

Queensland Floods Commission of Inquiry

Statement of Jonathan Christie Womersley

September 2011
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QUEENSLAND FLOODS
COMMISSION OF INQUIRY

STATEMENT OF JONATHAN (JON) CHRISTIE WOMERSLEY

I, **JONATHAN (JON) CHRISTIE WOMERSLEY**, of c/- [REDACTED], Brisbane in the State of Queensland, Director, Regulatory Practice, Operations, Environment and Natural Resource Regulation division, Department of Environment and Resource Management, make oath and state as follows:-

Requirement from Queensland Floods Commission of Inquiry

1. I have seen a copy of a letter dated 8 September 2011 from the Commissioner, Queensland Floods Commission of Inquiry (Commission) to me requiring a written statement under oath or affirmation, which is Attachment **JCW-01** (Requirement) and which details the topics my statement should cover.

Role

2. I am currently Director, Regulatory Practice, Operations Branch, Environment and Natural Resource Regulation Division, Operations and Environmental Regulator Business Group, Department of Environment and Resource Management (DERM); in which role I have responsibility for the review and preparation of guidance materials used externally and internally to the organisation for the administration of the *Environmental Protection Act 1994* (EP Act).
3. In my current position, I report directly to the General Manager, Operations Branch, Environment and Natural Resource Regulation Division, Operations and Environmental Regulator Business Group of DERM.
4. I have been employed by DERM, and its preceding units of government, in various senior roles, and in several parts of the state of Queensland for a period of more than 19 years.
5. I have variously and from time to time worked in the following roles:-
 - a. Director, Cultural Heritage [Department for Environment and Heritage (DEH)];
 - b. Director, Queensland National Parks and Wildlife Service (DEH);
 - c. Director, Conservation Strategy (DEH);
 - d. Regional Service Director, Far North Region (DEH); and
 - e. Regional Service Director, Central Region [Environmental Protection Agency (EPA)].

6. Since 1 October 2010 I have been on leave or acted in higher duties as follows;
- a. Leave – I was on leave for the following periods:-
 - 18 October 2010 to 19 October 2010
 - 27 December 2010 to 3 January 2011
 - 21 January 2011
 - 28 February 2011 to 29 April 2011
 - b. Higher Duties – I have not acted in a more senior position from 1 October 2010 to the date of this statement. However, I will be acting in the more senior position of General Manager, Operations branch, Environment and Natural Resource Regulation division, Operations and Environmental Regulator business unit during the period 19 September 2011 to 30 September 2011.

Qualifications

7. I am the holder of a Bachelor of Applied Science degree majoring in natural resource management from the University of Canberra (previously known as Canberra CAE), a Diploma in Agriculture from the University of Adelaide (previously known as Roseworthy Agricultural College), and a Diploma in Teaching from the University of South Australia (previously known as Adelaide Teachers College).
8. I confirm that I am not a lawyer, and that the following interpretation of the legislation referred to herein is my own.

Item 1: The types of environmentally relevant activity or activities (ERA) the Department of Environment and Resource Management (the Department) assesses and the types of ERAs that the Department devolves to local governments for assessment;

Environmentally Relevant Activities

9. The stated object of the EP Act, which is contained in section 3, is “to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development)”.
10. Environmentally relevant activities (ERAs) are activities that will, or have the potential to, release contaminants into the environment and may cause environmental harm. Section 18 of the EP Act defines four types of ERAs. These are:
 - a. an agricultural ERA as defined under section 75 of the Act (Chapter 4A ERA);
 - b. a mining activity as defined under section 147 of the Act (Chapter 5 ERA);
 - c. a chapter 5A activity as defined under section 309A of the Act (Chapter 5A ERA); and
 - d. another activity prescribed under section 19 of the Act as an ERA.

11. Chapter 4A ERAs are agricultural activities which involve the application of fertilisers on cane and cattle farms in key catchments affecting the Great Barrier Reef.
12. Chapter 5 ERAs are mining activities including exploration, extraction, rehabilitation and similar activities that are authorised under the *Mineral Resources Act 1989*.
13. Chapter 5A ERAs are petroleum and gas activities that are authorised under the *Petroleum Act 1923*, the *Petroleum and Gas (Production and Safety) Act 2004* and the *Petroleum (Submerged Lands) Act 1982*, and greenhouse gas storage activities authorised under the *Greenhouse Gas Storage Act 2009*.
14. Under section 19 a regulation may prescribe an activity, other than a Chapter 4A, 5 or 5A activity, as an ERA if the Governor in Council is satisfied that a contaminant will or may be released into the environment when the activity is carried out, and the release of the contaminant will or may cause environmental harm.
15. In addition to the ERAs defined under section 18, the EP Act also defines a Chapter 4 Activity as an ERA. Schedule 2 of the *Environmental Protection Regulation 2008* (the EP Regulations) prescribes a range of activities as ERAs for the purposes of Chapter 4 of the EP Act. Chapter 4 ERAs are generally industrial or commercial activities, (activities other than mining or petroleum or gas projects) and also include a limited number of intensive animal husbandry activities.
16. A Chapter 4 ERA requires development approval under the *Sustainable Planning Act 2009* (SPA).

Administering authorities

17. The administering authority under the EP Act (which is currently DERM but before March 2009 was other units of government) is responsible for the administration and enforcement of ERAs, except where the ERA has been devolved to local government.
18. The EP Act is administered through co-regulatory arrangements with local governments, and under delegation to the Department of Employment, Economic Development and Innovation (DEEDI). This is prescribed in Chapter 11 of the EP Act which provides for the administration and enforcement of ERAs under the EP Act to be:-
 - devolved by regulation to local government; or
 - delegated to local governments; or
 - delegated to other agencies, authorised persons or public service officers.

19. Local governments have been devolved the administration and enforcement of the EP Act in relation to particular Chapter 4 activities by the provisions of Chapter 7 of the EP Regulations, specifically section 101.
20. The local government that becomes responsible for the devolved activity will be the local government for the local government area where the activity is, or is to be, carried out.
21. Upon commencement of the regulation (the EP Regulations) devolving the administration and enforcement of the EP Act to the local government:-
 - a. a local government becomes the administering authority for the devolved matter;
 - b. a local government's chief executive officer becomes the administering executive for the devolved matter; and
 - c. the administration and enforcement of the devolved matter is a function of the local government to be performed by the local government for the area.
22. A local government may make a local law (not inconsistent with the EP Act) about any matter for which it is necessary or convenient to make provision for carrying out or giving effect to a devolved matter.

ERAs Assessed by DERM

23. DERM may, depending on the circumstances, assess any of the ERAs listed in Schedules 2, 5 and 6 of the EP Regulations.
24. Where an ERA that is ordinarily devolved to local government, is:-
 - a. an activity that includes an environmentally relevant activity administered by the State at the same place (section 108 of the EP Regulations);
 - b. carried out by a local government or an instrumentality of the state (section 106 of the EP Regulations); or
 - c. conducted as mobile and temporary activities across more than one local government area (section 107 of the EP Regulations),

DERM is the administering authority and therefore responsible for its assessment.

25. DERM assesses all Chapter 4A (agricultural) ERAs.
26. DERM assesses all Chapter 5 (mining) ERAs.
27. DERM assesses all Chapter 5A (petroleum and gas) ERAs.

ERAs Assessed by DEEDI

28. DEEDI holds a delegation from DERM to administer the provisions of the EP Act as they relate to the following ERAs in Schedule 2 of the EP Regulations:-

- a. ERA 2 – Intensive animal feedlotting; and
- b. ERA 3 – Pig keeping.

29. A copy of the delegation is at Attachment **JCW-02**.

30. Applications for development approvals relating to these ERAs are received, assessed and decided by DEEDI without reference to DERM pursuant to its delegated powers under s27A of the *Acts Interpretation Act 1954*.

ERAs Assessed by Local Governments

31. Section 101(a) of the EP Regulations devolves the following ERAs to local governments for administration:

- a. ERA 4 – Poultry farming
- b. ERA 6 – Asphalt manufacturing
- c. ERA 12 – Plastic product manufacturing
- d. ERA 17 – Abrasive blasting
- e. ERA 18 – Boilermaking or engineering
- f. ERA 19 – Metal forming
- g. ERA 21 - Motor vehicle workshop operation
- h. ERA 37 – Printing
- i. ERA 43 – Concrete batching

32. Section 101(b) of the EP Regulations devolves the following ERAs to local governments for administration when the ERA is conducted at a specified threshold:

- a. ERA 8 – Chemical storage [for storing 10m³ to 500 m³ of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3]
- b. ERA 20 – Metal recovery [for recovering less than 100t of metal in a day, or recovering without using a fragmentiser, 100t or more of metal in a day or 10,000t or more of metal in a year]
- c. ERA 38 – Surface coating [for anodising, electroplating, enamelling or galvanising using 1t to 100t of surface coating materials in a year; or coating, painting or powder coating using 1t to 100t of surface coating materials in a year]

- d. ERA 48 – Wooden and laminated product manufacturing
[for manufacturing 100t or more of wooden products in a year]
- e. ERA 49 – Boat maintenance or repair
[but only to the extent the activity is, or is to be, carried out at a boat maintenance or repair facility]
- f. ERA 61 – Waste incineration and thermal treatment
[for incinerating waste vegetation, clean paper or cardboard]

Item 2: The process undertaken by the Department when assessing a development application for an ERA proposed to be undertaken on land subject to flooding;

Assessment Processes

- 33. Notwithstanding the broad interpretation given to the term ERA under the EP Act and the various applications that can be made under that Act, I have interpreted this question as referring to a development application that is made for an ERA that is regulated under Chapter 4 of the EP Act.
- 34. The interpretation of the term “development application” applied by DERM is an application made under the IDAS procedures of SPA for an approval in relation to a Chapter 4 ERA.
- 35. The process undertaken by DERM in assessing development applications for a Chapter 4 ERA follows the requirements set out in SPA and the EP Act.
- 36. In a limited number of circumstances DERM may be a contributor as an advice agency to the environmental impact assessment of a State Significant Project declared under the provisions of the *State Development and Public Works Organisation Act 1971*.
- 37. Where the project being assessed includes ERAs that will subsequently be assessed under SPA and the EP Act, the assessment by the Coordinator-General must be taken into account in deciding a development approval.

Sustainable Planning Act 2009

- 38. A development approval is required for activities that are classed as assessable development under SPA. A development application for a Chapter 4 ERA is defined to be assessable development under Schedule 3 of the SP Regulations.
- 39. DERM generally receives applications made under the Integrated Development Assessment System (IDAS) set out in SPA as a referral agency.

40. Applications are received through a single point of receipt, where they are checked to ensure that they are validly made applications before being sent to the relevant regional service delivery area for assessment and decision. Applications for development approvals relating to Chapter 4 ERAs are generally assessed by officers in a regional office close to the location of the proposed development. DERM's Information Sheet (JCW-03) sets out the information to be provided with an application for a development approval for an ERA.
41. DERM as a referral agency will assess an application that involves a Chapter 4 ERA and provide an integrated concurrence agency response to the assessment manager. While DERM has a number of jurisdictions under which it must assess an application, it is the jurisdiction under the EP Act that relates to the assessment of an application involving one or more Chapter 4 ERAs. DERM is a concurrence agency for the purposes of exercising this jurisdiction.
42. DERM must to the extent relevant to the development and within the limits of its jurisdiction, assess the application having regard to the matters set out in SPA, an extract of which is Attachment JCW-04.
43. DERM will be the assessment manager, as distinct from a referral agency, when the development to be carried out involves one or more ERAs that are not triggered for assessment by the relevant local government planning scheme. Examples may include ERAs carried out by local governments where the ERA is the only assessable development, mobile and temporary ERAs carried out across more than one local government area and developments involving ERA 16, - Extraction and Screening or ERA 50 – Bulk Materials Handling.
44. In these circumstances, as assessment manager, DERM will assess the part of the application that is relevant to its jurisdiction and is code assessable. For the purposes of assessing a development involving a Chapter 4 ERA the relevant code is the EP Act.
45. SPA, an extract of which is Attachment JCW-05, sets out the matters that must be considered by DERM when assessing a development application for a Chapter 4 ERA as the assessment manager.

Environmental Protection Act 1994

46. The requirements for assessing an application for development approval of an ERA are set out in Chapter 4 of the EP Act.
47. If the development application is:-
 - a. for a Chapter 4 ERA listed in Schedule 2 of the EP Regulations; and
 - b. not devolved to local government or delegated to DEEDI; and
 - c. made under the IDAS provisions of SPA,

DERM follows the requirements set out in SPA, and in providing its concurrence requirements follows the requirements of the EP Act.

48. In assessing a development application for a Chapter 4 ERA, DERM must comply with any regulatory requirements, and subject to the regulatory requirements, must also consider the standard criteria and any additional information given in relation to the application.
49. In addition if the application is for an increase in the scale or intensity of a Chapter 4 ERA, the administering authority must assess the application in regard to:
 - a. the proposed activity;
 - b. its relation to the existing activity; and
 - c. the total likely potential environmental harm the activity may cause.

Regulatory Requirements

50. The regulatory requirements are set out in Chapter 4 of the EP Regulations. The regulatory requirements apply to the making of environmental management decisions, which are simply decisions under the EP Act in the making of which the administering authority is required to comply with the regulatory requirements.
51. Chapter 4 of the EP Regulations includes the general regulatory requirements to be considered, as well as certain defined matters that relate to the impacts of carrying out an ERA, which must be considered by the administering authority.
52. The administering authority must consider whether to impose conditions about the matters listed in section 52 of the EP Regulations, which is Attachment **JCW-06**.
53. The administering authority must also consider whether to impose conditions about monitoring the release of contaminants to the environment. Section 53 of the EP Regulations states the matters to be taken into consideration by the administering authority when making such a determination, which is Attachment **JCW-07**. The administering authority has wide scope in framing the specific requirements of a monitoring condition.
54. Chapter 4, Part 3 of the EP Regulations, which is Attachment **JCW-08**, contains additional regulatory requirements for particular environmental management decisions. These requirements follow a similar form to the general requirements, setting out matters that the administering authority must consider in making an environmental management decision about a particular activity, and conditions that the administering authority must consider imposing.
55. The following specific activities have additional regulatory requirements which are detailed in Chapter 4, Part 3 of the EP Regulations. These additional requirements must be complied with by the administering authority in addition to the provisions contained in Chapter 4, Part 2 of the EP Regulations.

- a. Release of water or waste to land;
 - b. Release of water, other than stormwater, to surface water;
 - c. Release of stormwater;
 - d. Release of water or waste to particular wetlands for treatment;
 - e. Activity involving berthing, docking or mooring a boat;
 - f. Activity involving storing or moving bulk material;
 - g. Activity involving acid sulphate soil;
 - h. Activity involving acid-producing rock;
 - i. Activity involving the direct release of waste to groundwater; and
 - j. Activity involving indirect release of contaminants to groundwater.
56. When assessing an application for development approval in relation to a Chapter 4 ERA that involves the release of water or waste to land, the administering authority must consider the topography of the land where the activity is to be undertaken including any flooding potential associated with the land. Apart from the requirements of section 73AA of the EP Act which relates to development in relation to Wild River Areas, this is the only specific reference to the term “flooding”, of which I am aware of, contained in the EP Act and EP Regulations that directs the administering authority to give consideration to this matter in the assessment process.
57. To the best of my knowledge there are no specific examples given in the explanatory notes to the EP Regulations, of the kinds of releases of water or waste to land in relation to section 55. However from my practical experience of ERAs, section 55 may, depending on the circumstances and the way in which an activity is conducted, apply to a development application for waste disposal facilities, sewage treatment plants with areas used to irrigate treated sewage effluent, and the land application of treated waste in the form of liquids and sludge from meat processing and tanning activities.

Standard Criteria

58. Having considered the regulatory requirements the administering authority must also consider the “standard criteria” which is a term defined in Schedule 4 of the EP Act. The standard criteria are defined to be as follows:-
- a. *the principles of ecologically sustainable development as set out in the ‘National Strategy for Ecologically Sustainable Development’; and*
 - b. *any applicable environmental protection policy; and*
 - c. *any applicable Commonwealth, State or local government plans, standards, agreements or requirements; and*
 - d. *any applicable environmental impact study, assessment or report;*
 - e. *the character, resilience and values of the receiving environment;*
 - f. *all submissions made by the applicant and submitters; and*

- g. *the best practice environmental management for activities under any relevant instrument, or proposed instrument, as follows—*
 - (i) *an environmental authority;*
 - (ii) *a transitional environmental program;*
 - (iii) *an environmental protection order;*
 - (iv) *a disposal permit;*
 - (v) *a development approval; and*
- h. *the financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out, under the instrument; and*
- i. *the public interest; and*
- j. *any applicable site management plan; and*
- k. *any relevant integrated environmental management system or proposed integrated environmental management system; and*
- l. *any other matter prescribed under a regulation.*

59. While there may be elements of the standard criteria that could relate to land that is subject to flooding, there are no specific requirements.

60. One aspect of the standard criteria where consideration may be given to impacts that could arise from an activity to be undertaken on land that is subject to flooding is through the consideration of standard criteria (c) *any applicable Commonwealth, State or local government plans, standards, agreements or requirements*. Where the State or a local government has prepared a formal plan that describes the land that is subject to flooding, and prescribes particular actions that must be taken in respect of decisions about activities that may be located on that land, its content could be considered by the administering authority when making a decision that required it to consider the standard criteria.

61. Another way such impacts may be taken into consideration is standard criteria (d) *any applicable environmental impact study, assessment or report*. Where an environmental impact study has been undertaken, and the terms of reference for the study required the impact of an activity on land subject to flooding to be assessed. The findings and recommendations of that study could be considered by the administering authority when making a decision that required it to consider the standard criteria.

Wild River Areas

62. There are special provisions contained in Section 73AA of the EP Act relating to development applications for Chapter 4 ERAs that are proposed to be located in a declared Wild River Area. Wild River Areas are declared under the *Wild Rivers Act 2005* (the Wild Rivers Act), and parts of a Wild River Area may be declared to be a wild river high preservation area, a floodplain management area or a special floodplain management area.

63. Section 73AA of the EP Act excludes prohibited development from consideration, and requires that a decision of an assessment manager and a concurrence agency must comply with the code mentioned in a relevant wild rivers declaration. Prohibited development is defined in Schedule 3 of SPA and generally means development mentioned in Schedule 1 of SPA.
64. Schedule 1 of SPA prohibits an extraction ERA in waters in a wild river area unless the application is accompanied by an allocation notice.
65. Schedule 1 of SPA also prohibits ERAs in wild river high preservation areas or wild river special floodplain management areas other than for the following:-
- a. a sewage ERA;
 - b. a water treatment ERA;
 - c. a dredging ERA;
 - d. an extraction ERA, if the activity is a low impact activity carried out outside waters and is for specified works, or residential complexes, or another commercial, industrial or residential purpose in a designated urban area, in the area;
 - e. a screening ERA, if the activity is carried out outside waters and is for specified works, or residential complexes, in the area;
 - f. a crude oil or petroleum product storage ERA, if the activity is for residential complexes in the area and is carried out outside a designated urban area; and
 - g. an exempt ERA as defined in s73AA (4) of the EP Act in a designated urban area.
66. An extraction ERA is also prohibited in a wild river flood plain management area, other than if the activity is a low impact activity carried out outside waters and is for specified works, residential complexes, or industrial or residential purposes in a designated urban area, in the area.
67. Where an application, other than an application for a sewage ERA, water treatment ERA, or an exempt environmentally relevant activity, in a designated urban area is in a wild river high preservation area, the administering authority's decision must comply with the applicable code mentioned in the wild river declaration for the area.
68. For applications that are a sewage ERA, water treatment ERA, or an exempt environmentally relevant activity, in a designated urban area in a wild river high preservation area, the administering authority and any concurrence agency must be satisfied there is no viable location for the development outside the wild river high preservation area.
69. The provisions of the EP Act, SPA and the Wild Rivers Act in relation to wild river areas and special floodplain management areas is one of the few specific references to the term "floodplain" in the context of the criteria that are applied in

the assessment process. The definition for “floodplain” is found in the Wild Rivers Act as follows:-

“Floodplain” means an area of relatively flat land:-

- a. next to a drainage channel; and*
- b. covered by water when water overflows from the drainage channel.*

State Development and Public Works Organisation Act 1971

70. The Coordinator-General, under the *State Development and Public Works Organisation Act 1971* (SDPWO), (which is administered by DEEDI), may declare a particular project to be of State Significance, and as a consequence the project is subject to the environmental impact assessment process set out in SDPWO.
71. DERM is, in this process, an advice agency to the Coordinator-General, and provides that advice in relation to both the terms of reference for the environmental impact assessment and the preparation of the report on the assessment of the environmental impact statement produced by the project proponent.
72. Where projects involve land that may be subject to flooding, the terms of reference will generally require the environmental impact assessment to deal with the risks and consequences of flooding.
73. The report on the assessment of the environmental impact assessment by the Coordinator-General sets conditions for the state’s approval of the project. These conditions must be applied by the relevant administering authority under the EP Act when making its statutory decisions about an ERA that is involved in the project. This requirement does not prevent DERM from including additional conditions within a development approval for an ERA provided they are not inconsistent with the Coordinator-General’s conditions.

Additional Comments

74. It is my observation that the EP Act gives the administering authority limited direction as to whether or how it should assess development applications for Chapter 4 ERAs that are proposed to be undertaken on land that is subject to flooding.
75. It is my observation that where the EP Act makes reference to the consideration of impacts that may arise from Chapter 4 ERAs proposed to be undertaken on land that is subject to flooding, it does so in a way that does not prescribe any specific tests or criteria relating to the acceptability or otherwise of any impacts. That is a judgement left to the administering authority having considered the matters it is required to consider within the scope and purpose of the EP Act.
76. It is my observation that information about the location of land subject to flooding and the characteristics of likely flooding events and the consequences of

those events is not readily available, and must be requested of applicants for development approvals after an application is made. Section 276 of SPA authorises the assessment manager and each concurrence agency to ask the applicant, by way of a written request (“information request”), to give further information needed to assess the application.

77. It is my observation that when such information is provided, it is difficult to evaluate in the context of an application for development approval, because the primary decision about the appropriateness of the use of land is made, not by the administering authority, but by the relevant local government in its capacity as the planning authority. Further it is my understanding that the decisions about the appropriate use of land for a particular purpose are generally the responsibility of local governments as they administer the planning provisions of SPA. At best the information becomes the basis for the administering authority to condition a development approval for the Chapter 4 ERA to mitigate any potential environmental consequences of the activity arising from a flood event.
78. There is an expectation that when considering a development application for a Chapter 4 ERA, the primary question of whether the land on which the activity is to be operated is suitable for that purpose and is appropriately classified under the planning scheme for the local government area, is one for the local government in its capacity as the assessment manager under SPA.

Item 3: The criteria for assessment of ERAs that local governments must use when deciding an application for an ERA;

79. I have interpreted this question as applying to the criteria that local governments must use in deciding a development application for a Chapter 4 ERA, the administration of which has been devolved to local governments.
80. Under the EP Act where the administration and enforcement of a matter has been devolved to local government the administering authority is the local government.
81. When acting as the administering authority under the EP Act local governments are required to follow the same decision making construction as DERM. Accordingly the criteria are the same as those that have been described in my response to Question 2.
82. Under Chapter 11 of the EP Act a local government may make a local law (not inconsistent with the EP Act) about any matter for which it is necessary or convenient to make provision for carrying out or giving effect to a devolved matter.
83. The local government would be unable to make a local law that would alter the decision making construction under the EP Act.

Item 4: Whether, and how, the risk of flooding is taken into account by the Department when assessing a development application for an ERA proposed to be undertaken on land subject to flooding, including whether the Department

seeks advice or information from any other Queensland government department, local government or agency;

84. DERM provides no specific guidance to officers assessing an application for development approval for a Chapter 4 ERA on land that is subject to flooding, on how that assessment should be made or what weight should be given to the consideration of this characteristic of the land as against the other considerations that an assessing officer must give to the regulatory requirements and the standard criteria.
85. DERM uses a proforma, which was prepared sometime in 2007, for preparing an assessment report for an application for development approval of a Chapter 4 ERA, a copy of which is Attachment **JCW-09**.
86. Action is currently underway to revise the proforma. It is my understanding that a revised proforma will be available and communicated to all assessment officers by the 30 September 2011.
87. In assessing a development application for a Chapter 4 ERA, and notwithstanding the fact that there are limited statutory requirements or administrative guidance, an assessing officer has wide scope to consider the environmental consequences of that activity through consideration of the provisions of the standard criteria relating to the character, resilience and values of the receiving environment.
88. When taking advice on matters relating to land subject to flooding, an assessing officer is able to access expert advice from the Environment and Resource Science division of DERM on flood modelling and its interpretation. If not available from this source the Environment and Resource Science division will facilitate the provision of advice through a standing offer arrangement with relevant commercial expertise.
89. In reviewing the examples of development applications for Chapter 4 ERAs that I have been asked to supply, it is apparent that there are substantial inconsistencies in approach taken in the assessment of these applications. Some of these inconsistencies are related to the period in which the assessment was undertaken, others relate to the scope of the matters that the assessing officers have reviewed.

Item 5: In responding to item 4, Mr Womersley is to provide examples of ERA assessments conducted by the Department on properties which are located on land at risk from flooding in the following council areas: Brisbane City Council, Ipswich City Council, Central Highlands Regional Council and Bundaberg Regional council;

90. I have provided the following examples of assessments conducted by the Department of Environment and Resource Management that involved developments on land at risk of flooding.
91. I have not personally been involved in making the assessments or deciding any of these matters.

92. Copies of the assessment reports and the concurrence conditions or development approvals issued are appended.

Brisbane City Council

93. The following documents have been provided in relation to Brisbane City Council, which is Attachment **JCW-10**:
- a. Assessment report and concurrence agency response for ERA 16 – Extractive and screening activities issued on 16 October 2010.
 - b. Assessment report and concurrence agency response for ERA 7 – Chemical manufacturing (fertiliser) issued on 10 November 2010.
 - c. Assessment report and concurrence agency response for ERA 7 – Chemical manufacturing (paint) issued on 19 October 2010.

Ipswich City Council

94. The following documents have been provided in relation to Ipswich City Council, which is Attachment **JCW-11**:
- a. Assessment report and concurrence agency response for ERA 63 – Sewage treatment and ERA 8 – Chemical storage issued on 23 December 2010.
 - b. Assessment report and concurrence agency response for ERA 63 – Sewage treatment (pumping station) issued on 1 September 2011.

Central Highlands Regional Council

95. The following documents have been provided in relation to Central Highlands Regional Council, which is Attachment **JCW-12**:
- a. Assessment report and Integrated Authority for ERAs covering municipal water treatment, sewage treatment, animal housing, motor vehicle workshop and waste transfer station issued on 30 September 2003.
 - b. Assessment report and concurrence response for ERA 11(b) – Crude oil or petroleum product storing issued on 2 September 2008.

Bundaberg Regional Council

96. The following documents have been provided in relation to Bundaberg Regional Council, which is Attachment **JCW-13**:
- a. Assessment report and concurrence agency response for ERAs covering Crude oil or petroleum product storing, extraction, screening, and motor vehicle workshop issued on 17 July 2006.
 - b. Assessment report and concurrence agency response for ERA 63 – Sewage treatment (pumping station) issued on 2 September 2011.

Other Documents

97. I have also provided an example of an environmental impact assessment conducted by the Coordinator-General under the provisions of the SDPWO, for which DERM was an advisory agency, which is Attachment **JCW-14**.

I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act 1867*.

Signed 
Jonathan (Jon) Christie Womersley

Taken and declared before me, at Brisbane this 19th day of September 2011


.....
Solicitor/Barrister/Justice of the
Peace/Commissioner for Declarations

Department of Environment and Resource Management (DERM) Final Comments on the Environmental Impact Statement for the North East Business Park: May '09

<i>Issue</i>	<i>Comment/ Recommendation</i>
<p>Terrestrial Ecology & Biodiversity Offsets</p>	<p>Comments</p> <p>The western portion of the site (Lot 2 on SP169551 but referred to as Lot 2 on RP902075 in the EIS) is currently vegetated and provides a significant corridor width (averaging between 150m in the south and 350m in the north). Within the lot, the 15.5ha of endangered regional ecosystem (RE) 12.5.3, described as <i>Eucalyptus tindaliae</i> and/or <i>E. racemosa</i> open forest, (identified as 'Scribbly Gum Shrubby Open Forest' Community 11 in Figure 16) is of state biodiversity significance in the DERM's Biodiversity Planning Assessment (BPA v. 3.5) and a high conservation value community that is poorly represented in the sub-region and adjacent to a waterway or important wetland. It is identified as core habitat for koala, <i>Phascolarctos cinereus</i>, (listed as vulnerable under the <i>Nature Conservation Act 1992</i>) in the SEQ Threatened Species' Habitat layer and provides habitat for large and small ground-dwelling mammals (Terrestrial Ecology Assessment Report, p. 19).</p> <p>Most of the 12.6ha of 'Regenerating Paperbark Forest' (identified as Vegetation Community 12 in Figure 16) is identified as a 51-80% referable wetland (RE 12.3.11/12.3.5/12.9-10.3/12.3.14) and eventually could be rehabilitated to remnant regional ecosystem status. This wetland community is not currently mapped as remnant vegetation.</p> <p>The community bisecting RE 12.5.3 (described as community 2, paperbark open forest in Figure 16) is mapped as RE 12.3.5, <i>Melaleuca quinquenervia</i> open-forest to woodland, is described under the VMA as 'not of concern' but 'of concern' under the BPA. It is mapped as of regional biodiversity significance; acts as a buffer to the adjacent endangered RE; supports core threatened species' habitat for the acid frog <i>Crinia tinnula</i> and non-core for the acid frogs, <i>Litoria freycineti</i> and <i>Litoria olongburensis</i>, as well as non-core habitat for koala; and corresponds to a palustrine referable wetland designation.</p> <p>However, some 79% of 'Community 11, and 100% of the adjacent Community 12 is proposed to be cleared. As the NEBP site comprises ~769ha, of which 78 % is already cleared, there is sufficient area for development on the already cleared areas and the DERM does not accept that these remnant ecologically sensitive vegetation communities need to be cleared. Similarly, no mention has been made of the 'core threatened species' habitat designation over most of this corridor for the Koala and Wallum Froglet (both listed as 'vulnerable' under the <i>Nature Conservation (Wildlife) Regulation 2006</i>). A proposed management intent for vulnerable wildlife under Section 19 of the <i>Nature Conservation (Wildlife) Regulation 2006</i> is: (j) to monitor and review environmental impact procedures to ensure they—</p> <p>(i) accurately assess the extent of the impact, on the wildlife, of the activities to which the procedures relate; and</p> <p>(ii) provide for effective measures to mitigate any adverse impact of the activities on the wildlife; and</p>

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	<p data-bbox="510 193 2163 260"><i>(iii) If there is an adverse impact of the activities on an area in which the wildlife normally lives, provide for the enhancement of other areas where the wildlife normally lives.</i></p> <p data-bbox="510 268 2107 331">In its current form, the proposal is not compliant with outcomes of the Caboolture Shire Plan’s Nature Conservation Overlay Code SO1 to SO5.</p> <p data-bbox="510 379 2085 520">Although the NEBP proposal includes rehabilitation and revegetation of the Caboolture River riparian zone to increase the ‘ecological values and functions of the degraded habitats that currently exist,’ it is counter-intuitive to propose substantial restoration works of a major riparian corridor that currently is largely cleared whilst dismissing rehabilitation of an already regenerating paperbark forest (identified as Community 12) that would require significantly less work.</p> <p data-bbox="510 563 2163 627">It is noted that much of the area currently proposed to be set aside for open space and ecological rehabilitation is flood prone and unsuitable for development anyway.</p> <p data-bbox="510 675 2130 778">Lot 2 on SP 169551 in its entirety provides contiguity between the communities of most interest; a north-south corridor; scenic amenity; and a noise and visual buffer to the Bruce Highway (M1). It should not be cleared: rather it should be rehabilitated to enhance its habitat values and protected, e.g. via an open space designation and an enduring management regime.</p> <p data-bbox="510 826 2096 922">Corridor width is an important determinant in wildlife use with studies indicating that increasing width reduces the negative impacts associated with edge effects, such as pest species’ invasion and noise and light impacts from adjacent industrial or residential development, or as in this case, the M1. Width also is important given its length of ~1.2km.</p> <p data-bbox="510 970 2163 1110">Provision of fauna under and over-passes at the NEBP entrance road would re-establish connectivity with the Caboolture River and proposed riparian revegetation. Design objectives should be informed by Policy 1 Koala sensitive development of the <i>Nature Conservation (Koala) Conservation Plan 2006</i> and Fauna Sensitive Road Design (Volume 1) available from the Department of Transport and Main Roads.</p> <p data-bbox="510 1158 2141 1254">The proposed offset, which is located near Rosewood in Ipswich City, would protect a completely different regional ecosystem and may not provide equivalent habitat for the Koala. An environmental offset is required to address identical environmental values as those being impacted (i.e. a koala habitat offset should be found for the loss of koala essential habitat).</p>

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	<p>The establishment of an environmental trust fund to be administered by an environmental group (Net Benefit Assessment, p.67) would require a rehabilitation management plan not only of the site impacted, but also for any offset sites. Such plans should indicate the extent of impacts or degradation, works proposed, methods to be adopted and management regimes, including base cases, monitoring and reporting, performance criteria etc. for all such sites. Revegetation should use native species that reflect the pre-clearing regional ecosystems at each, with preference given to locally sourced, endemic species. The plan for the site of the development also should include erosion/restoration work referred to above.</p> <p>SEQ Regional Plan Despite the designation of part of the site as ‘urban footprint’ in the SEQ Regional Plan 2005-2026 (and similarly in the draft 2009-2031), not all areas in the footprint are intended to be developed for urban purposes: some areas may be constrained, e.g. because of their biodiversity values.</p> <p>Desired Regional Outcome (DRO) 2 ‘Natural environment’ under Policy 2.1.1 seeks to <i>‘protect, manage and enhance the region’s nature conservation and biodiversity values and supporting ecological processes, including areas of state, regional and local significance’</i>. Policy 2.1.4 seeks to <i>“avoid or mitigate potential adverse impacts in areas of state, regional or local biodiversity significance inside the Urban Footprint...”</i> Policy 2.5.3 states: <i>‘Avoid clearing native vegetation or development within a waterway, wetland, riparian area or floodplain...’</i> The notes state that: <i>‘Development within watercourses, wetlands, riparian areas and floodplains should be restricted unless there is a demonstrated overriding need in the public interest.’</i></p> <p>Caboolture Shire Plan 2005 The Caboolture Shire Plan 2005 zones part of the area ‘District Industry’ and the land use is classed as ‘Industrial light/medium’ - as is most of the land east of the M1. Notwithstanding this designation, the entire area is mapped under the planning scheme’s Nature Conservation Overlay as containing state and regional nature conservation significance (including a 20m buffer around Lot 2 on SP169551). S1.2 of the Nature Conservation Overlay Code states that: <i>‘Significant Vegetation, Wetlands, habitats for endangered, vulnerable and rare species within nature conservation areas and ecological corridors indicated on the overlay map, are not disturbed’</i>.</p> <p>An area marked as ‘Wetland Protection Area’ is identified under the Catchment Protection Overlay Code and is analogous to RE 12.3.5 and the southern section of RE 12.5.3. S4.1 (b) of the Code states that development is setback <i>“At least one hundred (100) metres to Wetland Protection Areas”</i>. Additionally, a minor waterway is identified within this area requiring a 40m buffer to</p>

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	<p>development.</p> <p>It is also noted that the parcel is mapped as ‘medium bushfire hazard’ under the Bushfire Hazard Overlay. The planning scheme code and the <i>State Planning Policy 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide</i> state that development that increases the number of people living or working in a natural hazard management area, or that involves the manufacture or storage of hazardous material in bulk, is not to be located in a medium bushfire hazard area. However, the intention to clear would negate the requirement.</p> <p>Recommendation:</p> <p>Any approval by the Coordinator-General for the project require:</p> <ul style="list-style-type: none"> • Amendment of the site plan to retain, protect and enhance the vegetation communities and associated threatened species’ habitat on Lot 2, which in its entirety provides a north-south corridor; scenic amenity; and a noise and visual buffer to the Bruce Highway (M1). It should not be cleared: rather it should be rehabilitated to enhance its habitat values and protected, e.g. via an open space designation and an enduring management regime; • Amendment of the plan to incorporate fauna infrastructure (over and under-passes). Such infrastructure at the NEBP entrance road would re-establish connectivity with the Caboolture River and proposed riparian revegetation. Design objectives should be informed by Policy 1 Koala Sensitive Development of the <i>Nature Conservation (Koala) Conservation Plan 2006</i>; • Should clearing occur, any offsets to accord with the Queensland Environmental Offsets Policy 2008. The proponent should be required to identify vegetation offsets that are more representative of the vegetation types being cleared; • Preparation of environmental management plan (EMP) elements to address revegetation and rehabilitation for the development area and any offset site(s) elsewhere. The EMP revegetation element for the NEBP site should include rehabilitation works in the 100 metre wide riparian zone; • The EMP revegetation elements to be approved by the DERM prior to commencement of any development works for NEBP; • All site rehabilitation work to be undertaken/managed by suitably qualified personnel and in accordance with the EMP;

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	<ul style="list-style-type: none"> Any vegetation clearing to accord with procedures of Policy 6, Vegetation clearing practices, of the <i>Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016</i>. Clearing of koala habitat trees must be performed sequentially and in the presence of a qualified koala spotter.
<p>Dredging in the MBMP (Caboolture River);</p> <p>Public benefit test for designating a works area.</p>	<p>Dredging in Moreton Bay Marine Park Developmental dredging of a new navigation channel in the Caboolture River is, by definition, a ‘major work’ under the <i>Moreton Bay Marine Park Zoning Plan 2009</i> and can be undertaken only in a designated works area. As no such area exists, it is necessary to amend the plan, a prerequisite for which is demonstration of a public benefit, which may include the provision of facilities for use by the public. For the public benefit, it must be identifiable and the benefit must go to the public or a section of the public.</p> <p>The EIS was able to demonstrate minor direct public benefit, viz. improved navigability in the river, on which the viability of the development of the marina is dependent. In turn, the marina is expected to provide jobs and generate economic activities. It was unable to demonstrate that dredging was necessary for the provision of facilities for use by the public, although the proponent indicated a willingness to provide facilities for the public to access the River.</p> <p>Public Benefit - Demonstrated public benefit of dredging in a marine park Three designated works areas have been created in the Moreton Bay Marine Park since it commenced in 1997. These areas cover Toondah Harbour, Weinam Creek and the duplication of the Houghton Highway. The major works undertaken in these areas provide significant transport links, public ferry terminals and public facilities. It is clear that this development falls in a different class, being primarily to provide facilities for private use.</p> <p>Although the NEBP dredging is different in nature to the previously designated three works areas, an assessment of the necessity for the activity for public benefit considers social, environmental and financial aspects of the proposal. The justification in the EIS covered some aspects, such as improved navigable access and safety for the general boating community, and job creation.</p> <p>The public benefit was also weighed against potential environmental impacts from the dredging, in particular influence on <i>Lyngbya majuscula</i> (Lyngbya), changes to tidal prism, and effects of changes at river mouth. It would seem that these matters can be addressed through adherence to relevant legislation and policies (e.g. SEQ Regional Coastal Management Plan policy on algal blooms) and development and implementation of environmental management plan required to undertake the dredging activity.</p>

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	<p>The net benefit under the State and regional coastal management plans was also considered.</p> <p>Conclusion:</p> <p>As outlined already, the proposal is clearly different in the provision of public benefits or facilities for the public when compared to the three existing works areas in the marine park. However, in considering the public benefit of undertaking the dredging, the broader benefits of the development, which is reliant upon the dredging activity, were taken into account. In this context, the information submitted by the proponent on public benefit, i.e. that improved navigation and maritime safety and increased economic activity, such as the creation of employment would be achieved, was sufficient to satisfy the DERM that dredging in the Caboolture River to support the NEBP’s marina provides an identifiable benefit for a section of the public. This view also balanced these benefits against the management and mitigation measures (such as an environmental management plan for dredging, including Lyngbya) to be implemented to minimise and manage environmental impacts as a requirement of undertaking the dredging.</p> <p>Recommendation</p> <p>It is recommended that the Coordinator-General:</p> <ul style="list-style-type: none"> • Note the public benefit associated with the proposal is sufficient to justify designating a works area • Note that the public benefit determination is based on the expectation that potential impacts from dredging will be addressed through a comprehensive EMP to mitigate and manage environmental impacts (see next section) • Require the proponent to develop a component of the dredging activities EMP to address the SEQ RCMP policy on algal blooms, particularly in relation to the prevention of Lyngbya outbreaks.
<p>Dredging in the MBMP (Caboolture River);</p> <p>Net gain of coastal resources and values.</p>	<p>Net gain of coastal resources and values:</p> <p>The <i>SEQ Regional Coastal Management Plan 2006</i> (SEQRCMP) defines coastal resources and the coastal zone as follows:</p> <ul style="list-style-type: none"> – coastal resources are the <u>natural</u> (natural and physical features and processes of the coastal zone, including wildlife, soil, water, minerals and air); and <u>cultural</u> (places or objects that have anthropological, archaeological, historical, scientific, spiritual, visual or sociological significance or value, including such significance or value under Aboriginal tradition or Island custom). (S12 and schedule of the <i>Coastal Protection and Management Act 1995</i>.) – Coastal zone includes all coastal waters and all areas to the landward side of coastal waters in which there are physical features, ecological or natural processes or human activities that affect, or potentially affect, the coast or coastal resources.

