene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Chrysene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(b) & (k)fluoranthene	ng/kg	1	<1	<1	<1	<1
	7,12-Dimethylbenz(a)anthracene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(a)pyrene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	3-Methylcholanthrene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Indeno(1,2,3-cd)pyrene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
	Benzo(g,h,i)perylene	ng/kg	0.5	<0.5	<0.5	<0.5	<0.5
EP-075T-SS	BASE/NEUTRAL EXTRACTABLE SURROGATES						
	Nitrobenzene-D5	%	1	79	81	77	85
	1,2-Dichlorobenzene-D4	%	1	64	64	35	49
	2-Fluorobiphenyl	%	1	63	67	60	69
	Anthracene-d10	%	1	67	76	70	77
	p-Terphenyl-D14	%	1	59	57	57	71

COMMENTS:

sch4p4(6) Personal information

Samples analysed on an as received basis. Results reported on a dry weight basis.

• This is the Final Report which supersedes any preliminary reports with this batch number.

• Results apply to sample(s) as submitted by client.

Brisbane
 Phone: (07) 3243 7222 Fax: (07) 3243 7218
 Sydney
 Phone: (02) 9841 9500 Fax: (02) 9841 9530
 Melbourne
 Phone: (03) 9853 5299 Fax: (03) 9853 0730
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File A_BNE26547

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ANALYTICAL REPORT

PAGE 2 of 2

CONTACT: MR R ISON
 CLIENT: ISON ENVIRONMENTAL PLANNERS
 ADDRESS: 33 CASTLE HILL STREET
 HOLLAND PARK QLD 4121

LABORATORY: ENV BRISBANE
 BATCH NUMBER: EB11900
 SUB BATCH: 1
 No. OF SAMPLES: 6
 DATE RECEIVED: 20/11/97
 DATE COMPLETED: 28/11/97

ORDER No.: 62/543

SAMPLE TYPE: SOIL

PROJECT: KRDD TOOWOOMBA

Method	Analysis description	Units	LOR	L2C	L4C
				18/11/97	18/11/97
EA-055	Moisture Content (dried @ 103°C)	%	0.1	26.8	17.0
EP-075B-SS	POLYNUCLEAR AROMATICS				
	Naphthalene	ng/kg	0.5	<0.5	<0.5
	2-Methylnaphthalene	ng/kg	0.5	<0.5	<0.5
	2-Chloronaphthalene	ng/kg	0.5	<0.5	<0.5
	Acenaphthylene	ng/kg	0.5	<0.5	<0.5
	Acenaphthene	ng/kg	0.5	<0.5	<0.5
	Fluorene	ng/kg	0.5	<0.5	<0.5
	Phenanthrene	ng/kg	0.5	<0.5	<0.5
	Anthracene	ng/kg	0.5	<0.5	<0.5
	Fluoranthene	ng/kg	0.5	<0.5	<0.5
	Pyrene	ng/kg	0.5	<0.5	<0.5
	N-2-Fluorenylacetamide	ng/kg	0.5	<0.5	<0.5
	Benz(a)anthracene	ng/kg	0.5	<0.5	<0.5
	Chrysene	ng/kg	0.5	<0.5	<0.5
	Benzo(b) & (k)fluoranthene	ng/kg	1	<1	<1
	7,12-Dimethylbenz(a)anthracene	ng/kg	0.5	<0.5	<0.5
	Benzo(a)pyrene	ng/kg	0.5	<0.5	<0.5
	3-Methylcholanthrene	ng/kg	0.5	<0.5	<0.5
	Indeno(1,2,3-cd)pyrene	ng/kg	0.5	<0.5	<0.5
	Dibenz(a,h)anthracene	ng/kg	0.5	<0.5	<0.5
	Benzo(g,h,i)perylene	ng/kg	0.5	<0.5	<0.5
EP-075T-SS	BASE/NEUTRAL EXTRACTABLE SURROGATES				
	Nitrobenzene-D5	%	1	83	85
	1,2-Dichlorobenzene-D4	%	1	43	59
	2-Fluorobiphenyl	%	1	60	65
	Anthracene-d10	%	1	77	67
	p-Terphenyl-D14	%	1	70	98

COMMENTS:

sch4p4(6) Personal information

• This is the Final Report which supersedes any preliminary reports with this batch number.

• Results apply to sample(s) as submitted by client

Brisbane
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 Sydney
 Phone: (02) 9841 9500 Fax: (02) 9841 9530
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 Phone: (03) 9853 5299 Fax: (03) 9853 0730
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Page 56 of 298

APPENDIX 4 :

Form:

NOTIFICATION OF CONTAMINATED SITE

WILLOWBURN ABATTOIR SITE

DARLING DOWNS BACON CO-OPERATIVE ASSOCIATION LTD

LAND CONTAMINATION ASSESSMENT



Department of Environment

Notification of Contaminated Site

The following information should be supplied by people providing notification to the Queensland Department of Environment of contaminated land or land used for a prescribed purpose under the *Contaminated Land Act 1991* and the *Contaminated Land Regulation 1991*.

Essential information

• Please complete all information. • Please complete one form per lot.

Date: _____

Local Authority area _____

Information provided by Name _____ Contact phone no. _____

Organisation _____

Address _____

Postcode _____

Name by which the property is known locally _____

Location Street address _____

Town/suburb _____ Postcode _____

Council area _____

Lot-on-Plan description of parcel of land _____

Parish _____

Name and postal address of owner

Name _____

Address _____

Postcode _____

Description of the source of the suspected contamination or the prescribed purpose for which the land is or has been used (a short description of the land or cause of contamination will be sufficient. A separate attachment can be made if space is insufficient)

Area of parcel in square metres (this information is used as a cross-check on the land description details)

Current local authority zoning of the land _____

The processing of this information would be greatly assisted by the inclusion of a map or locality plan.

If further information is required please contact:

Queensland Department of Environment

Contaminated Sites Section

P O Box 155

Brisbane Albert Street Qld 4002

Phone (07) 3227 7370 Fax (07) 3227 8341



QUEENSLAND GOVERNMENT

Department of Environment

Notification of Contaminated Site

The following information should be supplied by people providing notification to the Queensland Department of Environment of contaminated land or land used for a prescribed purpose under the *Contaminated Land Act 1991* and the *Contaminated Land Regulation 1991*.

Essential information

• Please complete all information. • Please complete one form per lot.

Date: _____

Local Authority area _____

Information provided by Name _____ Contact phone no. _____

Organisation _____

Address _____

Postcode _____

Name by which the property is known locally _____

Location Street address _____

Town/suburb _____ Postcode _____

Council area _____

Lot-on-Plan description of parcel of land _____ Parish _____

Name and postal address of owner

Name _____

Address _____

Postcode _____

Description of the source of the suspected contamination or the prescribed purpose for which the land is or has been used (a short description of the land or cause of contamination will be sufficient. A separate attachment can be made if space is insufficient)

Area of parcel in square metres (this information is used as a cross-check on the land description details)

Current local authority zoning of the land _____

The processing of this information would be greatly assisted by the inclusion of a map or locality plan.

If further information is required please contact:

Queensland Department of Environment
Contaminated Sites Section
P O Box 155
Brisbane Albert Street Qld 4002

Memorandum



Queensland Government
Environmental Protection Agency
Incorporating the
Queensland Parks and Wildlife Service

Enquiries
Telephone
Your reference
Our reference

Miguel Zavaleta
(07) 3225 1080 miguel.zavaleta@epa.qld.gov.au
26783 Part 2 File No: BNE26547

Friday, 16 December 2005

To: Sarah Fenaughty – Project Director

From: Mark Paton, Chief Scientific Advisor – Contaminated Land Unit

Subject: Development description Material Change of Use for the land described as Lot 1 on SP116255 and Lot 2 on RP17546 located at Mort Street, Toowoomba - Council Application No.: MCUC/2005/5207 - RCU No.:N/A &/or **ECOTRACK Project No: 281855**

Dear Ms Fenaughty,

The EPA Contaminated Land Unit has concerns and the following is recommended in relation to Contaminated Land matters.

Conditions:

In the event that ash, refuse material or other potentially contaminated soils are identified during the construction process, work in the area is to cease and the ash/ refuse and/ or contamination is to be delineated by a member of a prescribed organisation according to s381 of the *Environmental Protection Act 1994* and managed to a standard satisfactory to the Environmental Protection Agency.

Advice

The removal of any contaminated soil from this site requires prior approval from the Environmental Protection Agency (EPA) (Contaminated Land Unit) under the *Environmental Protection Act 1994* (EP Act).

No potentially contaminated soil may be removed from the site without adequate sampling and appraisal by a suitably qualified professional complying with Section 381 of the *Environmental Protection Act 1994* (EP Act). Contaminated soil must not be removed from the site without a S424 permit issued by the Environmental Protection Agency under the EP Act.

Lot 1 on SP116255 is on the Environmental Management Register (EMR) because the base parcels Lot 3 on RP17543 and Lot 10 on RP17544 are on the EMR for notifiable activity No.: 20 Landfill, and NA: 29 Petroleum product or oil storage & 20 Landfill respectively.

~ End of Information Request/Response ~

It would be appreciated if you could provide a signed hard copy of the final information request notice/referral agency response for our records

Should you require any further information please contact the above officer on the telephone number or e-mail address provided.

sch4p4(6) Personal information

Mark Paton
Chief Scientific Advisor
Contaminated Land Unit

RTI DL RELEASE - EHP

IPA APPLICATION ASSESSMENT SHEET – CONTAMINATED LAND UNIT
Information Request Due Date: 20/12/05

1. PROPOSAL DETAILS

Proposal:

Material Change of Use

Proposal Description:

ERA 17

2. ADMINISTRATIVE DETAILS

EPA App'n No:

26783 Part 2

File No:

BNE26547

Referral Coordination (RCU) No:

N/A

ECOTRAK Project No:

Council:

Toowoomba City Council

LA App'n No:

MCUC/2005/5207

Site Address:

Mort Street, Toowoomba

Property Description:

Lot 1 on SP116255 and Lot 2 on RP17546

Applicant Name:

/ DDC Energy Services Pty Ltd

EMR/CLR/AMA details:

Lot/Plan	EMR/CLR/AMA No:	Notifiable Activity (NA) or Hazardous Contamination.	On going NA Yes or No?
1 SP116255	26783	Was formed from the amalgamation of Lt 10 RP17544 (EMR 24554) NA 20 Landfill & 29, and Lt 3 RP17543 (EMR 24640) NA 20 Landfill	No
2 RP17546	55622	NA 50 Hazardous contamination	No

3. APPLICATION ASSESSMENT

3.1 Information from the application, EMR or CLU files:

Any existing ERA's?:

Any new ERA's?: 17

ERA Jurisdiction: EPA

3.2 Information from the application and IDAS forms:

Past Use:

Current Use: Existing sheds on concrete slab – part of the KR Castlemanine small goods facility,

3.3 Supporting information: (For incorrect referral skip 3.3.1)

3.3.1 Are there any Environmental Values that are at risk? Human being ecosystem

3.3.2 Other relevant details supporting the conclusion(s)

DDCES is proposing to design, build own and operates the facility on a leased portion of the KRC property.

On page 7 the applicant states that the existing workshop/storage building will be demolished and the site will be prepared to allow the new structure to be properly built.

The drawing DDC-12-INT rev E provides the layout of the proposal in relation with the other existing facilities own by KR Castlemanine. The proposed facilities will be nearby the KR infrastructure.

Furthermore, the provided photographs show the current development of the proposed site (sheds – photo 1-3) and KR facilities.

The site is on EMR for NA fuel storage and landfill.

No information is available in relation to the landfill footprint however it is expected not to be below the current facilities where the development is proposed to be carried out.

The proposed development is proposed to be in lot 1 SP116255.

4. ASSESSMENT OUTCOME

Conclusion: (Is the site suitable for the proposed development?)

The proposal will be carried out where industrial shed are currently located.

Contaminated soil may be uncovered during the preparation of the site after the sheds were demolished but this is only an assumption.

Recommendation:

Due to the nature of the proposal (cogeneration plant), the current industrial activity on site, the size of the lot 1 (10.7 ha), it is recommended to issue a memo to the TBA project manager (Project Director Sarah Fenoughty) recommending condition : “Stop works if contaminated soil is found”, an advice for soil disposal, and additional advice stating the NA conducted on site.

Assessor name: Miguel Zavaleta

Date: 15/12/05

Assessor signature:

Reviewer Name:

Revision Date:

Reviewer signature:

Reviewer Comment(s)/Recommendation:

----- End of the Assessment -----

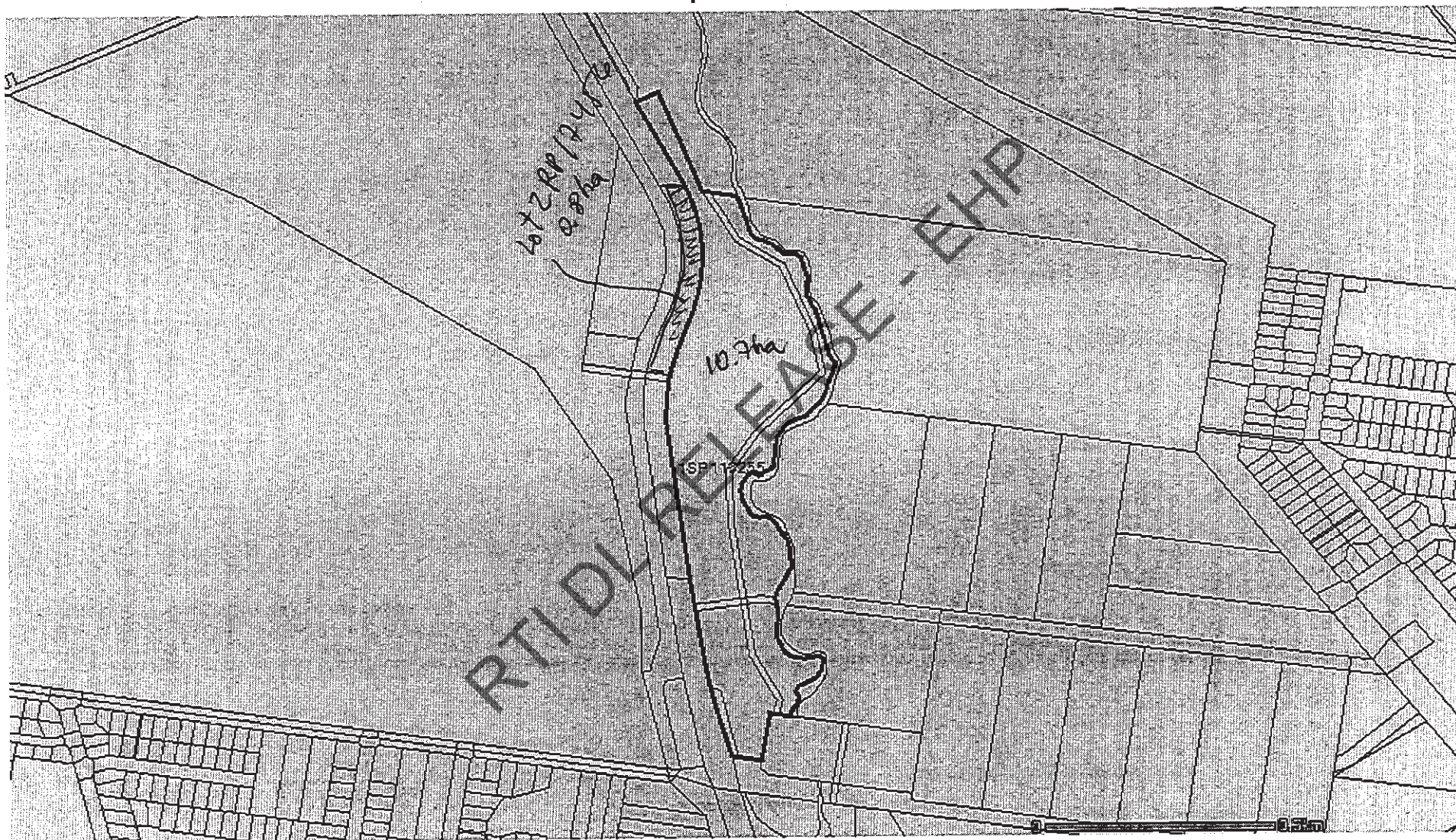
ecomaps

15/12/2005

Queensland Environmental Protection Agency

ecomaps Screen Plot

Page 1 of 2



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ecomaps

15/12/2005

ecomaps Screen Plot

ecomaps Layers

Queensland Environmental Protection Agency

Page 2 of 2



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RTI DL RELEASE - EUP

BNE2005/18548



DDC ENERGY SERVICES Pty Ltd

ABN 51 114 041 039

9 Saltash St, Virginia, QLD, 4014

Ph: (07) 3865 7259

Fax: (07) 3265 1924

Contaminated Land Unit
Environmental Protection Agency
Floor 16, 288 Edward Street
Brisbane QLD 4000

APPLICATION NUMBER: 55622FILE NUMBER: BNE26547REFERRAL DATE: 6/12/2005DATE INFO REQUEST DUE: 22/12/2005CD No. NA

LICER: _____

Dear Sir/Madam,

Development Application: Toowoomba Central Energy Facility

Please find attached one copy of DDC Energy Services Pty Ltd's (DDCES) Development Application for a central energy facility on a property located on Mort Street Toowoomba (Lot 1 on SP116255). DDCES is proposing to build, own, operate and maintain the facility which will produce the electrical and thermal (hot water and steam) energy requirements of the KR Castlemaine (KRC) small goods factory on the same property. Excess electricity will be sent to the local Ergon Energy electricity network.

The development application has been submitted to Toowoomba City Council for a Material Change of Use code assessable against the *Toowoomba Planning Scheme 2003* (refer to the Council Acknowledgement Notice attached). The project involves development:

- abutting rail corridor land (rail safety and efficiency matters),
- for an Environmentally Relevant Activity (ERA17: Fuel Burning), and
- on land listed on the Environmental Management Register (contaminated land matters).

A separate copy of this application has been submitted to EPA Environmental Operations, Southern Region, via the Toowoomba District Office for ERA17. The application has also been referred to Queensland Transport for rail safety and efficiency matters.

The facility comprises a cogeneration plant that uses waste heat from the electricity generation process to produce hot water and steam. Cogeneration is a highly efficient form of generation which will result in a greenhouse gas emission saving of approximately 18,000 tonnes of CO_{2e} per annum. The installation of the plant will involve only minor excavation works (10m³) and is not expected to unearth any contaminated soils given past land use on this portion of the property (e.g. storage sheds and workshop facilities with no fuel storage).

Note There is an application 26783 part 1
so 55622 should be 26783 part 2
part 1.

-Wrong assessing range name.



DDC ENERGY SERVICES Pty Ltd

ABN 51 114 041 039

It is proposed that the facility will be operational by November 2006 in accordance with contractual commitments. This project will be critical in meeting the KRC plant's peak loads building up the Christmas 2006 and in assisting Ergon Energy's 2006 summer preparedness to provide additional electricity generation capacity in order to managing peak summer loads. Long lead times on major items of plant such as the generators mean that ordering must take place prior to this Christmas so as to meet the required schedule. With this in mind we request your assistance in fast-tracking assessment to achieve this imperative.

I look forward to your consideration of this request. Please do not hesitate to contact me if you wish to discuss this further or require additional information.

Regards,

sch4p4(6) Personal information

Bill Dunn
Director
DDC Energy Services Pty Ltd

RTI DL RELEASE - EHP



D101 (10/97)

TOOWOOMBA CITY COUNCIL

Integrated Development Assessment Branch, 543 Ruthven Street, Toowoomba
P O Box 3021 Village Fair Post Office, Toowoomba. Facsimile: 07-4688 6367

FACSIMILE TRANSMISSION

To:	Gary Faulkhead	From:	Vivian Peck Planning Administration Officer Development Assessment
Fax:	3265 1924	Contact Ph:	4688 6737
Number of Pages	3 (including cover sheet)	Date:	5 December 2005
Re:	Acknowledgment Notice – Mort Street		

Gary,

Please find attached a copy of the Acknowledgment Notice for the above application as discussed with Colleen of your Company. The original has been sent in today's mail.

Kind Regards

Vivian Peck

RTI DL RELEASE - EHP

RECEIVED
05 DEC 2005

BY:

TOOWOOMBA CITY COUNCIL

Enquiries: Ilija Suanja
 Contact: 4688 6357
 Our Reference: MCUC/2005/5207

ACKNOWLEDGEMENT NOTICE
Integrated Planning Act 1997

5 December 2005



DDC Energy Services Pty Ltd
 PO Box 432
 NUNDAH QLD 4012

Dear Sir/Madam,

Development Application for: Material Change of Use - Code - Major Utility (Central Energy Facility)
Location: Mort Street, TOOWOOMBA QLD 4350
Property Description: L1/SP116255 & L2/RP17546: PAR DRAYTON

I acknowledge receipt of the above application and advise the following:-

1. Details of the Application

The application seeks development approval for -

	Development Permit	Preliminary Approval
• Material change of use of premises under the planning scheme	☒	☐
• Material change of use of premises for an Environmentally Relevant Activity (ERA)	☒	☐

2. IDAS Referral Agencies

The following referral agencies are applicable to this application:

Concurrence Agencies

Environmental Protection Agency
 Ecoaccess Customer Service Unit
 PO Box 15155
 CITY EAST QLD 4002

Environmental Protection Agency
 Contaminated Land Unit
 GPO Box 2771
 BRISBANE QLD 4001

Queensland Transport
 South East Queensland Region and Southern Reg
 Transport Planning Branch
 GPO Box 213
 BRISBANE QLD 4001

EMR 26783
 1 SP116255
 2 RP17546 EMR 58622
 NA 20 Regional Council
 EMR 24554
 10 RP17544
 NA 20 Land fill
 NA 20 Petroleum storage, 20/11/2002
 EMR 24640
 3 RP17543
 NA 20 Land fill
 Cn
 Abattoir 1958
 Checked by Miguel on
 07/DEC/05

sch4p4(6) Personal information

33 021 471
 Ion Building
 es Street
 a Qld 4350

Communications to:
 Executive Officer
 x 3021
 Village Fair
 4350

7) 4688 6611
 7) 4688 3630

- 2 -

Advice Agencies

N/A

You are required within three (3) months from the date of this notice, to give each referral agency a copy of:-

- The application (including application form and supporting material)
- This acknowledgement notice
- Any applicable concurrence agency application fee (refer to the *Integrated Planning Regulation 1998* to confirm the applicable referral agencies).

You must advise Council in writing of the date of the application and supporting material was given to the referral agency.

3. **Referral Coordination**

This application **does not** trigger referral coordination.

4. **Level of Assessment**

An aspect of the development applied for requires -

Code Assessment

The name of all codes that may be applicable are listed below -

- | | |
|-----|---------------------------------------|
| 6.5 | Industry Zone Code |
| 8.2 | Airport Affected Land Code |
| 9.1 | Development Works Code |
| 9.2 | Parking, Transport and Servicing Code |
| 9.3 | Landscaping Code |
| 9.4 | Community Safety Code |
| 9.8 | Trade Waste and Refuse Code |
| 9.9 | Outdoor Lighting Code |

5. **Status of Information Request**

A further information request **will not** be made by the assessment manager. Regardless of this advice, any concurrence agency for the application or the Chief Executive (in the case of referral coordination) may make an information request.

6. **Show Cause/Enforcement Notice**

The application **has not** been made in response to a show cause notice/enforcement notice.

You are further advised that the truth and accuracy of the information provided in the application form and accompanying information is relied on when assessing and deciding this application. If you find an inaccuracy in any of the information provided above or have a query or seek clarification about any of these details, please contact Ilija Susnja on the above number.

Yours faithfully

sch4p4(6) Personal information

Paul Kelly
Principal Planner, Development Assessment



DBC Energy Services Pty Ltd

Central Energy Facility Mort Street Harlaxton Toowoomba



**Code Assessable
Development Application
Material Change of Use**

Part A Proposal Report



18 November 2005

Prepared on behalf of:

DDC Energy Services Pty Ltd
ACN 114 041 039

PO Box 432
Nundah Qld 4012

Ph: (07) 3865 7259
Fax: (07) 3265 1924

Prepared by:

Ecos Consulting (Aust) Pty Ltd
ABN 57 081 918 194

Suite 39/240 Waterworks Road
Ashgrove Qld 4060

Ph: (07) 3366 1433
Fax: (07) 3366 1933
www.ecos.com.au

RTI DL RELEASE - EHP

DOCUMENT CONTROL SHEET						
Central Energy Plant Proposal Report						
Project No. ENV 684						
Document Reference	Revision Number	Revision Date	Compiled by	Checked by	Approved by	Comment
684-Central Energy-PR	A	15-Nov-05	CB	-	-	Issued to client
684-Central Energy-PR	B	18-Nov-05	CB	OM	OM	Issued to client
684-Central Energy-PR	0	18-Nov-05	CB	OM	OM	For submission

Executive Summary

DDC Energy Services Pty Ltd (DDCES) proposes to develop a central energy facility on the KR Castlemaine Foods (KRC) small-goods factory property at Mort Street, Harlaxton, Toowoomba. The site location is shown in **Appendix B**.

DDCES is proposing to design, build, own and operate the Facility on a leased portion of the KRC property. The plant will provide KRC's electricity demands, which will offset grid electricity produced predominantly from coal. Waste heat from the power generation process will provide the thermal energy (steam and hot water) requirements of KRC, thereby replacing out-dated and inefficient existing gas-fired boilers (3MW and 9 MW). Excess electricity will provide network support to the local Ergon Energy electricity grid, increasing the security of supply and peaking capacity. The project is further described in Section 2.

Desktop searches, a field inspection, regulator discussions and specialist air and noise assessments have not identified any significant environmental constraints associated with progressing the development. This Proposal Report provides the assessment of planning and environmental issues and addresses the information requirements of all referral agencies.

The development has been assessed against the relevant provisions of the *Toowoomba Planning Scheme 2003*, State Planning Policies and the South-East Queensland Regional Plan (Section 3). The Planning Assessment concluded that the project will meet all relevant performance criteria of the applicable codes and is consistent with the intent of the General Industry Precinct under the local planning scheme.

An assessment of rail related issues has determined that there will be no adverse impacts to rail safety and efficiency due to the Project with respect to stormwater generation and drainage, rail trespass/fencing standards, development within 25m of the rail corridor, or traffic generation in relation to the railway level crossing at the KRC site entrance (Section 4).

The site is highly modified, no vegetation clearing is proposed, there will be minimal earthworks involved, and specialist assessments have concluded that air quality and noise criteria will be met for the Facility, so it is not anticipated that there will be any significant environmental impact from the development (Section 5).

Given the nature and scale of the Project, the highly modified and industrial nature of the existing premises, the absence of any significant environmental features on site and the findings of specialist studies, it is not anticipated that the Project will result in any significant adverse or cumulative environmental, land use, future planning or other impacts. DDCES has drafted a site-based management plan (SBMP) for the Facility to ensure environmental risks are identified and management measures established to minimise these risks to as low as reasonably practicable. The SBMP will be reviewed, updated and implemented prior to operations.

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1 Introduction

1.1 Purpose and Scope of Report

This Proposal Report has been prepared in support of an application to the Toowoomba City Council for a development permit for a material change of use (MCU) for a Central Energy Facility proposed at Harlaxton, north of Toowoomba, Queensland. The development is code assessable against the *Toowoomba Planning Scheme 2003*. The proposal also involves an Environmentally Relevant Activity (ERA 17: Fuel Burning >500kg/hr) so the application will be referred to the Environmental Protection Agency (EPA) as a concurrence agency. The application will also be referred to the EPA for contaminated land matters and Queensland Transport for rail safety and efficiency matters.

The supporting documentation for the development application is provided in two parts:

- Part A: this Proposal Report, includes:
 - Section 2: Project Description.
 - Section 3: Planning Assessment against Planning Scheme and Regional and State Planning Policies
 - Sections 4: Rail Safety and Efficiency Assessment.
 - Section 5: Environmental assessment, addressing air quality, noise, waste, spill prevention and containment, stormwater and erosion controls, visual amenity and traffic generation.
 - Appendices: Application forms, mapping, technical data, planning scheme codes and photographs.
- Part B: Technical Reports and Site Based Management Plan, including:
 - Air Quality Assessment
 - Noise Assessment Report
 - Site-Based Management Plan

IDAS Application Forms, including the landowner's consent, are provided in **Appendix A**.

1.2 Application Details

Applicant:	DDC Energy Services Pty Ltd 9 Saltash Street Virginia, Queensland, 4014 Nundah Qld 4012
Contact:	Bill Dunn Director 07 33578109
Proposal:	Proposed Co-generation Facility (Material Change of Use) involving environmentally relevant activities.
Address:	Mort Street, Toowoomba 4350
Property Description:	Lot 1 on Plan SP116255
Lease Area:	1279 m ²

Landowner:	Darling Downs Foods Pty Ltd
Facility Area:	Approx. 900 m ²
Local Government:	Toowoomba Shire Council
Planning Scheme:	Toowoomba Planning Scheme 2003 – Major Utility on land zoned General Industry Precinct and is code assessable against the planning scheme.
This Application:	<p>Development approval for Material Change of Use made assessable under the planning scheme and also involving:</p> <ul style="list-style-type: none">• a new ERA (ERA 17: Fuel Burning >500kg/hr)• development abutting rail corridor land• development on land registered on the Environmental Management Register (EMR).

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2 Project Description

This section describes the proposed Central Energy Facility located on the KR Castlemaine factory (KRC) site, where gas-fired generators and waste heat recovery boilers will be used to meet KRC's electricity and thermal demands and provide excess electricity to the local electricity network thereby improving reliability of supply to the Toowoomba area.

This section describes the location, technical details, development process and waste management for the project.

2.1 Location

The central energy facility will be located within the KRC factory site (Lot 1 on SP116255). The property is located approximately 3.5 km north of the Toowoomba City Centre.

The Facility will be located on a leased portion of the property. The lease area is 1279 m² with the total area of plant under this proposal in the order of 900 m². Refer to lease area plan in **Appendix B: Figure 2**.

This property is classified as an industrial zone ('General Industry Precinct') under the *Toowoomba Planning Scheme 2003*.

2.2 Project Description

The KRC Factory currently meets its direct heat energy (hot water and steam) requirements through gas-fired boilers, and meets its electrical energy requirements (e.g. for electrical fans, compressors etc) through grid connection. The current energy production processes at the factory are dated and inefficient. There is an opportunity to install modern cost effective equipment that will produce energy (electricity, hot water and steam) more efficiently and reliably.

The proposal would see the electrical energy and heat requirements of KRC supplied by an independently owned and operated cogeneration plant. Electrical energy requirements of KRC would be generated by gas-powered reciprocating engines. The heat requirements of KRC would be provided through exhaust-heat recovery from the reciprocating engines.

Excess electrical energy generation would be fed to the power grid. The two existing KRC gas-fired boilers would be retired. A modern, high efficiency, gas-fired boiler would be included in the new cogeneration facility to provide an emergency source of heat in the event of failure of the reciprocating engine system.

2.2.1 Plant and Equipment

DDCES proposes to install the following plant at the KRC facility:

- Up to four 1.425 MW gas-fired generator units housed in sound attenuated enclosures with associated radiators and heat exchangers
- Up to four waste heat recovery steam boilers
- Up to four 415V/11kV electrical step up/down transformers

- A 5MW (thermal) backup gas-fired steam boiler for emergency stand-by only
- One 40 kW backup diesel generator for emergency stand-by only, with small integrated fuel storage tanks (approximately 280L capacity)
- 100kL hot water tank
- Associated switch room building, transformers and connection to the electricity network (via Parrot Street substation)
- Steam, condensate, town water, hot water and gas connections to KRC
- Demountable building with control room, amenities and storeroom.

The fourth generation unit and associated transformer and waste heat recovery boiler is not a certainty. If this unit is installed under the project then it will be used primarily as a back-up supply providing plant redundancy in the event that one of the other units is out of service due to a fault or planned maintenance.

A KRC Facility Layout Plan and a Central Energy Facility Site Plan are provided in **Appendix B: Figure 3** and **Figure 4**. Plant elevations and views are provided in **Appendix B: Figure 5**. The facility site plan illustrates (in light text) an additional two generation units. These units will not be installed under this proposal, but may be established at some time in the future. Relevant approvals will be sought for any increase in plant capacity (3 or 4 units up to a total of 6). Technical data for the generators is provided in **Appendix C**.

This facility will produce all the necessary electricity, hot water and steam required by KRC. The new energy facility will replace the need for KRC to operate their existing 3 MW and 9 MW gas-fired boilers. These existing boilers will be decommissioned.

Two additional gas-powered engines may be considered in the future. The facility will be enclosed within a 2-metre high fence to ensure security and maintain the safety of people. Excess electrical output from the facility will be fed into the local Ergon Energy electricity grid. Ergon has been involved in championing the project. The operation of this energy facility will help overcome electricity network constraints in the area and will generally improve the reliability of supply to KRC and other electricity consumers in the area. The energy facility will also assist Ergon Energy manage its compliance with the Queensland Government Gas Generation scheme.

2.3 Project Schedule

The proposed project schedule is outlined below:

Project Approvals	December 2005
Plant order (lead time)	December 2005
Construction & Commissioning	October 2006
Operation	November 2006

2.4 Development Process

2.4.1 Construction

Construction will involve 3 main phases, site clearance & preparation, civil works and plant installation. Site clearance will involve the demolition and removal of an existing workshop/storage building and removal of waste.

Civil works will include generator, radiator and exhaust stack foundations and slabs, interconnecting walkways, stormwater connections, piping and channelling, pipe racks, including support footings and security perimeter fencing with vehicular and personnel access gates. Standard earthmoving equipment will be used for the site demolition and civil works.

Construction of the Facility will involve installing and connecting plant items that will be manufactured off-site. The heaviest and largest components (eg. generators) would be hauled to site on semi trailers and unloaded using hydraulic cranes. It is envisaged that construction will be undertaken between 7am and 5pm, Monday to Friday and is expected to take 1-2 months. Construction personnel will be minimal.

2.4.2 Operation

The Facility will be capable of operating 24 hours per day, seven days per week. One generation unit and associated waste heat recovery plant will normally operate at night (midnight to 6am), with three units operating at peak periods (day and evening). The fourth generation unit, if installed, would provide plant redundancy in the event that any other unit is taken out of service for planned or emergency maintenance.

Estimated generation outputs from the facility are summarised in **Table 2-2**. Annual consumption of natural gas is anticipated in the order of 220 GJ. This gas consumption will displace grid electricity (26GWh) and existing KRC boiler gas consumption (estimated to be in the order of 80GJ/yr based on billing data).

Table 2-1: Estimates of Annual Generation Outputs from the Energy Facility

Outputs	Generation (GWh)
Electricity, comprising approx:	26
- To KRC	19
- To the Qld Grid	7
Thermal Energy, as	13
- As Steam to KRC*	7.5
- As Hot water to KRC*	7.5

* Estimate only - Steam and hot water production will be variable.

The Facility will be designed to be remotely operated and will therefore not be manned with any permanent personnel. One service vehicle will travel to site each day to undertake generator facility checks. Plant maintenance will be completed on site as required, which may involve a temporary increase in the number of personnel accessing the site.

DDCES has drafted a site-based management plan (SBMP) for the Facility to ensure environmental risks are identified and management measures established to minimise these risks to as low as reasonably practicable. The SBMP will be reviewed, updated and implemented prior to operations.

2.5 Traffic Generation

During the construction phase traffic to the KRC site will be over a 3 to 4 month period. The increase in traffic will be very intermittent during this period and normally restricted to about two to three light vehicles per day.

These vehicles will use the current main KRC access gate. Heavy load vehicles and cranes will access the site on an infrequent basis and will use the construction access at the southern end of the property, via Griffiths Street. There will be no requirement to disrupt traffic flow or block any public roads.

During the operational phase normal access to the site will be required by one light vehicle per day. This vehicle will access the site through the main KRC entrance.

2.6 Waste Management

2.6.1 Construction

Construction wastes may include small quantities of scrap metal or timber, packaging materials, domestic waste, electrical cabling and other wastes, vegetation from site clearing and concrete and solid fill. Solid wastes will also be produced from demolition of the existing storage sheds/ workshops at this location.

Sources of solid wastes, air emissions and noise during construction may arise from the following activities:

- Dust from vehicle movements and construction activities (i.e. dirt road, minor excavation), although anticipated to be a non-significant issue.
- Noise from vehicle movements and construction plant operation, although not considered to be significant given the high background noise levels of the locality, distance to sensitive receptors and construction timing (short duration activities only during daylight hours)
- Solid wastes from demolition and construction activities (scrap metal or timber, packaging materials, domestic waste, electrical cabling, concrete and solid fill etc).

2.6.2 Operation

Generators and other items of plant will be regularly inspected with maintenance services occurring in accordance with plant manufacturer's specifications. DDCES personnel or contractors will undertake the works required by the maintenance schedule for this plant. Waste generated as a result of maintenance activities will either be removed from the site by the personnel undertaking the work for disposal to approved waste facilities, or in the case of trade waste will be discharged into the existing KRC trade waste system for treatment.

Wastes from generator maintenance activities include consumables such as oil and fuel filters, and drained liquids such as oil and coolant fluids. All serviceable fluids will be reused where possible. Effluent, including boiler blowdown water, water softener backwash water, and hot water and steam feedwater tank overflows will be connected to the KRC boiler blowdown line and treated in the existing water treatment plant on site prior to discharge as trade waste to sewer. DDCES and its contractors will have regard for alternative methods of disposal (i.e. recycling or reuse). Waste oil will be recycled where feasible.

Specific details of operational wastes generated are provided in **Table 2-2**. The quantities of wastes generated are based on 3 generator units. The fourth generator is only a possibility at this stage. If this fourth unit is installed it will only provide plant redundancy and is not expected to require the same level of maintenance as the three primary units.

Material Safety Data Sheets are provided in **Appendix C** for the lubrication oil and coolant solution.

Table 2-2: Operational Wastes Generated and Management

Waste	Source	Quantity and Composition	Management
Solid wastes			
Oil Filters	Gas Engine Maintenance	4 filters/generator Changed approx 3 times per year (2000hr service) Total of 36 filters per annum. 1.8 kg and 400mm x 120mm diameter each	Disposed of by specialist maintenance contractor (removed from site)
	Back-up Diesel Engine Maintenance	1 oil filter Changed annually 0.5 kg and 150 x 75mm diameter each	Disposed of by specialist maintenance contractor (removed from site)
Air Filters	Gas Engine Maintenance	2 filters/generator Changed annually Total of 6 filters per annum. 1.6 kg and 650mm x 300mm diameter each Contains only paper element and dust.	Disposed of by specialist maintenance contractor (removed from site) – may be disposed of to landfill.
	Gas Engine Enclosure Maintenance	8 filters/generator Changed annually if required Total of 24 filters per annum. Made from roughing filter packed flat (500 x 500 x 200 mm). Will only contain dust.	Removed from site and disposed of to landfill.
	Back-up Diesel Engine Maintenance	1 filter changed every 5 years 400 x 150 mm diameter	Removed from site and disposed of to landfill.
Liquid Wastes			
Waste Lubricating Oil	Gas Engine Maintenance	284 L/generator Oil change approx 3 times per year (2000hr service) Total of 2556/yr	Removed from site by licensed contractor for recycling.
Coolant Solution	Gas Engine Maintenance	1,253 L/generator Coolant system is a closed circuit and will not be drained under normal operation except for scheduled maintenance. Drained approx every 16 months (8000hr service) Contains fresh water with 5% cooling system inhibitor.	Drained and removed from site by the maintenance contractor

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Toowoomba Central Energy Facility

Waste	Source	Quantity and Composition	Management
Boiler blowdown water	Automatically discharged from boilers.	90 L/hr 2160 L/day	Discharged into KRC blowdown water line which discharges to an existing KRC water treatment plant prior to sewer discharge. Replaces existing blowdown water of >90L/hr. Estimate a 3-4% decrease in water discharge due to proposal.
Water softener backwash	Automatically discharged from the water softener during each softener regeneration.	Flow rate of 188 L/min Volume of 270,800 L/day (24 hrs/day) – based on 1,950L per regeneration cycle. Hardness of 165 ppm Resin – 300 L/vessel TDS – 300 mg/L average Sodium – 112 ppm	Connected to the boiler blowdown water line to KRC water treatment plant. This will displace the discharge from the existing two KRC water-softening plants.
Hot water overflow	Hot water storage tanks and boiler feedwater tank servicing.	Overflow from these sources will only occur in small quantities and during servicing. Hot water storage tanks will contain non-treated town water. Boiler feedwater tank will contain softened town water.	Connected to the boiler blowdown water line to KRC water treatment plant.
Waste water	Toilet and hand basin	Sewage and grey water.	Connected directly to the existing KRC sewage lines

3 Planning Assessment

The site is located within the Toowoomba Shire and is subject to the provisions of the *Toowoomba Planning Scheme 2003*.

The proposal is also subject to the Integrated Development Assessment System (IDAS) under the auspices of the *Integrated Planning Act 1997* (IPA). Under IPA a 'material change use' (MCU) of premises includes the start of a new environmentally relevant activity. The development involves the establishment of new environmentally relevant activity, being ERA 17 – Fuel Burning (>500kg/hr). A number of other referrals are triggered under the IPA, including contaminated land (EPA) and rail efficiency and safety matters (Queensland Transport).

The development is assessable against environmental codes including the *Environmental Protection Act* (EP Act), *Environment Protection Regulation 1998* (EP Regulation) and *Environment Protection Policies* (EPPs) among others. The development application is being submitted to the Toowoomba City Council and will be referred to the Environment Protection Agency (EPA) and Queensland Transport.

3.1 Local Planning Provisions

3.1.1 Planning Scheme - Level of Assessment

The subject site is zoned 'General Industry Precinct' under the Toowoomba Planning Scheme 2003. Council has advised that the applicable definition of use under the planning scheme is Major Utility which "means premises used for any public utility installation or undertaking of the Council, government entity or other agency or organisation providing community infrastructure for the generation...of electricity..." (Toowoomba City Council, 2003: s.3.2 pg 12).

The intent of the General Industry Precinct is:

- (a) the accommodation of a wide range of manufacturing, storage, distribution and related activities; and
- (b) in order to cater for and conserve land for Industrial Uses with large land requirements, land shown on the map titled 'Restricted Industrial Subdivision Area' in Schedule 4 of the Lot Reconfiguration Code is not fragmented into small lots; and
- (c) uses generating high volumes of traffic, particularly heavy vehicles, locate in areas having access to the major road network without having to travel through Residential Areas or other sensitive areas.

A 'Major Utility' on land zoned in the 'General Industry Precinct' is code assessable development (See Zoning Map in **Appendix B: Figure 7**).

3.1.2 Planning Scheme - Code Assessment

A pre-lodgement meeting (7th November 2005, Refer to **Appendix F** for Minutes) with Council confirmed that the following codes apply to the assessment:

- Industry Zone Code
- Development Works Code
- Parking, Transport and Servicing Code
- Landscaping Code
- Community Safety Code
- Trade Waste and Refuse Code
- Outdoor Lighting Code

The project has been assessed against the provisions of these codes (Performance Criteria and where applicable the Acceptable Measures). This assessment is attached in **Appendix D**.

3.2 South East Queensland Regional Plan

The draft South East Queensland (SEQ) Regional Plan was released in October 2004. The final Plan was recently released (30th June 2005). The Plan will guide growth and development in SEQ to 2026. The Plan also identifies significant regional infrastructure projects and a process for coordinating annual programs and budgets for infrastructure and services provided by State agencies. The Plan was prepared under the *Integrated Planning Act 1997*, which also provides for the inclusion of Regulatory Provisions as a trigger for assessable development.

The Plan allocates all land in SEQ into one of five broad categories, which provide the spatial context for the Regulatory Provisions. Under the Regulatory Provisions a material change of use for urban activities (residential, commercial, retail and industrial use) is assessable development requiring impact assessment when proposed outside of the Urban Footprint Area.

The facility is designated as an Urban Activity under the Plan and the site is located within the Urban Footprint Area, so is therefore not subject to the Regulatory Provisions.

The Plan provides that infrastructure planning should "*identify best delivery options and funding mechanisms for infrastructure projects with due consideration to benefits, public interests and risk management*" (OUM, 2005: 93). The Toowoomba Co-generation Project reflects this prioritisation of projects and management of risks to achieve the best overall benefit to the wider community.

The SEQ Regional Plan also provides for the management of Koala habitat areas and establishes the *Interim guideline: Koalas and Development*. The SEQ Regional Plan and the Interim Guideline supersede *State Planning Policy 1/05: Conservation of Koalas in South East Queensland*.

As the site is not located in a Koala Conservation Area, Koala Sustainability Area or Urban Koala Area under the SEQ Plan, the provisions of the *Interim Guideline* do not apply to this proposal. See Section 4.5 for further information on koala habitat areas.

3.3 State Planning Policies

SPP 1/92: Development and Conservation of Good Quality Agricultural Land

Given the industrial use and zoning of the site, the requirements of *State Planning Policy 1/92 Development and the Conservation of Agricultural Land* are not considered applicable for this site (i.e. no good quality agricultural land).

SPP 1/02 Development in the Vicinity of Certain Airports and Aviation Facilities

The site lies within the area affected by the Toowoomba Airport Obstacle Limitation Surface (OLS), as per the Planning Scheme Regulatory Maps. The Facility site is located over 3 km from the airport, and the OLS is at a height of 676.5m. The project will not result in any physical structure or airborne particulates penetrating the operational airspace of this airport.

Table 3-1: Height of plume above ground level before achieving an exit velocity below 4.3 m/s for the generator stack with no boiler units in isolation and merged, as well as the boiler stack in isolation.

Wind speed (m/s)	Generator (no boilers)		Boiler only
	Single	Merged	
Calm	15.0	19.0	15.0
1.5	11.0	13.0	11.3
3.0	9.4	10.5	10.8

The plumes from the proposed facility (up to 4 small cogeneration units) are predicted to comply with the CASA criteria of 4.3 m/s by a height of 20 m above ground level and will not exceed 4.3 m/s at the OLS height of 676.5m.

The Project is unlikely to cause any safety risk to aircraft due to the small size of the Facility. Civil Aviation Safety Authority (CASA) assessment requirements are generally only triggered for large gas-turbine power stations with very tall stacks and high-velocity plumes. The provisions of SPP 1/02 do not apply to this proposal.

SPP 2/02 Planning and Managing Development Involving Acid Sulphate Soils

The proposal does not involve any soil disturbance below 5 metres Australian Height Datum (AHD) nor is it located in a low-lying coastal area (ground level <20 metres AHD). The provisions of *SPP 2/02 Planning and Managing Development Involving Acid Sulphate Soils* do not apply to this Proposal.

SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide

The Toowoomba Planning Scheme Regulatory Map identifies that the site is not located within any steep or potentially unstable areas.

Queensland Fire and Rescue Service mapping indicates a low bushfire potential for the site, which is supported by Toowoomba planning scheme maps which show the site is outside 'Bushfire Hazard' and 'Bushfire Prone' designated areas.

In the absence of any available flood data from Council, advice has been sought from Council's Officers regarding flood risk. Council advice is that the site is not in a high flood risk area (pers comm. Toowoomba City Council pre-lodgement meeting, 07/11/05).

The provisions of *SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* are not applicable to this proposal.

3.4 Referral Agencies

The development involves three referral triggers however only two concurrence agencies are involved. As there are only two referral agencies there is no need for referral coordination under section 3.3.5 of the IPA.

3.4.1 Environmentally Relevant Activity – Fuel Burning

The project involves a level 1 Environmentally Relevant Activity (ERA) being ERA 17 (Fuel Burning >500kg/hr). Fuel storage quantities for the backup diesel generator are minor and will not trigger ERA 11 (Petroleum Product Storing). A material change of use for the ERA is classified as assessable development under the *Integrated Planning Act 1997*. The Development Application will therefore be referred to the EPA as a concurrence agency.

3.4.2 Rail Safety and Efficiency

Advice from Queensland Transport is that the development triggers referral under the recently introduced (19 September 2005) 'rail safety and efficiency' provisions of the *Integrated Planning Act 1997* (pers comm. A. Dolley, Queensland Transport, 11/11/05). The development application will therefore be referred to Queensland Transport as a concurrence agency.

Queensland Transport's interests in the development relate to the safety and operational integrity of the adjacent railway. The development application must address a number of issues including trespass, stormwater, flooding and drainage and the effect of any construction works within 25m of the rail corridor boundary.

Queensland Transport's information requirements have been addressed in Section 4.

3.4.3 Contaminated Land

The site is registered on the Environmental Management Register (EMR) for past potentially contaminating activities. Given that the existing and proposed uses are industrial and only minor excavation works (fence posts, footings for pipework racks) are proposed, it is not anticipated that contaminated land will be an issue for this Facility. Regardless the application will be referred to the Contaminated Land Unit of the EPA.

3.4.4 State Controlled Roads

Advice from the Queensland Department of Main Roads is that neither Mort Street or Griffiths Road are state controlled roads, therefore no referral is required to Queensland Main Roads (pers. Comm. J. Seike, Department of Main Roads Toowoomba, 13/11/05).

The facility site area is not affected by an electricity easement or within 100m of a substation site.

3.5 Public Notification and Agency Consultation

As the application requires code assessment, there is no specific requirement for public notification under section 3.4.5 of the IPA.

As the proposal involves undertaking works to replace existing energy services on an industrial facility site and as there are no residents in close proximity to the site that will be directly impacted by the development it is not considered necessary to undertake a public notification process. Environmental impacts associated with the energy plant will be negligible to minimal.

Ecos Consulting has consulted on behalf of DDCES with, and undertaken a number of searches through, the:

- Local Government Authority – Toowoomba Shire Council
- Environment Protection Authority (Southern Region, Contaminated Land Unit and Heritage Unit)
- Department of Natural Resources and Mines (Regional Ecosystems and Cultural Heritage Coordination Unit)
- Queensland Transport, Queensland Rail and Department of Main Roads (state controlled road and rail efficiency and safety matters).

3.6 Other Approvals

As no vegetation clearing is proposed and the site is highly modified there is no requirement to seek any protected wildlife or vegetation clearing permits under the *Nature Conservation Act 1992* or the *Vegetation Management Act 1999*.

In addition to referral to Queensland Transport for rail safety and efficiency matters, a section 255 approval (under the Transport Infrastructure Act) will be required from Queensland Rail. This approval will be sought at a later date prior to commencement of the facility and will ensure there will be no impact to rail operations.

Trade waste approval may be required from Council. As the trade wastes from the facility will displace existing KRC wastes, and the facility will discharge into and be treated through the KRC waste water system, an amendment to KRC's approval may be all that is required. This will be investigated with Council's Trade Waste Department at a later date and necessary approvals sought.

All building works will be approved through a private certifier.

4 Railway Safety and Efficiency Assessment

This section addresses matters under the jurisdiction of Queensland Transport, as a concurrence agency for the application, in relation to rail safety and efficiency matters.

A pre-lodgement meeting was held with Queensland Transport Officers in Brisbane on Tuesday 15th November 2005 (see Meeting Minutes in **Appendix F**). QT's jurisdiction and information requirements broadly cover:

- Stormwater, flooding and drainage issues for the facility
- Trespass, primarily related to the standard of fencing
- Effect of construction works within 25m of the rail corridor boundary
- Traffic generation as a result of the development and potential impacts to rail crossings.

4.1 Drainage

Key issues of concern to Queensland Transport include:

- stormwater generation and management for the development
- potential to cause localised flooding to rail corridor land.

All stormwater generated from the facility will be appropriately managed with stormwater from the roofs of the demountable buildings to be collected via gutters and drainage pipes, which will be connected to the stormwater system of the existing industrial facility at this location.

The rail corridor land is considerably built up above the elevation of the facility site (refer **Appendix E: Photograph 13** – railway is to the left in this photograph). The topography of the site slopes gently towards the east, away from the rail corridor, towards Gowrie Creek, 150m to the east of the site. The facility will not be built up above the rail corridor land and no significant excavation/earthworks are proposed. Site contour lines from the rail corridor in the west to Gowrie Creek in the east are illustrated in **Appendix B: Figure 8**.

Given the higher elevation of the rail corridor land in relation to the facility site, the pattern of drainage flow away from the rail corridor, and the proposed stormwater management plan, there is insignificant risk of the development causing any impact to rail corridor land with respect to stormwater drainage or localised flooding.

4.2 Trespass and Fencing Standard

DDCES will maintain the existing fence that forms the common boundary between the rail corridor land and the lease area. The fence extends the entire length of the KRC property and is only broken at the main point of entry to the site at the rail crossing from Mort Street.

This boundary fence is a standard Queensland Rail chain link security fence. The fence is approximately 1800mm high with an additional 500mm height in the turned out portion of the fence (at the top). The fence is not plastic coated and is constructed using 50mm diameter steel posts. Refer to **Photograph 13** in **Appendix E** for a close-up view of the fence construction.

From the photograph you can see that the fence is turned out at the top with three horizontal barbed wires to prevent trespass from/to the facility to/from the rail corridor. It should be noted that the rail corridor at this point is open to a public road to the west (refer to **Photographs 14-17** in **Appendix E**).

4.3 Works on Rail Corridor Boundary

QT's primary concerns in relation to the effect of construction works within 25m of the rail corridor boundary include:

- use of heavy machinery, particularly tall cranes or any other structure that may overhang the rail corridor at any time
- distance from rail corridor boundary to all new works
- height and support mechanisms for tall structures in the vicinity
- volume of cut and fill for the development

A hydraulic crane will be used to lift and position pre-fabricated items of plant (eg. Generator modules, boilers) and buildings in place on the site. At no time will the crane manoeuvre over the rail line. Other heavy machinery will only include semi-trailer vehicles delivering items of plant. These vehicles will not operate in close proximity to the boundary (>5 metres away). Aspects of rail safety will be covered in the site induction for all construction personnel.

The highest structures on the site will be associated with the standby boiler stack (9m), hotwater tank (8.5m) and the four waste heat recovery boilers (6m). All stack structures will be securely fitted and adequately supported. Support mechanisms will be certified by a suitably qualified engineer. Refer to **Appendix B: Figure 5** for plant elevations and **Figure 6** for distances from plant to the rail corridor.

The closest facility structures to the rail corridor include the switch room building at 1m from the boundary, the 100kL hot water tank at 1.87m, and the boiler blowdown vessel at 2.2m from the boundary (refer **Appendix B: Figure 6**). The rail corridor at the point adjacent to the facility is wide (25-30m) as it was the site of a rail siding in the past. The highest plant component in close proximity to the boundary (within 2m) is the hot water tank at 8.5m away.