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	<p data-bbox="607 193 1290 225"><i>(S15 Coastal Protection and Management Act 1995.)</i></p> <p data-bbox="510 276 2159 379">Coastal development under the provisions of the SEQRCMP (s 2.1.3 Coastal-dependent land uses and 2.1.4 Canals and dry land marinas) needs to satisfy the test of ‘net gain of coastal resources and values.’ To convince DERM that the test has been met it is necessary for the proponent to:</p> <ul style="list-style-type: none"> <li data-bbox="589 395 2159 592">(a) Define all the qualitative and quantitative coastal resources and values (natural and cultural) of the following: <ul style="list-style-type: none"> <li data-bbox="663 440 2159 507">(i) Impacted areas (i.e. the proposed entrance channel; marina precinct areas and all other areas within the Coastal Management District likely to be impacted on by the development); and <li data-bbox="663 520 2159 592">(ii) The existing areas that are intended to receive a gain in coastal resources and values, detailing the existing coastal resources and values, prior to the project proceeding; and <li data-bbox="589 604 2159 671">(b) Justify/demonstrate/quantify how/what/where there will be a consequential net gain of coastal resources and values for a development project. To demonstrate there will be a net gain of coastal resources and values it is necessary to provide detailed supporting information that there will be: <ul style="list-style-type: none"> <li data-bbox="663 767 1357 887">(i) No net loss in the: <ul style="list-style-type: none"> <li data-bbox="741 812 1357 844">➤ Natural resources of the coastal zone; and <li data-bbox="741 857 1357 887">➤ Cultural resources of the coastal zone; and <li data-bbox="663 900 1330 1019">(ii) A net gain in at least one of the following: <ul style="list-style-type: none"> <li data-bbox="741 944 1330 976">➤ Natural resources of the coastal zone; or <li data-bbox="741 989 1301 1019">➤ Cultural resources of the coastal zone. <li data-bbox="589 1032 2159 1232">(c) Fully detail plans/strategies/measures to ensure a net gain of coastal resources and values, as required in (a)(ii) above, showing how such measures would be implemented/achieved/reported, including: <ul style="list-style-type: none"> <li data-bbox="663 1118 2092 1185">(i) Specific objectives and measurable outcomes, performance targets, timeframes, monitoring programs and reporting arrangements; and <li data-bbox="663 1198 1783 1232">(ii) Assurances and contingency arrangements to ensure outcomes will be met in full.

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	<p>Measures to mitigate impacts arising from or as a consequence of the development and/or its operation should not be claimed as a gain of a coastal resource, other than to the extent they mitigate impacts occurring from existing development.</p> <p>The cost benefit analysis submitted to satisfy the test contains multiple flaws and inconsistencies, e.g.:</p> <ul style="list-style-type: none"> (a) All positive impacts (+1) and all negative impacts (-1) are equally weighted; (b) Negative impacts to coastal values (such as habitat loss) are given 0 values in several instances without explanation; (c) Several potential negative impacts are not taken into account; (d) Stormwater treatment measures proposed as a consequence of the development should not be given a positive value, as they are only mitigating new impacts; (e) Inconsistencies in the weighting for apparently similar activities, e.g. impacts on shorebirds are positive whereas on benthic fauna, they are neutral; (f) Monitoring activities do not of themselves lead to a positive increase in coastal resources and values, even if they are an integral part of any environmental management regime; (g) Proposed rehabilitation of river banks is used to address multiple criteria and thus skews the results; (h) There are additional negative impacts associated with dredging in the Caboolture River that have not been included e.g. loss of habitat for benthic communities; and (i) Some examples of Table 1 inadequacies/inaccuracies follow: <ul style="list-style-type: none"> ○ Coastal terrestrial / riparian habitat has not taken into account the (potential) impact of the dredge pipeline including equipment used to repeatedly install and remove the pipe; ○ Aquatic fauna ○ Water quality within the Caboolture River would be impacted by dredging activities, which has the potential to impact its ecology including fish assemblages; ○ Potential disturbance to vertebrates was not taken into consideration. <p>Page 284 of the Aquatic Ecology report of the NEBP EIS states:</p> <p style="text-align: center;"><i>.....on the basis of the information now available, it must be concluded that loss of bank/flat habitat adjacent to the channel could have an impact for the following reasons:</i></p> <p style="text-align: center;"><i>The flats are relatively productive and provide a habitat for benthic invertebrates and fish likely to feed (or avoid larger predators) over the flats at high tide.</i></p>

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	<p data-bbox="797 229 2141 300"><i>The flats provide protection for mangroves and saltmarshes on the landward side of the flats. Therefore, loss of the flats may expose marine vegetation to erosion.</i></p> <p data-bbox="797 341 2114 411"><i>The flats, being outside the navigational channel, are within FHA-013. Impacts to the flats would also extend the extent of disturbance within the Moreton Bay Marine Park.</i></p> <p data-bbox="510 453 2150 555">Accordingly, any appreciable reduction in the intertidal area is likely to have significant impacts on estuarine food chains, productivity (including impacts on fisheries), biodiversity and use as feeding and roosting sites by shorebirds in an undeveloped waterway.</p> <p data-bbox="510 596 694 628">Benthic fauna</p> <ul data-bbox="568 638 2168 861" style="list-style-type: none"> • Dredging would be likely to result in a net loss of habitat for benthic communities; • Benthic communities would be likely to experience incidental mortalities from dredging activities; • With recurrent dredging there would be an increased risk of the region experiencing phase shifts in species' assemblages; • Incidental removal of habitat through the movement of sediment from adjacent areas, including possibly from the sand flats to the navigation channel; and • Shoreline erosion may increase due to increased boat traffic/wake. <p data-bbox="510 903 654 935">Shorebirds</p> <ul data-bbox="568 944 2177 1053" style="list-style-type: none"> • Scored as '0' on the premise of no change to the sand flats, despite conflicting information as set out above. • Ecological monitoring is not related to a net gain of resources and should not be scored. Monitoring is a necessary component of any environmental management regime but does not add any value unless followed with remedial action. <p data-bbox="510 1094 698 1126">Water Quality</p> <ul data-bbox="568 1136 2177 1276" style="list-style-type: none"> • Increased development is likely to increase runoff and thus the risk of pollutants entering waterways. It should have been scored as a negative; • It is recognised that the project will take contaminated water from the upstream sewage treatment plant providing a positive benefit;

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	<ul style="list-style-type: none"> • Monitoring of water quality does not add to any natural resource value; • Negative impacts due to dredging operations and general pollution are two matters i.e. score -2 not -1. <p>Social significance or value</p> <ul style="list-style-type: none"> • It is unknown whether any maintenance dredge spoil would be suitable for foreshore disposal and provide beach replenishment value; • Issues relating to conflict with other users of the bay, e.g. commercial and recreational fishers, have not been considered. <p>Conclusion:</p> <p>The information submitted has not convinced the DERM that the NEBP development proposal demonstrates a net gain of coastal resources as required under the SEQRCMP. At best it is considered neutral.</p> <p>Recommendation</p> <p>It is recommended that the proponent be required to consider further actions in accordance with the guidelines under the CPM Act 1995 (referred to above) that will increase coastal resources and values to counteract the loss of resources and values arising from construction, dredging and operational activities. This could include:</p> <ul style="list-style-type: none"> • NEBP entering into a partnership arrangement with the Moreton Bay Regional Council, Healthy Waterways and DERM to contribute to the proposed Caboolture River Recovery Plan. The plan is to focus on three areas relevant to and already included in the proposal for the NEBP site, but applicable more broadly to the catchment: <ul style="list-style-type: none"> ○ point sources; ○ erosion and sediment control; and ○ riparian rehabilitation and restoration. <p>Any contribution needs to be outside the proponent's site and over and above what is required to address the impact of the NEBP and its dredging.</p>

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<p>Impacts to the hydrology of the Caboolture River from capital and maintenance dredging</p>	<p>General comments on coastal modelling Cardno Lawson Treloar advised that in relation to their morphology modelling, ‘it is difficult to predict erosion and siltation with a high degree of accuracy using such modelling.’ Notwithstanding, they predict that the proposed dredging in the lower reaches of the Caboolture River will be relatively minor and have no adverse impact on the timing, duration and frequency of tidal flows.</p> <p>The modelling for the <i>Coastal Processes Report</i> and <i>Siltation Study</i> was undertaken using Delft 3D, an internationally-recognised software package for both hydrodynamic and sediment transport modelling. It is acknowledged that when modelling a complex environment such as the Caboolture River, certain assumptions and simplifications are inherent and results should be combined with sound engineering judgement as a basis for decisions. The following dot points are important in making any decisions.</p> <p>Hydrodynamic Model</p> <ul style="list-style-type: none"> • The effects of neither storm surge nor sea level rise have been modelled/quantified. Any development would need to have regard for them. • No details were provided of the bathymetric survey supplied by Queensland Transport and Mapping and Hydrographic Services Pty Ltd on which the model grid was developed. • The general model set up in Section 5.2 is brief with no information regarding model grid size. • Calibration of the hydrodynamic model was carried out to measurements recorded in August 1990 and verification using the April 2006 data displayed only a ‘reasonable’ fit. (Field work carried out 18 years ago may not be representative of current conditions.) <p>Morphological Model</p> <ul style="list-style-type: none"> • There are some large restrictions to the morphological modelling such as river meandering, changing sediment composition, vegetation, etc, which have been acknowledged in Section 5.1.2 of the <i>Siltation Study</i>. They are likely to affect the accuracy of the model results. • No results have been presented on the morphological model calibration between the 1998 and 2007 hydrographic surveys that are described in Section 6.2.4 of the <i>Siltation Study</i> as ‘reasonable.’ • The conclusions of the <i>Siltation Study</i> state that maintenance dredging will be required at ~ five yearly intervals with such spoil estimated at 220,000m³. • It is likely that morphological changes that have not been accounted for or quantified will occur, e.g. river bank erosion.

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	<p>A monitoring regime, with consequential remedial actions, needs to be developed to assess ecological impacts associated with any changes to the hydrodynamics associated with the proposed dredging, that might occur should the modelling predictions prove to be inaccurate.</p> <p>Recommendation:</p> <ul style="list-style-type: none"> • That the dredging component of the NEBP EMP address the potential increased risk to the environmental values of the project site and the Caboolture River arising from storm surges and sea level rises, particularly on the stability of the river bank; including development of a comprehensive monitoring and reporting program identifying: <ul style="list-style-type: none"> ○ Morphological changes to the river and river bank over time ○ Changes to the extent and values of benthic biota, intertidal and shallow water biota and seabird roosting sites and proposing remedial actions in terms of modifications to the dredging program or direct remedial activities • That data collected through the proposed monitoring program be used to re-calibrate the hydrodynamic model at regular intervals (eg every 5 years prior to maintenance dredging) to inform changes that may be required to the frequency and scale of maintenance dredging activities.
<p>Dredging and Channel Use Impacts</p>	<p>Dredging It is assumed that the capital dredging (600,000m³) of river material and the marina basin will be deposited totally on the NEBP development site.</p> <p>Section 7.1 of the <i>Coastal Processes Report</i> states that it is expected that there would be some redistribution of material from the adjacent sandy bed resulting in siltation of the dredged channel and regular (~5 yearly) maintenance dredging would occur. Continual removal of sediment from the river may alter river morphology and there is no mention of any associated long term effects (see previous issue). The report also states that the development is likely to result in slightly lower low tide levels (up to 0.1m) in the upper estuarine section of the river, which may increase the inter-tidal habitat area; (however) redistribution of material adjacent to the dredged channel may reduce the inter-tidal habitat area. Predicted lower low tide levels and possible effects on inter-tidal habitat area may have ecological affects that will need to be monitored.</p> <p>Parts of the catchment are areas of conservational significance recognised under international conventions - Ramsar, JAMBA and</p>

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	<p>CAMBA - which provide protection to areas of seagrass, mangroves and saltmarsh for migratory birds. The potential effects of dredging on these areas of intertidal habitat are of concern, and will need a targeted monitoring program.</p> <p>Increased boat traffic</p> <p>The proposed location of the NEBP is ~10km upstream of the bay. This is a relatively long distance along a meandering river for boat travel. It is also a considerable length of bank exposed to possible erosion. Approximate boat movements stated in Section 8 of the <i>Coastal Processes Report</i> do not account for increases at holiday periods. During such times bank erosion would be more likely. The report does not define how boat numbers or sizes were determined or assumptions and the extent of uncertainties.</p> <p>Policing speed limits (to reduce riverbank erosion) would be problematic, even with an education program. Riverbank erosion may increase sedimentation, result in river bank vegetation loss and deleteriously affect river ecology. The possible need for riverbank protection as a consequence of the proposal is concerning, so monitoring will be required with response plans developed.</p> <p>The <i>Coastal Processes Report</i> states that the impact of boating traffic would not be significantly greater than existing wind wave impacts. However, Section 8 states that the wave height of boat swash waves would be 0.2m to 0.3m with a period of 3 to 5 seconds and wind wave heights would be 0.1 to 0.2m with periods of 1 to 2.5 seconds. These swash waves are significantly larger, and would be generated over longer, more continuous time periods than naturally-generated wind waves and, thus, would be more damaging to the river bank than wind-induced waves.</p> <p>Construction</p> <p>Possible increased sediment concentrations associated with the capital works has not been addressed, despite proposed sediment control measures. There is minimal information about controlling impacts from the capital dredging. The method of installing and operating the pipeline is inadequately described.</p> <p>Recommendation</p> <p>Any approval of development necessitating dredging in the marine park require:</p> <ul style="list-style-type: none"> • Preparation of an environmental management plan (EMP) dredging component in accordance with DERM's guideline to

Issue	Comment/ Recommendation
	<p>address the following:</p> <ul style="list-style-type: none"> ○ Potential impacts, together with their extent/duration, of dredging on coastal hydrology, including mitigation measures, proposed monitoring and trigger point actions; ○ Potential changes to stream velocity as a result of dredging, including mitigation measures, proposed monitoring and trigger point actions, particularly with reference to impacts on: <ul style="list-style-type: none"> ▪ Bank stability adjacent to dredged areas or shown as likely to be affected by such works; ▪ Changes to fauna/flora habitats (e.g. mangroves, salt-marshes and sand-banks/wader bird roost sites); ▪ Transport of sediment; and ▪ Changes to the tidal prism. ● Determination of a long term management arrangement for maintenance dredging, preferably in the context of a strategic plan for long term maintenance dredging needs for the northern part of Moreton Bay ● DERM’s approval of the elements of the EMP prior to the commencement of any works. <p>NB The EMP element addressing dredging would need to be preceded by adequate scientific work, based on existing modelling to address the above issues with findings used to develop an appropriate monitoring regime, design responses and mitigation/management responses.</p>
<p>Long-term management of dredge spoil</p>	<p>Comment</p> <p>The EIS states that Residential Area 2 would be used as a ‘long term’ dredge spoil disposal location until such time as an alternative strategy is negotiated and agreed. However, there is no process currently in place for identifying spoil disposal locations in the northern Moreton Bay /Deception Bay area. Accordingly, any development that is dependent on recurrent dredging needs to provide/dedicate and operate a suitable management area, which should be located, designed and operated to avoid nuisance to local residents, businesses and users of land in its vicinity. To the greatest extent practicable, design/management must avoid risk of nuisance or environmental harm, e.g. to waterways, including ground waters and where there are any unavoidable risks, they are to be minimised.</p> <p>Outcomes, principles and policies of the <i>SEQ Regional Coastal Management Plan 2006</i> and the <i>State Coastal Management Plan 2001</i> identify the following issues for land-based spoil disposal (maintenance dredging):</p>

<i>Issue</i>	<i>Comment/ Recommendation</i>
	<ul style="list-style-type: none"> • rehandling of dredge-material involving the treatment of material such as silts, muds and clays to stabilise contaminants and remove water for eventual placement at land-based sites; • limited opportunities for re-use of dredge-material comprised of muds, silts and clays after rehandling as the material is fine-grained silt with a high saline content; and • Identification of viable sites for the long-term storage of dredge-material after rehandling. <p>Policies 2.1.4 and 2.1.8 of the SEQ RCMP/ SCMP require clear identification of methods/means to ensure that land allocated for dredge-material disposal or rehandling will be protected from future development. There also may be issues associated with the quality of sediments near the proposed lock.</p> <p>Table 1 in the SEIS indicates that Beachmere foreshore protection using dredge spoil from maintenance dredging is the long-term dredge spoil disposal strategy preferred by the proponent. Such a strategy would be contingent on sediment sampling and analysis package and will require DERM's approval. As the material is inadequately tested, it is uncertain whether it would be suitable.</p> <p>Recommendations: Associated with any approval for the NEBP project, the proponent should:</p> <ul style="list-style-type: none"> • set aside sufficient area of land to handle maintenance dredge spoil for the life of the project or until alternative long term disposal options are agreed • Ensure that development within the vicinity of the dredge spoil disposal area will be compatible with the expected odour, dust and noise emissions likely to arise from a dredge spoil handling facility. <p>It is also recommended that the Coordinator-General establish a government coordinated process to identify a site for long term disposal of dredge spoil within the northern Moreton Bay/Deception bay region.</p>
<p>Sand flats at the Caboolture River mouth</p>	<p>Comments The banks provide habitat for benthic invertebrate and fish likely to feed over the flats at high tide and provide protection for mangroves and salt-marshes on their landward side. Sand/silts from the flats would be expected to redistribute into any channel dredged in Caboolture River until a dynamic equilibrium was reached.</p>

Issue	Comment/ Recommendation
	<p>The scope of the table outlining the overall impact of the proposal is fairly generic (i.e. no change to sand flats acting as foraging and roosting habitat at the Caboolture River estuary) and it provides no new information: the issues/concerns have not been addressed adequately.</p> <p>Recommendation:</p> <p>Any approval necessitating dredging in the vicinity of the Caboolture River mouth require a comprehensive study by a suitably qualified person to inform an EMP component, prepared and approved as above, developing a monitoring regime to identify any impacts on the sand flats and propose actions to avoid as far as possible and, where unavoidable, to overcome impacts to:</p> <ul style="list-style-type: none"> - benthic fauna and fish that use the area; and - the high tide roost site on the southern side of the mouth of the river and potential loss of feeding habitat for shorebirds.
<p>Coastal Buffers & Protection of the Coastal Management District (CMD)</p>	<p>Comment</p> <p>No new information has been provided in the supplementary response, and specified policies relating to coastal buffers (under Policy 2.2 Physical coastal processes and Policy 2.8 Conserving nature) under the State and SEQ Regional CMPs have not been addressed.</p> <p>In preparing this advice DERM is aware of the position of the MBRC that open space be surrendered by the proponent but be managed under an agreement between the MBRC and the proposed body corporate.</p> <p>Recommendation</p> <p>Any approval be conditioned to require:</p> <ul style="list-style-type: none"> • Surrender of the area covered by the Coastal Management District to the state for coastal management purposes, as has been the DERM policy for erosion prone areas and was applied to development on the Coomera River; or • A covenant be placed on the land title or equivalent legal protection implemented to ensure that the land cannot be developed in the future. • The surrendered/protected area to be the subject of a day to day management plan to be prepared by the proponent and to the satisfaction of DERM in conjunction with MBRC and QPIF.

<i>Issue</i>	<i>Comment/ Recommendation</i>
	<ul style="list-style-type: none"> • The cost of management of the surrendered/protected area to be the responsibility of the developer/body corporate under an agreement with the MRC. • The CMD and buffer remain undeveloped in perpetuity. • The public to have unrestricted access to the CMD and buffer in perpetuity. • No car-parking to extend into the CMD or buffer. • Any discharges during either construction or operational stages to/through the CMD or buffers and/or waterways, including the Caboolture River demonstrate best practice to ensure, as a minimum, protection of the environmental values of wetlands and coastal waters and, in the case of the river, improvement to its water quality. • No discharge points (e.g. stormwater channels/outlets, stormwater management devices) are located in the CMD: all discharges must be suitably treated on the development site prior to discharge onto any grass swales, etc within the buffer outside the CMD or into the marina basin. • An EMP or component of a broader EMP to be developed to include management prescriptions for the CMD and which addresses the above points • The EMP component would need to be to be approved by DERM as a pre-requisite to commencing any works.
<p>Lock, weir, and dry land marina</p>	<p>Comment Detailed information on the design, construction and operation of the lock, weir and dryland marina has not been provided and will be developed during the project's detailed design stage. Specific conditions for tidal works development approval will be provided by the DERM when the detailed design work is provided with the formal application, as occurs with other tidal works proposals.</p> <p>The design specifications will be used by the EPA to determine whether the facilities will have significant impacts that need mitigating conditions. In determining whether the proposal will have 'no significant direct or cumulative adverse impacts' reference should be made to the DERM's policy document:</p> <p>State and regional coastal management plans: interpretation of the policy terms 'no', or 'no significant adverse impact' – http://www.epa.qld.gov.au/publications?id=1981 and detail the proposed (i.e. after completion of an implementation plan) coastal</p>

Issue	Comment/ Recommendation
	<p>resources and values, including any rehabilitation, boardwalks, bird-hides, etc.</p> <p>Recommendations are provided on matters to be addressed in the detailed design stage.</p> <p>Recommendation: Any approval requires that</p> <ul style="list-style-type: none"> (i) The design of the project waterways complies with items (a) to (g) in Chapter 2.1.15 of the SEQ Regional Coastal Management Plan; and (ii) Land is provided for the disposal of dredge-material (capital and maintenance) and accord with policy 2.1.8 Dredging. Land allocated for dredge-material handling needs to be protected from future development and, conversely, that future incompatible development such as residential and commercial activities are buffered from the nuisance effects of the dredge spoil handling site. <p>To satisfy the above, design reports and an EMP component compiled by suitably qualified personnel containing definitive coastal/structural/civil engineering, environmental and biodiversity information and justifications will be necessary.</p>
Algal Blooms	<p>Comment No information has been provided to show how the development conforms to policy 2.4.7 Algal Blooms of the SEQ RCMP 2006.</p> <p>Recommendation: Any approval require definitive coastal / structural / civil engineering, environmental and biodiversity information and justifications to demonstrate compliance with policy 2.4.7 Algal Blooms of the SEQ RCMP 2006.</p>
Public maritime facilities	<p>Comment Direct and indirect impacts associated with any public maritime facilities must accord with the policy 2.1.5 Maritime Infrastructure of the of the SEQ RCMP 2006. However, very little information has been provided to justify need, environmental impacts or structural integrity of the ancillary ‘public’ facilities, viz. pontoon, canoe ramp and fishing landing. Detailed design</p>

<i>Issue</i>	<i>Comment/ Recommendation</i>
	<p>information will be required by DERM before the relevant approvals can be given, as is the case of other tidal works applications.</p> <p>Recommendation: Require any approval incorporating public maritime facilities to accord with the policy 2.1.5 Maritime Infrastructure of the of the SEQ RCMP 2006; ensure unimpeded public access; and demonstrate how they would be managed and maintained in an EMP component.</p>
<p>Water quality:</p>	<p>Groundwater Impact Assessment: Groundwater modelling of marina excavation (p.28) indicates that:</p> <ul style="list-style-type: none"> ○ The work would be likely to change the groundwater flow and recharge. ○ Transformation of the site into a more urban landscape would be likely to affect the recharge sources. ○ Capillary groundwater may rise at filled areas, but the impact would not be major if the fill is not acidic. ○ Groundwater pressure heads close to the marina basin (~400m) may decline temporarily during excavation with drawdown dependant on duration. ○ There is potential seepage of river water into the marina during its excavation. ○ The marina excavation may cause a localised lowering of the water level and consequent land subsidence (p 31). This needs to be considered in all structural designs. <p>Although further water chemistry sampling/ testing is recommended by the consultants, no specific mitigation measures are nominated.</p> <p>Recommendation Any approval require an initial and ongoing commitment to monitoring groundwater for hydrocarbons, organic compounds and heavy metal scans as a basis for determining the management regime for the site; specific mitigation response measures; and design criteria to avoid any water contamination – surface or ground water. An appropriate monitoring program is outlined by the proponent in Appendix L2, Section 5.5.5, pages 45 and 46.</p>

<i>Issue</i>	<i>Comment/ Recommendation</i>
<p>Stormwater management & Water Sensitive Urban Design (WSUD)</p>	<p>Stormwater The EIS response, viz. that objectives for stormwater runoff will be achieved through water sensitive urban design lacks the detail necessary to develop conditions specific to the development. The DERM requires that all assessable development be accompanied by an erosion and sediment control plan incorporating a range of best practice erosion, sediment and drainage-control measures for planning, design and construction activities.</p> <p>Constructed wetlands for environmental management The location of constructed wetlands for water treatment/stormwater polishing within areas declared ‘open space for coastal and/or biodiversity outcomes’ is not supported on two grounds: firstly, such areas are intended for specific purposes that are likely to be compromised by such wetlands; and secondly, bioretention basins/ constructed wetlands located on flood-prone land (<Q100 line) may result in prolonged inundation of the pond during flood events with consequent system failure. Scour effects of any sustained flood waters also may lead to costly repairs of filter media and necessitate replanting following storm events.</p> <p>Recommendation: Any approval require that:</p> <ul style="list-style-type: none"> • The entire development including car parking in open space areas such as the ‘Sport & Recreation Area and Heritage Park’ use WSUD principles; • An element of the EMP address stormwater management, in particular detailing measures to address erosion and sediment controls; • Any constructed wetlands to be located outside areas designated as ‘open space for coastal and/or biodiversity outcomes’; • Design of stormwater treatment measures for industrial areas to be structurally separated from other stormwater runoff pathways to avoid its entry to waterways. See: Healthy Waterways’ Partnership fact sheets and guidelines on Water Sensitive Urban Design for Industrial Sites and Precincts.); and • The EMP component should be negotiated with the MBRC and require DERM’s approval prior to commencement of any works <p>See: <i>EPA best practice urban stormwater management: erosion and sediment control: Guideline</i> (http://www.epa.qld.gov.au/publications?id=2301). In so doing it must provide for reports against the water quality objectives as</p>

Issue	Comment/ Recommendation
River bank stability	<p data-bbox="510 193 2152 260">outlined in the EPP Water 1997 as the adopted water quality targets are based on pollutant load reductions rather than achieving median pollutant concentrations.</p> <p data-bbox="510 316 651 343">Comment</p> <p data-bbox="510 352 2163 491">River bank erosion would be a likely consequence of increased river vessel traffic, whether as a result of vessel wake or speed. Table 1 indicates that revegetation would be used to stabilise river banks and an educational program, signage and monitoring implemented. The report also states that if the measures prove inadequate, that revetment works could be necessary. River bank protection and rehabilitation measures that do not lead to construction of engineered walls are preferred by the DERM.</p> <p data-bbox="510 544 775 571">Recommendations:</p> <p data-bbox="510 587 1211 614">Vessel speed should be restricted to a “no wash” limit.</p> <p data-bbox="510 662 1256 689">Any approval require river bank protection measures that:</p> <ul data-bbox="562 703 2163 842" style="list-style-type: none"> • Avoid engineering structures (i.e. revetment walls); • Necessitate DERM and QPIF’s endorsement prior to their implementation; and • Are the developer, or any successor developer, or the body corporate’s responsibility to undertake and maintain at nil cost to the State.
Design and management for the proposed golf course.	<p data-bbox="510 930 651 957">Comment</p> <p data-bbox="510 967 1659 994">No response was provided in the supplementary response to the DERM’s concerns about:</p> <ul data-bbox="607 1007 1637 1145" style="list-style-type: none"> – Run-off from high nutrient areas; – Edge effects on remnant vegetation; – Mitigation measures to ease the impact on rare or threatened species; and – Establishment and enhancement of wildlife corridors. <p data-bbox="510 1198 763 1225">Recommendation:</p> <p data-bbox="510 1241 1424 1268">Any approval require that any golf course be designed and managed to:</p> <ul data-bbox="562 1281 2130 1308" style="list-style-type: none"> • Ensure that any run-off from high nutrient areas is directed away from natural waterways and that irrigation systems be

Issue	Comment/ Recommendation
	<p>self-contained (i.e. there should be no off-take or input into local waterways). Treatment ponds and constructed wetlands should be designed to capture & polish stormwater and render it suitable for irrigation;</p> <ul style="list-style-type: none"> • Retain and protect remnant vegetation. The viability of thin strips of locally endemic species adjacent to artificially irrigated and fertilised fairways is problematic: edge effects (such as from the use of pesticides for weed management) may adversely impact on the structural and floristic integrity of these vegetation communities, especially in the medium to long term; and • Mitigate impacts on rare or threatened species to accord with Section 19 and 24 of the <i>Nature Conservation (Wildlife) Regulation 2006</i>. <i>Crinia tinula</i> and <i>Adelotus brevis</i> are recorded in the Raff Creek area associated with wetland vegetation RE 12.3.5. They are particularly susceptible to changes in nutrient levels and special attention should be given to establishing a specific recovery or conservation plan from potential impacts associated with the construction and operation of the golf course; • Ensure that threatened species' habitat (including referable wetlands) is adequately buffered from the golf course through revegetation of waterway corridors. A distance of at least 50m is recommended to protect sensitive environments from run-off, nutrient leaching and chemical pollutants; and • Maintain and enhance wildlife corridors. Herbicide spaying should not be conducted adjacent to or within regional ecosystems identified for rehabilitation: manual weed removal techniques are preferred. <p>A document relating to the above, entitled 'Improving the Eco-Efficiency of Golf Courses in Queensland' is available for purchase via the web page: http://www.agcsa.com.au/guests/bookshop/index.xsp?book_type_code=13000</p>
<p>Soils and Contaminated Land on Lot 10 on RP902079</p>	<p>Comment A Suitability Statement issued in accordance with Chapter 7, Part 8 of the <i>Environmental Protection Act 1994</i> (stating that Lot 10 on RP902079 is suitable for the intended use), is required to be obtained prior to consideration of any application for development approval.</p> <p>Recommendation: Any approval requires rehabilitation of the contaminated site and submission of a report to the DERM in accordance with the <i>Environmental Protection Act 1994</i>.</p>

Enquires
Telephone
Your reference
Our reference

[REDACTED]
[REDACTED]
BNE 2009-3955

June 2009

[REDACTED]
EIS Project Manager – Northeast Business Park
Major Projects
Department of Infrastructure and Planning
PO Box 15009
CITY EAST QLD 4002

Dear [REDACTED]

**NORTH EAST BUSINESS PARK (NEBP):
FINAL COMMENTS ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS)**

The Department of Environment and Resource Management (DERM) offers the following views for the Coordinator General's consideration in finalising his report on the above. This advice is provided after considering the EIS released for comment from 18 February 2008 to the 4 April 2008, the Supplementary EIS dated 1 July 2008 and further information provided to the EPA on 10 November 2008. The former Environmental Protection Agency provided comments on the EIS in a letter dated 11 April 2008 and further comments in a letter dated 12 September 2008.

There are four main areas of concern with the proposed development:

- The environmental risks associated with the dredging, including increased potential for Lyngbya blooms, changes to hydrology and water quality, and the impact on habitat and species at the Caboolture River mouth
- The requirement under the South East Queensland Regional Coastal Management Plan (s2.1.3 Coastal-dependent land uses and s2.1.4 Canals and dry land marinas) for the proposal to demonstrate that it provides a net gain of coastal resources
- The lack of planning context for the proposed development site that is relevant to the location of residential development and the construction of a marina and associated dredged channel, to provide a context for the assessment of this project at this location
- The proposed loss of remnant vegetation areas given that the majority of the site is already cleared.

Detailed discussion on these matters is included in the attachment and summarised below.

Dredging

There are a number of environmental risks associated with dredging a new navigation channel in the Caboolture River, including:

- The Caboolture River catchment has been linked with blooms of the toxic algae *Lyngbya majuscula* (Lyngbya) in Deception Bay and dredging of the river may contribute to further outbreaks
- Changes to hydrology and river use may impact on bank stability and adjacent habitats, e.g. wader bird roost sites and mangroves, sediment transport and tidal patterns
- Impact on water quality during construction and operation of the NEBP
- Impact on sand flats at the Caboolture River mouth through disturbance of species and habitat, e.g. shorebird roosting and feeding areas.

There is expected to be an increase in boat traffic as a result of the improved navigability following dredging and construction of the marina, which will potentially exacerbate the impacts.

These risks could be mitigated through adherence to relevant legislation and policies, such as policy 2.4.7 Algal Blooms of the South East Queensland Regional Coastal Management Plan, the development and adoption of an environmental management plan (EMP) for the dredging, and through permit conditions.

It should be noted that any approval requiring capital or maintenance dredging in the river would need to address the issue of an enduring dredge-spoil management site, designed and operated to handle dewatering, stockpiling, and transport to an appropriate land-based disposal area, e.g. secure land fill. The site would need to be planned strategically, i.e. in the context of surrounding uses to avoid future nuisance (e.g. odour and air pollution) to existing or future residents and users of the area and incorporate adequate buffers to adjacent and nearby properties. The EMP should be negotiated with DERM, Queensland Primary Industries and Fisheries and the Moreton Bay Regional Council. Such a plan of management would need, firstly, to address the hierarchy of disposal options, viz. return of suitable material to the active coastal/river systems, dewatering and use for landfill and lastly, land disposal; secondly it would need to consider such aspects as water quality; air quality; and management of the buffer.

As you are aware, the Moreton Bay Marine Park Zoning Plan requires that any development dredging of the Caboolture River takes place in a designated works area and that it is necessary to demonstrate that the proposal will be of public benefit. The amendment to the zoning plan to allow the works area will require approval by the relevant Minister and tabling in Parliament.

Only three designated works areas have been designated in the Moreton Bay Marine Park since it commenced in 1997. These cover Toondah Harbour, Weinam Creek and the duplication of the Houghton Highway. These areas provide significant transport links, public ferry terminals and public facilities.

Although the NEBP dredging is different in nature to the previously designated three works areas, an assessment of the necessity for the activity for public benefit considered social, environmental and financial aspects of the proposal. The justification in the EIS covered some aspects, such as improved navigable access and safety for the boating community, job creation and improved centralisation of maritime industry services.

The public benefit was also weighed against potential environmental impacts from the dredging, in particular influence on Lyngbya, changes to tidal prism, and effects of changes at the river mouth. The net benefit under the State and regional coastal management plans was also considered.

Based on the information provided, the NEBP Caboolture River dredging provides an identifiable benefit that can accrue to a section of the public. This view has regard for the management and mitigation measures to be implemented to minimise and manage environmental impacts as a requirement of undertaking the dredging.

Net Gain of Coastal Resources

The DERM does not consider that the information provided in the EIS documentation relevant to coastal resource values supports the conclusion that the project will lead to a net gain of coastal resources. It is DERM's view that the proponent needs to expand its off-site rehabilitation and environmental protection activities that will lead to further gains in coastal resource values to counteract those affected by the development proposal.

Planning

The DERM is concerned that neither the urban footprint nor justification for most of the elements proposed for the development is reflected or countenanced in the draft SEQ Regional Plan 2009-2031, the SEQ Infrastructure Plan and Program 2006-2026, or the draft companion document, the SEQ Natural Resource Management Plan 2009-2031. As the former is the pre-eminent plan to guide land use and development, it requires all government decisions to accord with it. The project also does not accord with the Infrastructure Plan and Program, which is designed to ensure that development is appropriately serviced in a timely manner.

This has meant that DERM has had to assess the NEBP project in isolation of any strategic planning instrument that identifies the proposed site as suitable for either a marina or residential development. However, DERM recognises that the NEBP development application was made before adoption of the SEQ Plan and therefore there is no statutory requirement for the development to conform with the planning scheme.

Given the fact that the project was submitted for consideration prior to the release of the first regulatory regional plan, there has been time to address the need for marine industry, business/commerce, residential land, and recreational opportunities together with marine and land-based infrastructure in the context of the regional planning work. If justified, such strategic planning would have considered where and when it should be developed and either included the necessary infrastructure requirements on the plan and program, or deferred a decision pending a strategic investigation.

If the area is to be countenanced for urban development, DERM would prefer that the SEQ Regional Plan is amended to show the wider area as an investigation area. The planning work should then mirror that undertaken for the North East Gold Coast and, similarly, it should extend offshore to examine the need for marine infrastructure and associated/consequential infrastructure and major works, such as long term dredging and recreational boating facilities.

The planning investigation would need to have regard for all environmental outcomes and targets applicable to the area, including e.g. those specified in the SEQ Coastal and Moreton Bay Marine Park Zoning plans. It would be expected that both complementary plans, viz. the SEQ Infrastructure Plan and Program and the SEQ Natural Resource Management Plan, would need to be reviewed/ revised in concert with such a planning investigation.

Vegetation

While the following vegetation protection advice may differ from that provided previously by the former Department of Natural Resources and Water in its responsibilities under the *Vegetation Management Act 1999*, the comment now provided reflects DERM's consolidated view. DERM also has responsibilities for administering the *Nature Conservation Act 1992* and biodiversity planning, previously the responsibility of the Environmental Protection Agency.

The DERM recommends the following actions for the protection of remnant vegetation and public space areas:

- Protect, including by scheme amendment, all remnant, endangered regional ecosystem vegetation communities on the site
- Protect all vegetation adjacent to the Bruce Highway in the area described as Lot 2 on SP 169551
- Surrender to the State the area shown as 'public area' adjacent to the Caboolture River and Lot 2 SP 169551, or attach a covenant to the land title to ensure equivalent protection from development
- Designate the surrendered areas as public open space with the specific management aim of rehabilitating and protecting both areas' nature conservation and/or riparian values; and providing for low key, open space recreation on the former. Management should be negotiated with the Moreton Bay Regional Council. The DERM would not oppose its day-to day management by a body corporate, subject to a formal plan of management and agreement negotiated between the parties.

Further matters and DERM comments and recommendations are provided in the attachment. Recommendations have been included in the event that the Coordinator-General recommends that the project proceed.

If you have any questions regarding the comments provided please contact me on [REDACTED] or email Stuart.Cameron@derm.qld.gov.au [REDACTED]

Yours sincerely

[REDACTED]
Director – Assessment
Environmental Services



Queensland
Government

Department of
Infrastructure and Planning

Our ref: 09/35730

2 NOV 2009

Mr John Bradley
Director-General
Department of Environment and Resource Management
GPO Box 24254
Brisbane QLD 4001

Dear Mr Bradley 

I write to inform you that I have completed my report which evaluates the environmental impact statement (EIS) for the Northeast Business Park project, which was undertaken pursuant to Part 4 of the *State Development and Public Works Organisation Act 1971* (SDPWO). A copy of my report is enclosed for your information.

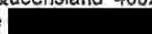
I have reached my decision on the basis of an evaluation of all the available information, including comments from advisory agencies and members of the public. I have determined that potential adverse environmental impacts of the project can be adequately managed through the implementation of:

- the specific conditions set down in my report including various Environmental Management Plans
- commitments made by Northeast Business Park Pty Ltd during the EIS process.

Therefore, I recommend that the project, as described in the EIS and supplementary reports, can proceed subject to the stated conditions.

My report will be made available on the Department of Infrastructure and Planning's website: www.dip.qld.gov.au/projects.

The project, as described in the EIS, has been formulated in a preliminary sense only, and does not contemplate the detail of all likely uses within the site. This reflects the two current applications for preliminary approval for material change of use that apply to the project site. Accordingly, I state for the assessment manager that approvals must be a preliminary approval only.

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The project includes the proposed development of a substantial marina facility in the Caboolture River and dredging of the navigation channel in the lower estuary. For these works to proceed, the proponent must prepare a Caboolture River Estuary Management Plan (CREMP). This would be required for the mitigation of all project-related impacts and also provides the opportunity to contribute to addressing the poor state of the Caboolture River's ecosystem health (currently rated D-).

However, as the CREMP would only address development-related impacts in the Caboolture River, further work would be needed to address the recovery of the ecosystem health for the entirety of the Caboolture River, particularly in the upper and middle estuary. I wish to draw your attention to a recommendation in my report that your Department should lead a Whole of Government process to develop and implement a catchment-wide Caboolture River Management Plan.

I note that this process has already commenced through Moreton Bay Regional Council's development of a Caboolture River recovery planning process that includes involvement from the Healthy Waterways Partnership and State agencies.

If you require any further information, please contact [REDACTED] Director, Significant Projects Coordination Branch, Infrastructure and Economic Development Group, Department of Infrastructure and Planning, on [REDACTED] who will be pleased to assist.

Yours sincerely

[REDACTED]

Colin Jensen
Coordinator-General
Director-General

Enc

Enquires
Telephone
Your reference
Our reference

[REDACTED]
BNE31973

Project: 308365

11 April 2008

EIS Project Manager – Northeast Business Park
Major Projects
Department of Infrastructure and Planning
PO Box 15009
City East QLD 4002

Attention: [REDACTED]

Dear Sir

**RE: ENVI RONMENTAL PROTECTION AGENCY COMMNETS ON THE DRAFT
ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE NORTH EAST
BUSINESS PARK (NEBP)**

I refer to the letter, dated 15 February 2008, requesting comments on the draft EIS for the NEBP.

Please find attached the Environmental Protection Agency's comments on the draft EIS. The key matters requiring further consideration include management of dredge spoil, net gain of coastal resources and values, mitigation of impacts associated with development in the coastal management district, stormwater and pollution management, and protection of remnant endangered regional ecosystem vegetation communities.

Relevant EPA officers are happy to meet with you and/or the proponent to discuss the matters raised and progress the assessment process.

Thank you for the opportunity to comment.

If you have any questions regarding the comments provided please contact [REDACTED]
[REDACTED]

Yours sincerely

[REDACTED]
Director – Assessment
Environmental Services
Environmental Protection Agency

Environmental Protection Agency Comments on the Draft Environmental Impact Statement for the North East Business Park

The EIS prepared for Northeast Business Park has been reviewed by the EPA and it is considered that the following issues are not adequately or fully addressed within the documentation provided.

As may be appreciated, the EIS is a significant document to locate the specific information to ensure that the issues are addressed.

It is considered that the supplementary EIS should include and address the following issues:

Document Section [section and page number]	Recommendation/Comment/Information Required
<p><i>EIS Section 4.8.2.1 P276</i></p> <p><i>Northeast Business Park – Terrestrial Ecology Assessment Report P19</i></p>	<p>Issue:</p> <p>The clearing of 15.5 hectares (ha) of endangered regional ecosystem (RE) 12.5.3, described as <i>Eucalyptus tindaliae</i> and/or <i>E. racemosa</i> open forest, (identified as Vegetation Community 11 in Figure 16) is not supported.</p> <p>This vegetation community is listed as of state biodiversity significance by the EPA’s Biodiversity Planning Assessment (v. 3.5). It is considered to be a high conservation value community that is poorly represented within the sub-region. It is identified as core habitat for koala, <i>Phascolarctos cinereus</i>, in the SEQ Threatened Species Habitat layer and provides habitat for large and small ground-dwelling mammals (Terrestrial Ecology Assessment Report, p. 19). It also provides an ecological corridor along a north - south axis. Rehabilitation and protection of this community would enhance habitat values, provide additional open space and act as a natural buffer to the adjacent highway.</p> <p>Similarly, the 12.6 ha regenerating paperbark forest (identified as Vegetation Community 12 in Figure 16) should not be cleared. Most of this community is identified as a 51 -80% referable wetland (analogous to RE 12.3.5, <i>Melaleuca quinquenervia</i> open-forest to woodland) and could be rehabilitated to remnant regional ecosystem status. It also acts as part of the western corridor and provides contiguity with community 11, scenic amenity and a buffer from the highway.</p> <p>Recommendation:</p> <p>It is recommended that planning for the site, particularly in the vicinity of the industrial estate, be amended to provide for the protection and enhancement of these endangered regional ecosystems and threatened species habitat.</p> <p>Information Required:</p> <p>If clearing is to proceed, please provide information justifying the clearance of vegetation, the justification should include:</p>

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	<ol style="list-style-type: none"> 1. Alternatives to the plan of development, for the specific areas containing these vegetation communities, to incorporate the vegetation communities and why these alternatives are not acceptable; and 2. Information, including requirements under the <i>Vegetation Management Act 1999</i>, which meets the legislative requirements for clearing vegetation. <p>If vegetation is cleared procedures should follow Policy 6, Vegetation clearing practices, of the <i>Nature Conservation (Koala) Conservation Plan 2006 and Management Program 2006-2016</i>. Clearing of koala habitat trees must be performed sequentially and in the presence of a qualified koala spotter.</p> <p>Additionally, any offsets required should be in accordance with the <i>Queensland Environmental Offsets Policy</i>.</p>
EIS - General	<p>Issue:</p> <p>PUBLIC BENEFIT - Demonstrated public benefit of the dredging</p> <p>The proposed capital dredging of the Caboolture River fits the definition of 'major works' in the Moreton Bay Marine Park Zoning Plan 1997 (the ZP), and under the ZP major works can only be permitted in the marine park within a designated works area. No works area exists over the Caboolture River.</p> <p>For a works area to be designated in the marine park the major works must be necessary for (a) public benefit; or (b) the provision of facilities for use by the public (refer section 46 of the ZP).</p> <p>The EIS has recommended the Minister prepare a draft amendment to the ZP to create a works area within the Caboolture River as the works would be for the public benefit and for the provision of facilities for use by the public. However, it has not been specified how the public would benefit from the capital dredging of the marine park or the facilities to be provided for use by the public.</p> <p>There does not appear to be any specific assessment in the EIS of public benefit under the ZP considering potential costs/impacts of the capital dredging in the marine park (e.g. impact on benthic communities, influence on marine park values, changes to hydrology, increased usage and potential conflicts etc) against the potential benefits (e.g. increased navigational safety, improved water quality with increased tidal exchange etc). Further details are required which specifically assess the potential public benefit from the capital dredging of the Caboolture River. These details would support the assessment under the ZP and help determine any likely amendment of the ZP to designate a works area.</p> <p>In any request for the designation of a works area it is worth noting that only three works areas have been designated in the marine park since its commencement in 1997. These cover Toondah Harbour, Weinam Creek and the planned duplication of the Houghton Highway. These areas provide significant transport links, public ferry terminals and public facilities. These areas have satisfied the criteria for designating a works area and have been the</p>

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	<p>benchmark by which other major works proposals have been assessed. They also provide a guide for managing future development pressures which involve major works in Moreton Bay.</p> <p>Information Required: The public benefit associated with capital dredging in the Marine Park needs to be specifically demonstrated in the supplementary EIS in order to meet the requirements of the zoning plan amendment provisions of the <i>Marine Parks Act 2004</i>.</p>
<p><i>EIS – General</i></p> <p><i>EIS – Section 4.8.2.2, page 284.</i></p> <p><i>Section 3.5, page 13</i></p> <p><i>Section 4.4.2.1, Navigational Dredging, page 200</i></p>	<p>Issue:</p> <p>It has been determined that further information is required to assess the direct and indirect impacts associated with:</p> <ul style="list-style-type: none"> • Dredging of the entrance channel to the new marina basin area; • Dredging of the lower reaches of the Caboolture River; and • Maintenance spoil disposal (land based): for the river and marine basin areas. <p>Management of dredge spoil Arrangements for the management of dredge spoil generated through maintenance dredging of the Caboolture River and marina only extend until 2018 (EIS, Section 4.8.2.2, page 284). This is not considered a 'long term' arrangement as requested in the Terms of Reference (Section 3.5, page 13). The quantities proposed for this maintenance dredging (40,000m³ every two years and 220,000m³ every five years) are not small quantities and are not dissimilar from the original capital dredging quantity. No information is provided on the impact of the dredge spoil pipeline and its route across wetlands of potential environmental value to the disposal site</p> <p>Information Required:</p> <p>A dedicated site for long term disposal and management (>20 years) of spoil and slurry treatment is required. This site can be converted to another land use in the future if spoil management techniques change, however a long term site must be provided at present as a guarantee that spoil will be managed off site in the future. Also:</p> <p>(a) Quantity of material to be dredged as:-</p> <ul style="list-style-type: none"> (i) Capital dredging; and (ii) Anticipated annual maintenance dredging requirements. <p>Confirm that all spoil from the capital dredging works (about 230,000m³) is to be placed on the development site. Confirm that all maintenance dredging spoil until 2018 is to be placed on the development site.</p>

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	<p>Where is the subsequent maintenance dredging spoil being placed? Mud Island may not be a long term solution; and if not Mud Island, where? The TOR did not identify off-shore spoil disposal as an option.</p> <p>(b) The SEQ Regional Coastal Management Plan 2006 / State Coastal Management Plan 2001 (i.e. outcomes, principles and policies) particularly with regard to Chapter 2.1.8:-</p> <p>(i) <u>At sea disposal (maintenance dredging):-</u> The submission does not identify any disposal of spoil at sea (i.e. in the Caboolture River and Moreton Bay). Dredge-material, other than clean uncontaminated sand, may be disposed of in approved dredge-material placement sites if the proponent has addressed:-</p> <ul style="list-style-type: none"> ➤ the recognised waste management hierarchy under the <i>Environmental Protection Act 1994</i>; ➤ alternatives to waste disposal at-sea (e.g., on land disposal) giving full consideration to the environmental, social and economic impacts and benefits; ➤ maintenance of the existing water quality and ecosystem health surrounding the placement sites; ➤ adverse impacts on physical coastal processes surrounding the placement sites; ➤ the characteristics and composition of the material to be disposed of; and ➤ the characteristics of the placement area and method of disposal. <p>Approvals for at-sea placement of dredge-material in coastal waters of the SEQ region are to require the following:</p> <ul style="list-style-type: none"> ➤ monitoring effects of dredge-material placement on the coastal environment; and ➤ remedial measures should the placement of material have a detrimental effect on coastal resources and values. <p>As the original project and therefore the TOR did not identify off-shore spoil disposal as an option; it is considered that should the supplementary EIS include off-shore spoil disposal, it is considered that a new TORs, created in conjunction with stakeholders is required encompassing the new issues.</p> <p>(ii) <u>Land based spoil disposal (maintenance dredging):-</u> Key issues relating to land-based placement of dredge-material are:</p> <ul style="list-style-type: none"> ➤ rehandling of dredge-material involving the treatment of material such as silts, muds and clays to stabilise contaminants and remove water for eventual placement at land-based sites; ➤ limited opportunities for re-use of dredge-material comprised of muds, silts and clays after rehandling as the material is fine-grained silt with a high saline content; and

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	<p>➤ the identification of viable sites for the long-term storage of dredge-material after rehandling.</p> <p>Clearly identify the method and means that the land allocated for the future dredging works, for the purpose of dredge-material disposal or rehandling, is to be protected from future development – refer to Chapters 2.1.4 and 2.1.8 of the <i>SEQ Regional Coastal Management Plan 2006 / State Coastal Management Plan 2001</i>.</p> <p>(c) What are the direct and indirect impact of such works on the tidal prism, tidal levels (higher high and lower lows) for different section of the creek and current velocities?</p> <p>(d) Definitive coastal / structural / civil engineering, environmental and biodiversity information and justifications to demonstrate (a) to (c) above.</p> <p>(e) Provide some definitive information on the proposed route and alternative routes for the dredge spoil pipeline, and any support structures; their impacts on values of wetlands and coastal vegetation crossed; and mitigation measures.</p>
Appendix I	<p>Issue:</p> <p>Impacts to the hydrology of the Caboolture River from capital and maintenance dredging</p> <p>The siltation of the navigation channel has been investigated (Appendix I) and impacts of the development on flood levels, however, there is a lack of detailed information on the specific impacts of dredging 545,000m³ out of the navigation channel on the hydrology of Caboolture River and Deception Bay. There is no discussion of alterations to the tidal prism of the river, possible increases in tidal flow and associated impacts.</p> <p>A statement in Section 7.2, page 57, of Appendix I (Flood Study) is that “<i>the dredging of the navigation channel has the most significant impact on water velocity</i>”. There is no discussion of the size or impacts of this velocity change in the proposed section of the navigation channel to be dredged and resultant impacts to Deception Bay.</p> <p>Wetlands that are of Regional significance and Ramsar listed line much of the navigation channel in the area to be dredged. Whilst there is discussion of the impacts and benefits to wetlands on the NEBP site, there is very little information regarding the impacts to river banks further downstream in the areas to be dredged.</p> <p>Information Required:</p> <p>Discussion of the changes to velocity in the Caboolture River as a result of dredging is required, with reference to impacts on the following features:</p> <ul style="list-style-type: none"> - bank erosion along the channel in the dredged areas and possible loss of habitat as a result (eg. mangroves and saltmarsh). It is noted that existing vegetation along the river bank in this area will naturally reduce erosion (stated on page 246 of EIS), however, discussion of the potential increases in erosion and vegetation loss as a result of the dredging in this area is required; - bed erosion and transport of sediment and nutrients into Deception Bay

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	<ul style="list-style-type: none"> - changes to the tidal prism; and - possible effects of sea level rise. <p>This discussion should include expected and possible impacts and the extent of these, including cumulative impacts of the dredging.</p>
<p><i>EIS page 284-5, Section 2.8.2.2 and Appendix L2, Section 5.3.6 page 40 and Section 5.5.5.4, page 45</i></p>	<p>Issue: Impacts to sand flats adjacent to the Caboolture River mouth Concerns have been raised within the EIS and Appendix L2 regarding the impact of dredging on the adjacent sand flats near the Caboolture River mouth (EIS page 284-5, Section 2.8.2.2 and Appendix L2, Section 5.3.6 page 40 and Section 5.5.5.4, page 45). Sand from the flats is expected to be redistributed into the navigation channel post-dredging until a dynamic equilibrium is reached (Appendix M1, Section 7, page 11).</p> <p>The impact of this possible loss of sand from the flats has not been adequately assessed. The banks have been noted to be productive and provide habitat for benthic invertebrate and fish likely to feed over the flats at high tide. The flats also provide protection for mangroves and saltmarshes on the landward site of the flats (Appendix L2, Section 5.3.6, page 40).</p> <p>Information Required: Further information on the extent of impacts due to sand loss/redistribution from the flats is required. This should include details on impacts to:</p> <ul style="list-style-type: none"> - the benthic fauna and fish that utilise the area; - the shorebird critical high tide roost site on the southern side of the mouth of the river, and also potential loss of feeding habitat for shorebirds; - impacts to bank vegetation due to loss of sand that currently acts as a barrier to erosion; - Broader impacts to coastal processes in Deception Bay including long shore sand movement.
<p><i>Appendix L2, Section 3.2.2 and 3.2.3, pages 20-24</i></p>	<p>Issue: Water quality impacts from dredging The sediment chemistry and water quality has been found to be high in nutrients (Appendix L2, Section 3.2.2 and 3.2.3, pages 20-24). However, there does not appear to be a discussion on the possible impacts of the dredging to the water quality of Deception Bay. It is understood that the water quality of the Caboolture River is degraded, but at present, the sand bars at the mouth of the river generally impede the flow of this water into Deception Bay. Concerns are raised with respect to increased tidal flows into Deception Bay as a result of dredging of the river mouth and navigation channel, particularly with respect to Lyngbya blooms. It is noted that there is much discussion in the EIS on how the NEBP site will reduce nutrient loads in the Caboolture River and possibly reduce inputs from the sewage treatment plant, however, the impact of 'opening up' the river mouth to increased flows has not been adequately addressed.</p>

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	<p>Information Required: The effect of 'opening up' the river mouth and increasing tidal flows needs to be addressed in relation to the possible impacts to Deception Bay (particularly with reference to Lyngbya blooms due to increased nutrient loads entering the Bay compared to present levels, and increased turbidity levels that may result from increased flows). To adequately assess the potential release of nutrients from disturbed sediment, more sediment samples are required to be taken in the area proposed to be dredged. Two samples (of unknown depth) is not considered to provide a representative sample. At least 10 samples should be taken, including subsamples within the core to the full dredge depth.</p> <p>Recommendation: Monitoring of dredge impacts is suggested within Appendix L2, Section 5.5.5, page 45 and 46. The EPA supports these suggestions and recommends that a monitoring program be developed prior to any dredging works commencing.</p>
<i>EIS - General</i>	<p>Issue: It has been determined that further information is required to assess the direct and indirect impacts associated with:</p> <ul style="list-style-type: none"> • Coastal Buffer Requirements. <p>Advice Required from Department of Infrastructure and Planning: The EPA is seeking advice regarding the Main Roads Department's (MRD) future arterial road (identified in the original submission) to be located within the site? Any MRD future arterial road that must be planned for and is required to be located to ensure any future impacts onto the CMD and buffer areas are prevented and/or minimised to the greatest extent.</p> <p>Information Required:</p> <p>(a) The CMD plan (Figure 14) appears to be too complicated and confusing. Please provide the drawing broken into 2, one for the diagrammatic representation shown on Map Sheets 7 and 8 from the <i>SEQ Regional Coastal Management Plan 2006</i>; the other detailing the ground-truth version.</p> <p>(b) Fully detail the method and mechanism that will be used to ensure:–</p> <p>(i) The CMD and buffer areas will permanently remain significantly undeveloped.</p>

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	<p>(ii) The public (i.e. not just the residents for the site) will permanently have unrestricted access to these areas. Where are the car-parking facilities for non local visitors? (Car parking etc for non-residents: not located within CMD buffer.)</p> <p>(iii) The maintenance and continuing rehabilitation will occur within the CMD and buffer area.</p> <p>(c) All discharges through the development site (i.e. either during construction or when fully operational) to the buffers and or waterways must be justified to demonstrate that best practice will be achieved to ensure the environmental values of wetlands and coastal waters are protected. Any discharge points (i.e. stormwater channels/outlets or stormwater management devices) are not permitted within the CMD. All discharges must be suitably treated within the development site prior to discharge onto any grass swales, etc within the buffer outside the CMD or into the marina basin area. Generally, the EPA would seek that the Coastal Management District be surrendered to the state for coastal management purposes through a voluntary surrender or condition imposed by the Governor in Council, however in this case it is acknowledged that other management structures can be put in place to manage the CMD for coastal management. Therefore, in accordance with management of coastal resources, any hard structures or contaminated discharges, including stormwater, within the CMD would not be acceptable. In areas classified as “slightly to moderately disturbed”, any stormwater discharged to the Caboolture River (or tributaries of) must demonstrate that the water quality will be improved or impacts prevented. Where this cannot be achieved, offsets may be considered.</p>
<i>EIS - General</i>	<p>Issue: It has been determined that further information is required to assess the direct and indirect impacts associated with:</p> <ul style="list-style-type: none"> • Lock, weir; and dry land marinas / lake development. <p>Information Required: The SEQ Regional Coastal Management Plan 2006 / State Coastal Management Plan 2001 (i.e. outcomes, principles and policies) particularly with regard to Chapters:- (a) 2.1.4:</p> <p>(i) Demonstrate that the project has no significant direct or cumulative adverse impacts on areas or values identified under (a) to (g) of Chapter 2.1.4.</p> <p>(ii) Ensure impacts are mitigated and minimised.</p> <p>(iii) Ensure there is a net gain of coastal resources and values.</p>

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	<p>(b) 2.1.9: (i) Clear justification and the avoidance or minimisation of adverse impacts on coastal resources and their values.</p> <p>(c) 2.1.15: (i) The project must demonstrate that construction and operation will not result in direct or indirect adverse impacts on items (a) to (h) in Chapter 2.1.15. (ii) The design of the project waterways must specifically ensure compliance with items (a) to (g) in Chapter 2.1.15. (iii) The construction and maintenance of non-tidal artificial waterways must address the provision of land for the disposal of dredge-material and be in accordance with policy 2.1.8 Dredging. Land allocated for new and existing non-tidal artificial waterways for the purpose of dredge-material disposal or rehandling is protected from future development. As part of a development application, proponents are to address the direct and indirect cumulative impacts of construction and maintenance of non-tidal artificial waterways, including dredge-material disposal.</p> <p>➤ Impacts are mitigated and minimised: A report compiled by suitably qualified person(s) containing definitive coastal / structural / civil engineering, environmental and biodiversity information and justifications to satisfactorily address the issue of “ensuring impacts are mitigated and minimised”.</p> <p>➤ No significant direct or cumulative adverse impacts: A report compiled by suitably qualified person(s) containing definitive coastal / structural / civil engineering, environmental and biodiversity information and justifications to satisfactorily address the issue of “no significant direct or cumulative adverse impacts on areas or values”, referencing the EPA policy document; ‘State and regional coastal management plans: interpretation of the policy terms “no” or “no significant” adverse impact’ – http://www.epa.qld.gov.au/publications?id=1981.</p> <p>➤ Net gain of coastal resources and values: The terms and abbreviations in the <i>SEQ Regional Coastal Management Plan 2006</i> define:– coastal resources: the <u>natural</u> (natural and physical features and processes of the coastal zone, including wildlife, soil, water, minerals and air) and <u>cultural</u> (places or objects that have anthropological, archaeological, historical, scientific, spiritual, visual or sociological significance or value, including such significance or value under Aboriginal tradition or Island custom) resources of the coastal zone (s12 and schedule of the <i>Coastal Protection and Management Act 1995</i>). coastal zone: coastal waters and all areas to the landward side of coastal waters in which there are physical features, ecological or natural processes human activities that affect, or potentially affect, the coast or coastal resources (s15 <i>Coastal Protection and Management Act 1995</i>) Accordingly, it will be necessary to satisfactorily address the issue of “net gain of coastal resources and values”. In this regard, it is advisable (but</p>

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	<p>may not be limited to) to:–</p> <p>(a) Define all the qualitative and quantitative coastal resources and values (natural and cultural) of the:–</p> <p>(i) Impacted areas (i.e. the proposed entrance channel; marina precinct areas and all other areas within the CMD to be impacted on by the development).</p> <p>(ii) The existing areas that are intended to receive a gain in coastal resources and values:</p> <ul style="list-style-type: none"> ➤ Detailing the existing coastal resources and values, prior to the project proceeding; and ➤ Detailing the anticipated (i.e. after completion of an implementation plan) coastal resources and values, including any rehabilitation, boardwalks, bird-hides, etc. <p>It would then be possible to make a comprehensive evaluation and determination of the net gain in coastal resources and values for these existing areas.</p> <p>(b) Justify how there will be a consequential net gain of coastal resources and values for the development project.</p> <p>It is considered that to show that there will be a net gain of coastal resources and values; it would be necessary to clearly provide detailed supporting information that there will be:–</p> <p>(i) No net loss in the:–</p> <ul style="list-style-type: none"> ➤ Natural resources of the coastal zone; and ➤ Cultural resources of the coastal zone. <p>(ii) A net gain in at least one of the following.</p> <ul style="list-style-type: none"> ➤ Natural resources of the coastal zone; or ➤ Cultural resources of the coastal zone. <p>Land surrender; required buffers; improved or altered flora and fauna corridors, etc may not apply in this instance particularly where these issues are required to be implemented as a consequence of the development proceeding and being independent of this part of the assessment. This issue may be subject to further discussions during the application stage.</p> <p>(c) Detail the full implementation plans to ensure the net gain of coastal resources and values detailed in (a)(ii) above are able to be guaranteed, including:–</p> <p>(i) well-defined frameworks: identifying specific strategies, monitoring programs, objectives and outcomes;</p> <p>(ii) timeframes;</p> <p>(iii) costing; and</p>

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	(iv) specific assurances to ensure that implementation plan will be commenced, adhered to and completed.
EIS - General	<p>Issue:</p> <p>It has been determined that further information is required to assess the direct and indirect impacts associated with:</p> <ul style="list-style-type: none"> • Algal Blooms. <p>Chapter 2.4.7 (Algal blooms) of the SEQ Regional Coastal Management Plan 2006.</p> <p>While there are some references to algal blooms potentially associated with run-off from site operations, the report inadequately demonstrated the risks associated with proposed disturbance of the site during construction and mobilisation of nutrients of concern while dredging.</p> <p>Information Required:</p> <p>Definitive coastal / structural / civil engineering, environmental and biodiversity information and justifications to demonstrate compliance is required to show how the development will meet the policy.</p>
	<p>Issue:</p> <p>It has been determined that further information is required to assess the direct and indirect impacts associated with:</p> <ul style="list-style-type: none"> • Public Maritime Facilities. <p>Information Required:</p> <p>(a) Drawing Numbers 7900/33/05-400 and 7900/33/05-405:</p> <p>Whilst there may be a need for a facility for the intake works for the marina basin; no justifications have been provided to incorporate a pontoon facility at this location.</p> <p>Provide definitive coastal / structural / civil engineering, environmental and biodiversity information and justifications to demonstrate the need for a mooring pontoon at this location.</p> <p>(b) Canoe Ramp and Fishing Landing:</p> <p>Provide definitive coastal / structural / civil engineering, environmental and biodiversity information and justifications to demonstrate the need for these public facilities at this location.</p> <p>As public access facilities, how will they:-</p> <ul style="list-style-type: none"> (i) allow for access by even non-local public; and

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	<p>(ii) be managed and maintained.</p> <p>(c) Page 232 of the Northeast Business Park Environmental Impact Statement: <u>States</u>: Other structures associated with the development within the erosion prone area including fishing jetties, coastal boardwalks and canoe landings are considered as temporary and/or relocatable and therefore not assessed against the RCMP. This is not correct.</p>
	<p>Issue:</p> <p>It has been determined that further information is required to assess the direct and indirect impacts associated with: Groundwater Impact Assessment:</p> <p>(a) Groundwater modelling of marina excavation (p.28) The objective of the modelling study was to simulate drawdown of groundwater pressure heads that may develop due to the excavation of the proposed marina at NE Business Park.</p> <p>(b) Groundwater Flow and pressure heads (p.30):</p> <p>(i) The development will likely change the groundwater flow and recharge.</p> <p>(ii) The transformation of the Site into a more urban landscape will likely affect the recharge sources.</p> <p>(iii) Capillary groundwater may rise at filled areas but the impact will not be major if the fill is not PASS.</p> <p>(iv) Groundwater pressure heads close to the marina basin (~400m) may temporarily decline during the marina excavation with drawdown strongly depending on the duration of the excavation process.</p> <p>(v) There is potential seepage of river water into the marina during dry excavation</p> <p>(c) Stakeholders (p.31): No boreholes currently in the vicinity are likely to be affected by the development.</p> <p>(d) Subsidence (p,31): The marina excavation may cause a localised lowering of the water level. Due to the risk of this resulting in subsidence, this needs to be considered in the design of the buildings.</p> <p>(e) Groundwater Contamination (p.32):</p> <p>(i) The introduction of roadways and industry to the site may result in contamination of the groundwater.</p> <p>(ii) The development of the site may also result in an increase in nitrogen levels from cars and gardens, it is believed that these contaminants will</p>

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	<p>only have a localised effect on the groundwater quality as they will most likely degrade on the way to the river.</p> <p>(iii) Further water chemistry sampling program is recommended including the testing for hydrocarbons, organic compounds and heavy metal scans.</p> <p>The document doesn't recommend specific mitigation measures but recommends further and ongoing monitoring of groundwater. The potential subsidence of buildings (p.31) on the site appears the most significant issue</p> <p>Information Required: Provide specific mitigation measures and an ongoing commitment to monitor groundwater.</p>
<p><i>Stormwater Management Plan</i></p>	<p>Issue: It has been determined that further information is required to assess the direct and indirect impacts associated with:</p> <ul style="list-style-type: none"> • Stormwater Management Plan. <p>Recommendation: On page 8 of the Stormwater Management Plan it is stated "A detailed erosion and sediment control (ESC) plan will be produced before the construction phase of development to meet the above WQO's" According to the EPA Guideline: "Requirement. An erosion and sediment control plan (ESCP) that embodies the above measures is required for all assessable development, incorporating a range of best practice erosion, sediment and drainage control measures for planning, design and construction activities" . An ESCP is required to be prepared as either part of the Supplementary Report to the EIS or during the post EIS application stages. In this regard, the EIS Stormwater Management Plan should also reference the EPA Guideline: <i>EPA best practice urban stormwater management: erosion and sediment control: Guideline</i> (http://www.epa.qld.gov.au/publications?id=2301).</p> <p>Information Required:</p> <p>(a) The stormwater management plan does not report against the water quality objectives as outlined in the EPP Water as the adopted water quality targets are based on pollutant load reductions rather than achieving median pollutant concentrations (p.29). The EIS 'Stormwater Management Plan' must report against the EPP Water.</p> <p>(b) "Catchment stormwater management plans – developed as part of the initial area development plan for the first stage of development in each catchment".</p>

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	<p>In this regard, it is taken to mean that plans will be completed closer to the time for construction. It is considered that a draft framework should be provided in the EIS to enable the assessment of stormwater management.</p> <p>(c) Overall, the Plan shows that the proponents are committed to best practice and have set themselves some quality objectives to reach with their stormwater.</p> <p>It is considered that a draft framework should be provided in the EIS to enable the assessment of stormwater management.</p>
<p><i>EIS Section 4.4.1.1 Surface Waterways Background P193</i></p>	<p>Issue: Water Quality Objectives specified by the Queensland Water Quality Guidelines, 2006 for litter, hydrocarbons, heavy metals and faecal coliforms were acknowledged as not necessarily achievable (p. 193). These objectives are a statutory requirement under the <i>Environmental Protection (Water) Policy 1997</i> and comments about the appropriateness of the objectives are not helpful.</p> <p>Information Required: Specify what will be achieved and how, recognising that the proponent can only control what is leaving their site. Expected performance of pollution intercept devices, ponds and wetlands should be provided. Also refer to Coastal Buffer Requirements for further information.</p>
<p><i>EIS Section 4.4.1.1 Surface Waterways P190</i></p>	<p>Issue: Detailed stormwater infrastructure plans were not provided. The potential location of constructed wetlands within areas declared open space is not supported on two grounds. Firstly, best practice management locates stormwater infrastructure entirely outside open space so as to preserve the areal extent of open space and to buffer development from wetlands or waterways (in this instance the Caboolture River). Secondly, bioretention basins or constructed wetlands located almost entirely within flood prone land (below the Q100 line) may lead to the potential prolonged inundation of the pond during flood events resulting in system failure. The scour effect of sustained flood waters may also lead to costly repair of filter media and re-planting of vegetation.</p> <p>Recommendation: Pollution from industrial areas is required to be structurally separated from stormwater runoff pathways so that it does not enter the stormwater system. Structural separation can be achieved by roofing work areas, and directing wash down to storage (which is subsequently pumped out as industrial waste) or sewer. Refer also to the Healthy Waterways Partnership factsheets and guidelines on WSUD for Industrial Sites and Precincts.</p> <p>Ensure detailed stormwater plans including stormwater infrastructure are developed prior to any development occurring on the site. These should be prepared and assessed through any development assessment process in the future.</p>

Document Section [section and page number]	Recommendation/Comment/Information Required
<p><i>EIS – General</i></p>	<p>Issue: River bank erosion is likely due to the increased river vessel traffic.</p> <p>Recommendation: Education of users should emphasise speed limits and adherence to navigation channel boundaries. Monitoring of impacts and restoration work will be required.</p> <p>Increased boat traffic will lead to increased impacts on aquatic species (including boat strike injuries), and wader bird sites (the river is Ramsar listed). Education of users should emphasise speed limits, incident procedures and regulatory provisions. Reporting of incidents should be directed to Marine Parks.</p>
<p><i>Northeast Business Park – Net Benefit Assessment Section 7.1.3 Environmental Costs P 67</i></p>	<p>Issue: The establishment of an Environmental Trust Fund to be administered by an environmental group (Net Benefit Assessment, p.67) should require a Rehabilitation Management Plan. A detailed Revegetation and Rehabilitation Management Plan should be provided for the site to indicate the extent, methods and management of works. Revegetation should use native species that reflect the pre-clearing regional ecosystem, with preference given to endemic species. Plants should be of local provenance where possible. This plan should include the erosion restoration work referred to above.</p> <p>Recommendation: Rehabilitation works of the 100 metre wide riparian zone should be undertaken/managed by suitably qualified persons. Also, ensure a detailed Revegetation and Rehabilitation Management Plan is prepared and reviewed by relevant stakeholders prior to works commencing. This may be an appropriate condition of the EIS or other approvals required.</p>
<p><i>EIS - General</i></p>	<p>Issue: A detailed Sediment and Erosion Control Plan was not included in the draft EIS.</p> <p>Recommendation: A detailed Sediment and Erosion Control Plan should be prepared through either conditions of the EIS or assessment process that are required by other approvals. The plan should detail drainage works and the proposed eight earth embankment flood mitigation structures. Please see the EPA's Guideline – Best Practice Urban Stormwater Management – Erosion and Sediment Control and any other relevant guideline or document.</p>

Document Section [section and page number]	Recommendation/Comment/Information Required
<p>EIS Section 3.5.3 Marina Operations P121</p> <p>EIS Section 3.7.3 Water Supply and Storage P121</p> <p>EIS Section 3.8.1.2</p>	<p>Issue: Best practice environmental management for the proposed golf course.</p> <p>Recommendation: The golf course should employ strategies to ensure that run-off from high nutrient areas are directed away from natural waterways and that irrigation systems be self-contained (having no off-take or input into local waterways). The use of treatment ponds and constructed wetlands could serve a dual purpose: the capturing & polishing of stormwater and its reuse for irrigation.</p> <p>The inclusion of existing remnant vegetation into course design is supported. However, the viability of thin strips of locally endemic species adjacent to artificially irrigated and fertilised fairways is cause for concern. Edge effects (such as the use of pesticides for weed management) may adversely impact on the structural and floristic integrity of these vegetation communities, especially in the medium to long term.</p> <p>Mitigation of impacts for rare or threatened species is recommended in accordance with Section 19 and 24 of the Nature Conservation (Wildlife) Regulation 2006. <i>Crinia tinula</i> and <i>Adelotus brevis</i> are recorded in the Raff Creek area associated with wetland vegetation RE 12.3.5. They are particularly susceptible to changes in nutrient levels and special attention should be given to establishing a specific recovery or conservation plan from potential impacts associated with the construction and operation of the golf course. Threatened species habitat (including referable wetlands) should be adequately buffered from the golf course through the revegetation of waterway corridors. A distance of at least 50m is recommended to protect sensitive environments from run-off, nutrient leaching and chemical pollutants.</p> <p>Wildlife corridors should be maintained and enhanced. Herbicide spaying should not be conducted adjacent to or within regional ecosystems identified for rehabilitation. Only manual weed removal techniques should be employed.</p> <p>A document relating to the above, entitled "Improving the Eco-Efficiency of Golf Courses in Queensland" can be purchased via the web page— http://www.agcsa.com.au/guests/bookshop/index.jsp?book_type_code=13000</p>
<p>EIS - General</p>	<p>Issue: Best practice environmental management – Water Sensitive Urban Design.</p> <p>Recommendation: All car parking, including the Sport & Recreation area and Heritage Park, should be constructed using WSUD principles such as porous paving, kerbless</p>

Document Section [section and page number]	Recommendation/Comment/Information Required
	gutters and grassed swales.
<p>Northeast Business Park – Net Benefit Assessment Section 4.3 Benefits P 28</p>	<p>Issue: Section 4.3 'Benefits' of the Net Benefit to the State Report (page 28) lists an Environmental Impact as "Improved Bushfire Management". The unstated cost of this 'benefit' is land excavation and clearing of vegetation.</p> <p>Recommendation: Improved bushfire management can be achieved by other means than permanent clearing of vegetation and in this case should not be listed as a benefit.</p>
<p>EIS Section 4.2.1.3 Soils P164</p> <p>EIS Section 4.2.2.2 Land Contamination P176</p>	<p>Issue: Contaminated Land located on Lot 10 on RP902079.</p> <p>Recommendation: A Suitability Statement issued in accordance with Chapter 7, Part 8 of the Environmental Protection Act 1994 (stating that Lot 10 on RP902079 is suitable for the intended use), is required to be obtained prior to any future Development Permits being issued for the site. Rehabilitation of the potentially contaminated site is recommended to achieve gaining a suitability statement.</p>
<p>EIS Section 3.5.2.2</p>	<p>Issue: A mosquito control initiative is to avoid vegetation corridors from breeding areas into the development.</p> <p>Information Required Explain how this principle was taken into account in developing the layout, landscaping and vegetation protection areas for the site.</p>
<p>EIS Section 4.9.1.2 page 292</p>	<p>Issue: The EIS proposes that a Non-Indigenous Cultural Heritage Management Plan be developed as a statutory requirement of the <i>Queensland Heritage Act 1992</i>. While the cultural heritage protection arrangements proposed for the project are laudable, the EPA has no record of the site being listed under this legislation, and there is no requirement for such a plan.</p>

Document Section [section and page number]	Recommendation/Comment/Information Required
	<p>Recommendation: That the proponent prepare a Cultural Heritage Management Plan (non-Indigenous) that incorporates the objectives and principles proposed in the EIS, and involves locally interested parties in its implementation, but that State representation and involvement is not required.</p>

Enquiries [REDACTED]
Telephone [REDACTED]
Your reference TN102492/SE10/CG
Our reference BNE29550

Environmental Protection Agency

Incorporating the
Queensland Parks and Wildlife Service

10 November 2006

The Coordinator-General
Attention: [REDACTED]
EIS Project Manager – North East Business Park Project
Major Projects Division
PO Box 15009
CITY EAST QLD 4002

Dear [REDACTED]

Comments on Draft Terms of Reference for an Environmental Impact Statement for the proposed North East Business Park Project

I refer to the letter from [REDACTED] Assistant Coordinator-General dated 11 October 2006 inviting comment on the draft Terms of Reference (ToR) for the proposed North East Business Park Project.