Earthworks for the facility will only comprise footings for the plant and pipework rack and fence posts. It is anticipated that the volume of soil excavation will be well below 10m³. The development does not involve any cut and fill as the site is already levelled and well-developed with an existing concrete slab and buildings (sheds). Refer to photographs of the existing site in **Appendix E**.

4.4 Traffic

Traffic generation as a result of the development will be minimal (as described in Section 2.5). The main access point to the property (Lot 1 on SP116255) is via a small unnamed road from Mort Street across the rail line at a level crossing. The level crossing has boom gates and lights. Refer to **Appendix E: Photographs 14-17**.

Heavy vehicles associated with the construction phase of the project will use the secondary construction access point from Griffiths Road. Light vehicles will use the main site access. In the context of the existing KRC site traffic flows, the number, frequency and type of vehicles accessing the facility are considered insignificant (one light vehicle per day) and will not result in any impact to the efficiency or safety of the railway level crossing at the main entrance to the KRC site.

5 Environmental Assessment

Ecos Consulting has undertaken desktop investigations, based on a search of government databases, other publicly available information, and the local planning scheme, a field inspection, and regulator liaison. This section provides a summary of the information collated, assesses potential environmental impacts and provides mitigation measures to minimise environmental risks to as low as reasonable practicable.

Impacts from facility construction and operation are not expected to be significant. DDCE will ensure that potential adverse impacts of the proposed Facility are mitigated as far as practicable and will implement measures to minimise environmental risks to the greatest extent possible. DDCE has drafted a Site-based Management Plan for the Project (Part B: Attachment 3), which will be reviewed, updated and implemented prior to operations.

5.1 Climate

Based on temperature and humidity Toowoomba experiences a warm summer with a cool winter¹. This is not surprising given that it has an elevation of some 674m and is some 150km inland from the Queensland coast. Most rainfall occurs in the summer months.

The climate averages for Toowoomba are shown in Table 4.1 below

Table 5-1: Climate Averages for Toowoomba

Element	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Mean daily Max Temp (°C)	27.6	26.6	25.5	22.9	19.6	16.9	16.3	17.9	20.9	23.7	26	27.5
Highest daily Temp (°C)	39.3	37	35	32.3	27.2	26.1	24.7	29.5	31.6	36.2	38.1	38.9
Mean daily Min Temp (°C)	16.6	16.6	15.4	12.3	9.1	6.3	5.3	6	8.5	11.5	13.8	15.7
Lowest daily Temp (°C)	8.9	7.2	6.1	3.5	-1.8	-3.6	-4.4	-4.2	-0.4	1.9	3.8	7.4
Mean rainfall (mm/month)	133	122.4	95.2	62.3	58.8	56.8	52.7	39.8	46.9	73	89	120.2
Mean no. of rain days	11.6	11.3	11	7.9	8.2	7.4	7	6.2	6.7	8.3	9.6	10.6
Highest rainfall (mm/month)	519.6	735.6	389.6	421.2	519.6	373	248.1	266.4	168.7	234.2	302.8	358.5
Lowest rainfall (mm/month)	12	1.8	0	0	0	0	0.2	0	2.8	0	4.6	7.7
Highest rainfall (mm/day)	156.7	164.1	132.3	96.8	121.8	116.8	145	133.9	61.2	88.6	109.8	127

¹ <http://www.bom.gov.au>

5.2 Land Tenure, Zoning and Use

The current land use of the proposed site is industrial with surrounding landuses including:

- Railway and Mort Street to the immediate west of the site
- Light industry precinct – within 100m of the site to the northwest
- Open space in the City Parks Precinct - approximately 150m to the east of the site
- Rural (cattle grazing/farm land) and bushland properties – approximately 250m to the east and 750m north of the site
- Other general industry – approximately 450m to the southeast of the site
- Special use: Health Precinct for Ballie Henderson Hospital – approximately 600m to the west of the site
- Residences to the north (790m), east (740m), southwest (560m) and west (500m) of the site.

The site is freehold tenure and is zoned in the General Industry Precinct (zoning map is provided in **Appendix B: Figure 7**).

5.3 Air Quality

Katestone Environmental (2005) was commissioned by Ergon Energy to undertake an air quality impact assessment of the proposed central energy facility. The air quality modelling included the proposed 4 x 1425 kW gas-fired generator units and one standby gas-fired boiler. The most important air pollutant that occurs due to the proposal is nitrogen dioxide. Air quality modelling was conducted using conservative modelling assumptions, background air quality, site-specific topographic and meteorological data, air pollution emission rates and manufacturers specifications, in line with good industry practice.

The AUSPLUME modelling predicted nitrogen dioxide ground-level concentrations to be well below the EPA's air quality goals and the NEPM standards at the nearest residential areas. Maximum concentrations are predicted within the site boundary and were predicted under unstable atmospheric conditions (daytime convective conditions) with light to moderate wind speeds. The air quality assessment identified no air quality constraints for the proposed development. The full air quality assessment report is provided in **Attachment 1**.

The new energy facility will result in a net greenhouse gas reduction because:

- The electricity it produces displaces electricity produced by coal fired generation
- The waste heat from the gas generation process displaces gas used directly by KRC in boilers, to produce steam and hot water
- Generating closer to the point of use also reduces greenhouse gases because transmission line losses are reduced.

This greenhouse saving has been estimated to be almost 18,000 tonnes per annum, based on full fuel cycle emission factors of 1.058 kg CO_{2e}/GWh of Qld grid electricity displaced and 68.8kg CO_{2e}/GJ of Qld natural gas consumed in the energy plant (minus estimated current KRC gas consumption). Emission factors were sourced from AGO (2004).

5.4 Noise

5.4.1 Existing Environment

Heggies Australia Pty Ltd (2005) was engaged by Ergon Energy Pty Ltd to prepare a noise impact assessment for the proposal, including the analysis of the proposed noise mitigation strategies.

The following conclusions were drawn from this assessment:

1. As the proposed facility will be owned and operated completely independently of KRC, the noise emissions from the facility should be and have been assessed as a stand-alone operation.
2. The nearest noise sensitive receptors are located 500 metres or more from the site as described in Table 5.

Table 5 Proximity of Nearest Dwellings

Dwelling Reference	Description	Levels	Distance from Dwelling to Cogeneration Site (approximate)
House 1	Bailey Henderson Residence No.1 - Burntley Avenue	2	500 m
House 2	300 Goombungee Road	1.5	740 m
House 3	144 Goombungee Road	1	790 m
House 4	52 Hogg Street	1	550 m

3. It was determined that the standard EPA noise licence conditions as summarised in Table 6 should be adopted for the management of noise emissions from the proposal.

Table 6 Normal Criteria for Stationary Plant Prior to Emissions Noise Guideline

Time Period	Level at Receptor Location - LA _{max,adj,T}	
	Residential	Commercial
Day (7 am to 6 pm) Mon to Sat 8 am to 6 pm Sun. & Public Hols.	Background + 5 dBA	Background + 10 dBA
Evening (6 am to 10 pm)	Background + 5 dBA	Background + 10 dBA
Night (10 pm to 7 am/6 am)	Background + 3 dBA	Background + 6 dBA

4. From the results of a night-time noise survey it was established that the evening and night-time background noise levels at the nearest noise sensitive receptors is 40 dBA LA₉₀. This is controlled by existing broadband plant noise associated with the KRC facility.
5. The quantified noise goals for the proposed facility based on the background noise levels and proposed licence conditions are summarised in Table 10.

Table 10 Noise Goals for Stationary Plant - Residential Receptors

Time Period	Level at Receptor Location - LA _{max,adj,T}	
	Compliance Level (including Background noise)	Component Level (excluding Background noise)
Evening (6 am to 10 pm)	45 dBA	43 dBA
Night (10 pm to 7 am/6 am)	43 dBA	40 dBA ³

6. A worst-case night-time scenario was modelled based on the simultaneous operation of 2 gas engines, and a total of 16 radiator fans. This is double the normal night-time scenario of one gas engine.
7. Worst-case meteorological conditions involving atmospheric inversion conditions were modelled ranging from still neutral conditions, to temperature inversion with light (3 m/s) down-wind conditions.
8. The worst-case projection for the proposal (i.e. 3 engines at peak periods - maximum 2 engines at night) would result in noise levels that would comply with the recommended goal of 40 dBA at all receptor locations.
9. It can be further seen in Table 11 that were the number of engines doubled at some future time modelling indicates there would be no significant exceedances of the 40 dBA evening and night-time goal.

Table 11 Noise Predictions: - 0 m/s Neutral to 3m/s Downwind Inversion

Receptor Location	1 Engine 8 Fans	2 Engines 16 Fans	3 Engines 24 Fans	4 Engines 36 Fans
House 1 (Bailey Henderson)	33 - 35 dBA	35 - 38 dBA	38 - 40 dBA	39 - 41 dBA
House 2 (East)	22 - 25 dBA	25 - 28 dBA	27 - 30 dBA	28 - 31 dBA
House 3 (North)	18 - 21 dBA	21 - 24 dBA	23 - 26 dBA	24 - 27 dBA
House 4 (South-West)	29 - 32 dBA	32 - 35 dBA	34 - 37 dBA	35 - 38 dBA
Reference - 80 m West	53 - 54 dBA	56 - 57 dBA	58 - 59 dBA	59 - 60 dBA

Overall, it was concluded that with the proposed noise mitigation measures installed (i.e. high performance exhaust silencers and acoustic generator enclosures) the proposal would comply with recommended noise control objectives. The full noise report is provided in **Attachment 2**.

5.5 Flora & Fauna

5.5.1 Existing Environment

Online Regional Ecosystems (RE) mapping indicates that the closest RE to the site is almost 1km away to the northwest and is classified as 'not of concern'. This vegetation community is one of a number of remnants designated as a State Wildlife Corridor linking to larger vegetation remnants to the north and west. Endangered and 'of concern' regional ecosystem remnants occupy much of the slope-affected land to the east of the site (almost 2km away).

The facility site is highly modified and no vegetation clearing is proposed, and therefore no protected wildlife or vegetation clearing permits are required under the *Nature Conservation Act* and *Regulations* or the *Vegetation Management Act*. No ecological field assessments are considered necessary.

Any weed located on site will be identified and measures implemented during construction to minimise the potential for spreading weed species.

Habitat value of the proposed facility site is low due to the high level of disturbance and lack of vegetative structure. Debris, and leaf-litter on existing concreted areas and the small grassed area surrounding existing infrastructure on the site, may provide microhabitats for small skinks and rodents. Desktop searches of flora and fauna databases are not considered necessary for such a small highly modified site.

The SEQ Regional Plan provides for the management of Koala habitat areas and establishes the *Interim guideline: Koalas and Development*. The SEQ Regional Plan and the Interim Guideline supersede *State Planning Policy 1/05: Conservation of Koalas in South East Queensland*. As the site is not located in a Koala Conservation Area, Koala Sustainability Area or Urban Koala Area under the SEQ Plan, the provisions of the *Interim Guideline* do not apply to this proposal.

Queensland Fire and Rescue Service mapping indicates a low bushfire potential for the site, which is supported by Toowoomba planning scheme maps which show the site is outside 'Bushfire Hazard' and 'Bushfire Prone' designated areas. As mentioned in the previous section, the provisions of *SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* are not likely to apply to this proposal.

5.6 Land and Water

Topography

The escarpment for the Great Dividing Range is over 1 km to the east, descending down into the Gatton Shire. Mount Kynock is located over 1km to the north, reaching an elevation of about 140m above the site. Approximately 3 km to the southeast of the site is Mount Lofty with a similar height as Mount Kynock. Another escarpment, standing 100m above the site, is located approximately 2.5 km to the west-south-west.

The site of the Facility is relatively flat and has been previously developed as part of the KRC Facility. The KRC site gently slopes towards Gowrie Creek to the east (refer **Appendix B: Figure 8** for site contours). The Facility will be located predominantly on an existing concrete slab. The KRC site lies within a small valley adjacent to Gowrie Creek, located approximately 125m to the west of the facility site. There is also a minor drainage line in a south-west orientation adjacent to the facility site on the western side of the rail line and Mort Street. The Toowoomba Planning Scheme Regulatory Map identifies that the site is not located within any steep or potentially unstable areas.

Soils

Much of the existing site is developed with concrete slabs and buildings. Minimal excavation (footings and fence posts) is proposed. Erosion and sedimentation is not considered to be a significant issue for the project. However, control devices will be used to minimise erosion and contain sediment run-off (i.e. silt fence) during construction, as required. Following construction, any exposed areas will be promptly restored and stabilised.

Contaminated Land

The site is located on the Environmental Management Register (EMR) for potentially contaminating activities. Given that the existing and proposed uses are industrial and only minor excavation works (fence posts, footings for pipework racks) are proposed, it is not anticipated that contaminated land will be an issue for this Facility. Regardless the application will be referred to the Contaminated Land Unit of the EPA.

To the best of the land owner and applicant's knowledge no fuel storage or other contaminating activities have been undertaken, or any material buried, on this portion of the KRC property.

Although considered highly unlikely, DDCES and its contractors will cease operations if suspected contaminated soil or buried material is discovered during minor excavation works until a specialist assessment and EPA liaison can be undertaken.

Flooding

It is unlikely that the site will be subject to high flood risk, which has been confirmed with Local Council and Bureau of Meteorology flood records. *SPP 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* is not likely to apply to this proposal. Also localised flooding is not considered a significant risk as the site is approximately 125m away from Gowrie Creek and elevated above the drainage line.

Stormwater Control

Stormwater from the facility will be appropriately managed to ensure it is separated from areas of plant and fuel storage, and directed to the rainwater collection tank associated with the control room or KRC's existing stormwater system. As the site is already developed and it is not anticipated that there will be any major earthworks, erosion and sedimentation issues are not considered to be a significant issue for this project. The project will not result in significant additional paved/impervious areas thus site overland runoff will not significantly increased and water infiltration will not considerably change from current rates.

5.7 Spill Management

As the Facility will operate on natural gas and only minor storages of liquid fuel, chemicals and lubricating oils etc are anticipated to be stored on site, the likelihood of environmental harm resulting from leaks and spills on site is minimal. Appropriate spill prevention and containment procedures and structures (i.e. bunding) will be employed to ensure spill risks are as low as reasonable practicable.

The generators and transformers have oil containment systems. For more detail on the spill prevention and containment measures refer to the Site-Based Management Plan in **Part B: Attachment 3**.

5.8 Waste Management and Minimisation

Construction wastes may include small quantities of scrap metal or timber, packaging materials, domestic waste, electrical cabling and other wastes, vegetation from site clearing and concrete and solid fill.

Generators will be inspected with regular maintenance services occurring in accordance with plant manufacturers specifications. DDCES personnel or contractors will undertake a majority of the maintenance procedures required for plant and equipment on site. Waste generated as a result of maintenance activities will either be removed from the site by the personnel undertaking the work for disposal to approved waste facilities, or integrated with KRC waste management practices. No hazardous wastes will be generated from the facility.

Typical wastes from generator maintenance activities would include consumables such as oil and fuel filters, and drained liquids such as oil and coolant fluids. All serviceable fluids will be reused where possible. Effluent, including boiler blowdown water, water softener backwash water, hot water and steam feedwater tank overflows will be connected to the existing KRC wastewater treatment plant prior to discharge to Council sewer. The waste treatment plant removes total solids to meet Local Council specifications for trade waste discharges.

DDCES and its contractors will have regard for alternative methods of disposal (i.e. recycling or reuse). Waste oil will be recycled where feasible.

5.9 Cultural Heritage

In accordance with the Duty of Care Guidelines made under the *Aboriginal Cultural Heritage Act 2003*, an Aboriginal cultural heritage database and register search was undertaken. The search results indicate that there is no Aboriginal cultural heritage recorded on the register or database for the property. The site has been assessed against the Duty of Care Guidelines and determined to be Category 2 (Activities causing No Additional Surface Disturbance, meaning surface disturbance not inconsistent with previous surface disturbance).

The proposal is therefore not likely to harm Aboriginal cultural heritage or cause additional harm to Aboriginal cultural heritage to that which has already occurred, so it is reasonable and practicable for the activity to proceed without further cultural heritage assessment.

The site is not listed on the Queensland Heritage Register (pers. comm. EPA, 17/11/05) under the Queensland *Heritage Act 1992*.

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6 Conclusion

The Central Energy Facility will provide a modernised cogeneration plant to provide all of KRC's electrical and thermal energy demands, replacing inefficient existing plant. The energy facility will also provide Ergon Energy with immediate access to excess capacity that will manage the impact of growing peak demands on its network and the community, and as a risk management strategy to improve the overall reliability of supply. The target date for installation is summer 2006.

The development is code assessable against the Toowoomba Planning Scheme for a Major Utility located in the General Industry Precinct. The planning assessment demonstrates that DDCES will comply with the performance criteria for all relevant codes, as a minimum. This Report has assessed the potential environmental impacts associated with the installation and operation of the proposed Facility and detailed the management measures that will be implemented to minimise adverse impacts.

The project will not result in any stormwater, flooding or drainage issues for the adjacent rail corridor land. The development will not result in any trespass issues for railway lands or adversely affect railway safety and operational efficiency due to construction works in proximity to the rail line.

The environmental assessment determined that there are no significant environmental sensitivities or unique environmental values for the site. The Proposal will not result in significant adverse impacts on the environment or local community, as follows:

- The generators can be operated without resulting in any cumulative effect or public exposure to unacceptable air quality.
- With the proposed acoustic treatment (silencers and enclosures) the generation plant is unlikely to cause nuisance or disturbance to noise sensitive receptors such as residential premises, the Baillie Henderson Hospital or other areas where members of the public may congregate.
- The proposal will not result in any vegetation clearing or damage to existing mature trees at this location.
- Waste generation as a result of maintenance activities will be minimal and will not result in significant environmental impacts associated with disposal of these wastes.
- Significant earthworks have been avoided through use of an existing developed site. Potential erosion and sedimentation impacts will be avoided through implementation of appropriate management practices and control devices, where necessary.
- All plant will be bunded to contain and prevent the escape of any potential contaminants from the Facility. Stormwater will be managed to ensure it remains separate from any areas of potential contamination and will be diverted to the existing site drainage system.
- No significant adverse impacts with respect to visual amenity, traffic generation or interruption, aviation safety, cultural heritage protection or social impacts are anticipated.

7 References and Regulator Liaison

1. References

AGO 2004. Australian Greenhouse Office Factors and Methods Workbook. August 2004.
<http://www.greenhouse.gov.au/workbook>

Heggies Australia Pty Ltd 2005. *Proposed Cogeneration Plant: Mort Street, Toowoomba – Assessment of Noise Issues.* Report 20-1639. 4 August 2005.

Katestone Environmental 2005. *A Report from Katestone Environmental to Ergon Energy: Air Quality Impact Assessment of a Proposed Energy Generation facility at Harlaxton, Toowoomba.* July 2005.

OUM, 2005. *South East Queensland Regional Plan 2005-2026.* Queensland Government, Department of Local Government, Planning, Sport and Recreation: Office of Urban Management, June 2005. <http://www.oum.qld.gov.au/>

Toowoomba City Council 2003. *Toowoomba Planning Scheme 2003.* Adopted 8th April 2003. <http://www.toowoomba.qld.gov.au/>

2. Pre-lodgement Meetings

Agency	Location	Date	Attendees
Environmental Protection Agency	Toowoomba District Office	7 th November 2005, 10am	<ul style="list-style-type: none"> • Rob Spalding, Environmental Operations Southern Region EPA • Bill Dunn, Director DDCES • Gary Parkhill, Director DDCES • Gary Faulkhead, Director DDCES • Bob Harvey, Ergon Energy • Colleen Bow, Environmental Consultant, Ecos
Toowoomba City Council	Toowoomba City Council Office – 258 Hume Street	7 th November 2005, 3pm	<ul style="list-style-type: none"> • Paul Kelly, Principal Planner, Development Assessment, TCC • Brad Carey, Senior Engineer, Development Engineering, TCC • Steve Roberts, Planning Officer, Development Assessment, TCC • Bill Dunn, Director DDCES • Gary Parkhill, Director DDCES • Gary Faulkhead, Director DDCES • Bob Harvey, Ergon Energy • Colleen Bow, Environmental Consultant Ecos • Dennis Hayes, Engineer KR Castlemaine • Brian Douglas, Director Douglas Mechanical Design Service
Queensland Transport.	Qld Transport L12 200 Mary Street Brisbane	15 th November 2005, 9am	<ul style="list-style-type: none"> • Anne Fry, Qld Transport • Alan Rolandsen, Qld Transport • Paul Lange, Qld Transport • Adrian Dolley, Qld Transport • Gary Faulkhead, Director DDCES • Colleen Bow, Environmental Consultant Ecos

3. Other Regulator Discussions

Queensland Transport

Mr. Adrian Dolley
Planner (Land Use)
Transport Planning Branch
adrian.d.dolley@transport.qld.gov.au
Ph. 3117 5503

Paul Lange, Senior Advisor
Ph. 3117 5505

Department of Main Roads

Mr. Julian Seike
Inspector Network Administration
Downs (Toowoomba) District
Ph. 4639 0746

Queensland Rail

Nick Montague, Planning and Development
Ph 3235 7749

EPA Cultural Heritage Unit

Joanne Ketter
Ph. 3227 8542

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8 Abbreviations

agl	Above ground level
AHD	Australian Height Datum
CASA	Civil Aviation Safety Authority
CO _{2e}	Carbon dioxide - equivalent
dBA	Decibels
DDCES	DDC Energy Services Pty Ltd
EPA	Environmental Protection Agency
EP Act	Environmental Protection Act 1994
EPP	Environment Protection Policy
EP Regulation	Environmental Protection Regulations 1998
ERA	Environmentally Relevant Activity
GWh	Gigawatt-hour (=1,000 MWh)
IDAS	Integrated Development Assessment System
IPA	Integrated Planning Act 1997
KRC	KR Castlemaine
kW	Kilowatt
kWh	Kilowatt-hour
MWh	Megawatt (=1,000 kilowatt-hours)
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
PM ₁₀	Particulate matter with a diameter of <10 microns
QFRS	Queensland Fire and Rescue Service
SEQ	South East Queensland
SO ₂	Sulphur dioxide
SO _x	Oxides of sulphur
SPP	State Planning Policy

Appendix A

IDAS Forms

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Form 1 Development Application

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Common details

The completion of all **applicable questions** on Part A is **mandatory** for all applications. Part A must be accompanied by the completed IDAS Assessment Checklist if required, and by one (1) or more other completed parts of the Form as required. For more information on the parts of the Form refer to www.ipa.qld.gov.au. Any information requested in the form may be provided in an attachment to the application. For further information about completing the following details, refer to **Guide 1**.

Description of land

All land the subject of the application, must be identified. However, a description of the land is not required in relation to a mobile or temporary Environmentally Relevant Activity (ERA).

Advice for completing Q2 - Q2 applies if development is proposed within a water body or watercourse.

Advice for completing Q3 - Most land can be identified by a lot on plan description. These details can be obtained from title documents or through the local government.

However, if the land on which the development is proposed does **not** have a lot on plan description (i.e. the development is proposed in a water body or watercourse) provide -

(i) the lot on plan description for the adjoining/adjacent land; or

(ii) GPS coordinates where there is no adjoining/adjacent land (eg. In Moreton Bay).

Advice for completing Q7 - Q7 does **not** apply if the development is within a water body or watercourse.

Advice for completing Q8 - Q8 applies if development is within a local government area.

Note: Areas below high water mark are **not** within a local government's area unless provided for under the Local Government Act 1993.

Advice for completing Q9 - Q9 applies if development is on strategic port land or a strategic port land tidal area. For more details refer to **Guide 11**.

1. Street address: (including house number, street name, suburb/locality name & postcode) (if applicable)
Mort Street, Harlaxton, Toowoomba Qld 4350
2. Name of water body or watercourse, within which the development is proposed: (if applicable)
N/A
3. Lot on plan description (eg. Lot 123 on RP 4567) / GPS coordinates:
Lot 1 on SP116255
4. The above description is for: (tick applicable box)
☒ (i) the land on which the development is proposed; or
☐ (ii) the land adjoining the water body or watercourse, within which the development is proposed; or
☐ (iii) the water body or watercourse.
5. Shop / tenancy number:
N/A
6. Storey / level:
N/A
7. Total area of land: (m² of ha):
1,279 m²
8. Local government area in which the land is situated: (eg. Esk, Hervey Bay, Woocoo etc.) (if applicable)
Toowoomba City
9. Port authority for the strategic port land or strategic port land tidal area on which the development is proposed (eg. Port of Brisbane, Port of Townsville) (if applicable)
N/A

Proposal details

If there is insufficient room available, details may be provided in an attachment to the application.

10. Existing use of the land: (eg. vacant, single house, shop etc.)
Existing sheds on concrete slab - part of the KR Castlemaine small goods facility
11. Proposed use of the land: (eg. 6 unit apartment building, 30 lot residential subdivision, ERA for aquaculture in ponds with a total area of 7 ha for which wastes are released into waters etc.)
Central Energy Facility (Cogeneration): Major Utility (Planning Scheme) and Fuel Burning ERA 17

Other applicable parts of Form 1

Part A must **always** be accompanied by other completed parts of Form 1. For information about when a part of Form 1 may apply refer to **Guide 1**.

12. Other parts of Form 1 completed as part of this application: (eg. Part D, Part I, etc)
Parts D, G and N

Applicant details

Clearly identify who is making the application. The applicant need **not** be the owner of the land.

When signing and lodging this application

The applicant is responsible for ensuring the information provided is correct. The assessment manager, any referral agency & the Chief Executive (where applicable) will rely on this information when assessing and deciding the application.

If the applicant is a company - a contact person must be shown.

13. Applicant's name:
DDC Energy Services Pty Ltd
14. Contact number:
07 3357 8109
15. Contact person:
Mr. Bill Dunn
16. Facsimile number/e-mail address:
07 3861 0247
17. Postal address:
PO Box 432 Nundah Queensland 4012
18. Signature:
sch4p4(6) Personal information
19. Date:
16/11/05

Land owner's consent (if applicable)

Section 3.2.1(10)(a) of the IPA prescribes that an application cannot be taken to be properly made without the land owner's consent.

An application must be supported by the consent of all land owner if the application involves:

- (i) a material change of use;
- (ii) reconfiguration of a lot;
- (iii) work on land below high-water mark & not within a canal as defined under the Coastal Protection and Management Act 1995; or
- (iv) work on rail corridor land defined under the Transport Infrastructure Act 1994.

For a mobile or temporary ERA - landowner's consent is not required.

For more information refer to Guide 1.

20. Land owner's consent to the making of this application:

Name	Signature	Date
(i)		
(ii)		
(iii)		
(iv)		
(v)		

Resource entitlement (if applicable)

Section 3.2.1(10)(b) of the IPA prescribes that an application cannot be taken to be properly made without evidence of the resource entitlement.

Advice for completing Q22

Refer to schedule 10 of the Integrated Planning Regulation 1998 that prescribes the nature of evidence required by the State in support of the lodging of this development application.

Advice for completing Q23

The information in (i) -- (v) is mandatory if evidence is required under Q22 (ii) or (iii) above.

The official stamp of the Department of Natural Resources and Mines is mandatory where the application involves taking or interfering with water or riverine quarry material under the Water Act 2000.

21. Does this application involve taking or interfering with (other than interfering with quarry material on State coastal land under the Coastal Protection and Management Act 1995) a State resource?

☒ NO - go to Q24

☐ YES - go to Q22

22. This application is required by regulation to be accompanied by evidence: (tick applicable box)

☐ (i) of the allocation of, or entitlement to, the resource - attach evidence

☐ (ii) the chief executive of the department administering the resource is satisfied the development is consistent with an allocation of, or entitlement to, the resource - go to Q23

☐ (iii) the chief executive of the department administering the resource is satisfied the development application may proceed in the absence of an allocation of, or entitlement to, the resource - go to Q23

23. Evidence of the resource entitlement:

(i) Resource entitlement / authority details

N/A

(ii) Name of delegated officer

(iii) Position of delegated officer

(iv) Signature of delegated officer

(v) Date

(iv) Official stamp of the department administering the resource (if applicable)

Assessment triggers

This checklist does not apply if the application requires the completion of Parts A and B of the Form only. It must be completed for all other applications.

24. Is the IDAS Assessment Checklist completed and attached to this application?

☒ YES

☐ NO - the assessment manager may refuse to accept this application on the grounds that the application has not been properly made

Plans / drawings / reports

An application should be accompanied by details to support the proposal & enable the assessment manager, referral agencies and any person viewing the application during public scrutiny or public notification to understand the scope of the proposal and any potential impact.

25. Plans/drawings/reports accompanying this application:

Plan / Drawing / Report Number	Title	Date
(i) Proposal Report: Appendix B	Locality Map	-
(ii) Proposal Report: Appendix B	Survey Plan: Lease F	11/08/05
(iii) Proposal Report: Appendix B	KRC Site Layout Plan	10/08/05
(iv) Proposal Report: Appendix B	Energy Facility Site Plan	08/11/05
(v) Proposal Report: Appendix D	Photographs	-

PLEASE NOTE: The assessment manager may refuse to accept an application that, at the time of lodgement, fails to provide all applicable information required by Part A and any other relevant part of Form 1.

OFFICE USE ONLY (applicable to assessment manager's)

FEE (\$)	DATE RECEIVED	RECEIVING OFFICER'S NAME/S	REFERENCE NUMBER/S
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Notification of Engagement of Private Certifier (Optional format)

To _____ Council, I have been engaged as the private certifier for the building work referred to in this application.

Date of engagement: / / Accreditation Number: _____ Name: _____ Signature: _____

INTEGRATED PLANNING ACT 1997

Form 1 Development Application

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Common details

The completion of all applicable questions on Part A is mandatory for all applications.

Part A must be accompanied by one (1) or more other completed parts of the Form.

Any information requested in the form may be provided in an attachment to the application.

For further information about completing the following details, refer to Guide 1 Making an IDAS Application.

Description of land

All land the subject of the application, must be identified.

A description of the land is not required in relation to a mobile or temporary environmentally relevant activity.

Advice for completion Q2

Q2 applies if development is proposed within a water body or watercourse.

Advice for completion Q3

Most land can be identified by a lot on plan description. These details can be obtained from title documents or through the local government.

However, if the land on which the development is proposed does not have a lot on plan description (i.e. the development is proposed in a water body or watercourse) provide –

(i) the lot on plan description for the adjoining/adjacent land; or

(ii) GPS coordinates where there is no adjoining/adjacent land (eg. in Moreton Bay).

Advice for completion Q7

Q7 does not apply if the development is proposed within a water body or watercourse.

Advice for completion Q8

Q8 applies if development is proposed within a local government area.

Note: Areas below high water mark are not within a local government's area unless provided for under the Local Government Act 1993.

Advice for completion Q9

Q9 applies if development is proposed on strategic port land or a strategic port land tidal area.

For more information refer to Guide 11 Development on strategic port land

Proposal details

1. Street address: (including house number, street name, suburb/locality name & postcode) (if applicable)

16 MORT STREET TOOWOOMBA QLD 4350

2. Name of water body or watercourse, within which the development is proposed: (if applicable)

N/A

3. Lot on plan description (eg. Lot 123 on RP 4567) / GPS coordinates:

LOT 1 ON SP116255

4. The above description is for: (tick applicable box)

☒ (i) the land on which the development is proposed; or

☐ (ii) the land adjoining the water body or watercourse, within which the development is proposed; or

☐ (iii) the water body or watercourse.

5. Shop / tenancy number: (if applicable)

N/A

6. Storey / level: (if applicable)

N/A

7. Total area of land: (m² or ha) (if applicable)

1,279 m²

8. Local government area in which the land is situated: (eg. Brisbane, Esk, Harvey Bay, Woomoo etc.) (if applicable)

TOOWOOMBA

9. Port authority for the strategic port land or strategic port land tidal area on which the development is proposed (eg. Port of Brisbane, Port of Townsville) (if applicable)

N/A

10. Existing use of the land: (eg. vacant, single house, shop etc.)

FACTORY

11. Proposed use of the land: (eg. 6 unit apartment building, 50 lot residential subdivision, EPA for aquaculture in ponds with a tidal area of 7 ha for which wastes are released into waters etc.)

GENERATION SITE

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Part A, Version 2.0, 4 October 2004

Other applicable parts of Form 1

Part A of Form 1 must always be accompanied by other completed parts of Form 1.

For information about when a part of Form 1 may apply for an application refer to Guide 1: Making an IAS development application.

X. Applicant details

Clearly identify who is making the application. The applicant need not be the owner of the land.

Where a client and insurer sign certification the applicant is responsible for ensuring the information provided is correct. The assessment manager, any relevant agency and the Chief Executive (where applicable) will rely on this information when assessing and deciding the application.

If the applicant is a company
A contact person must be chosen. All correspondence will be mailed to this address.

12. Other parts of Form 1 completed as part of this application: (eg. Part D, Part I, etc)

PARTS D, G + N

13. Name:

DOL ENERGY SERVICES

14. Postal address:

PO BOX 432 NUNDAH QLD 4012

15. Signature:

sch4p4(6) Personal information

16. Date:

15/11/2005

17. Contact person:

MR BILL DUNN

18. Telephone number:

38651203

19. Mobile phone number: (if applicable)

20. Facsimile number: (if applicable)

38610247

21. Email address: (if applicable)

Land owner's consent (if applicable)

Section 3.2.1(10)(a) of the IPA prescribes that an application can not be taken to be properly made without the land owner's consent.

For more information about land owner's consent refer to Guide 1: Making an IAS development application.

An application must be supported by the consent of the land owner if the application involves:

- (i) a material change of use;
- (ii) reconfiguration of a lot;
- (iii) work on land below high-water mark & not within a canal as defined under the Coastal Protection and Management Act 1985;
- (iv) work on tall outdoor land defined under the Transport Infrastructure Act 1991.

For a mobile or temporary IAS
Land owner's consent is not required.

If an owner has signed this form as applicant

Their signature is not required again in this section.

If there are multiple owners

The consent of each owner is required.

If the owner is a company

Refer to Guide 1.

22. Name/s:

DARLING DOWN FOODS PTY LTD

23. Signature/s:

sch4p4(6) Personal information

24. Date:

15/11/2005

Resource entitlement (if applicable)

Section 3.2.1(10)(b) of the IPA prescribes that an application can not be taken to be properly made without evidence of the resource entitlement.

Advice for completing Q25

Refer to schedule 10 of the Integrated Planning Regulation 1999 that prescribes the nature of evidence required by the State in support of the lodging of this development application.

25. Does this application involve taking or interfering with (other than interfering with quarry material on State coastal land under the Coastal Protection and Management Act 1985) a State resource?

☐ NO - go to Q26

☐ YES - go to Q25

26. This application is required by regulation to be accompanied by: (tick the applicable box)

☐ (i) evidence of the allocation of, or entitlement to, the resource - attach evidence

☐ (ii) evidence the chief executive of the department administering the resource is satisfied the development is consistent with an allocation of, or entitlement to, the resource - go to Q27

☐ (iii) evidence the chief executive of the department administering the resource is satisfied the development application may proceed in the absence of an allocation of, or entitlement to, the resource - go to Q27

Form 1 Development Application

idas

Material change of use

assessable against a local government's planning scheme

Completion of **all applicable questions** on Part D is **mandatory** for all applications involving assessment of a material change of use (MCU) assessable against a local government's planning scheme.

Nature of the application A development permit authorises development to occur, while a preliminary approval is a step in the approval process and does not authorise development to occur.	1. This application is for: (tick 1 or both if applicable) ☐ Preliminary approval for a material change of use of premises including conceptual design for any associated works that require approval under the planning scheme (i.e. consideration of the proposal concept) AND / OR ☒ Development permit for a material change of use of premises including conceptual design for any associated works that require approval under the planning scheme.
The subject land For the definition of "gross floor area" go to the planning scheme against which the application will be assessed.	2. How the subject land is identified in the planning scheme (name the zone, precinct etc.) General Industry Precinct 3. Existing gross floor area: (if applicable) 4. Are there any existing easements on the land? ☒ NO ☐ YES – attach plans of the location and details of the purpose of the easement
Material change of use details	5. Details of the change to the use of the land: (eg. vacant land to shopping centre, house to apartment building, vacant land to industry (tyre manufacturing) etc.) Storage area for existing industrial facility to Major Utility (Planning Scheme definition) 6. Number of employees: No permanent workforce 7. Operating days and hours: 7 days 24 hrs per day
Associated building works details (if applicable) For the definition of "site cover", "gross floor area" and "storey" go to the planning scheme against which the application will be assessed.	8. Site cover: 60% of lease area 9. Gross floor area: Approx 900m2 10. Number of on-site car parking spaces: Nil 11. Number of storeys / maximum height above natural ground: Single storey Max 9m high 12. Number of employees: Nil 13. Hours and days the use will operate: 7 days 24 hrs per day
Associated operational works details (if applicable)	14. Details of associated operational works (eg. landscaping, cut and fill, drainage, road works etc.) Connecnting to existing site services, minor excavation for fence posts and footings

PLEASE NOTE

This application **cannot** be accepted unless accompanied by Part A of Form 1.

The assessment manager may refuse to accept an application that, at the time of lodgement, fails to provide all applicable information requested by Part A and any other relevant part of Form 1.

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Environmentally relevant activity (ERA)

Completion of **all questions** on Part G is **mandatory** for all applications involving assessment against the *Environmental Protection Act 1994* for ERAs (i.e. material change of use of premises for an ERA or development for a mobile or temporary ERA) for which a Code of Environmental Compliance has not been made.

For further information about environmentally relevant activities refer to **Guide 4 Environmentally relevant activities** available free from www.ipa.qld.gov.au or the Environmental Protection Agency's (EPA's) information sheets available free from www.epa.qld.gov.au under Ecoaccess/ business and industry. Alternatively, contact the local government.

Nature of the application

To identify who the administering authority is for each ERA, refer to Schedule 1 of the *Environmental Protection Regulation 1998* or the information sheets or contact the EPA or local government.

Note: The operator of an ERA must be registered. A registration form is available on the EPA's website or from the relevant local government.

1. Identify each existing (if any) and all proposed ERA(s) (eg. ERA 3) and its description: (attach list if necessary)

(i) ERA name and number: (eg. increase in threshold for ERA 3 – Pig Farming)

ERA 17 - Fuel Burning

Is the ERA mobile or temporary?

☒ NO

☐ YES

Identify below all local government areas in which it is intended to operate

Details of **existing** ERA (if applicable)

☐ Level 1

☐ Level 2

Threshold:

(eg. less than 5,000 standard pig units)

Details of **proposed** ERA (if applicable)

☒ Level 1

☐ Level 2

Threshold:

(eg. less than 5,000 standard pig units)

>500kg/hr fuel burning

(ii) ERA name and number:

Is the ERA mobile or temporary?

☐ NO

☐ YES

Identify below all local government areas in which it is intended to operate

Details of **existing** ERA (if applicable)

☐ Level 1

☐ Level 2

Threshold:

Details of **proposed** ERA (if applicable)

☐ Level 1

☐ Level 2

Threshold:

Nature of the application (cont)

(iii) ERA name and number:

Is the ERA mobile or temporary?

☐ NO☐ YES – identify below all local government areas in which it is intended to operate
Details of **existing** ERA (if applicable)☐ Level 1☐ Level 2

Threshold:

Details of **proposed** ERA (if applicable)☐ Level 1☐ Level 2

Threshold:

2. Does this application require assessment against a planning scheme?

☐ NO☒ YES – complete other relevant parts of the IDAS Application Form 1

The subject land

3. Confirm, by ticking the applicable box(es), that the following details are provided in plans and written information supporting this application:

☒ (i) A description of the existing environment (i.e. maps of the land and surrounding area, zoning of the land and surrounding areas);☒ (ii) Details of the distance to any watercourse, dam, bore etc on or adjoining the land;☒ (iii) Details of any of the following types of materials currently stored on the land (i.e. flammable and combustible materials, chemicals, other hazardous substances);☐ (iv) Details of any acid sulphate soils within or adjoining the land.

The proposal

This information required for all applications for an ERA.

An application for an ERA must be supported by enough information to enable the administering authority to decide the application, including, for example, relevant information about the likely risks to the environment, details of waste to be generated and any waste minimisation strategy.

4. Confirm, by ticking the applicable box(es), that the following details are provided in plans and written information supporting this application:

☒ (i) A description of the activity (i.e. proposed operation and activities, discharge points, process details);☒ (ii) Details of stormwater runoff management and disposal (i.e. stormwater management plans);☒ (iii) Details of waste produced, including solid and liquid waste (i.e. waste management, waste minimisation plan, trade waste permit);☒ (iv) Details of contaminant releases and their impacts on the receiving environment (i.e. discharge to waters, air, land; generation of noise, discharge of other contaminants);☒ (v) Details of any of the following types of materials proposed to be stored (i.e. flammable & combustible materials, chemicals, other hazardous substances);☒ (vi) Details of proposed hours of operation;☒ (vii) Details of business trading name.

Fee payable

5. Details of the fee payable for each ERA listed in Question 1:

ERA	Applicable Fee
(i) ERA 17	\$3210.30
(ii)	
(iii)	
(iv)	
(v)	

PLEASE NOTE

PART G of Form 1 **cannot** be accepted by the assessment manager unless accompanied by PART A of Form 1.

The assessment manager may refuse to accept an application that, at the time of lodgement, fails to provide all applicable information requested by Part A and any other relevant part of Form 1.

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Contaminated land

Completion of **all questions** on Part N is **mandatory** for all applications involving assessment against the *Environmental Protection Act 1994* when development is proposed on contaminated or potentially contaminated land.

For further information refer to **Guide 5 Contaminated land matters** available free from www.ipa.qld.gov.au or the Environmental Protection Agency's (EPA's) information sheets available free from www.epa.qld.gov.au under Ecoaccess/ business and industry. Alternatively, contact the local government.

Nature of the application

Exemptions may apply to your proposal. Refer to **Guide 5 Contaminated land matters** for advice regarding development that is exempt from this assessable development trigger.

1. This application is for: (Tick one (1) or both if applicable)

Aspect of development	Type of approval being sought	
☒ Material change of use	☐ Preliminary approval	☒ Development permit
☐ Reconfiguring a lot	☐ Preliminary approval	☐ Development permit

2. Does this application require assessment against a planning scheme?

☐ NO

☒ YES – complete other relevant parts of the IDAS Application Form 1

The subject land

3. Has an Environmental Management Register (EMR) and/or Contaminated Land Register (CLR) search been conducted for the land the subject of the application?

☐ NO

☒ YES – attach results of the search and complete Q4

4. All or part of the land the subject of the application is:

☒ (i) on the EMR or the CLR under the *Environmental Protection Act 1994*;

☐ (ii) used for, or if the land is vacant, was last used for-

☐ (a) a notifiable activity

☐ (b) an industrial activity and the proposed use is for a child care centre, educational, recreational or residential purpose (including a caretaker residence on industrial land);

☐ (iii) in an area for which an area management advice has been given for natural mineralisation or industrial activity and the proposed use is for child care, educational, recreational or residential purpose (including a caretaker residence on industrial land);

☐ (iv) in an area for which an area management advice has been given for unexploded ordnance.

Plans and documents

For further information about preparing a proposal report, refer to **Guide 7 Preparing a proposal report**.

5. Confirm, by ticking the applicable box(es), that the following details are provided in plans and written information supporting this application:

☒ (i) plans showing where any Notifiable Activity, Hazardous Contaminant, or potentially contaminated activity / activities have occurred on site;

☐ (ii) if the application involves a material change of use from an industrial use to a more sensitive use (eg. child care, educational, recreational or residential purposes), supply a detailed site history outlining previous potentially contaminated uses on the site

PLEASE NOTE

PART N of Form 1 **cannot** be accepted by the assessment manager unless accompanied by PART A of Form 1.

The assessment manager may refuse to accept an application that, at the time of lodgement, fails to provide all applicable information requested by Part A and any other relevant part of Form 1.

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Form 1 Development Application

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IDAS Assessment Checklist

(Formerly the "Referrals Checklist")

PLEASE NOTE:

1. This checklist was formerly referred to as the "Referrals Checklist". Some of the 'Guides' to using the IDAS Application Forms continue to refer to this document as the "Referrals Checklist". The name of this checklist has changed to more accurately describe its function.
2. Under the IPA and IDAS framework, an application may require assessment by the local Council and/or certain Queensland State entities (e.g. Environmental Protection Agency, Dept. of Natural Resources and Mines, Queensland Heritage Council etc.).
3. This checklist is provided to assist applicants to determine when an application requires assessment by a Queensland State entity and may also assist the applicant to determine the assessment manager¹ for the application.
4. Therefore, the completion of **all questions** in section 1 of this checklist is **mandatory** for all applications (other than those requiring the completion of Parts A & B only).
5. It is the responsibility of the applicant to accurately complete this checklist.
6. Depending on the nature of the application, an applicable State entity may be either the assessment manager or an IDAS referral agency for the application.
7. The assessment manager for the application will rely on the information provided by the applicant when completing this checklist (as well as any material lodged in support of the application) to identify in the Acknowledgement Notice, any applicable referral agencies for the application. The assessment manager will also rely on this information when identifying if the application triggers referral coordination².
8. To assist you in answering the following questions a series of guides are available free from www.ipa.qld.gov.au.
9. The other parts of Form 1 required to be completed by this checklist are available from the Council or the applicable State entity, or can be downloaded free from www.ipa.qld.gov.au.
10. Section 2 provides advice about the referrals that can be required for applications for building work assessable against the *Standard Building Regulation 1993* (SBR).

SECTION 1 - STATE ASSESSMENT (completion mandatory)

Note: The following state assessment triggers apply to development other than for building work assessable against the *Standard Building Regulation 1993* (SBR)).

Environmentally relevant activity

For more information refer to Guide 4.

Unless you answered "none of the above" to Q1, the application requires assessment by the administering authority³.

If an entity, other than the administering authority, is the assessment manager for the application, the administering authority is a concurrence agency for the application in relation to this matter.

Note: An application involving ERA 19 and/or 20 will also require completion of Part K₇ of Form 1 for approval where an allocation under the *Water Act 2000* is required.

1. The application involves: (tick applicable box/es)

- ☒ (i) an environmentally relevant activity (ERA) for which a code for environmental compliance has **not** been made - complete Part G of Form 1
- ☐ (ii) a mobile or temporary ERA for which a code of environmental compliance has **not** been made - complete Part G of Form 1
- ☐ (iii) none of the above

State-controlled road matters

For more information refer to Guide 3.

Unless you answered "none of the above" to Q2, the application triggers referral to the Department of Main Roads (DMR) as a referral agency.

In certain circumstances DMR will be an advice agency, while in other circumstances DMR will be a concurrence agency.

Schedule 2 of the IP Regulation will assist you to determine where DMR is an advice or concurrence agency for the application.

2. The application involves: (tick applicable box/es)

- ☐ (i) development on land **contiguous**⁴ to a State controlled road and for -
- ☐ (a) **material change of use** assessable against the planning scheme;
- ☐ (b) **reconfiguring a lot** unless -
- the total number of lots is not increased; and
 - the total number of lots abutting the State-controlled road is not increased;
- ☐ (c) **operational work** (not associated with a material change of use assessable against the planning scheme or reconfiguring a lot mentioned in (b) above)-
- associated with access to a State-controlled road; or
 - for filling or excavation; or
 - involving the redirection or intensification of site stormwater from the land, through a pipe with a cross-sectional area greater than 625 cm² that directs stormwater to a State-controlled road;

¹ The assessment manager is responsible for assessing and deciding an IDAS application. The assessment manager for an application is prescribed in schedule 8A of the IPA.

² For additional information refer to Guide 6 'Does my application trigger the referral coordination process?'

³ The 'administering authority' may be either the Environmental Protection Agency, the relevant local government (for a devolved ERA) or the Queensland Department of Primary Industries and Fisheries (for a delegated ERA).

⁴ Land contiguous to a State-controlled road is defined in schedule 14 of the IP Regulation to mean land - if part of the land is within 100m of the State-controlled road; or that is part of a future State-controlled road.

State-controlled road matters (cont)

- ☐ (ii) development on land **not contiguous** to a State-controlled road and -
- ☐ (a) **material change of use** -
- assessable against the local government's planning scheme; and
 - mentioned in schedule 5 of the IP Regulation and exceeding the thresholds set by that schedule;
- ☐ (b) **reconfiguring a lot** for a purpose mentioned in schedule 5 of the IP regulation and exceeding the thresholds set by that schedule;
- ☐ (c) **operational work** (not associated with a material change of use assessable against the planning scheme or reconfiguring a lot mentioned in (b) above)-
- assessable against the local government's planning scheme; and
 - mentioned in schedule 5 of the IP Regulation and exceeding the thresholds set by that schedule;
- ☒ (iii) none of the above

Clearing vegetation

For more information refer to Guide 12.

Unless you answered "none of the above" to Q3, the application requires assessment by the Department of Natural Resources and Mines (NR&M).

If an agency other than NR&M is the assessment manager for the application, NR&M is a concurrence agency for the application in relation to this matter.

3. The application involves: (tick applicable box/es)

- ☐ (i) **material change of use** -
- (a) assessable against the planning scheme;
 - (b) on a the lot containing -
 - a category 1, 2 or 3 area shown on a property map of assessable vegetation; or
 - if there is no property map of assessable vegetation for the lot - remnant vegetation;
 - (c) where the existing use of the land is a rural or environmental use; and
 - (d) where the size of the land is 2 hectares or larger - complete Part J of Form 1
- ☐ (ii) **reconfiguring a lot** -
- (a) on a lot containing a category 1, 2 or 3 area shown on a property map of assessable vegetation or, if there is no property map of assessable vegetation for the lot, remnant vegetation;
 - (b) where the size of the lot before the reconfiguration is 2 hectares or larger;
 - (c) where 2 or more lots are created; and
 - (d) where the size of any lot created is 25 hectares or smaller - complete Part J of Form 1
- ☐ (iii) **operational work** -
- (a) for the clearing of native vegetation where the vegetation clearing is made assessable under Schedule 8 of the IPA; and
 - (b) not associated with a material change of use assessable against the planning scheme mentioned in (i) or reconfiguring a lot mentioned in (ii) - complete Part J of Form 1
- ☒ (iv) none of the above.

Strategic port land

For more information refer to Guide 11.

If you ticked (i) - the relevant Port Authority is the assessment manager for the application.

If you ticked (ii) Queensland Transport is a concurrence agency for the application.

4. The application involves:

- ☐ (i) development on strategic port land as defined in the *Transport Infrastructure Act 1994* (TI Act); - complete Part I of Form 1
- ☐ (ii) a **material change of use** that is **inconsistent** with the land use plan approved under the TI Act for the strategic port land - complete Part I of Form 1
- ☒ (iii) none of the above

Acid sulfate soils

For more information refer to Guide 10.

Unless you answered "none of the above" to Q5, the application requires assessment by Department of Natural Resources and Mines (NR&M).

If an agency other than NR&M is the assessment manager for the application, NR&M is an advice agency for the application in relation to this matter.

5. The application involves development on land situated in an identified⁵ local government area and where the surface of the land is: (tick applicable box)

- ☐ (i) below 20m AHD⁶ and the development will involve the excavation of 1000m³ or more of soil or sediment at or below 5m AHD; or
- ☐ (ii) at or below 5m AHD and the development will involve filling the site with 1000m³ or more of material
- ☒ (iii) for none of the above

5 The identified local government areas are: Ayrakun, Bowen, Brisbane, Broadbeach, Bundaberg, Burdekin, Burke, Burnett, Caboolture, Cairns, Calliope, Caloundra, Cardwell, Carpentaria, Cook, Coooloolo, Douglas, Fitzroy, Gladstone, Gold Coast, Hervey Bay, Hinchinbrooke, Isis, Johnstone, Livingstone, Logan, Mackay, Maroochy, Maryborough, Miriam Vale, Morningside, Noosa, Pine Rivers, Rockhampton, Rockhampton, Sarina, Thuringowa, Tiaro, Torres, Townsville, Whitsunday.

6 Australian Height Datum (AHD).

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Major hazard facilities or possible major hazard facilitiesFor more information refer to Guide 17.If you answered "YES" to Q6, the application requires assessment by the Department of Emergency Services (DES).

If an agency other than DES is the assessment manager for the application, DES is a concurrence agency for the application in relation to this matter.

6. Does the application involve a **material change of use** for a major hazard facility or possible major hazard facility as defined under the *Dangerous Goods Safety Management Act 2001*?

☒ NO
☐ YES - complete Part L of Form 1

Water related development under the Water Act 2000For more information about items (i) – (iv), refer to Guide 15. For more information about item (v), refer to Guide 14. Does my application involve assessment of a referable dam?Unless you answered "none of the above" to Q7, the application requires assessment by the Department of Natural Resources and Mines (NR&M).

If an agency other than NR&M is the assessment manager for the application, NR&M is a concurrence agency for the application in relation to this matter.

7. The application involves:

- ☐ (i) **operational work**, for taking or interfering with water under the *Water Act 2000*, that is: (tick applicable box/es)
- ☐ (a) in a watercourse, lake or spring, or from a dam constructed on a watercourse (eg. a pump, gravity diversion, stream re-direction, weir or dam) - complete Part K₂, K₃, K₄, K₅, or K₆ of Form 1 whichever is applicable;
 - ☐ (b) for an artesian bore anywhere in the State, no matter what the use - complete Part K₁ of Form 1;
 - ☐ (c) for a subartesian bore, in declared groundwater area⁷, for use for purposes other than stock and/or domestic use - complete Part K₁ of Form 1;
 - ☐ (d) for a subartesian bore, in certain declared groundwater area, for use for stock and/or domestic purposes - complete Part K₁ of Form 1;
 - ☐ (e) for constructing a referable dam⁸ or that will increase the storage capacity of a referable dam by more than 10% - complete Part K₅ of Form 1; Or
 - ☐ (f) for taking or interfering with overland flow water - complete Parts K₅ and G of Form 1
- ☒ (ii) none of the above.

Removal of quarry material from a watercourseFor more information refer to Guide 16.If you answered "YES" to Q8, the application requires assessment by the Department of Natural Resources and Mines (NR&M).

If an agency other than NR&M is the assessment manager for the application, NR&M is a concurrence agency for the application in relation to this matter.

Note: Part G of Form 1 is required to be completed as the activity of removing quarry material from a watercourse is also an *Environmentally Relevant Activity (ERA)*.

8. Does the application involve development for the removal of quarry material from a watercourse⁹ requiring an allocation notice under the *Water Act 2000*?