The Environmental Protection Agency (EPA) has reviewed the draft ToR and has prepared comments for your consideration which are attached. While there are no major omissions from the draft ToR the suggested amendments would help ensure the proponent has more clarity in what should be addressed in the Environmental Impact Statement.

Thank you for seeking the EPA's comments and if I can be of further assistance please do not hesitate to call me on [REDACTED]

Yours sincerely [REDACTED]

Director Integrated Assessment Branch

Response from the Environmental Protection Agency on the draft Terms of Reference (TOR) for an Environmental Impact Statement for the North East Business Park project.

The Environmental Protection Agency has assessed the draft TOR for the North East Business Park project and offers the following comments for consideration:

Section 4.5 Coastal environment

Issue:

The TOR identifies the need to demonstrate consistency with the State Coastal Management Plan and SEQ Regional Coastal Management Plan (SEQ Coastal Plan), however, it does not sufficiently identify the policies of the SEQ Coastal Plan of relevance to the proposal. The TOR should provide greater detail of relevant policies of the SEQ Coastal Plan.

Recommendation:

Section 4.5.2 Potential impacts and mitigation measures page 27, replace existing text with tracked changes version provided below.

The EIS must demonstrate the proposal's consistency with the *State Coastal Management Plan 2001* and its policies and the South East Queensland Regional Coastal Management Plan. In particular, the EIS must address the proposal's consistency with policy criteria in Policy 2.1 Coastal use and development, 2.2 Physical coastal processes, 2.3 Public access to the coast, 2.4 Water quality, 2.5 Indigenous Traditional Owner cultural resources, 2.7 Coastal landscapes and 2.8 Conserving nature. *Policies of the State and/or South East Queensland Regional Coastal Management Plan of particular relevance may include:*

- *Policy 2.1.3 Coastal-Dependant Land Uses;*
- *Policy 2.1.4 Canals and dry land marinas;*
- *Policy 2.1.5 Maritime Infrastructure;*
- *Policy 2.1.8 Dredging;*
- *Policy 2.2.2 Erosion prone areas;*
- *Policy 2.8.1 Areas of State Significance (Natural resources);*
- *Policy 2.8.2 Coastal wetlands; and*
- *Policy 2.8.3 Biodiversity.*

Specific issues to be addressed associated with physical coastal processes include:

- The potential impacts of the proposed works on tidal hydrodynamics in the Caboolture River, *Pumicestone Passage and Deception Bay* including changes to flow velocities and water levels, and on entrance stability. The assessment

should consider the effects of the proposed marina basin and the proposed channel dredging both separately and in combination.

- The potential of the proposed works to impact on bank erosion within the Caboolture River, *Pumicestone Passage and Deception Bay*. This should include:
 - o The likely increase in size and number of vessels using the river *and Bay areas* and an assessment of the erosive effects of vessel wash associated with boat traffic accessing the proposed marina.
 - o A survey of the existing condition of the banks in the Caboolture River-, *Pumicestone Passage and land adjacent to Deception Bay* and identification of the erosion potential of those banks
 - o The potential need for bank protection works.
- *The potential of the proposed works to impact (through sitting, construction and / or ongoing operation including capital and maintenance dredging) on:*
 - *largely undeveloped tidal waterways (Caboolture River is identified as an undeveloped tidal waterway in the SEQ Regional Coastal Management Plan -- policy 2.1.5);*
 - *declared fish habitat areas;*
 - *areas of coastal biodiversity significance;*
 - *coastal wetlands, including the opportunity to rehabilitate, restore or enhance degraded coastal wetlands;*
 - *areas of value to Indigenous Traditional Owners;*
 - *areas of state significance (cultural heritage); and*
 - *public access.*
- The vulnerability of the proposed development to storm tide flooding.
- The potential of the proposed works to affect vulnerability to storm tide flooding on properties adjacent to the Caboolture River.
- *The provision and dedication of land for the disposal of dredge-material (from capital and maintenance dredging) associated with the proposal. This includes for the marina area and any access channels to the marina.*

The water quality objectives and practical measures for protecting or enhancing coastal environmental values are to be defined and described, including how nominated quantitative standards and indicators may be achieved, and how the achievement of the water quality objectives will be monitored, audited and managed. The potential environmental harm caused by the proposal on coastal resources and processes shall be described in the context of controlling such effects. *The State Planning Policy – Planning and Managing Development involving Acid Sulfate Soils 2002* should be addressed as should the *State Coastal Management Plan 2001 South East Queensland Regional Coastal Management Plan* and QDPI Guidelines for Marine Areas.

Specific issues to be addressed include:

- Describing the water quality objectives used and how predicted activities will meet these objectives (refer to the Environmental Protection (Water) Policy).

- Potential threats to the water quality and sediment quality within the Caboolture River associated with the construction and operation of the facilities. This assessment shall consider, at minimum:
 - Method and timing of the excavation of the marina basin including treatment and disposal of excavated materials and tailwater.
 - Dredging and dredge material disposal, including disturbance of layers of coffee rock, fine grained sediments and contaminated material.
 - Potential accidental discharges of contaminants during operation of the marina precinct.
 - Release of contaminants from marine structures and vessels, including antifouling coatings.
 - Stormwater runoff from developed areas.
- The role of buffer zones in sustaining fisheries resources through maintaining connectivity between coastal and riparian vegetation and estuarine and freshwater reaches of catchments should be discussed.
- The impact of the proposal on potential blooms of the hazardous cyanobacteria *Lyngbya majuscula* in Deception Bay and the tidal reaches of the Caboolture River with particular reference to policy 2.4.7 (algal bloom management) of the South East Queensland Regional Coastal Management Plan.

The coastal biodiversity values as mapped or described by the State and / or South East Queensland Regional Coastal Management Plan are to be identified and an ecological survey and assessment of the flora and fauna associated with areas containing coastal biodiversity values undertaken. This is to include areas of state significance (natural resources) (policy 2.8.1) and coastal wetlands (policy 2.8.2), including 100m from these areas, and areas containing biodiversity values (2.8.3). The proposal should demonstrate consistency with policies under topic heading 2.8 Conserving Nature of the State and / or South East Queensland Regional Coastal Management Plan. Specific issues to be addressed include:

- *demonstrating that the current extent and diversity of coastal wetlands is maintained;*
- *demonstrating that there is no unavoidable loss or degradation to areas of coastal biodiversity;*
- *ensuring connectivity of ecosystems is maintained, protected and enhanced, ensuring it achieves maintenance of ecological functioning and mitigates potential impacts from edge effects and changes to species diversity and composition;*
- *rehabilitation of degraded areas containing coastal biodiversity values;*
- *ensuring there is an appropriate buffer to areas containing coastal biodiversity values;*
- *impacts to the functioning of shorebird habitats, including nesting, roosting and feeding, and maintaining the current extent and quality of critical shorebird habitat.*

Northeast Business Park MIKE21 Flood Study

May, 2008

Northeast Business Park Pty Ltd



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Author: [Redacted] Water Engineer, [Redacted] Senior Water Engineer

Signed: [Redacted]

Reviewer: [Redacted] (Technical) [Redacted] Report

Signed: [Redacted]

Approved by: [Redacted] Senior Water Engineer

Signed: [Redacted]

Date: May 2008

Distribution: Northeast Business Park Pty Ltd

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Executive summary

Northeast Business Park Pty Ltd is proposing to develop a 326 ha multiuse precinct on 760 ha of privately owned land located at Nolan Drive, Morayfield. This degraded site is a former pine plantation on the southern banks of the Caboolture River near Burpengary. The development will have a marine industry and business focus and provide new public access to the riverfront.

The terms of reference for this Flood Study were set at a meeting on the 10 August 2005 attended by Trefor Jones and Leanne Salter of the Caboolture Shire Council (CSC), Northeast Business Park Pty Ltd and Parsons Brinckerhoff. At this meeting the flood plain management policy and the stormwater quality requirements were discussed.

This investigation details the floodplain modelling for the proposed Northeast Business Park. Modelling was undertaken using the MIKE21 software package developed by the Danish Hydraulics Institute. The outcomes of the modelling have been assessed against CSC's two main floodplain management conditions:

- no net loss of flood storage across the development site
- no resultant increase in flood levels over adjoining properties.

Model scenarios contained in this report are:

- Base Case — developed to determine the existing condition peak flood levels throughout the floodplain. This case represents the existing floodplain topography as surveyed in October 2005. Model calibration and verification was undertaken with the base case against three historical events (1972, 1989 and 1991). Model sensitivity, model fitness and a mass balance were also assessed. Overall the MIKE21 model is a good representation of the lower Caboolture River floodplain and comparison against the 1994 flood model results shows an improvement in the calibration model and the verification models. Therefore the model is appropriate to assess development within the floodplain.
- Development Case — represents the proposed development with flood mitigation works. This development case includes the cut and fill plan as supplied by Northeast Business Park Pty Ltd (Drawing 0304 SK36, issue SD04, dated 30 July 2007 Ref 20430-10D).

The preferred mitigation case consists of:

- north by-pass channel — cut to 1.5 m AHD, grass managed
- Raft Creek — cut to 2.0 m AHD, grass managed
- south by-pass channel — cut to 1.5 m AHD, grass managed
- six earth diversion banks — three near the marina, two on the eastern boundary, one in the north-western section.

It is estimated that the total earthworks (as cut) for the by-pass channels in the preferred mitigation scenario 699,000 m³. This does not include the six earth diversion banks as design of these structures will be undertaken during the detailed design phase.

The preferred mitigation case shows overall reductions in the peak water levels for the 100 year ARI events across the flood plain. This is due to the flood mitigation works that increase the conveyance through the development site and therefore reduce the flood conveyance through the northern section of the lower Caboolture River floodplain (north of the Caboolture River).

The changes in the flow velocities within Caboolture River due to the flood mitigation works are insignificant when compared to the base case velocities. As expected the navigation channel has the most impact on river velocities.

Overall the proposed works represent a net benefit for the community in terms of flooding. The peak flood levels will be lowered in much of the surrounding flood plain with localised peak flood level increases occurring only within the site boundary or in locations where existing infrastructure will not be impacted.

There is an increase in floodplain storage within the development boundaries in the order of 1.4 million m³.

The following recommendations are made:

- the preferred mitigation strategies be adopted to minimise afflux associated with the proposed development in accordance with CSC's requirements
- the detailed design of any structures (bridges, culverts, etc) that are proposed within the floodplain (over, under, or through) will need to be appropriately modelled to assess the impacts on flood levels
- the maintenance of the grass managed areas is essential to the flood mitigation proposed in this study. These areas must be designed such that the vegetation/land cover/land use relate to a Manning's n roughness value of 0.035. Deviations from this value may need to be remodelled
- structural input is recommended for the design of the earth diversion banks to avoid 'washouts' and therefore compromise the flood mitigation proposed.

1. Introduction

Northeast Business Park Pty Ltd is proposing to develop a 326 ha multiuse precinct on 760 ha of privately owned land located at Nolan Drive, Morayfield. This degraded site is a former pine plantation on the southern banks of the Caboolture River near Burpengary. The development will have a marine industry and business focus and provide new public access to the riverfront.

The Northeast Business Park is located immediately downstream of the Bruce Highway and is within the study area of the 1994 Flood Study (“Caboolture Flood Study comprising Caboolture River, King John Creek, Lagoon Creek”, prepared by Australian Water Engineering (AWE), April 1994). AWE investigations indicated that the flood levels for the upstream end of the site is 7.88 m AHD (Bruce Highway Bridge) down to 2.47 m AHD at the confluence of King John Creek and the Caboolture River.

Figure 1-1 shows the proposed development locality and boundary.

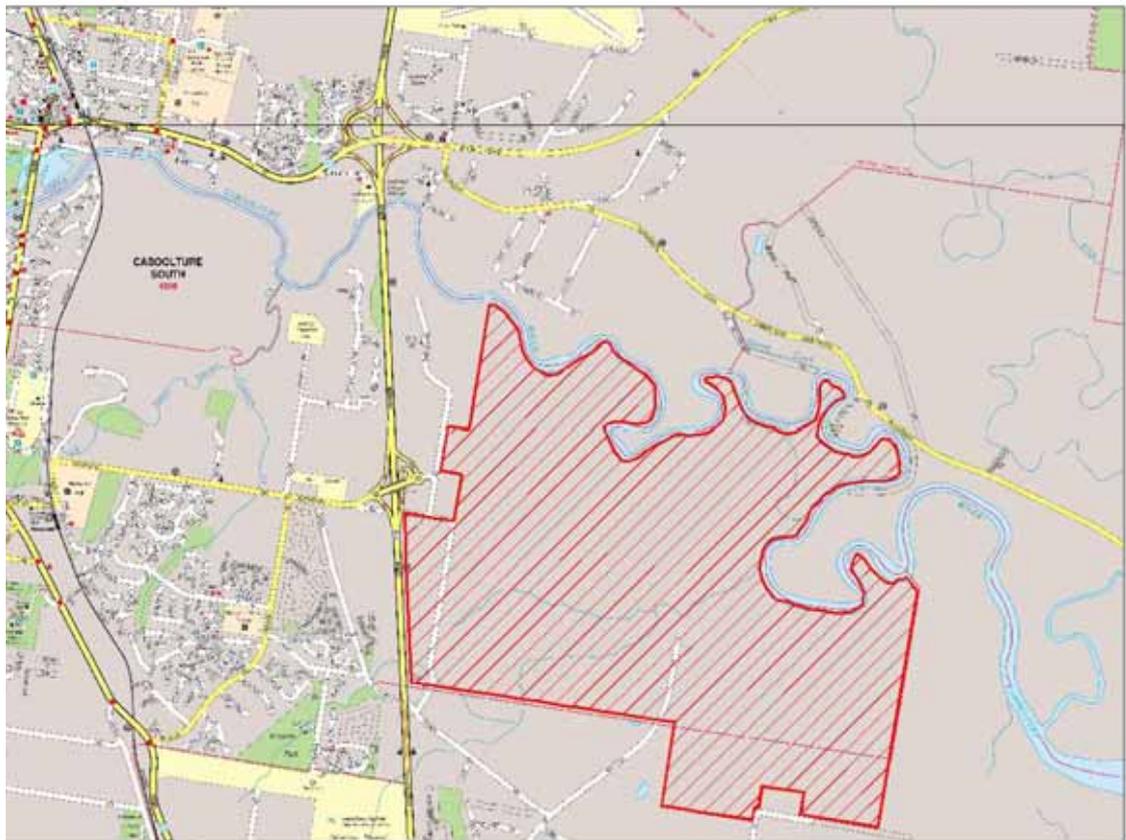


Figure 1-1: Location of Northeast Business Park

1.1 Study objectives

The primary objectives of this report are as follows:

- to provide Northeast Business Park Pty Ltd with advice showing the potential impact of the proposed earthworks plan over the development site, subject to Council's requirements of no adverse impact over adjoining properties
- to provide Northeast Business Park Pty Ltd with recommendations for any further flood mitigation strategies required to meet Council's requirements.

1.2 Background

The terms of reference for this Flood Study were set at a meeting on the 10 August 2005 attended by Trefor Jones and Leanne Salter of the Caboolture Shire Council (CSC), Northeast Business Park Pty Ltd and Parsons Brinckerhoff (PB). At this meeting the flood plain management policy and the stormwater quality requirements were discussed. Prior to the modelling work being undertaken, CSC was consulted to ensure that the flood model met their requirements.

The previous 1994 flood modelling by AWE has provided an acceptable basis for the determination of broad scale flood level prediction and broad scale flood inundation mapping. However, the schematisation of the AWE EXTRAN model of the Caboolture River downstream of Captain Whish Bridge illustrates the complexity of the flood flow patterns expected in the area (Figure 1-2).

One-dimensional (1D) (quasi-2D) models such as the AWE model require all flow paths to be pre-determined at model setup stage, thus requiring assumptions of expected flood behaviour over a range of flow magnitudes. In these models the floodplain is represented as a series of connected 1D links. Each 1D link is defined by a series of cross section spaced at intervals along the link. The accuracy of the model is governed by how well the cross section represents the shape of the waterway and how well the links represent the flow paths. As this site is relatively flat and flow paths are not clearly defined a 2D model is expected to provide a more accurate representation of the floodplain. Therefore this study adopted a two-dimensional (2D) flood modelling approach utilising MIKE21 (developed by the Danish Hydraulics Institute).

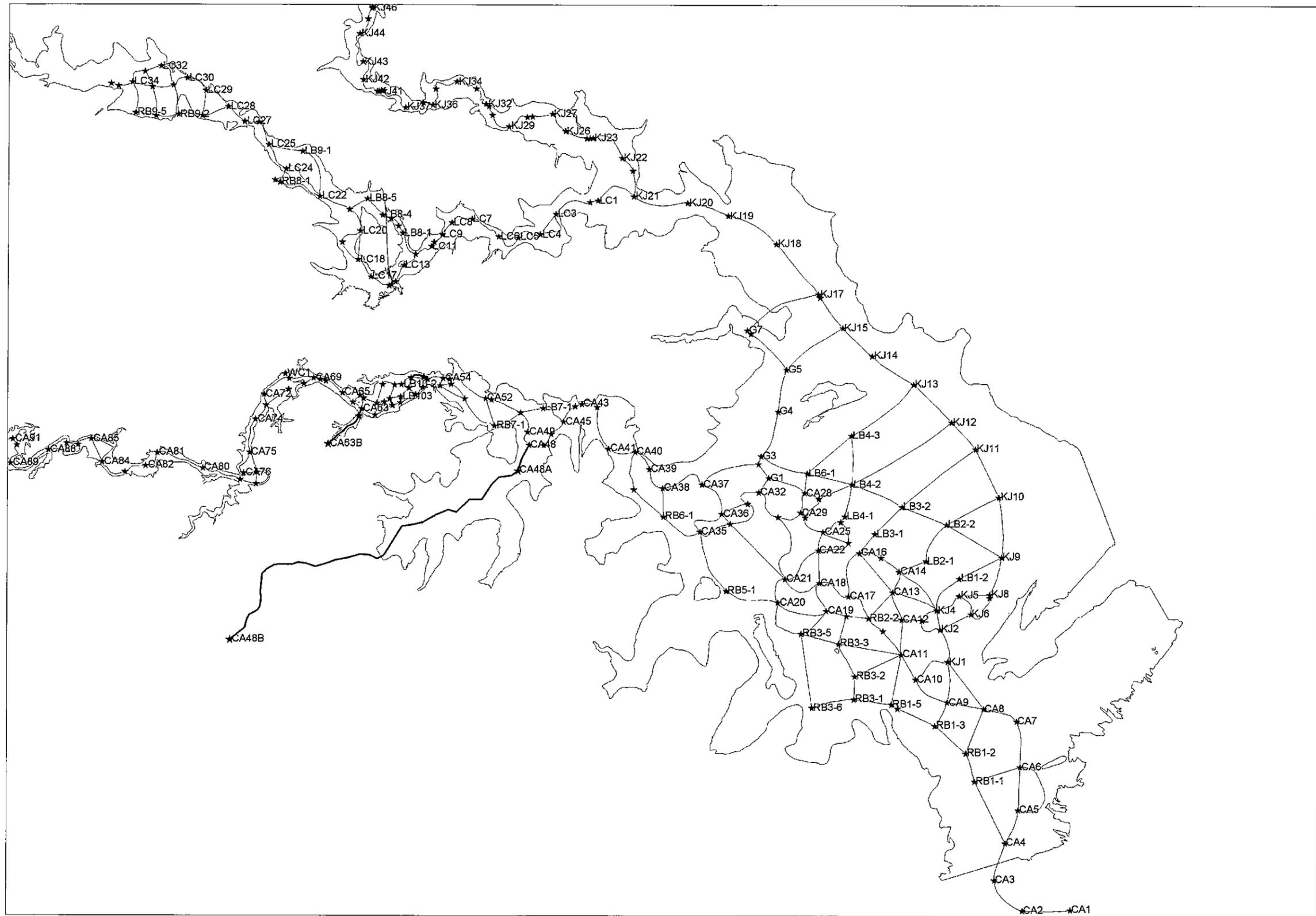
Discussions with CSC indicated that the 1994 Flood Study is the current flood model for use in Council's planning procedures. As such, there should be good correlation between the 1994 model and the MIKE21 model. Any significant differences between the models would need to be explained to a reasonable standard.

Trefor Jones of CSC was contacted on the 13 September to confirm that freshwater is the dominant flow at the development site. The initial tidal boundary condition for all model scenarios was set at the Mean High Water Springs (MHWS), which is 0.81 m AHD. The flood study methodology was provided to Council on 4 June 2007 outlining the adopted tidal boundary and the process the flood study would follow. The adoption of the MHWS tidal boundary provided a more conservative representation of the tidal conditions as the MHWS is the long term average of the heights of two successive high waters when the range of tide is greatest, at full and new moon. This was the basis of the October 2007 flood study (2138171B-RPT001-B:ag) that formed part of the planning application MCU-2002-1079 and MCU-2004-1420.

CSC supplied comments regarding the October 2007 flood study in December 2007. These comments were based on an independent review of the flood study.

The review comments required refinement of the calibration and verification models, in particular the 1972 event, and the inclusion of a tidal boundary similar to that adopted in the 1994 AWE flood study. The tidal boundary (as reported in this report) is a sinusoidal tide peaking at 2.3 m AHD with a 12 hour period. This is described in Sections 3.1 and 4.3 and represents a 1 in 100 year ARI tidal event. The tidal boundary provides a better representation of the floodplain for the calibration and verification models and therefore was adopted for the base case and development scenarios. Recorded tidal levels were used for the calibration and verification models.

All issues raised by the independent reviewer have been addressed in this flood report (2138171B-D:ag, May 2008).



PRELIMINARY ISSUE

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Project	NORTHEAST BUSINESS PARK AWE MODEL SETUP	Drawing No	Figure 1.2
		Cad File	Figure 1.2.dwg
		Rev	B

1.3 Previous investigations

Australian Water Engineering (AWE) previously undertook flood plain modelling of the Caboolture River catchment for the CSC in April 1994. The AWE report entitled 'Caboolture Flood Study' comprising the Caboolture River, King John Creek and Lagoon Creek' details the investigations associated with that study. That investigation and key results are summarised as follows.

- A hydrologic model of the entire Caboolture River catchment was developed using the RAFTS software package. Inflow hydrographs for the catchment determined by the AWE investigations were used in this study.
- A hydraulic model of the Caboolture River floodplain, including King John Creek and Lagoon Creek was constructed using the EXTRAN software package. An estimation of the flood behaviour throughout the catchment was investigated using this model.
- The 1-D model was calibrated using three historical events: February 1972, April 1989 and December 1991. The calibrations of the hydrologic and hydraulic models were satisfactory and were generally able to reproduce the observed discharges and flood levels with acceptable levels of accuracy. However, the 1D model does not take into account lateral variations, which are expected to be significant over the study site.
- The effect of high ocean levels in Moreton Bay is generally limited to the lower 5 km or 6 km long floodplain reach upstream of the mouth of the Caboolture River. Upstream of these lower reaches, flooding is due to stormwater runoff rather than high tides.
- The flood inundation maps produced indicated that extensive areas downstream of the Bruce Highway will be inundated by floodwaters during the 10 year, 50 year and 100 year ARI flood events indicating that the location of Northeast Business Park will need a detailed flood report as part of the planning application.

1.4 Caboolture Shire Plan

The Design and Development Manual (Part A - Roadworks and Stormwater Drainage) — Draft, April 2005 — sets out the criteria for submission of operational works drawings required by Council. The document aims to give supplementary information to the CSC Planning Scheme, and therefore is focused on infrastructure development rather than flood studies. However, the document refers to flood models and/or floodplains as follows.

Section 8.9 Minimum Flood Immunity Levels (see Table 1-1) contains the following information.

Table 1-1: Minimum flood immunity levels from CSC Design and Development Manual

Location	Minimum Design Allotment Levels for Urban Zones or Level of Flood Free Area in Rural and Rural Residential Zones
Adjacent to River, Creek or Waterway	Calculated 100 year ARI ultimate flood levels + 300 mm freeboard
Adjacent to Engineered Channels	Calculated 100 year ARI ultimate flood levels + 300 mm freeboard
In areas affected by tidal water	Adopted 100 year ARI storm surge level + 300 mm freeboard (the adopted 100 year ARI storm surge is 2.3 m AHD. This value incorporates greenhouse effects)
Adjacent to roads and overland flow paths	Calculated 100 year ARI ultimate flood levels + 50 mm freeboard

The minimum flood immunity level for the proposed developed areas will therefore be the 100 year flood level plus 300 mm.

Section 8.17 Open Channels states that the requirements of Queensland Urban Drainage Manual (QUDM) Section 8 shall apply. In addition to QUDM, the following criteria shall also apply:

“All hydrologic and hydraulic calculations for the purpose of determining ultimate flood levels and development fill and flood levels shall be based on the 100 year ARI flows for a fully developed catchment and a fully vegetated waterways corridor using minimum Manning’s n of 0.15, unless otherwise approved by Council.” The adopted roughness values are discussed in Section 4.2.

1.5 Caboolture Shire Council Flood Plain Management Policy 803/02

This document details the policy for managing re-zoning or sub-division applications.

For residential zones the document states:

- alteration of site contours, including filling, may be undertaken subject to no net loss of flood storage across the subject land for all storm events up to and including the 1 in 100 year event
- the determination of flood storage is to be by computer model based on pre and post development field contour surveys.

For rural zones the document states:

- subdivision of floodable land will only be approved for rural zoned properties where each of the proposed parcels of land has an area of land in its natural state prior to any earthworks being carried out which satisfies additional criteria (refer to Appendix A).

For zones other than Residential, Rural Residential or Rural, the document states:

- subdivision applications will be considered on the circumstances of the individual proposals. Such proposals are subject to additional criteria (refer to Appendix A).

2. Existing environment

The site is adjacent to the Caboolture River estuary and large parts of the site are located within the floodplain. Tidal and freshwater wetlands occur throughout the lower areas of the site. One natural waterway traverses the site, along with several constructed channels.

Vegetation has been largely cleared from the terrestrial areas. The site was last used as a softwood plantation and prior to that was variously grazed and cropped, including sugar cane (4Site Natural Solutions, 2004).

Natural vegetation generally occurs in the low lying areas of the site, including drainage lines, freshwater swamps, tidal creeks and the banks of the Caboolture River.

Soils generally have a sandy loam surface, and across the site fall into three categories — red massive, deep yellow massive and deep grey poorly drained soils. They vary from well drained to poorly drained, and parts of the site have also been identified as being subject to potential acid sulfate soils (4Site Natural Solutions, 2004). This is discussed in further detail in the Geological Report undertaken by J.E. Siemon (September 2005).

2.1 Topography

The site slopes north-east from the Bruce Highway towards the Caboolture River which forms the northern site boundary. Ground levels vary between 1.5 and 5.0 m Australian Height Datum (AHD) and small hills rise up to 14 m and 17.5 m AHD along the southern and western boundaries.

Within the site is one natural waterway (Raft Creek) and several constructed channels. Raft Creek enters the site approximately 600 m to the east of the south-western site corner and flows in a northeast direction towards the Caboolture River (4Site Natural Solutions, 2004). A large constructed channel traverses the site in an east-northeast direction to flow into the Caboolture River. This channel begins in an adjoining property past the western border.

Stormwater runoff generally flows to the waterways on site where it is directed to the Caboolture River. Significant catchment areas external to the development boundary convey overland stormwater flows through the site to the Caboolture River. Due to the relatively flat topography low lying areas on the southern part of the site are poorly drained with minor ponding of water occurring after significant rainfall events (4Site Natural Solutions, 2004).

Low lying areas adjacent to the Caboolture River are inundated during high tides. This has been highlighted by the presence of marine vegetation within these areas, comprising tidal mangroves and salt marsh communities.

3. Methodology

2D modelling allows the entire topography of the floodplain to be described and modelled. The flow paths do not need to be predefined, because the model determines the flow distributions based on water levels and ground levels at each time step in the model run. 2D modelling therefore provides a more accurate determination of the extent, magnitude and direction of flood flows and impacts on flood associated with development of the site.

In summary, the methodology adopted for this study was as follows:

- prepare base case MIKE21 model:
 - develop base case topographical model
 - incorporate roads and Council's river cross sections (bathymetry) into topographical model
 - prepare roughness model based on aerial photography
- calibrate and verify MIKE21 model against recorded historical events (1972, 1989 and 1991)
- run base case model for 100 year ARI event, based on hydrology extracted from 1994 AWE flood model
- determine critical 100 year ARI flood level envelope , based on combined flood inflows plus downstream tidal surge level
- incorporate proposed cut and fill option into development case
- run development case for the 100 year ARI
- compare flood levels before and after development
- prepare flood mitigation cases and re-run development case to check that no adverse flood impact are generated on adjacent properties
- assess sensitivity of the model to changes in roughness values.

3.1 Boundary conditions

The inflows used in the 2D model were extracted from the AWE EXTRAN model, the locations of which are described in the next section.

The downstream boundary condition for the design case was derived from the CSC report (AWE, Section 4.4.4). The adopted 100 year ARI tidal boundary is a sinusoidal tide peaking at 2.3 m AHD with a with a 12 hour period. This includes a 0.3 m rise in ocean water level for climate change.

For calibration and verification cases, the downstream tidal boundary was extracted from the EXTRAN model at the appropriate location and represents the recorded tide level.

3.2 Tools

The following tools were used to develop the flood model:

- XPSWMM and XPRafts to extract the 1994 flood model data
- Acad – the master plan was provided in this format and the report figures were generated in this format
- 12D – the bathymetry, terrain, and MIKE21 grid were all generated using 12D and then exported to x y z format. The model results for the earthworks calculations were provided as 12D models
- DHI software – MIKE21 processor, toolbox programs
- PB ‘in-house’ DHI programs – suite of tools developed for pre and post processing MIKE21 models.

3.3 Post-processing

Post processing was undertaken using a suite of in-house tools specifically generated to extract results from MIKE21. These are based on the Mike Zero and MIKE21 toolkit programs, however can be executed outside the DHI user interface. The following are all generated as part of these programs:

- water surface levels
- water depths
- velocities
- Froude numbers
- Courant Friedrich Levy ratio
- model noise
- afflux.

Microsoft Excel is also utilised to generate long section plots of:

- water surface levels
- inflow hydrographs
- river profiles.

4. Data used

4.1 Topographical data

The hydraulic model was developed using the following topographical data sources.

General topography — aerial survey presented on a 4.6 m estimated point density from AAMHATCH dated October 2005. Superfluous points not adding to the terrain definition within 0.15 m were removed. This data was also used to provide details of the roads throughout the floodplain. The digital data documentation is contained in Appendix B.

Bathymetric survey — Mapping & Hydrographic Surveys supplied detailed bathymetric survey of the Caboolture River from Beachmere (Caboolture River mouth) to the Caboolture Weir. The survey was undertaken in 2006–2007. This processed data was integrated with the above terrain data and mesh geometry was developed with a grid spacing of 10 m. The grid spacing of 10 m was chosen to provide an acceptable level of model accuracy, whilst also enabling acceptable model run time.

The topography map in Figure 4-1 shows the adopted base case model topography.

4.2 Bed friction data

The bed friction was developed using aerial photos from Studio Tekton (2005 & 2007), CSC (1999–2000) and Department of Natural Resources and Mines' MAPVIEW Aerial Photography, version 2.2.0, build 9 (1997 - 2004). The base values are shown in Table 4-1.

Table 4-1: Base value roughness derived from aerial photography

Land Use	Manning's n	MIKE21 roughness (=1/n)
Main Floodplain	0.08	12.5
River	0.035	28.57
Roads	0.03	33.3
Mangroves	0.16	6.25
Urban area	0.15	6.67
Forest	0.12	8.3
Rougher floodplain	0.09	11.11

The roughness map in Figure 4-2 shows the base value case model friction.