☒ NO
☐ YES - complete Parts K₇ and G of Form 1

Operational works in a tidal area or coastal management districtFor more information refer to Guide 18.Unless you answered "none of the above" to Q9, the application requires assessment by the Environmental Protection Agency (EPA) and you must complete Part M of Form 1.

If an agency other than EPA is the assessment manager for the application, EPA is a concurrence agency for the application in relation to this matter.

9. The application involves **operational work** that is: (tick the applicable box/es)

- ☐ (i) **tidal work**¹⁰ as defined under the *Coastal Protection and Management Act 1995* (the Coastal Act) - complete Part M of Form 1; Or
- ☐ (ii) carried out within a **coastal management district** under the Coastal Act and for - complete Part M of Form 1 if any box (a) to (i) below are ticked.
- ☐ (a) constructing or installing works in a watercourse between MHWS and HAT (i.e. other than those works in tidal water) where the development has been determined not to be assessable against the *Water Act 2000*;
 - ☐ (b) constructing a canal¹¹ intended to be connected to tidal waters;
 - ☐ (c) constructing an artificial waterway;
 - ☐ (d) reclaiming land under tidal water;
 - ☐ (e) disposing of dredge spoil or other solid waste material in tidal water;
 - ☐ (f) interfering with quarry material on State coastal land above high-water mark;
 - ☐ (g) draining or allowing drainage or flow of water or other matter across State coastal land above high-water mark;
 - ☐ (h) removing or interfering with coastal dunes on land, other than State coastal land, that is in an erosion prone area and above high-water mark; or
 - ☐ (i) constructing a bank or bund wall to establish a ponded pasture on land, other than State coastal land, above high-water mark.
- ☒ (iii) none of the above.

7 The declared ground water areas are listed in Guide 13 Development in a declared catchment area.

8 Referable dam is defined under the *Water Act 2000*.

9 Watercourse is defined in sch 10 of the IPA.

10 Tidal work is defined in sch 10 of the IPA.

11 Canal means canal as defined under the *Coastal Protection and Management Act 1995*.

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Tidal works and coastal managementFor more information refer to Guide 18.

Unless you answered "none of the above" to Q10, the application triggers referral to Queensland Transport (QT) (Maritime Safety Qld) as a concurrence agency.

10. The application involves **operational work** that is: (tick the applicable box/es)

- ☐ (i) **tidal work**¹² as defined under the *Coastal Protection and Management Act 1995* (the Coastal Act) – complete Part M of Form 1; OR
- ☐ (ii) carried out within a coastal management district¹³ under the Coastal Act and for –
- ☐ (a) disposing of dredge spoil or other solid waste material in tidal water – complete Part M of Form 1;
- ☐ (b) reclaiming land under tidal water – complete Part M of Form 1; OR
- ☐ (c) constructing a canal¹⁴, if the canal is associated with reconfiguring a lot – complete Part M of Form 1;
- ☒ (iii) none of the above.

Coastal managementFor more information refer to Guide 18.

Unless you answered "none of the above" to Q11, the application requires assessment by the Environmental Protection Agency (EPA).

If an agency other than EPA is the assessment manager for the application, EPA is a concurrence agency for the application in relation to this matter.

11. The application involves: (tick the applicable box/es)

- ☐ (i) a **material change of use** assessable under a planning scheme **involving operational work** carried out completely or partly in a coastal management district¹³
- ☐ (ii) a **material change of use** assessable under a planning scheme **involving building work**, carried out completely or partly in a coastal management district that is –
- the construction of a new premises with a GFA¹⁵ of at least 1000m²
 - the enlargement of the GFA of existing premises by more than 1000m²
- ☐ (iii) **reconfiguring a lot** assessable under schedule 8 of the IPA where the land is situated completely or partly in a coastal management district
- ☐ (iv) **reconfiguring a lot**¹⁶ assessable under schedule 8 of the IPA and in connection with the construction of a canal¹⁴ – complete Part M of Form 1
- ☒ (v) none of the above

Development below high water markFor more information refer to Guide 18.

If you answered "YES" to Q12, the application triggers referral to the Port Authority.

The Port Authority is concurrence agency if the development is –

- within 200m of a shipping channel or an entry and exit shipping corridor for the port
- within 1000m of a swing basin, a commercial shipping wharf, a mooring, anchorage or spoil grounds;
- within 1000m of a planned port facility identified in a land use plan approved under the *Transport Infrastructure Act 1994*.

In all other situation the Port Authority is advice agency.

12. Does the application involve development below high water mark¹⁷ and within the limits of a port under the *Transport Infrastructure Act 1994*?

- ☒ NO
- ☐ YES – complete Part M of Form 1

MarinasFor more information refer to Guide 18.

If you answered "YES" to Q13, the application triggers referral to Queensland Fire and Rescue Service as an advice agency.

13. Does the application involve **operational work** that is tidal work for a marina¹⁸ with more than 6 vessel berths?

- ☒ NO
- ☐ YES – complete Part M of Form 1

Tidal works in strategic port land tidal areasFor more information refer to Guide 18.

If you answered "YES" to Q14, the relevant Port Authority is the assessment manager for the application and the Environmental Protection Agency (EPA) EPA and Queensland Transport (QT) are concurrence agencies for the application.

14. Does the application involve tidal works within the limits of strategic port land tidal areas¹⁹?

- ☒ NO
- ☐ YES – complete Part M of Form 1

HeritageFor further information refer to Guide 19.

If you answered "YES" to Q15, the application triggers referral to the Queensland Heritage Council as concurrence agency for the application.

15. Does the application involve development in a heritage registered place as defined under the *Queensland Heritage Act 1992*?

- ☒ NO
- ☐ YES – complete Part C of Form 1

12. Tidal work is defined in sch 10 of the IPA.

13. Coastal management district is defined in sch 10 of the IPA and means a coastal management district under the *Coastal Protection and Management Act 1995*, other than an area declared as a coastal management district under section 47(2) of that Act.14. Canal means canal as defined under the *Coastal Protection and Management Act 1995*

15. GFA is defined in sch 14 of the IPA to mean the gross floor area. For a definition of how to calculate GFA, go to the planning scheme against which the application is being assessed.

16. Under s117 of the *Coastal Protection and Management Act 1995*, an application for reconfiguration, where the reconfiguration is associated with the construction of an artificial waterway, must be accompanied by the application for the operational works to construct the artificial waterway.17. High water mark is defined in the *Coastal Protection and Management Act 1995* and means the ordinary high water mark at spring tide.18. Marina is defined in the *Transport Operations (Maritime Pollution) Regulation 1995*

19. Strategic port land tidal areas are the areas generally 50 meters seaward of high water mark adjacent to strategic port land.

INTEGRATED PLANNING ACT 1997

IDAS Assessment Checklist, Version 14.0, 19 September 2005

Declared catchment areas

For more information, including a list of the declared catchment areas within Queensland, refer to Guide 13.

Unless you answered "none of the above" to Q16, the application requires assessment by the Department of Natural Resources and Mines (NR&M).

If an agency other than NR&M is the assessment manager for the application, NR&M is a concurrence agency for the application in relation to this matter.

16. The application is in an area declared to be a catchment area under the *Water Act 2000* and involves: (tick the applicable box/es)

- ☐ (i) **reconfiguring a lot**, if any lot resulting from the reconfiguration is less than 16 hectares;
- ☐ (ii) development assessable against the planning scheme involving the establishment or expansion of a waste water disposal system, other than a disposal system for carrying out an environmentally relevant activity under the *Environmental Protection Act 1994*;
- ☒ (iii) none of the above

Contaminated land

Applications involving material change of use and / or reconfiguring a lot may trigger this referral.

For more information refer to Guide 5.

Unless you answered "none of the above" to Q17, the application requires assessment by the Environmental Protection Agency (EPA). If an agency other than EPA is the assessment manager for the application, EPA will be a concurrence agency for the application in relation to this matter.

17. The application involves: (tick the applicable box/es)

- ☐ (i) **reconfiguring a lot** for which all of part of the premises are –
- (a) premises mentioned in the IPA, schedule 8, part 1, table 2 –
 - item 5, including the exemption otherwise provided for by paragraph (d);
 - item 6, including the exemption otherwise provided for by paragraph (e); or
 - item 7, including the exemption otherwise provided for a mining activity or petroleum activity; or
 - (b) in an area for which an area management advice has been given for unexploded ordnance - complete Part N of Form 1
- ☒ (ii) a **material change of use** –
- (a) made assessable under the IPA, schedule 8, part 1, table 2, items 5 to 7; or
 - (b) assessable against the planning scheme and if all or part of the premises is in an area for which an area management advice has been given for unexploded ordnance - complete Part N of Form 1
- ☐ (iii) none of the above

Electricity Infrastructure

For more information refer to schedule 2 of the IP Regulation.

Unless you answered "none of the above" to Q18, the application triggers referral to the agency to which the easement is granted in favour of as advice agency.

18. The application involves: (tick the applicable box/es)

- ☐ (i) **reconfiguring a lot** where any part of the lot is –
- subject to an easement in favour of a distribution entity or transmission entity under the *Electricity Act 1994* and the easement is for a transmission grid or supply network under that Act; or
 - situated within 100m of a substation site;
- ☐ (ii) a **material change of use**, assessable against a planning scheme and not associated with reconfiguring a lot if –
- any part of the premises is subject to an easement in favour of a distribution entity or transmission entity under the *Electricity Act 1994* and the easement is for a transmission grid or supply network under that Act; and
 - any structure or work that is the natural and ordinary consequence of the use is, or will be, located wholly or partly in the easement;
- ☐ (iii) a **material change of use**, assessable against a planning scheme and not associated with reconfiguring a lot if any part of the premises is situated within 100m of a substation site;
- ☐ (iv) **operational work** that is filling or excavation assessable against the planning scheme, not associated with reconfiguring a lot, if –
- any part of the premises is subject to an easement in favour of a distribution entity or transmission entity under the *Electricity Act 1994* and the work is located wholly or partly in the easement;
 - the work is located wholly or partly within 10m of a substation site;
- ☒ (v) none of the above.

Land designated for community infrastructure

Applications involving development on land designated for community infrastructure may trigger this referral.

For more information refer to schedule 2 of the IP Regulation.

If you answered "YES" to Q19, the application requires assessment by the chief executive of the department administering the Act authorising the development for the designated purpose.

If an agency other than the designator is the assessment manager for the application, the designating agency will be a concurrence agency for the application in relation to this matter.

19. Does the application involve development assessable against the planning scheme and on land designated for community infrastructure?

- (i) intended to be supplied by a public sector entity; and
- (ii) on land not owned by or on behalf of the State; and
- (iii) other than development –
 - (a) for the designated purpose; or
 - (b) carried out by, or on behalf of, the designator.

☒ NO

☐ YES

SEQ Regional Plan

For more information refer to schedule 2 of the IP Regulation.

Unless you answered "none of the above" to Q20, the application requires assessment by the Office of Urban Management (OUM).

20. The application involves a **material change of use** of premises in the SEQ Region²⁰ for: (tick the applicable box/es)
- ☐ (i) urban activities²¹, other than where the premises are zoned for urban activities under a planning scheme in a rural village²² or the Mt Lindesay/North Beaudesert Study Area, for which all or part of the premises, the subject of the development, is in the –
- (a) Regional Landscape and Rural Production Area;
- (b) Rural Living Area;
- (c) Investigation Area; or
- (d) Mt Lindesay/North Beaudesert Investigation Area.
- ☐ (ii) rural residential purposes²³ where the premises are not zoned for rural residential purposes and the premises are in the –
- (a) Regional Landscape and Rural Production Area;
- (b) Investigation Area; or
- (c) Mt Lindesay/North Beaudesert Investigation Area;
- ☒ (iii) none of the above

Fisheries matters

For more information refer to schedule 2 of the IP Regulation.

Unless you answered "none of the above" to Q21, the application requires assessment by the Department of Primary Industries and Fisheries (DPI&F).

If an agency other than DPI&F is the assessment manager for the application, DPI&F is a concurrence agency for the application in relation to items (i) – (iv) and an advice agency in relation to item (v).

21. The application involves: (tick the applicable box/es)
- ☐ (i) an assessable **material change of use** for aquaculture - complete Part O₁ of Form 1;
- ☐ (ii) assessable **operational work** that is the construction or raising of a waterway barrier - complete Part O₃ of Form 1;
- ☐ (iii) assessable **operational work** completely or partly within a declared fish habitat area;
- ☐ (iv) assessable **operational work** that is the removal, destruction or damage of a marine plant - complete Part O₂ of Form 1;
- ☐ (v) development assessable under the IPA, schedule 8, part 1, on land that adjoins a declared fish habitat area;
- ☒ (vi) none of the above.

Integration of land use and public transport

For more information refer to Guide 23, schedule 8A of the IPA, & schedule 2 of the IP Regulation.

Unless you answered "none of the above", the application triggers referral to QT as a concurrence agency.

22. The application involves: (tick the applicable box/es)–
- ☐ (i) a **material change of use** assessable against the planning scheme for a purpose mentioned in schedule 13C of the IP Regulation and exceeding the thresholds set by that schedule.
- ☐ (ii) **reconfiguring a lot**–
- ☐ (a) on land that is completely or partly within a public transport corridor, and the total number of lots increases;
- ☐ (b) on land that is completely or partly within a future public transport corridor or an airport's public safety area;
- ☐ (c) on land that is within 400m of a public passenger transport facility or a future public passenger transport facility, and the total site area is 5000m² or greater;
- ☐ (d) for a residential purpose within the 25 ANEF contour for an airport;
- ☐ (e) for a residential purpose resulting in 100 or more allotments.
- ☐ (iii) **operational work** assessable against the planning scheme, but not associated with a material change of use mentioned in (i) above or reconfiguring a lot mentioned in (ii) above, on land that–
- ☐ (a) is completely or partly within a public transport corridor or a future public transport corridor;
- ☐ (b) will result in work that encroaches into an airport's operational airspace.
- ☒ (iv) none of the above.

20 Local Governments within the SEQ Region are identified in the South East Queensland Regional Plan as Beaudesert Shire, Boonah Shire, Brisbane City, Caboolture Shire, Caloundra City, Esk Shire, Gatton Shire, Gold Coast City, Ipswich City, Kilcoy Shire, Laidley Shire, Logan City, Maroochy Shire, Noosa Shire, Pine Rivers Shire, Redcliffe City, Redland Shire and Toowoomba City.

21 Urban activity means urban activity as defined in schedule 2, Part H Regulatory Provisions, South East Queensland Regional Plan. The term includes some facilities and purposes and excludes some purposes. A single residential dwelling on a lot is not included in urban activity.

22 Rural village means rural village as defined in schedule 2, Part H Regulatory Provisions, South East Queensland Regional Plan.

23 Rural residential purpose means rural residential purpose as defined in schedule 2, Part H Regulatory Provisions, South East Queensland Regional Plan.

Railway safety and efficiency

For more information refer to Guide 23, schedule 8A of the IPA & schedule 2 of the IP Regulation.

Unless you answered "none of the above", the application triggers referral to QT as a concurrence agency.

23. The application involves: *(tick the applicable box/es)*—

- ☒ (i) a **material change of use** assessable against the planning scheme for a purpose mentioned in schedule 13D of the IP Regulation and exceeding the thresholds set by that schedule.
- ☐ (ii) **reconfiguring a lot**—
- ☐ (a) on land that is completely or partly within a future public transport corridor, future railway land or a railway tunnel easement;
 - ☐ (b) on land that is within 400m of a Citytrain passenger railway station or a future Citytrain passenger railway station, and the total site area is 5000m² or greater;
 - ☐ (c) on land that abuts rail corridor land, commercial corridor land or future railway land, and the total number of lots increases;
 - ☐ (d) on land that abuts rail corridor land, commercial corridor land or future railway land and an easement abutting the corridor or future railway land is created;
 - ☐ (e) on land that is completely or partly within 100m of, and abutting an approach to, a railway level crossing, and the total number of lots increases;
 - ☐ (f) for a residential purpose resulting in 100 or more allotments.
- ☐ (iii) **operational work** assessable against the planning scheme, but not associated with a material change of use mentioned in (i) above or reconfiguring a lot mentioned in (ii) above, involving extracting, excavating or filling greater than 50m³, on land that—
- ☐ (a) is completely or partly within rail corridor land or commercial corridor land, and the work is not for rail transport infrastructure or other rail infrastructure;
 - ☐ (b) is completely or partly within future railway land, or a railway tunnel easement;
 - ☐ (c) abuts rail corridor land, commercial corridor land or future railway land, and the work is within 25m of the railway boundary.
- ☐ (iv) none of the above.

Referral coordination

An information request requires referral coordination if the application involves —

- (i) 3 or more concurrence agencies; or
- (ii) a facility or area assessable under a planning scheme and prescribed in schedule 7 or 8 of the IP Regulation; or
- (iii) development which is subject to an application for preliminary approval mentioned in s3.1.6 of the IPA.

For more information go to Guide 2 and Guide 6.

24. Does the application trigger referral coordination?

- ☒ NO
- ☐ YES, as the application: *(tick the applicable box/es)*
- ☐ (i) triggers 3 or more concurrence agencies;
 - ☐ (ii) involves a **material change of use** made assessable under a planning scheme and prescribed in schedule 7 of the IP Regulation;
 - ☒ (iii) involves a **material change of use** (other than a dwelling house, outbuilding or farm building) made assessable under a planning scheme, or **reconfiguring a lot**, in an area prescribed in schedule 8 of the IP Regulation;
 - ☐ (iv) is for a preliminary approval mentioned in s3.1.6 of the IPA

Referral agency responses prior to lodgement

Under s3.3.2 of IPA a referral agency may give a referral agency response on a matter within its jurisdiction about a proposal before an application for the proposal is made to the assessment manager.

This is commonly the case where an application requires referral to a building referral agency (eg. Qld Fire and Rescue Service).

25. Did a referral agency give a referral agency response under s3.3.2 of the IPA **before** the application was made to the assessment manager?

- ☒ NO
- ☐ YES - *attach a copy of the referral agency/s response/s*

PLEASE NOTE: The assessment manager may refuse to accept an application, which, at the time of lodgement, fails to provide the completed IDAS Assessment Checklist (if applicable).

OFFICE USE ONLY *(applicable to assessment manager)*

DATE RECEIVED	REFERENCE NUMBER/S
---------------	--------------------

SECTION 2 – BUILDING REFERRALS (completion not mandatory)

Note: Below is a list of the referrals that can apply to an application for building work assessable against the *Standard Building Regulation 1993 (SBR)*. The section of the IDAS Assessment Checklist is provided for **advice only**. This section of the IDAS Assessment Checklist is **not** required to be completed and lodged with an application for building work assessable against the SBR only.

Fire safety For more information go to schedule 2 of the IP Regulation	1. An application may trigger referral to Qld Fire and Rescue Services as an advice agency if the building work the subject of the application requires the installation of a fire safety system.
Fire safety for budget accommodation For more information go to schedule 2 of the IP Regulation	2. An application may trigger referral to Qld Fire and Rescue Services as an advice agency if the building work the subject of the application requires the installation of a fire safety system for a budget accommodation building.
Spray painting For more information go to schedule 2 of the IP Regulation	3. An application may trigger referral to the Department of Industrial Relations (DIR) as a concurrence agency if the application involves a workplace incorporating spray painting.
Retail meat premises For more information go to schedule 2 of the IP Regulation	4. An application may trigger referral to Safe Food Qld as a concurrence agency if the application involves a retail meat premises.
Private health facilities For more information go to schedule 2 of the IP Regulation	5. An application may trigger referral to the Department of Health as a concurrence agency if the application involves a private health facility.
Workplace area less than 2.3m² For more information go to schedule 2 of the IP Regulation	6. An application may trigger referral to the Department of Industrial Relations (DIR) as an advice agency if the application involves a work place area less than 2.3m ² .
Land contiguous to a State-controlled road For more information go to schedule 2 of the IP Regulation	7. An application may trigger referral to the Department of Main Roads as a concurrence agency or advice agency if the application involves land contiguous to a State-controlled road.
Pastoral workers accommodation For more information go to schedule 2 of the IP Regulation	8. An application may trigger referral to the Department of Industrial Relations (DIR) as a concurrence agency if the application involves pastoral workers accommodation.
Child care centre For more information go to schedule 2 of the IP Regulation	9. An application may trigger referral to the Department of Communities as a concurrence agency if the application involves a childcare centre.
Coastal development For more information go to schedule 2 of the IP Regulation	10. An application may trigger referral to the Environmental Protection Agency (EPA) as a concurrence agency if the application involves land completely or partly seaward of a coastal building line ²⁴ .
Heritage For more information go to schedule 2 of the IP Regulation	11. An application may trigger referral to the Heritage Council as a concurrence agency if the application involves a heritage registered place.
Fisheries matters For more information go to schedule 2 of the IP Regulation	12. An application may trigger referral to the Department of Primary Industries and Fisheries (DPI&F) as a concurrence agency if the application involves assessable building work in a declared fish habitat area.
Integration of land use and public transport For more information go to schedule 2 of the IP Regulation	13. An application may trigger referral to Queensland Transport as a concurrence agency if the application involves existing or future public transport corridors, or airport operational airspace ²⁵ .
Railway safety and efficiency For more information go to schedule 2 of the IP Regulation	14. An application may trigger referral to Queensland Transport as a concurrence agency if the application involves future railway land.

²⁴ The coastal building line is defined in State Planning Policy 1/02 "Development of the Coastal Environment".

²⁵ Airspace is as defined in State Planning Policy 1/02 "Development of the Coastal Environment".

Appendix B

Site Locality Plan

Energy Facility Lease Area

KRC Facility Layout Plan

Energy Facility Site Plan

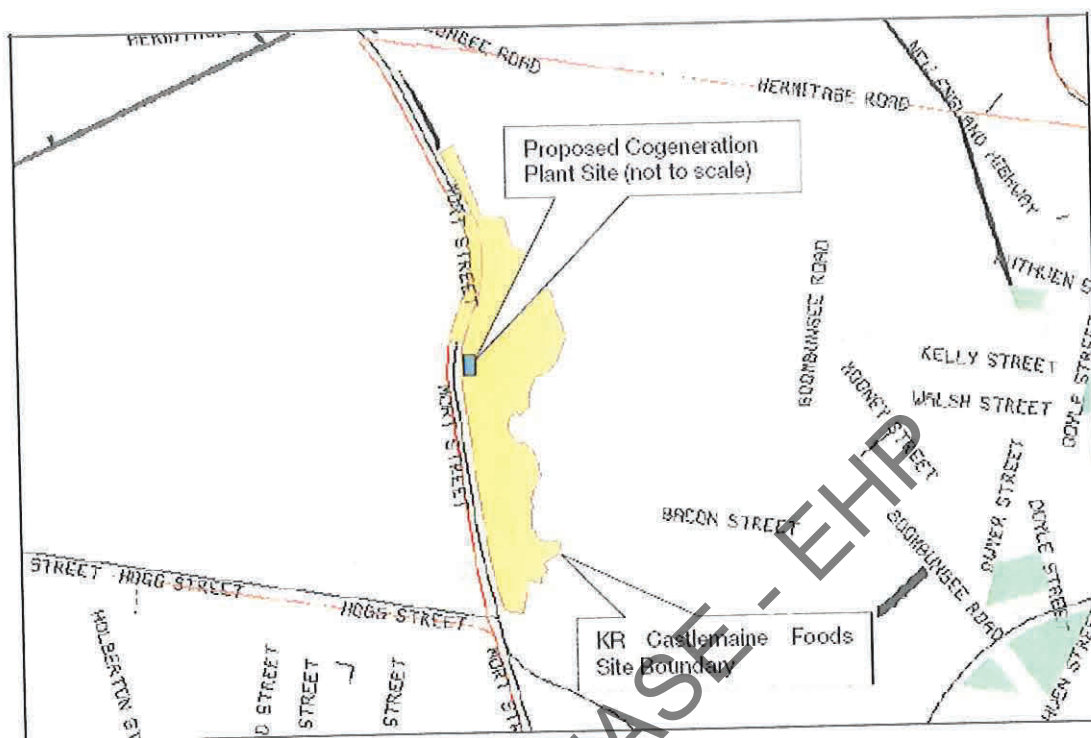
Energy Facility Site Views & Elevations

Distances from Rail Corridor to Facility

Zoning Map

Site Contours

RTI DL RELEASE - EDP

Figure 1: Site Locality Plan

Source: Heggies Australia Pty Ltd (2005).

Figure 2: Central Energy Facility Lease Area

RTI DL RELEASE - EHP

Land Title Act 1994 : Land Act 1994
Form 21 Version 2

SURVEY PLAN

Sheet of
1 1

DIAGRAM A
Not to Scale

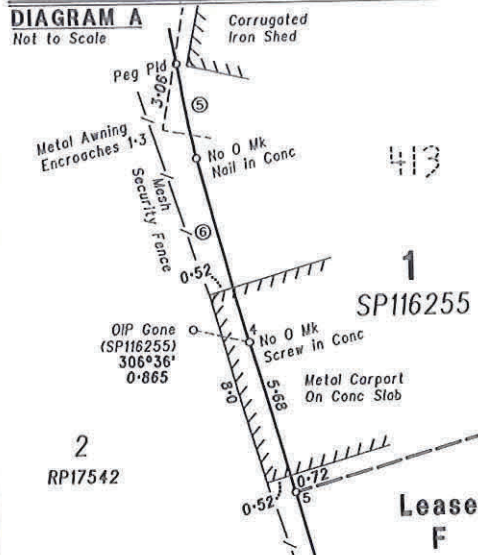
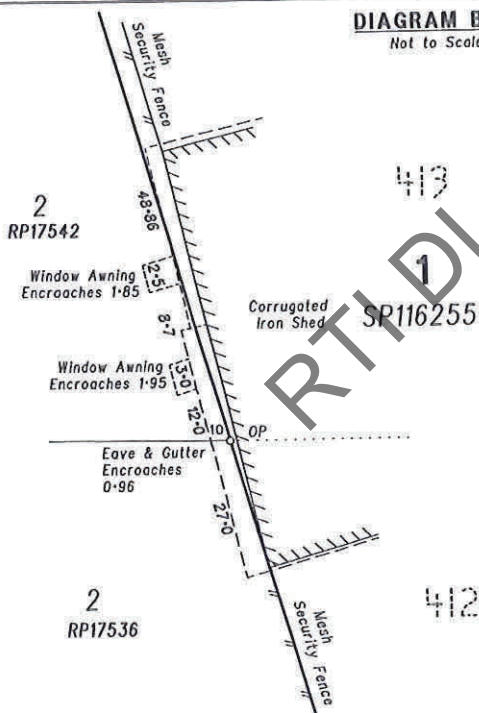


DIAGRAM B
Not to Scale



Note: Curved railway boundary as per
Old Rail Resurvey of 12-10-79
Book Ref No 46-P58 Toowoomba.
See also SP116255

Peg placed at corners 5 & 9

CURVED BOUNDARY DETAILS

LINE	ARC	CHORD	RADIUS
1	8-039	358°59'19"	8-039 283-647
2	18-8	356°16'40"	18-797 283-647
3	18-8	352°28'49"	18-797 283-647
4	8-684	349°42'16"	8-684 283-647
5	10-116	347°48'20"	10-115 283-647
6	14-51	345°19'05"	14-508 283-647

OWR PTY LTD A.C.N. 059 800 010 hereby certify that the land comprised in this plan was surveyed by the corporation, by Daniel Patrick McCOSKER, Registered Surveying Graduate for whose work the corporation accepts responsibility, under the supervision of Jeffrey Peter WILSON, Cadastral Surveyor and that the plan is accurate, that the said survey was performed in accordance with the Survey and Mapping Infrastructure Act 2003 and Surveyors Act 2003 and associated Regulations and Standards and that the said survey was completed on 11 August 2005

Jeffrey Peter WILSON
Director/Cadastral Surveyor

Date:

Lease F

In Lot 1 on SP116255

PARISH: DRAYTON

COUNTY: Aubigny

Meridian: SP116255

F/N's: No

Scale: 1:1000

Format: STANDARD

SP183756

Plan Status:

**WARNING : Folded or Mutilated Plans will not be accepted.
Plans may be rolled.
Information may not be placed in the outer margins.**

(Dealing No.)

Registered

5. Lodged by

(Include address, phone number, reference, and Lodger Code)

1. Certificate of Registered Owners or Lessees.

1/We DARLING DOWNS FOODS PTY LTD ACN 051 834 309

(Names in full)

* as Registered Owners of this land agree to this plan and dedicate the Public Use Land as shown hereon in accordance with Section 50 of the Land Title Act 1994.

* as Lessees of this land agree to this plan.

Signature of *Registered Owners *Lessees

* Rule out whichever is inapplicable.

2. Local Government Certificate.

*

hereby approves this plan in accordance with the:

*

Dated this _____ day of _____

*

*

* Insert the name of the Local Government. * Insert Integrated Planning Act 1997 or Local Government (Planning and Environment) Act 1990.
* Insert designation of signatory or delegation

3. Plans with Community Management Statement:

CMS Number :

Name :

4. References :

Dept File :

Local Govt :

Surveyor : 2659-06-05

6. Existing

Title Reference	Lot	Plan	Created	Lots	Leases	Emts	Road
50274050	1	SP116255	-	-	F	-	-

Encroachment notice issued to the owners of Lot 1 on SP116255, Lot 2 on RP17542 & Lot 2 on RP17536 on 30th August 2005, in accordance with s19 of the Surveying and Mapping Infrastructure Regulation 2004

412, 413, 414

Lots

Orig

7. Portion Allocation :

8. Map Reference :

9242-11143

9. Locality :

HARLAXTON

10. Local Government :

TOOWOOMBA CITY COUNCIL

11. Passed & Endorsed :

By :

Date :

Signed :

Designation :

12. Building Format Plans only.

I certify that :

* As far as it is practical to determine, no part of the building shown on this plan encroaches onto adjoining lots or roads.
* Part of the building shown on this plan encroaches onto adjoining * lots and road

Cadastral Surveyor/Director * Date
* Delete words not required

13. Lodgement Fees :

Survey Deposit \$ _____
Lodgement \$ _____
New Titles \$ _____
Photocopy \$ _____
Postage \$ _____
TOTAL \$ _____

14. Insert Plan Number

SP183756

Figure 3: KR Castlemaine Facility Layout Plan

RTI DL RELEASE - EHP

Figure 4: Central Energy Facility Site Plan

RTI DL RELEASE - EHP

Figure 5: Energy Facility Site Views and Elevations

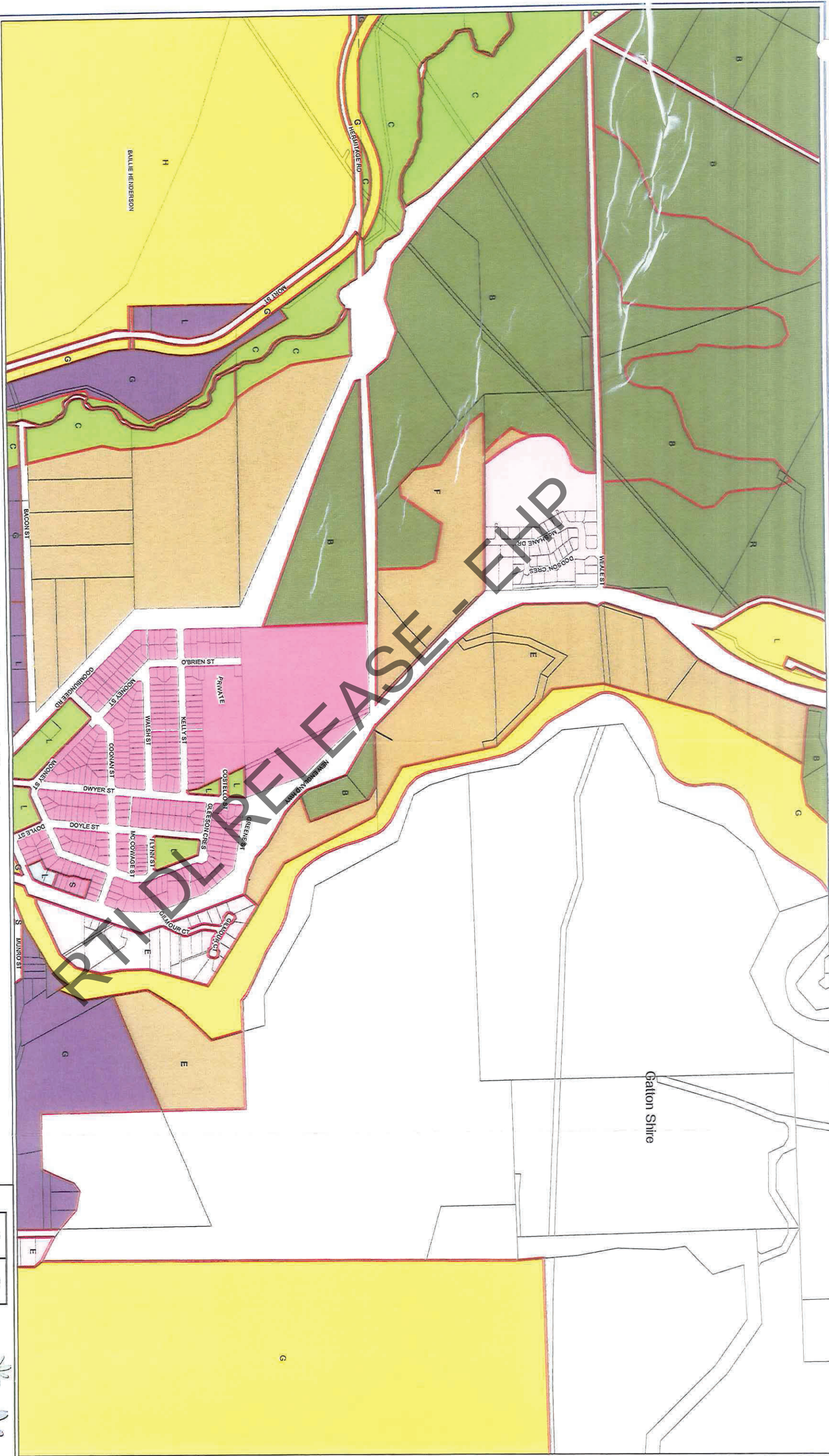
RTI DL RELEASE - EHP

Figure 6: Distances from Rail Corridor to Facility

RTI DL RELEASE - EHP

Figure 7: Zoning Map

RTI DL RELEASE - EHP



TOOWOOMBA PLANNING SCHEME 2003 - ZONE MAP

(- Indicates Precinct Boundary)

- Neighbourhood Residential Zone**
 - E Escarpment Residential Precinct
 - SI Stables Precinct
 - S Suburban Centre Support Precinct
- Residential Conservation Zone**
 - C Heritage Conservation Precinct
 - Ch Heritage Character Precinct
 - T Tourist Residential Precinct
 - S Suburban Centre Support Precinct
- Mixed Housing Zone**
 - R Major Road Residential Precinct
 - H Hospital Support Precinct
 - S Suburban Centre Support Precinct
- Park Residential Zone**
 - R Rural Residential Precinct
 - B Bushland Residential Precinct
- Regional Centre Zone**
 - C City Core Precinct
 - B Business To Business Precinct
 - F Commercial Frame (Office) Precinct
 - P Particular Use Precinct
- Sub-Regional Centres Zone**
 - C Core Precinct
 - S Support Precinct
- Open Space Zone**
 - C City Parks Precinct
 - E Environmental Precinct
 - P Private Recreation Precinct
 - L Local Parks Precinct
- Special Use Zone**
 - H Health Precinct
 - E Education Precinct
 - L Local Govt. Precinct
 - G Other Govt. Precinct
 - En Enterprise Precinct
 - M Miscellaneous Precinct
- Suburban Centres Zone**
 - N Neighbourhood Precinct
 - L Local Precinct
- Industry Zone**
 - G General Industry Precinct
 - L Light Industry Precinct
 - I Industrial Investigation Precinct
- Rural Zone**
 - F Future Urban Land Precinct
 - E Special Escarpment Precinct

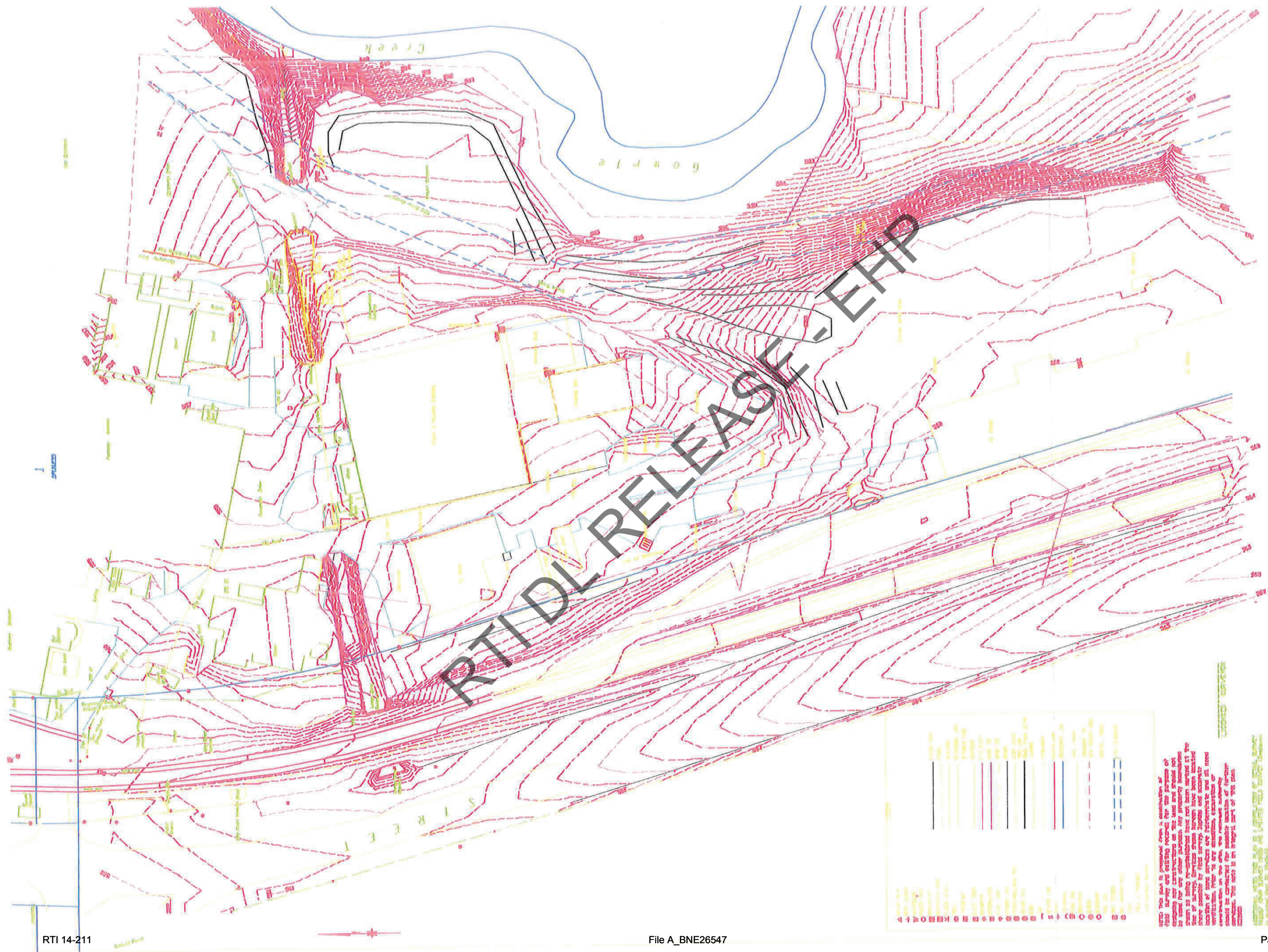


1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21				

4

Figure 8: Site Contour Map

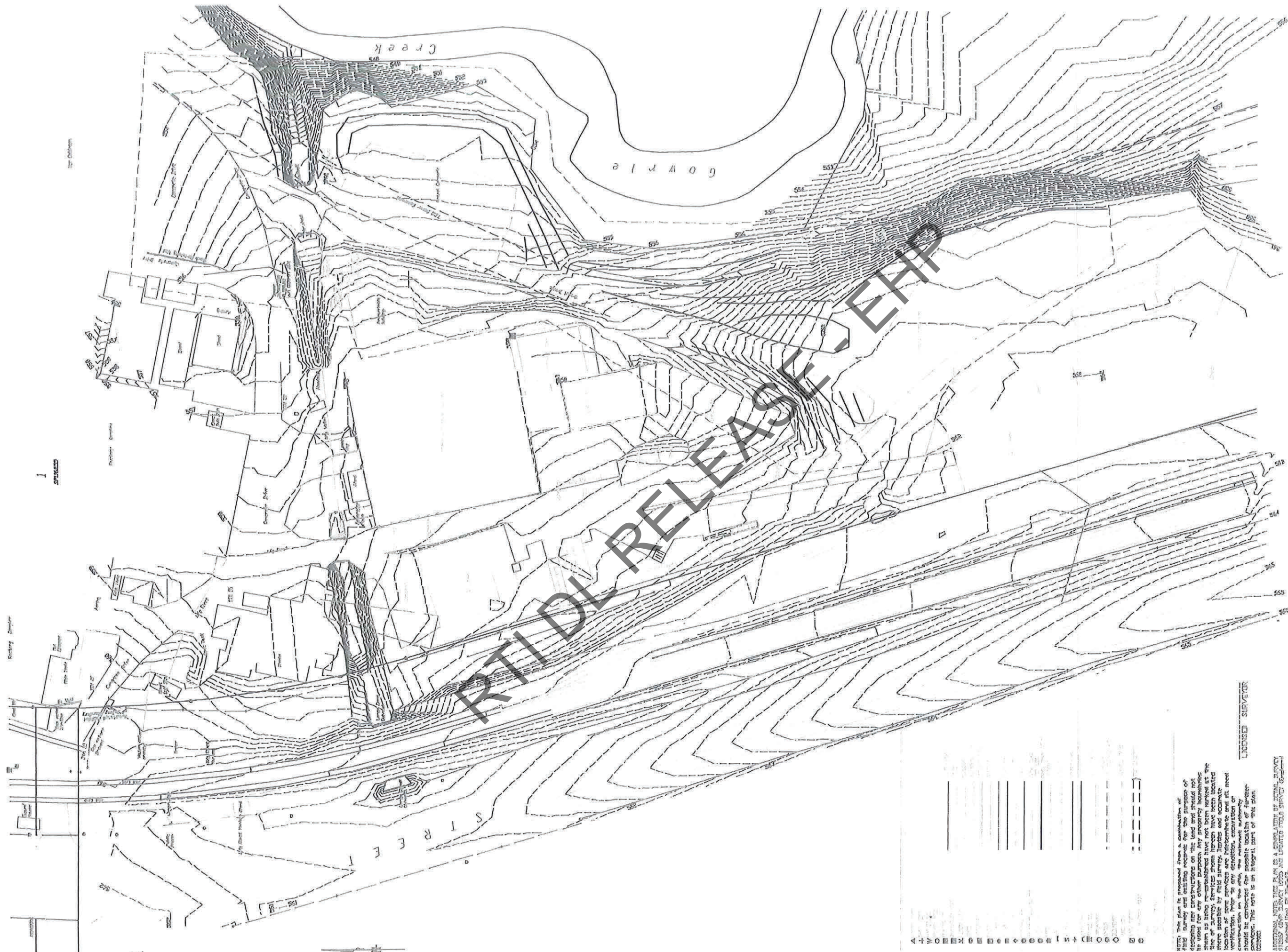
RTI DL RELEASE - EHP



A topographic map of a mountainous region. The map features red contour lines indicating elevation, blue dashed lines representing water bodies or drainage patterns, and yellow rectangular areas that likely represent agricultural fields or land parcels. A prominent diagonal watermark across the center reads "RTI/DL RELEASE - EHP". The map also shows various roads, trails, and small structures.

[illegible]

See SP116255
for Reactions
and Tensions



RTI 14-211

File A_BNE26547

NOTES: This plan is prepared from a combination of field survey and existing records for the purpose of depicting the construction on the land and should not be used for any other purpose. Any property boundaries shown on this plan are based on the best available information and are not guaranteed to be correct. The location of some services are approximate and it is recommended that the location of any service be verified by field survey. It is recommended that the location of any service be verified by field survey. It is recommended that the location of any service be verified by field survey.

LICENSED SURVEYOR

ADDITIONAL NOTES: THIS PLAN IS A COMPLETION OF A SURVEY OF THE LAND AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE. ANY PROPERTY BOUNDARIES SHOWN ON THIS PLAN ARE BASED ON THE BEST AVAILABLE INFORMATION AND ARE NOT GUARANTEED TO BE CORRECT.

DETAIL SURVEY
DARLING TOWNS
FOOD FACTORY
DATE OF Proposed Lots 1 & 2 on SP 068555 is
Part of Lot 255 on SP 068555 & Lot 272 on SP 068555
COUNTY RAILROAD
CLIENT HOME FROM TOWNERSHIP

ORFORD WILSON RALSTON
CONSULTING ENGINEERS & PLANNERS
400 Main Street
Orford, VT 05855
TEL: 802/452-1111
FAX: 802/452-1112
E-MAIL: orford@wilsonralston.com
N 25° E
1:10000
15000

See SP 068555
For Boundary Dimensions

Appendix C

Technical Data

Material Safety Data Sheets

RTI DL RELEASE - EHP

Generator Specification Sheet

RTI DL RELEASE - EHP

technical data

gas engines series 4000 L61

natural gas applications

methane number > 70
data for NOx emission < 0,5 g/m³_N
speed = 1.500 rpm

16V 4000 L61

load		100%	75%	50%
engine power (ICFN) ^{a1}	kWm	1.600	1.200	800
mean effective pressure	bar	16,8	12,8	8,4
engine efficiency	%	42,6	41,3	38,1
heat balance				
primary energy consumption (+5% tolerance)	kW	3.784	2.903	2.100
engine jacket water heat, high temperature (HT)	kW	808	805	487
exhaust gas heat (cooled down to 120°C)	kW	889	712	534
total heat to be utilized (± 8 % tolerance)	kW	1.677	1.317	991
mixture cooling heat, LT (40 °C)	kW	98	74	53
radiation and convective heat	kW	107	83	93
total efficiency	%	87,1	86,7	85,3
HT-cooling circuit				
engine coolant inlet / outlet	°C	80 / 82	83 / 92	85 / 92
engine coolant flow (30% glycol)	m ³ /h	62,9	62,9	62,9
pressure drop at nominal volume flow	bar	2,1	2,1	2,1
coolant capacity (without external system)	dm ³	270	270	270
LT-cooling circuit				
mixture coolant temperature	°C	40 / 43,5	40 / 42,7	40 / 42,0
mixture coolant flow (30% glycol)	m ³ /h	26	26	26
pressure drop at nominal volume flow	bar	0,83	0,83	0,83
coolant capacity (without external system)	dm ³	22	22	22
gas supply ^{a2}				
gas flow pressure before engine (adjustable)	mbar	180 - 200		
gas volume flow (+5% tolerance)	m ³ /h	375	290	210
combustion air ^{a2}				
combustion air mass flow	kg/h	8.088	6.154	4.347
combustion air volume flow	m ³ /h	6.231	4.741	3.349
pressure loss before filter, max. permissible	mbar	5	5	5
exhaust gas ^{a2}				
mass flow	kg/h	8.385	6.367	4.501
temperature after turbocharger	°C	454	479	500
back pressure after turbocharger, design value	mbar	50		
exhaust gas emissions				
with oxidation catalytic converter				
NOx in dry exhaust gas	mg/m ³ _N (5% O ₂)	< 500	< 500	< 500
CO in dry exhaust gas	mg/m ³ _N (5% O ₂)	< 300	< 300	< 300
without oxidation catalytic converter				
NOx in dry exhaust gas	mg/m ³ _N (5% O ₂)	< 500	< 500	< 500
CO in dry exhaust gas	mg/m ³ _N (5% O ₂)	< 1.000	< 1.000	< 1.000
lube oil				
lube oil capacity (total / change quantity)	dm ³	285 / 250	285 / 250	285 / 250
lube oil consumption (at full load after 1.000 op.h.)	g/kW/h	0,2		
electric starter				
voltage	V		24	
power	kW		1 x 9	

^{a1} performance data based on ISO conditions

^{a2} all figures based on natural gas with LCV = 10,025 kWh/m³_N



DaimlerChrysler Off-Highway

SGS/November 2004

16V4000L61 TAL partload

Technical Data **Gas Engine Generator Sets with Engine Series 4000 L61**

- 13 -

400 V, 50 Hz, Power Factor cos phi = 1**16V 4000 L61 Genset****Data for NOx Emission Level****g/m³_N****0.5
(TA-Luft)**

Intake air system			
Intake air mass flow rate	kg/h (lb/min)	R	8,088 (297)
Intake air depression before filter, max. permissible	mbar (in HG)	L	5 (0.15)
Exhaust system			
Exhaust mass flow rate	kg/h (lb/min)	R	8,364 (307)
Exhaust volume flow rate	m _N ³ /h (cuft/min)	R	6,566 (3,865)
Exhaust temperature after turbocharger	°C (°F)	R	454 (849)
Exhaust back pressure after turbocharger, max. permissible	mbar (in HG)	L	50 (1.5)
Gas system			
Gas pressure before engine (adjustable)	mbar (in HG)	L	180 - 200 (5.3 - 6)
Gas temperature	°C (°F)	L	10 - 30 (50 - 86)
Exhaust emissions (for operation with natural gas, with oxidation catalytic converter, dry exhaust gas)			
NOx	mg/m ³ _N (5% O ₂)	G	< 500
CO	mg/m ³ _N (5% O ₂)	R	< 300
(for operation with natural gas, without oxidation catalytic converter, dry exhaust gas)			
NOx	mg/m ³ _N (5% O ₂)	G	< 500
CO	mg/m ³ _N (5% O ₂)	R	1,000
Noise emissions			
Genset surface noise (tolerance 3 dB(A)) (A-weighted sound pressure level in 1 m)	dB[A]	R	100
Exhaust noise, unsilenced (tolerance 3 dB(A)) (A-weighted sound pressure level in 1 m)	dB[A]	R	107

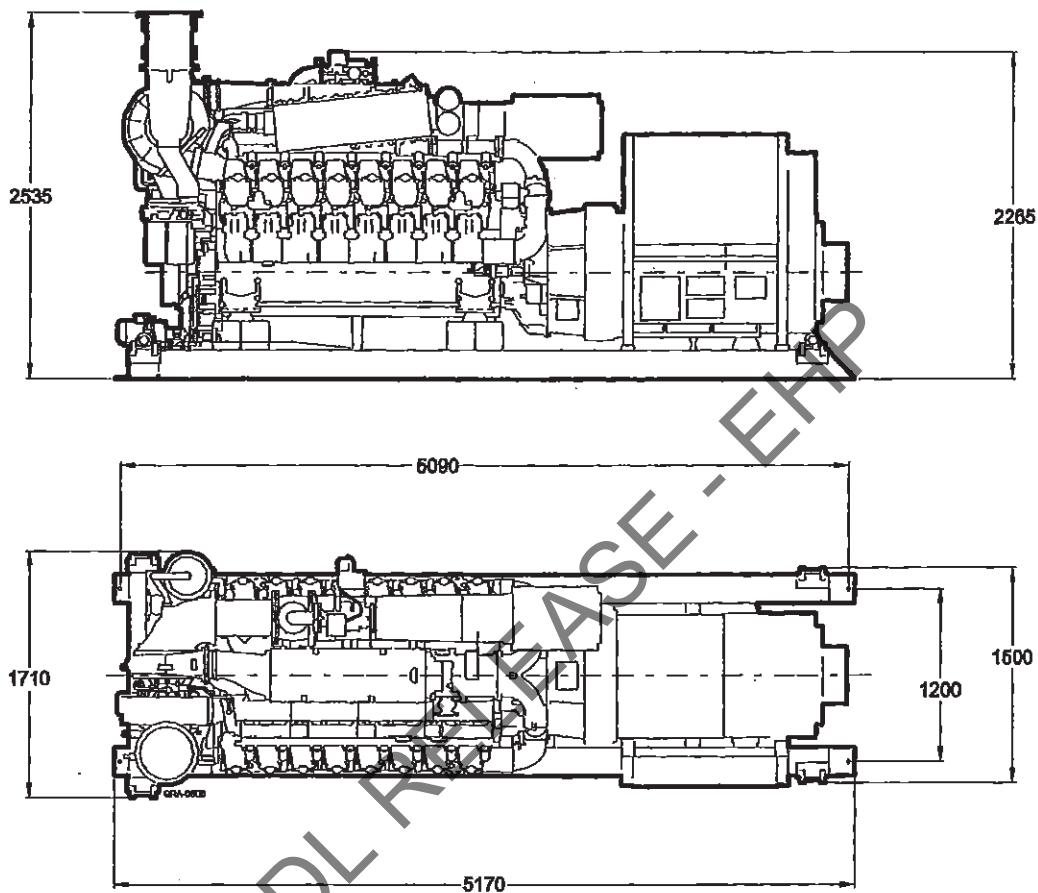
A = Design value; G = Guaranteed value; R = Guideline value;
 L = Limit value up to which the engine can be operated without change (e.g. of power setting)

SIMD 05 159 (68 SE) 1/05

Technical Data
Gas Engine Generator Sets with Engine Series 4000 L61

- 15 -

16V 4000 L61 Genset



Weight [dry] kg (lb): approx. 13,500 (29,762)
Dimensions mm
Drawing may show optional equipment

SMD 05 159 (88 3E) 1/05

MSDS: Gas Engine Lubrication Oil

RTI DL RELEASE - EHP

ExxonMobil

602466-85 PEGASUS 805
MATERIAL SAFETY DATA BULLETIN

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: PEGASUS 805

MANUFACTURER CODE: 602466

CMCS CODE: 97D936

SUPPLIER: MOBIL OIL AUSTRALIA PTY LTD
12 RIVERSIDE QUAY
SOUTHBANK, VICTORIA 3006
AUSTRALIA

A.B.N. 88 004 052 984

After hours: National Emergency Communication System
Product Information contact: 1-800-033-869

1-800-023-005

Supplier General Contact: 1-800-631-296

Worksafe Classification: Not classified as hazardous according to
criteria of Worksafe Australia.

2. COMPOSITION/INFORMATION ON INGREDIENTS

GENERIC COMPOSITION: PET. HYDROCARBONS AND ADDITIVES

GLOBALLY REPORTABLE MSDS INGREDIENTS:

None.

3. HAZARDS IDENTIFICATION

This product is not considered hazardous according to regulatory
guidelines (See Section 1).

POTENTIAL HEALTH EFFECTS: Under normal conditions of intended use,
this product does not pose a risk to health. Excessive exposure
may result in eye, skin or respiratory irritation.