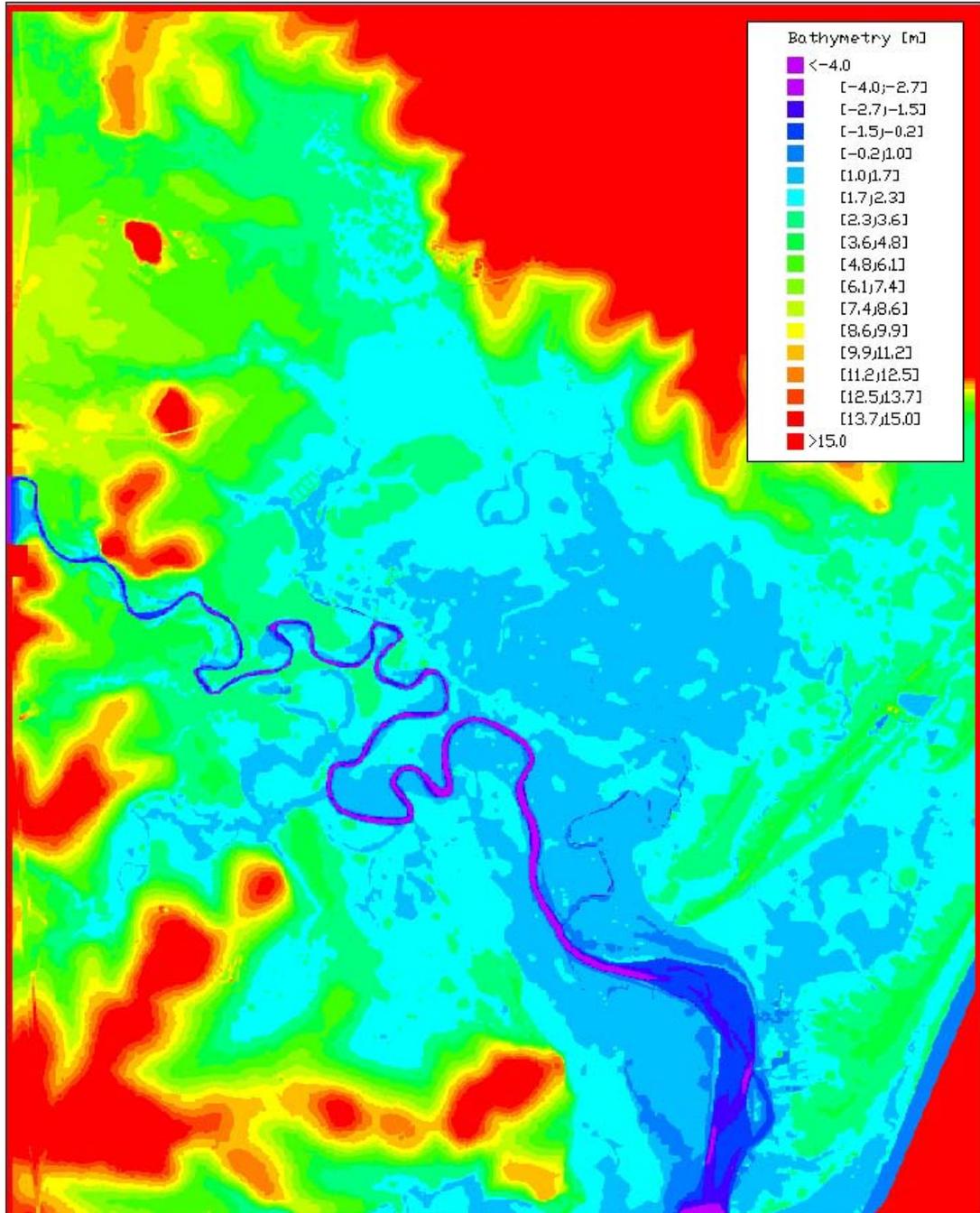


Figure 4-1: Base case topography

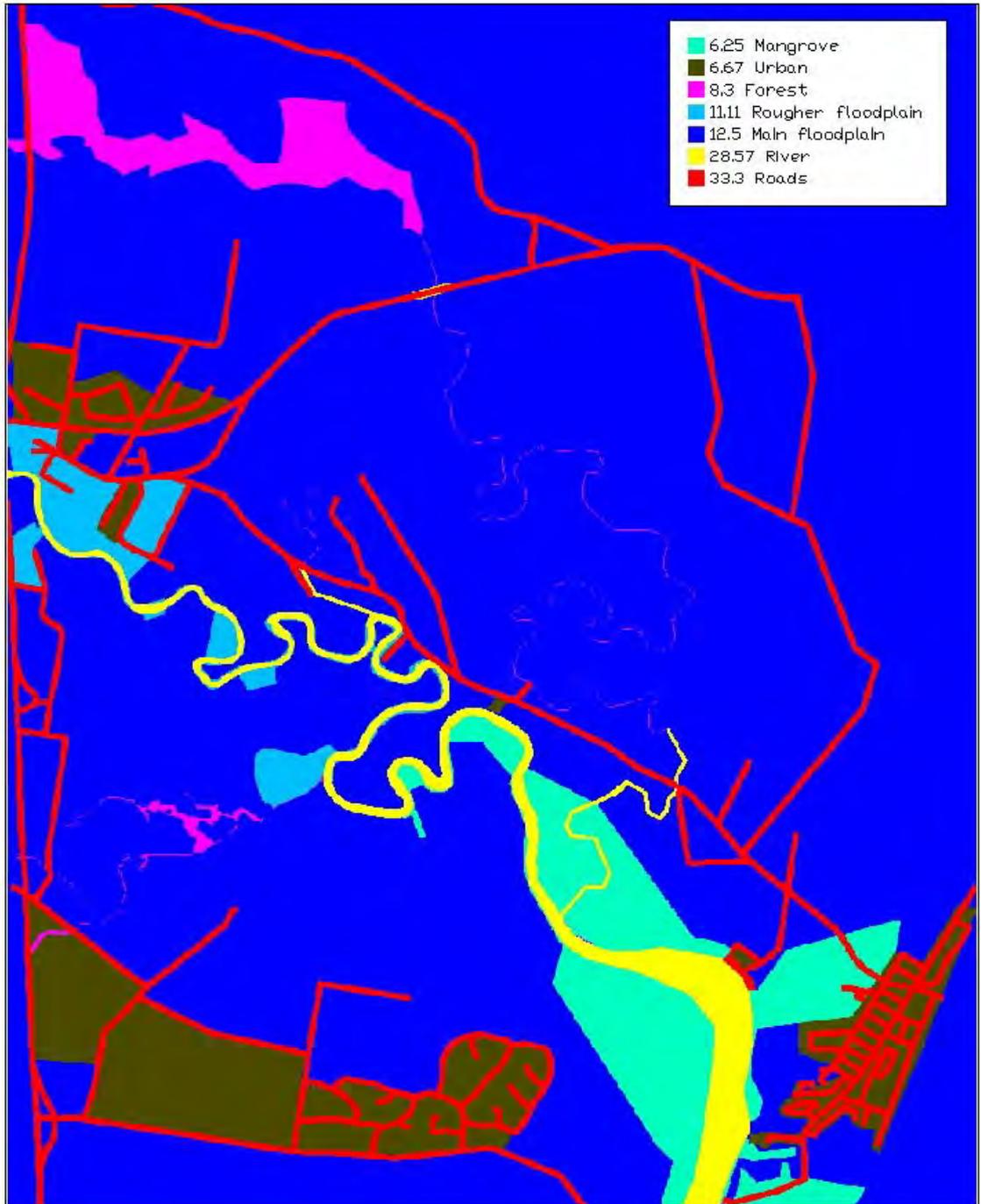


Figure 4-2: Base case friction map

4.3 Boundary conditions

The 1994 AWE hydrological model was used to determine the flow hydrograph in the flood model. The hydrological model was not reviewed or updated. Table 4-2 details the peak inflows used for the 1 in 100 year ARI event and the approximate location in the MIKE21 model grid. Figure 4-3 presents the approximate location of the inflow points within the model and Figure 4-4 presents the flood hydrographs adopted from the 1994 study as inflows for the 1 in 100 year ARI event.

Table 4-2: Peak discharges at model inflow locations

Location Inflow	type	100 yr flow (m ³ /s)	Historical Feb. 1972 flow (m ³ /s)	Historical Apr. 1989 flow (m ³ /s)	Historical Dec. 1991 flow (m ³ /s)	MIKE21 grid location (j, k)
CA 43- Caboolture River at Caboolture Township (modelled as a boundary condition)	Boundary condition	1395	1062	863	885	0, 616 - 0, 623
LC1-Lagoon Creek – Upper Catchment (modelled as a source)	Point source	247	197	174	174	7,894
KJ23-King John Creek – Upper Catchment (modelled as a source)	Point source	73	62	37	41	5,980
CA 29	Point source	62	32	25	16	277,671
CA 20	Point source	101	45	49.5	41	89,268
CA 7	Point source	33	14	11	9	673,244
RB6_1	Point source	40	19	17	12	38,426
KJ 19	Point source	60	35	27	16	343,767
KJ 13	Point source	49	26	21	12	496,682
KJ 10	Point source	50	27	21	13	695,476

Note: All flows are extracted from the AWE 1994 flood study

The western boundary of the MIKE21 model was the Bruce Highway. Therefore the upper Caboolture River floodplain was not modelled. However, Lagoon Creek and King John Creek downstream of the Bruce Highway were included in the model domain as boundary conditions. The local inflows were modelled as point sources.

In the calibration cases the downstream boundary was modelled as a time dependant water level. The values were extracted from the water level at node CA4 from the 1994 EXTRAN model. The EXTRAN models included a downstream observed tidal boundary.

The downstream condition for the design and mitigation cases was modelled as a time dependant water level with a period of 12 hours and amplitude of 2.3 m from the mean sea level. This is described in greater detail in Section 6.2.

The initial water surface for all models was set at 0.0 m AHD. This allows the areas in the model that are below 0.0 m AHD to be 'wet' at the start of the model simulation.

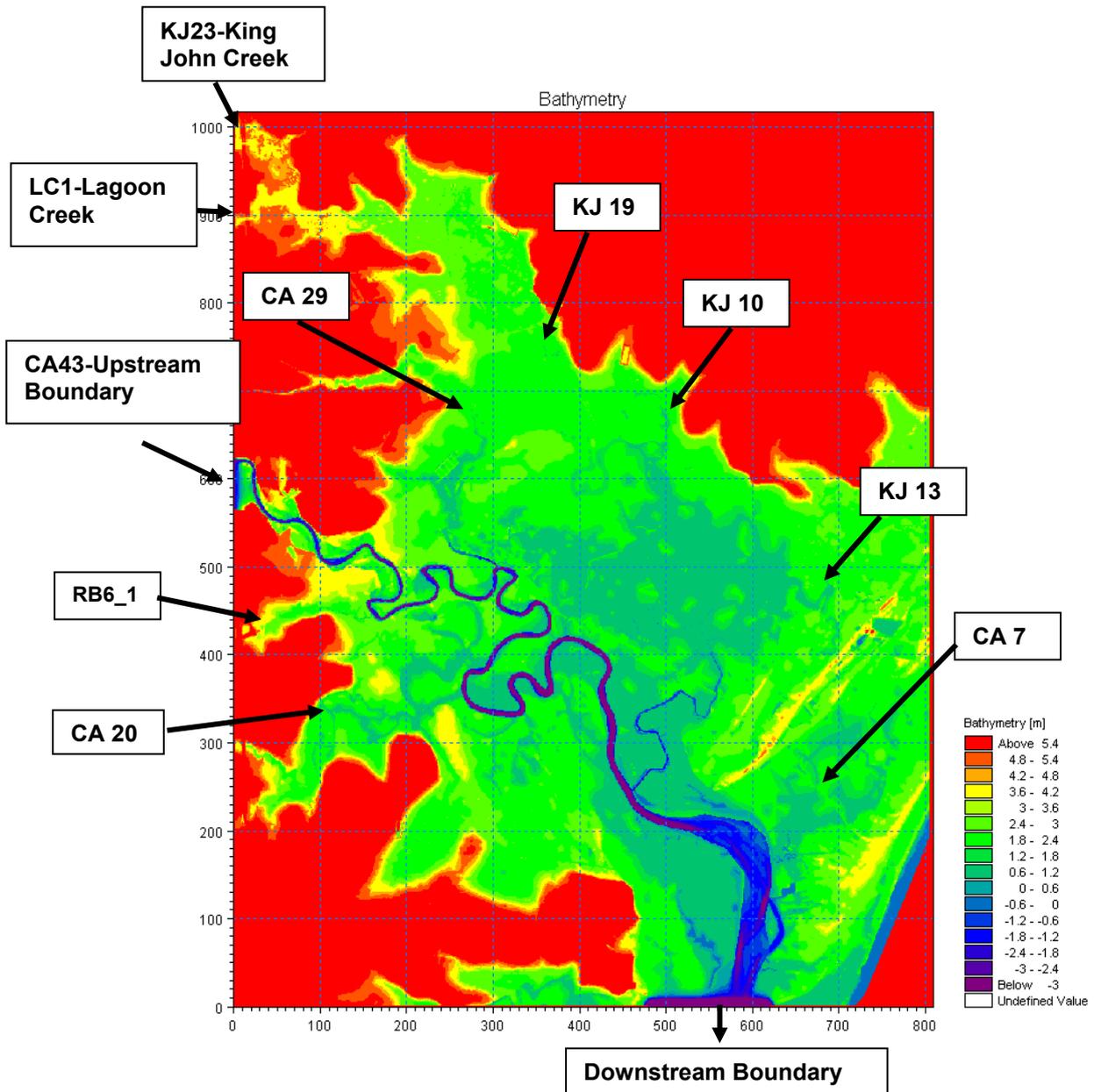


Figure 4-3: Inflows location and title

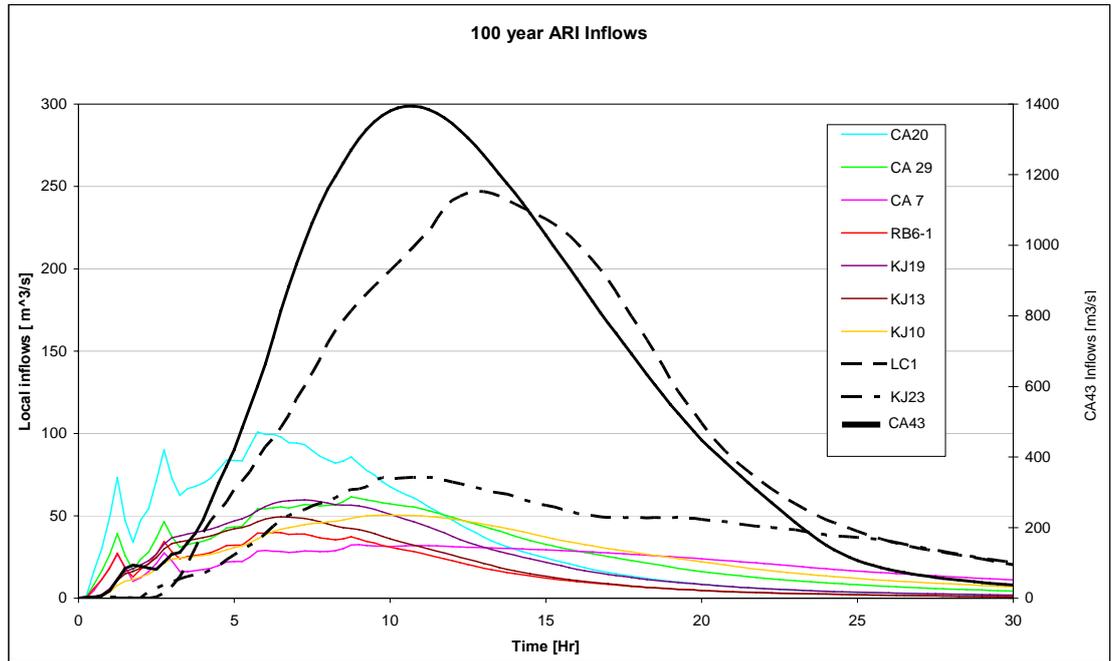


Figure 4-4: Adopted inflow hydrographs for the 100 year ARI design event

5. Model calibration and verification

Model calibration and verification was undertaken using three historical events, as detailed in the 1994 study:

- February 1972 — thought to be in the order of a 15 to 40 year ARI event
- April 1989 — thought to be in the order of a 10 to 20 year ARI event
- December 1991 — thought to be in the order of a 15 to 20 year ARI event

The December 1991 event was used to calibrate the model while the February 1972 and April 1989 events were used to verify the model.

The 1994 hydrological model contained the flow hydrographs of the three events at the upstream end of the flood model. A simulation of each historical flood event was undertaken using these flows with the base case model as described above.

Table 4-2 details the peak inflows used and the approximate location in the MIKE21 model grid.

5.1 Model calibration – 1991 event

The MIKE21 model was calibrated against the recorded flood level of the 1991 event. Roughness values were adjusted and the resultant water surface levels were compared with the recorded data.

The Caboolture River, Lagoon Creek and King John Creek inflows hydrographs for the 1991 event were derived from the 1994 hydrological model and are presented in Figure 5-1.

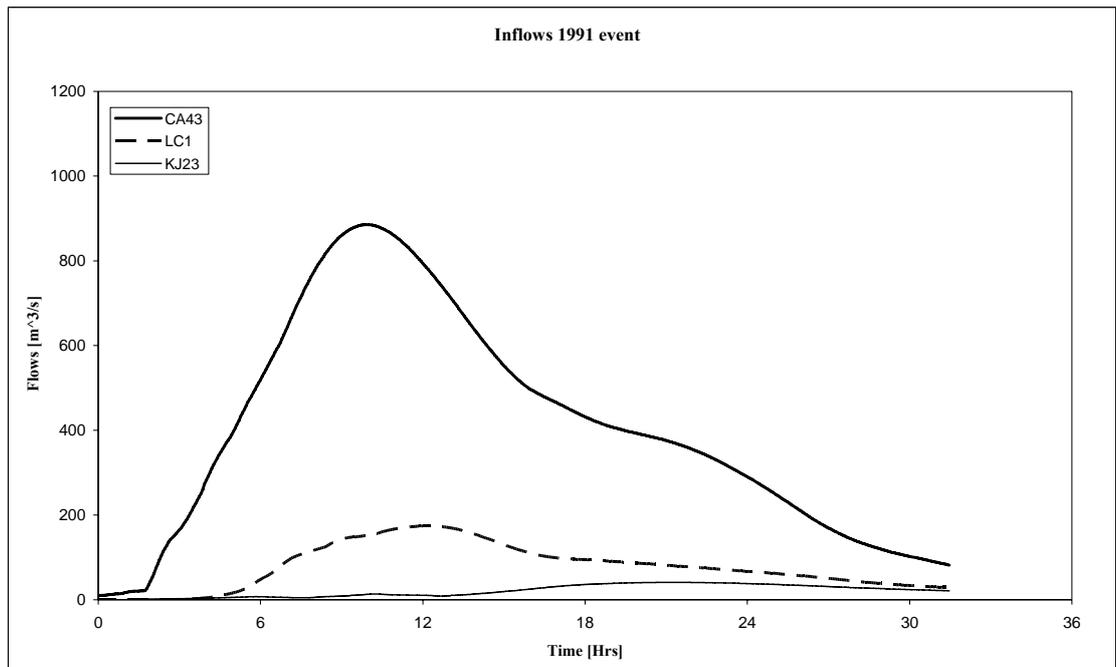


Figure 5-1: Main Inflows hydrograph for the 1991 event

The results of the calibration are presented in Figure 5-2 and represent a long section along the Caboolture River. There is a good fit between the calibration model results and the recorded data. The adopted roughness values derived from the calibration model and subsequently used in the base case modelling are presented in Table 5-1.

Table 5-2 (Section 5.1.5) presents a numerical summary of all the calibration and verification models.

Table 5-1: Base value roughness derived from aerial photography

Land Use	Manning's n	MIKE21 roughness (=1/n)
Caboolture River	0.035	28.57
Roads	0.03	33.33
Floodplain	0.08	12.5
Mangroves	0.16	6.25
Urban area	0.15	6.66

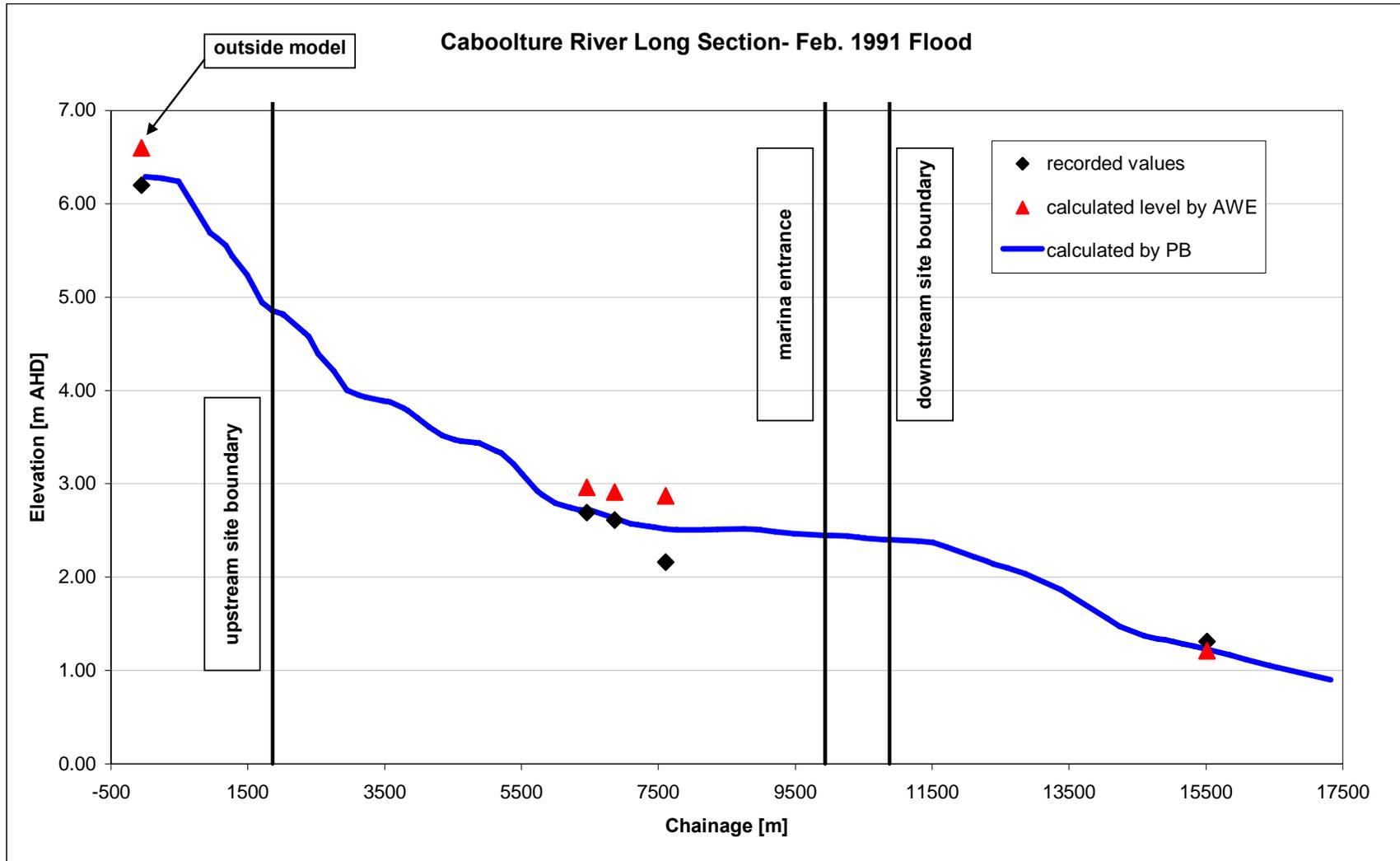


Figure 5-2: Water surface long section for the 1991 event

5.2 Model verification – 1989 event

The Caboolture River, Lagoon Creek and King John creek inflows hydrographs for the 1989 event were extracted from the 1994 hydrological model. These inflows are shown in Figure 5-3.

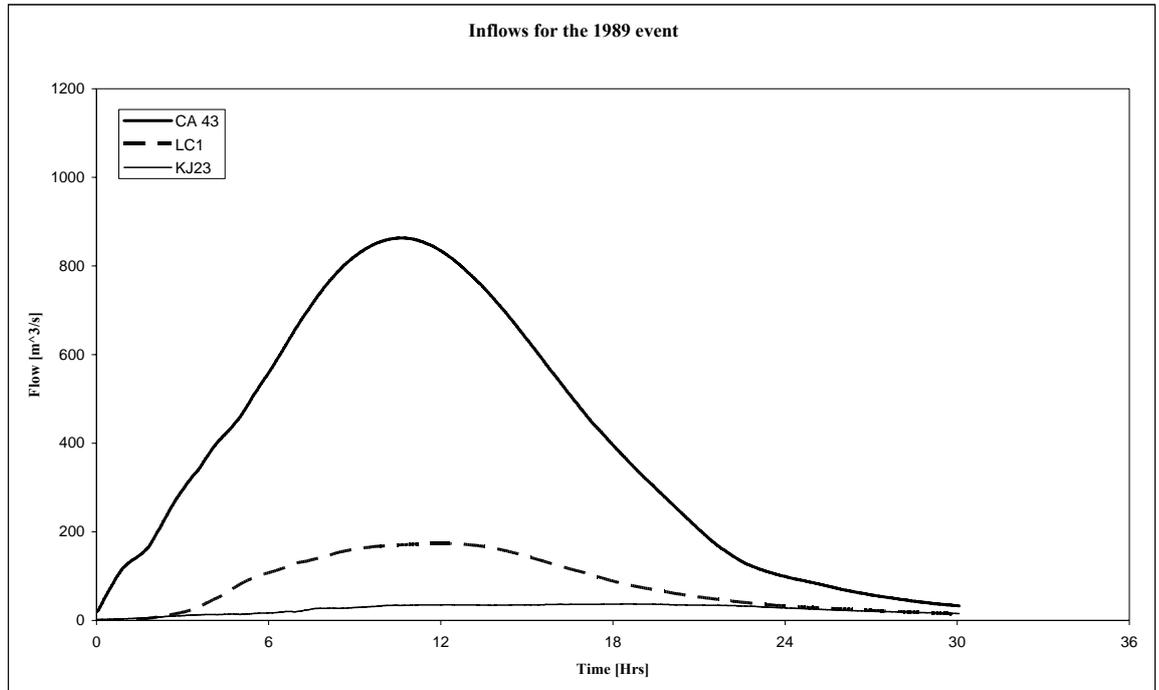


Figure 5-3: Main Inflows hydrographs for the 1989 event

Figure 5-4 presents a long section through the Caboolture River presenting the maximum water surface level for the 1989 event. Table 5-2 (Section 5.1.5) presents the numerical analysis for this event. The modelled results and the recorded levels are very similar.

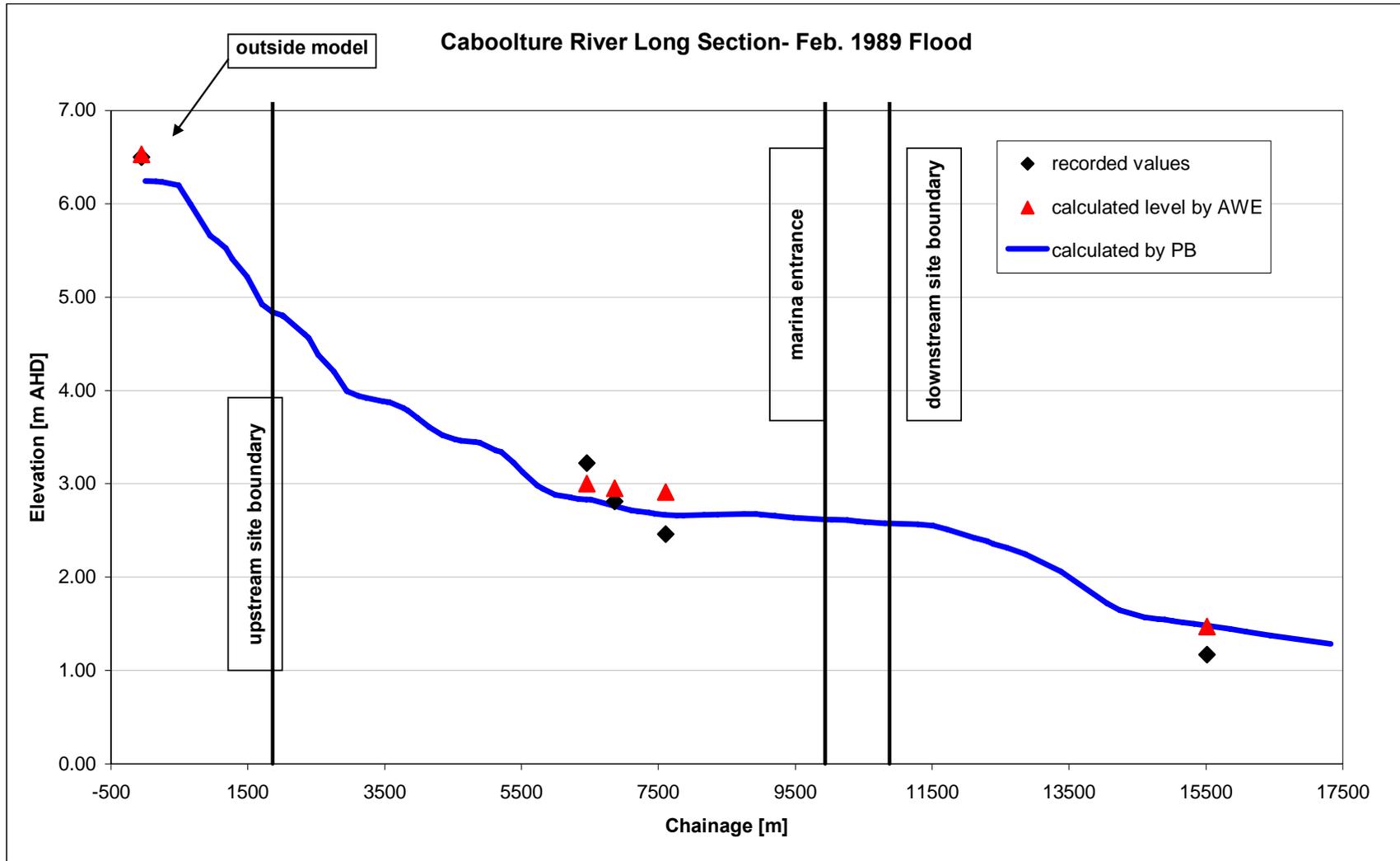


Figure 5-4: Water surface long section for the 1989 event

5.3 Model verification – 1972 event

The Caboolture River, Lagoon Creek and King John creek inflows hydrographs for the 1972 event were extracted from the 1994 hydrological model. These inflows are shown in Figure 5-5.

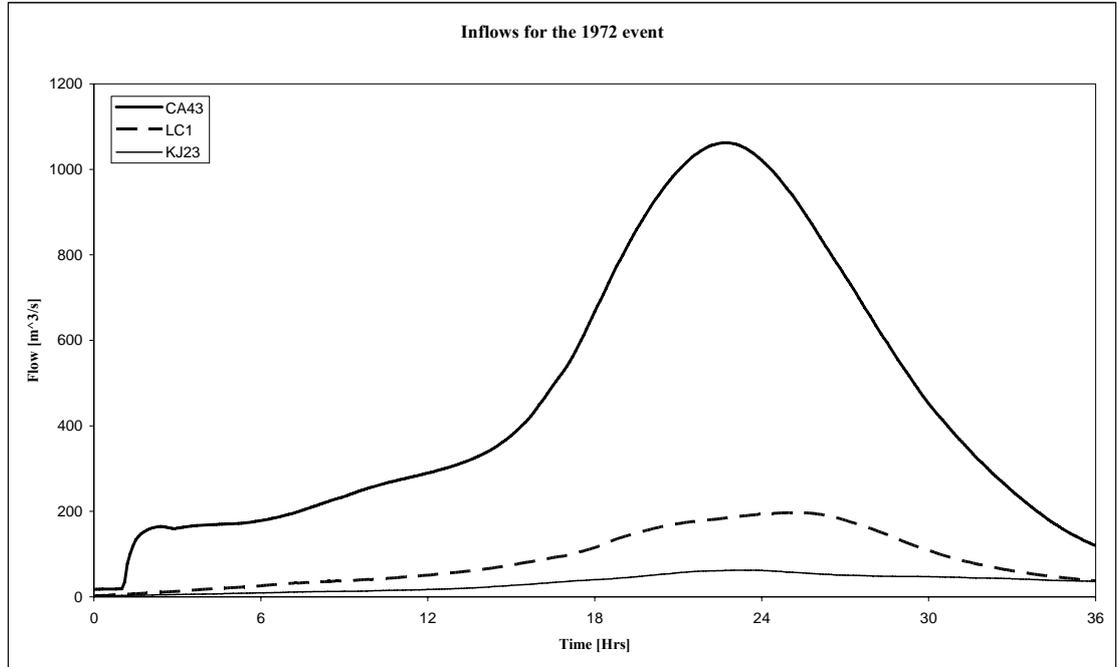


Figure 5-5: Main Inflows hydrographs for the 1972 event

Figure 5-6 presents the long section through the Caboolture River providing the maximum water surface level during that event. Table 5-2 (Section 5.1.5) presents the numerical analysis for the 1972 event.

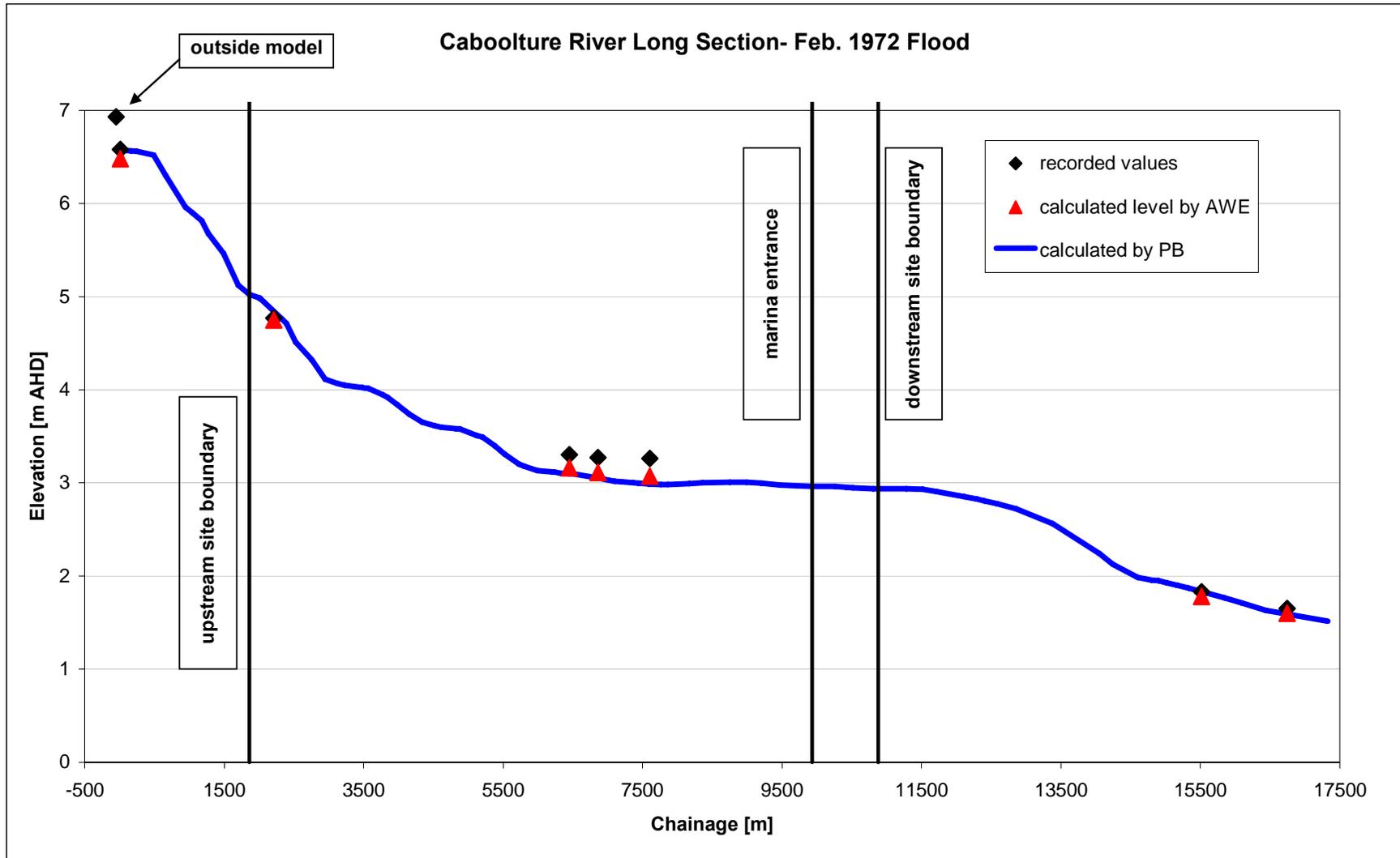


Figure 5-6: Water surface level for the 1972 event

5.4 Recorded data discussion

The discrepancies between modelled and recorded flood data occur for a number of reasons. The field measurements of maximum flood levels are generally taken from flood marks and accumulations of flood debris giving a point estimate of water levels reached during the flood, which could be affected by wave action and temporary blockages, among other factors.

It should be noted that the floodplain has probably changed over time between each of the historic events and the present day, with differences likely in terms of geometry, land usage and vegetation. The models used in this analysis were developed from the latest available topographical data and do not necessarily represent the catchment at the time of the historic event. This will account for some of the discrepancies between modelled and recorded flood levels.

The correlation between recorded and modelled data shown in Table 5-2 and shown in Figure 5-2, Figure 5-4 and Figure 5-6 are considered to be acceptable for modelling a catchment of this size. The MIKE21 base case model gives a good overall reproduction of the February 1972, April 1989 and December 1991 flood events, and as such can be used confidently to optimise the master plan in terms of floodplain management.

5.5 Numerical analyses

Table 5-2 presents the estimated results of the three historical events for the MIKE21 model and the EXTRAN model.

Along the Caboolture River the standard deviation across the three events for the EXTRAN model is about 0.26 m while the standard deviation for the MIKE21 model is about 0.21 m.

The MIKE21 model is therefore statistically slightly more accurate than the EXTRAN model in the estimation of flood levels along the Caboolture River.

Table 5-2: Calibration summary

EXTRA	N node location	CA44 Bruce Highway U/S	CA43 Bruce Highway D/S	CA37/38 Lawrence Street	CA28 Beachmere Goong	CA25/26 Riversleigh Road	CA23/24 Beachmere Monty	CA7 Baker Flat Road	CA5 Whiting Street	Standard deviation of differences
Approximate chainage		N/A	0	2,011	6,332	6,508	7,437	15,329	16,438	
Observed	WSL 1972	6.93	6.58	4.77	3.3	3.27	3.26	1.83	1.65	
	WSL 1989	6.5			3.22	2.81	2.46	1.17		
	WSL 1991	6.2			2.69	2.61	2.16	1.31		
Calculated 1994 (AWE)	WSL 1972	7.12	6.48	4.75	3.16	3.11	3.07	1.78	1.6	
	WSL 1989	6.53			3	2.95	2.91	1.47		
	WSL 1991	6.6			2.96	2.91	2.87	1.21		
Differences 1994 (AWE)	WSL 1972	0.19	-0.1	-0.02	-0.14	-0.16	-0.19	-0.05	-0.05	0.26
	WSL 1989	0.03			-0.22	0.14	0.45	0.3		
	WSL 1991	0.4			0.27	0.3	0.71	-0.1		
Calculated 2008 (PB)	WSL 1972	N/A	6.57	4.76	3.10	3.05	2.99	1.87	1.63	
	WSL 1989	N/A	6.24	4.61	2.83	2.76	2.67	1.50	1.38	
	WSL 1991	N/A	6.29	4.62	2.72	2.63	2.52	1.26	1.05	
Differences 2008 (PB)	WSL 1972		-0.01	-0.01	-0.20	-0.22	-0.27	0.04	-0.02	0.21
	WSL 1989				-0.39	-0.05	0.21	0.33		
	WSL 1991				0.03	0.02	0.36	-0.05		

6. Base case model

The following section contains the model results for the 1 in 100 year ARI event.

6.1 Base case modelling results

The resultant water levels for the base case are shown in Figure 6-1 and range from 2.3 m to 8 m. Flow vectors shown in this figure are indicative of the wide floodplain and demonstrates the spreading of flood water that occurs downstream of Captain Whish bridge. The majority of velocities shown are less than 1.0 m/s; however, within sections of the main Caboolture River velocities exceed 2.0 m/s.

Figure 6-2 presents the base case flood depths. The maximum depth within the floodplain is 4 m. As expected the depth within Caboolture River the depth is greater than 4 m.