For further health effects/toxicological data, see Section 11.

4. FIRST AID MEASURES

EYE CONTACT: Flush thoroughly with water. If irritation persists, call a doctor.

SKIN CONTACT: Wash contact areas with water. Remove and clean oil soaked clothing daily and wash affected area. (See Section 16 - Injection Injury)

INHALATION: Not expected to be a problem. However, if respiratory irritation, dizziness, nausea, or unconsciousness occurs due to excessive vapour or mist exposure, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or mouth-to-mouth resuscitation.

INGESTION: Not expected to be a problem. Seek medical attention if discomfort occurs. Do not induce vomiting.

NOTE TO PHYSICIANS: Treat symptoms with reference to specific health effects identified above.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: Foam, dry chemical, CO2 and water fog.

SPECIAL FIRE FIGHTING PROCEDURES: Water or foam may cause frothing. Use water to cool fire-exposed containers. Water spray may be used to flush spills away from exposures. Prevent runoff from fire control or dilution from entering waterways, sewers or drinking water supply.

SPECIAL PROTECTIVE EQUIPMENT: For fires in enclosed areas, firefighters must use self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

COMBUSTION PRODUCTS: Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

Flash Point C (F): 246(475) (IP 34 / ASTM D-93).

Flammable Limits (approx.% vol.in air)- LEL 0.9%, UEL: 7.0%

NFPA HAZARD ID: Health: 0, Flammability: 1, Reactivity: 0

6. ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES: Report spills as required to appropriate authorities. In case of accident or road spill, contact the Police and Fire Brigade and, if appropriate, the Area Water Authority.

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED:

LAND SPILL: Shut off source taking normal safety precautions. Take measures to minimize the effects on ground water. Recover by pumping or contain spilled material with sand or other suitable absorbent and remove mechanically into containers. If necessary, dispose of adsorbed residues as directed in Section 13.

WATER SPILL: Confine the spill immediately with booms. Warn other ships in the vicinity. Notify port and other relevant authorities. Remove from the surface by skimming or with suitable absorbents. If permitted by regulatory authorities the use of suitable dispersants should be considered where recommended in local oil spill procedures.

ENVIRONMENTAL PRECAUTIONS: Prevent material from entering sewers,

water sources or low lying areas; advise the relevant authorities if it has, or if it contaminates soil/vegetation.
PERSONAL PRECAUTIONS: See Section 8

7. HANDLING AND STORAGE

HANDLING: No special precautions are necessary beyond normal good hygiene practices. See Section 8 for additional personal protection advice when handling this product.

STORAGE: Keep containers closed when not in use. Do not store in open or unlabelled containers. Store away from strong oxidizing agents and combustible materials. Do not store near heat, sparks, flame or strong oxidants. See Section 15 for Regulatory information when storing this product.

SPECIAL PRECAUTIONS: Prevent small spills and leakages to avoid slip hazard.

EMPTY CONTAINER WARNING: Empty containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:

When mists/aerosols can occur, the following is recommended: 5 mg/m³ as oil mist (NOHSC).

VENTILATION: If mists are generated, use adequate ventilation, local exhaust or enclosures to control below exposure limits.

RESPIRATORY PROTECTION: If mists are generated, and/or when ventilation is not adequate, wear approved respirator.

EYE PROTECTION: If eye contact is likely, safety glasses with side shields or chemical type goggles should be worn.

SKIN PROTECTION: When splashing or liquid contact can occur frequently, wear oil resistant gloves and/or other protective clothing. Good personal hygiene practices should always be followed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Typical physical properties are given below. Consult Product Data Sheet for specific details.

PHYSICAL STATE: Liquid
COLOUR: Light Amber
ODOUR: Marketable

ODOUR THRESHOLD (ppm): NE
 pH: NA
 Boiling Point C (F): NE
 Melting Point C (F): NA
 Flash Point C(F): 246(475) (IP 34 / ASTM D-93)
 FLAMMABILITY (solids): NE
 AUTO FLAMMABILITY C(F): NA
 EXPLOSIVE PROPERTIES: NA
 OXIDIZING PROPERTIES: NA
 Vapour Pressure-mm Hg 20 C: < 0.1
 VAPOUR DENSITY: > 2.0
 EVAPORATION RATE: NE
 Relative Density, 15/4 C: 0.88
 Solubility in Water: Negligible
 PARTITION COEFFICIENT: > 3.5
 Viscosity at 40 C, cSt: 130.0
 Viscosity at 100 C, cSt: 12.7
 Pour Point C: -15(5)
 FREEZING POINT C(F): NE
 DMSO EXTRACT, IP-346 (WT.%): <3, for mineral oil only
 NA=Not Applicable, NE=Not Established, D=Decomposes

For further technical information, contact your Mobil Marketing Representative.

10. STABILITY AND REACTIVITY

STABILITY (Thermal, Light, etc.): Stable.
 CONDITIONS TO AVOID: Extreme heat and high energy sources of ignition.
 INCOMPATIBILITY (Materials to Avoid): Strong oxidisers.
 HAZARDOUS DECOMPOSITION PRODUCTS: Product does not decompose at ambient temperatures.
 HAZARDOUS POLYMERISATION: Will not occur.

11. TOXICOLOGICAL DATA

---ACUTE TOXICOLOGY---

ORAL TOXICITY: Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.
 DERMAL TOXICITY: Practically non-toxic (LD50: greater than 2000 mg/kg). ---Based on testing of similar products and/or the components.
 INHALATION TOXICITY: Practically non-toxic ---Based on testing of similar products and/or the components.
 EYE IRRITATION: Practically non-irritating. (Draize score: greater than 6, but 15 or less). ---Based on testing of similar products and/or the components.
 SKIN IRRITATION: Practically non-irritating. (Primary Irritation Index: greater than 0.5, but less than 3). ---Based on testing of similar products and/or the components.
 OTHER ACUTE TOXICITY DATA: Although an acute inhalation study was not performed with this product, a variety of mineral and synthetic oils, such as those in this product, have been tested. These samples had virtually no effect other than a nonspecific

inflammatory response in the lung to the aerosolized mineral oil. The presence of additives in other tested formulations (in approximately the same amounts as in the present formulation) did not alter the observed effects.

---SUBCHRONIC TOXICOLOGY (SUMMARY)---

No significant adverse effects were found in studies using repeated dermal applications of similar formulations to the skin of laboratory animals for 13 weeks at doses significantly higher than those expected during normal industrial exposure. The animals were evaluated extensively for effects of exposure (hematology, serum chemistry, urinalysis, organ weights, microscopic examination of tissues etc.).

---REPRODUCTIVE TOXICOLOGY (SUMMARY)---

No teratogenic effects would be expected from dermal exposure, based on laboratory developmental toxicity studies of major components in this formulation and/or materials of similar composition.

---CHRONIC TOXICOLOGY (SUMMARY)---

Repeated and/or prolonged exposure may cause irritation to the skin, eyes or respiratory tract. Overexposure to oil mist may result in oil droplet deposition and/or granuloma formation. For mineral base oils: Base oils in this product are severely solvent refined and/or severely hydrotreated. Chronic mouse skin painting studies of severely treated oils showed no evidence of carcinogenic effects. These results are confirmed on a continuing basis using various screening methods such as Modified Ames Test, IP-346, and/or other analytical methods. For synthetic base oils: The base oils in this product have been tested in the Ames assay and other tests of mutagenicity with negative results. These base oils are not expected to be carcinogenic with chronic dermal exposures.

---SENSITIZATION (SUMMARY)---

Not expected to be sensitizing based on tests of this product, components, or similar products.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE AND EFFECTS:

In the absence of specific environmental data for this product, this assessment is based on information for representative products.

ECOTOXICITY: Available ectotoxicity data (LL50 >1000 mg/L) indicates that adverse effects to aquatic organisms are not expected from this product.

MOBILITY: When released into the environment, adsorption to sediment and soil will be the predominant behavior.

PERSISTENCE AND DEGRADABILITY: This product is expected to be inherently biodegradable.

BIOACCUMULATIVE POTENTIAL: Bioaccumulation is unlikely due to the very low water solubility of this product, therefore bioavailability to aquatic organisms is minimal.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Product is suitable for burning in an enclosed, controlled burner for fuel value. In addition, the product is suitable for processing by an approved recycling facility or can be disposed of at an appropriate licensed waste disposal site. Use of these methods is subject to user compliance with applicable laws and regulations and consideration of product characteristics at time of disposal.

14. TRANSPORT INFORMATION

ACTDG: NOT REGULATED BY ACTDG.

IMO: NOT REGULATED BY IMO

IATA: NOT REGULATED BY IATA

STATIC ACCUMULATOR (50 picosiemens or less): YES

15. REGULATORY INFORMATION

Australian Classifications:

UN Number: NA

HAZCHEM Code: Not applicable

Dangerous Goods Class/Subsidiary Risk: Not applicable

Packaging Group: NA

AS 1940 Class: C2

Poisons Schedule: Not applicable

EC Labeling: Product is not dangerous as defined by the European Union Dangerous Substances/Preparations Directives. EU labeling not required.

Governmental Inventory Status: All components comply with European EINECS/ELINCS, US TSCA, Australian AICS and Japanese METI.

THE FOLLOWING PRODUCT INGREDIENTS ARE CITED ON THE LISTS BELOW:

CHEMICAL NAME	CAS NUMBER	LIST CITATIONS		
*** NO REPORTABLE INGREDIENTS ***				
--- REGULATORY LISTS SEARCHED ---				
1=IARC 1	2=IARC 2A	3=IARC 2B	4=NTP CARC	5=NTP SUS
6=ACGIH	7=ACGIH CARC	8=ACGIH SUS		

CARC=CARCINOGEN; SUS=SUSPECTED CARCINOGEN; TERAT=TERATOGENIC

16. OTHER INFORMATION

USE: ENGINE LUBRICANT

NOTE: EXXONMOBIL PRODUCTS ARE NOT FORMULATED TO CONTAIN PCBS.

Health studies have shown that many hydrocarbons pose potential human health risks which may vary from person to person. Information provided on this MSDS reflects intended use. This product should not be used for other applications. In any case, the following advice should be considered:

INJECTION INJURY WARNING: If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

INDUSTRIAL LABEL

Under normal conditions of use, this product should not pose a risk to health. However, users should avoid overexposure to liquids and mists which may result in eye, skin or respiratory irritation. Always observe good hygiene measures. First Aid: Wash skin with soap and water. Flush eyes with water. If overcome by fumes or vapor, remove to fresh air. If ingested, do not induce vomiting. If symptoms persist seek medical assistance. Read and understand the MSDS before using this product.

This MSDS meets Worksafe Australia accepted format requirements.

For Internal Use Only: MHC: 1* 1* 1* 1* 1*, MPPEC: A, TRN:

602466-85, CMCS97: 97D936

Issue Date: 06DEC2001

Information given herein is offered in good faith as accurate, but without guarantee. Conditions of use and suitability of the product for particular uses are beyond our control; all risks of use of the are therefore assumed by the user and WE EXPRESSLY DISCLAIM ALL WARRANTIES OF EVERY KIND AND NATURE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE IN RESPECT TO THE USE OR SUITABILITY OF THE PRODUCT. Nothing is intended as a recommendation for uses which infringe valid patents or as extending license under valid patents. Appropriate warnings and safe handling procedures should be provided to handlers and users.

Prepared by: Exxon Mobil Corporation
EMBSI, Clinton, NJ USA
For further information, contact:
See Section 1 for Local Contact number

RTI DL RELEASE - EHP

MSDS: Gas Engine Coolant Solution

RTI DL RELEASE - EHP

**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCO 3443****EMERGENCY TELEPHONE NUMBER**

Australia: 1 800 033 111 New Zealand: 0 800 734 607

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : NALCO 3443

APPLICATION : COOLANT

COMPANY IDENTIFICATION : Nalco Australia Pty Ltd
 2 Anderson Street
 Botany N.S.W. 2019
 Australia
 A.B.N. 41 000 424 788
 TEL: (02) 9316 3000
 FAX: (02) 9666 5292

Nalco New Zealand Ltd
 44 Cryers Road
 East Tamaki
 New Zealand
 TEL: 64 9 2745032
 FAX: 64 9 2747924

EMERGENCY TELEPHONE NUMBER : 1 800 033111 (Australia) 0800 734607 (New Zealand)

Date issued : 22-Aug-02

2. COMPOSITION/INFORMATION ON INGREDIENTS

Not classified as hazardous according to the criteria of the National Occupational Health and Safety Commission (NOHSC). Consult Section 15 for the nature of the hazard(s).

CHEMICAL DESCRIPTION : Organic acid derivative, water.

CHEMICAL NAME	CAS NO	% (w/w)
Ingredients determined not to be hazardous	-	100

3. HAZARDS IDENTIFICATION**HUMAN HEALTH HAZARDS - ACUTE**

EYE CONTACT
 Can cause mild irritation.

SKIN CONTACT
 May cause irritation with prolonged contact.

INGESTION
 Not a likely route of exposure. No adverse effects expected.

INHALATION
 Not a likely route of exposure. No adverse effects expected.

HUMAN HEALTH HAZARDS - CHRONIC
 No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

EYE CONTACT

ONDEO Nalco Australia Pty Ltd Head Office: 2 Anderson St., Botany NSW 2019
 Telephone: (02) 9316 3000 Facsimile: (02) 9666 5292
 ONDEO Nalco New Zealand Ltd 44 Cryers Road, East Tamaki, NZ; Tel. 64 9 2745032
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**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCO 3443****EMERGENCY TELEPHONE NUMBER**

Australia: 1 800 033 111

New Zealand: 0 800 734 607

Immediately flush eye with water for at least 15 minutes while holding eyelids open. If symptoms develop, seek medical advice.

SKIN CONTACT

Flush affected area with water. If symptoms develop, seek medical advice.

INGESTION

Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. If reflexive vomiting occurs, rinse mouth and repeat administration of water. If symptoms develop, seek medical advice.

INHALATION

Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN

Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

Flash Point :

Not flammable

EXTINGUISHING MEDIA

Not expected to burn. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD

Not flammable or combustible.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES**PERSONAL PRECAUTIONS**

Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Ventilate spill area if possible.

METHODS FOR CLEANING UP

SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. **LARGE SPILLS:** Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Wash site of spillage thoroughly with water. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS

Do not contaminate surface water.

7. HANDLING AND STORAGE**HANDLING**

ONDEO Nalco Australia Pty Ltd Head Office: 2 Anderson St., Botany NSW 2019
Telephone: (02) 9316 3000 Facsimile: (02) 9666 5292
ONDEO Nalco New Zealand Ltd 44 Cryers Road, East Tamaki, NZ; Tel. 64 9 2745032

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MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 3443

EMERGENCY TELEPHONE NUMBER

Australia: 1 800 033 111 New Zealand: 0 800 734 607

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Avoid generating aerosols and mists. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS

Store in suitable labeled containers. Store the containers tightly closed.

SENSITIVITY TO STATIC DISCHARGE

Not expected to be sensitive to static discharge.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS

None of the components have been assigned an exposure standard by NOHSC (Australia) or OSH (New Zealand).

ENGINEERING MEASURES

General ventilation is recommended.

PERSONAL PROTECTION

GENERAL ADVICE

The use and choice of personal protection equipment is related to the hazard of the product, the workplace and the way the product is handled. In general, we recommend as a minimum precaution that safety glasses with side-shields and workclothes protecting arms, legs and body be used. In addition any person visiting an area where this product is handled should at least wear safety glasses with side-shields.

RESPIRATORY PROTECTION

Respiratory protection is not normally needed.

HAND PROTECTION

PVC gloves, rubber gloves, neoprene gloves, nitrile gloves, butyl gloves.

SKIN PROTECTION

Wear standard protective clothing.

EYE PROTECTION

Wear safety glasses with side-shields.

HYGIENE RECOMMENDATIONS

Use good work and personal hygiene practices to avoid exposure. Consider the provision in the work area of a safety shower and eyewash. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Light green
Flash Point	Not flammable
SPECIFIC GRAVITY	1 - 1.01 @ 20 °C
SOLUBILITY IN WATER	Complete
pH (100%)	8.2 - 9

ONDEO Nalco Australia Pty Ltd Head Office: 2 Anderson St., Botany NSW 2019
 Telephone: (02) 9316 3000 Facsimile: (02) 9666 5292
 ONDEO Nalco New Zealand Ltd 44 Cryers Road, East Tamaki, NZ; Tel. 64 9 2745032
 3 / 6

**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCO 3443****EMERGENCY TELEPHONE NUMBER**

Australia: 1 800 033 111 New Zealand: 0 800 734 607

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY**STABILITY**

Stable under normal conditions.

HAZARDOUS POLYMERIZATION

Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Freezing temperatures.

MATERIALS TO AVOID

None known.

11. TOXICOLOGICAL INFORMATION**ACUTE TOXICITY DATA**

No toxicity studies have been conducted on this product.

SENSITIZATION

This product is not expected to be a sensitizer.

CARCINOGENICITY

None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION

Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION**ECOTOXICOLOGICAL EFFECTS**

No toxicity studies have been conducted on this product.

MOBILITY AND BIOACCUMULATION POTENTIAL

If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages; < 5%; 30 - 50%; 50 - 70%; The portion in water is expected to be soluble or dispersible.

This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: Low

13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with local, state, and federal regulations.

Dispose of wastes in an approved incinerator or waste treatment/disposal site, in accordance with all applicable regulations. Do not dispose of wastes in local sewer or with normal garbage.

ONDEO Nalco Australia Pty Ltd Head Office: 2 Anderson St., Botany NSW 2019**Telephone: (02) 9316 3000 Facsimile: (02) 9666 5292****ONDEO Nalco New Zealand Ltd 44 Cryers Road, East Tamaki, NZ; Tel. 64 9 2745032**

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**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCO 3443****EMERGENCY TELEPHONE NUMBER****Australia: 1 800 033 111****New Zealand: 0 800 734 607****14. TRANSPORT INFORMATION**

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are:

LAND TRANSPORT (ADG)

Proper Shipping Name

PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA)

Proper Shipping Name

PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO)

Proper Shipping Name

PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION**AUSTRALIA:**

Not classified as hazardous according to the criteria of the National Occupational Health and Safety Commission (NOHSC).

CLASSIFICATION: This product is not classified as hazardous, however, we recommend the following safety instructions:

SAFETY PHRASES:

S24/25 Avoid contact with skin and eyes.
S37/39 Wear suitable gloves and eye/face protection.

NICNAS:

All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS) and are listed on the Australian Inventory of Chemical Substances (AICS).

SUSDP SCHEDULE : Not Listed

NEW ZEALAND:

NZ SCHEDULE : Not Listed

INTERNATIONAL CHEMICAL CONTROL LAWS :**TOXIC SUBSTANCES CONTROL ACT (TSCA)**

This product has not been evaluated for TSCA and may contain substances not found on the TSCA 8(b) Inventory List. This product may be used under the TSCA 5(h)(3) Research Exemption if all requirements are met.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

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**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCO 3443****EMERGENCY TELEPHONE NUMBER**

Australia: 1 800 033 111 New Zealand: 0 800 734 607

This product contains substance(s) which are found on the Non-Domestic Substances List (NDSL), or are not in compliance with the Canadian Environmental Protection Act (CEPA) and may require additional review.

16. OTHER INFORMATION

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight(tm) CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS(tm) CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS(tm) CD-ROM Version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight(tm) CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS(tm) CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight(tm) (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight(tm) CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS(tm) CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By EH&S Product Safety Specialist; Telephone (02) 9316 3162

Date issued: 22-Aug-02

Replaces: 12-Sep-00

Reason for issue: Regular update.

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MSDS: Diesel Fuel for Standby Generator

RTI DL RELEASE - EHP

Appendix D

Toowoomba Planning Scheme 2003 Assessment Against Codes

RTI DL RELEASE - EHP

1. Industry Zone Code

Performance Criteria	Acceptable Measures	Proposal Assessment
P1 Buildings are set-back from the road frontage in such a way that: <ul style="list-style-type: none"> significant landscaping is able to be provided at the front of the Site; visitor car parking is able to be provided in an easily visible location at or near the front of the Site; and the building contributes to an attractive and consistent streetscape 	A1 The buildings are set-back not less than: <ul style="list-style-type: none"> 15 m from any road frontage where the Site is located in the General Industry Precinct; and 7.5 m from any arterial or sub-arterial road frontage and 6 m from any other road frontage otherwise. 	Not Applicable to the Development. <p>The facility site does not have a road frontage and is wholly contained within the existing KRC industrial property. The KRC site provides adequate levels of landscaping for the industrial nature of the facility and ample visitor and employee parking.</p> <p>The facility will replace old KRC sheds with brand new modular design plant and equipment. Two new demountable buildings and a hot water tank will also be installed. Building materials will be predominantly stainless steel (generator modules, hot water tank) or colourbond metal cladding (demountable buildings) with possibly some polyurethane (eg. rainwater tank). Most of the facility components will be neutral colours (S/S, white, cream, mist green). Visual amenity of this part of the KRC site will be improved through installation of the facility.</p> <p>Landscaping for the Facility will comply with the Landscaping Code.</p>
P2 The siting of buildings in relation to side and rear boundaries ensures that: <ul style="list-style-type: none"> the existing or likely future use of adjoining land is not significantly adversely affected; there is practical access to the rear of the Site for emergency service vehicles; where applicable, later development can be carried out in a safe, efficient and orderly manner; and landscaping requirements can be accommodated within the Site. 	A2.1 The buildings are set-back more than 4 m or less than 0.5 m to any side or rear boundary except that: <ul style="list-style-type: none"> where adjoining urban residential land, public open space or other sensitive uses, the setback along the common boundary is not less than 7 m; and where the rear boundary setback is more than 4 m and there is no other legal and practical access to the rear area, the setback to one of the side boundaries is more than 4 m. A2.2 New buildings or other structures do not result in: <ul style="list-style-type: none"> the overshadowing for more than 3 hours between 9 a.m. and 3 p.m. on 21 June or for more than 20% longer than existing; or 	Development Complies with the Performance Criteria. Acceptable Solutions are not applicable to this development. <p>The main access to the site is from Mort Street and this property boundary (running parallel to Mort Street and the rail corridor) is considered to be the property frontage. Therefore the facility site is located on the property frontage and does not involve buildings in proximity to the rear or side boundaries of the KRC property.</p> <p>The land adjoining the facility site consists of rail corridor land and the remainder of the KRC industrial property only. The site does not adjoin any residential, open space or other sensitive uses. The siting of buildings and infrastructure associated with this development will not adversely affect the existing or future use of these lands and will not result in overlooking or overshadowing of any residential premises.</p> <p>There are two access points to the KRC property, the main access from Mort Street and a secondary access from Griffiths Street. Emergency Service vehicles would have access to the facility via either entry.</p> <p>Landscaping will comply with the Landscaping Code.</p>

Performance Criteria	Acceptable Measures	Proposal Assessment
	<ul style="list-style-type: none"> the overlooking, of the living areas of residential premises adjoining the Zone. 	
P3 Where the Site is not being fully developed at one time, the layout allows for later development to be carried out in an orderly and efficient manner.	A3 No Acceptable Measure is prescribed. Note: <ul style="list-style-type: none"> where buildings are to be located near the front of the Site, sufficient side boundary setbacks should be provided to allow 2-way vehicular access to the rear of the lot and to allow possible future extensions of water, sewer and drainage lines (see also Acceptable Measure A3). buildings should be located so that unusable pockets of land are not created e.g. setbacks to boundaries are a multiple of the width needed to provide a row of parking spaces and access to them. 	Not applicable to this development. The KRC site is fully developed.
P4 The building is designed and orientated to be identifiable from the street.	A4.1 The main entry to the building is at the front of the building, or otherwise easily identifiable from the street, and is directly accessible from the car parking area or street. A4.2 The office space of each building is sited and oriented towards the principal road frontage of the Site.	Not applicable to this development. The facility site does not have a road frontage and is wholly contained within the existing KRC industrial facility. The main access to the KRC site is adequate for the low level of personnel that will require access.
P5 The development: <ul style="list-style-type: none"> is generally consistent with, and makes a positive contribution to, the 	A5.1 A landscape strip with the following minimum width is provided along the street frontage:	Development will Comply with Performance Criteria. The facility will contribute positively to the visual amenity associated with the KRC site through installation of new plant and equipment to replace existing storage sheds. The facility is not directly adjacent to any residential areas, open space or sensitive uses. The

Performance Criteria	Acceptable Measures	Proposal Assessment											
<p>character and appearance of the street; and</p> <ul style="list-style-type: none"> ensures that the visual amenity of the street (particularly of arterial and sub-arterial roads), adjacent Residential Areas, public open space and other sensitive uses is not compromised. 	<table border="1"> <tr> <th rowspan="2">Product</th><th colspan="2">Road Frontage</th></tr> <tr> <th>Arterial or Sub-Arterial</th><th>Any other</th></tr> <tr> <td>General Industry</td><td>10 m</td><td>5 m</td></tr> <tr> <td>Any other precinct</td><td>5 m</td><td>3 m</td></tr> </table> <p>A5.2</p> <p>Open storage areas and their contents, and other unsightly areas, are screened from view from public places (including the street) and from land not within the Industry Zone:</p> <ol style="list-style-type: none"> in accordance with any setback and screening requirements indicated in any Local Area Plan applying to the land; and by either: <ul style="list-style-type: none"> buildings; or a minimum 3 m wide densely planted landscape strip and a fence of minimum 1.8 m Height. The fence is to be erected behind the landscape strip where it is the view from the street that is to be screened. <p>Note: Refer also to the Landscaping Code.</p>	Product	Road Frontage		Arterial or Sub-Arterial	Any other	General Industry	10 m	5 m	Any other precinct	5 m	3 m	<p>facility will be visible from Mort Street and the railway, and also from some elevated residential premises 740 to >800 m to the east of the KRC site. The visual amenity of this part of the site will be improved over current levels from these closest vantage points.</p> <p>The facility will be consistent with the existing industrial nature of the KRC facility site and will . From several vantage points (eg. from the north, northwest, and immediately south) the facility will be screened by existing KRC buildings and landscaping. The facility site will be screened to a great extent from the Baillie Henderson Hospital to the west by the landscaping provided on that property. To the south of the site there is predominantly further industrial premises, open space associated with Gowrie Creek (not generally used by public) and special use zones, which will not have any significant change to current amenity levels in this area.</p> <p>The visual amenity of the sub-arterial road (Mort Street) will not be comprised due to the installation of modern new energy facilities on this industrial property.</p>
Product	Road Frontage												
	Arterial or Sub-Arterial	Any other											
General Industry	10 m	5 m											
Any other precinct	5 m	3 m											
<p>P6</p> <p>Buildings are:</p> <ol style="list-style-type: none"> of a bulk and Height that are not visually intrusive where adjacent to Residential Areas, public places or sensitive uses designed and finished to a good standard; and of a high quality appearance where: <ul style="list-style-type: none"> fronting or visible from an arterial road; or adjacent to or visible from 	<p>A6</p> <p>No Acceptable Measure is prescribed.</p> <p>Note:</p> <ul style="list-style-type: none"> large areas of blank wall visible from a public place or Residential Area should be screened or broken up by landscaping, building articulation and use of different materials, textures and colours. external walls should be of high quality and low-maintenance materials and finish, particularly where adjacent to Residential Areas, public open space and arterial roads. 	<p>Development Complies with Performance Criteria.</p> <p>The facility will be lower in height than most of the existing buildings on site. The highest structures associated with the facility will be the stacks, which will be small diameter stainless steel to a height of 9m agl. These structures will not be visually obtrusive in the context of existing KRC structures (buildings and stacks).</p> <p>Building materials will be predominantly stainless steel (generator modules, hot water tank) or colourbond metal cladding (demountable buildings) with possibly some polyurethane (eg. rainwater tank). Most of the facility components will be neutral colours (S/S, white, cream, mist green). Demountable buildings will be high-quality low maintenance colourbond cladding. All components of the facility have been designed and will be constructed to relevant Australian Standards and Codes.</p>											

Performance Criteria	Acceptable Measures	Proposal Assessment
Residential Areas or public open space.	<ul style="list-style-type: none"> office components should be located toward the front of the Site. 	
P7 Potentially detrimental impacts on the acoustic environment of adjoining Residential Areas, public places and sensitive uses are prevented or mitigated to acceptable levels.	A7 No Acceptable Measure is prescribed. Note: Acoustic screens (such as earth mounding, fences and walls) and/or Buffers: <ul style="list-style-type: none"> may be necessary on boundaries adjacent to Residential Areas, public open space and noise-sensitive uses; will be required where indicated in a Local Area Plan applying to the land; where required, will need to achieve the noise generation levels set out in the <i>Environmental Protection (Noise) Policy 1997</i> and under that policy are not 'unreasonable'. 	Development Complies with Performance Criteria. The noise assessment has determined that the project will meet acceptable noise limits at all noise sensitive receptors in accordance with the EP Act and EP (Noise) Policy. Refer to Section 5.4 and Attachment 2 . Each generator will be housed in stainless steel acoustic enclosures and will be fitted with a high performance residential grade exhaust silencer to minimise noise emissions from the plant.
P8 Boundary fences adjoining Residential Areas, public places and other sensitive uses are constructed and maintained to be attractive and compatible with the adjoining development.	A8 Unless otherwise necessary for acoustic attenuation purposes, boundary fences adjoining Residential Areas, public places and other sensitive uses are: <ul style="list-style-type: none"> a minimum Height of 2 m; constructed of solid timber, masonry, brick or colourbond; non-reflective and of a colour that is compatible with the use and character of the adjoining development; and maintained in good repair and condition at all times. 	Not applicable to this development. The Facility site does not share a common boundary with residential areas, public places (open space, parks etc) or other sensitive uses. The existing standard Qld Rail security fencing along the common boundary with the rail corridor will be retained (refer also to Section 4).

Development Application
Proposal Report

DDC Energy Services P/L
Toowoomba Central Energy Facility

Performance Criteria	Acceptable Measures	Proposal Assessment
<p>P9</p> <p>The release of any contaminant (including noise, vibration, radiation, air pollution, waste or wastewater) which may cause Environmental Harm or Nuisance or otherwise adversely affect the use or amenity of the surrounding area, is prevented or mitigated to an acceptable level.</p>	<p>A9</p> <p>No Acceptable Measure is prescribed.</p> <p>Note 1: Examples of noise mitigation methods are:</p> <ul style="list-style-type: none"> all or most building openings face away from residential or other noise-sensitive premises; buildings, particularly those adjacent to noise-sensitive areas, are constructed with materials of high acoustic absorption properties (e.g. block as compared to sheet metal); machinery (e.g. generators, refrigeration equipment, air-conditioning units etc.) or activities which are potential noise-sources are located furthest from adjacent noise-sensitive areas; machinery exhausts are baffled/muffled; and noise-sources are soundproofed where necessary. <p>Note 2:</p> <ul style="list-style-type: none"> Refer also to the Trade Waste and Refuse Code. Certain developments will also need to comply with and be licensed under Council's Trade Waste Policy. Where high-powered outdoor security or operational lighting is proposed, reference should also be made to the Outdoor Lighting Code and, where near the Toowoomba Airport, the Airport Affected Land Code. 	<p>Development Complies with Performance Criteria.</p> <p>As detailed above for Performance Criteria P7, the generation plant for this facility will be acoustically treated to minimise noise emissions. Noise assessment findings are summarised in Section 5.4 with the full specialist report provided in Attachment 2.</p> <p>Air emissions from the facility will be well within the EPA and NEPM ambient air quality criteria (refer to Section 5.3 and Attachment 1).</p> <p>No other contaminants will be released to the environment under normal operations. All wastes will be managed in accordance with relevant legislation and regulator requirements. Emergency response and spill prevention/containment measures will be implemented to minimise the risk of accidental discharges to land or water.</p>

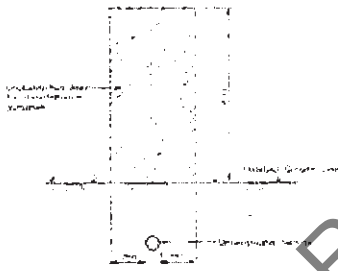
2. Development Works Code

Performance Criteria	Acceptable Measures	Proposal Assessment
Utility Services		
P1 <p>The development is provided with an adequate supply of potable and general use water and, where in a water supply area, is connected to Council's reticulated water supply system.</p>	A1.1 <p>The development is connected to Council's reticulated water supply system in accordance with the 'Water Supply and Sewerage' measures outlined in Part C of the EDROC Manual.</p> <p>OR</p> A1.2 <p>Where not in a water supply area, the development is provided with an adequate water supply by means of:</p> <ul style="list-style-type: none"> on-site storage to match the supply generally available to existing premises in the locality; or a technically and environmentally acceptable system which provides an equivalent standard of water quality and reliability (in terms of volume and supply) to support the use requirements of the specific premises. 	<p>Not Applicable to this Development.</p> <p>The facility will be connected to the existing KRC water supply. All plumbing and drainage works will be internal to the property and will not require any connections with Council services off-site.</p>
P2 <p>The development provides for the treatment and disposal of sewage and other wastewater to acceptable public health and environmental standards.</p>	A2.1 <p>The development is connected to the Council's sewerage system in accordance with the 'Water Supply and Sewerage' measures outlined in Part C of the EDROC Manual.</p> <p>OR</p> A2.2 <p>Where unable to meet Acceptable Measure A2.1 above, on-site sewage disposal complies with <i>Australian Standard AS 3500.2 – 1996 – National Plumbing and Drainage – Sanitary Plumbing and Drainage – Performance Requirements</i>.</p>	<p>Not Applicable to this Development.</p> <p>The facility will be connected to existing KRC sewerage system. All plumbing and drainage works will be internal to the property and will not require any additional connections with Council services off-site. Existing drainage services are adequate to handle the increase in sewerage and wastewater disposal.</p>

Performance Criteria	Acceptable Measures	Proposal Assessment
P3 The development has access to an approved energy supply, in a manner consistent with the supply generally available in the locality.	A3.1 The development is connected to an existing energy supply as approved by the relevant energy regulatory authority. Such supply may include: <ul style="list-style-type: none"> • electricity (either solar or grid supply); and/or • gas; and/or • another energy source acceptable to the relevant energy regulatory authority. OR A3.2 The development is equipped with an adequate on-site energy supply approved by and installed in accordance with the directions of the relevant energy regulatory authority.	Development complies with Acceptable Measures. The Facility will generate all the electricity and thermal (hot water and steam) requirements of the KRC Plant and will be connected to the local electricity grid via Parrot Street substation (Ergon Energy). Gas will fuel the energy plant on site.
P4 Primary Water Meters are installed for all premises that are connected to the Council's reticulated water supply system and: <ul style="list-style-type: none"> • allow for easy installation of the meter; and • allow unencumbered access by Council to the meter for the purposes of repair and reading. 	A4 Not Applicable.	Not applicable to this development. Water metering would already be provided on the Council water supply into the KRC site and the facility will be connected to the KRC water supply and also to a rainwater tank in accordance with P28 of this Code.
P5 Secondary Water Meters are installed for each Dwelling and industrial and commercial premises capable of being separately titled (subdivided).	A5 Not Applicable.	Not applicable to this development. The development does not involve any subdivision of land.

Performance Criteria	Acceptable Measures	Proposal Assessment
P6 Sufficient and environmentally responsible provision is made for telecommunications services and infrastructure.	A6 The development is connected to telecommunications infrastructure in accordance with the acceptable standards of the relevant regulatory authority.	Development will comply with Acceptable Measure. The Facility will be remotely operated via a new PSTN and /or ASDL connection. These connections will be installed by the relevant telecommunications service provider prior to operation.
Roof Drainage		
P7 Stormwater off roofed areas is collected and discharged in a manner that does not adversely affect the stability of buildings or the use of adjacent land.	A7 Stormwater off roofed areas is discharged: <ul style="list-style-type: none"> to a system of inter-allotment or subdivision drainage; or where inter-allotment or subdivision drainage is not available, via an underground pipe to the street channel; or where grade does not permit the stormwater to be piped to a system of inter-allotment or subdivision drainage or the street channel, via an underground pipe with a bubbler outlet at least 3 m from the downstream side of building foundations and no closer than 3 m to any property boundary. 	Development will Comply with Acceptable Measure. Clean stormwater from roofed areas of the facility (control room building) will be directed to the rainwater tank for use in toilet flushing and washdown in accordance with P28 of this Code. Stormwater overflow will be connected to the existing KRC stormwater system.
Development Near Underground Utility Services		
<p>For the purposes of this section of the table:</p> <ul style="list-style-type: none"> An approval that has been granted to the development pursuant to Section 823 of the Water Act 2000 is deemed to satisfy the Performance Criteria of this section. Amended 30/09/05 'Access Cover' means a removable cover to provide access for cleaning or inspection of sewers, stormwater drains and water mains. 'Associated Structure' includes a sewer or stormwater manhole, a water meter and a fire hydrant. 'Building' has the meaning defined in the <i>Building Act 1975</i>. 'Connection Point' has the meaning defined in the <i>Standard Sewerage Law</i>. 'Invert Level' means the bottom level of the inside of the pipe or drain. 'Manhole' means an access chamber being a below Ground Level structure, with a cover, built in the line of a sewer or stormwater drain, through which a person may access the sewer or stormwater drain. 		

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Performance Criteria	Acceptable Measures	Proposal Assessment
P9 Adequate access is provided to all Sewers, stormwater drains and water mains for future maintenance.	A9.1 The wall, footing and floor of any Building or Structure is located at least 750 mm (measured horizontally) clear of the nearest point of any Sewer, stormwater drain or water main. A9.2 A minimum unobstructed vertical clearance over any Sewer, stormwater drain or water main is provided as shown on the following diagram. 	Not applicable to this development There no Council underground services (sewer, stormwater drains or water mains) in the vicinity of the Facility site/ lease area.
P10 Adequate access is provided or maintained to Access Covers associated with all Sewers, stormwater drains and water mains.	A10.1 - A10.2 Not Applicable.	Not applicable to this development There no Council underground services (sewer, stormwater drains or water mains) and no access covers in the vicinity of the Facility site/ lease area. No facility works will result in obstructions to any access point for Council services.
P11 Adequate access is maintained to Connection Points of all Sewers, stormwater drains and water mains.	A11.1 - A11.2 Not Applicable.	Not applicable to this development There no Council underground services (sewer, stormwater drains or water mains) and no Connection Points in the vicinity of the Facility site/ lease area. No facility works will result in obstructions to any Connection Points for Council services.

Performance Criteria	Acceptable Measures	Proposal Assessment
Excavation and/or Filling		
P12 The duration and hours of the operation does not cause a significant impact on the amenity of residents or businesses, whether located adjacent to the development or on the haulage route.	A12.1 The total duration of Excavation and/or Filling does not exceed 4 weeks. A12.2 Operations occur only between 7 a.m. and 6 p.m. Monday to Saturday excluding public holidays	Development complies with Acceptable Measures. Earthworks will be minimal and will consist of minor excavation for footings, fence posts and minor trenching. Excavation works will be undertaken over a 4-week period. Earthworks will take place between 7am and 5pm Monday to Saturday (excluding public holidays) to minimise amenity impacts.
P13 Excavation and/or Filling minimises potential dust emissions and their impact on the amenity of adjoining premises and public places.	A13.1 Areas of exposed fill, excavation and unsealed accesses are watered regularly (particularly during periods of high or constant wind) to reduce dust generation. A13.2 Areas of fill and excavation are graded, compacted and planted and/or mulched immediately after the dumping operation is complete. A13.3 Where an area of more than 1000 m ² of fill and excavation is involved, the Excavation and/or Filling is staged with previous stages being progressively finished and rehabilitated (e.g. grading, compacting, mulching and planting) to reduce visual impacts, dust generation, erosion and sedimentation. Note: The Environmental Protection (Air) Policy 1997 under the Environmental Protection Act 1994 also sets standards for this issue.	Development Complies with Acceptable Measures Excavation will be minimal (anticipated to be less than 10 m ³) and only over a very small area of the facility (fence posts, footings). Areas of exposed soil will be reinstated (filled, graded, compacted, concreted and/or planted/mulched) as soon as possible after completion of the works, to minimise dust generation. Excavation works may be staged to minimise the quantities of soil exposed to wind and water at any one time. Water spray will be used to minimise dust generation from exposed earth, soil stockpiles and unsealed access points where necessary, and where feasible having regard to any water restrictions in place at the time and general water conservation practices.

Performance Criteria	Acceptable Measures	Proposal Assessment
P14 On-site and off-site erosion and sedimentation is minimised.	A14.1 Not Applicable. A14.2 For code assessable and impact assessable development, erosion and sediment control measures are designed and constructed in accordance with the document <i>Soil Erosion & Sediment Control – Engineering Guidelines for Queensland Construction Sites 1995</i> .	Development Complies with Acceptable Measure A14.2. Where necessary to prevent offsite erosion and sedimentation impacts (and consistent with the level and type of earthworks undertaken) soil erosion and sedimentation measures and devices will be installed in accordance with the <i>Soil Erosion & Sediment Control – Engineering Guidelines for Queensland Construction Sites 1995</i> .
P15 Retaining walls and batters are designed, constructed and landscaped to: <ul style="list-style-type: none"> • minimise the Height of retaining walls and batter faces; • prevent potential vermin harbourages; • minimise the visual impact on any public place or adjoining land; and • ensure the stability and longevity of the retaining walls and batters and the safety of people and properties. 	A15.1 - A15.5 Not Applicable.	Not applicable to this Development. The development does not require any filling or excavation that will change the current ground level, therefore no retaining is required.
P16 Excavation and/or Filling does not result in the disturbance of contaminated material or the contamination of land unless properly managed to avoid Environmental Harm or risk to people.	A16 Contaminated material is not excavated or used as fill. Note 1: If contaminated material is proposed to be excavated or used as fill, a report from a suitably qualified professional will be required with the application addressing issues such as: <ul style="list-style-type: none"> • the type of contamination; 	Development Complies with Performance Criteria. The property is listed on the EMR as described in Sections 3.4.3 and 5.6. It is unlikely that contaminated soil will be unearthed on this site given the past use of this part of the property and the minimal excavation required for this facility. Appropriate mitigation measures are detailed in the Site-Based Environmental Management Plan for the Facility, including procedures for the unearthing of contaminated soils (eg. how to identify, cease work, investigations to be undertaken by qualified CL specialist). The EPA Contaminated Land Unit (CLU) will be consulted upon discovery of any potentially contaminated soils. The CLU is a referral agency for this application.

Performance Criteria	Acceptable Measures	Proposal Assessment
	<ul style="list-style-type: none"> potential impacts of the contaminated material on the environment, people and the future use of the land; containment measures; and necessary environmental management plans. <p>Note 2: Contact should also be made with the Environmental Protection Authority before dealing with contaminated material.</p>	
<p>P17</p> <p>Any potentially adverse effect on:</p> <ul style="list-style-type: none"> any property, watercourse or stormwater drainage works in the vicinity; or any watercourse on the Site; <p>is prevented or adequately mitigated.</p>	<p>A17</p> <p>The Excavation and/or Filling does not:</p> <ul style="list-style-type: none"> cause ponding on the Site or on any nearby land; increase flooding on any land in the vicinity; increase run-off characteristics for storm events up to at least the 1 in 2 year design storm; reduce the waterway area available in any natural or artificial watercourse for either present or estimated future flood flows; interfere with the flow of water in any overland flow path; or reduce the volume within a flood plain available for the storage of flood waters. 	<p>Development Complies with Acceptable Measures.</p> <p>The minor excavation works associated with facility construction will not result in any ponding of water or increase the flood risk for the site or any property nearby.</p> <p>Minor excavation works associated with installation of pipework connecting the Facility with the KRC factory will be required along the inside of the western KRC property boundary (along the fence parallel to the rail and Mort Street). This pipework will be mounted on a rack aboveground, with footings to ensure stability. The works for the piperack will occur in proximity to the minor unnamed watercourse that runs from the west of the site under Mort Street and the Railway and through the KRC site to Gowrie Creek (125m east of the facility). A pipe bridge will be used over the drainage channel to ensure natural water flows are maintained, erosion and sedimentation do not result from excavation, and there is no risk of changing drainage patterns and associated risks of localised flooding.</p> <p>There will be no damage or interference to any of the drainage structure under the road and rail.</p>

Performance Criteria	Acceptable Measures	Proposal Assessment
P18 The transportation of material minimises any potentially adverse impact on the road system (including damage to infrastructure) and on properties, particularly residential properties, along the haulage route.	A18.1 For works within Residential Zones, the haulage truck size is no greater than a heavy rigid vehicle (See <i>Australian Standard AS 2890.2 – Off Street Parking – Commercial Vehicle Facilities</i>). A18.2 Truck haulage follows the route to and from a Trunk Collector Road or higher in the Road Hierarchy shown on the Regulatory Map that would cause the least: <ul style="list-style-type: none"> • disturbance to residential properties; and • damage to the road and street system. A18.3 All loads transported are covered to prevent spillage or creation of a dust nuisance along the haulage route.	Development Complies with the Acceptable Measures. Works will not be undertaken in a residential area. Haulage of plant and equipment to site will be via arterial and sub-arterial routes (as defined in Planning Scheme Mapping) and will avoid the City Centre. For example traffic flow is likely to be via Warrego Highway, James Street, Chalk Drive, Ruthven Street, Jellicoe or North Streets to Mort Street. Construction vehicles (heavy vehicles delivering plant) will then turn right into Griffiths Street (Trunk Collector) from Mort Street and immediately left into the KRC Site access gate located on the southern boundary of the KRC property. Haulage routes will be selected to minimise disturbance to residential premises, traffic flows and the road system.
Vegetation Protection		
P19 Operational works are undertaken to minimise any potentially adverse impacts on vegetation that is to be retained. Note: Requirements for the removal of native vegetation under the Vegetation Management Act 1999 have not been included in the planning scheme, as such approval for the removal of vegetation may be necessary under the Vegetation Management Act 1999 or Council's Local Law for the preservation of trees.	A19 Site development is undertaken in accordance with best environmental management practice measures designed to minimise any potentially adverse impacts on vegetation that is to be retained, including at a minimum: <ul style="list-style-type: none"> • installation of protective fencing around retained vegetation during construction; • erection of advisory signage; 	Development complies with Acceptable Measures (where relevant) There will be no vegetation cleared to develop the facility. Several mature trees are located on the KRC property. These trees are not in close proximity to areas where earthworks will be undertaken. There will be no ground disturbance to the root zone of any mature trees on the KRC property. Appropriate erosion control measures (silt fences) will be installed around any areas of soil disturbance as required to prevent any soil movement off-site. The project will not result in any impact to waterways or associated vegetation. The facility site is predominantly cleared and will only involve clearing a small grassed area. Any weed that is identified will be controlled (removed).

Performance Criteria	Acceptable Measures	Proposal Assessment
	<ul style="list-style-type: none"> minimal disturbance to soils and careful management of any suspended soil particles to prevent impact on any natural watercourses and associated vegetation including, at least, the installation of siltation traps; no disturbance, due to earthworks or storage of plant, materials and equipment, of natural Ground Level below the canopy of any retained mature tree; and removal of all declared noxious weeds and environmental weeds. 	
Roads, Pedestrian Access and Parking Areas		
P20 Road access to the Site is of a standard that is safe, optimises lifecycle costs and is commensurate with the type and scale of development anticipated in the area.	A20.1 Except in the case of rural roads, kerb and channelling is provided in accordance with the Subdivisional Works Code along the full frontage of the premises. A20.2 Road pavement is provided in accordance with the relevant elements of the Subdivisional Works Code and the Lot Reconfiguration Code. A20.3 Where the road is partly paved, construction and pavement of the carriageway between the existing pavement and the edge of the carriageway along the full frontage or frontages of the land is completed.	Development complies with Acceptable Measures (where relevant) The development does not have road frontage. Existing KRC property access points will be used for all vehicular traffic associated with the proposal. These access points are considered adequate to handle the capacity of traffic that will be generated by this proposal.

Performance Criteria	Acceptable Measures	Proposal Assessment
	<p>A20.4</p> <p>Where the road is not paved, construction and pavement of the road for a width of at least 6 m from the nearest paved section of carriageway is completed.</p> <p>A20.5</p> <p>Works are undertaken by the applicant or, where agreed, by Council at the applicant's expense.</p>	
<p>P21</p> <p>For a use which generates high volumes of traffic or significant heavy vehicle traffic, adequate all-weather road access is provided between the Site and a suitable part of the existing road network as defined in the Lot Reconfiguration Code.</p>	<p>A21</p> <p>Works are undertaken by the applicant or, where agreed, by Council at the applicant's expense, and provide for paved road of a width of at least 6 m from the nearest paved section of an existing trunk collector to the Site. Construction is in accordance with the Subdivisional Works Code.</p>	<p>Not applicable to this development.</p> <p>The development will not generate high volumes of traffic or significant heavy vehicle traffic. Refer to Section 2.5.</p>
<p>P22</p> <p>Parking areas are constructed in a manner that ensures public safety and minimises environmental impacts and community costs.</p>	<p>A22</p> <p>A registered practicing engineer certifies that the parking area is constructed to a safe and adequate standard.</p>	<p>Not applicable to this development.</p> <p>Parking Areas are not required for this Facility – minimal ongoing operational traffic. Existing KRC loading and parking areas are adequate to accommodate anticipated levels of traffic for this project.</p>
<p>P23</p> <p>Provision is made in the road reserve for pedestrians and cyclists in a manner consistent with:</p> <ul style="list-style-type: none"> the current and projected level of pedestrian usage; the location of the building in relation to the front boundary of the property; the existing adjacent streetscape; activities which are anticipated to occur within the verge; community needs; and the type of use. 	<p>A23.1</p> <p>Not Applicable.</p> <p>A23.2</p> <p>Not Applicable.</p> <p>A23.3</p> <p>In all other circumstances, no Acceptable Measure is prescribed and Site-specific measures are to be implemented which satisfy the Performance Criterion.</p>	<p>Not applicable to this development.</p> <p>The development does not have a road frontage nor does it adjoin a footpath. The development will not generate any pedestrian or cyclist traffic. All site-specific access will be via sedan and utility vehicles, with some heavy machinery and vehicles used to undertake plant construction and haulage of large plant items (e.g. Generators and boilers).</p>

Performance Criteria	Acceptable Measures	Proposal Assessment
P24 Any alterations or repairs to existing road pavements, kerb and channelling, footpath or drainage works, required as a result of the construction works for the development are made to the standards of, and at no cost to, the Council or relevant service authority.	A24 Any alterations or repairs to existing road works required as a result of the construction works for the development are completed at the developer's expense in accordance with the requirement of the Lot Reconfiguration Code and Subdivisional Works Code.	Not applicable to this development. There will be no alterations or repairs to existing road pavements, kerb and channelling, footpath or drainage works required as a result of the construction works for the Facility.
Construction Works and General Amenity		
P25 Any works undertaken, including any Excavation and/or Filling, do not cause unacceptable air emissions, particularly by way of dust.	A25.1 When undertaking works, appropriate dust control measures are used which are in accordance with any relevant State government statutory requirements, policy provisions and guidelines for acceptable air emissions. A25.2 Water or other approved methods to control dust nuisances are used in a manner that prevents contaminated water from entering any adjoining waterway. A25.3 Stockpiles of aggregate, sand or other materials brought onto the Site are sprayed with water to minimise dust nuisance. The frequency of spraying is increased during hot, dry periods or where wind conditions are such that a dust nuisance is likely to occur. A25.4 Any cleared vegetation is removed from the Site or chipped and is not burned.	Development complies with Acceptable Measures. The development involves minimal excavation works. For any stockpiled or disturbed soil, appropriate measures will be taken to minimise dust emissions (minimise amount of time trenches remain open and soil is stockpiled, water spray if necessary bearing in mind water conservation measures). No water runoff from areas of soil disturbance will be allowed to discharge to off-site land or waterways (appropriate erosion/ sedimentation devices installed such as silt fencing). See also section 5.6 (land and water). The development will not involve any vegetation clearing so no vegetation or other waste will be burned.

Performance Criteria	Acceptable Measures	Proposal Assessment
	Note: The Environmental Protection (Air) Policy 1997 under the Environmental Protection Act 1994 sets appropriate standards for this issue and as such breaches of standards can also be enforced under the Environmental Protection Act 1994.	
P26 Any works undertaken, including any Excavation and/or Filling, do not cause a noise nuisance to surrounding premises.	A26.1 Any development work that would detract from the amenity of the neighbourhood or nearby residents by way of noise generation is conducted during the hours set out in Environmental Protection Policy No. 6W – Noise under the Environmental Protection Act 1994. A26.2 Noise generating equipment is enclosed, shielded or acoustically treated in a manner that ensures the equipment does not create an Environmental Nuisance. The measures implemented minimise the potential for the generation of intrusive noise for all adjoining noise sensitive premises.	Development complies with Acceptable Measures. Building works will not be undertaken outside the hours of 7am to 6pm Monday to Saturday (excluding public holidays) in accordance with the Environmental Protection Act 1994, the Environmental Protection (Noise) Policy and the EPA's <i>Information Sheet: Environmental nuisance laws, Power tools (including lawn mowers) and building works</i> . All equipment and machinery used in facility construction will be manufactured and maintained to appropriate standards to minimise air and noise emissions. Construction of the facility is not likely to cause any nuisance to any member of the public given the hours of operation, the distance to noise sensitive receptors (>500m) and the absence of any intrusive noise-generating equipment (no pile driving, no jack hammers).

Performance Criteria	Acceptable Measures	Proposal Assessment
P27 While undertaking development works, the Site and adjoining road are maintained in a tidy, safe and hygienic manner.	A27.1 Any waste generated whilst undertaking works on the Site is disposed of at an approved waste disposal facility either directly or via an approved waste receptacle and collection service. Under no circumstances are: a) fires lit to dispose of waste; or b) wastes used as fill or buried on-site; where waste materials include: <ul style="list-style-type: none"> • 'regulated waste' (as defined for the purposes of the Environmental Protection Act 1994); • commercial and industrial waste; • construction/demolition waste; • domestic clean-up waste; • domestic waste; • garden waste; • concrete/builders rubble; and • vegetation. A27.2 Goods and materials are not placed or stored within the road reserve. A27.3 Sufficient containers (bins) of adequate capacity for the storage of waste and recyclable waste are provided on-site while the development works are carried out.	Development complies with Acceptable Measures. The facility does not front a road and there will be no waste materials (soils etc) transported onto local roads. Appropriate waste receptacles will be provided on-site and a licensed contractor will be used to disposal of all waste materials. See also Section 2.6.

Performance Criteria	Acceptable Measures	Proposal Assessment
Water Conservation		
<p>P28</p> <p>Where the development involves a Material Change of Use and the construction of a new freestanding Building, the new freestanding Building component of the development is designed to ensure the efficient use of water and to reduce demand on water supply sources and treatment facilities.</p> <p>Note: This Performance Criterion does not apply to development, including Minor Building Work and other building work, whose assessment status is determined using the Building and Operational Works Assessment Table.</p>	<p>A28.1</p> <p>For Residential Uses: not applicable.</p> <p>A28.2</p> <p>For non-Residential Uses:</p> <ul style="list-style-type: none"> a rainwater storage tank/device is provided which collects water from 65% of the roof area and is plumbed to service the toilets and all wash-down and outdoor taps; and the minimum capacity of the rainwater storage tank/device is 3 kL per 100 m² of roof area. 	<p>Development complies with Acceptable Measures.</p> <p>The development involves the installation of two demountable building structures. The roof area of the control room is approximately 23m². DDCES will install an appropriately sized rainwater tank (e.g. 750L) to capture rainwater runoff from the roofed area of the Control room building and will plumb this for toilet flushing and any washdown.</p> <p>Typical dimensions of the rainwater tank are illustrated on the Facility Site Plan (<i>Figure 4: Appendix B</i>). The tank will be galvanised or painted colourbond steel, or polyethylene.</p>

3. Parking, Transport and Servicing Code

Performance Criteria	Acceptable Measures	Proposal Assessment
Vehicular Access		
P1 Vehicular access arrangements: a) appropriate for: <ul style="list-style-type: none"> the capacity of the parking area; the volume, frequency and type of vehicle usage; and the function and configuration of the access road; b) minimise any potentially adverse impact on: <ul style="list-style-type: none"> the safety and efficiency of the road; the integrity of any infrastructure within the road reserve; and the safety of access to adjacent properties; and c) protect the amenity of premises in the vicinity Note: Access to State-controlled Roads requires the approval of the Department of Main Roads.	A1.1 Other than for a House, Dual Occupancy, Bed and Breakfast Establishment or Home-based Business, vehicular access to a Council-controlled road is provided in accordance with <i>Australian Standard AS 2890.1 – Off Street Car Parking</i> (and <i>Australian Standard AS 2890.2</i> where relevant). A1.2 Not Applicable	Development Complies with Performance Criteria No direct road access will be provided into the facility site. Vehicular access during operations will be via the main KRC site access gates. This access is via a sub-arterial road (Mort St) suitable for heavy vehicle traffic into the KRC site. The main KRC site access is more than adequate and suitable for the low volume, frequency and types of vehicles associated with facility operation (one light vehicle per day and several light vehicles during infrequent maintenance activity). There are no adjoining properties whose access will be affected by traffic flow into the facility. KRC transportation operations will not be affected by the proposal. There will be no adverse impact on visual amenity as the parking areas, access points and high volume of traffic flow already exist in association with KRC operations. Traffic generation due to the project will be minimal and will not result in any adverse impact on the safety or operational efficiency of the local road network, or cause any damage to road infrastructure. Mort Street is not a State-controlled road so referral to Department of Main Roads is not required.
Transport Network		
P2 Where the development: a) is a Freight Terminal or Extractive Industry; or b) generates the need for: <ul style="list-style-type: none"> more than 50 parking spaces; or more than 20 parking spaces and access is provided to a Trunk Collector Road or higher in the Road Hierarchy as shown on the Zone Map; provision is made to minimise any potentially adverse impact on the safety, efficiency or effectiveness of the pedestrian, cycle and road network.	A2 No measure prescribed.	Not Applicable to this Development. The development will not generate the need for significant or additional parking facilities (generally one light vehicle per day).

Performance Criteria	Acceptable Measures	Proposal Assessment
Parking and Service Vehicle provision Rate		
P3 <p>Sufficient vehicle parking is provided to meet the demand likely to be generated by the development taking into consideration any or all of the following:</p> <ul style="list-style-type: none"> the parking demand generated by the existing use of the premises; the feasibility of physically providing parking on-site; the hours of operation of the proposed use and the opportunity for sharing of parking spaces by multiple uses; the availability of public parking in the vicinity; the provision of any Planning Scheme Policy or Infrastructure Charges Plan dealing with monetary contributions in-lieu of providing on-site parking; experience and observation of parking demand by similar uses; the impact of the parking facility on the amenity of nearby residents; the recommendations of any Traffic and Parking Impact Report; existing and likely future traffic conditions in the area; the nature and intensity of the proposed use; the nature and intensity of existing and likely future development on adjoining premises; and the heritage values of any Place of Potential Cultural Heritage Significance identified in Appendix 1 to the planning scheme located on the premises. 	A3.1 <p>Not applicable</p>	Development Complies with Performance Criteria <p>The KRC Facility generates a high volume of vehicular traffic throughput and, as one of the largest private employers in Toowoomba, has adequate provision for parking. The traffic generated by the energy facility operation is insignificant relative to existing traffic generation and parking requirements associated with the property.</p> <p>Energy facility vehicles may share existing parking facilities on site.</p> <p>Adequate parking space is available to accommodate several vehicles that may enter the energy facility for construction, maintenance and servicing.</p>

Performance Criteria	Acceptable Measures	Proposal Assessment
Car Park Design		
P4 The parking spaces provided are: <ul style="list-style-type: none"> • useable by the development's occupants and visitors; • easily accessible from the building; • located to encourage off-street parking; and • located and designed to maintain or improve the character of the area 	A4.1 – A4.5 Not Applicable.	Not Applicable to this Development. The development will not generate the need for significant or additional parking facilities (generally one light vehicle per day). No car park lot is required to accommodate low volume of light vehicles to the site. Existing parking facilities are suitable.
P5 The parking area provides: <ul style="list-style-type: none"> • clearly marked parking spaces of adequate dimensions; • adequate manoeuvring area to those spaces; • a clear, safe and effective circulation system; and • sufficient queuing area for vehicles entering or exiting the Site or using drive-through facilities. 	A5 Not Applicable.	Not Applicable to this Development. The development will not generate the need for significant or additional parking facilities (generally one light vehicle per day). No car park lot is required to accommodate low volume of light vehicles to the site.
P6 Any potentially adverse impact on the natural environment is minimised.	A6.1 Existing street trees are retained. A6.2 The location and design of the parking area enables the requirements of the Development Works Code to be satisfied. A6.3 Any part of the parking area designated as a vehicle cleaning or repair area is designed and constructed to be able to meet the requirements of Council's Trade Waste Policy under the <i>Standard Sewerage Law</i> .	Development complies with Acceptable Solutions. No vegetation will be cleared for the facility. The requirements of the Development Works Code will be satisfied (as described above). There will be no vehicle repair or washdown on site.

Performance Criteria	Acceptable Measures	Proposal Assessment
P7 Heat absorption and re-radiation, glare, dust, noise and any other potentially adverse impact on the aesthetics, safety and amenity of land in the vicinity, is minimised.	A7.1 Aesthetics, glare, heat absorption and re-radiation. As a partial Acceptable Measure: <ul style="list-style-type: none"> Landscaping is provided throughout the car park in the manner and at the rate indicated in Schedule C to this code; and Unless otherwise specified in a zone, precinct or use code, where the car park adjoins a street frontage, or a boundary with a Residential or other sensitive use, a landscaped strip of minimum 3 m width is provided along the frontage/boundary. 	Not Applicable to this Development. The development will not generate the need for significant or additional parking facilities (generally one light vehicle per day). No car park lot is required to accommodate low volume of light vehicles to the site.
Pick up and Set down Areas		
P8 Certain Developments make provision for set-down and pick-up by private bus.	A8 No measure prescribed.	Not Applicable to this Development. Facility use not listed.
P9 Certain Developments make provision for set-down and pick-up by private car.	A9 No measure prescribed.	Not Applicable to this Development. Facility use not listed.
Provision for Service Vehicles		
P10 Provision is made for the loading, unloading, manoeuvring and access by service vehicles and such provision: <ul style="list-style-type: none"> is adequate to accommodate the design service vehicle requirements; protects the safety and efficiency of roads in the vicinity; and does not unduly impede vehicular and pedestrian circulation within the Site. 	A10.1 – A10.5 Not Applicable.	Development Complies with Performance Criteria. The facility allows an adequate level of off-street parking and loading commensurate to the scale of the development. Operational traffic will be minimal and will access the site via the main KRC entrance and will park within the facility. Operations traffic will consist of light vehicles only, so manoeuvring areas are not considered necessary within the facility. Should heavy vehicles be required for any aspect there is adequate manoeuvring areas in the vicinity of the facility, and may use the secondary site access (from Griffiths St) if required to enter or leave the site. All loading will be undertaken within the energy facility boundary and will not impact on any external or internal vehicular or pedestrian traffic. Relevant Australian Standards will be complied with.

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Performance Criteria	Acceptable Measures	Proposal Assessment
P11 Refuse collection vehicles are able to access on-site refuse collection facilities.	A11 Not Applicable.	Not Applicable to this Development. The facility will not involve any on-site waste storage. Therefore there is no requirement for refuse collection from the facility.
Alternative Transport Modes		
P12 The development encourages and makes adequate provision for alternative, environmentally sustainable transport modes under certain circumstances.	A12 No measure prescribed.	Not Applicable to this Development. Development does not generate the need for more than 50 parking spaces and is not a use listed in the performance criteria.
P13 Provision is made for adequate and safe pedestrian and cycle movement within the road reserve adjoining the premises.	A13 No measure prescribed.	Not Applicable to this Development. There is no road reserve adjoining the facility site and no direct access to site from any road.

4. Landscaping Code

Performance Criteria	Acceptable Measures	Proposal Assessment
<p>P1</p> <p>Development is landscaped in a manner which:</p> <ul style="list-style-type: none"> enhances the appearance of the development from within and outside the development and makes a positive contribution to the streetscape; screens the view of unsightly buildings, structures, open storage areas and the like from public places, residences and other sensitive development; where necessary, ensures the privacy of Habitable Rooms and private Outdoor Recreation Areas; contributes to a comfortable living environment by providing shade to reduce glare and heat absorption and re-radiation from buildings, Car Park areas and other hard surfaces; ensures private outdoor recreation space is useable; provides long term soil erosion protection; provides a safe environment; integrates existing vegetation and other natural features of the Site into the development; and does not adversely affect vehicular sightlines and road safety. 	<p>A1</p> <p>No Acceptable Measure is prescribed.</p> <p>Note: Submission of a landscape plan prepared by a suitably qualified person (such as a landscape architect, horticulturalist or other person experienced in landscape design) demonstrating achievement of the Performance Criterion will normally be required with the application.</p> <p>The landscape plan should show, where relevant:</p> <ol style="list-style-type: none"> all existing trees with a girth of greater than 0.5 m measured at 1.5 m above Ground Level or of greater than 4 m Height (and indicating which trees are proposed to be retained) and other natural features, such as watercourses and rock formations; the function of planting areas (e.g. screen planting, enhancement etc.), plant spacing and species to be used; the general surface treatment of landscaped areas e.g. paving, mulched gardens, lawn; the location and type of fencing to the frontage and boundaries (e.g. 2 m mesh security fence, 1.8 m timber fence etc.); existing and proposed finished ground levels indicating in particular: <ul style="list-style-type: none"> the approximate Height of any mounding; the extent of any Excavation and/or Filling greater than 0.5 m in Height and greater than 150 mm where 	<p>Development Complies with the Performance Criteria.</p> <p>The energy plant is being installed on a large existing industrial facility site. The installation of new plant on this part of the site will in itself improve the appearance of the site from outside of the development.</p> <p>Demountable buildings are constructed out of painted metal cladding and the items of plant to be installed will be modern low-maintenance stainless steel modules, which will look more attractive than the workshop/storage sheds that are currently at this location (refer to photographs in Appendix E).</p> <p>The site does not adjoin any residential premises or particularly sensitive development. The energy facility does not overlook any Habitable Rooms or private Outdoor Recreation Areas.</p> <p>The facility is not habitable and will not be manned, so the provision of landscape trees for shade is not considered a significant issue. The KRC property has numerous mature trees in the vicinity of the facility. These trees will be retained and will not be damaged under this proposal. The development is largely screened to the south, east and north by existing KRC buildings and mature trees. The facility is therefore only open to one side, to the west, along the rail frontage.</p> <p>Properties in the vicinity of the site (eg. Baillie Henderson Hospital to the west) provide adequate landscaping within their own boundary to screen most of the KRC site from view. On the higher elevation land to the east of the KRC site, the majority of the residents are also screened by vegetation planted along the rear of their properties (refer to photographs in Appendix E).</p> <p>DDCES does not consider significant landscaping is warranted given the:</p> <ul style="list-style-type: none"> small scale of the development location on a highly-modified industrial facility with no immediate neighbours or other sensitive uses, and the distance from such uses the improvement in visual amenity due to the proposal and the existing level of site screening provided by existing KRC buildings, topography and surrounding landscaping. <p>Given the above, DDCES considers that it has taken all reasonable measures in the design of the facility to account for this aspect. DDCES will look for reasonable and practical opportunities to improve visual amenity during construction and operations of the facility.</p>

Performance Criteria	Acceptable Measures	Proposal Assessment
	<p>within the drip line of any existing tree;</p> <ul style="list-style-type: none">the location and type of any retaining walls; andSite drainage. <p>f) where the development adjoins a residence, or other use that is sensitive to amenity considerations such as aesthetics, light spill, noise or dust pollution, overshadowing or reduction in privacy, the location of the adjacent impact sensitive buildings and areas e.g. show the location of the child care building and play area if it is adjacent to a proposed industrial or commercial development; and</p> <p>g) where the development is of a type that is likely to be adversely impacted upon by an existing or proposed use or development on adjacent land, the location and type of that impact's source, e.g. show any open storage area or industrial use adjacent to the proposed development if the proposed development is for a residence or other sensitive use.</p> <p>A2 The landscaping is carried out in accordance with the approved landscape plan and is maintained such that:</p> <ul style="list-style-type: none">100% of all trees and 95% of all shrubs and groundcovers are in a healthy condition and showing evidence of growth at any time;landscape structures and works are structurally sound and in good condition; andother landscape elements are in good repair and condition.	

5. Community Safety Code

Performance Criteria	Acceptable Measures	Proposal Assessment
Premises and Access Route Identification		
P1 All premises and access routes are clearly identifiable to all persons, particularly emergency services personnel.	A1 All premises are identified by the provision of the street number in a prominent location, preferably near the Site entry, i.e. on the kerb or letterbox or by signage on the building or Site.	Development Complies with the Performance Criteria. The development is wholly contained within an existing industrial premise and main access routes to the KRC site will be used for any vehicles or personnel accessing the energy facility. The development will not affect the existing KRC access routes. The facility will have two vehicle and two personnel access gates which will be clearly identifiable to emergency services personnel.
Fencing to Public Places		
P2 Fencing adjacent to public places (such as streets, walkways, laneways, open space and the like) to define territory and protect privacy and the amenity of private open space, provides for the casual surveillance of both properties and public thoroughfares. Note: The <i>Standard Building Regulation 1993</i> specifies additional requirements for fences along the frontages of corner allotments to maintain vehicle sight lines.	A2.1 Except as specified in Acceptable Measure A2.2, fencing is: <ul style="list-style-type: none"> designed and erected to allow clear visibility into the Site through at least 50% of the surface of the fence above 1.2 m in Height; and located so that it does not inhibit views of entrances and exits to buildings. A2.2 Not Applicable	Development Complies with Performance Criteria Standard two-metre high security (wire) fencing will be installed around the facility. The existing fencing on the common boundary of the railway land and the site will be retained (refer to photograph 13 in Appendix E: Photograph 13). The fencing allows for adequate surveillance between the properties, and to the public road (Mort Street) whilst maximising the security of the facility and restricting access to the facility from the railway and road. The railway line outside of the facility is open to access from the public road.
Movement Corridors and Alleyways		
P3 Movement corridors (walkways, pathways, tunnels, stairways, bridges, cycle paths and the like) within sites and between sites are designed to maximise safety and minimise potential assault locations.	A3 Not applicable	Not Applicable to this Development. Existing premises. The development will not result in any increased risk of assault or the safety of people.
P4 Alleyways on private property are designed to maximise safety.	A4.1-4 Not applicable	Not Applicable to this Development. Existing premises and no alleyways proposed. The development will not result in any increased safety risk to people.

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Performance Criteria	Acceptable Measures	Proposal Assessment
Site Planning and Landscaping		
P5 Communal open space, including congregation and seating areas, is located where it can be monitored.	A5 Not applicable.	Not Applicable to this Development. No communal open space or congregation and seating areas are proposed.
P6 The provision of any landscaping does not lead to opportunities for concealment and possible assault sites.	A6 Any landscaping provided allows adequate visibility for casual surveillance of public and semi-public spaces, including entrances and exits to Sites and buildings, by: <ul style="list-style-type: none"> using trees which have clean trunks to a Height of at least 1.8 m; and using shrubs with a maximum Height of 0.75 m to retain sight lines. 	Development Complies with Performance Criteria Refer to 4. Landscape Code.
Building Design		
P7 Buildings and structures are designed to minimise opportunities for vandalism.	A7 Where parts of buildings or structures are easily accessible from a public place: <ul style="list-style-type: none"> the use of solid fences and blank walls which attract graffiti is avoided. Where solid blank surfaces are unavoidable, protection is provided in the form of landscaping, creepers, murals, vandal resistant paint and the like; toughened glass, screens and other measures are used in windows, which are provided at Ground Level, to deter break and enters; and vandal proof materials, which are hardy and not easily removable from the building, and anti-graffiti paint are used in the construction and finishing of buildings. 	Development Complies with Performance Criteria The facility will be fenced from public access areas (eg. road and rail) by a standard 2m-wire fence. Members of the public will not have access to the site.

Performance Criteria	Acceptable Measures	Proposal Assessment
P8 Buildings are designed to overlook areas that are accessible to the public.	A8 Windows and main entrances are positioned to allow for casual surveillance of public and semi-public spaces.	Not applicable to this Development No areas of the facility are accessible to the public.
P9 Buildings and building sites are designed to minimise opportunities for concealment.	A9.1 Along property boundaries adjacent to the street or in view of the street and other publicly accessible areas within Sites, building facades are provided which do not incorporate recesses of sufficient size to conceal a person. A9.2 Blind corners, where movement cannot be predicted, on buildings constructed on street corners or adjacent to a driveway, Alleyway, laneway or similar, are avoided....	Development Complies with Performance Criteria The facility is an open design with minimal areas suitable for concealment. The site is not publicly accessible.
P10 All building entries are designed to be obvious and easily identifiable.	A10.1 The number of entrances and exits are limited and main building entrances/exits are located at the front of the Site in view of the street. Where this is not possible, due to Site or existing building constraints, a well-defined path is provided to the entrance/exit. A10.2 All entrances/exits to buildings are lit and signed, and signage includes hours of operation. A10.3 Entrances/exits are located to provide a direct link to driveways and car parking areas. A10.4	Not Applicable to this Development The facility will not be accessible to members of the public. The facility will be secured by a 2m high fence and locked gates, and the facility does not have a direct frontage onto any public area (ie. no road frontage). Demountable buildings will have standard security lighting over the doorways and provide no areas for concealment of people.

Performance Criteria	Acceptable Measures	Proposal Assessment
	<p>Recessed doorways are avoided where the recess is of sufficient size to conceal a person. Where recessed doorways are unavoidable, measures are used to enhance safety as follows:</p> <ul style="list-style-type: none"> • good lighting is installed; and • strategically placed mirrors are installed; and/or • angled approaches are provided; and/or • gates which restrict access are provided. 	
<p>P11</p> <p>Buildings and structures are designed to restrict unlawful access to buildings and between buildings.</p>	<p>A11.1</p> <p>Sufficient separation between features such as roofs, balconies, windows and the like are provided to prevent unlawful access between buildings.</p> <p>A11.2</p> <p>The use of features such as trellises and the like, which may facilitate unlawful access to buildings, is avoided.</p>	<p>Development Complies with Performance Criteria</p> <p>The facility will be fenced and locked to restrict unlawful access. The fence from the road and rail has barbwire at the top that will restrict access over the fence and onto the roof of the switch room building. No other structures will allow a person to gain unlawful access to the site by climbing.</p>
Public Facilities		
<p>P12</p> <p>Where publicly accessible facilities, such as public transport stops and interchanges, automatic teller machines, public telephones and public and private post office boxes are provided, they are located and designed to maximise safety.</p>	<p>A12.1-3</p> <p>Not applicable</p>	<p>Not Applicable to this Development</p> <p>No publicly accessible facilities are proposed.</p>
<p>P13</p> <p>Where public toilet facilities and parent rooms are provided, they are designed, and located in the most accessible and convenient locations, to minimise opportunities for vandalism and assaults.</p>	<p>A13.1-3</p> <p>Not applicable</p>	<p>Not Applicable to this Development.</p> <p>No public facilities are proposed.</p>

Performance Criteria	Acceptable Measures	Proposal Assessment
External Lighting		
P14 External lighting of appropriate intensities is provided to maximise safety.	A14.1 Lighting is provided which satisfies the requirements of <i>Australian Standard AS 1158.3.1 – Road Lighting – Pedestrian Area Lighting – Performance and Installation Design Requirements</i> unless otherwise specified in this code. A14.2 External lighting of a graduated intensity is provided with lower levels of brightness at the perimeter of the Site and higher intensities at the entrance to buildings, or at the centre of the Site. A14.3 Lighting is directed onto the Site and away from neighbouring properties. A14.4 Not applicable	Development will Comply with Performance Criteria and Acceptable Solutions. Security lighting will be provided around the two buildings and a single compound security light may be installed. External lighting will consist of lighting above each doorway and internal lighting in the switchroom and generator enclosures. Lighting will comply with relevant building codes and Australian Standards. All lighting will be directed onto the site and minimal light spill will be experienced outside of the facility boundary. There are no sensitive receptor locations adjoining the facility.

6. Trade Waste and Refuse Code

Performance Criteria	Acceptable Measures	Proposal Assessment
Trade Waste		
<p>P1</p> <p>The development is capable of providing for the storage, collection, treatment and disposal of Trade Waste such that:</p> <ul style="list-style-type: none"> off-site releases of contaminants do not occur; the health and safety of people and the environment are protected; and the performance of the sewerage system is not put at risk and no Environmental Harm will be caused. 	<p>A1</p> <p>No Acceptable Measure is prescribed.</p> <p>Note 1: The disposal of liquid Trade Waste to Council's sewerage system will need to be capable of complying with Council's Trade Waste Policy supporting the <i>Water Act 2000, Sewerage and Water Supply Act 1949</i> and the <i>Standard Sewerage Law</i>.</p> <p>Note 2: Under the Trade Waste Policy:</p> <p>a) disposal of effluent to the sewerage system cannot include any of the following:</p> <ul style="list-style-type: none"> flammable/explosive substances; radioactive substances; pathological and infectious waste; cytotoxic waste; genetically engineered organisms; or rainwater and uncontaminated water; <p>b) where Trade Waste is to be released into sewers, the effluent quality will need to meet the sewer admission standards set out in Council's Trade Waste Policy. This may require:</p> <ul style="list-style-type: none"> pre-treatment measures (such as oil/grease separators) to be installed on-site; 	<p>Development Complies with Performance Criteria and Acceptable Solutions.</p> <p>The facility will release all trade wastes and sewage into the existing KRC systems. Trade wastes (eg. boiler blowdown water) are sent to KRC's wastewater treatment plant where solids are removed in accordance Council's specified limits before being directed to Council sewerage.</p> <p>Trade waste from the facility is detailed in Section 2.6 of the report. All trade wastes are relatively inert and will displace existing KRC trade wastes. No prohibited or hazardous substances (as listed) will be discharged from the facility to the trade waste system.</p> <p>DDCES will comply with Council's Trade Waste Policy for all trade waste discharges.</p> <p>The discharge of these wastes to Council's sewerage system, via the KRC treatment plant, will not result in any risk to the sewerage system, the environment or to the health and safety of people.</p> <p>No liquid or solid wastes will be directly discharged or disposed of to the environment.</p>

Performance Criteria	Acceptable Measures	Proposal Assessment
	<ul style="list-style-type: none"> alterations to the design of the development, such as alterations to floor or Site levels to allow drainage to sewer or the roofing of work areas; and sampling manholes for major Category 3 Trade Waste Generators under the Trade Waste Policy. 	
Refuse Storage		
P2 Appropriate container storage areas are provided which are: <ul style="list-style-type: none"> in a building or enclosing structure or screened from public view; of adequate size to accommodate the expected amount of refuse to be generated by the use; in a position that is conveniently accessible for collection; and able to be kept in a clean state at all times. 	A2.1-4 Not applicable.	Development Complies with the Performance Criteria. All waste generated from the facility will either be plumbed to existing KRC services (sewerage, stormwater, trade waste) or removed from site by the personnel undertaking the works from which the waste was generated (eg. solid wastes from maintenance activities). There is no requirement to store any significant quantity of refuse on site and no collection service required. General waste bins (paper, plastic) may be provided in the building/s.

7. Outdoor Lighting Code

Performance Criteria	Acceptable Measures	Proposal Assessment																																	
<p>P1</p> <p>Outdoor Lighting does not jeopardise the safety or well-being of any pedestrian, cyclist or motorist through inappropriate light emissions which reduce the ability of transport system users to see essential details of the route ahead, including signalling systems and signage.</p>	<p>A1</p> <p>The Outdoor Lighting is provided in accordance with <i>Australian Standard AS 1158.1.1 – Road Lighting – Vehicular Traffic (Category V) Lighting – Performance and Installation Design Requirements</i>.</p>	<p>Development Complies with Performance Criteria.</p> <p>There will be minimal lighting on site. Security lighting will be provided above the doors to the two buildings with the possibility of a compound security light.</p> <p>All lighting will be positioned such that it is directed onto the site. Lighting will comply with relevant Australian standards.</p> <p>This level of lighting will not impact on any users of public roads or the rail line.</p>																																	
<p>P2</p> <p>Outdoor Lighting does not cause unreasonable disturbance, annoyance or distress to any person or activity because of the emission of light.</p>	<p>A2</p> <p>The Outdoor Lighting is designed, installed and regulated in accordance with the parameters outlined in the Australian Standard AS4282 – Control of the Obtrusive Effects of Outdoor Lighting.</p> <p>Note: The following tables, adapted from Australian Standard AS4282 – Control of the Obtrusive Effects of Outdoor Lighting, are provided for user convenience purposes.</p> <p>In any matter of interpretation the Australian Standard prevails except in the matter of the hours of curfew.</p> <p>Maximum Values for Light Technical Parameters for the Control of Obtrusive Light</p> <table><tr><th rowspan="2">Light Technical Parameters</th><th rowspan="2">Code of Use</th><th colspan="3">Recommended Maximum Values</th></tr><tr><th>Commercial & Industrial Areas</th><th colspan="2">Residential Areas</th></tr><tr><th></th><th></th><th></th><th>Light</th><th>Dark</th></tr><tr><td>Surroundance in the vicinity of site</td><td>05:00 – 22:00</td><td>25 lx</td><td>10 lx</td><td>10 lx</td></tr><tr><td></td><td>22:00 – 05:00</td><td>4 lx</td><td>2 lx</td><td>1 lx</td></tr><tr><td>Lighting Intensity emitted by luminaires</td><td>05:00 – 22:00</td><td colspan="3">Limited by the following table</td></tr><tr><td></td><td>22:00 – 05:00</td><td>2500 cd</td><td>1000 cd</td><td>500 cd</td></tr></table>	Light Technical Parameters	Code of Use	Recommended Maximum Values			Commercial & Industrial Areas	Residential Areas					Light	Dark	Surroundance in the vicinity of site	05:00 – 22:00	25 lx	10 lx	10 lx		22:00 – 05:00	4 lx	2 lx	1 lx	Lighting Intensity emitted by luminaires	05:00 – 22:00	Limited by the following table				22:00 – 05:00	2500 cd	1000 cd	500 cd	<p>Development Complies with Performance Criteria.</p> <p>There are no sensitive uses (residential) in close proximity to the facility. Lighting will comply with relevant Australian standards.</p> <p>The Facility will meet Level 2 control.</p>
Light Technical Parameters	Code of Use			Recommended Maximum Values																															
		Commercial & Industrial Areas	Residential Areas																																
			Light	Dark																															
Surroundance in the vicinity of site	05:00 – 22:00	25 lx	10 lx	10 lx																															
	22:00 – 05:00	4 lx	2 lx	1 lx																															
Lighting Intensity emitted by luminaires	05:00 – 22:00	Limited by the following table																																	
	22:00 – 05:00	2500 cd	1000 cd	500 cd																															

Performance Criteria	Acceptable Measures	Proposal Assessment																				
	<p>Maximum Luminous Intensity per Luminaire for Pre-curtain operating times</p> <table><tr><th colspan="2">Area Description</th><th colspan="2">Maximum Luminous Intensity from each Luminaire</th></tr><tr><th>Size of Area</th><th>Control or Dimension</th><th>Level 1 Sensitive Areas</th><th>Level 2 Commercial, Industrial & Light Areas</th></tr><tr><td>Large</td><td>>75m</td><td>7500 cd</td><td>100000 cd</td></tr><tr><td>Medium</td><td>>25<75 m</td><td>7500 cd</td><td>50000 cd</td></tr><tr><td>Small</td><td><25m</td><td>2500 cd</td><td>25000 cd</td></tr></table> <p>Level 1 control is appropriate for environmentally sensitive areas where:</p> <ul style="list-style-type: none">the existing environment is of high quality;the installation is close to abutting properties;the surrounding uses are residential in nature; orthe existing ambient light levels are low. <p>Level 2 control will permit the use of a range of currently used lighting techniques but will limit intensities in the control direction to what might reasonably be expected by careful design and the selection and aiming of luminaires.</p> <p>Light Residential Areas - existing ambient light levels are high (5 lx and above).</p> <p>Dark Residential Areas - existing ambient light levels are low (below 5 lx).</p>	Area Description		Maximum Luminous Intensity from each Luminaire		Size of Area	Control or Dimension	Level 1 Sensitive Areas	Level 2 Commercial, Industrial & Light Areas	Large	>75m	7500 cd	100000 cd	Medium	>25<75 m	7500 cd	50000 cd	Small	<25m	2500 cd	25000 cd	
Area Description		Maximum Luminous Intensity from each Luminaire																				
Size of Area	Control or Dimension	Level 1 Sensitive Areas	Level 2 Commercial, Industrial & Light Areas																			
Large	>75m	7500 cd	100000 cd																			
Medium	>25<75 m	7500 cd	50000 cd																			
Small	<25m	2500 cd	25000 cd																			

Performance Criteria	Acceptable Measures	Proposal Assessment
P3 Outdoor Lighting does not cause unreasonable disturbance or cause detrimental impacts to any significant natural environment.	A3 The vertical illumination emanating from the Outdoor Lighting does not exceed 1 lx on land within: <ul style="list-style-type: none">the Environmental Precinct of the Open Space Zone;the Bushland Residential Precinct of the Park Residential Zone; orthe Special Escarpment Precinct of the Rural Zone.	Development Complies with the Performance Criteria and Acceptable Solutions. The facility site is not within, or in close proximity to, the Environmental Precinct of the Open Space Zone, the Bushland Residential Precinct of the Park residential Zone or the Special Escarpment Precinct of the Rural Zone. The level of facility lighting will not result in unreasonable disturbance or detrimental impacts to any significant natural environment.
P4 Outdoor Lighting does not cause an obstruction or other potential hazard to aircraft movement.	A4 The Outdoor Lighting satisfies the relevant Acceptable Measures of the Airport Affected Land Code.	Development Complies with the Performance Criteria. Lighting for the facility will be minimal. The proposed level of lighting will not cause any distraction or confusion to pilots flying overhead.

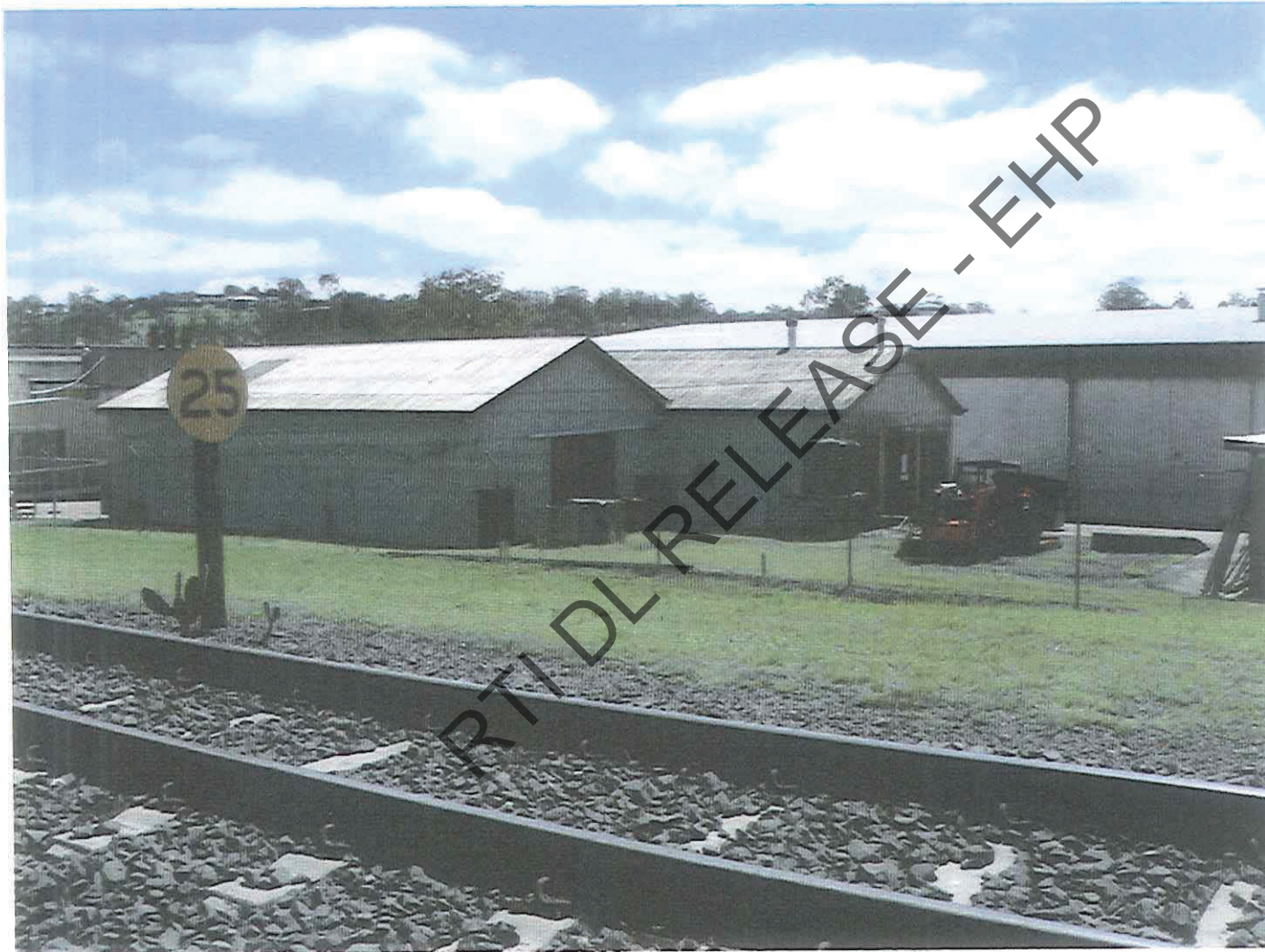
RTI DL RELEASE

Appendix E

Photographs

RTI DL RELEASE - EHP

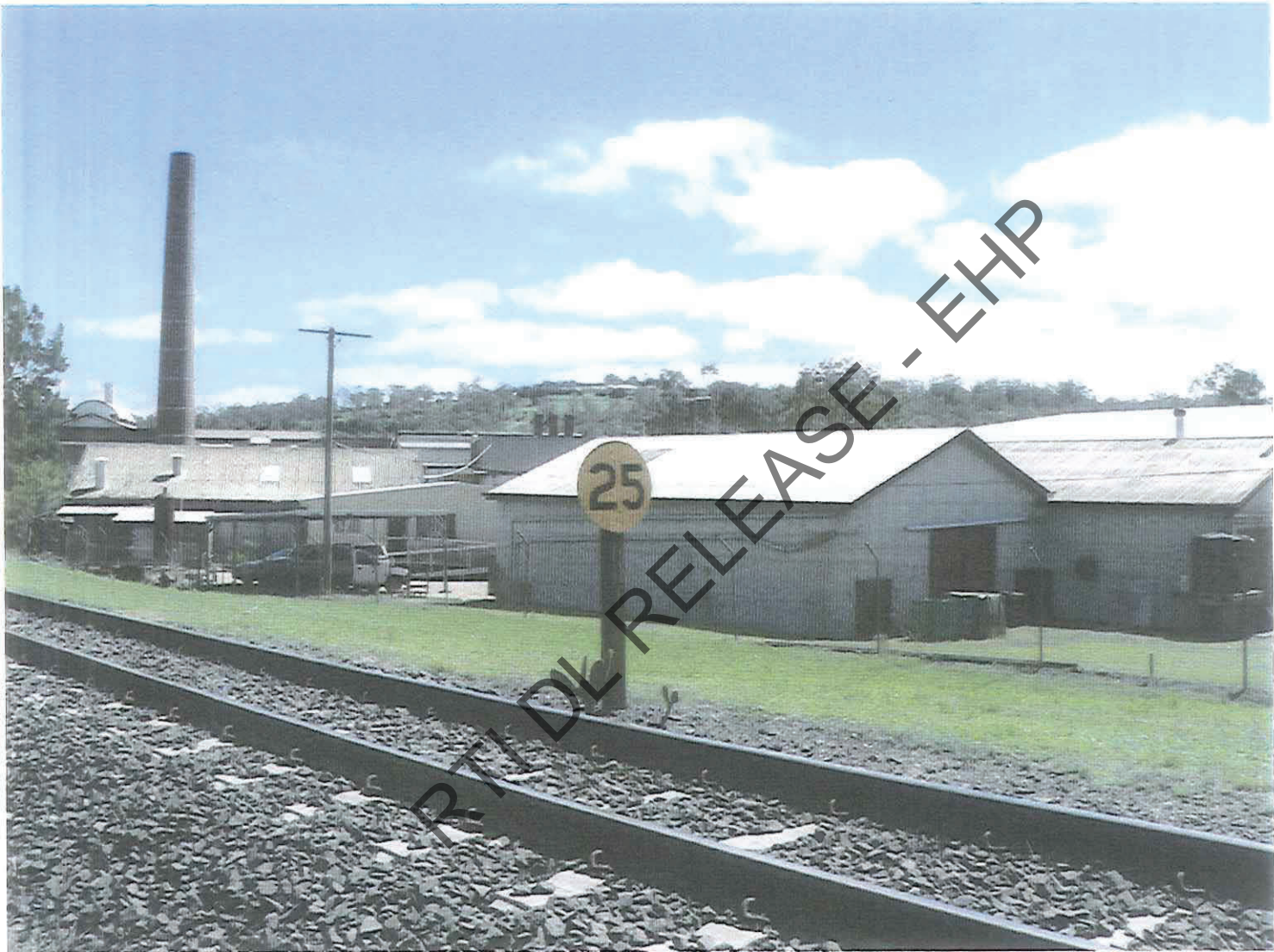
Photographs 1-3: Facility Site



Photograph 1: Site of Proposed Energy Facility to replace existing sheds (view from the railway line looking north east)

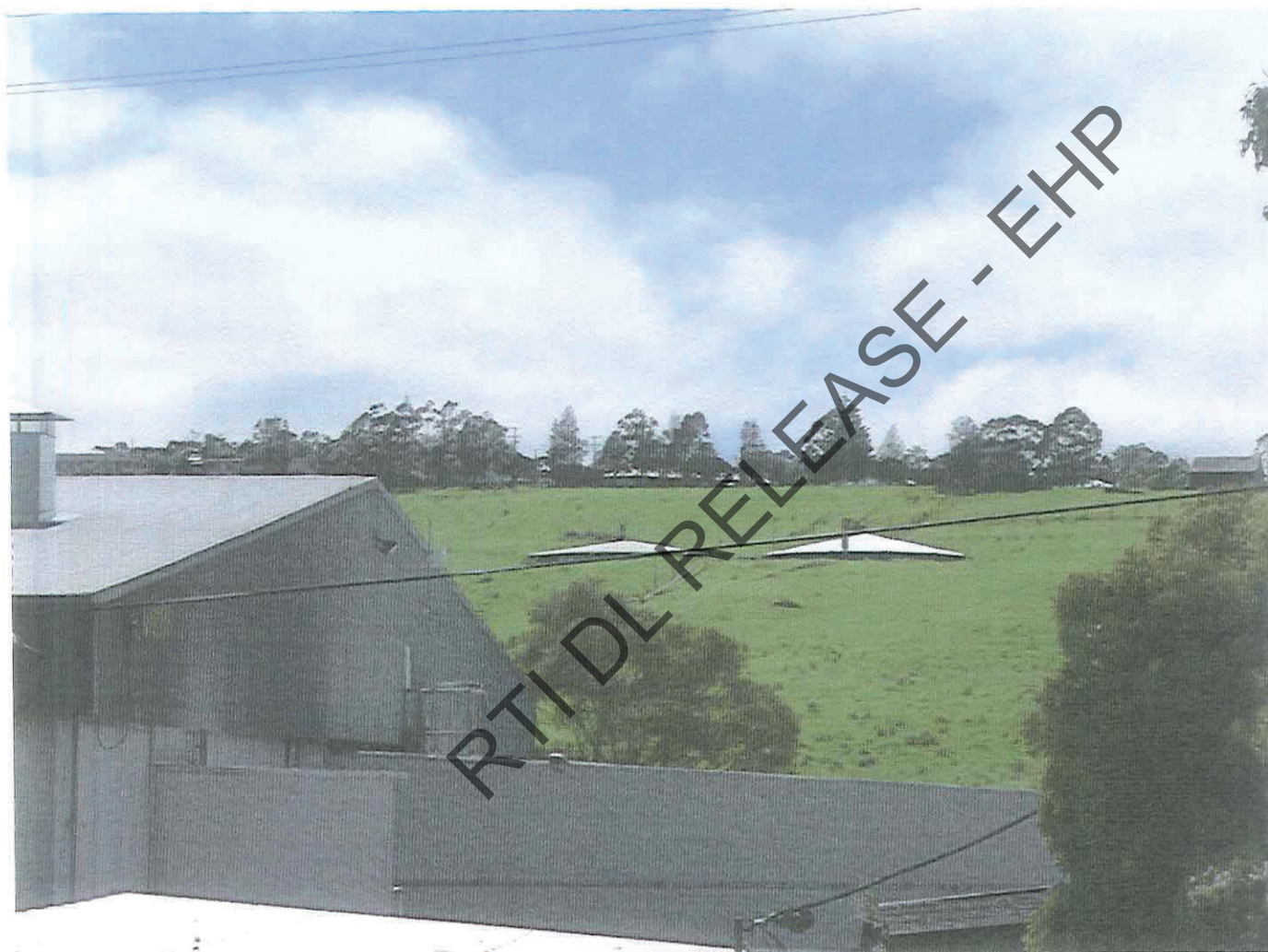


Photograph 2: Southern section of Proposed Energy Facility site (view from the railway line looking east). Note: Mature trees to the immediate south of the facility, shown here on the right, will be retained to maintain existing level of screening.

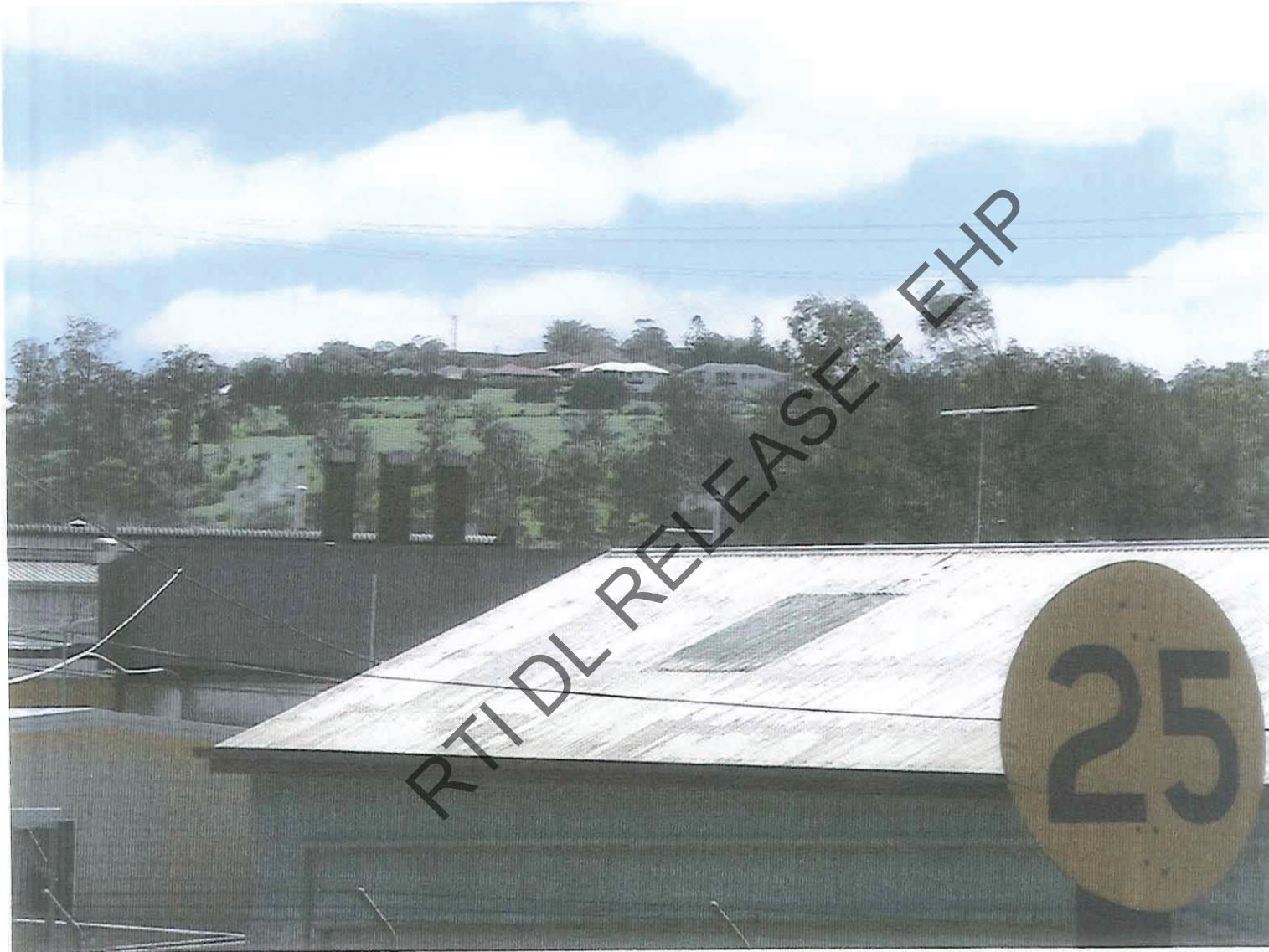


Photograph 3: Northern section of Proposed Energy Facility site (view from the railway line looking northeast). Note: The facility will replace the two existing sheds to the centre and left of view. Other structures on the right of view will be retained as they form part of the KRC Facility.

Photographs 4-10: Surrounding Landuses and Views



Photograph 4: View past the KRC Property to the east (view from elevated railway line above facility site level). Note: residents on the ridgeline are well screened from view by existing trees.



Photograph 5: View past the KRC Property to the northeast (view from elevated railway line above facility site level). Note: residents on the ridgeline are well screened from view by existing KRC facilities.



Photograph 6: View towards Baillie Henderson Hospital, 750m to the east (view from elevated railway line above facility site level). Note: High level of existing landscaping between Hospital facilities and Mort Street, railway and KRC facility.



Photograph 7: View from Mort Street to the west (view showing the unnamed drainage line that passes under the road and rail at this point and Baillie Henderson Grounds).



Photograph 8: View from Griffiths Street at the southern KRC boundary showing the construction access for heavy vehicles (view looking north towards KRC factory).



Photograph 9: View from Griffiths Street access towards Gowrie Creek (view looking northeast). Note: the slope of the land towards the creek.



Photograph 10: Gowrie Creek taken from Griffiths Street (view looking north).

Photograph 11: Gas Generator Module

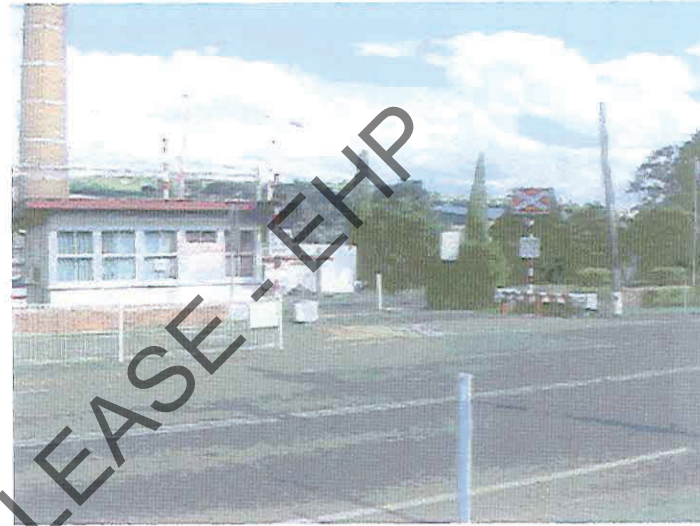
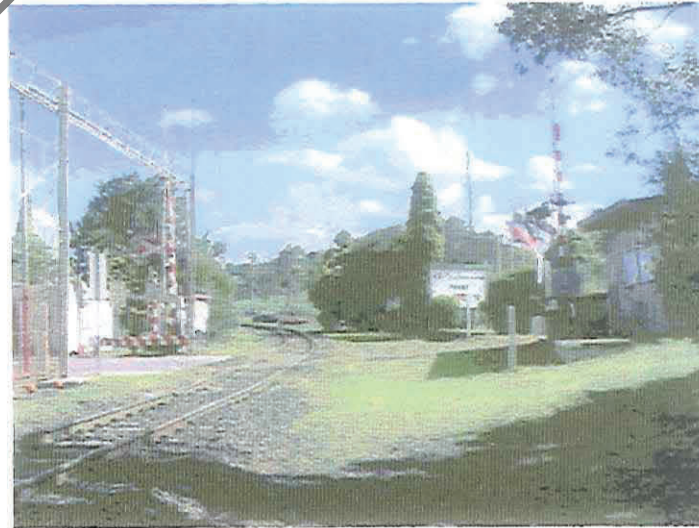


Photograph 12: Boiler Module (view from west)



Photograph 13: Close Up View of Qld Rail Fencing Detail and Embankment



Photographs 14-17: Views of KRC Main Entrance - Access from Mort Street & Rail Crossing

Appendix F

Pre-lodgement Meeting Minutes

RTI DL RELEASE - EHP

Record of pre-lodgement meeting - conversation

File number 890/1174

Development proposal: **Material Change of Use: Central Energy Plant**
Mort Street, Toowoomba
Lot 1 on SP116255
Toowoomba City Council

Attendees	Colleen Bow	Ecos Consulting
	Gary Faulkhead	Boilerland Pty Ltd
	Anne Fry	Queensland Transport
	Alan Rolandsen	Queensland Transport
	Paul Lange	Queensland Transport
	Adrian Dolley	Queensland Transport

Date & time 14 November 2005 9:00am

Location Floor 12 Conference Room, Cromwell House

Development Proposal

- The application will be for a Material Change of Use and is code assessable against the Toowoomba City planning scheme
- Development will involve the following:
 - Demolition of existing shed on the development site
 - Construction of 2 demountable buildings
 - Concrete slab work associated with the energy plant (including footings for pipe racks)
- It is expected that the proposed development will generate one operational vehicle movement per day

Issues Discussed

- The development may have stormwater and drainage issues. The development should not direct or increase stormwater or flooding flows onto the railway.
 - As part of the information provided to Queensland Transport (QT) the applicant should specifically address the rail corridor impacts in their stormwater report

- The development application should consider the possibility for trespass onto the rail corridor.
 - The applicant should supply a photograph and description of the current boundary fencing as part of their application.
 - QT supplied the applicant with the relevant Queensland Rail (QR) fencing standard
- The construction activities and works adjacent to the rail corridor may have an impact on the operation of the rail corridor.
 - The developer should supply QT with the relevant information regarding the volume of cut and fill, height of any structure, and the distance to the boundary of the rail corridor of any construction activities.
 - The developer would require a s255 approval under the Transport Infrastructure Act 1994. In seeking this approval, the applicant should outline how the rail corridor impacts would be mitigated through the construction period

QT supplied the applicant with a copy of *QR's Guideline MCE-SR-005: Requirements for Buildings Over or Near Railways*.