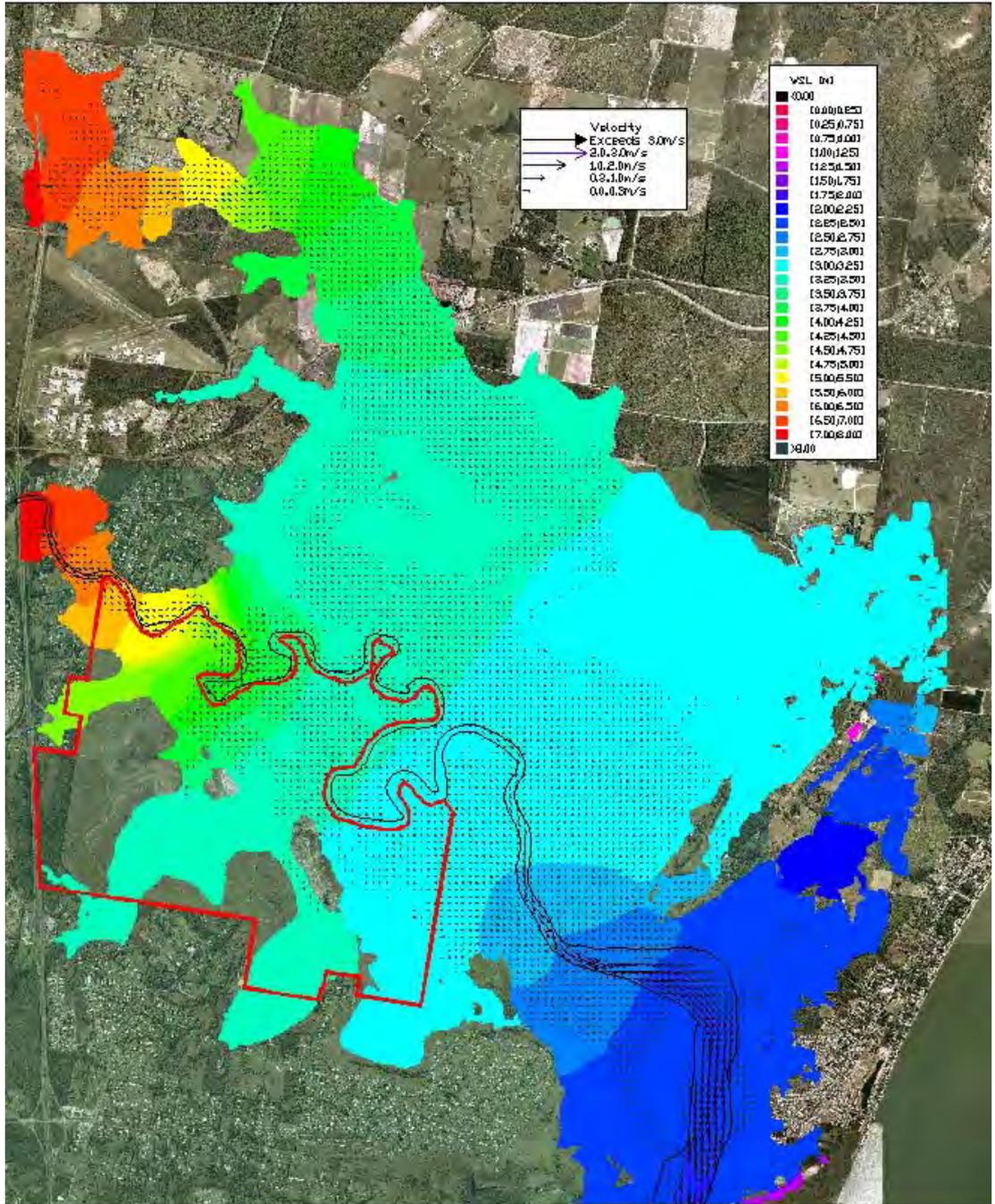


Figure 6-1: 100 year Base case water surface level

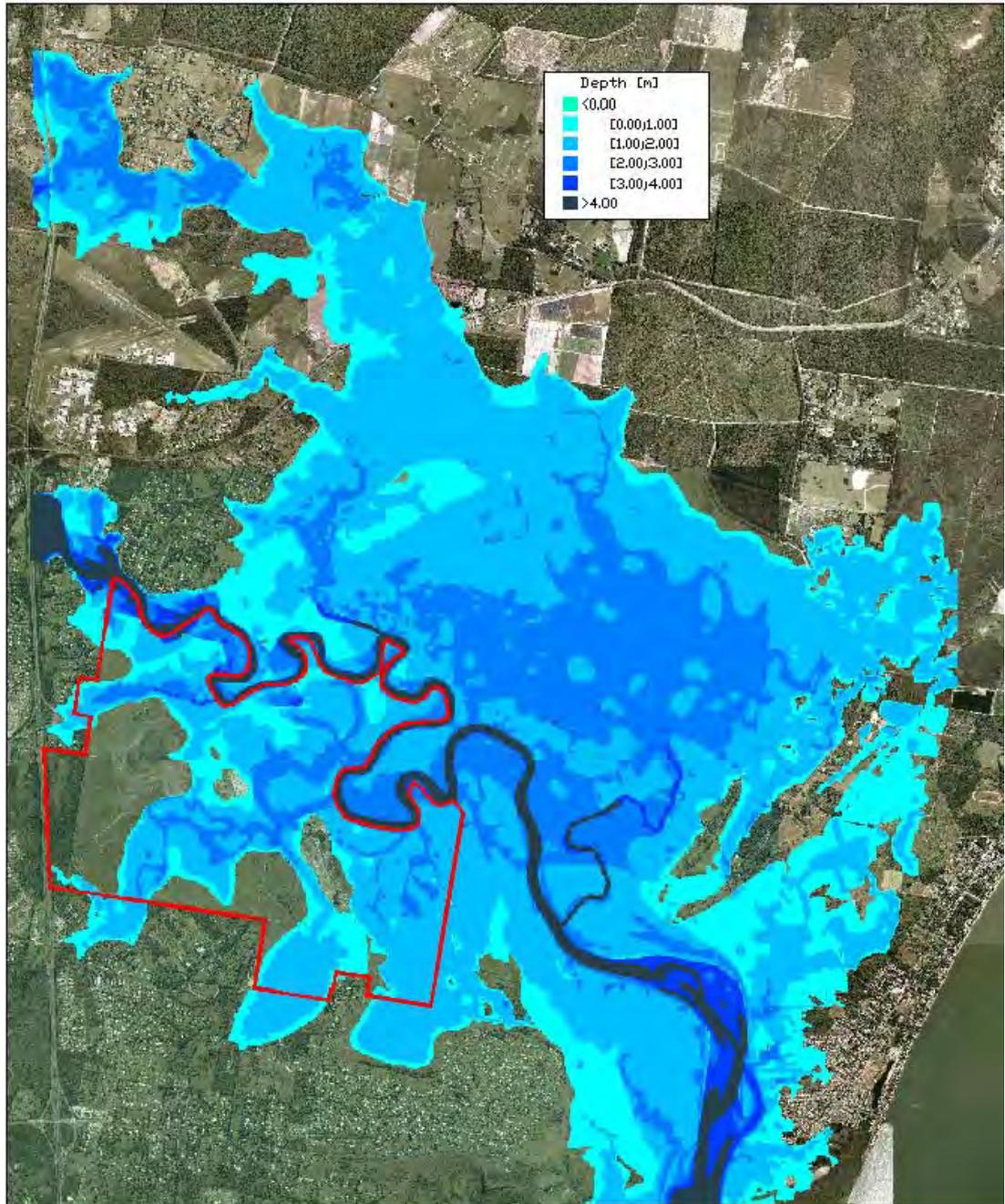


Figure 6-2: 100 year Base case flood depth

6.2 Model sensitivity

To assess the sensitivity of the model, changes in the downstream boundaries condition and roughness values were evaluated.

Figure 6-3 shows the four tidal boundary conditions which were evaluated, the timing of each tidal pattern is offset by three hours from the previous tide timing, therefore producing the four following boundaries: tide-0h ; tide-3h ; tide-6h; tide-9h.

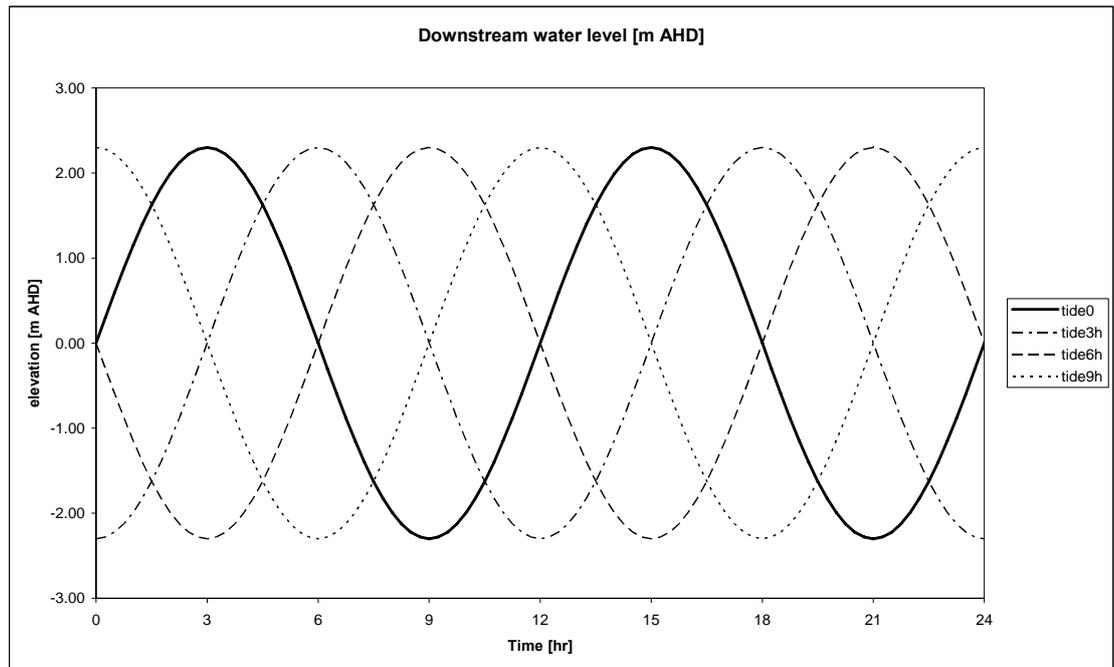


Figure 6-3: Tidal downstream boundaries assessed

Figure 6-4 presents the water surface level long sections for the four downstream tidal boundary cases. Changes to the downstream boundary condition did not make a significant impact on water surface levels at the proposed site. The maximum absolute difference at the development site is less than 0.05 m when comparing the tide-0h to the other tidal boundary conditions.

Therefore Tide-0h is the downstream tidal boundary cycle that has been adopted for the rest of this study as it globally produces the highest water surface level in the model domain.

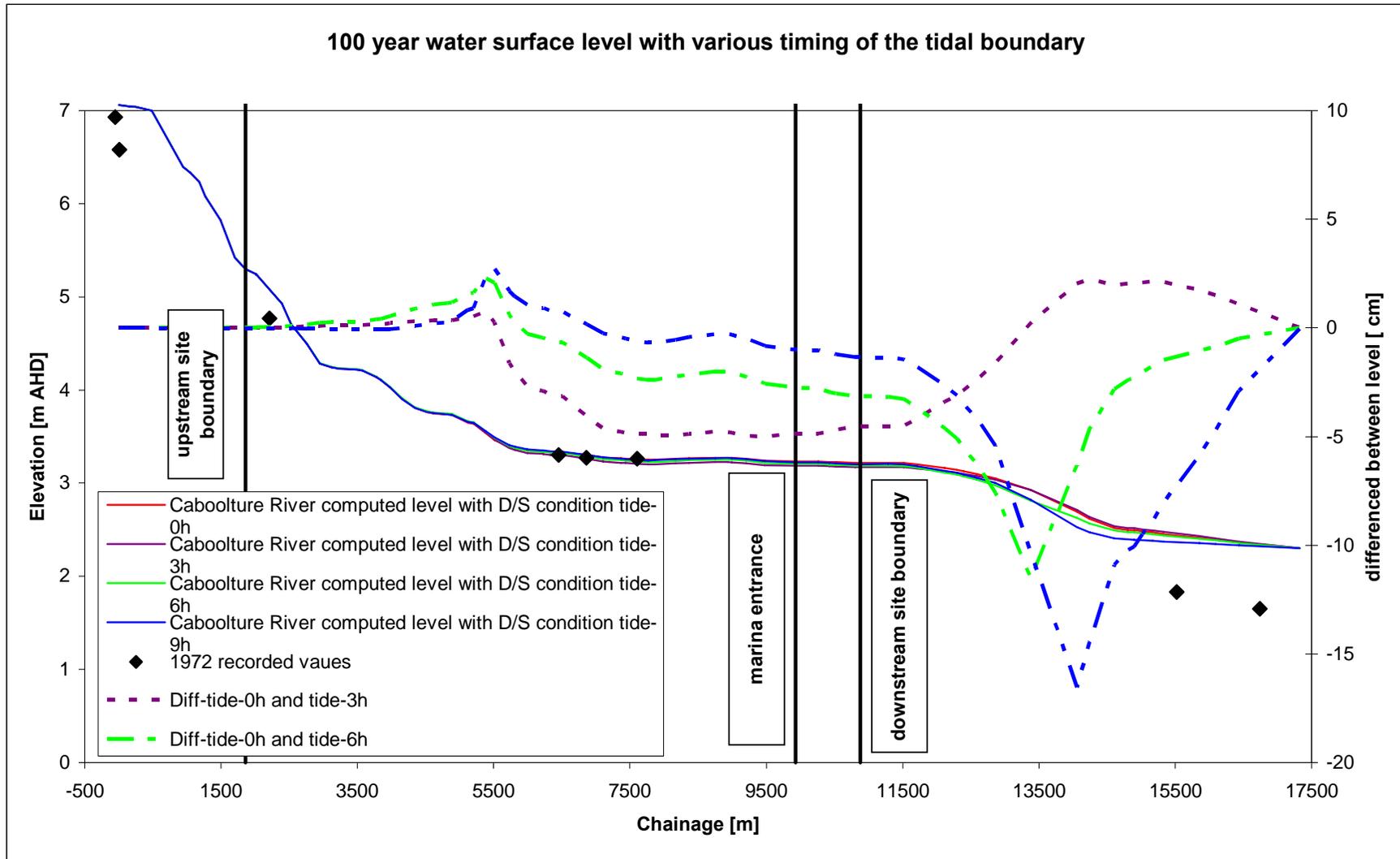


Figure 6-4: Longitudinal profile of water surface elevations due to changes of downstream boundary condition.

Figure 6-5 presents the water surface long sections for three cases where the roughness values were altered as presented in Table 6-1. Figure 6-5 shows that changes to the roughness values do not make a significant impact on the water surface level at the site of the proposed development with the maximum absolute difference less than 0.12 m.

Table 6-1: Manning's n values applied in the calibration runs

	Floodplain River	er	Road	Mangrove	Multiplier
Base case	0.08	0.035	0.03	0.16	1
Roughness -20%	0.064	0.028	0.024	0.12	0.8
Roughness +20%	0.096	0.042	0.036	0.19	1.2

The results of the sensitivity assessment have revealed that the modelled water surface levels are not overly sensitive to small changes in the downstream boundary conditions or small global changes in roughness values.

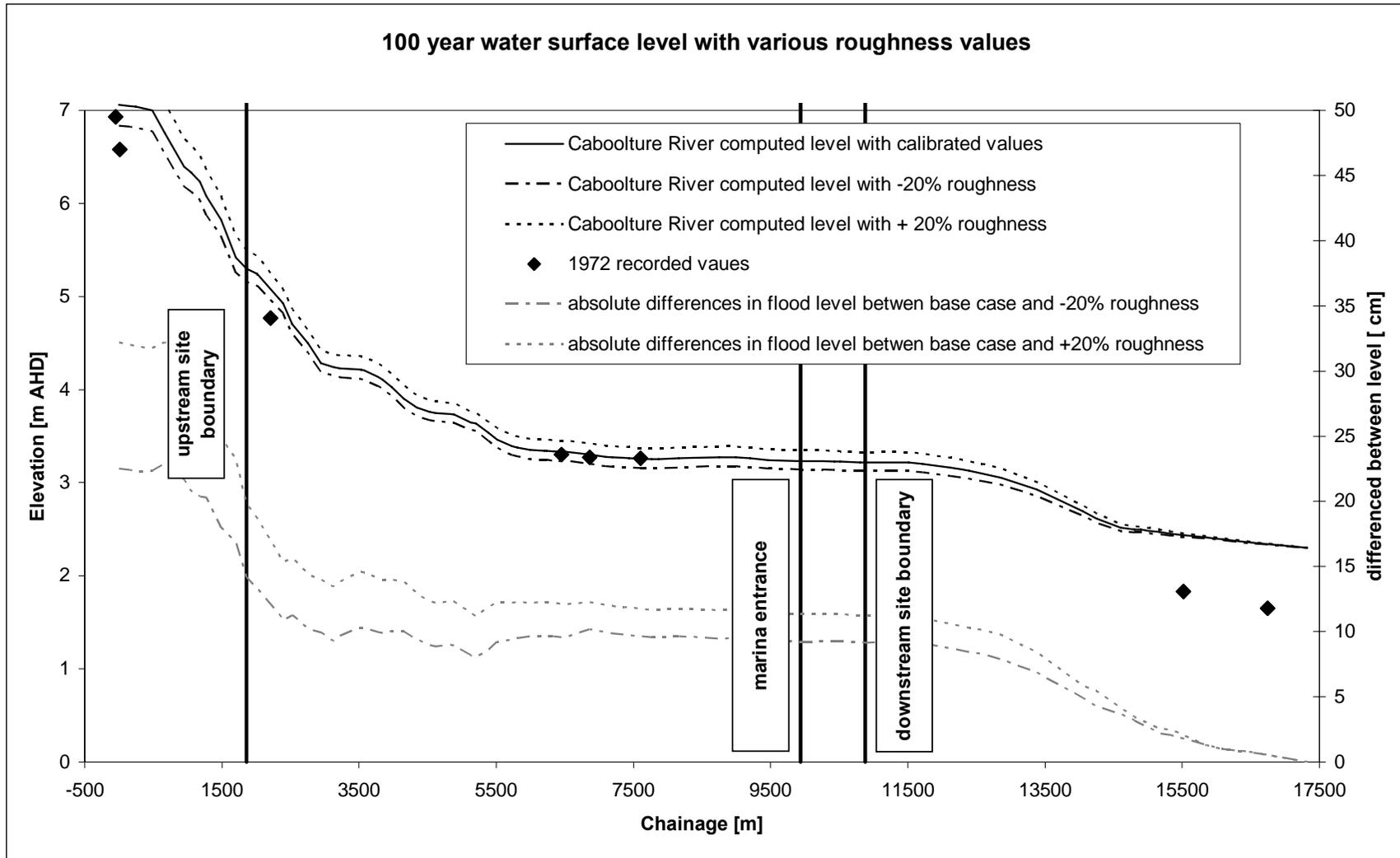


Figure 6-5: Water surface long section with changing roughness condition

6.3 Model fitness

Model Fitness is illustrated by Figure 6-6, Figure 6-7 and Figure 6-8, where the maxima of the following parameters are described throughout the model domain:

1. Froude number
2. Courant Friedrichs Levy condition (CFL)
3. Signal variance or noise in the model

The Froude numbers indicate sub-critical flow through the model domain, with the maximum not exceeding 1.0. Consequently the scenario being simulated is consistent with the model formulation, particularly with respect to the flow being in sub-critical regime

The MIKE21 solution scheme is centred (on average) in time and space finite difference solver. Consequently, there are no implicit limits on CFL except that temporal and spatial scales are resolved.

The finite difference grid is 10 m, which is considered adequate to model all significant flow paths, and in particular at the area of interest. The CFL is less than 1.20 and according to the work of Abbot et al. (1981) the behaviour phase is stable and reasonable for $CFL < 10$.

Therefore the model behaviour is within the acceptable range of CFL.

Small numerical oscillations were created as part of the numerical calculation within the MIKE21 engine. The numerical amplitude of this noise can be compared to a wave of similar energy, as the signal variance is a measure of energy.

To produce an afflux map with 1 cm accuracy, the afflux must be within ± 0.5 cm. Thus the pre- and post-development water surface results need to have accuracy within ± 0.25 cm. From Figure 5-6 it can be seen that the noise in the model is within this tolerance.

Therefore, the model is representative of the floodplain in terms of model fitness.

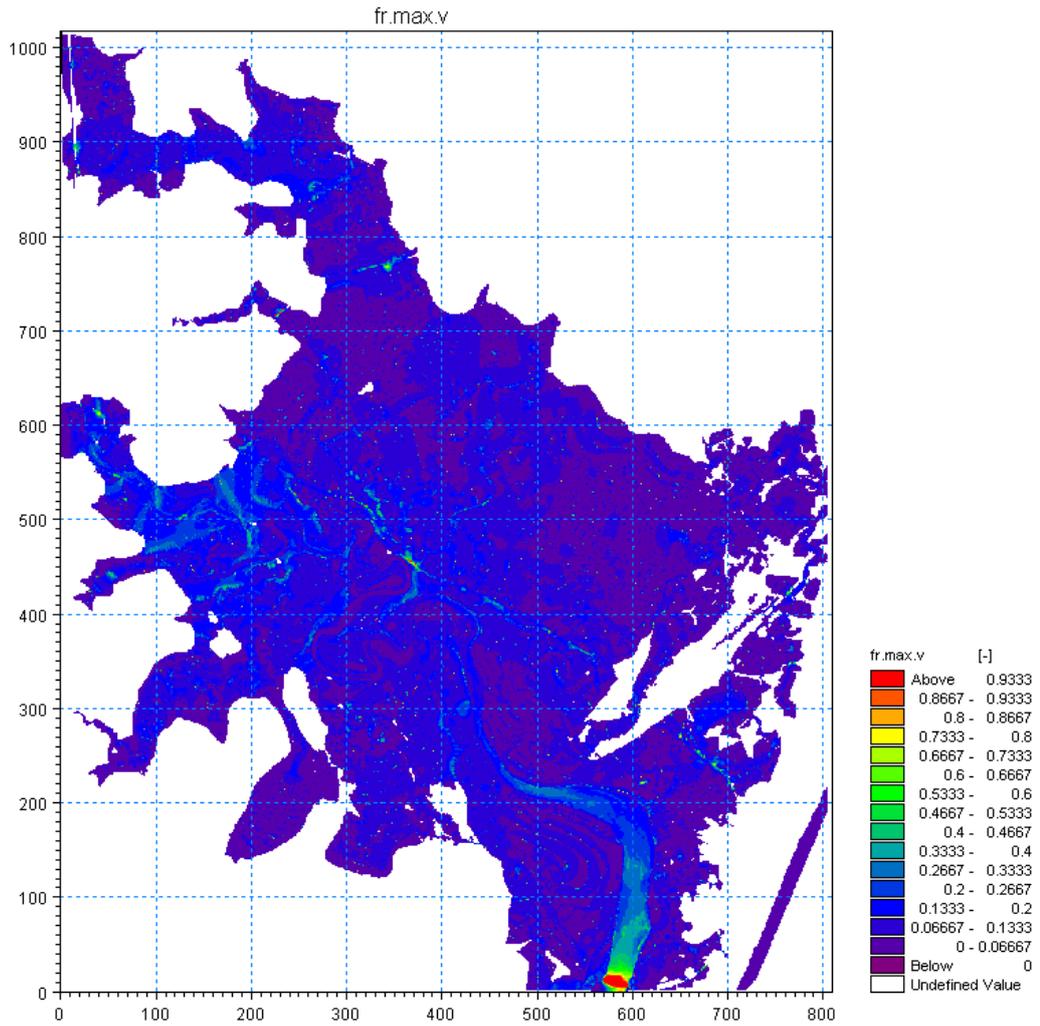


Figure 6-6: Froude map for the 100 year base case model

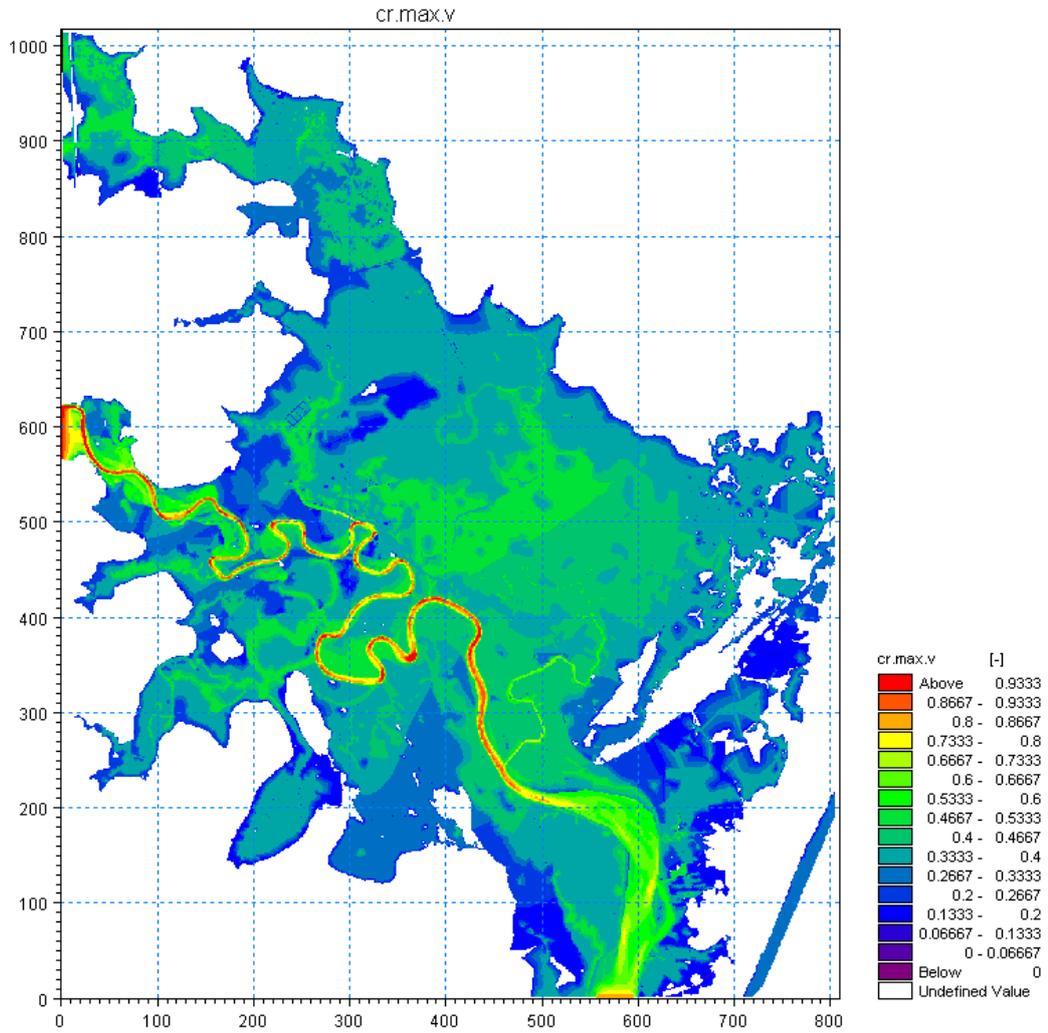


Figure 6-7: Courant map for the 100 year base case model

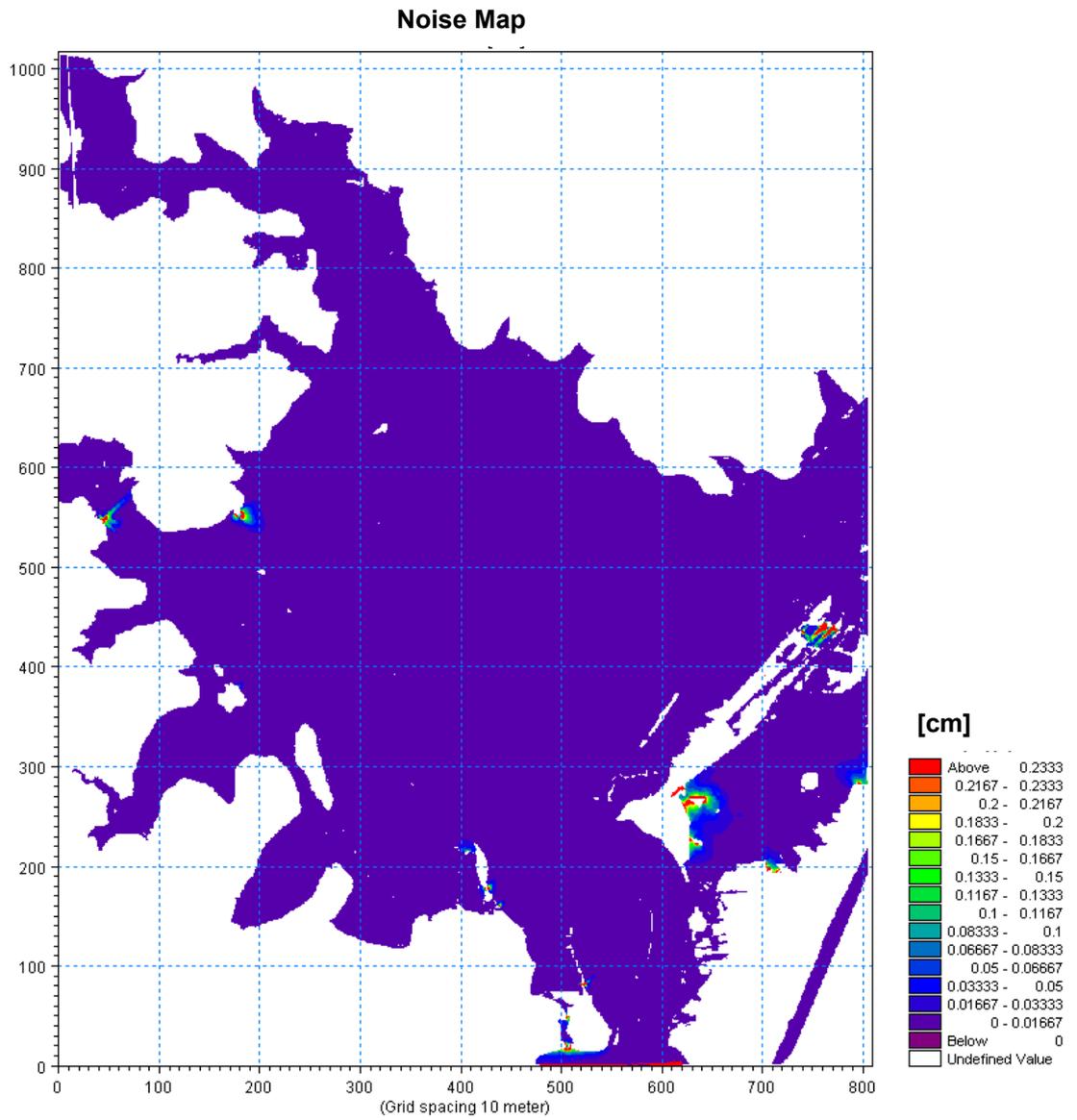


Figure 6-8: Noise map for the 100 year ARI event with steady-state flow

6.4 Mass balance

To check the validity of the MIKE21 model an investigation of the mass balance was also undertaken. This is a relationship between the inflow and outflow volume and represents the theoretical mass gain in the model domain.

This theoretical mass gain was then compared to the actual mass gain measured in the domain. The difference between these two values represents the absolute mass gain error.

Figure 6-9 presents the absolute mass gain error, and the relative mass gain error against the inflow volume for the 100 year base case model. The mass balance investigation shows that the model gains 2% of the total mass in the model domain.

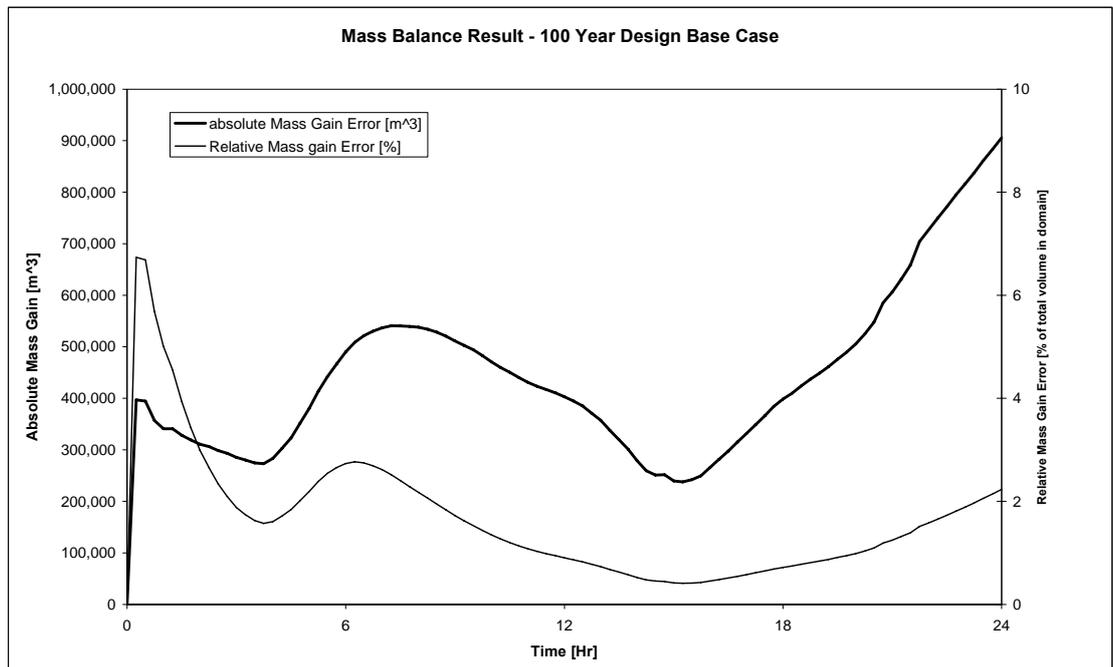


Figure 6-9: Mass balance result for the 100 year design base case

7. Design flood events

7.1 Un-mitigated development case model

To determine the impacts of the proposed development, the base case model terrain was amended as per the cut and fill diagram provided by Northeast Business Park Pty Ltd. (Appendix C - Drawing 0304 SK36, issue SD04, dated 30 July 2007 Ref 20430-10D). The alterations made reflect the earthworks associated with the proposed development.

The schematic in Figure 7-1 shows the un-mitigated development scenario. Those areas within the development boundaries that need to be above the 100 year ARI peak flood level (e.g. commercial, residential or industrial) are shown (cross-hatched).

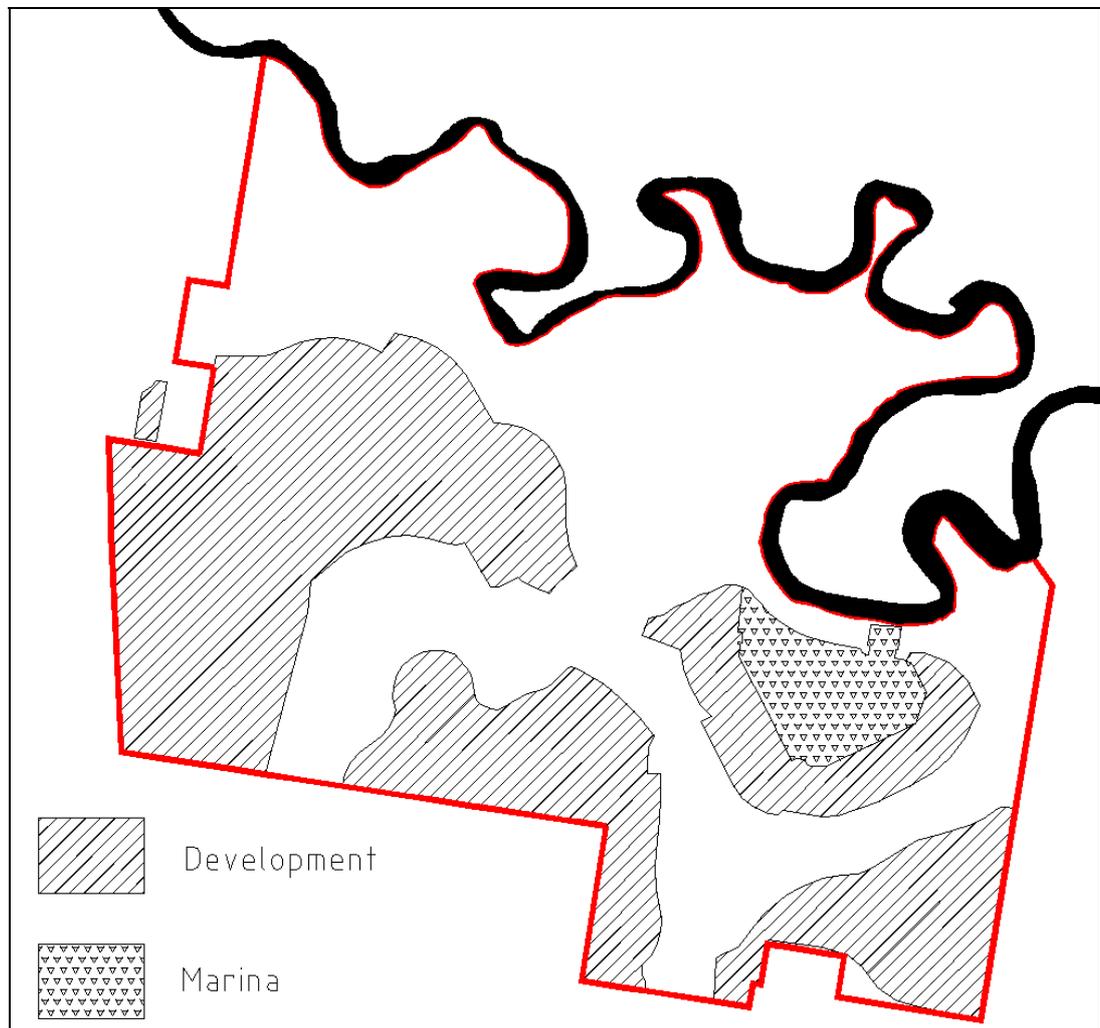


Figure 7-1: Schematic of the changes to the base case for the un-mitigated case

In addition to the development site cut and fill earthworks, a section of the Caboolture River will be dredged to suit the navigational requirements. The dredged section will be roughly trapezoidal in shape, with a base width of 40 m (minimum), a bed level of -4.25 m AHD and 1:3 side slopes. The upstream end of the dredging will be the upstream point of the navigational section of the river (approximately E502671, N6999503). The downstream end of the dredging in the model is the downstream model boundary. The actual downstream extent of the dredging is beyond the model boundaries. This was incorporated into the river bathymetry for the un-mitigated and mitigated scenarios. Figure 7-2 shows the impact of the dredging on the river bed.

The bed level of the marina basin was set at -3.5 m AHD.

Bed friction values and inflows remain the same as the base case scenario.

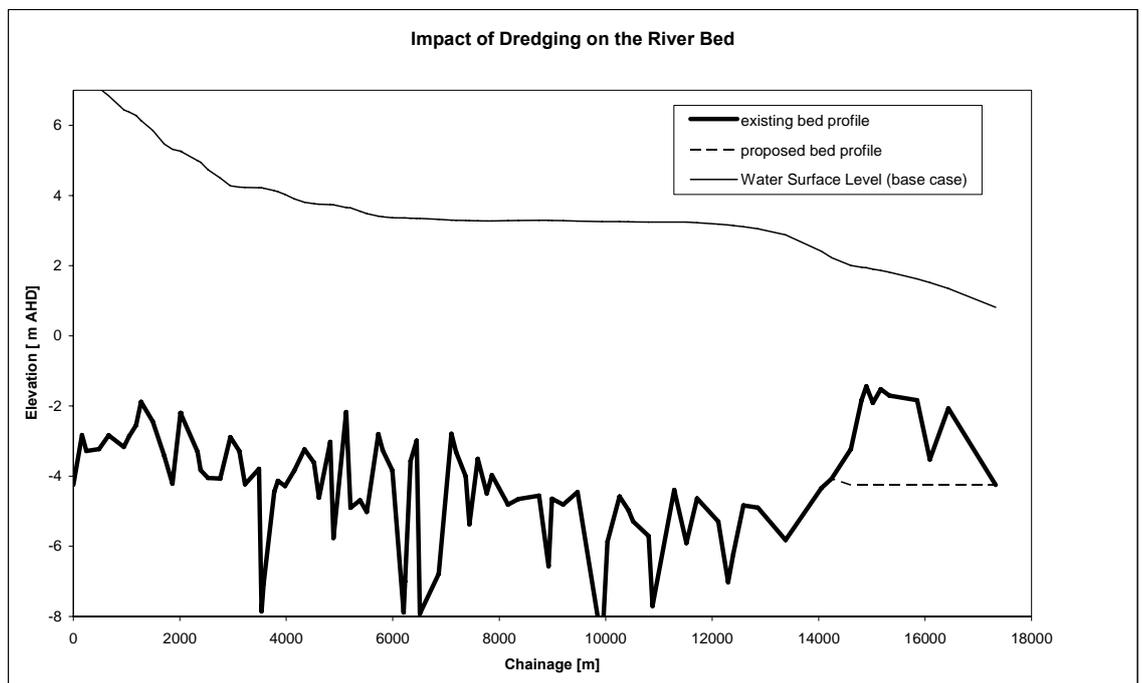


Figure 7-2: Effects of dredging on the river bed

7.1.1 Un-mitigated development case-model results

The proposed un-mitigated case produces high afflux across the flood plain. The impact is particularly significant to the north-east of the development site as shown in Figure 7-3. The development is shown to force the flood water towards the northern side of the Caboolture River. These results show that mitigation measures are required to reduce the impact of the high affluxes.

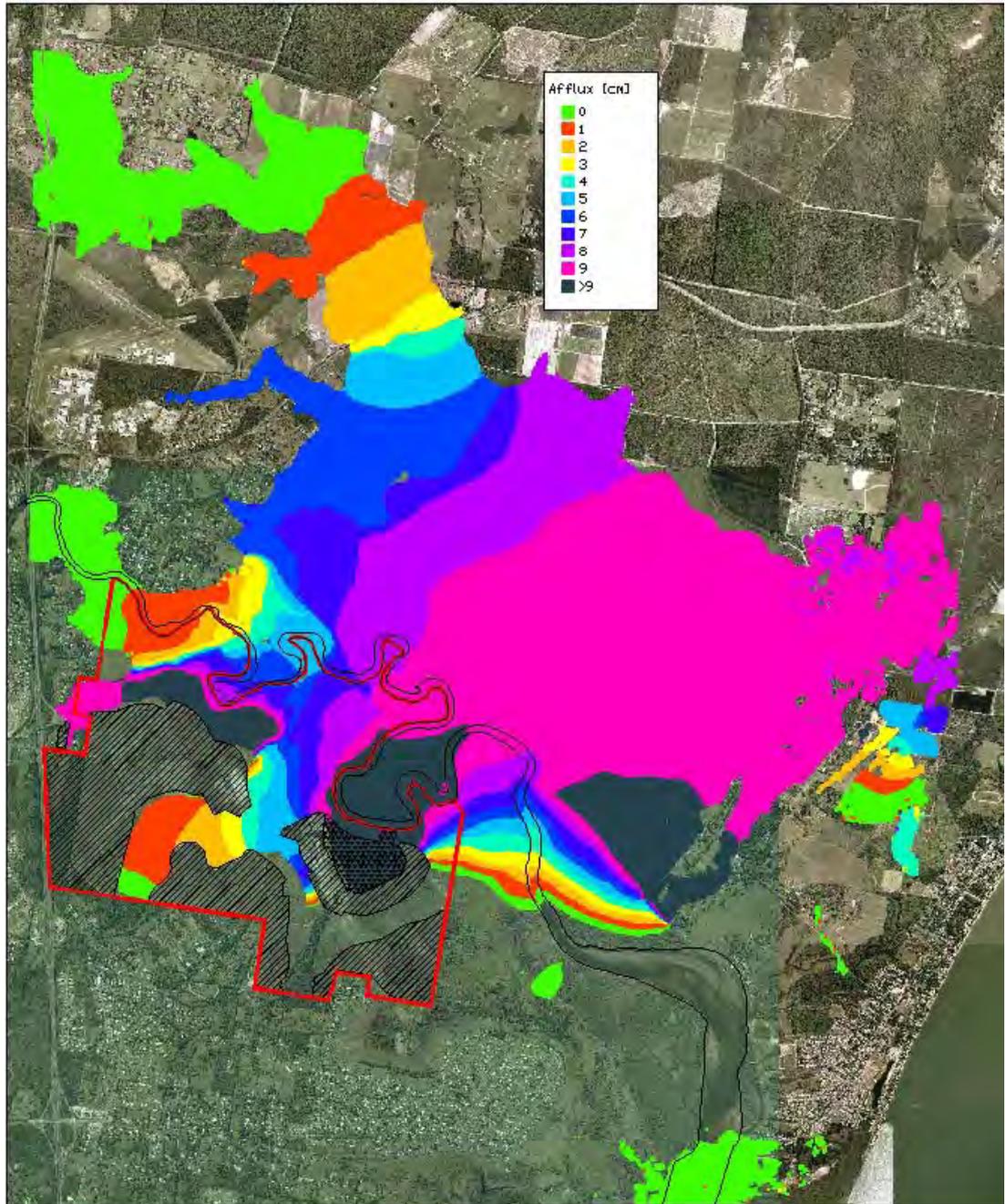


Figure 7-3: Afflux map for the un-mitigated case

7.2 Mitigated development case

In addition to the changes to the un-mitigated development model described in Section 7.1, there is a need to mitigate the increased peak flood levels outside the development boundary due to the proposed works. This is a requirement of the CSC Shire Plan.

The shape of the storage is dictated by the development master plan layout and by constraints associated with development near to or adjacent to rivers and creeks. For the Caboolture River, no development can occur within 100 m of the top of bank. For Raft Creek this distance is reduced to 80 m.

The mitigation philosophy to offset the increase in peak flood levels outside the development site is based on the following two criteria:

- increase flow conveyance through the proposed development
- construct earth diversion banks to help direct the flow through the site and away from sensitive areas.

The inclusion of a detention basin to attenuate flood waters was not considered for the following reasons:

- a large volume of water will need to be stored before the detention basin could have a significant effect on the large volumes of flood water from the Caboolture river system
- land restrictions relating to the large volume needing to be stored
- depth restrictions requiring the detention basin to remain above the tidal limit will force the basin to be shallow and have limited impact.

Based on these principles and the development and environmental constraints, Figure 7-4 shows the general location of the flood mitigation elements within the development that will be optimised within the development site.

The following section describes each flood mitigation element, of which a summary is presented in Section 7.2.6.

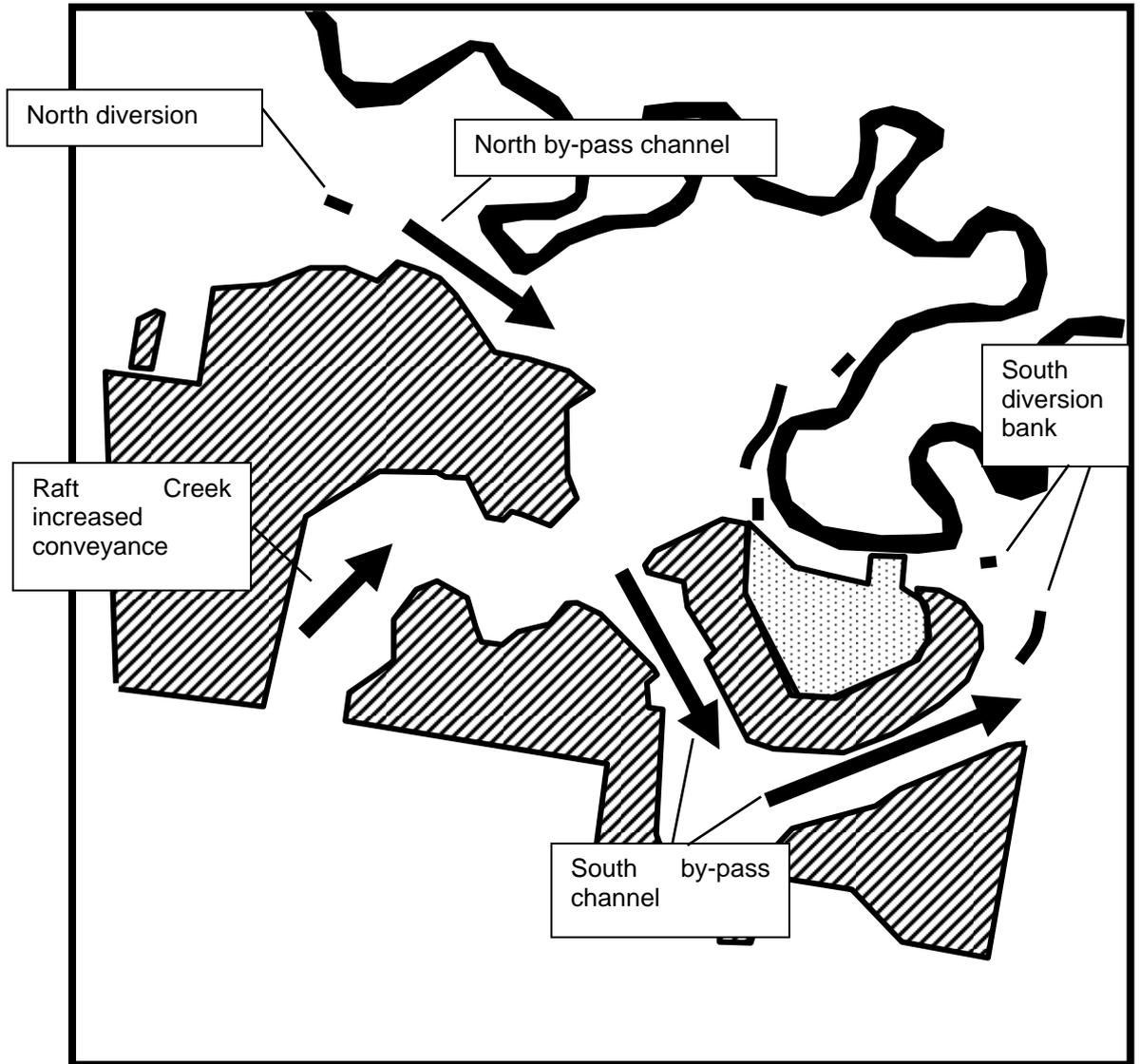


Figure 7-4: Schematic of the mitigation philosophy

7.2.1 Details – mitigation options for the north by-pass channel

Earthworks within the north by-pass channel will reduce the afflux on the north side of the proposed development. The topography changes (before and after development) for this mitigation option are shown in 7-5. The area within the black box shows the extent of earthworks required.

The objective of this mitigation is to increase the conveyance on the south side of the river and convey the water towards the south-east side of the proposed development thus the afflux upstream of the development is reduced. The approximate volume which needs to be cut to reduce the natural ground to a height of 1.5 m AHD within this area is approximately 160,000 m³.

Manning's n roughness of the ground was reduced from 0.08 to 0.04 within the boundaries of the north by-pass channel.

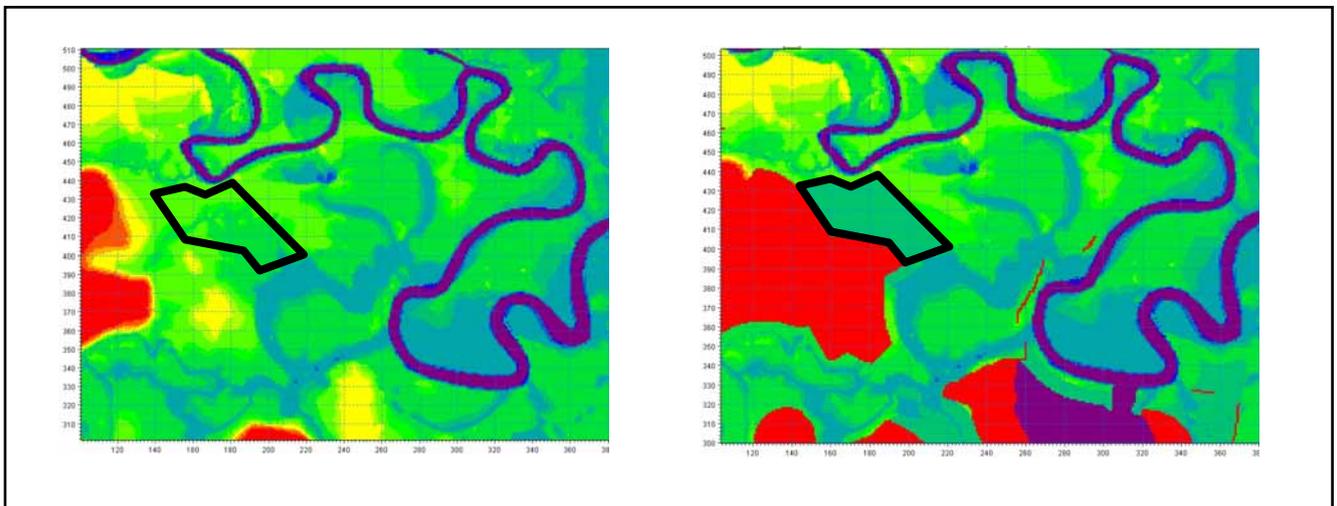


Figure 7-5: Proposed North Channel by-pass (un-mitigated and mitigated cases)

7.2.2 Details – mitigation options for earth diversion banks

Earth diversion banks are required at four locations within the development site. Figure 7-6 shows the location of these diversion banks.

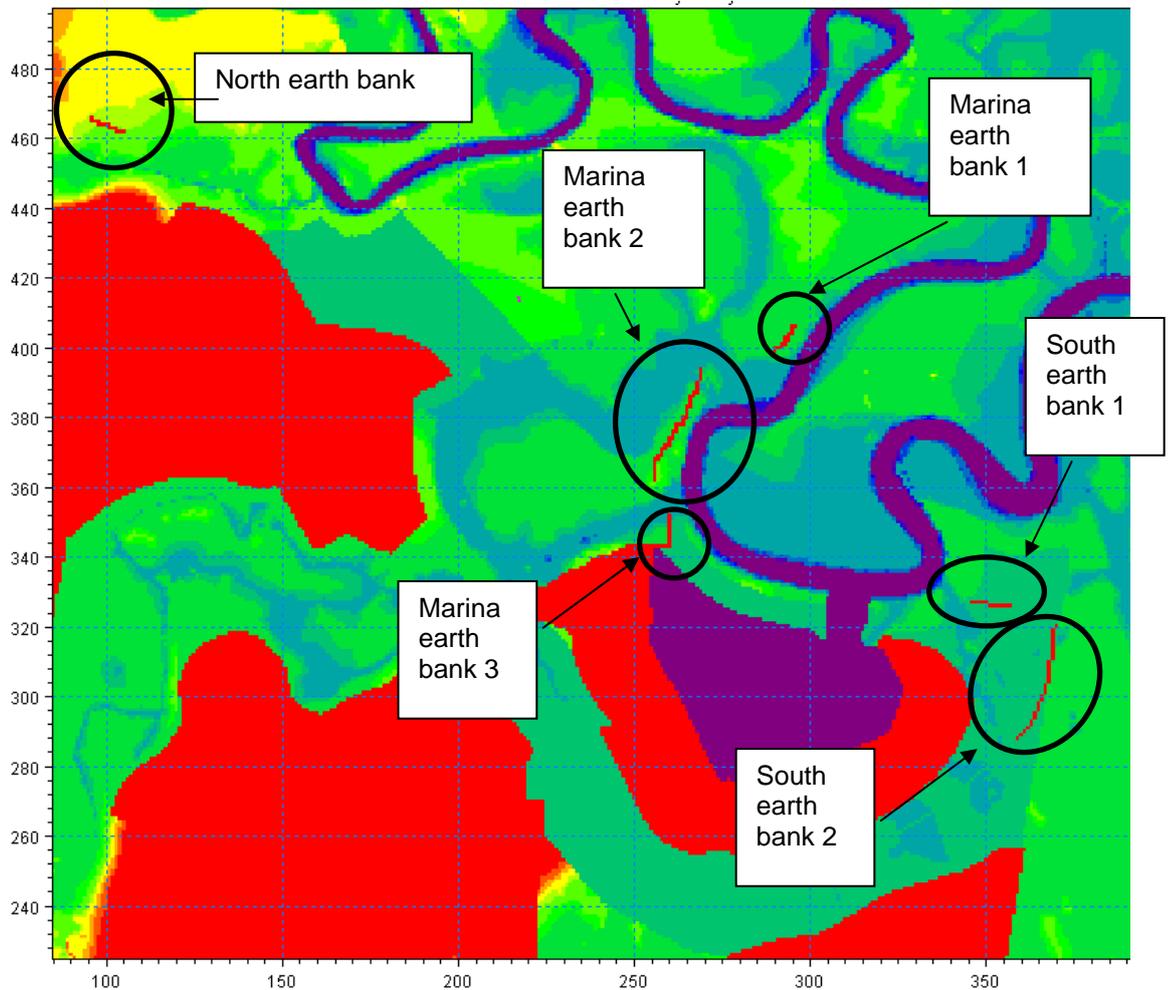


Figure 7-6: Proposed earth diversion embankments

The north earth bank is needed to prevent afflux on the west side of the development while the three marina earth banks are required to prevent affluxes north of the marina.

The south earth banks prevent increased peak flood levels at the downstream boundary.

The earth diversion banks will be designed such that they are a minimum of 0.3 m above the 1 in 100 year ARI flood level, with one in four sides. The final design of these earth banks will require structural input.

7.2.3 Details – mitigation options for south by-pass channel

The flow conveyance on the south side of the river needs to be enhanced wherever possible. An important flow route exists south of the proposed marina. The topography changes (before and after development) for this mitigation option are shown in Figure 7-7. The area within the black box shows the extent of earthworks and the location of the south by-pass channel mitigation.

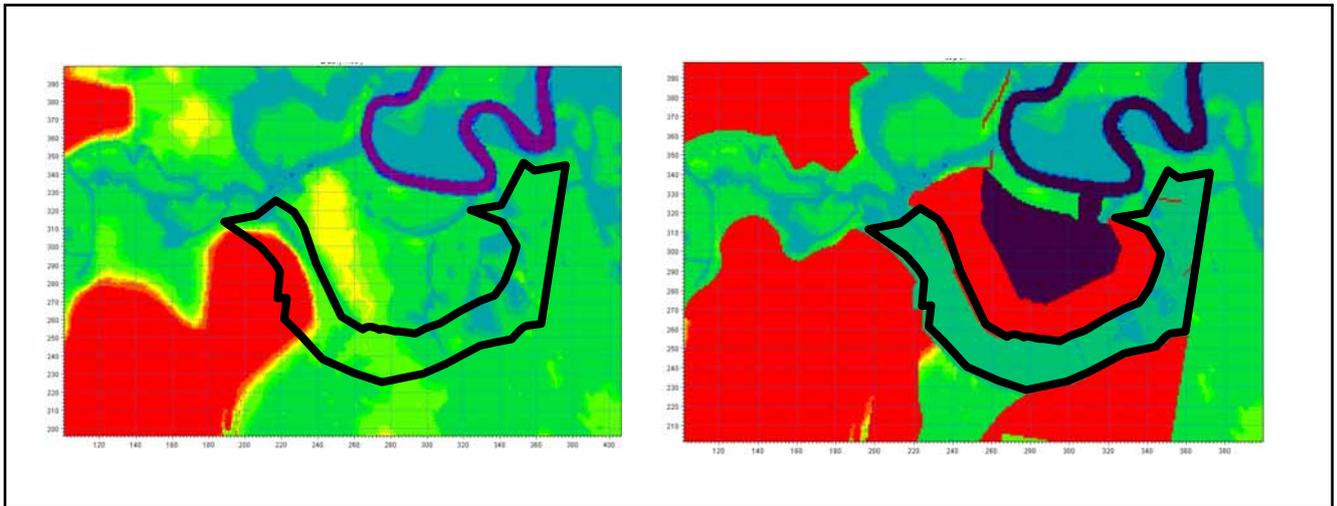


Figure 7-7: Proposed south by-pass channel mitigation (unmitigated and mitigated cases)

Land within the south by-pass channel will be cut to 1.5 m AHD. The Manning's n roughness coefficient varies from 0.08 to 0.04 depending on the mitigation requirements (refer Table 5-1.).

The volume of natural ground which needs to be removed to reach a level of 1.5 m AHD is approximately 436,000 m³.

7.2.4 Detail – mitigation options in Raft Creek area

A section in the southern parts of Raft Creek (within the Development’s boundaries) is constricted and increases the peak water levels. This area is shown in Figure 7-8. The offset is a cut parallel to Raft Creek.

The volume of ground that needs to be cut to a height of 2.0 m AHD is 103,000 m³.

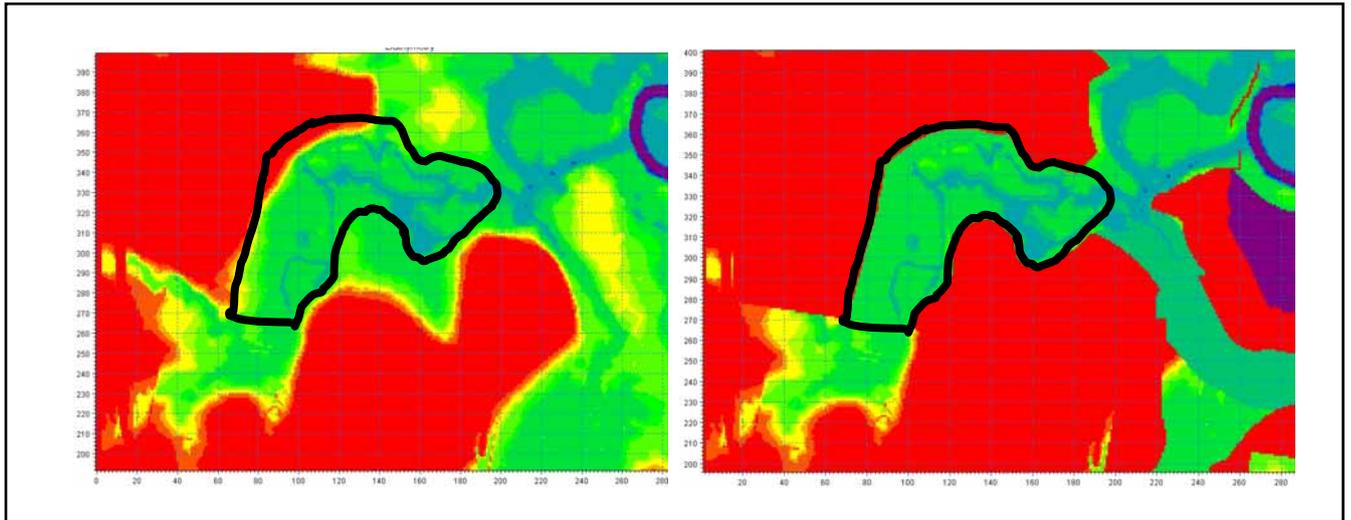


Figure 7-8: Proposed mitigation in Raft Creek area (un-mitigated and mitigated cases)

7.2.5 Details – grass managed areas

Figure 7-9 presents the area where grass management is required. In these areas the roughness is decreased from 0.08 to 0.04.

This decrease would represent a change to a smoother ground surface where the grass is maintained at a much lower level such as the type of grass on a golf course or sports ground.

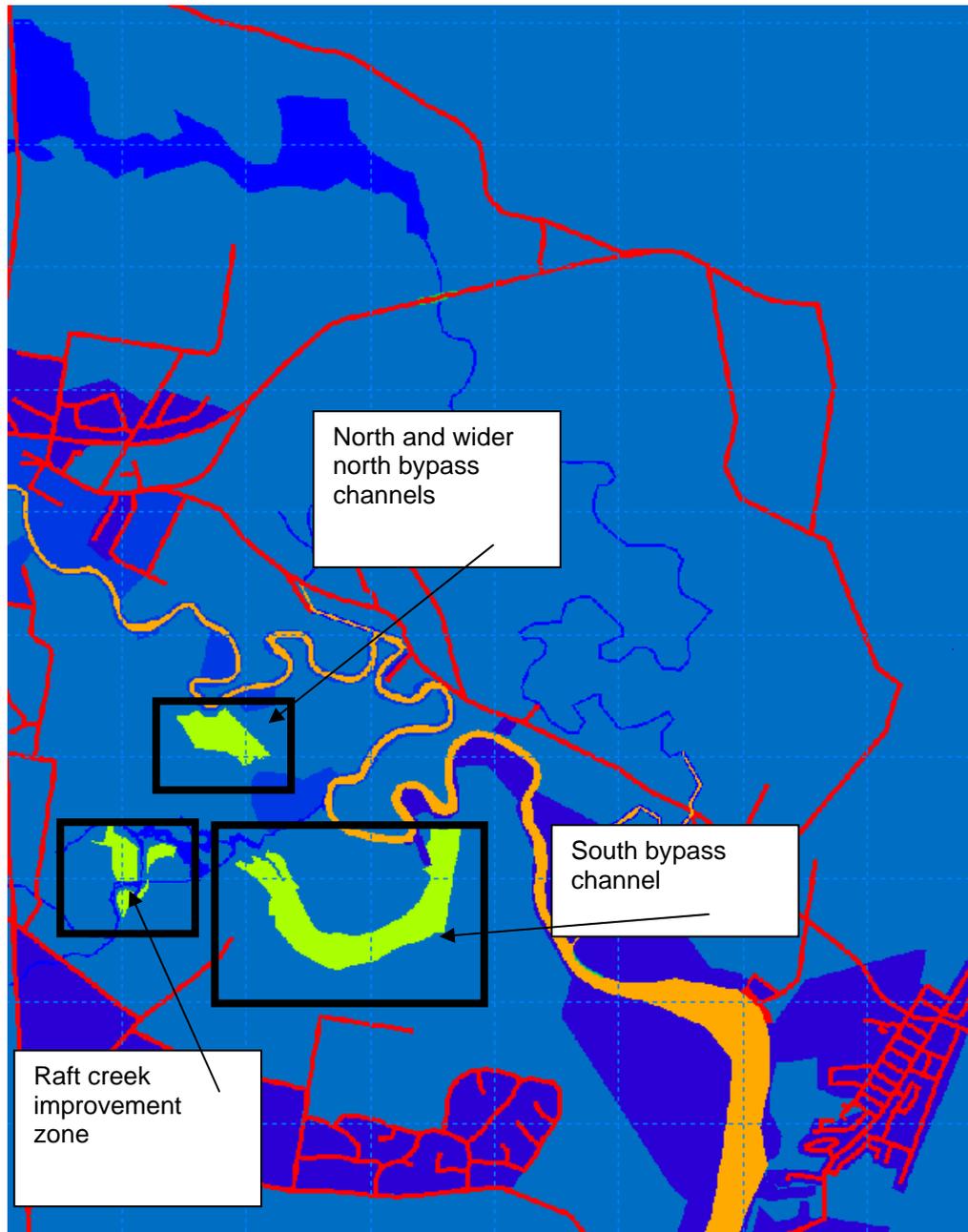


Figure 7-9: Proposed grass managed area with reduced Manning's n

7.2.6 Summary – mitigation case

The following summarises the preferred mitigation case undertaken for this study as well as an estimate of the volume of earthworks required:

- north by-pass channel: reduced roughness, cut to 1.5 m (160,000 m³).
- south by-pass channel: reduced roughness, cut to 1.5 m (436,000 m³).
- Raft Creek-improvement: reduced roughness, cut to 2 m (103,000 m³)
- total volume of cut: 699,000 m³.
- six earth diversion banks — three near the marina, two at the eastern boundary and one in the north-western section (earthworks not included in above cut volume).

7.3 Preferred mitigation case

The following section provides the results for the preferred mitigation case for the 100 year ARI event only.

7.3.1 Afflux

Figure 7-10 presents the afflux for the preferred mitigation case. The afflux is considerably reduced within the floodplain. CSC's floodplain guidelines are met as there is no afflux outside the development boundary.

In this case all proposed excavated areas cut (north by-pass channel, wider north by-pass channel, south by- channel and raft channel) have been modelled with a reduced roughness as per Figure 7-9.

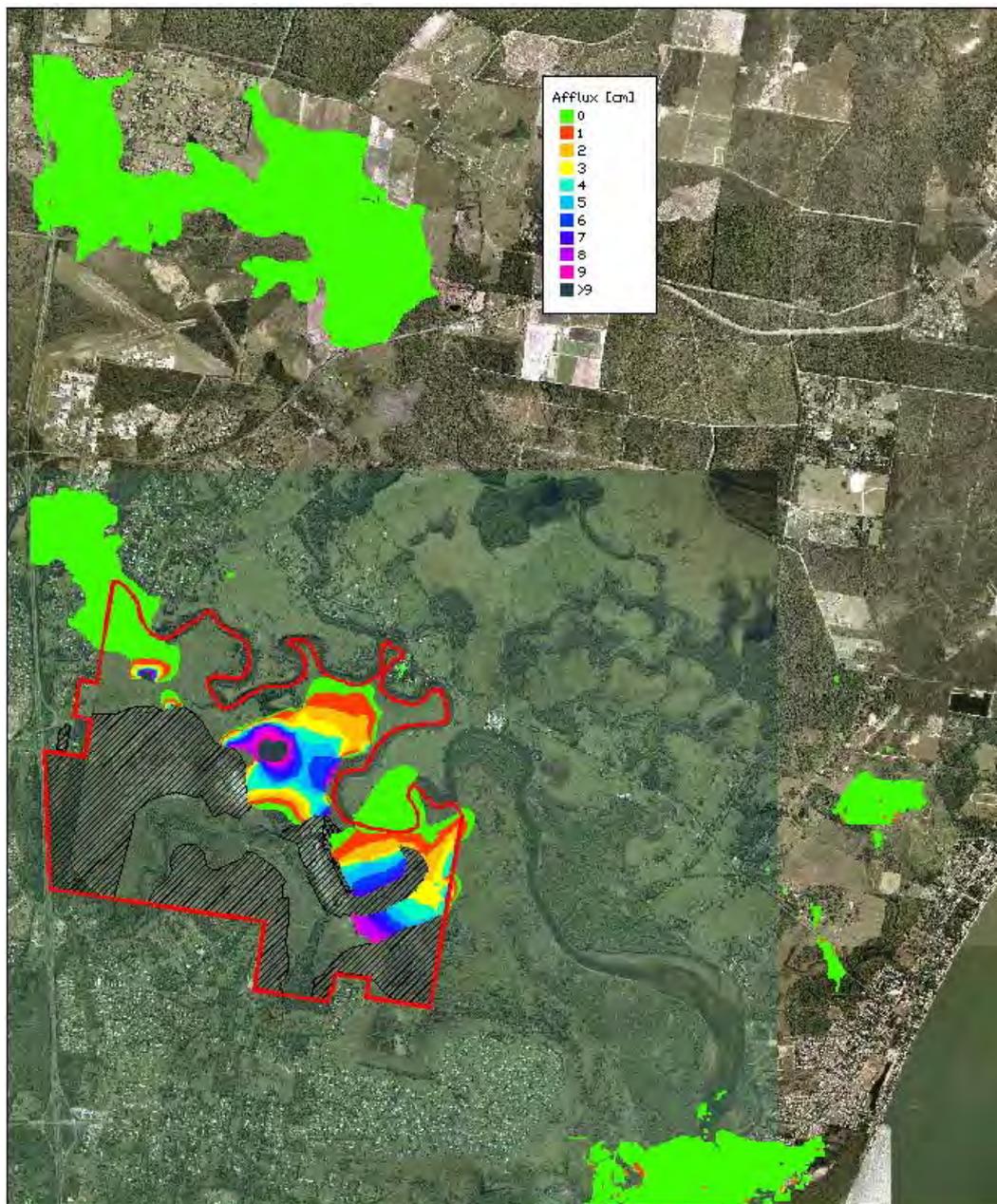


Figure 7-10: Preferred mitigation case afflux map

7.3.2 Water surface levels

The maximum water surface level and maximum flow velocity for the preferred mitigation case are shown in Figure 7-11. The water surface elevations range from 2.3 m AHD to 7.5 m AHD. The majority of velocities shown are less than 1.0 m/s; however, within sections of the main Caboolture River velocities exceed 2.0 m/s.

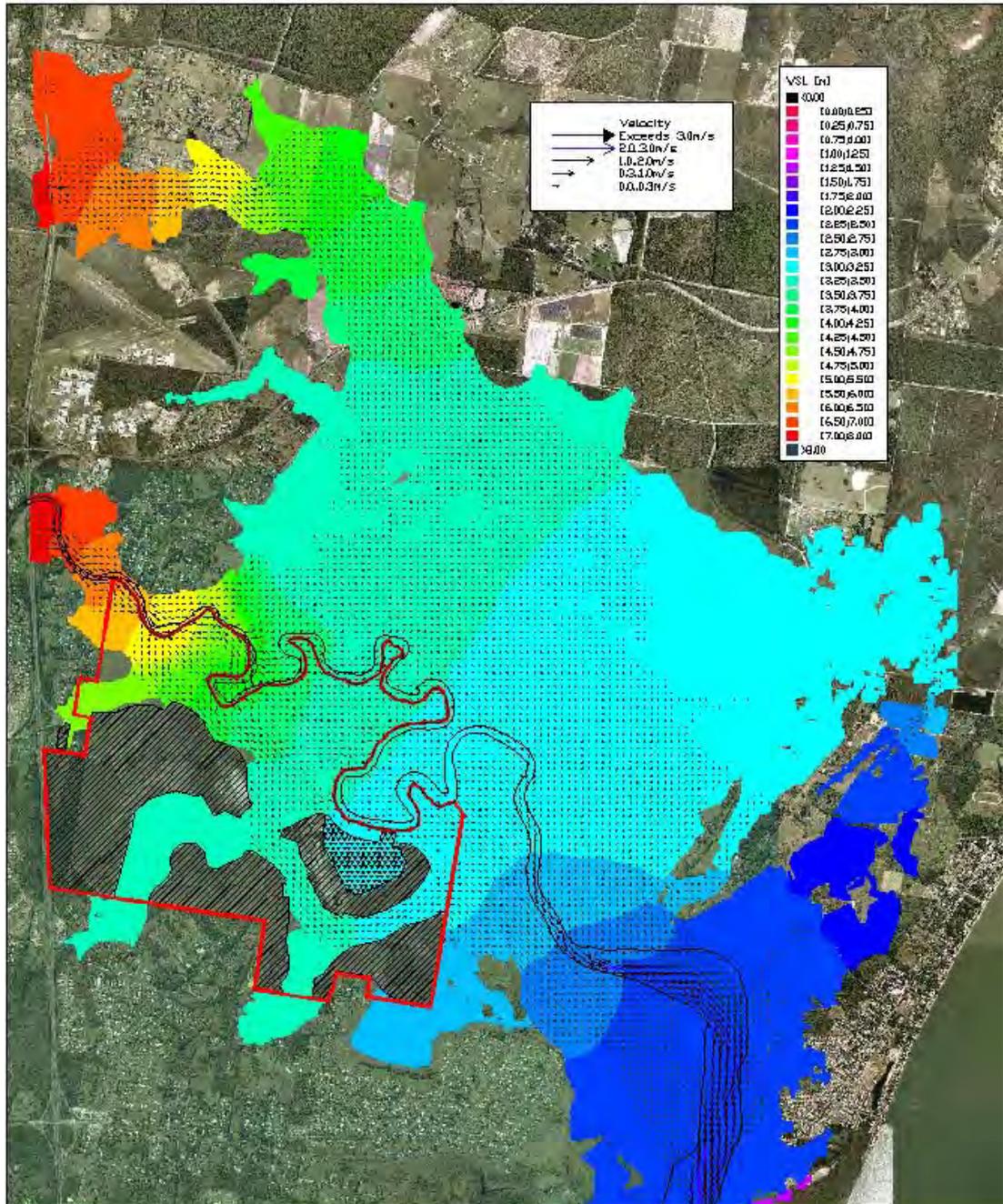


Figure 7-11: Maximum water surface level and velocity for the preferred mitigation case

Figure 7-12 presents the long section of the water surface levels for the existing, unmitigated and the preferred mitigated case. The comparison of the three cases shows very little difference in water surface levels.

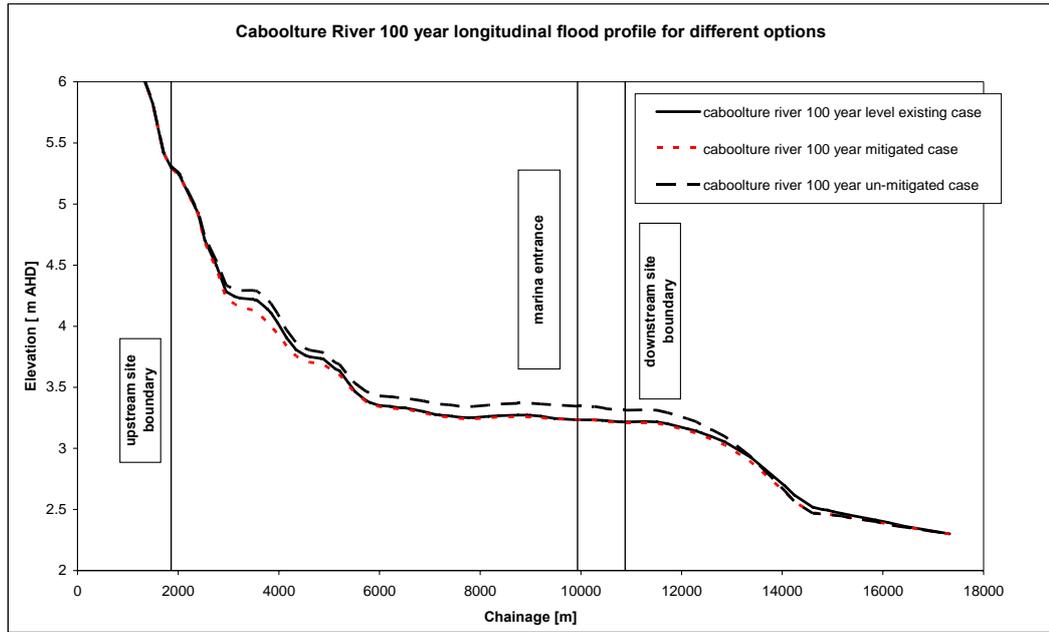


Figure 7-12: Water surface level long section

7.3.3 Depth

Figure 7-13 presents the preferred mitigation case flood depths. The maximum depth within the floodplain is 4 m. The depth within Caboolture River the depth is greater than 4 m.