RTI DL RELEASE



Meeting Details

Meeting Time/Date:	Monday 7 November 2005 3 pm
Location:	DA Ground Floor Meeting Room, 543 Ruthven Street, Toowoomba
Council Attendees:	Paul Kelly (PK), Steve Roberts, Brad Carey (BC)
Applicant Attendees:	Bill Dunn, Gary Faulkhead, Gary Parkhill, Colleen Bow, Brian Douglas & Dennis Hayes

Applicant Contact Details

Applicant Name:	DDC Energy Services Pty Ltd (Bill Dunn)
Postal Address:	PO Box 432, NUNDAH QLD 4012
Email	Steamconsultant@powerup.com.au

Property Details

Application Number:	PREL/2005/4899
Property Owner:	Darling Downs Foods Pty Ltd
Property Address:	L1/SP116255 PAR DRAYTON (Part of Lot 1 SP 116255):
Property Description:	Central Energy Facility
Site Area:	1279m ²
Zoning:	Industry Zone
Regulatory Map:	-
Precinct:	General Industry Precinct

Proposed Development

Development Type:	
Proposed Use: (as defined by the Toowoomba City Planning Scheme)	Central Energy Facility – Major Utility
Description of Proposed Development	
Energy plant to serve small goods factory on site.	
Submitted Concept/ Proposal Plan References:	



Confirmation of Assessment Status Against Planning Scheme

Development Component	Use/Development	Assessment Status (✓ denotes assessment status)			
		Self/Exempt	Code Assessable	Impact Assessable	Impact Assessable (Not Preferred)
Material Change of Use			✓		
Reconfiguring a Lot					
Operational Work					

Notes:

1. N/A – Not Applicable
2. For combined applications, the applicable assessment level is the highest level of assessment triggered by for any of the application components

Building Work	(✓ Yes or X No)	Assessment Status (✓ denotes assessment status)			
		Self/Exempt	Code Assessable	Impact Assessable	Impact Assessable (Not Preferred)
Assessable against the Planning Scheme					
Assessable against the Building Act/Standard Building Regulation/ Queensland Development Code					

Confirmation of Applicable Codes – based on "Major Utility"

Codes applicable to the subsequent assessment of the development proposal subject to this meeting are as follows (✓ indicates code is applicable):

Zone and Precinct Codes

- 6.1 Residential Conservation Zone
- 6.2 Hospital Support Precinct
- 6.3 Major Road Residential Precinct
- 6.4 Suburban Centre Support Precinct
- 6.5 Industry Zone
- 6.6 Regional Centre Zone
- 6.7 Sub-Regional Centres Zone
- 6.8 Suburban Centres Zone

Area Codes

- 8.1 Office Residential Area
- 8.2 Airport Affected Land
- 8.3 Future Infrastructure Corridors
- 8.4 Minor Waterways
- 8.5 Steep & Potentially Unstable Land
- 8.6 Potential Bushfire Area

Use Codes

- 7.1 General Development
- 7.2 House Code
- 7.3 Home-based Business
- 7.4 Dual Occupancy, Multiple Dwelling Units & Aged Persons Housing/Care Code
- 7.5 Motels & Accommodation Buildings
- 7.6 Bed & Breakfast Establishment
- 7.8 Child Care Centre
- 7.9 Service Station & Car Washing Station
- 7.10 Extractive Industry
- 7.11 Telecommunication Facilities
- 7.12 Animal Keeping & Intensive Animal Husbandry
- 7.13 Display Home/Office

Issue Codes

- 9.1 Development Works
- 9.2 Parking, Transport & Servicing
- 9.3 Landscaping
- 9.4 Community Safety
- 9.5 Indigenous Cultural Heritage
- 9.6 Visual Impact
- 9.7 Noise
- 9.8 Trade Waste & Refuse
- 9.9 Outdoor Lighting
- 9.10 Private Sporting Courts
- 9.11 Lot Reconfiguration
- 9.12 Subdivisional Works

Advertising Signs

- 10.3 Advertising Signs Code

Summary of Main Issues Discussed and Outcomes (dot point record)

ISSUES RAISED

- **2 Options**
 - Extension to heavy industry would be impact assessable
 - Considered to be a "Major Utility" therefore is Code Assessable
- Plant to be attended by one person for one hour per day
- Most properly defined as 'Major Utility' and therefore requires MCU (Code Assessment) – not exempt as it crates assessable development. **(PK)**
- Timing of the application – 20-30 business days + referral (assuming that no information request is required) **(BC)**
- Give consideration in application to potential environmental impacts eg. Noise in addressing relevant codes to avoid an information request

ERA 17 – EPA referral required – air noise assessment required. **(PK)**

- Acknowledgement notice will be required due to referral to EPA **(PK)**
- Questioned why defined 'Major Utility' – **(BC)** -Definition talks about "Generation of Electricity"
- What about the fact that it replaces existing in terms of avoiding requirement – It does trigger assessable development due to it being an increase over existing.
- Application to be lodged by DCCES – likely to lodge in the next couple of weeks.
- No fast-track application however Council is mindful or urgency of the project. **(PK)**
- Application needs to detail nature if discharges (trade waste) to avoid information request – what waste is generated and quantities produced. **(BC)**
- General Issues - Amenity
 - Landscaping - Screening trees **(BC)**

Is a referral required to Queensland Transport due to the fact that the site adjoins railway land - Colleen to check and include letter with application. **(PK)**

- Development doesn't appear to conflict with services – not likely to trigger any headworks charges
- Other issues to be considered in application:
 - Traffic and access – make brief comment in planning report for construction and operational phases (acknowledges it will have low impact)
 - Stormwater not an issue **(BC)**
 - Detail Construction phase duration
 - Photos of existing shed etc **(PK)**
- The EMP/Site Based Management Plan details to come in with application (being prepared for ERA)
- Check Rainwater tank requirement – refer Development Works Code of the Planning Scheme.
- Fees Applicable:-
 - \$3500 + 2 Technical Reports (\$300) TOTAL \$3800
- Copies of brochures on "Well Made Application" and "Owners Consent" given at meeting



Additional Technical Studies or Information Required

The technical studies/information identified with a ✓ below are recommended by Council to accompany any subsequent application for the development proposal. The technical studies/information are those identified as being required by Council based on a preliminary assessment of information provided for the purposes of this pre-lodgement meeting. Council does not preclude the possibility that additional technical studies/information may be required, and subsequently requested following further assessment of a subsequent development application.

Where information identified below does not accompany a subsequent development application, it may, following an assessment of the adequacy of information provided, be requested by Council under an Information Request issued pursuant to section 3.3.6 of the *Integrated Planning Act 1997*.

Specialist Technical Studies		Additional Information	
Planning Report	✓	Shadow Impact Diagrams	
Acoustic/Noise Impact Report		Articulated Vehicle Turning Diagrams	
Traffic Report		Protected Tree Plan (Bylaw No. 50)	
Slope/Land Stability Report		Landscaping Plan	
Bushfire Hazard Assessment Report		Plan of Survey/Conceptual Subdivision Plan	
Flood/Hydraulic Study		Streetscape Elevation	
Stormwater Quality Management Plan		Other:	
Lighting Impact Study			
Economic Impact Study			
Ecological Impact Study (Flora and/or Fauna)			
Landscape Strategy			
Heritage Study			

* Reports from ERA Application

Further Information

For further information or clarification provided in this record of meeting, please contact the undersigned.

Officer Name: Steve Roberts
Phone: 4688 6357
Facsimile: 4688 6367

Authorisation

The preceding record or meeting is confirmed by Council to be a true and accurate summary of information provided at, and subsequent to the pre-lodgement meeting detailed above.

Manager Development Assessment (or delegate)
Phone: 4688 6360
Facsimile: 4688 6367



DDC Energy Services Pty Ltd

Central Energy Facility Mort Street Harlaxton Toowoomba



**Code Assessable
Development Application
Material Change of Use**

Part B Technical Reports and Site-Based Management Plan



18 November 2005

Development Application
Technical Reports and Site-Based Management Plan

DDC Energy Services P/L
Toowoomba Central Energy Facility

Prepared on behalf of:

DDC Energy Services Pty Ltd
ACN 114 041 039

PO Box 432
Nundah Qld 4012

Ph: (07) 3865 7259
Fax: (07) 3265 1924

Prepared by:

Ecos Consulting (Aust) Pty Ltd
ABN 57 081 918 194

Suite 39/240 Waterworks Road
Ashgrove Qld 4060

Ph: (07) 3366 1433
Fax: (07) 3366 1933
www.ecos.com.au

DOCUMENT CONTROL SHEET						
Central Energy Plant Development Application - Part B: Technical Reports						
Project No. ENV 684						
Document Reference	Revision Number	Revision Date	Compiled by	Checked by	Approved by	Comment
684-Central Energy-TR	B	18-Nov-05	CB	OM	OM	Issued to client
684-Central Energy-TR	0					For submission

684-partbtechnicalreports-reva

PART B: TECHNICAL REPORTS AND SITE BASED MANAGEMENT PLAN

This Part contains copies of the specialist technical reports that support the Development Application.

Attachments Include:

Attachment 1: Air Quality Assessment Report (Katestone Environmental)

Attachment 2: Noise Assessment Report (Heggles Australia)

Attachment 3: Central Energy Facility Site-Based Management Plan

RTI DL RELEASE - EHP

Attachment 1

Air Quality Assessment Report

RTI DL RELEASE - EHP

Katestone Environmental

Air Quality Impact Assessment Of A Proposed Energy Generation Facility At Harlaxton, Toowoomba

DDCE Energy Services Pty Ltd

November 2005

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**Report from Katestone Environmental to DDCE Energy Services Pty Ltd
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Toowoomba**

Executive summary

Katestone Environmental was commissioned by DDCE Energy Services Pty Ltd to undertake an air quality impact assessment of a proposed gas-fired energy facility at Harlaxton, north of Toowoomba. The proposed energy facility will provide energy to the existing KRC Bacon facility when operational and excess power will be sent to the power grid.

The air quality modelling includes the proposed 4 x 1.6 MW gas-fired generator units and one standby gas-fired boiler. The most important air pollutant that occurs due to the proposal is nitrogen dioxide. Air quality modelling was conducted using conservative modelling assumptions and data on background air quality from the EPA's monitoring site in Toowoomba.

The modelling predicts nitrogen dioxide concentrations to be well below the EPA's air quality goals and the NEPM standards at the nearest residential areas. Maximum concentrations are predicted within the site boundary and occur under unstable atmospheric conditions (daytime convective conditions) with light to moderate wind speeds.

The air quality assessment has not identified any air quality constraints for the proposed development.

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**Report from Katestone Environmental to DDCE Energy Services Pty Ltd
Air quality impact assessment of a proposed energy generation facility at Harlaxton,
Toowoomba**

1. Introduction

Katestone Environmental was commissioned by DDCE Energy Services Pty Ltd to conduct an air quality impact assessment of a proposed energy facility to be constructed and operated on land leased from KR Castlemaine Foods Pty Ltd (KRC) at Mort Street, Harlaxton. The proposed facility will consist of four low NO_x gas-fired engines (each with 1.6 MW generating capacity) as well as a 5 MW capacity standby gas-fired steam boiler. Two of the engines will be fitted with waste heat boilers. The energy facility will supply KRC with the energy required for operations and any excess electricity produced will be supplied to the grid. For this assessment all four units have been assessed, however the facility is planned to operate with three units or less for the majority of the time.

The new energy facility will replace the need for KRC to operate their existing 3 MW and 9 MW gas-fired boilers. These existing boilers will be decommissioned.

This study has been conducted in accordance with good industry practice utilising site specific information on air quality, meteorology, topography and air pollutant emission rates. Oxides of nitrogen are the most important air pollutant emitted by the proposed gas-fired plant. Other air pollutants such as carbon monoxide and particles occur in relatively low amounts and are not likely to be at significant levels off-site.

2. Site and surrounding land-use

The proposed energy facility will be located on land currently owned by KRC, adjacent to KRC's existing operations. The proposed site will be leased to the operator of the energy facility. The site is located a few kilometres to the north of the city of Toowoomba. The Ballie Henderson Hospital is located over 800 m to the west of the site and the township of Harlaxton is located at a distance of 800 m to the east. The nearest residential house is located within the grounds of the hospital approximately 250 m to the west of the existing KRC facility.

The area immediately to the east of the site is farmland. The Great Dividing Range is located over 1 km to the east, descending down into the Gatton Shire. The site is located within a small valley beside Gowrie Creek. The nearest significant terrain to the site is Mount Kynock over 1 km to the north of the site, reaching an additional 140 m above the elevation of the site. Mount Lofty exists over 3 km to the southeast of the site also extending an additional 140 m above the site. Over 2.5 km to the west-southwest of the site exists another escarpment reaching an additional 100 m higher than the KRC site. Figure 1 shows the contours of the existing terrain surrounding the site.

There does not appear to be any new residential zonings in closer proximity to the site than the existing residential areas. The area immediately east of the proposed energy facility is zoned open space (Gowrie Creek) and rural. The area to the west of the proposed energy facility is zoned for special use for the health precinct. The nearest residential zoned land is over 800 m to the east (mixed housing zone) of the proposed energy facility. The land to the north is zoned park and residential for the bushland residential precinct. A map of the surrounding land-use zones is shown in Figure 2.

The nearest industries to the site are the sewage treatment works located 1.5 km to the northwest of the proposed site and a quarry located 2 km to the east-southeast of the site. The main air pollutant emitted from a sewage treatment works is odour. The main air pollutant from a quarry is dust.

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The National Pollutant Inventory (NPI) is an Australia-wide industry air pollution reporting program. Larger industries with capacities above set thresholds are required to estimate and report air pollutant emissions. This information is publicly available and has been analysed for this area. The NPI identifies the existing KRC site as the largest individual industrial source of oxides of nitrogen in Toowoomba. Although KRC is a very minor emission source compared to other industrial facilities in Queensland. Other industrial sources of oxides of nitrogen in Toowoomba that are of a similar magnitude to KRC include: beer and malt manufacturing, synthetic resin manufacturing, dairy product manufacturing and the Baillie Henderson Hospital. These activities are located more than 1 km from the site of the proposed energy facility and consequently are not expected to have a significant cumulative impact with emissions from the proposed energy facility. The main non-industrial source of oxides of nitrogen in the Toowoomba region is expected to be traffic.

3. Meteorology

3.1 Wind speed, wind direction and temperature

The Bureau of Meteorology operates a continuous meteorological monitoring station at Toowoomba Airport. Figure 3 shows the diurnal profile of the winds for the Bureau of Meteorology monitoring site. Throughout the day the winds recorded are mostly moderate in strength and from the easterly sector. During the day (6 am to 6 pm) winds from the southwest to west are more prevalent than at night.

The seasonal wind roses (Figure 4) show that moderate winds from the easterly sector occur throughout the year. During winter a significant proportion of southwest to westerly winds are also recorded.

Figure 5 shows the diurnal profile of the winds. The range and average wind speeds are quite consistent throughout the day and night due to the relatively exposed nature of the site, being located in elevated terrain above the Brisbane Valley.

The nearest residences are located to the northwest and east of the proposed facility. These residences are not downwind of the dominant wind direction (east), which will carry the emissions released from the energy facility to the west of the facility. The winds will carry emissions from the proposed energy facility directly towards the nearest residences for a very small proportion of the year.

A summary of various meteorological statistics such as temperature, relative humidity and pressure recorded at the Bureau of Meteorology monitoring station are shown in Table 1. The monthly averages show February to be the hottest month and July to be the coldest month during 2004. Relative humidity was highest in summer and lowest in spring. Atmospheric pressure shows a typical annual profile with higher pressure in winter.

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Table 1: Monthly averages for various meteorological variables for the year 2004.

Month	Temperature (°C)	Dew Point (°C)	Relative Humidity (%)	Pressure (hPa)
January	23.0	17.5	74.5	1014
February	23.4	17.3	71.6	1015
March	19.9	15.8	78.4	1017
April	18.3	13.6	76.5	1022
May	14.0	6.8	65.6	1021
June	11.8	5.0	66.3	1023
July	11.3	4.4	65.6	1023
August	12.7	2.9	56.1	1018
September	15.2	6.4	62.1	1022
October	19.4	8.8	59.5	1019
November	19.9	13.3	72.4	1018
December	20.9	15.2	74.5	1016

A summary of the diurnal profiles of temperature (2 m height) for each season is shown in Figure 6. During 2004, the highest temperature recorded was 36.9 °C on 22 February. The coldest temperature recorded during 2004 was -1.6 °C, recorded on 19 July.

3.2 Atmospheric stability and mixing height

Stability classification is a measure of the stability of the atmosphere. The stability classes range from A class which represents very unstable atmospheric conditions that may typically occur on a sunny day to F class stability which represents very stable atmospheric conditions that typically occur during light wind conditions at night. Unstable conditions (Classes A-C) are characterised by strong solar heating of the ground that induces turbulent mixing in the atmosphere close to the ground. This turbulent mixing is the main driver of dispersion during unstable conditions. Dispersion processes for the most frequently occurring Class D conditions are dominated by mechanical turbulence generated as the wind passes over irregularities in the local surface. The higher wind speeds associated with Class D conditions generally result in lower ground level concentrations than classes A-C.

During the night time the atmospheric conditions are generally stable (often classes E and F). During stable conditions the plume released from the stack will be subject to minimal atmospheric turbulence. A plume that is hotter than its surroundings and emitted above the night time inversion will remain relatively undiluted but will be trapped above the inversion layer and will not reach the ground, unless it encounters elevated terrain.

Around the proposed energy facility there are several buildings, both existing and proposed. These buildings impact on the wind flows at the site, causing the winds to travel around the buildings, often with some turbulence associated with the wind and the building (termed wake effect). Under stronger wind speeds (stability class D) the wake effect of the winds around the buildings increases and generates atmospheric turbulence. This turbulence can entrain the plume released from the stacks, causing the plume to reach the ground-level.

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Table 2 shows the percentage of stability classes determined using the solar radiation/delta T methodology. The high proportion of D class stability is due to the high frequency of moderate to high velocity winds that occur at the site. Further details on calculation methods for the stability class and the mixing height are shown in Appendix 1.

Table 2: Frequency of occurrence (%) of surface atmospheric stability conditions (Class A represents the most unstable conditions) for the meteorological information.

Pasquill-Gifford Stability Class	Frequency (%)	Classification
A	0.5	Extremely unstable
B	6.5	Unstable
C	13.6	Slightly unstable
D	75.7	Neutral
E	1.8	Slightly stable
F	1.9	Stable

The mixing height refers to the height above ground within which the plume can mix with ambient air. During stable atmospheric conditions (night time) the mixing height (inversion) is often quite low and the plume will be emitted above this layer. During the day, solar radiation heats the air at the ground-level and causes the mixing height to rise. The air above the mixing height during the day is generally colder. The growth of the mixing height is dependent on how well the air can mix with the cooler upper levels of air and therefore depends on meteorological factors such as the intensity of solar radiation and wind speed. During strong wind speed conditions the air will be well mixed, resulting in a high mixing height. During periods when the mixing height is high, the plume emissions will disperse and will be diluted by the large volume of air. When the mixing height is low the plume can become trapped under the mixing layer and have limited air available to mix with, resulting in high ground-level concentrations.

The box-whisker plot of mixing height (or inversion height) versus hour of day (Figure 7) shows the mixing heights increasing from 8 am and peaking at 4 pm. The high mixing heights occur because of the high wind nature of the site.

4. Critical air pollutants and ambient air quality guidelines

Nitrogen dioxide is the most important air pollutant associated with gas-fired engines. It occurs due to direct emission in the engine exhaust and also forms from nitric oxide in the plume after emission from the stack. Nitrogen dioxide and nitric oxide are known collectively as oxides of nitrogen. About 5-10 % of the oxides of nitrogen that occur in the engine exhaust are in the form of nitrogen dioxide and the remainder is nitric oxide. Nitric oxide is not generally associated with adverse health impacts.

Other air pollutants that are emitted from gas-fired engines include carbon monoxide, particles and sulphur dioxide. Each of these air pollutants occur in relatively low concentrations and pose an insignificant risk of causing an adverse impact.

Air quality goals are contained in the Queensland *Environmental Protection Policy (Air) 1997* (EPP Air) issued by the Queensland Environmental Protection Agency (EPA). Air quality assessments of new and existing facilities are required to be evaluated against these goals.

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In 1998 the National Environmental Protection Council produced national standards for regional air quality to be achieved within 10 years of commencement. The standards are published in the National Environmental Protection Measure (NEPM) for Ambient Air Quality and apply at regional monitoring stations that are representative of large urban populations.

Table 3: Ambient air quality standards and goals.

Pollutant	Averaging Period	EPP goal ($\mu\text{g}/\text{m}^3$)	NEPM standards ($\mu\text{g}/\text{m}^3$)
Nitrogen dioxide	1-hour	320 ²	246
	4-hour	95 ¹	-
	Annual	30 ¹	62

Note ¹ Part 2 – Indicators and goals relevant to biological integrity.

² Part 3 – Other indicators and goals.

The EPP Air and its amendment contain three lists of air quality indicators and goals relevant to the aesthetic enjoyment of places, visual and local amenity, biological integrity and other (unspecified). The evaluation of air quality impact of an industrial complex by the EPA allows for consideration of land use, biological sensitivity and public cost-benefits in judging the significance of any exceedances of such goals.

5. Existing air quality

Since July 2003 the Environmental Protection Agency (EPA) has conducted meteorology and air quality monitoring in Toowoomba. The monitoring site is located in a valley at Willowburn Oval, near to a residential and light industry area. The EPA reports that the air quality levels at this monitoring site are representative of maximum concentrations within Toowoomba. The monitoring station records ambient concentrations of ozone, carbon monoxide, oxides of nitrogen, particulate matter less than 10 μm (PM_{10}) and particulate matter less than 2.5 μm ($\text{PM}_{2.5}$).

A summary of the nitrogen dioxide concentrations recorded at the station is shown in Table 4.

Table 4: Summary of NO_2 concentrations ($\mu\text{g}/\text{m}^3$) recorded in Toowoomba from July 2003 to end December 2004.

Averaging period	Maximum	99.9 th percentile	99.5 th percentile	99 th percentile	95 th percentile	90 th percentile
1-hour	109	81	67	63	46	34
4-hour	91	67	57	52	41	32
Annual	14	-	-	-	-	-

There have been no exceedances of the EPA goal or NEPM standard during the monitoring period. For this assessment, background levels of nitrogen dioxide have been based on the 95th percentile as required by the EPA.

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6. Model setup

Dispersion modelling has been undertaken to estimate ground-level concentrations of nitrogen dioxide due to the operation of the proposed facility. The Australian regulatory dispersion model AUSPLUME (Version 6.0) was used for this assessment. The AUSPLUME model was originally developed in 1986 by the Victorian EPA to assist with the assessment and licensing of new developments.

The AUSPLUME model was set-up with the following inputs:

- 9-second terrain information used to cover a 10 km by 10 km grid with 100 m grid spacing;
- Schulman-Scire building wake algorithms for the generator units, boiler house, bacon slicing building, hot water storage tank and the engineering office;
- Surface roughness of 0.4 m to account for surrounding land use (shrubs, 4 – 9 m high buildings nearby and terrain influences);
- Briggs rural horizontal and vertical dispersion curves;
- Gradual plume rise and stack tip downwash;
- Default temperature gradients; and
- Irwin rural wind profile exponents.

The modelling was conducted assuming constant operations at the peak emission rate over a full year of meteorological conditions. Various operating scenarios have been considered that include normal and peak emissions as well as operation of the standby boiler.

The modelling results presented here have assumed that 30% of the oxides of nitrogen contained in the plume are converted to nitrogen dioxide. This assumption will over-estimate the actual ground-level concentration of nitrogen dioxide because the chemical reaction is slow and only likely to reach 30 % at about 10 km from the stack. This value of 30% is based on measurements in Gladstone (Bofinger et al 1986, Katestone Environmental 2002).

7. Emission characteristics

DDCE provided details of the stack and emission characteristics for the proposed generator units and boiler. This information is included in Appendix 2. A summary of these details is provided in Table 5.

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Table 5: Stack and emission characteristics for the proposed energy facility.

Parameter	Generator stack no boiler units		Generator stack with waste heat boilers		Boiler stack
Number of stacks	2		2		1
Stack location (Eastings, Northings)	395596, 6954763 395598, 6954756		395600, 6954748 395603, 6954739		395603, 6954769
Stack height (m)	6		6		9
Stack diameter (m)	0.45		0.45		0.6
Stack temperature (°C)	454		200		220
Exhaust gas flow (Nm³/s)	1.7		1.7		2.0
Exit velocity (m/s)	29.0		18.9		13.0
	Normal	Peak	Normal	Peak	
NO _x emission rate (mg/Nm³)	500 ¹	590 ¹	500 ¹	590 ¹	226
NO _x emission rate (g/s)	0.649	0.766	0.649	0.766	0.458

Note ¹ Corrected to 5 % O₂ basis.

The proposed energy facility is for four generators (two with waste heat boilers) plus a standby boiler. The generators will not operate at the same time as the boiler. The standby boiler will supply energy to KRC in the event that the gas-fired engines are unavailable. This is expected to be an infrequent occurrence. The standby gas-fired boiler will be operated for one hour every week for testing and maintenance purposes.

The energy facility is expected to operate as follows during weekdays:

00:00-07:00 hours: 1-2 engines running;
 07:00-12:00 hours: 3 engines running, 2 with waste heat boiler;
 12:00-19:00 hours: 3 engines running, 1 with waste heat boiler; and
 19:00-00:00 hours: 1-2 engines running.

On weekends 1-2 engines may operate depending on energy requirements.

To provide a conservative estimate of the potential impact of the energy facility, all four engines and the two waste heat boilers have been modelled.

Continuous operation of the standby boiler has been assessed here to provide for a conservative assessment.

The emission rates of oxides of nitrogen are quite sensitive to engine tuning. Whilst the facility will be designed and operated to minimise the emission rate of oxides of nitrogen, DDCE's experience is that the concentration can fluctuate by up to 18% above and below the set-point of 500 mg/m³ from time to time. Consequently, this assessment has been based on the normal and peak concentration and emission rate.

8. Modelling results

Dispersion modelling has been undertaken to estimate ground-level concentrations of nitrogen dioxide for the following scenarios:

- Four gas-fired generators at normal and peak emission rates; and

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- Gas-fired standby boiler in isolation.

The contours in Figures 8 to 11 show the maximum increase in 1-hour average and annual average predicted ground-level concentrations for each operating scenario. The highest ground-level concentrations are predicted on site and close to the site boundary and occur due to the plume being caught in the aerodynamic wake of on-site buildings. The predicted ground-level concentrations of nitrogen dioxide decrease significantly with distance from the proposed energy facility and are well below the EPA goal and NEPM standard at the nearest residential locations.

The highest ground-level concentrations of nitrogen dioxide due to the generators are predicted to occur for a range of atmospheric conditions with highest off-site impacts predicted mostly during the daytime with light to moderate winds under unstable (B class) atmospheric conditions. The highest ground-level concentrations of nitrogen dioxide due to the emissions from the standby boiler are predicted during light winds and unstable atmospheric conditions (stability classes A and B).

The ground-level concentrations of nitrogen dioxide for peak and normal emissions from the generators are similar with slightly higher ground-level concentrations predicted across the modelling domain for the peak emission scenario.

The predicted ground-level concentrations of nitrogen dioxide at the most affected residential location and the two nearest residential locations for each of the scenarios are included in Table 6 and Table 7. The predicted maximum ground-level concentration of nitrogen dioxide at any sensitive receptor location (such as at a residential location or the nearby hospital) has also been included in this table. The predicted ground-level concentrations of nitrogen dioxide at all residential areas are well below the EPA's goals for all scenarios.

The results in Table 6 and Table 7 also show that, for the very short periods each week when the standby boiler is tested, the nitrogen dioxide concentrations due to the engines and standby generator combined are likely to be well below the EPA's goals.

Table 6: Predicted ground-level concentrations of NO₂ (µg/m³) for various operational scenarios at the most affected residential location.

Scenario	Averaging period	NO ₂ background concentration (µg/m³)	Normal emissions		Peak emissions	
			Predicted NO ₂ ¹ (µg/m³)	Percent of EPA goal (%)	Predicted NO ₂ ¹ (µg/m³)	Percent of EPA goal (%)
Highest NO ₂ predicted at sensitive receptor						
4 generators	1-hour	46	105.6	33	116.3	36
	4-hour	41	78.3	82	85.0	90
	Annual	14	17.5	58	18.1	60
Standby boiler	1-hour	46	58.5	18	-	-
	4-hour	41	47.7	50	-	-
	Annual	14	14.5	48	-	-

Note: ¹Predicted concentrations include the existing background level of NO₂.

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Table 7: Predicted ground-level concentrations of NO₂ (µg/m³) for various operational scenarios at the nearest residential locations.

Scenario	Averaging period	NO ₂ background concentration (µg/m³)	Normal emissions		Peak emissions	
			Predicted NO ₂ ¹ (µg/m³)	Percent of EPA goal (%)	Predicted NO ₂ ¹ (µg/m³)	Percent of EPA goal (%)
Predicted NO ₂ at residence to west (hospital ground)						
4 generators	1 hour	46	76.9	24	82.5	26
	4 hour	41	25.0	26	70.5	74
	Annual	14	14.4	48	14.5	48
Boiler	1 hour	46	55.8	17	-	-
	4 hour	41	45.8	48	-	-
	Annual	14	14.1	47	-	-
Predicted NO ₂ at residence to east (Harlaxton)						
4 generators	1 hour	46	99.3	31	108.9	34
	4 hour	41	26.6	28	72.4	76
	Annual	14	14.5	48	14.6	49
Boiler	1 hour	46	57.3	18	-	-
	4 hour	41	45.8	48	-	-
	Annual	14	14.1	47	-	-

Note: ¹ Predicted concentrations include the existing background level of NO₂.

9. Conclusions

The air quality modelling assessment conducted for an energy facility proposed to be located on land adjacent to the existing KRC facility in Harlaxton has shown the following:

- Nitrogen dioxide is the most important air pollutant that occurs due to the proposed energy facility.
- Air quality modelling has shown that the predicted ground-level concentrations of nitrogen dioxide due to the proposed facility are well below the EPA's air quality goals and the NEPM standards.
- Highest concentrations of nitrogen dioxide are predicted within the site boundary and are predicted to occur under unstable to neutral atmospheric conditions with light to moderate wind speeds.
- No air quality constraints were identified that would inhibit the development of the proposed energy facility.

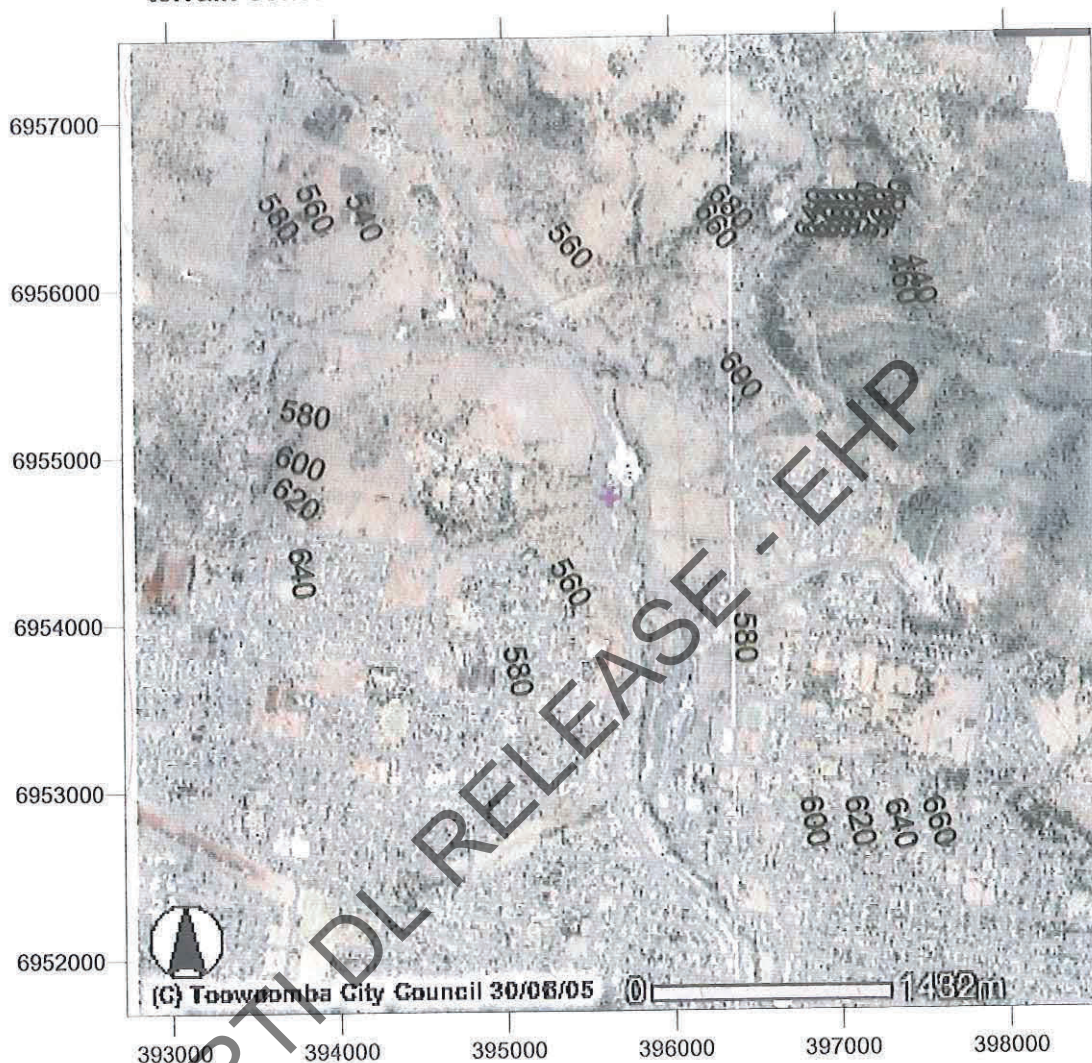
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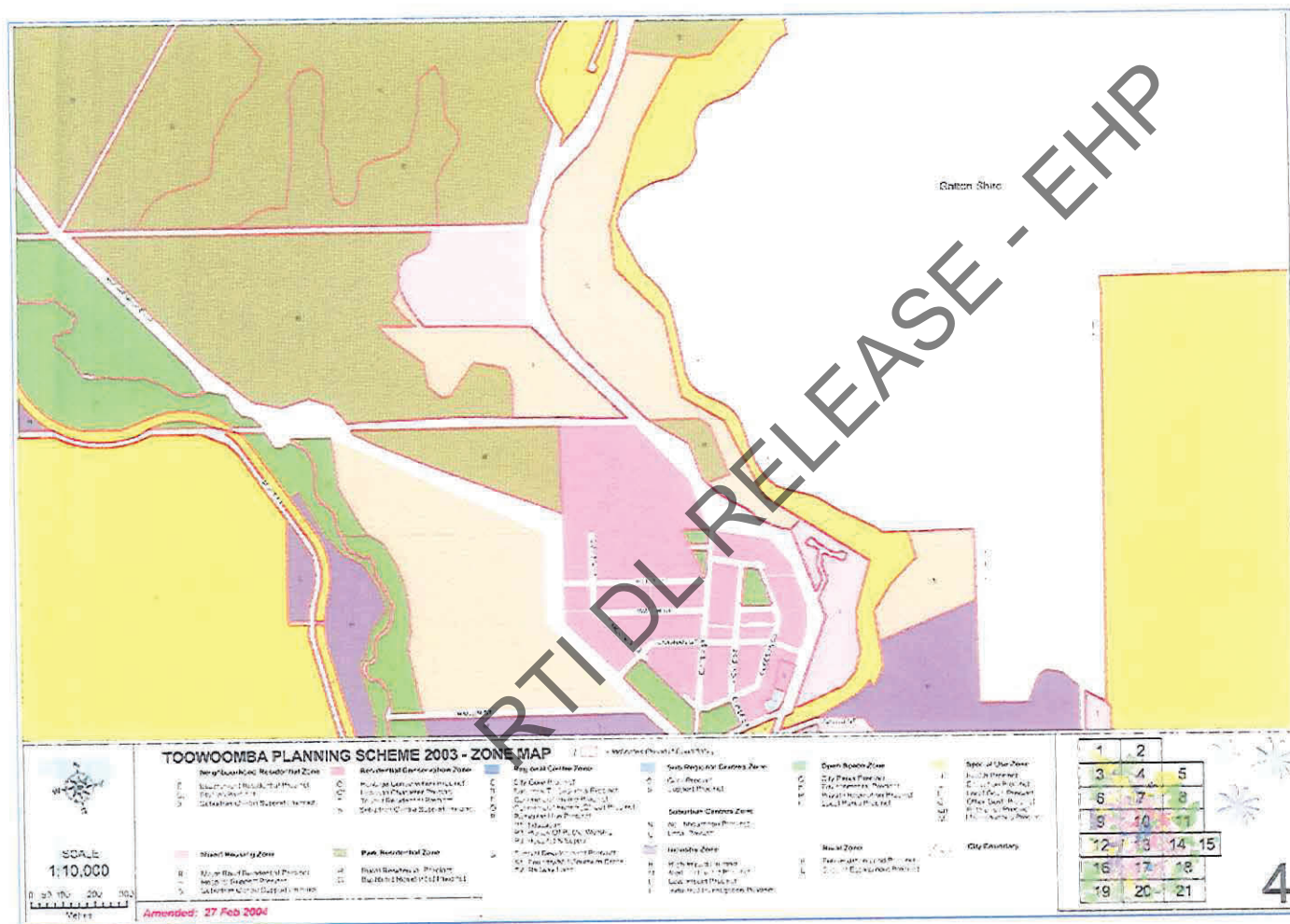
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Figure 1: Site location (marked with a cross) and nearest residences with terrain contours.



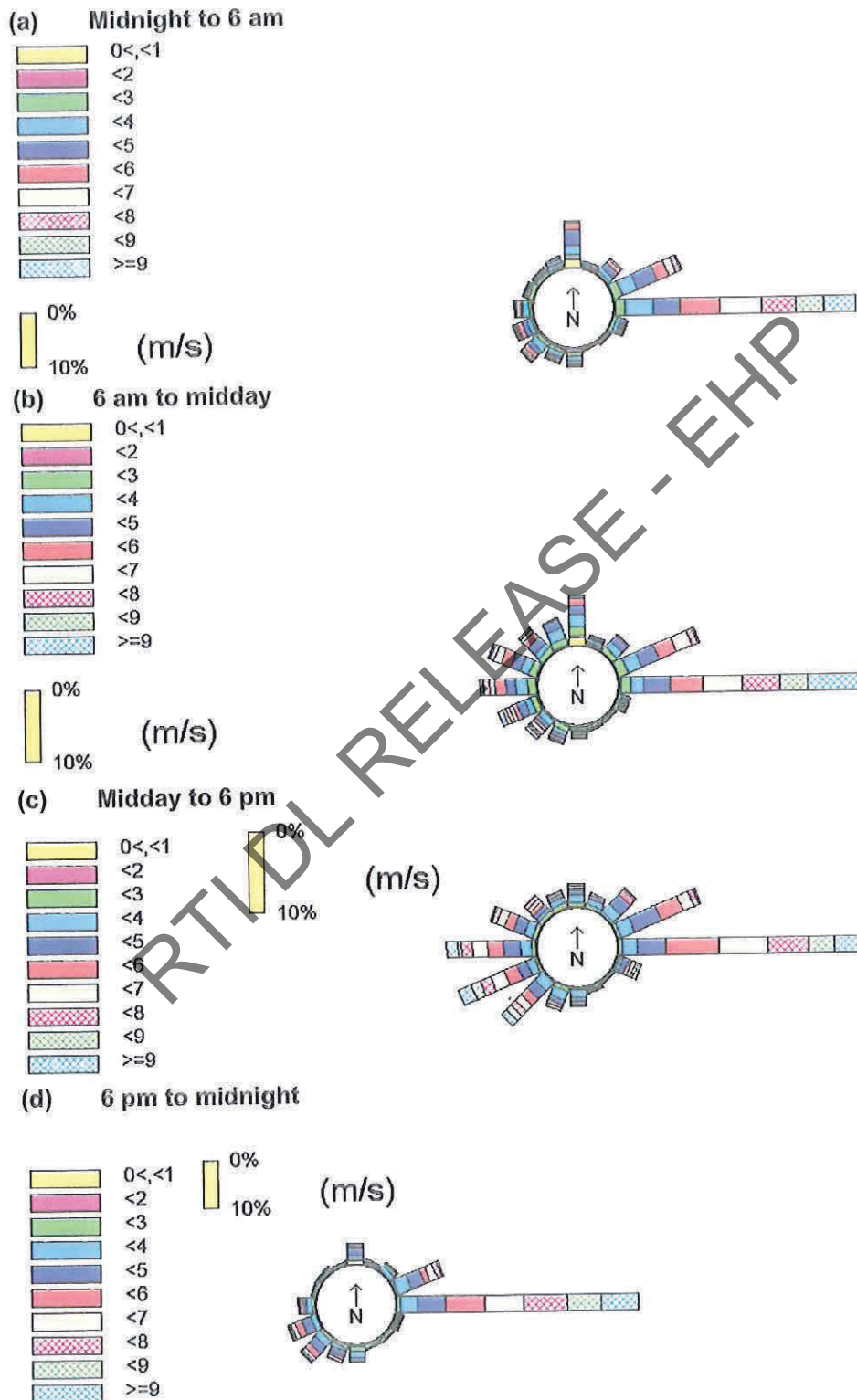
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Figure 2: Map showing land-use zoning of the area surrounding the proposed energy facility from the Toowoomba City Council.



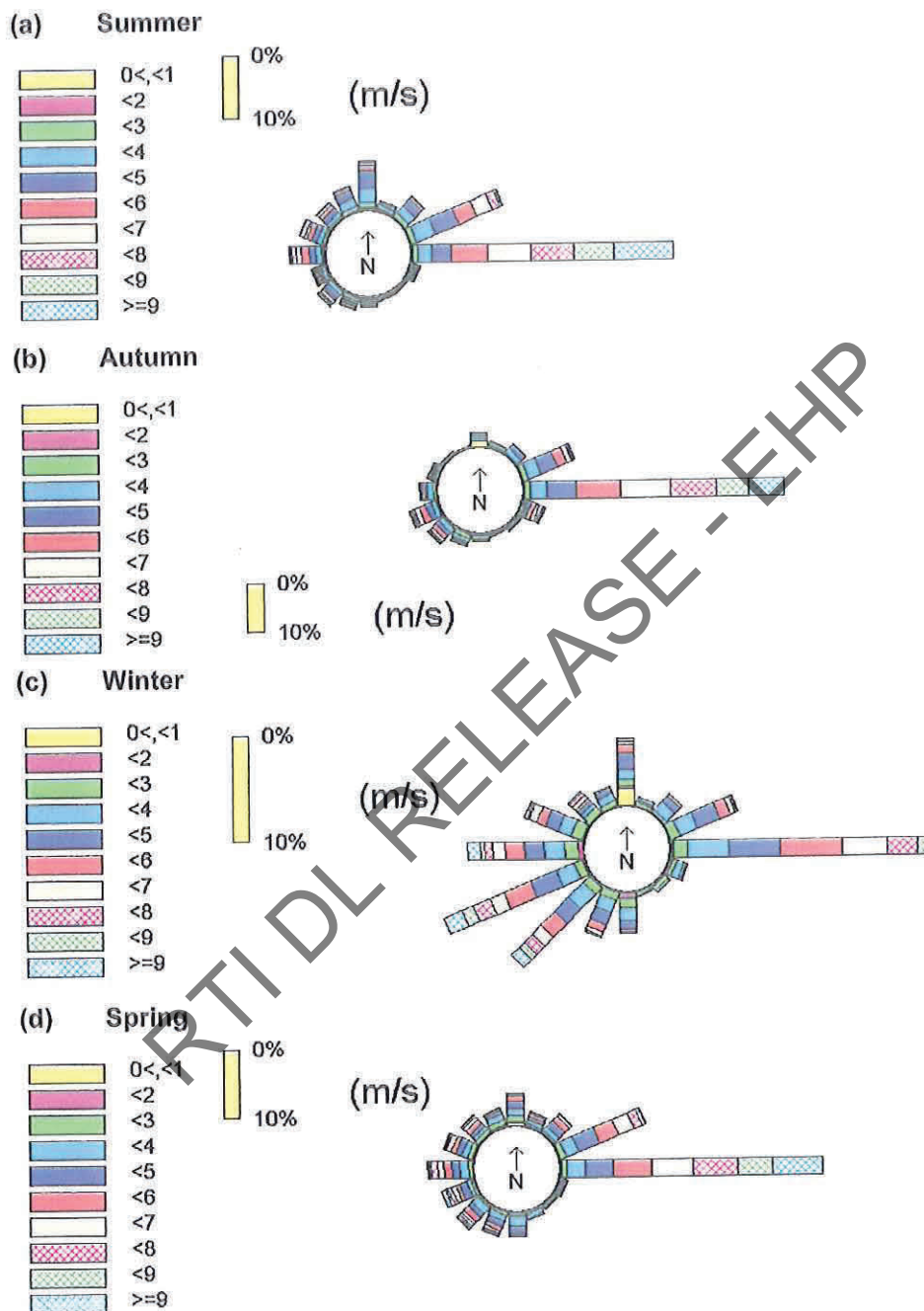
Report from Katestone Environmental to DDCE Energy Services Pty Ltd
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Figure 3: Wind rose for the year 2004 by time of day for (a) midnight to 6 am, (b) 6 am to midday, (c) midday to 6 pm and (d) 6 pm to midnight.



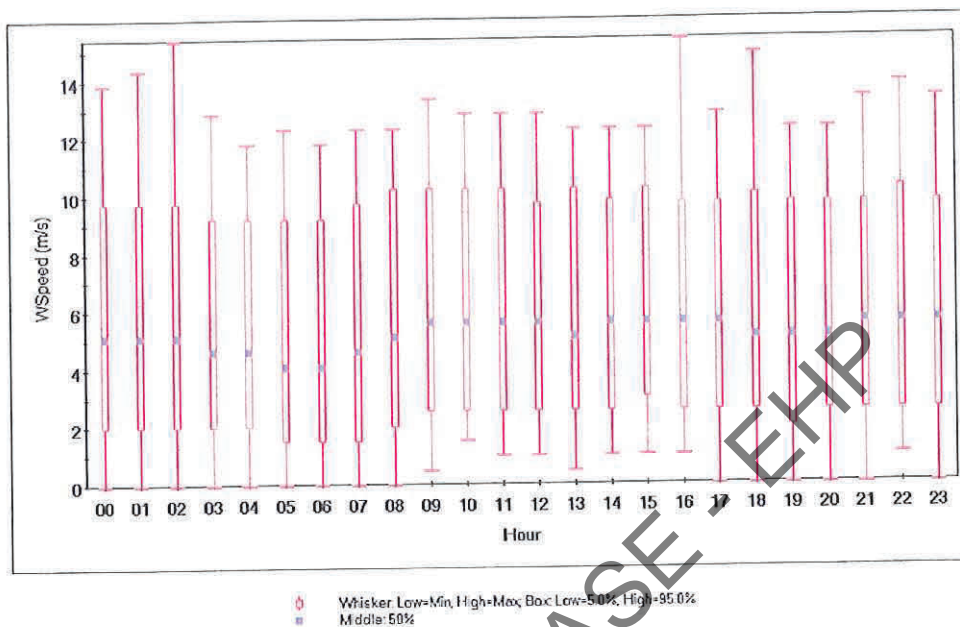
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Figure 4: Wind rose for all hours for the year 2004 for (a) Summer, (b) Autumn, (c) Winter and (d) Spring.



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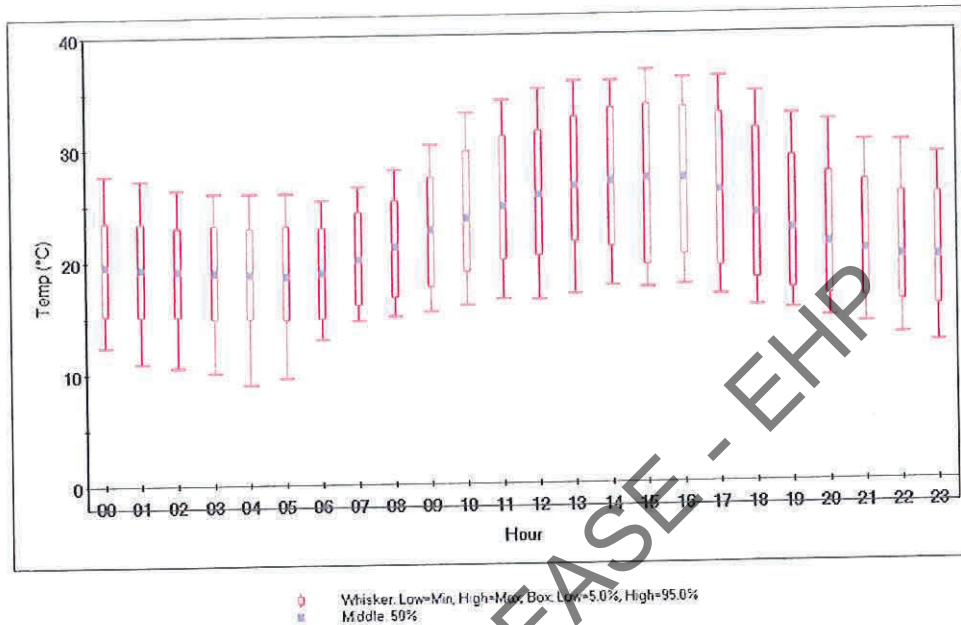
Figure 5: Box and whisker plot of wind speed (m/s) versus hour of day for the year 2004.



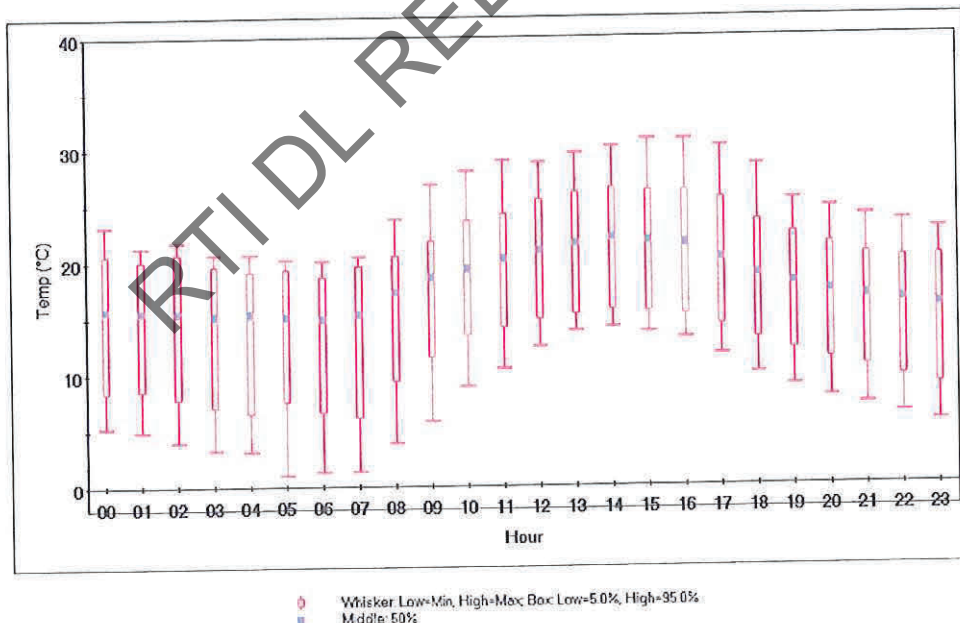
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Figure 6: Box and whisker plot of temperature (°C) recorded during the year 2004 versus hour of day for (a) summer, (b) autumn, (c) winter and (d) spring.

(a) Summer

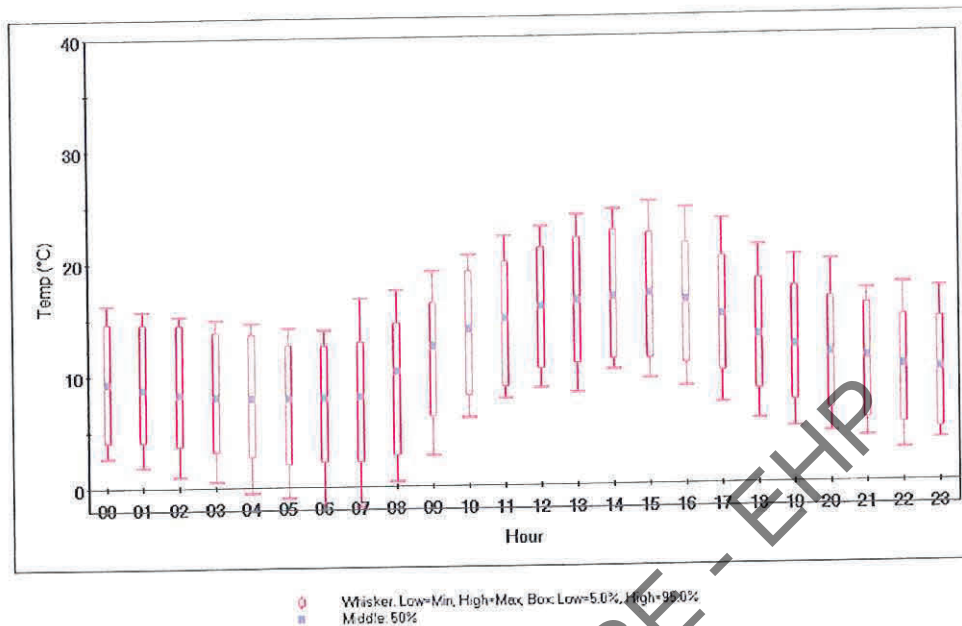


(b) Autumn

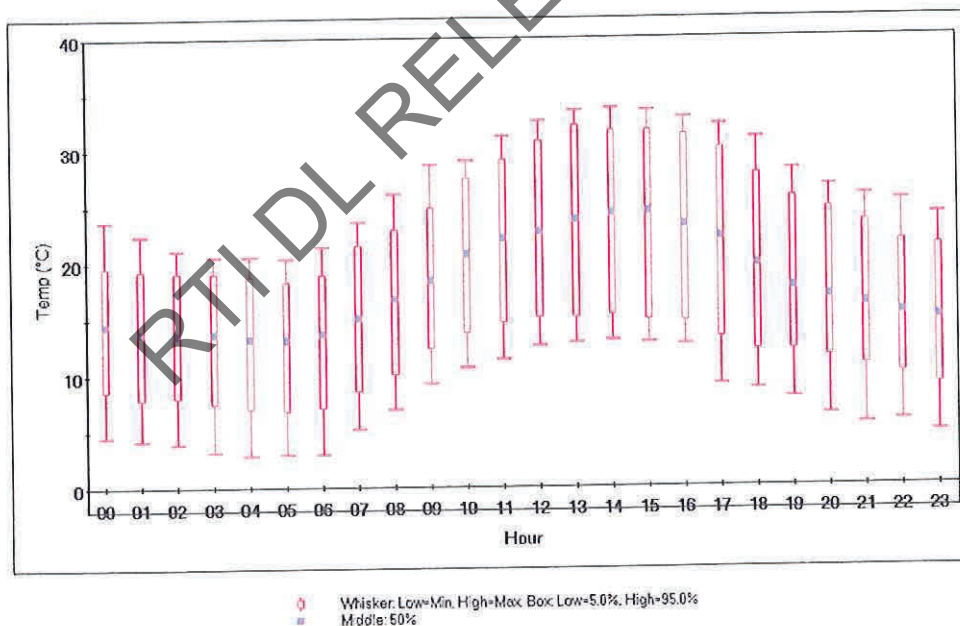


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(c) Winter

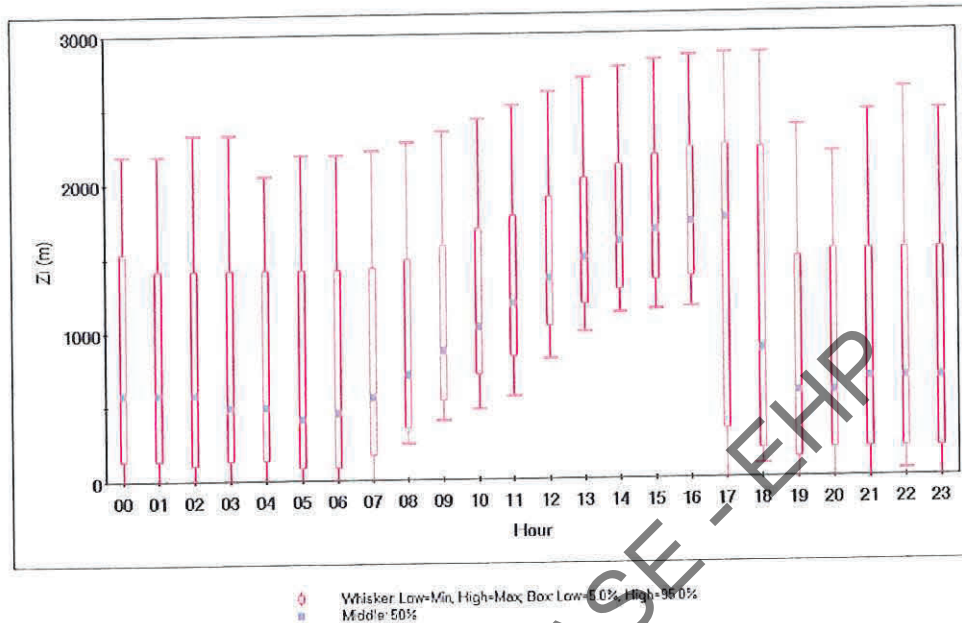


(d) Spring



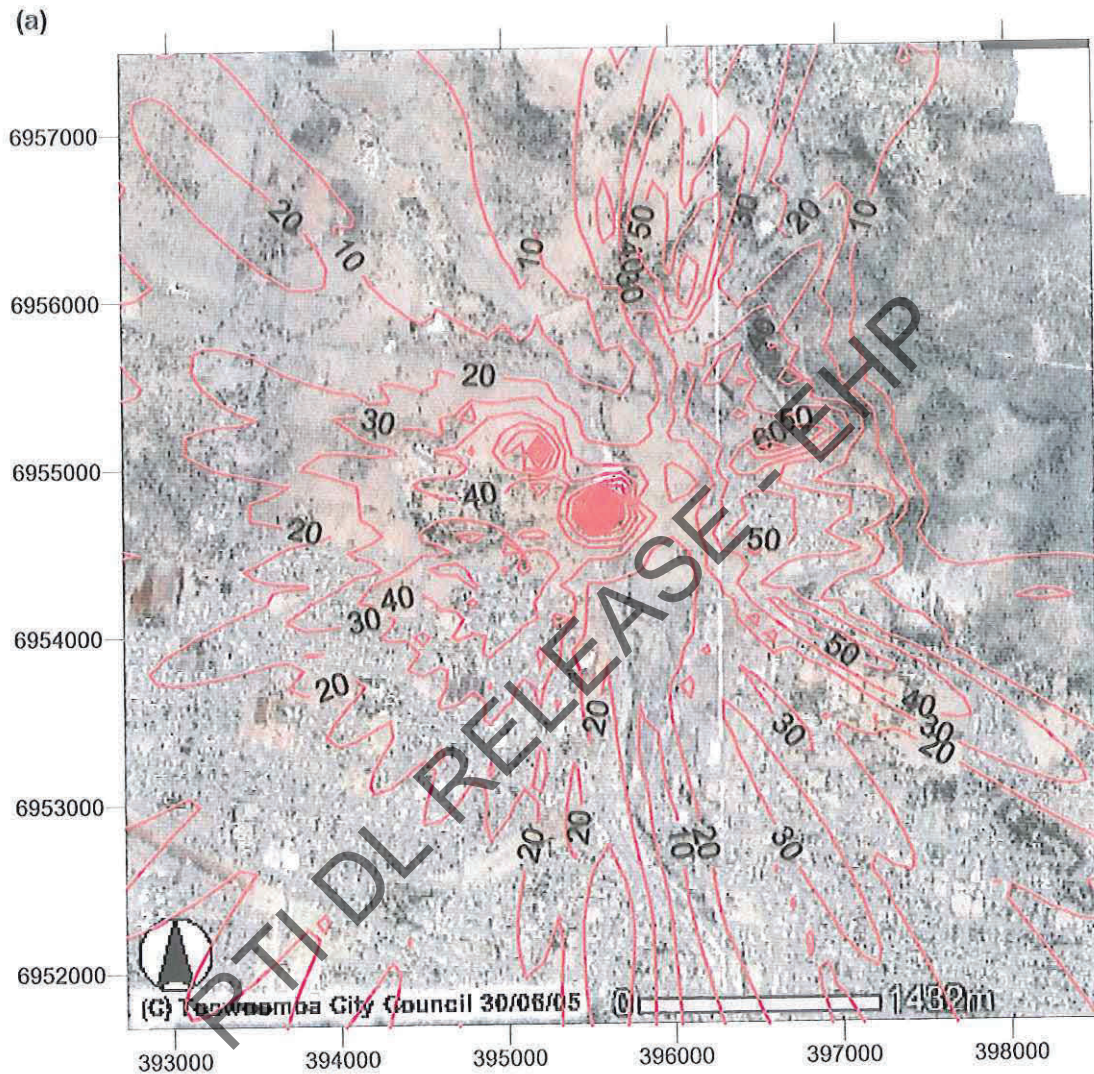
Report from Katestone Environmental to DDCE Energy Services Pty Ltd
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Figure 7: Box and whisker plot of mixing height (m) versus hour of day for Toowoomba for the year 2004.



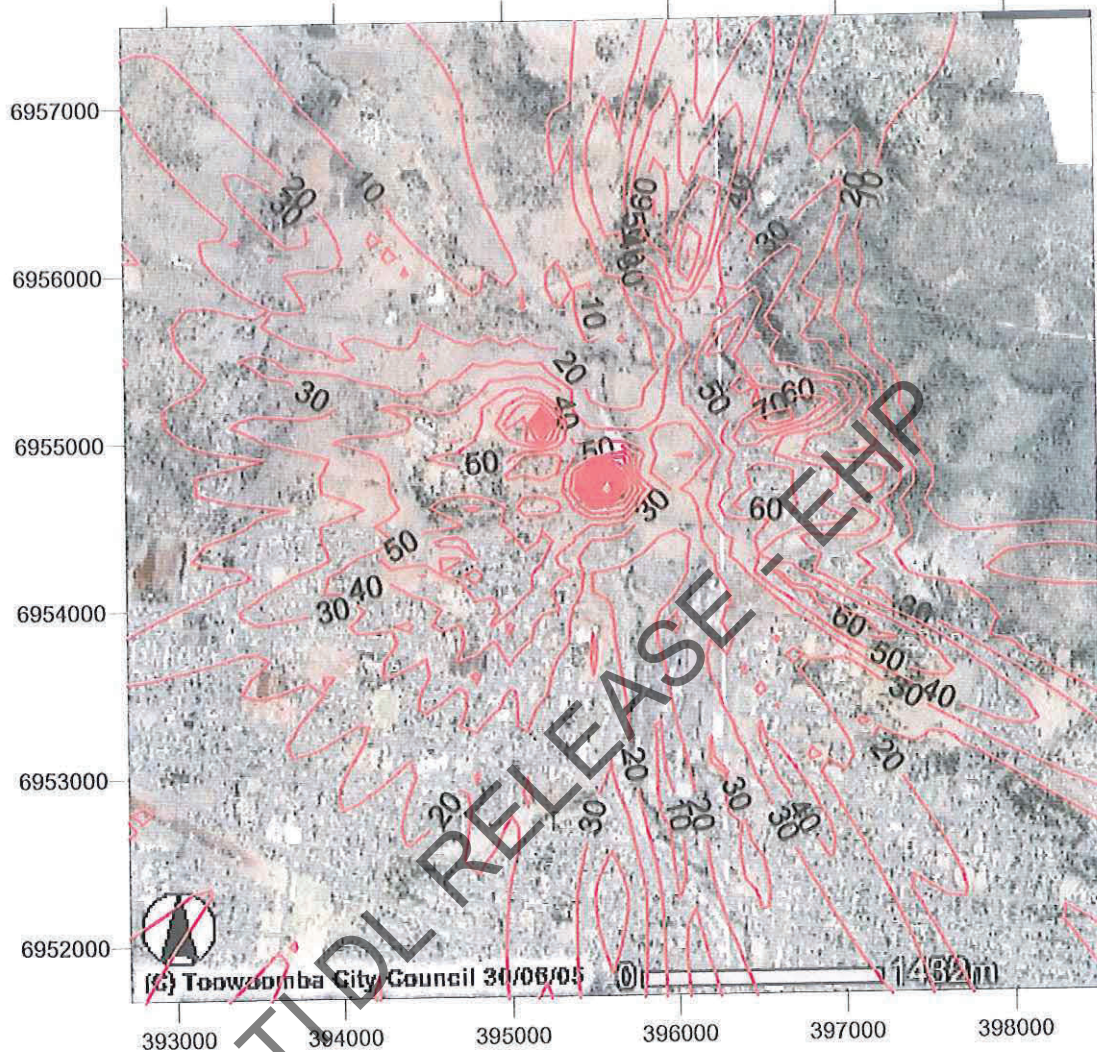
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Figure 8: Contour plot showing maximum 1-hour average NO_2 concentrations ($\mu\text{g}/\text{m}^3$) for the 4 generator units in isolation (a) normal emissions and (b) peak emissions.



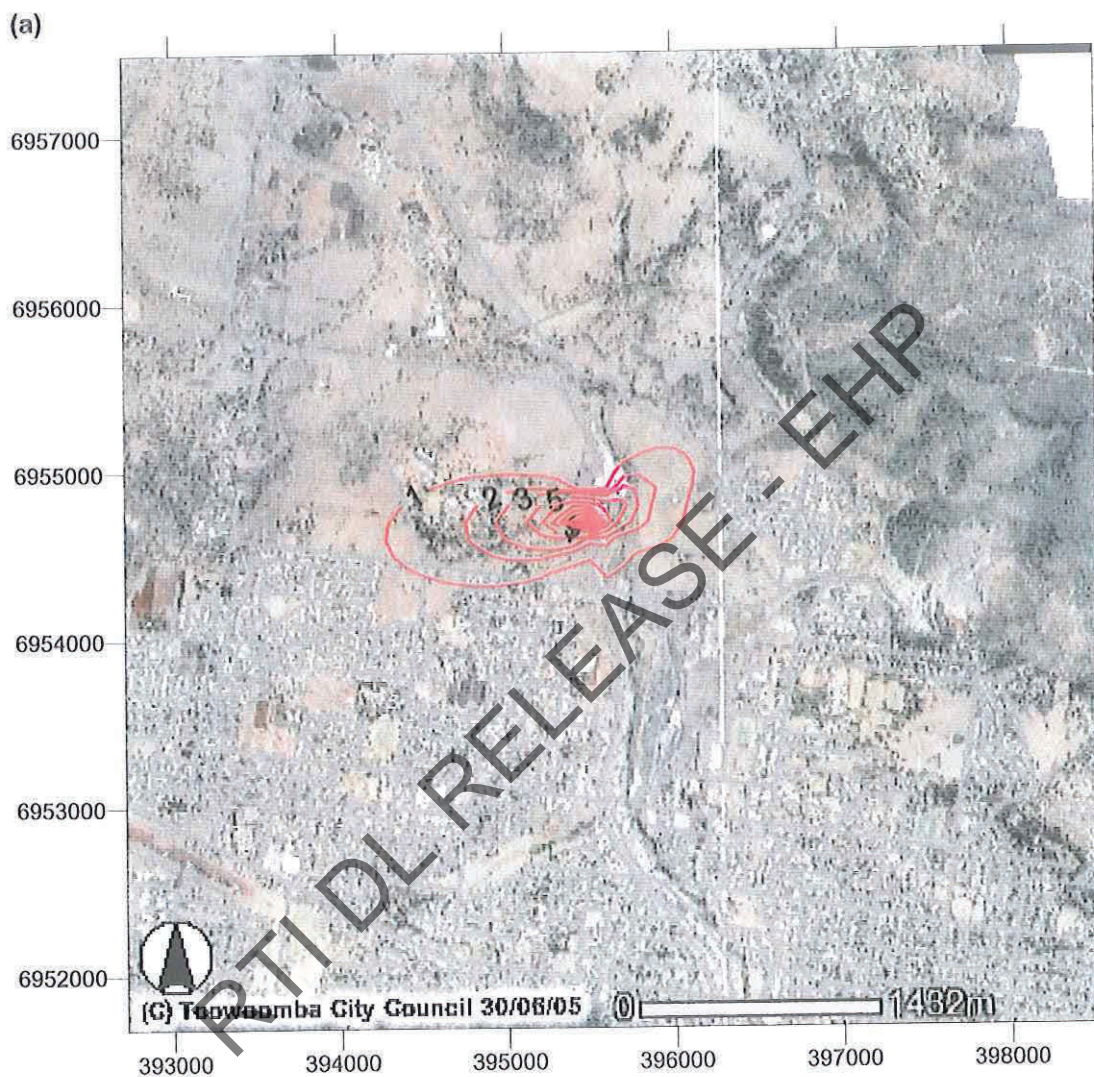
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(b)



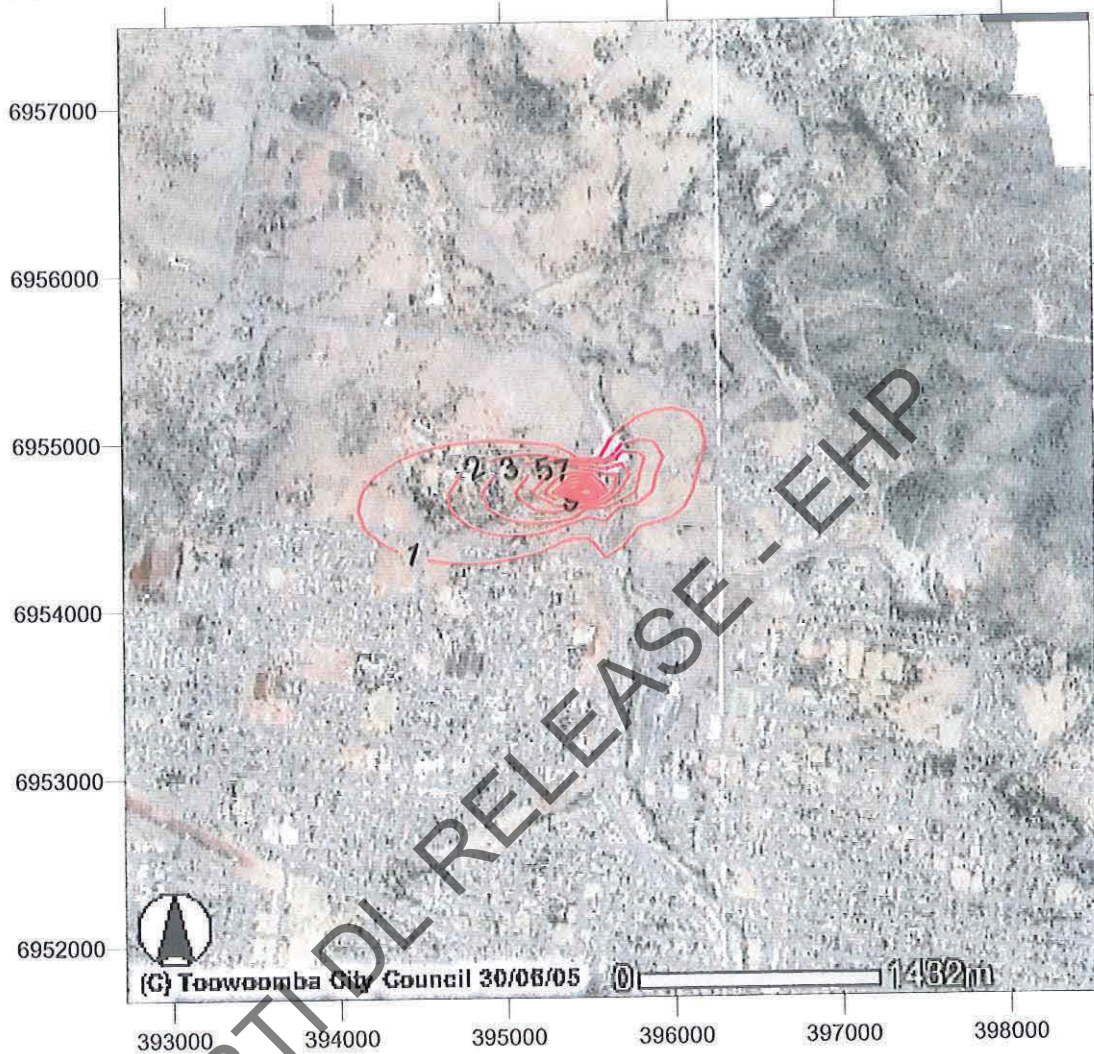
Report from Katestone Environmental to DDCE Energy Services Pty Ltd
Air quality impact assessment of a proposed energy generation facility at Harlaxton,
Toowoomba

Figure 9: Contour plot showing annual average NO_2 concentrations ($\mu\text{g}/\text{m}^3$) for the 4 generator units in isolation for (a) normal emissions and (b) peak emissions.



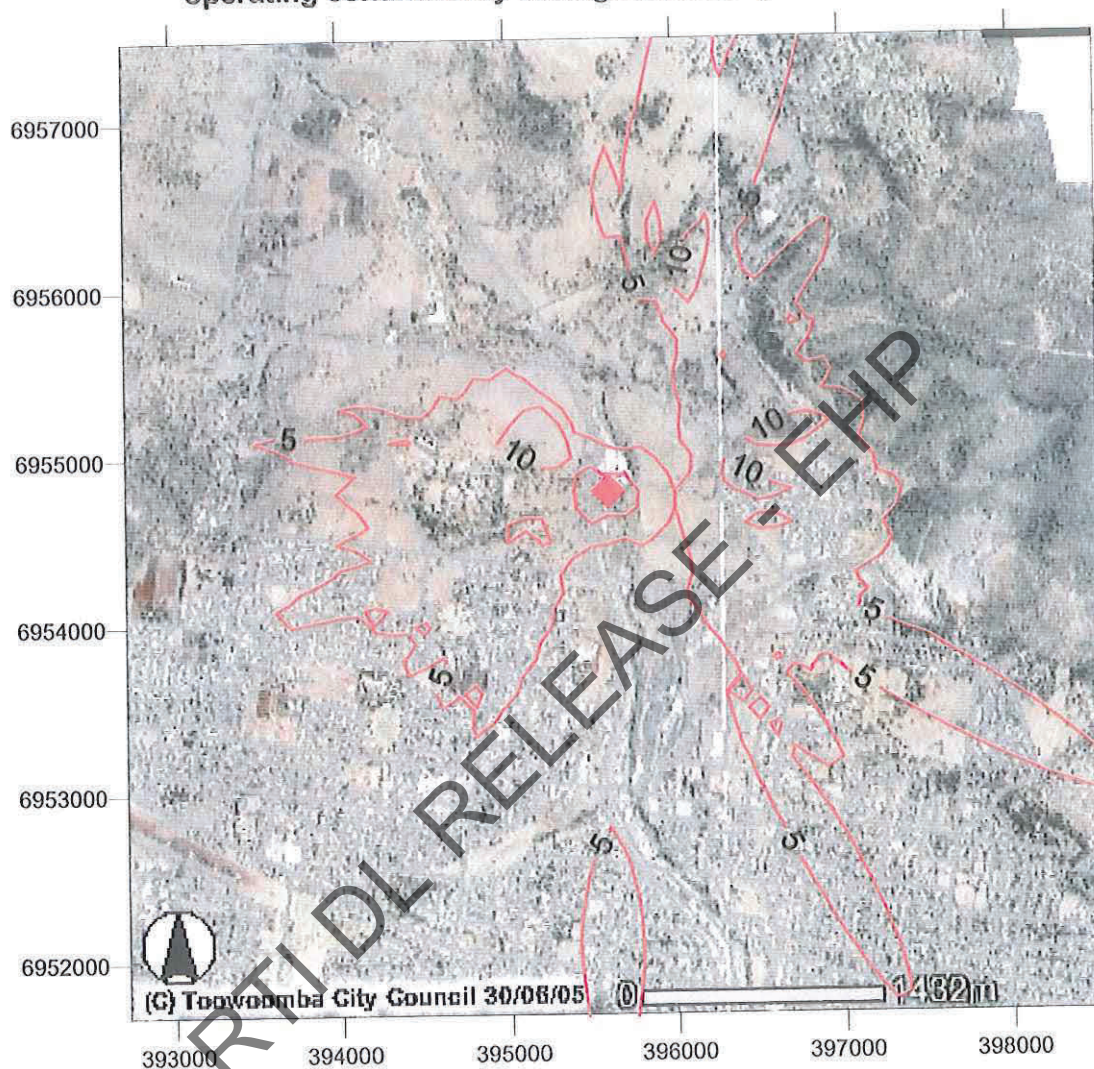
Report from Katestone Environmental to DDCE Energy Services Pty Ltd
Air quality impact assessment of a proposed energy generation facility at Harlaxton,
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(b)



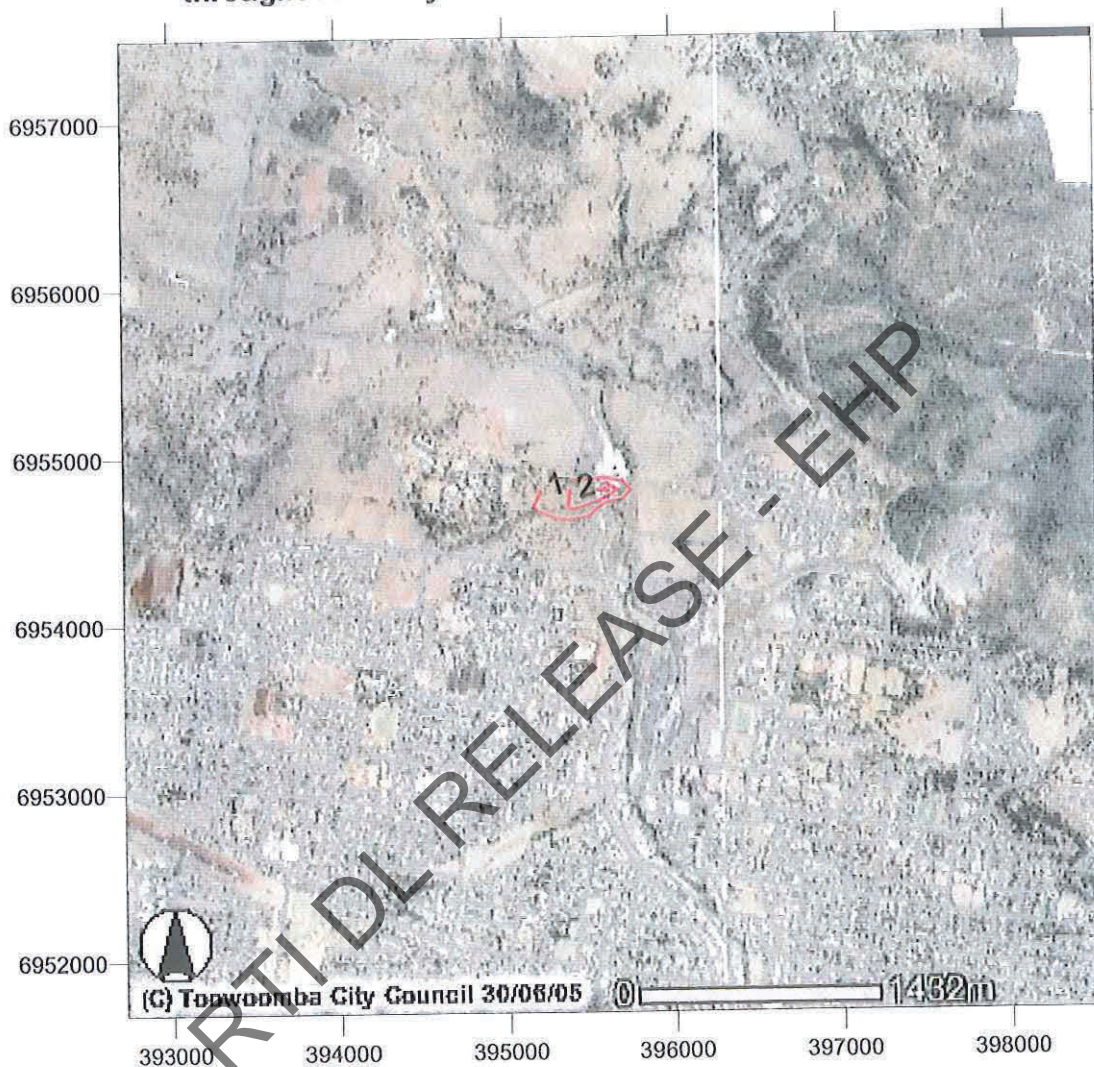
Report from Katestone Environmental to DDCE Energy Services Pty Ltd
Air quality impact assessment of a proposed energy generation facility at Harlaxton,
Toowoomba

Figure 10: Contour plot showing maximum 1-hour average NO_2 concentrations ($\mu\text{g}/\text{m}^3$) for the standby boiler in isolation operating continuously throughout a full year.



Report from Katestone Environmental to DDCE Energy Services Pty Ltd
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Toowoomba

Figure 11: Contour plot showing annual average NO_2 concentrations ($\mu\text{g}/\text{m}^3$) for the standby boiler in isolation operating continuously throughout a full year.



Report from Katestone Environmental to DDCE Energy Services Pty Ltd
Air quality impact assessment of a proposed energy generation facility at Harlaxton,
Toowoomba

Appendix 1 Meteorological file creation - Toowoomba

The meteorological file for Toowoomba was created using the hourly meteorological data supplied by the Bureau of Meteorology for the monitoring site at Toowoomba Airport for winds at 10 m and temperature.

Unfortunately no suitable upper level radiosonde flight data is available for Toowoomba to calculate the mixing heights, the closest site at Brisbane airport is expected to have a different upper level profile to the more inland and elevated site of Toowoomba. The mixing heights have been estimated from the local wind information using methods proposed by Venkatram (1980). The constants used in this methodology have been based on Australian studies. As the proposed development has relatively short stacks mixing heights will not be an important factor in this modelling.

The stability classification is based on the US EPA approved method where the wind speed and solar radiation calculations are compared during the daytime and the wind speed and temperature height differences are used at nighttime. The percentage of each stability class can be seen in Table A1. "A" class stability represents very unstable atmospheric conditions that may typically occur on a sunny day and "F" class stability represents very stable atmospheric conditions that typically occur during light wind conditions at night. The high proportion of D class stability demonstrates the high wind nature of the site.

Table A1: Frequency of stability class at Toowoomba.

Pasquill-Gifford Stability Class	Frequency (%)	Classification
A	0.5	Extremely unstable
B	6.5	Unstable
C	13.6	Slightly unstable
D	75.7	Neutral
E	1.8	Slightly stable
F	1.9	Stable

The minimum wind speed was set to 0.5 m/s.

References

Clarke RH, (1990), "Modelling mixed-layer growth in the Koorin Experiment", Australian Meteorological Magazine, 38, 227-234.

Venkatram A, (1980), "Estimating the Monin-Obukov length in the stable boundary layer", Boundary Layer Meteorology, 19, 481-485.

Report from Katestone Environmental to DDCE Energy Services Pty Ltd
Air quality impact assessment of a proposed energy generation facility at Harlaxton,
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Appendix 2: Details of generator units as provided from DDCE.

technical data
gas engines series 4000 L61

natural gas applications		16V 4000 L61		
methane number > 70 data for NOx emission < 0,5 g/m ³ _N speed = 1.600 rpm				
load		100%	75%	50%
engine power (ICFM) ^{*1}	kWm	1.600	1.200	800
mean effective pressure	bar	16,8	12,6	8,4
engine efficiency	%	42,5	41,3	38,1
heat balance				
primary energy consumption (+5% tolerance)	kW	3.764	2.903	2.100
engine jacket water heat, high temperature (HT)	kW	808	605	457
exhaust gas heat (cooled down to 120°C)	kW	869	712	534
total heat to be utilized (± 8 % tolerance)	kW	1.677	1.317	991
mixture cooling heat, LT (40 °C)	kW	98	74	53
radiation and convective heat	kW	107	93	93
total efficiency	%	87,1	88,7	85,3
HT-cooling circuit				
engine coolant inlet / outlet	°C	80 / 92	83 / 92	85 / 92
engine coolant flow (30% glycol)	m ³ /h	62,9	62,9	62,9
pressure drop at nominal volume flow	bar	2,1	2,1	2,1
coolant capacity (without external system)	dm ³	270	270	270
LT-cooling circuit				
mixture coolant temperature	°C	40 / 43,5	40 / 42,7	40 / 42,0
mixture coolant flow (30% glycol)	m ³ /h	26	26	26
pressure drop at nominal volume flow	bar	0,83	0,83	0,83
coolant capacity (without external system)	dm ³	22	22	22
gas supply ^{*2}				
gas flow pressure before engine (adjustable)	mbar	180 - 200		
gas volume flow (+5% tolerance)	m ³ /h	376	290	210
combustion air ^{*3}				
combustion air mass flow	kg/h	8.068	6.154	4.347
combustion air volume flow	m ³ /h	6.231	4.741	3.349
pressure loss before filter, max. permissible	mbar	5	5	5
exhaust gas ^{*3}				
mass flow	kg/h	8.385	6.367	4.501
temperature after turbocharger	°C	454	479	600
back pressure after turbocharger, design value	mbar	60		
exhaust gas emissions				
with oxidation catalytic converter				
NOx in dry exhaust gas	mg/m ³ _N (5% O ₂)	< 500	< 500	< 500
CO in dry exhaust gas	mg/m ³ _N (5% O ₂)	< 300	< 300	< 300
without oxidation catalytic converter				
NOx in dry exhaust gas	mg/m ³ _N (5% O ₂)	< 500	< 500	< 500
CO in dry exhaust gas	mg/m ³ _N (5% O ₂)	< 1.000	< 1.000	< 1.000
lube oil				
lube oil capacity (total / change quantity)	dm ³	285 / 250	285 / 250	285 / 250
lube oil consumption (at full load after 1.000 op.h.)	g/kWm	0,2		
electric starter				
voltage	V		24	
power	kW		1 x 9	

^{*1} performance data based on ISO conditions
^{*2} all figures based on natural gas with LCV = 10,026 kW/m³_N



DeimlerChrysler Off-Highway

SGS/November 2004

16V4000L61 TAL partload

Attachment 2

Noise Assessment Report

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HEGGIES
A U S T R A L I A

REPORT 20-1639

Draft 1

**Proposed Cogeneration Plant
Mort Street, Toowoomba
Assessment of Noise Issues**

PREPARED FOR

Ergon Energy Pty Ltd
PO Box 15107
City East Qld 4002

Attn: David Carleton

4 AUGUST 2005



Proposed Cogeneration Plant Mort Street, Toowoomba Assessment of Noise Issues

PREPARED BY:

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
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Heggies Australia Pty Ltd
Report Number 20-1639
Draft 1

Proposed Cogeneration Plant Mort Street, Toowoomba
Assessment of Noise Issues
Ergon Energy Pty Ltd
(20-1639r1d1.doc) 4 August 2005

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EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY HEADINGS - DELETE THIS INSTRUCTION AFTER READING]

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Appendix A Plant Specifications



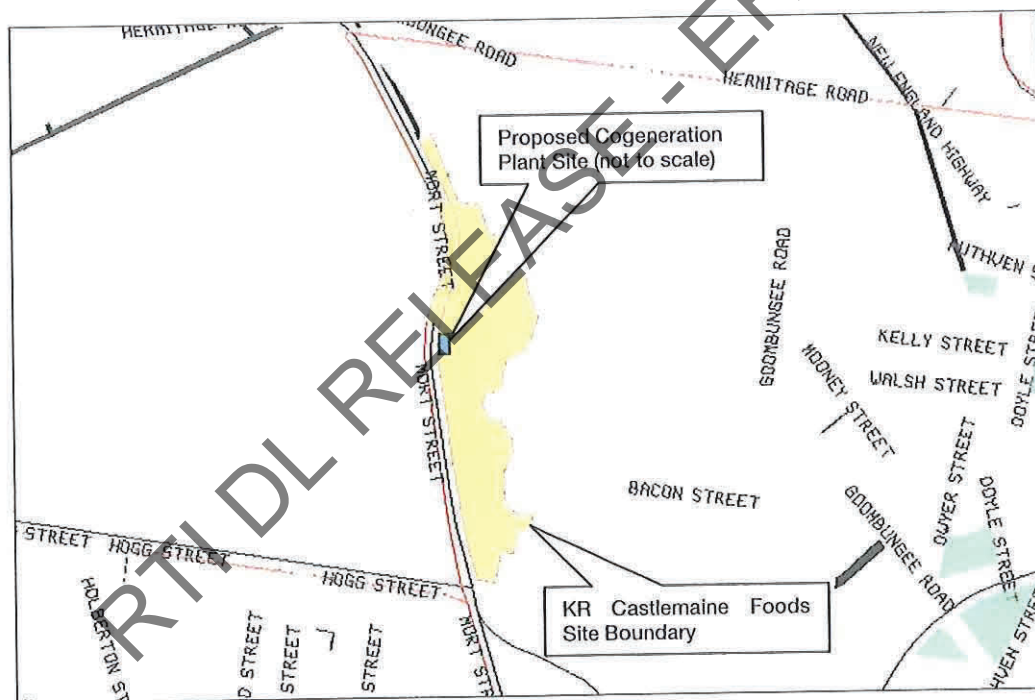
1 INTRODUCTION

A partnership of Ergon Energy Pty Ltd, Boilerland Pty Ltd and Synchrotech Controls Pty Ltd proposes to develop a cogeneration plant on leased property within the KR Castlemaine Foods (KRC) small-goods factory at Mort Street, Toowoomba. The site location is shown on **Figure 1**.

Heggies Australia Pty Ltd has been engaged by Ergon Energy Pty Ltd to prepare a noise impact assessment for the proposal, including the analysis of the proposed noise mitigation strategies. This noise assessment will form part of the Integrated Development Assessment System (IDAS) application currently being considered by Toowoomba City Council.

The purpose of report is to summarise the noise investigations, noise emission objectives and noise emission predictions that have been developed for this project brief.

Figure 1 Site Location





2 COGENERATION PLANT PROPOSAL

2.1 Overview

The KRC facility currently meets its direct heat energy requirements through a gas-fired boiler, and meets its electrical energy requirements (e.g. for electrical fans, compressors etc) through grid connection.

The proposal would see the electrical energy and heat requirements of KRC supplied by an independently owned and operated cogeneration plant. Electrical energy requirements of KRC would be generated by gas-powered reciprocating engines. The heat requirements of KRC achieved through exhaust-heat recovery from the reciprocating engines.

Excess electrical energy generation would be fed to the power grid.

The existing KRC gas-fired boiler would be retired. A modernised gas-fired boiler would be included in the new cogeneration facility to provide an emergency source of heat in the event of failure of the reciprocating engine system.

2.2 Plant Components

Within a 10 year planning horizon the proposal would consist of:-

- 3 gas-powered engines, each driving an electrical generator with high-grade exhaust-heat recovery
- 3 engine radiator banks (for low-grade heat rejection from engine coolant)
- gas-fired boiler (emergency stand-by only)
- 'Black-start' generator (emergency stand-by only)

Beyond a 10 year planning horizon it is possible that an additional three gas-powered engines may be considered, depending on energy market conditions.

The cogeneration plant layout for this proposal is illustrated on **Figure 2**.

Engines would be housed in ventilated acoustic enclosures. Engine exhausts would be attenuated by high-performance exhaust silencers.



2.3 Plant Duty

The anticipated duty of normal operational plant within a 10 year planning horizon is summarised in Table 1.

Table 1 Summary Plant Specifications and Duty

Time Period	Waste-Heat Recovery	Ambient Temperature	Gas Engines Running (maximum)	Radiator Fans Running (maximum)
Midnight to 6am (late night)	On	All temperatures	2	0
	Off	All temperatures	2	8
6am to midnight (day & late evening)	On	All temperatures	3	0
	Off	Tambient < 15 °C	3	0
	Off	Tambient ≤ 20 °C	3	6
	Off	Tambient ≤ 25 °C	3	12
	Off	Tambient ≤ 30 °C	3	20
	Off	Tambient > 30 °C	3	24

Summarising Table 1, the maximum night-time operation would be 2 gas-engines and 8 radiator fans. The maximum day-time operation would be 3 gas-engines and 24 radiator fans.

For the very-long term scenario operations could be double that outline above.

2.4 Plant Specifications

Plant specifications are summarised in Table 2, Table 3, and

Table 4.

Detailed specification data for plant and noise control equipment is included in Appendix A.

Table 2 Plant Model Descriptions

Plant Item	Model Description
Gas Engine Generator Set (3 off)	MTU V16 4000
Radiator Fan (24 off)	Fantech SQA 1008 (or similar)
5 MW stand-by steam boiler	
Black Start Set	



Table 3 Plant Sound Data

Octave Centre Frequency	Engine Exhaust L _{pin} @ 1m	Engine Mechanical L _{pin} @ 1m	Radiator Fan L _{wlin} (sound power)
63 Hz	107	100	81
125 Hz	121	102	81
250 Hz	109	96	82
500 Hz	102	93	77
1kHz	101	90	74
2kHz	97	88	73
4kHz	90	84	69
8 kHz	78	99	62
A-weight Allpass	108	99	80

Table 4 Noise Control Data - Insertion Loss - dB

Octave Centre Frequency	Exhaust Silencer	Enclosure	Enclosure Air Intake Attenuators	Exhaust Waste Heat Exchangers
63 Hz	22	20	5	0
125 Hz	28	21	10	0
250 Hz	30	27	19	0
500 Hz	32	38	33	0
1kHz	31	48	39	0
2kHz	28	56	34	0
4kHz	20	56	27	0
8 kHz	16	56	22	0



3 NOISE SENSITIVE RECEPTORS

The proximity of dwellings nearest to the site is illustrated on **Figure 3** and summarised in **Table 5**.

Land immediately east of the site is used for cattle grazing. There are no known plans to subdivide this land.

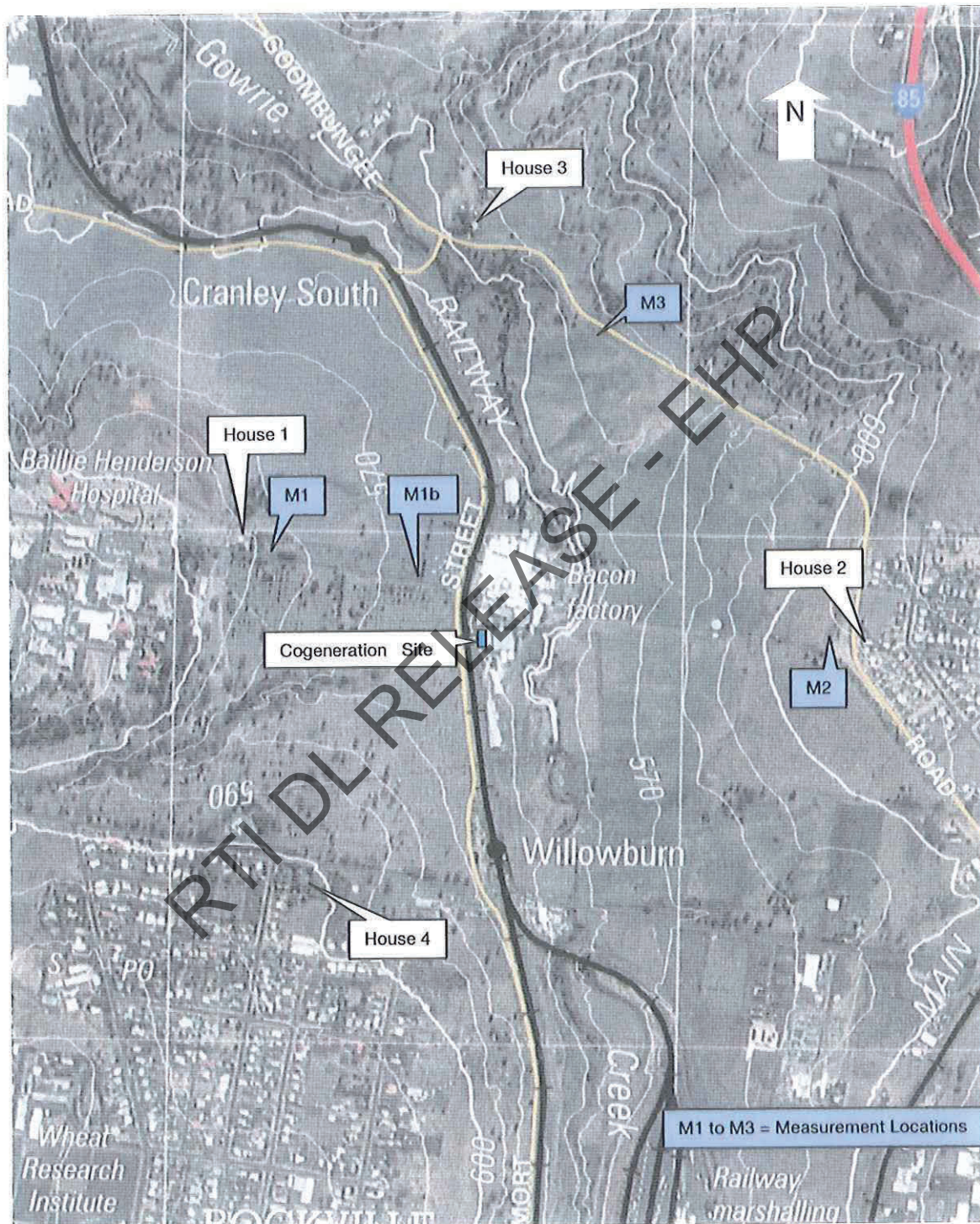
Table 5 Proximity of Nearest Dwellings

Dwelling Reference	Description	Levels	Distance from Dwelling to Cogeneration Site (approximate)
House 1	Bailey Henderson Residence No.1 - Burnview Avenue	2	500 m
House 2	300 Goombungee Road	1.5	740 m
House 3	144 Goombungee Road	1	790 m
House 4	52 Hogg Street	1	500 m

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Figure 3 Aerial Photo of Surrounding Dwellings





4 NOISE CRITERIA

The applicable statutory requirement for noise emissions associated with fixed plant is the *Queensland Environmental Protection (Noise) Policy 1997* [EPP(Noise)].

The EPP(Noise) nominates qualitative characteristics of the noise environment that are to be protected, but does not specify any numerical limits that are applicable to stationary mechanical plant.

4.1 Noise Annoyance

The normal noise criteria used by the EPA throughout Queensland to assist in resolving complaints relating to noise are summarised in **Table 6**. These criteria are generally designed to minimise noise annoyance responses to an acceptable level and have traditionally been adopted by Ergon Energy in this situation.

$L_{Amax,adj,T}$ is the average maximum noise level from the source, adjusted for tonal and impulsive characteristics in accordance with AS1055.1.

Table 6 Normal Criteria for Stationary Plant Prior to Ecoaccess Noise Guideline

Time Period	Level at Receptor Location - $L_{Amax,adj,T}$	
	Residential	Commercial
Day (7 am to 6 pm) Mon to Sat 8 am to 6 pm Sun. & Public Hols.	Background + 5 dBA	Background + 10 dBA
Evening (6 am to 10 pm)	Background + 5 dBA	Background + 10 dBA
Night (10 pm to 7 am/8 am)	Background + 3 dBA	Background + 8 dBA

4.2 Ecoaccess Planning for Noise Control

In August 2004 the Queensland EPA released a new guideline applicable to noise emissions from stationary mechanical plant titled *Ecoaccess Noise Guideline Planning for Noise Control*.

This guideline embodies three guiding noise control concepts:

1. Control and prevention of gradual increase in background noise levels ('background creep');
2. Control of short-term variable noise sources to acceptable levels; and
3. Avoidance of noise levels that disturb sleep.

For constant cogeneration plant noise the consideration of 'background creep' would be the controlling issue in setting noise goals by this guideline.

The Ecoaccess method of determining the recommended planning level ($LA_{90}(1hour)$) for noise from a steady source is summarised in **Figure 4**.

For assessment purposes, Ecoaccess defines the Rating Background Level (RBL) for a given day, evening or night period. This is essentially the lower 10 percentile of the recorded $LA_{90,T}$ values recorded in that time period.



Figure 4 Reproduction of Ecoaccess Noise Planning Guideline Tables 1 & 2

Table 1: Recommended outdoor background noise planning levels (in terms of $\text{min}L_{A50,1\text{hour}}$)

Receiver Land Use	Receiver Area Dominant Land Use (description of neighbourhood) Note 1	Background noise level, $\text{min}L_{A50,1\text{hour}}$ (dBA) Note 2		
		Time period		
		Day	Evening	Night
Purely residential	Very Rural	35	30	25
	Rural residential, church, hospital	40	35	30
	Shop or commercial office	45	40	35
	Light industry	50	45	40
Residential area on a busy road or near an industrial area or commercial area	Residential, church, hospital, school	45	40	35
	Shop or commercial office	50	45	40
	Light industry	55	50	45
Industrial area	Residential, church, hospital, school	50	45	40
	Shop or commercial office	55	50	45
	Factory office or factory	60	60	60
Passive recreation area	Picnic grounds, public beaches, bush walks, public gardens, etc	35	35	35

Note 1. The dominant land use is defined by a radius of 200m from the receiver location under consideration.
 Note 2. $\text{min}L_{A50,1\text{hour}}$ is defined in the glossary of terms as the rating background level, and an example of its determination is given in appendix B.

Noise immission levels that will control and prevent $L_{A50,1\text{hour}}$ background noise creep in excess of the background noise planning levels (table 1) are given in table 2.

Table 2: Recommended noise immission planning levels ($L_{A50,1\text{hour}}$) for developments

Existing background noise level at the most sensitive point in an affected residential area	Recommended $L_{A50,1\text{hour}}$ maximum noise level contribution, for planning approval purposes, at that point as a result of a proposed new noise source
A. Background noise level is above relevant recommended level (table 1)	Preferably, set maximum planning level 10dBA or more below relevant recommended level (table 1). At least, set maximum planning level 10dBA below existing background level
B. Background noise level is at recommended level	Set maximum planning level 10dBA below relevant recommended level (table 1)
C. Background noise level is below recommended level by: 1dBA 2dBA 3dBA 4dBA 5dBA 6dBA or more	Set maximum planning level: 9dBA below recommended level 5dBA below recommended level 3dBA below recommended level 2dBA below recommended level 2dBA below recommended level 5dBA above background level



Noise from power generation plant can be tonal. If the noise emission contains "just detectable" tonal characteristics (eg whine, hiss, screech, hum etc), Ecoaccess recommends a planning level 2 dBA below the level that is determined from **Figure 4**. If the tonal characteristic is prominent (clearly audible), the recommended planning level is 5 dBA below the level that is determined from **Figure 4**. These adjustments are in line with the corrections for tonality described in Clause 6.6 of AS1055.1 *Acoustics - Description and measurement of environmental noise Part 1: General procedures*.

Ecoaccess also requires the assessment to consider the prevailing noise levels during the worst-case meteorological conditions.

4.3 Discussion

The normal license requirements traditionally used by the EPA throughout Queensland, are summarised in **Table 6**. These criteria are based on avoiding noise annoyance responses and have stood the test of time throughout Queensland. During the critical late night period, the **Table 6** criteria essentially require the noise component from the new source to be no greater than the prevailing background noise level.

Ecoaccess takes a more stringent approach. Where the existing Rating Background Level (RBL) is determined to be at or in excess of the 'ideal' background levels (as described in Ecoaccess), the Ecoaccess guideline results in noise goals that are 10 dBA more stringent than the standard license requirements prior to Ecoaccess. This is because Ecoaccess seeks to prevent **any** increase in the background noise environment around a new noise source rather than simply aiming to prevent annoyance responses.

However there are practical and statutory jurisdiction issues well beyond this project which make it impossible for this project to "prevent any increase in the background noise environment". Existing and new noise sources that control (and are increasing) the background noise level, are not (nor are they likely to be) subject to equivalent background-creep restraints. Specifically:

- Background noise in urbanised parts of Toowoomba is controlled by broadly distributed traffic noise, domestic and commercial air-conditioning systems and ventilation and refrigeration mechanical plant (Noise from bulk coal trains and nearby freight yards is also a significant intermittent noise source of longer duration).
- Very few (if any) of these noise sources are generally required to meet a goal that is more stringent than the prevailing background level as their component noise emission level, thereby contributing to background creep with every new development. Traffic noise is also not controlled by background creep provisions.

4.4 Recommended Assessment Criteria

The annoyance issues of "excessive audibility" and noise-induced disturbance due to noise "intrusiveness" are considered more meaningful issues in terms of potential adverse impact on the community. Accordingly, it is recommended that noise targets are based on these objectives, as embodied in the criteria of **Table 6**.



5 AMBIENT NOISE SURVEY

As the cogeneration plant will at times operate at full capacity as late as midnight, the critical time period in respect of noise control is the evening and late night.

Ambient noise levels were surveyed in the residential area surrounding the KR Castlemaine Foods facility between 8.15pm Thursday 30 June 2005 and 11.15am the following morning.

The noise survey consisted of unattended noise logger measurements at the residential area east of KRC, and attended noise measurements at locations representing sensitive receptors to the north, east and west of the site at approximately 9pm and at 2am and 10am the following morning.

5.1 Meteorological Conditions

Meteorological conditions during testing were fine and cool with intermittent light variable north-easterly to north-westerly breezes. The meteorological records from Toowoomba Airport for the measurement period are shown in Table 7.

Table 7 Meteorological Records - Toowoomba Airport

Date	Time	Rain (mm)	Air Temperature (degrees C)	Relative humidity (%)	Wind speed (km/h)	Wind direction (degrees true)
30/06/2005	12:00	0	18.4	77	2	290
30/06/2005	13:00	0	18.7	76	5	220
30/06/2005	14:00	0	18.7	75	11	50
30/06/2005	15:00	0	18.1	81	15	70
30/06/2005	16:00	0	17.3	87	15	80
30/06/2005	17:00	0	16.9	87	9	70
30/06/2005	18:00	0	15.7	94	9	60
30/06/2005	19:00	0	14.6	80	9	360
30/06/2005	20:00	0	14.2	93	9	30
30/06/2005	21:00	0	13.5	90	8	360
30/06/2005	22:00	0	11.6	93	5	50
30/06/2005	23:00	0	13.2	87	8	300
1/07/2005	0:00	0	13	92	9	360
1/07/2005	1:00	0	12.7	95	9	10
1/07/2005	2:00	0	12.1	96	8	350
1/07/2005	3:00	0	12.5	97	11	270
1/07/2005	4:00	0	11.5	96	5	240
1/07/2005	5:00	0.2	11.9	97	13	230
1/07/2005	6:00	0	10.8	96	0	0
1/07/2005	7:00	0	9.9	96	0	0
1/07/2005	8:00	0	13	97	0	0
1/07/2005	9:00	0	15.7	87	8	350
1/07/2005	10:00	0	16.5	85	13	350
1/07/2005	11:00	0	18.7	72	17	310
1/07/2005	12:00	0	19.6	66	11	270



5.2 Instrumentation

The following test instrumentation was used:-

- Rion NA27 Precision Sound Level Meter (S/N 00960103) + windscreen
- Rion NC73 Calibrator (S/N 10697066)
- Rion NL21 Logging Sound Level Meter (S/N 01043717) + windscreen

This instrumentation has current NATA certified calibration status.

The drift in indicated calibration level was 0.1 dB before and after testing for the Rion NA27, and 0.6 dB for the Rion NL21.

5.3 Measurement Locations

The measurement locations utilised for ambient noise sampling are identified on **Figure 3** and summarised in **Table 8**. At all measurement positions the microphone height was 1.4 m above local ground level.

Table 8 Noise Monitoring Locations

Location Identifier	Description
M1	80 m east of Bailey Henderson Residence 1
M1b	Western boundary of carpark
M2	Paddock fence-line
M3	Southern verge of Old Goombungee Road

5.4 Ambient Noise Levels

Ambient noise levels at all locations included contributions from the following steady and relatively (quasi) steady noise sources:

- Steady broad-band noise from KR Castlemaine Foods
- Distant traffic noise from vehicles on New England Highway, Mort Street and Griffiths Street
- Distant freight train noise on Western Railway

Insect noise was negligible.

The 'background' noise level that is used for the purpose of setting noise goals is normally quantified using the $LA_{90,T}$ measurement parameter. This is the level exceeded for 90% of a defined time interval T. The time interval T is normally in the range of 10 to 15 minutes. Shorter intervals may be used when it is apparent that the dominant source of noise at a measurement location is constant.

The measured 'background' noise level should not include the noise sources from the premises for which noise goals are being established. In this instance the proposed facility, while within the boundaries of KRC will be owned and operated completely independently of KRC, and therefore is a separate facility for the purposes of noise assessment.

A summary of the manual background noise measurements is shown in **Table 9**. The noise logger record for **Location M2** is summarised on **Figure 5**.

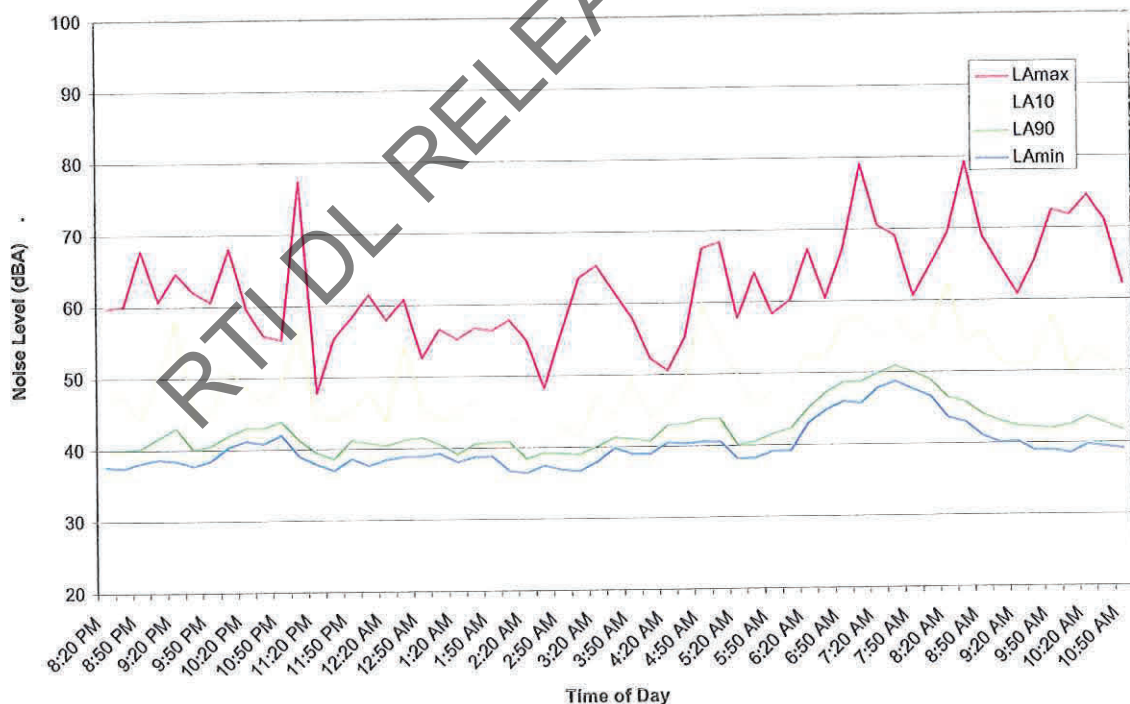


From these results it is concluded that minimum evening and night-time background noise levels at the nearest noise sensitive receptors are effectively controlled by KRC plant. The existing evening and night-time background noise level has been determined to be 40 dBA LA90 at all¹ of the nearest residential locations.

Table 9 Summary of Measured Background Noise Levels

Location	Start Time	Interval	LA90 (dBA)	Discernible Sources
M1	9.26pm	5 min	47	Freight train travelling up-track to town centre
	9.35pm	5 min	41	Steady broad-band KRC noise
	1.32am	5 min	41	Steady broad-band KRC noise
M1b	9.45pm	2 min	52	Steady broad-band KRC noise
	1.38am	2 min	50	Steady broad-band KRC noise
	10.37am	1 min	49	Steady broad-band KRC noise
M2	9.55pm	10 min	40	Steady broad-band KRC noise
	1.46am	5 min	40	Steady broad-band KRC noise
	10.59am	2 min	40	KRC waste facility
M3	10.09pm	5 min	40	Steady broad-band KRC noise
	1.55am	2 min	41	Steady broad-band KRC noise
	11.10am	2 min	41	Local traffic, KRC steady noise

Figure 5 Noise Logger Measurement Results - Location M2 - 30 June to 1 July



¹ At Location M1 the measured LA90 level was 41 dBA due to KRC plant. Adjusting for distance from 380 m to 450 m the LA90 level at the Bailey Henderson Residence 1 would be approximately 40 dBA also.



6 COGENERATION PLANT NOISE PREDICTIONS

6.1 Methodology

Noise predictions have been made using the SoundPLAN noise model, utilising CONCAWE algorithms for sound propagation and ISO 3891 for air absorption parameters.

The SoundPLAN model takes into account the ground topography, barrier effects from buildings, and the directivity of noise sources.

Separate noise sources have been established for the engine exhausts, engine enclosures, and radiator fan banks.

Radiator fans and engine enclosures have been modelled with uniform directivity. The directivity of engine exhausts has been calculated from the Strouhal number² based on an exit diameter of 300 mm.

A worst case night-time scenario has been modelled based on the simultaneous operation of 2 gas engines, and a total of 16 radiator fans. This is double the normal night-time scenario of one gas engine. Predictions are also presented for 1, 3 and 4 engine scenarios for illustrative purposes.

Worst-case meteorological conditions involving atmospheric inversion conditions have been modelled ranging from still neutral conditions, to temperature inversion with light (3 m/s) down-wind conditions.

The plausibility of SoundPLAN predictions have been verified using independent spreadsheet calculations of noise propagation for standard hemi-spherical spreading, and with CONCAWE propagation algorithms.

6.2 Quantified Assessment Criteria

The quantified noise goals, based on the standard EPA criteria in **Table 6** and measured background levels are summarised in **Table 10**.

For modelling purposes, the 'component level' goals are applicable. This is the allowable contribution of the new noise source considered apart from the existing background noise.

Table 10 Noise Goals for Stationary Plant - Residential Receptors

Time Period	Level at Receptor Location - LA _{max,adj,T}	
	Compliance Level (including Background noise)	Component Level (excluding Background noise)
Evening (6 am to 10 pm)	45 dBA	43 dBA
Night (10 pm to 7 am/8 am)	43 dBA	40 dBA ³

² Refer to Section 9.10 D.A. Bies & C.H. Hansen - Engineering Noise Control

³ If the Ecoaccess noise guideline were applied, the 'ideal' background noise level for the night-time would be judged to be in the range of 30 dBA to 40 dBA, depending on what degree the receiving environment is deemed to have residential or industrial characteristics.

As the range of 'ideal' background levels in Ecoaccess is less than or equal to the measured background level, Ecoaccess would produce a target LA_{90,adj,T} component for the proposal of no more than 30 dBA. This is not supported for the reasons discussed in **Section 4.3**



6.3 Predicted Sound Pressure Levels at Residences

Noise predictions for the nearest residential locations are summarised in **Table 11**. The noise level range relates to predictions for wind conditions ranging from 'still' to 'light downwind' directly towards each receptor location.

A reference location at 60 m west of a line connecting the exhausts has been included for compliance measurements. This position is sufficiently removed from the cogeneration plant to provide a measure of the overall plant noise emission, but sufficiently close not to be influenced by transient meteorological conditions.

The anticipated noise character is broad-band, however it has conservatively been assumed that there may be slight tonality. Accordingly a correction for tonality of 2 dB has been included in accordance with AS1055.1 for predictions at all residential locations. No correction has been applied for to predictions at the reference location.

Table 11 Noise Predictions: - 0 m/s Neutral to 3m/s Downwind Inversion

Receptor Location	1 Engine 8 Fans	2 Engines 16 Fans	3 Engines 24 Fans	4 Engines 36 Fans
House 1 (Bailey Henderson)	33 - 35 dBA	36 - 38 dBA	38 - 40 dBA	39 - 41 dBA
House 2 (East)	22 - 25 dBA	25 - 28 dBA	27 - 30 dBA	28 - 31 dBA
House 3 (North)	18 - 21 dBA	21 - 24 dBA	23 - 26 dBA	24 - 27 dBA
House 4 (South-West)	29 - 32 dBA	32 - 35 dBA	34 - 37 dBA	35 - 38 dBA
Reference - 60 m West	53 - 54 dBA	56 - 57 dBA	58 - 59 dBA	59 - 60 dBA

6.4 Discussion

The worst-case projection for the immediate proposal (i.e. 3 engines total - maximum 2 engines at night) would result in noise levels that would comply with the recommended goal of 40 dBA at all receptor locations.

It can be further seen in **Table 11** that were the number of engines doubled at some future time modelling indicates there would be no significant exceedances of the 40 dBA goal.

A number of conservative assumptions have been built into the analysis which could be refined with a resulting decrease in predicted noise emissions. Together these assumptions may result in overestimation of noise levels by 2 to 3 dBA.

The significant assumptions are:-

- The proposed 3 mm thick stainless-steel skin for the engine enclosure has been modelled as 1.6 mm thick to enable the utilisation of available transmission loss data
- Conservative over-estimation of the number of radiator fans that will operate
- Inclusion of 2 dBA penalty for possible audible tonal characteristics



7 CONCLUSIONS

Heggies Australia Pty Ltd has been engaged by Ergon Energy Pty Ltd to prepare a noise impact assessment for the proposal, including the analysis of the proposed noise mitigation strategies.

The following conclusions have been drawn from this assessment:-

1. As the proposed facility will be owned and operated completely independently of KRC, the noise emissions from the facility should be and have been assessed as a stand-alone operation.
2. The standard EPA noise licence conditions as summarised in **Table 6** should be adopted for the management of noise emissions from the proposal.
3. From these results of a night-time noise survey it has been established that the evening and night-time background noise levels at the nearest noise sensitive receptors is 40 dBA L_{A90}. This is controlled by existing broadband plant noise associated with the KRC facility.
4. The quantified noise goals for the proposed facility based on the background noise levels and proposed licence conditions are summarised in **Table 10**.
5. A worst case night-time scenario has been modelled based on the simultaneous operation of 2 gas engines, and a total of 16 radiator fans. This is double the normal night-time scenario of one gas engine.
6. Worst-case meteorological conditions involving atmospheric inversion conditions have been modelled ranging from still neutral conditions, to temperature inversion with light (3 m/s) down-wind conditions.
7. The worst-case projection for the immediate proposal (i.e. 3 engines total - maximum 2 engines at night) would result in noise levels that would comply with the recommended goal of 40 dBA at all receptor locations.
8. It can be further seen in **Table 11** that were the number of engines doubled at some future time modelling indicates there would be no significant exceedances of the 40 dBA evening and night-time goal.

Overall, it is concluded that with the proposed noise mitigation measures installed, the proposal would comply with recommended noise control objectives.

Attachment 3

Site-Based Management Plan

RTI DL RELEASE - EHP



DDC Energy Services Pty Ltd

Cogeneration Plant

Environmental

Site Based Management Plan (SBMP)

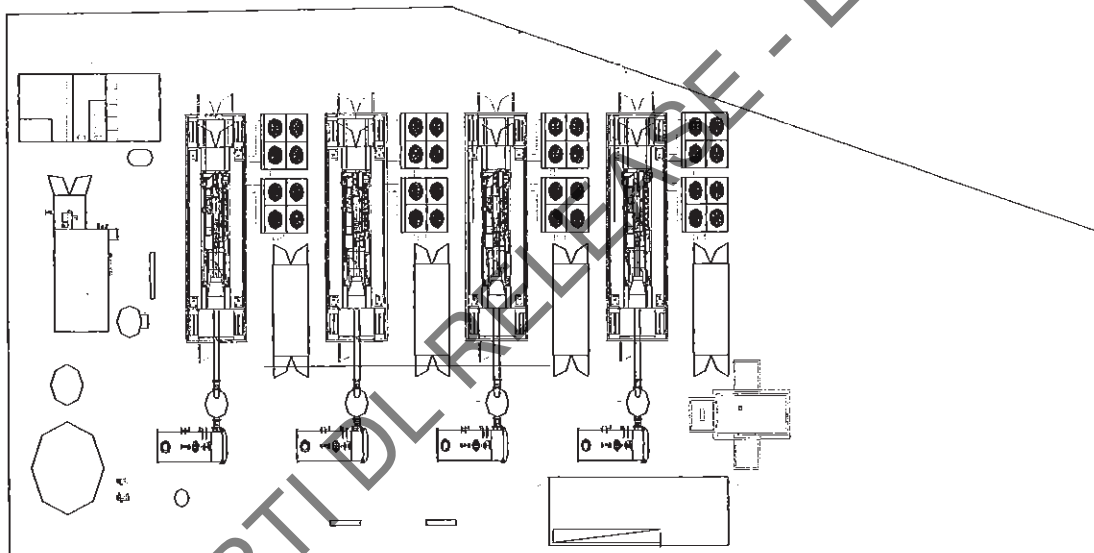
Release – November, 2005



This is the draft site based management plan (SBMP) for the conduct of an environmentally relevant activity (ERA) at the proposed natural gas fired cogeneration plant at Harlaxton, north of Toowoomba.

This Draft SBMP has been prepared to identify potential environmental impacts and mitigation measures for the proposed establishment of a central energy facility on the KR Castlemaine factory site located on Mort Street, Toowoomba. This SBMP is provided in support of the development application for the project. Prior to any operation this SBMP will be reviewed and updated, as necessary, including incorporation of development approval conditions and any other specific regulator requirements.

Section 2 of this plan provides the environmental management system for the project. Section 4 details potential environmental impacts. Sections 5 and 6 provide site-specific management measures aimed at minimising potential environmental impacts under normal and abnormal (emergency) situations.



DDC Energy Services Harlaxton Cogeneration Plant



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1.0 Environmental commitment of management

DDC Energy Services Pty Ltd was formed to develop, design and build high efficiency cogeneration plants. These plants cut global green house gas emissions by displacing coal fired grid power stations.

DDC Energy Services Pty Ltd is committed to the environment, the concept of Industry best practice and conformance with all environmental laws and regulatory approvals.

DDC Energy Services Pty Ltd has designed the proposed Cogeneration Plant at Harlaxton, Toowoomba for optimum efficiency and minimum environmental impact. Our planned operation and maintenance practices are programmed to maintain the commissioned efficiencies and emission levels and identify any unforeseen issues which may degrade either.

Gary Faulkhead

Director

Gary Parkhill

Director

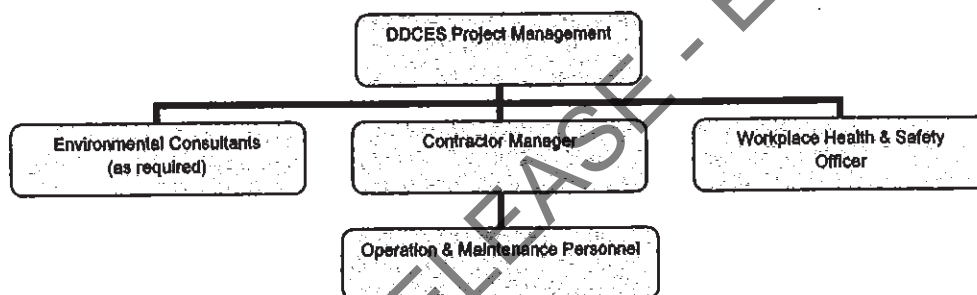


2.0 Environmental Management System

2.1 Organisational structure and responsibility

The cogeneration plant is intended to be an automatic, unattended station. Overall Project Management is undertaken by the Managing Directors of DDC Energy Services (DDCES). There are no employees of DDCES so all on site labour is supplied by specialist contractors. The contracts issued for the on site maintenance tasks commit the specialist contractors to achieving the DDCES Site Based Management Plan (SBMP) targets. Should continuous attendance be required at the energy facility then DDCES will provide this service through a plant operator (Contractor). The Workplace Health and Safety Officer is a secondment position. Environmental Consultants will provide specialist services as required to support project operations. This Management Structure is illustrated below.

Figure 2-1: Project Organisational Structure



Specific Responsibilities are detailed in the Table 2-1.

2.2 Legislative Compliance

The project is code assessable development for a material change of use (MCU) assessable against the Toowoomba Planning Scheme. The project also requires assessment by the Environmental Protection Agency (EPA) as a concurrence agency for a MCU for Environmentally Relevant Activity ERA 17: Fuel Burning and for contaminated land matters. As the development abuts rail corridor land Queensland transport will also be a concurrence agency for the application. A development permit has been submitted to the Toowoomba City Council and is being referred to the EPA and Queensland Transport.

The development permit and concurrence agency responses will be attached to this SBMP. This SBMP will be reviewed and updated to reflect all development conditions from Council and concurrence agencies.



Table 2-1: Project Responsibilities

Position Title	Environmental Responsibilities
DDCES Project Managers	<ul style="list-style-type: none"> Implement environmental policy and ensure contractors are aware of DDCES environmental commitment. Facilitate the implementation and maintenance of this SBMP and approval conditions and monitor its implementation. Ensure environmental responsibilities and due diligence are met. Ensure all environmental legislative requirements are identified and complied with. Ensure operations personnel, including contractors are adequately trained to carry out their duties under this SBMP. Report environmental incidents and non-compliances with approval conditions or legislation to Regulators as required. Facilitate and/or coordinate site inspections, monitoring requirements and reviews of this SBMP. Review effectiveness of corrective actions, if required. Maintain environmental licences on site. Establish and maintain systems for document and data control, including registers of incidents/non-compliances, complaints and training/ inductions, inspection checklists, and monitoring results/reports. Liaise with landholders, community representatives and regulatory authorities on environmental matters as required. Facilitate specialist environmental assessments as required. Remain up-to-date with relevant industry best practice.
Contractor Manager	<ul style="list-style-type: none"> Ensure all staff under their supervision complies with this SBMP and all relevant environmental laws and approval conditions. Undertake environmental induction for all staff that may operate on the site, and record inductions and provide the record to DDCES Management. Contribute to environmental monitoring, site inspections and SBMP reviews as required by DDCES Management. Report non-compliances with this SBMP, approval conditions and legislation, and all environmental incidents to DDCES Management.
Contractor Personnel including Plant Operator	<ul style="list-style-type: none"> Take all reasonable precautions to ensure they do not cause environmental harm or an environmentally harmful situation to arise. Operate and maintain the site in accordance with this SBMP. Watch over the actions of their fellow workers in relation to environmental protection. Be prepared to act responsibly on behalf of the company in an effort to eliminate potential environmental hazards from all work arenas they enter. Attend an environmental induction and sign the induction record form. Familiarise themselves with company environmental policy and procedures by reading the SBMP. Report all environmental incidents (eg. Spills) to their Manager. Undertake daily inspections and assist with any other monitoring as required. Implement actions to rectify any environmental non-compliance as requested by their Manager or DDCES Management.

2.3 Staff training

The cogeneration plant is intended to be an automatic, unattended station. DDC Energy Services will not employ staff on site. Contractors will be employed to undertake all maintenance work and daily inspections.

DDCES will provide an induction package for this site and will induct the Contractor Manager. DDCES will train the Contractor Manager adequately to allow him/her to implement the induction package with Contractor staff.

Contractor Management will ensure that a site induction is provided to all contract staff that may work on or enter the facility, in accordance with this SBMP. Inductees are to sign the Induction Record Form in Appendix A and the Contractor Manager is to forward completed forms to DDCES Management.



Site Inductions are to detail the key issues and management strategies in this SBMP. The site induction will cover:

- Site familiarity (designated access points and work areas, facilities, areas to be protected)
- Project details – tasks to be undertaken, methodologies and hours of operation
- Potential environmental impacts and mitigation measures (i.e. dust, erosion, noise, hazardous substances management, and waste management)
- Briefing in emergency response procedures, permit-to-work system, incident reporting and project related contacts
- Detail procedure for public contact and complaints management.

2.4 Risk Management

A Permit to Work (PTW) System and Safety Management Plan that complies with the *Petroleum and Gas (Production and Safety) Act 2004* will be developed and implemented prior to operations. The PTW system will involve a risk identification and implementation of control measures.

All activities where there is a risk of release of contaminants (eg. oil spill during generator maintenance) will have adequate control measures in place prior to commencement of the activity or task (eg. all draining of fluids from gensets occurs within bunded area).

2.5 Incident Management

DDC Energy Services Pty Ltd plant operator will be notified automatically via the Co-generation Plant's SCADA system of any plant malfunctions and will respond to these by being in attendance at the Co-generation Plant within 2 hours of the notification and will take the necessary remedial action to rectify the problem as soon as is reasonably possible.

Incident reports are to be completed and maintained for all incidents. Reports should include details of the time, date, location, type of incident, quantities of spills, actions taken to prevent further/ongoing damage and remedial actions, and reporting undertaken.

An appropriate spill kit will be maintained on site and personnel trained in its use. Spillage of any chemicals or fuel is to be contained within an on-site containment system and controlled in a manner that prevents environmental harm.

Notifications

DDC Energy Services will immediately, upon becoming aware of any incident or malfunction, notify KRC by phone of such incident/malfunction, where it is likely to curtail the supply of energy to KRC. Written notification will follow within 2 hours of such verbal notice being given.

Any environmental incidents with potential to cause environmental harm will be reported to the EPA.

All spills to land or water and any non-compliance with development conditions or legislation are reported externally to the EPA by DDCES Management. The following details are to be reported:

- Time, date and exact location of incident
- Nature of the incident
- Reason for the incident and any investigations undertaken
- Conclusions formed and any actions and notifications undertaken
- Contact name and details for person reporting the incident.



2.6 Emergency Management

An environmental emergency may include (but is not limited to):

- Fire/explosion
- Gas leak
- Major damage to plant
- Natural events (eg. flooding)
- Third party damage.

DDCES's first priority during an emergency is the safety of any persons in the immediate vicinity.

Automated plant monitoring systems will ensure that all emergencies are identified and responded to within 2 hours.

Specific measures for potential non-routine or emergency situations are described in Section 5.

2.7 Complaints Management

A site register shall be kept to record complaints and actions taken (refer to Appendix B). The Contractor Project Manager shall be responsible for the register and a copy provided to the Environmental Officer.

2.8 Inspections and Monitoring

2.8.1 Daily Plant Inspection

The plant operator will attend the Co-generation Plant daily (including weekends) to undertake the normal inspections and maintenance activities in accordance with:

- the equipment manufacturers recommendations
- the plant's operating and maintenance manual
- Statutory requirements
- This site based management plan.

On a daily basis, the operator will enter into the Co-generation Plant's logbook details of the plant's performance for the previous day, including:

- the actual 2900kW and 4000kW Daily Availability together with the reasons and details of any unavailability.
- the quantity of Unsupplied Energy.
- Fuel rate.
- a comparison of the KRC's Daily Forecast and the actual Energy supplied to KRC.
- the quantities of electricity received from and supplied to the Grid.
- the status of any Events of Force Majeure and the details of the remedial action being taken.
- details of any new Force Majeure Notice received from the Customer, KRC or the gas supplier or issued by DDC Energy Services Pty Ltd.
- details of any environmental or safety event and the remedial action being taken.
- details of any Co-generation Plant issues that require action and the timetable for taking that action.



A copy of the logbook report for the previous day will be e-mailed to the Customer by 3.00pm every day or alternatively will be available to the Customer via the Co-generation Plant's SCADA system.

Logbook reports may be provided to regulators upon request.

2.8.2 Environmental Monitoring

The management measures outlined in Sections 4 and 5 are designed so that this plant will not release any contaminant to land or water, will adequately attenuate noise from the plant and will operate optimally to minimise air emissions.

This plant is not expected to have an environmental impact beyond the designed intent and therefore no subsequent environmental assessments are envisioned other than noise and air emission quality.

Stack emission and noise levels will be reassessed every two years to verify compliance. Site based inspections will be undertaken on a daily basis as outlined in Section 2.8.1. No other environmental monitoring is proposed.

DDC Energy Services Pty Ltd will however investigate any genuine complaint that has been raised by any member of the public or surrounding industrial or commercial premises.

2.8.3 Review of SBMP

This SBMP will be reviewed and updated to reflect all development conditions placed on the development by the Council, EPA or Queensland Transport prior to operations commencing.

This SBMP is to be reviewed on an annual basis to ensure all environmental management aspects of the facility operation are up to date and in line with current best practice and environmental law.

2.9 **Record Keeping**

The following records are to be kept on site and made available to an EPA representative at any time.

- Lube Oil Condition Monitoring and Consumption
- Coolant Condition Monitoring
- Incident Reports including any uncontained spills – maintain register
- Daily Checklist
- Weekly Reports
- Monthly Reports
- Noise Level Reports
- Emission Level Reports
- All environmental complaints (eg. noise, contaminant release) – maintain complaints register
- External reporting to EPA, including annual returns.

2.10 **Periodic review of environmental performance and continual improvement**

Every two years an investigation is to be carried out on the environmental performance of the facility. This will include noise level assessment and exhaust emissions report.

Should any non-compliance be identified appropriate remedial action will be taken and records kept.

DDCES will keep up-to-date with relevant industry best practice.



3.0 Identification of environmental issues and potential impacts

3.1 Sustainability

The installation of a new energy plant at the Harlaxton site will have the combined advantages of displacing older less efficient boilers and introduce cogeneration to the KRC plant.

Cogeneration is the simultaneous production of electricity and heat using a single fuel such as natural gas. In traditional coal or gas fired power stations the heat generated during the production of electricity is regarded as waste heat and is released into the atmosphere through the cooling towers.

On this site waste heat from the electrical generation is being collected through the use of heat exchangers on both the high and low temperature generator engine coolant circuits, this heat supplies KRC's hotwater requirements. Likewise waste heat boilers fired by the generator engine exhausts produce KRC's total steam requirements.

The conversion efficiency of gas fuel to usable electricity and thermal energy on this site will approach 80%, this is more than double the energy efficiency of straight gas generators without heat recovery or the energy efficiency of the state electrical grid.

As well as the much greater conversion efficiency of the cogeneration concept, these engines run on natural gas, a fuel source which emits less than half the greenhouse gas, per unit of electrical energy produced than the cleanest available coal fired thermal power station.

In addition to the points already raised the engines to be used in this project use an advanced lean-burn technology. The lean burn technology relates to using a high ratio of air to fuel in the combustion process. This high ratio of air to fuel reduces the combustion temperature, which minimises the production of nitrogen oxides (NO_x).

The microprocessor based engine controller monitors and regulates all key engine parameters such as rapid response fuel flow control, air/fuel mixture ratio control, individual cylinder ignition timing, anti knock, load control and automatic control for ignition energy. This control technology results in a high power output, maximum thermal efficiency and minimal emissions.

The new boiler and cogeneration plant will produce KRC's entire thermal requirements with marginally less water use than currently.

3.2 Environmental Aspects and Potential Impacts

Potential environmental impacts may arise from the following activities associated with the operation:

- Minor Earthworks and Vehicular Movement eg. Dust
- Equipment Selection eg. Use of Materials / Energy Efficiency
- Energy Generation eg. Air and Noise Emissions
- Plant Maintenance eg. Waste minimisation
- Chemical and Fuel Handling and Storage eg. spills
- Waste Management.

Refer to Table 3-1.


Table 3-1: Facility Activities and Associated Environmental Aspects and Potential Impacts

Activity	Environmental Aspects	Potential Impacts
Minor Earthworks & vehicular movement	Potential dust generation.	Nuisance to residents, industry or commercial uses.
Equipment Selection	Best practice life-cycle assessment of materials used for: <ul style="list-style-type: none"> Generator Enclosures Radiators Transformers and Switchgear 	Waste minimisation.
Energy Generation	Discharge of exhaust emissions.	Adverse impact on local air quality. Nuisance to residents, industry or commercial uses.
	Noise emission.	Nuisance to residents, industry or commercial uses.
Plant Maintenance - Maintain plant in optimal condition	Fuel usage and exhaust emissions.	Reduction in air emissions and fuel.
Chemical and fuel handling and storage	Monitor condition of liquids to maximise life of liquids.	Waste minimisation.
	Potential for Spills: <ul style="list-style-type: none"> Transformer Oil Engine Lubrication Oil Coolant Solution. 	Potential water or land contamination.
	Potential for natural gas leak.	Adverse impact on local air quality, and health and safety of people. Potential for other emergency situations (eg. fire).
Waste management	Potential for inappropriate waste disposal or spills: <ul style="list-style-type: none"> Coolant Solution Engine Lubrication Oil Boiler blowdown Water softener backwash Hot water overflow Solid consumables. 	Potential water or land contamination.

The potential environmental impacts from routine operations are detailed in the following sections.



3.3 Potential Air Quality Impact

3.3.1 Stack Emissions

DDC Energy Services Pty Ltd standard policy for the air quality impact assessment of cogeneration facilities is to commission independent experts to conduct a comprehensive analysis of air emissions from the plant.

Katestone Environmental Pty Ltd was commissioned to undertake this assessment for the gas-fired cogeneration facility proposed for Harlaxton, Toowoomba.

The standard requirements are that assessment must at least cover the following key areas:

- Site and surrounding land use.
- Wind speed, direction and temperature.
- Atmospheric stability and mixing height.
- Critical air pollutants and ambient air quality guidelines.
- Existing air quality.
- Modelling of the site.
- Emission characterisation.

The commissioned report conclusions are noted below.

- Nitrogen dioxide is the most important air pollutant that occurs due to the proposed energy facility
- Air-quality modelling has shown that the predicted ground level concentrations of nitrogen dioxide due to the proposed facility are well below the EPA's air quality goals and NEPM standards.
- Highest concentrations of nitrogen dioxide are predicted within the site boundary and are predicted to occur under unstable to neutral atmospheric conditions with light to moderate winds.
- No air quality constraints were identified that would inhibit the development of the proposed energy facility.

This report was carried out in November 2005.

3.3.2 Dust

The possibility of dust being generated on site during dry and windy periods will be combated by providing a complete crushed rock covering for the entire site area not covered by slabs or buildings.

Vehicular access during operations will be via the main paved entry to the KRC site, therefore dust generation from use of unpaved access roads is not considered an issue.

All nuisance complaints will be recorded and investigated. Details of all complaints are to be recorded on the Complaints Register in Appendix B.



3.4 Potential Noise Impacts

DDC Energy Services Pty Ltd standard policy for the assessment of noise from proposed cogeneration facilities is to commission independent experts to conduct a comprehensive analysis of potential noise-related impacts from operation of the plant.

Heggies Australia was commissioned to undertake this assessment for the gas-fired cogeneration facility proposed for Harlaxton, Toowoomba.

The standard requirements are that the report must at least cover the following key areas:

- Site details, specifically noise generation of plant.
- Noise sensitive receptors, proximity of dwellings and consideration of future development
- Noise annoyance level specification
- Ecoaccess planning for noise control consideration
- Meteorological conditions
- Measurement of existing background noise levels
- Predictive analysis of proposed plant and the sound pressure levels at residences under worst case conditions.

The commissioned report conclusions are included below.

- As the proposed facility will be owned and operated completely independently of KRC, the noise emissions from the facility should be and have been assessed as a stand-alone operation.
- The standard EPA noise license conditions as summarised in Table 6 should be adopted for the management of noise emissions from the proposal.
- From these results of a night-time noise survey it has been established that the evening and night-time background noise levels at the nearest noise sensitive receptor is 40 dB(A) L_{A90} . This is controlled by existing broadband plant noise associated with the KRC facility.
- The quantified noise goals for the proposed facility based on the background noise levels and proposed licence conditions are summarised in Table 10.
- A worst case night-time scenario has been modelled based on the simultaneous operation of 2 gas engines and a total of 16 radiator fans. This is double the night-time scenario of one gas engine.
- Worst-case meteorological conditions involving atmospheric inversion conditions have been modelled ranging from still neutral conditions, to temperature inversion with light (3m/s) down-wind conditions.
- The worst-case projection for the immediate proposal (i.e. 3 engines total – maximum 2 engines at night) would result in noise levels that would comply with the recommended goal of 40 dB(A) at all receptor locations.
- It can be further seen in Table 11 that were the number of engines doubled at some future time modelling indicates there would be no significant exceedances of the 40 dB(A) evening and night-time goal.



Overall, it is concluded that the proposed noise mitigation measures installed, the proposal would comply with noise control objectives.

The noise assessment report was carried out in August 2005.

All noise complaints will be recorded and investigated. Details of all complaints are to be recorded on the Complaints Register in Appendix B.

3.5 Waste Management and Minimisation

3.5.1 Equipment Selection

The plant and equipment selected for this project offer best practice in waste minimisation and lifecycle cost savings.

Genset Enclosures

The generator enclosures are constructed from stainless steel and are designed to exceed the life expectancy of the contract. This means that the enclosure is recycled at the end of the generator set life span instead of being scrapped. Over one hundred of the genset enclosures proposed for this project have been installed across Australia since 1989. A significant number are now into second applications and none have been scrapped. In a number of cases the engines have been changed out but the basic enclosures remain in service.

This construction also ensures that minimal maintenance is required to maintain the enclosure in perfect working order. This construction eliminates the environmental protection issues in terms of storage, application and disposal of paint to prevent corrosion.

Radiators

The radiators are constructed from hot dip galvanised steel, which does not need extensive maintenance to be carried out on a regular basis. There is a possibility that the radiator cores may need replacement during the life of the contract, but the radiator assemblies will survive and be reused.

Transformers and Switchgear

The transformers and switchgear to be used on the project have twenty year design life and will be retrievable at the end of the contract.

The type and standard of construction is such that all major items of plant will outlive the project and be reinstalled elsewhere. The waste disposal aspects of the project are minimised.

3.5.2 Plant Maintenance

Coolant System Inhibitor

The primary engine cooling systems are a sealed closed loop. They use fresh water as the cooling medium. The water is however mixed with a cooling system additive to prevent cooling system corrosion, suppress cavitation around the liners and provide antifreeze protection. The cooling system does require maintenance and the cooling system is drained and refilled after every 8000 hrs of operation. Every two years therefore a specialist contractor will drain the system and remove the cooling medium from site for appropriate disposal. No liquid wastes from the facility will be discharged to the environment.



Coolant condition trend monitoring is used by DDC Energy Services Pty Ltd to maximise the efficiency of the coolant system.

Correct trend analysis can provide a significant level of environmental protection by assisting preventative maintenance and ensuring the coolant is not disposed of before it has reach its maximum life span, thereby minimising the quantity of waste requiring disposal.

Material Safety Data Sheet (MSDS) and Product Data Sheet (PDS) will be maintained on site.

Lubrication Oil

Each generator set engine is fitted with a lube oil sump, the sump capacity is 285 litres. Lubrication Oil is changed out at nominal intervals of 2000hrs (approx 3 times per year).

In addition to the sump capacity each generator set enclosure houses a new oil supply/make up tank (700lts), a waste oil storage tank (700 litres) and all associated pipework. The total lubrication capacity on board each enclosure is therefore 1700 litres.

New and waste oil is supplied and collected by a registered bulk oil provider, all connections are quick-connect no loss and mounted inside the enclosure containment sump. Waste oil is fully recovered and recycled.

Oil condition trend monitoring is used extensively by DDC Energy Services Pty Ltd to maximise the life of the lubrication oil life.

Correct trend analysis can provide a significant level of environmental protection by assisting preventative maintenance and extending lube oil and filter life to the maximum appropriate level, thereby minimising waste liquid and solid generation.

Material Safety Data Sheet (MSDS) and Product Data Sheet (PDS) will be maintained on site.

Boiler Blowdown Water

Each boiler has a requirement to perform a periodic blowdown to maintain the boiler water Total Dissolved Solids (TDS) within prescribed limits. The composition of the blowdown water is softened town mains water and traces of chemicals used in the treatment of the towns water.

The boiler blowdown water is tested at each monthly water treatment service by a specialist contractor.

Material Safety Data Sheet (MSDS) and Product data Sheet (PDS) will be kept on site and updated as the specialist water treatment contractor adjusts the required chemicals.

The blowdown water from each boiler is connected to a central blowdown receiving vessel. This vessel allows the blowdown water temperature to reduce to below 100 deg C. The overflow water from the blowdown vessel is then directed to the existing site treatment plant. Blowdown water will not be discharged to the environment.

The approximate volume of the blowdown water from the entire plant will be 90L per hour during normal operation.



Water Softener Backwash

This backwash is automatically discharged from the water softener during each softener regeneration at a flow rate of 188 L/min and a volume of 1,950L per regeneration cycle. Water softener backwash is connected to the boiler blowdown line and discharged into the KRC system for treatment prior to sewer discharge. This plant discharge will not be discharged directly to the environment.

The water softener backwash will have the following characteristics:

- Hardness of 165 ppm
- Resin – 300 L/vessel
- TDS – 300 mg/L average
- Sodium – 112 ppm

Hot Water Overflow

Overflow water from the hot water storage tanks and boiler feedwater tank will be discharged to the boiler blowdown line to KRC's water treatment plant. Overflow from these sources will only occur in small quantities and during servicing. Hot water storage tanks will contain non-treated town water and the boiler feedwater tank will contain softened town water. This will not be discharged directly to the environment.

Solid Wastes

Solid wastes comprise small quantities of consumables such lubrication oil and air filters from the gas and diesel generators produced as a result of plant maintenance. Air filters contain only inert material sand will be disposed of to landfill. Oil filters will be disposed of in an environmentally responsible manner by the specialist maintenance contractor.

All solid wastes (eg. air and oil filters) generated as a result of maintenance activities on the generator units will be removed from site by the maintenance contractor undertaking the work. Wastes will be minimised through implementation of a stringent plant inspection regime and condition monitoring that will maximise the life of all consumables to minimise waste quantities generated.



4.0 Control measures of routine operations to minimise likelihood of environmental harm

The cogeneration plant is expected to normally operate automatically and unattended. To ensure safe operation the following measures have been included in the contract design:

- Extensive Commissioning Tests to confirm extent of impacts
- Continuous Online Plant Monitoring
- Complete Preventative Maintenance Schedule.

Complete details for these control measures are detailed in the following sections.

4.1 Commissioning Tests – Establish Compliance

4.1.1 Commissioning Engineer

Commissioning of the Co-generation Plant will be performed by DDC Energy Services Pty Ltd using the services of a skilled commissioning engineer who is fully experienced in the operation of all of the equipment.

The commissioning engineer will develop a testing and commissioning plan for the Co-generation Plant so that when all commissioning activities and tests are completed, the plant will be available to operate safely, efficiently and reliably in automatic, unattended mode. The plan will also include a Permit to Work (PTW) System and Safety Management Plan that complies with the *Petroleum and Gas (Production and Safety) Act 2004*.

All of DDC Energy Services Pty Ltd employees and subcontractor's employees who will be engaged in testing and commissioning activities will be trained in using the PTW system and will attend a site-specific induction.

The commissioning engineer will supervise the pre-commissioning testing and no-load and load running of the Co-generation Plant and will make or supervise all necessary measurements, calculations and adjustments or modifications to the Co-generation Plant to correct any non-routine environmental impacts, operational or maintenance problems which may arise.

4.1.2 Pre-Commissioning Activities

All equipment will be prepared, lubricated and tested in accordance with the manufacturers and statutory requirements prior to the commencement of commissioning.

All piping will be flushed with fresh water and cleaned, with suitable temporary or permanent strainers and/or filters provided, to protect both the Co-generation Plant, the Facility and KRC's plant and equipment from the entry of foreign matter during commissioning and later operation. DDC Energy Services Pty Ltd will carry out the safe collection and removal of the flushing water. If it is possible for solids to be deposited in the piping system, removable covers or plugs will be incorporated at bends in the pipes to permit cleaning.

4.1.3 Commissioning Tests

Commissioning Tests will comprise all of the following:

- Rated Net Output Tests
- Heat Rate Tests
- Oxides of Nitrogen Emission Level Tests



- Noise Tests
- Generator Temperature Tests
- Vibration Tests
- Start-up and Shutdown Sequence Tests
- 7 Day Test

Tests for rated net output, unit heat rate, noise, vibration and oxides of nitrogen emissions will be conducted on each of the generator sets separately and repeated (with the exception of the oxides of nitrogen emissions tests) with two and three Units operating concurrently. Settings of the controls of the machines will not be altered when conducting oxides of nitrogen tests at rated output and at partial loads.

The tests for rated net output and heat rate will be based on kW's measured using calibrated test instrumentation. A signed legible photocopy of all readings logged during tests, with all corrections initialled, will be kept by DDC Energy Services Pty Ltd as evidence of the results of the tests.

4.1.4 Performance Corrections

DDC Energy Services Pty Ltd will use performance correction curves for the following parameters to correct the rated net output measured during the performance tests and the unit heat rate calculated from the test measured data:

- Ambient air inlet temperature
- Ambient air pressure
- Ambient air relative humidity
- Power factor
- Grid frequency

These curves will be used to correct the actual test results to site conditions of 560m, 35°C ambient and 30% relative humidity.

4.1.5 Rated Net Output Tests

Rated net output tests at maximum load will be conducted with the Unit supplying its own auxiliaries. The measured net outputs will only be corrected for parameters outside the control of DDC Energy Services Pty Ltd, i.e. in accordance with the performance correction curves.

The following are the minimum criteria for passing the rated net output tests corrected to site conditions of 560m, 35°C ambient and 30% relative humidity:

Each Unit:	1.425MW
Any two Units:	2.850MW
All three Units:	4.275MW

4.1.6 Heat Rate Test

Heat rate tests will be conducted at maximum load with the Unit supplying its own auxiliaries. The calculated heat rate will only be corrected for parameters outside the control of DDC Energy Services Pty Ltd, i.e. in accordance with the performance correction curves for unit heat rate.

The following are the minimum criteria for passing the heat rate tests corrected to site conditions of 560m, 35°C ambient and 30% relative humidity:

Each Unit:	10.75 GJ HHV/MWh
Any two Units:	10.75 GJ HHV/MWh



All three Units: 10.75 GJ HHV/MWh

4.1.7 Oxides of Nitrogen Emission Level Tests

Emission tests will be carried out individually for each Unit at 100% and 75% of maximum load to verify that the concentration of the oxides of nitrogen is equal to or less than regulated limits and complies with Environmental Protection Authority requirements.

4.1.8 Noise Level Tests

Noise level tests will be carried out (at the reference point defined in any licence issued by the Environmental Protection Authority relating to the operation of the Co-generation Plant) to verify that the sound pressure levels are less than the levels nominated by the licence. Noise measurement and reporting shall be in accordance with the EPA's Noise Measurement Manual.

NOTE: The design target noise levels are as follows:

- (i) 83dB(A) at a 3m locus around each generator enclosure measured 1m above the ground, and
- (ii) 80dB(A) at 3m from the stack, and
- (iii) 80dB(A) at 3m from the radiator cooling fans.

4.1.9 Generator Temperature Test

A temperature test on the generator for each Unit will be carried out during the tests for rated net output for a period sufficient to show what would be obtained if the test were prolonged until the steady final temperature was reached. The final temperature will be not greater than 1000C above ambient.

4.1.10 Vibration Tests

Vibration tests will be carried out by DDC Energy Services Pty Ltd to ISO 8528-9 (Measurement and Evaluation of Mechanical Vibrations) to confirm compliance with ISO 8528 (Reciprocating Internal Combustion Engine Driven Alternating Current Generator Sets).

4.1.11 Start-up and Shutdown Sequence Tests

Tests will be conducted by DDC Energy Services Pty Ltd to verify the safe and reliable automatic start-up, ramping up and ramping down and shutdown sequences and times for the Co-generation Plant.

4.1.12 7 Day Test

For the Co-generation Plant to successfully complete and pass the 7 day test, it must operate continuously for 7 consecutive days on automatic, unattended and unrestricted commercial load, with the exception that individual Units may be taken out of service sequentially for their scheduled 50 hour inspections while still maintaining an uninterrupted supply of Energy to KRC.

If, during the test period of 7 consecutive days,

- (a) the Co-generation Plant is unable to achieve a 4000kW Availability level of 100% (excluding the time taken for performing the 50 hour inspections but not to exceed 5 hours per Unit) continuously for 7 days; or
- (b) supply of Energy to KRC is interrupted because of the scheduled 50 hour inspections,



for any reason not attributable to an act or omission of the Customer, the Co-generation Plant will be taken to have failed the 7 day test. In such a case, DDC Energy Services Pty Ltd will be free to restart the 7 day Test (from day 0) upon giving reasonable prior notice to the Customer of an intention to restart the test.

If the 7 day test is interrupted by a reason attributable to an act or omission of the Customer, the 7 day test will continue from the time of the interruption as if such interruption had not occurred.

4.2 Monitoring – Confirmation of Compliance

Continuous monitoring of key indicators is carried about by the site based SCADA system. Details for some of these key indicators are contained in the following sections.

4.2.1 Heat Rate – Continuous Monitoring

Heat rate is continuously monitored by the site based SCADA system. Heat rate is a leading indicator of the correct operation of the gas engine. Any variation in the heat rate indicates a loss of performance in the engine caused by a component malfunction or control mal adjustment. Variation in the heat rate is a leading indicator of change in exhaust emissions.

4.2.2 Exhaust Temperature and Individual Cylinder Temperatures – Continuous Monitoring

The exhaust temperature and individual cylinder temperatures are continuously monitored. These temperatures give an indication of the effectiveness of the combustion process and the resulting emissions. High exhaust temperature leads to the production of oxides of nitrogen, this could be occurring in one individual cylinder only and will be picked up by the SCADA system.

4.2.3 Routine Compliance Monitoring

Whilst the continuous monitoring of heat rate and combustion temperatures will continuously confirm emission compliance, we have scheduled routine exhaust gas analysis

Routine biennial exhaust emission tests will formally confirm compliance with design specifications and legislated limits.

Noise tests will be carried out every two years also to confirm compliance the EPA approval conditions.



4.3 Routine Maintenance – Ensuring Compliance is Maintained

Routine preventative maintenance is used to ensure that the generator sets never approach a position where there is a possibility of component failure, elevated environmental impact or unsafe workplace conditions occurring.

Some aspects of the routine maintenance program are directed specifically at maintaining environmental impacts.

For example, the W 1/2 maintenance interval is specifically intended to test combustion adequacy, the ignition coil voltages are measured. This gives an indication of the condition of the spark plugs and assists in preventing failure. Elevated voltages are a leading indicator of spark plug malfunction or failure. If left un-rectified they would result in increased emission levels or unburnt fuel. Possible problems in this regard are also picked up by the SCADA system.

The details for the routine maintenance schedule are shown in Appendix C.

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5.0 Contingency plans and emergency procedures for non-routine situations

Where appropriate we have contingency plans, we do not expect that there will be any emergency situation associated with the key areas of environmental impact

5.1 Air Quality

Variation in the air quality caused by emissions from the plant should be picked up by the measures outlined in Section 4.

DDC Energy Services Pty Ltd will however investigate any genuine complaint that has been raised by members of the public or commercial premises.

5.2 Noise

Variation in the noise emissions from the plant should be picked up by the measures outlined in Section 4.

DDC Energy Services Pty Ltd will however investigate any genuine complaint that has been raised by members of the public or commercial premises.

5.3 Corrosion/Recycling

Routine maintenance should identify any problems before they become significant. There are no expected emergency situations arising in this area.

5.4 Spill Prevention and Management

5.4.1 Coolant Water Inhibitor

DDC Energy Services Pty Ltd strives for a minimum of two degrees of protection on each possible failure mechanism. As a result the coolant systems for each of the generator sets is protected by two levels of containment and several alarms, that are continuously monitored, covering all failure mechanisms.

The basic components for coolant systems include:

- Coolant header tank.
- Drip tray under engine that can hold the full coolant capacity.
- Drip tray high level switch.
- Low and High level switches in the header tank.
- Low and High temperature switches in the engine.
- Low and High pressure switches in the engine.

A non-routine situation (such as a low level alarm) will shut down the generator transfer load to the remaining sets.

The DDC Energy Services Pty Ltd plant operator will be notified automatically via the Co-generation Plant's SCADA system of any plant malfunctions and will respond to these by being in attendance at the Co-generation Plant within 2 hours of the notification and will take the necessary remedial action to rectify the problem as soon as is reasonably possible.



5.4.2 Lube Oil Spill or Leak

DDC Energy Services Pty Ltd strives for a minimum of two degrees of protection on each possible failure mechanism. As a result the lube oil system for each of the generator sets is protected by two levels of containment and several alarms that are continuously monitored, covering all failure mechanisms. The complete generator enclosure is fitted with a secondary containment sump to catch any spills, leaks or overflows from this system.

The basic components for a lube oil system include,

- Make up oil tank
- Drip tray/bunding under engine and make up tank that can hold the full lube oil capacity
- Drip tray high level switch
- Low and High lube oil level switches in the lube oil make up tank
- Low and High lube oil level switches in the engine
- Low and High lube oil pressure switches in the engine
- High temperature alarm in the engine

A non-routine situation (such as a low level alarm) will shut down the generator transfer load to the remaining sets.

The DDC Energy Services Pty Ltd plant operator will be notified automatically via the Co-generation Plant's SCADA system of any plant malfunctions and will respond to these by being in attendance at the Co-generation Plant within 2 hours of the notification and will take the necessary remedial action to rectify the problem as soon as is reasonably possible.

5.4.3 Transformer Oil Spill or Leak

Each generator set is connected via a step up transformer. The transformers are filled with insulating oil. Approximate volume is 2000L/transformer.

Material Safety Data Sheet (MSDS) and Product Data Sheet (PDS) will be maintained on site.

Transformer oil is not considered to be a maintenance item. The oil installed from new will see out the contract unless it becomes contaminated due to transformer failure or other unforeseen circumstance.

DDC Energy Services Pty Ltd strives for a minimum of two degrees of protection on each possible failure mechanism. As a result of this practice we have installed Kiosk type transformers with full alarmed secondary oil containment.

Oil condition trend monitoring is used extensively by DDC Energy Services Pty Ltd to provide a leading indicator of transformer fault or contamination.

Biennial oil sampling will be carried out during the life of the contract

A non-routine situation (such as a low level alarm) will shut down the generator transfer load to the remaining sets.

The DDC Energy Services Pty Ltd plant operator will be notified automatically via the Co-generation Plant's SCADA system of any plant malfunctions and will respond to these by being in attendance at the Co-generation Plant within 2 hours of the notification and will take the necessary remedial action to rectify the problem as soon as is reasonably possible.



5.5 Flood or Standing Water

- The generation plant is located well above the nearest creek and localised flooding is not anticipated.
- Sufficient storm water drainage is present on the KRC site.

5.6 Steam Generating System

A non-routine situation (such as a boiler low water lockout) will shut down the boiler and transfer the load to the remaining boilers.

The DDC Energy Services Pty Ltd plant operator will be notified automatically via the Co-generation Plant's SCADA system of any plant malfunctions and will respond to these by being in attendance at the Co-generation Plant within 2 hours of the notification and will take the necessary remedial action to rectify the problem as soon as is reasonably possible.

In addition, the plant operator conducts daily routine inspections of the boiler plant and visually checks for leaks and any component malfunction.

5.7 Gas Leaks

5.7.1 Gas System

DDC Energy Services Pty Ltd constructs all gas fuel supply systems to at least the minimum requirement of Australian Standards, in particular AS3814 (Industrial and commercial gas fired appliances) and AS5601 (Gas installations).

The measures required by these standards provide a level of protection that is classified as non-hazardous external to the pipework and covers from the supply regulator.

The genset enclosures and supply fuel lines are certified for compliance as a type B appliance to these Australian standards.

5.7.2 Contingency Plans/Emergency Procedures

In the unlikely event of a significant gas leak several further steps have been introduced to protect personnel and the environment.

- Continuous gas consumption monitoring of genset (the gas consumption is metered and compared with genset output) with any significant discrepancy resulting in isolation of the genset.
- Continuous gas consumption monitoring of plant (the gas consumption of each set is combined and compared with the plant consumption) with a discrepancy a significant discrepancy isolating the gas supply to the plant.
- Gas detectors are located in each of the genset enclosures. Detection of a gas leak will close the emergency shut off valves for the individual genset.
- Gas pressure transmitters are also monitored to detect significant drops in pressure from standard operating conditions. Detection of low pressure will result in shutdown of individual genset associated with

In the event of a shutdown due to gas leak the particular isolated part will remain isolated until investigation and clearance by a qualified employee.

[illegible]



APPENDIX B: Complaints Register

Project Name – **Toowoomba Cogeneration Plant**

Complainant Details (Name, Address, phone number)	Date/ Time	Nature of Complaint (dust, noise etc)	Investigations	Conclusion/ Actions Taken



APPENDIX C: Maintenance Schedule

Application Group.	3A	Continuous operation, unrestricted Load Factor $\leq 100\%$																																	
Load Profile	Continuous power	ICFN																																	
	Speed	1500 rpm																																	
	Application	Generator drive																																	
	Fuel Gas	Natural Gas, Methane Number ≥ 70																																	
One time service:	50hr	after new, W5 and W6.																																	
<table> <thead> <tr> <th></th><th>Scheduled every:</th><th>Limit</th></tr> </thead> <tbody> <tr> <td>Maintenance Echelon:</td><td>W1/1</td><td>72 Operating hours</td></tr> <tr> <td></td><td>W1/2</td><td>500 Operating hours</td></tr> <tr> <td></td><td>W1/3</td><td>1,000 Operating hours</td></tr> <tr> <td></td><td>W2</td><td>2,000 Operating hours</td></tr> <tr> <td></td><td>W3</td><td>4,000 Operating hours</td></tr> <tr> <td></td><td>W4</td><td>16,000 Operating hours</td></tr> <tr> <td></td><td>W5</td><td>24,000 Operating hours</td></tr> <tr> <td></td><td>W6</td><td>48,000 Operating hours</td></tr> <tr> <td></td><td>Oil</td><td>2,000 Operating hours</td></tr> <tr> <td></td><td>Coolant</td><td>8,000 Operating hours</td></tr> </tbody> </table>				Scheduled every:	Limit	Maintenance Echelon:	W1/1	72 Operating hours		W1/2	500 Operating hours		W1/3	1,000 Operating hours		W2	2,000 Operating hours		W3	4,000 Operating hours		W4	16,000 Operating hours		W5	24,000 Operating hours		W6	48,000 Operating hours		Oil	2,000 Operating hours		Coolant	8,000 Operating hours
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	Coolant	8,000 Operating hours																																	

One time service after the first 50 operating hours

On a new engine, after echelon W5 or after major overhaul W6

Attachments	Check tightness of securing screws and nuts
Valve Gear	Check clearance, adjust if necessary.
Engine Oil	Take sample and analyse. samples to be taken regularly. Oil change intervals to be scheduled according to the results of analysis (see actual fluid and lubricant specification)
Engine Operation	Check gas piping for leakages

Maintenance Echelon W1/1

Engine operation	Check running noises and vibrations.
Engine operation	Check engine room for gas smell
Engine operation	Check temperatures
Engine operation	Check pressures
Engine operation	Check engine and piping for leakage
Engine oil	Check level
Engine coolant (jacket water)	Check level in sight glass
Engine coolant (mixture coolant)	Check level in sight glass
Supervision system	Check function of control units

Maintenance Echelon W1/2

Ignition system	Check ignition voltage on secondary side while engine is running
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Maintenance Echelon W1/3	
Valve gear	Check clearances, adjust if necessary
Oil	
Oil change	Collect oil sample and test
Coolant	
Coolant change	Collect coolant sample and test
Maintenance Echelon W2	
Ignition System	Replace Spark Plugs
Maintenance Echelon W3	
Attachments	Check hoses and hose connections
Engine Oil Filter	Replace filter during oil change (oil change interval to be determined according to fluids and lubricant specification and sample results)
Gas Control Unit	Check gas piping for leakage, tighten if necessary
Air Filter	Check and replace if necessary
Maintenance Echelon W4	
Valve control	Dismantle and check rocker arm and valve bridge. Check roller, push rod and rocker arm bearing for wear and tear.
Exhaust gas turbo charger	Clean turbocharger and change rotary sealing kit (using ABB after-sales-service).
Gas Control Unit	Check membranes and springs of the gas pressure regulator (see manufacturers operation manual).
Cylinder heads	Replace
Engine	Check piston crowns (visual check).
Crankcase	Check honing pattern of cylinder liners.
Maintenance Echelon W5	
Pistons	Check, replace piston rings if necessary
Conrod bearing	Replace conrod bearing (big end)
Cylinder liner	Check, replace if necessary.
Camshaft	Check (visual check).
Gear train	Check installed gear wheels (visual check).
Maintenance Echelon W6	
Engine	Major Overhaul