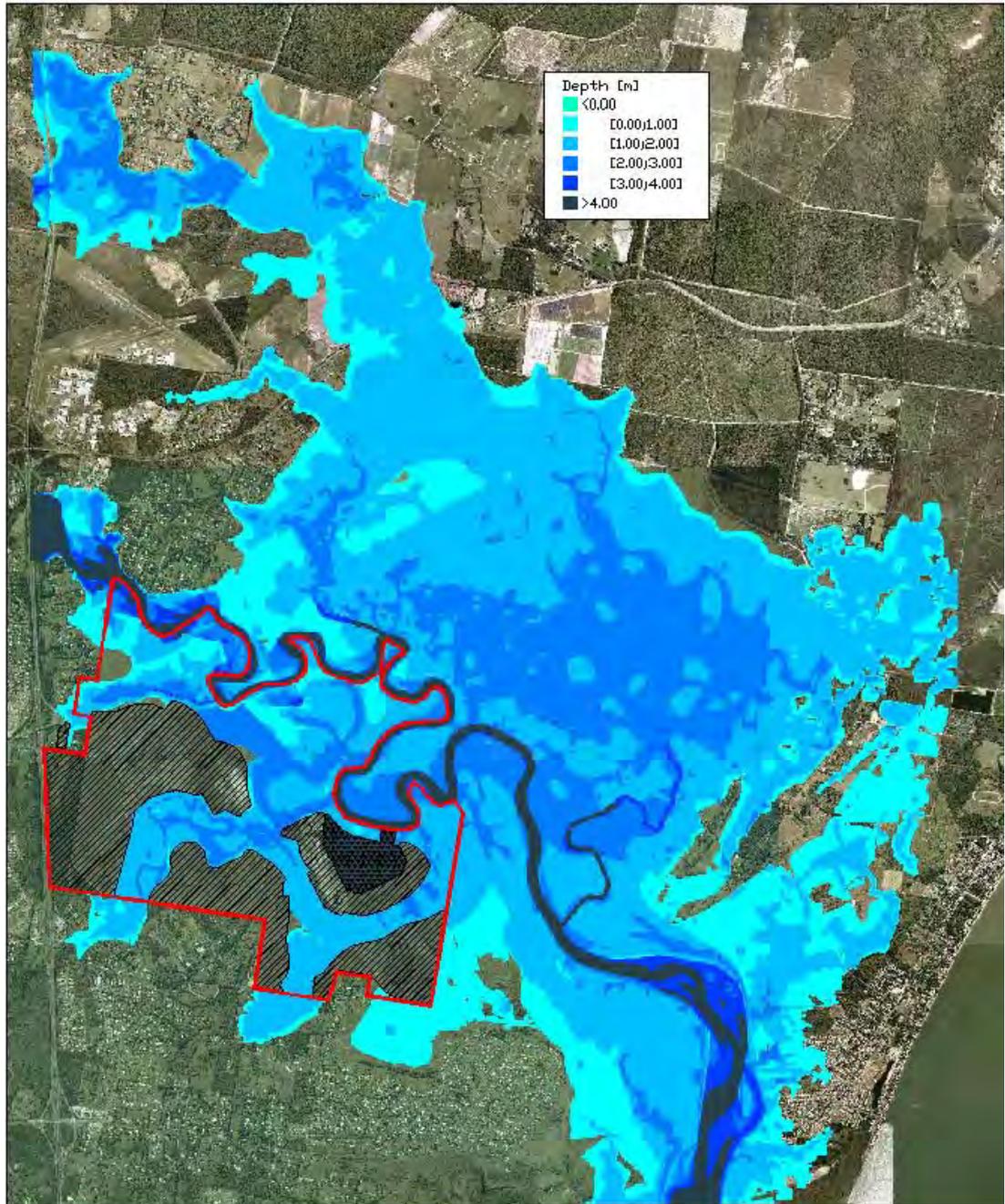


Figure 7-13: Water depths for the preferred mitigation case

7.3.4 Flow patterns over the proposed site

The flow patterns over the site need to be understood such that suitable scour protection can be designed to protect areas subject to high velocities. The velocity and volume of water going through the site are presented in this section.

To assess the flow patterns on the site, the volume and velocity of flow were extracted from the modelling results of the preferred mitigation case at four locations, as shown in Figure 7-14. These locations were selected as the flow was significantly constricted at this site thus providing the highest flow velocity.

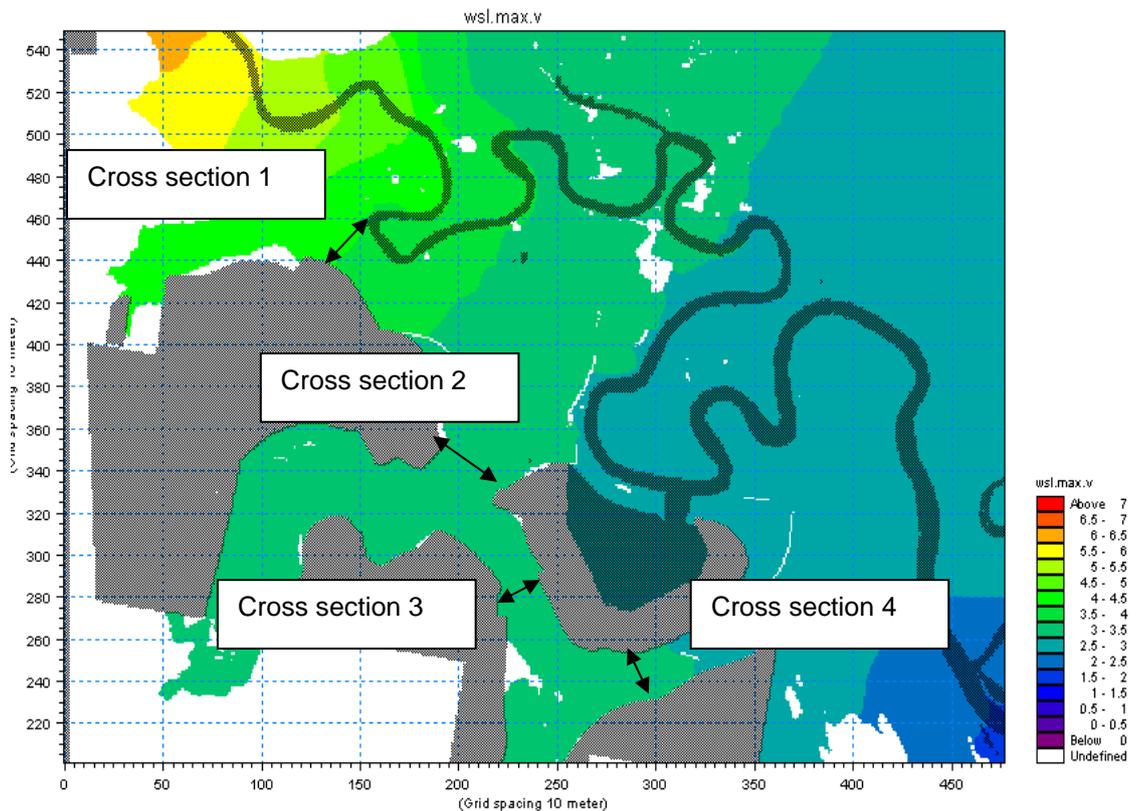


Figure 7-14: Flow volume and speed cross section locations

Figure 7-15 presents the flow velocity at each cross section location for each time step of the flood model. The speed is relatively small and never exceeds 0.8 m/s. Therefore the soil in the proposed by-pass channels should not be prone to erosion. The spike at cross section three is most likely due to local inflows from Raft Creek coming through the cross section before the peak of the Caboolture River flows. Regardless, the largest speed predicted at cross section three occurs at approximately nine hours.

Figure 7-16 presents the flow volume at each cross section location for each time step of the flood model. As expected cross section one has the highest peak discharge. The peak flows have spread throughout the floodplain somewhat and therefore have reduced in magnitude at the other cross sections. Cross sections three and four have similar discharges due to the similarity of preferred mitigation works: similar ground elevations, roughness values and flow areas.

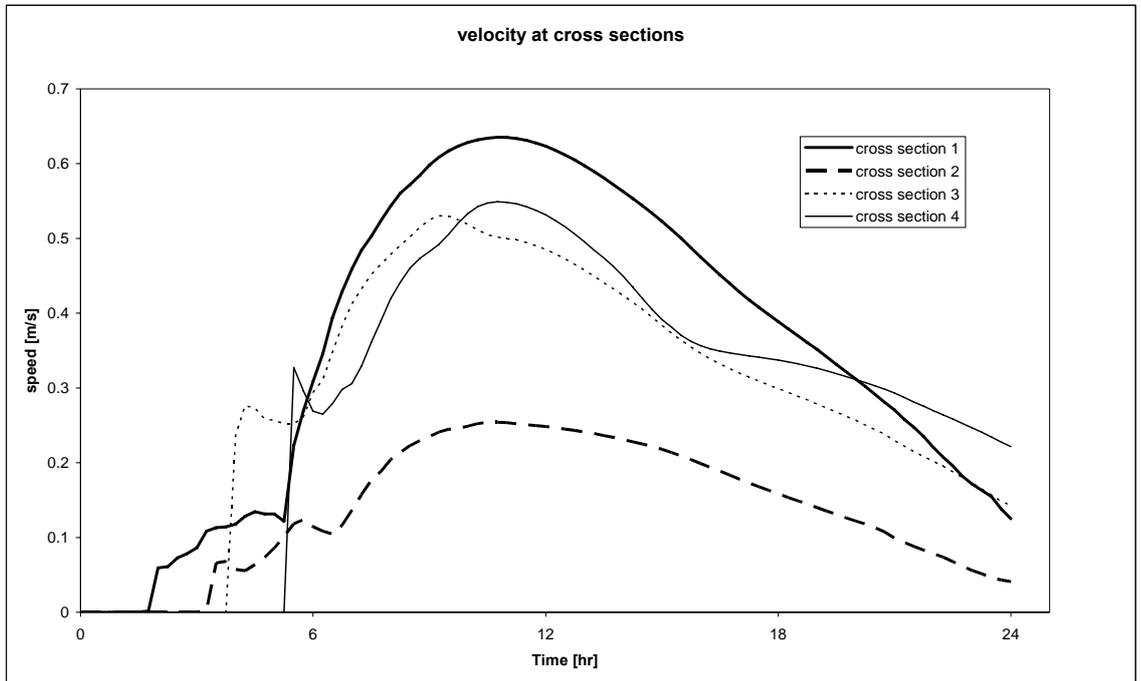


Figure 7-15: Velocity at cross sections

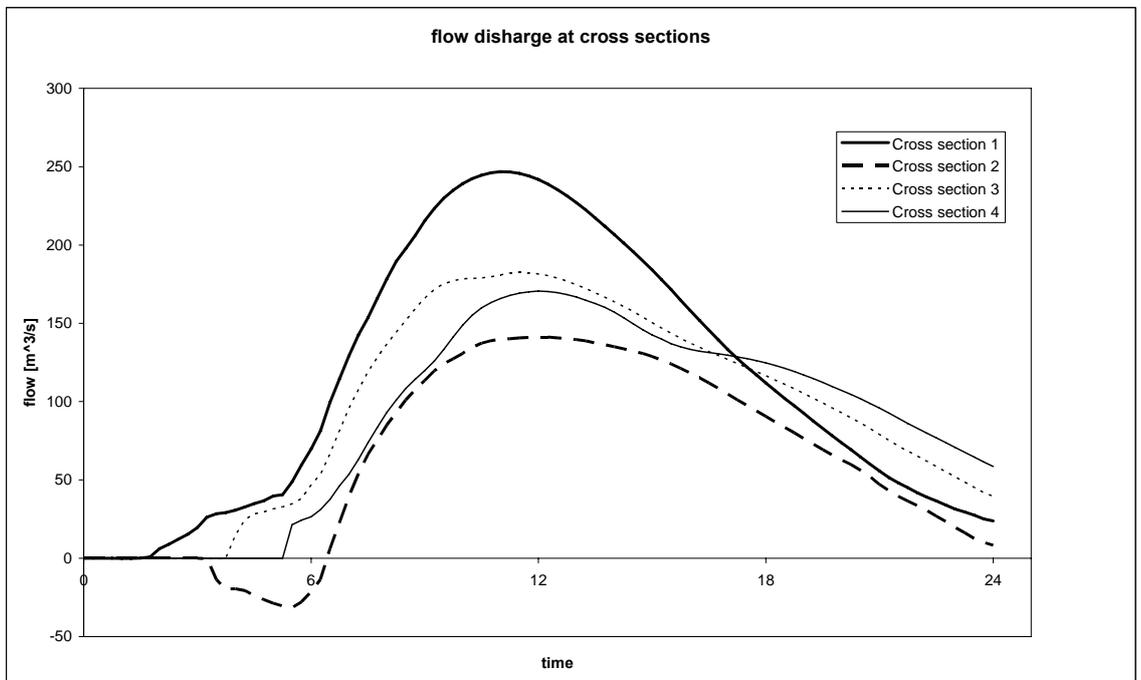


Figure 7-16: Flow discharge at cross sections

7.3.5 Flow velocities in Caboolture River

Figure 7-17 shows the velocities along the centreline of the Caboolture River. The figure shows that the velocities are generally maintained between the pre-development and post-development scenarios. The exception is the increase in velocity within the navigation channel at the downstream end of the model.

Some scour would naturally be expected for the 100 year flood event. The impact of the development on the velocities in the channel is not significant.

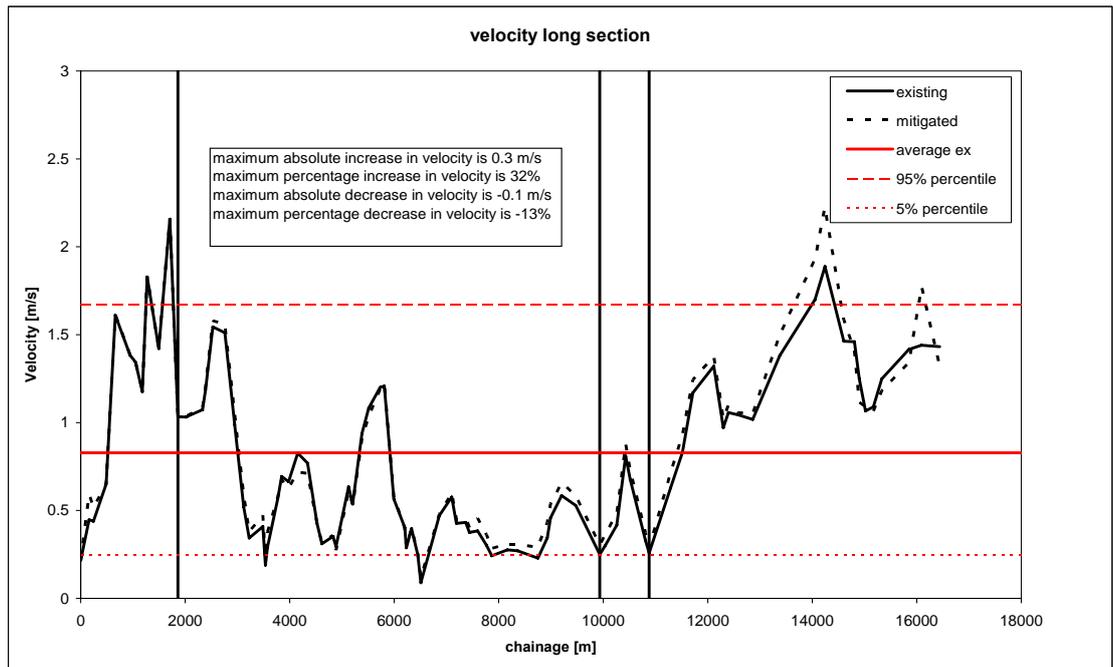


Figure 7-17: Longitudinal section of water velocity along the Caboolture River (m/s)

7.4 Design details of the proposed earth diversion banks

Table 7-1 presents the height at which the earth diversion banks needs to be set. This table also shows the flow velocity at which the bank would have to be protected in order to prevent erosion and scour.

Table 7-1: Details of proposed earth diversion banks

Earth diversion bank	Ground [m AHD]		Maximum WSL [m AHD]		Maximum velocity [m/s]		Height of earth diversion banks above ground with 300mm freeboard [m]	
	US	DS	US	DS			US	DS
North	4.2	3.2	4.7	4.5	0.8	0.5	0.8	1.6
Marina 1	2	2	3.3	3.2	0.4	0.1	1.6	1.5
Marina 2	1.2	2	3.4	3.2	0.5	0.5	2.5	1.5
Marina 3	1	2	3.3	3.2	0.5	0.2	2.6	1.5
South 1	1.5	1.5	3.2	3.1	0.2	0.4	2	1.9
South 2	1.5	2	3.2	3.1	0.35	0.2	2	1.4

7.5 Net benefits for wider floodplain

The preferred flood mitigation as described above has a net benefit to the wider floodplain. Figure 7-18 present the reduction in peak flood levels for the 1 in 100 year ARI event. The increased conveyance through the development site by use of earth diversion banks, grass management and additional earthworks reduces the flood risk to the wider community.

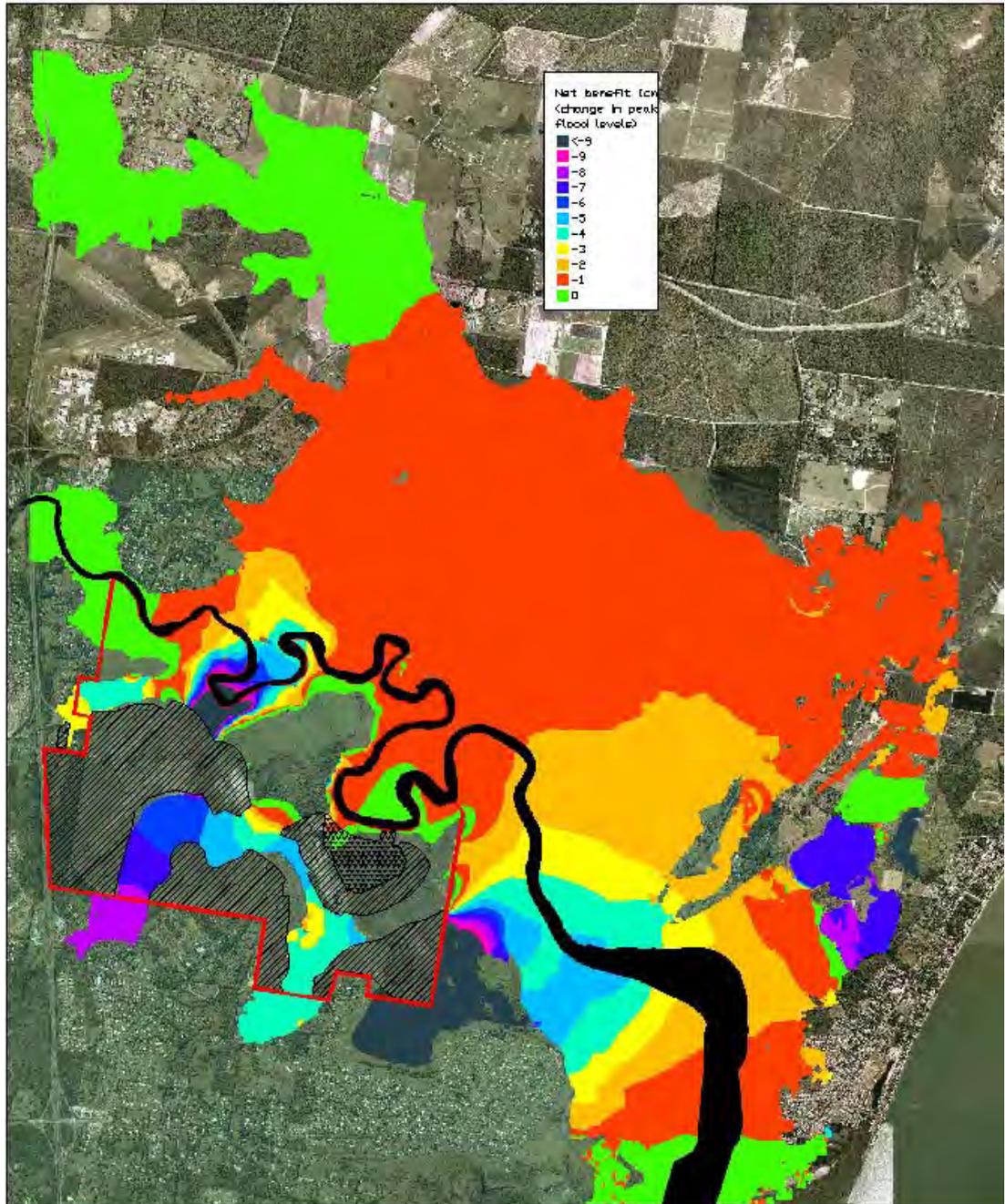


Figure 7-18: Net benefit map showing decrease in peak flood levels

7.6 Flood plain storage calculations

A simple earthworks model was developed using 12d to show that there is no net loss of floodplain storage for the preferred mitigation case. The topography and water surface levels of the basecase and the preferred mitigation case were triangulated in 12d and a simple cut/fill calculation undertaken for the area within the development boundary. The results are:

- base case floodplain storage = 7,844,562 m³
- preferred mitigation scenario floodplain storage = 9,268,352 m³

Therefore the development scenario provides an additional 1,423,790 m³ in floodplain storage.

8. Conclusions and recommendations

The purpose of this flood study is to provide floodplain information for the planning application that includes the development of Northeast Business Park; 760 ha of industrial, commercial, parkland and future residential land use within CSC. The conclusions and recommendations made in this report are only applicable to the floodplain within and immediately surrounding the area of the proposed development.

8.1 Base case model

The following remarks are made in relation to the base case flood model:

- calibration was undertaken against the 1991 event
- verification was undertaken against the 1972 and 1989 historical events with a good match between measured and modelled water surface level
- the flood model is not sensitive to changes in downstream boundary conditions within the context of the development site
- the model fitness assessments based on Froude numbers, Courant Friedrichs Levy ratio and model noise, demonstrate the stability of the model
- the maximum relative mass gain error is insignificant at 2 % of the total mass in the domain.

Therefore the MIKE21 flood model can be used confidently to simulate the flow across the floodplain, providing a tool to assess the flood mitigation requirements.

8.2 Proposed development

The development case includes the cut and fill plan as per master plan (Drawing 0304 SK36, issue SD04, dated 30 July 2007 Ref 20430-10D), and includes a 40 m wide dredged navigable channel downstream of the fish habitat area.

The flood model results showed that the un-mitigated master plan increased the peak flood levels for the 1 in 100 year ARI event across the majority of the floodplain. Therefore flood mitigation was required as per CSC's floodplain policy.

Flood mitigation was required to offset the increased peak flood levels outside the development site and was based on two principles:

- increase flow conveyance through the proposed development
- construct earth diversion banks to help direct the flow through the site and away from sensitive areas.

The preferred mitigation case presented in this report includes a combination of earth diversion banks and additional land cuts. The flood mitigation elements were located in four distinct areas within the development: North by-pass channel, wider north by-pass channel, Raft Creek and the southern by-pass channel.

The preferred mitigation case consists of:

- north by-pass channel — cut to 1.5 m AHD, grass managed
- Raft Creek — cut to 2.0 m AHD, grass managed
- south by-pass channel — cut to 1.5 m AHD, grass managed
- six earth diversion banks — three near the marina, two on the eastern boundary, one in the north-western section.

It is estimated that the total earthworks (cut) for the flood mitigation is 699,000 m³. This does not include earthworks required for the earth diversion banks.

The preferred mitigation case shows overall reductions in the peak water levels for the 100 year ARI events across the flood plain. This is due to the flood mitigation works that increase the conveyance through the development site and therefore reduce the flood conveyance through the northern section of the lower Caboolture River floodplain (north of the Caboolture River).

The changes in the flow velocities within Caboolture River due to the flood mitigation works are insignificant when compared to the existing case velocities. As expected the navigation channel has the most impact on river velocities.

Overall the proposed works represent a net benefit for the community in terms of flooding. The peak flood levels will be lowered in much of the surrounding flood plain with localised peak flood level increases occurring only within the site boundary or in locations where existing infrastructure will not be impacted.

8.3 Recommendations

Adopt the preferred mitigation strategies to minimise afflux associated with the proposed development in accordance with CSC's requirements

The detailed design of any structures (bridges, culverts, etc) that are proposed within the floodplain (over, under, or through) will need to be appropriately modelled to assess the impacts on the floodplain.

The maintenance of the grass managed areas is essential to the flood mitigation proposed in this study. These areas must be designed such that the land use relates to a Manning's n roughness value of 0.04 which correspond to well maintain grassed areas. Deviations from this value will need to be remodelled.

Structural input is recommended for the design of the earth diversion banks to avoid 'washouts' and therefore compromise the flood mitigation proposed.

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Appendix A

Caboilture Shire Council
Flood Plain Management Policy
803/02

COUNCIL POLICY No: 803/02**FLOOD PLAIN MANAGEMENT****RESOLUTION:**

The calculated average recurrence interval event (ARI) is a calculated flood caused by any body of water which rises as the result of a calculated event or the joint probability of a combination of calculated events including storm water runoff, storm/cyclonic surge, tide or other event.

1. FOR REZONING CONTROL

An application for rezoning will not be approved unless the applicant can demonstrate that the minimum requirements for subdivision control can be met in the zone into which the subject land is proposed to be placed.

2. FOR SUBDIVISION CONTROL**(a) Residential Zones**

- (i) Subdivision of land below the calculated 100 year ARI flood contour will not be approved.
- (ii) Council may permit works to achieve the criteria set in Clause 2(a)(i) subject to the following:-
 - Alteration of site contours, including filling, may be undertaken subject to no net loss of flood storage across the subject land for all storm events up to and including a 1 in 100 year event.
 - The determination of flood storage is to be by computer model based on pre and post development field contour surveys.
 - Where site contours are amended such work is to be undertaken in such a manner that adjoining properties remain free draining and with no resultant increase in flood levels.

(b) Rural Residential Zones A, B and C.

- (i) within each allotment at least three thousand (3,000) square metres in one parcel which is above the calculated fifty (50) year ARI flood contour prior to alteration of the natural ground profile and
- (ii) within each allotment at least one thousand (1000) square metres in one parcel with a minimum depth or width of twenty five (25) metres, included in the area of land in (i) above, which is above the calculated one hundred (100) year ARI flood contour prior to alteration of the natural ground profile.

- (iii) the area above the 100 year flood contour [item (ii) refers] must front onto a dedicated road and have a minimum frontage to the road of 10 metres.
 - (iv) Creeks or watercourses having defined bed and banks are not permitted to traverse Rural Residential B and C allotments.
 - (v) The area occupied by creeks and watercourses having defined bed and banks plus a minimum distance of 10 metres from the "top-of bank" are to be contained within drainage reserves external to Rural Residential B and C allotments.
 - (vi) The determination whether or not a creek or watercourse has defined bed and banks and the determination of the "top-of-bank" is to be to the satisfaction of the Shire Engineer.
 - (vii) Where construction works not approved by the Shire Engineer are undertaken to alter the shape of a creek or watercourse prior to determination of items (iv), (v) and (vi) the area below the flood contour associated with a 10 year storm event plus a minimum distance of 10 metres from the 10 year flood contour is to be contained within a drainage reserve external to allotments.
- (c) Rural Zone – Subdivision of floodable land will only be approved for rural zoned properties where each of the proposed parcels of land has an area of land in its natural state prior to any earthworks being carried out which satisfies all the following requirements –
- (i) At least one thousand (1000) square metres in each parcel with a minimum depth or width of twenty five (25) metres above the calculated one hundred (100) year ARI flood contour;
 - (ii) has a slope not steeper than one (1) vertical to six (6) horizontal before undertaking any earthworks;
 - (iii) each parcel must front onto a dedicated road or be connected to a dedicated road by a constructed access which is above the calculated five (5) year ARI flood contour and the construction of which does not raise the flood levels on the adjoining parcels of land.
 - (iv) each parcel must exhibit a means of egress to a high ground retreat from the area specified in Clause (c) (i).
- (d) Zones other than Residential, Rural Residential or Rural
- Subdivision applications will be considered on the circumstances of the individual proposals. Such proposals other than those to accommodate existing lawful buildings should be capable of complying with the following guidelines:-

- (i) All parcels of land formed by subdivision should be capable of having the floor level of any building constructed above the calculated one hundred (100) year ARI flood contour for habitable buildings and above the calculated fifty (50) year ARI flood contour for non-habitable buildings and with a maximum height of floor levels above natural ground level of one (1) metre;
- (ii) the construction of such buildings or the filling of land adjacent the buildings must not restrict the flow of floodwater, significantly increase the flood levels or create drainage problems on adjacent parcels of land;
- (iii) Where filling of land will not restrict the flow of flood waters, significantly increase flood levels or create drainage problems on adjacent parcels of land, Council may permit the filling of land to meet the above requirements where the natural ground level is within one (1) metre of the calculated one hundred (100) year ARI flood contour. All fill batters must be less than one (1) vertical to ten (10) horizontal.

3. FOR BUILDING APPLICATION CONTROL

- (a) In areas affected by flood water, where the construction of such buildings is allowed "As of Right" in the zone in which the land is situated:-
 - (i) The floor level of habitable rooms must be not lower than the higher of:-
 - (1) 300mm above the highest recorded flood level as determined by Council; or
 - (2) above the calculated one hundred (100) year ARI flood level where such level has been determined by Council.
 - (ii) The floor level of non-habitable buildings (garages, carports, farm sheds etc.) may be constructed at or below the highest recorded flood level as determined by Council.
- (b) In areas affected by tidal water:
 - (i) The floor of habitable rooms must not be lower than RL 2.3 metres AHD.
 - (ii) The minimum ground or floor level of RL 2.0 metres AHD to be provided to non-habitable buildings.
 - (iii) Septic Trench Installation.

Septic trenches are to be constructed so as to have a minimum surface RL of 2.0 metres AHD.

Where filling of land is necessary to facilitate the construction of a septic trench installation, only an evenly graded clean sand fill is to be used.

The following discretions may be exercised:

1. For minor additions to an already existing building, Council may approve a floor level on a non-habitable building at or above RL 1.7 metres AHD.
2. Septic trench surface levels of RL 1.7 metres AHD may be approved as follows:
 - (a) Where a septic system is being added to an existing building or,
 - (b) Where filling of the subject land to increase the surface level to RL 2.0 metres AHD or higher may create drainage and seepage problems on adjacent parcels of land.

The discretion given in (1) and (2) will be subject to the following conditions:

- (a) Owner signing a Statutory Declaration stating that the owner is aware of the possibility of tidal/storm surge flooding.
 - (b) The property notes for the subject property being noted so that future purchasers will be aware of the problem prior to purchase.
3. In those instances where filling of the subject land to raise the surface level of septic trenches is required and Council considers that such filling may:
 - (i) Restrict the flow of floodwaters, tidal water or stormwater, or,
 - (ii) Increase flood levels of adjacent parcels of land, or,
 - (iii) Create drainage and seepage problems on adjacent parcels of land.

then Council may refuse the application or require that plans be amended to demonstrate how sanitary and sullage wastes are to be disposed of to the satisfaction of Council.

- (c) In areas where Council has determined fill levels in accordance with a master drainage scheme:
 - (i) The floor level of habitable rooms must be not lower than the recommended minimum height of 225mm above the determined fill level for the subject property
 - (ii) The floor level of non-habitable rooms must be at or above the determined fill level for the subject property.
 - (iii) Septic Trench Installation

Septic trenches are to be constructed so that the surface level of the trenches are at or higher than the determined fill level of the subject property.

Where filling of land is necessary to facilitate the construction of a septic trench installation, only an evenly graded clean sand fill is to be used.

The following discretion may be exercised:

- (1) For minor additions to an already existing building, Council may approve a floor level on a non-habitable building at or above RL 1.7 metres AHD.
- (2) Septic trench surface levels of RL 1.7 metres AHD and higher may be approved as follows:
 - (a) Where a septic system is being added to an existing building or
 - (b) Filling of the subject land to increase the surface level to the determined fill level or higher may create drainage and seepage problems on adjacent parcels of land.

The discretion given in (1) and (2) will be subject to the following conditions:

- (a) Owner signing a Statutory Declaration stating that the owner is aware of the possibility of drainage problems.
 - (b) The property notes for the subject property being noted so that future purchasers will be aware of the problem prior to purchase.
- (3) In those instances where filling of the subject land to raise the surface level of septic trenches is required and Council considers that such filling may -
 - (i) Restrict the flow of floodwaters, tidal water or stormwater, or,
 - (ii) Increase flood levels on adjacent parcels of land, or
 - (iii) Create drainage and seepage problems on adjacent parcels of land,

Then Council may refuse the application or require that plans be amended to demonstrate how sanitary and sullage wastes are to be disposed of to the satisfaction of Council.

(d) Where filling of land is necessary to facilitate the construction of a concrete slab on ground type building to the levels specified in Clauses (a)(i) and (ii), (b)(i) and (ii) c(i) and (ii) above and Council considers that such filling may:

- (i) restrict the flow of floodwaters, tidal water or stormwater or,
- (ii) increase flood levels on adjacent parcels of land, or,
- (iii) create drainage and seepage problems on adjacent parcels of land,

then Council may refuse the application or require that plans be amended to delete such filling and provide for the building floor level to be elevated above the natural ground level to comply with Clauses (a)(i), (b)(i) and (c)(i). In this case, the supporting structure must be designed to minimise the effects on d(i) and d(ii) above where this is relevant.

Appendix B

AAMHatch Digital Data Documentation



DIGITAL DATA DOCUMENTATION

NORTH EAST BUSINESS PARK

DIGITAL TERRAIN DATA (CABOOLTURE REGION)

VOLUME 210131701NOB

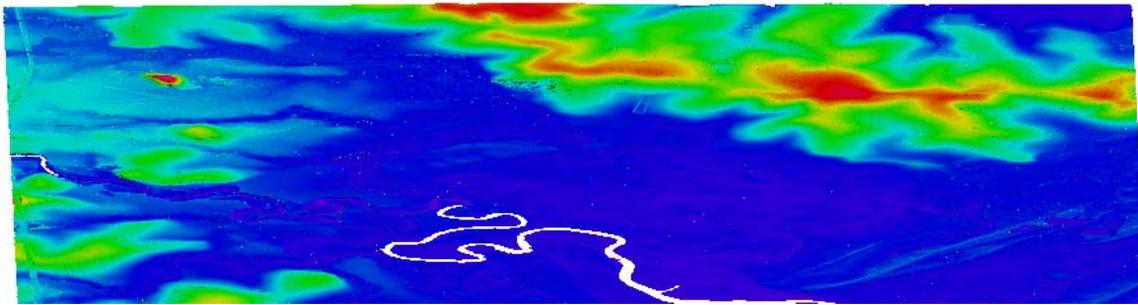
Summary

Project

Airborne Laser Scanning was collected over the Caboolture region between 23rd September 2005 and 14th October 2005. Data was collected without incident over approx. 8262 ha.

Data

Data files on this volume include;
Thinned ground points (XYZ) in space separated ASCII Files.



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2. Data Installation.....	3
3. Additional Services	4
4. Metadata.....	5
5. Conditions Of Supply.....	7
6. Validation Plot.....	8
7. Files Supplied	8

1. PROJECT REPORT

Acquisition: Airborne Laser Scanning (ALS) data was acquired from a fixed wing aircraft between 23rd September 2005 and 14th October 2005.

Ground Support: GPS base station support was provided by Landcentre VRS01 Woolloongabba without incident. The ground check points acquired by Jones Flint & Pike allowed an assessment of the accuracy of the ALS data.

Data Processing: Reduction of the ALS data proceeded without any significant problems. Laser strikes were classified as ground points and non-ground points were removed using a single algorithm across the project area. Manual checking and editing of the data classification against intensity imagery further improved the quality of the terrain model.

Data Presentation: The data provided on this volume has been supplied in accordance with a specification agreed with the primary client. Subsequent users experiencing difficulties in handling the data should please contact AAMHatch to arrange a more appropriate data presentation

Further Issues: There are no further issues to report.

2. DATA INSTALLATION

Data format : Space delimited ASCII
Number & type of media : One 650MB CD ROM
Number of files on media : 30 GRD files (XYZ), 1 tile_system.DXF file and
README.PDF
Data formatted on : 19.10.2005
Disk volume : 210131701NOB
AAMHatch Job Manager : 

README FILE

This document (README.PDF) is provided as an Acrobat file in this volume.

To open the file, double click on the PDF file to activate Acrobat Reader Software.

Adobe Acrobat Reader may be downloaded from:

<http://www.adobe.com/products/acrobat/readstep2.html>

LOADING NOTES

Data may be copied using a file copy utility such as Windows Explorer or similar.

FILE SIZES AND NAMES

Data is provided in tiles 2km by 2km to the following filenaming convention:

eg. C4966996.grd C- project abbreviation
 496 - coordinate easting (in thousands) of south west tile corner
 6996 - coordinate northing (in thousands) of south west tile corner
 .grd - classified as "Thinned ground"

A list of the files contained on this volume is provided in Section 7.

SAMPLE LISTING

E	N	RL
497608.240	6998446.580	16.628
497610.250	6998446.590	16.848
497611.270	6998446.600	17.088
497616.240	6998446.570	16.668
497625.210	6998446.570	16.828
497628.210	6998446.590	17.168
497643.110	6998446.560	16.778
497648.070	6998446.560	16.878
497651.070	6998446.560	16.928
497661.010	6998446.550	16.939

etc.

3. ADDITIONAL SERVICES

AAMHatch can perform the following additional services on the data contained on this volume if required:

- Change horizontal datum : to AMG or other local grid
- Alter geoid modeling : by transforming ALS data to fit orthometric survey heights
- Improve data classification : by tailoring parameters to suit regional variations
- Further classification : Assist building identification by further classifying non-ground strikes
- Data thinning : to remove superfluous points not adding to the terrain definition
- Data subset : by dividing the data into different tiles or polygons
- Data presentation : by creating contours, profiles, perspectives, flythroughs, colour-coded height plots etc.
- Ground truthing : by comparing the ALS terrain model with extra independent height data
- Data gridding : to convert the measured spot heights into a regular grid
- Extra data : Extra data was collected beyond that supplied on this volume.
- Intensity Image : Greyscale image created from laser's intensity returns. (sample below)



4. METADATA

DATA CHARACTERISTICS

Characteristic	Description
Format	Space delimited ASCII
Size	4800000 data points (approximate)
Captured terrain model	0.9m average point separation
Supplied terrain model	4.6m estimated point density, separated into ground & non-ground
Data thinning	Points not contributing to the terrain definition within 0.15m removed
Laser footprint size	0.24m

REFERENCE SYSTEMS

	Horizontal	Vertical
Datum	GDA94	AHD
Projection	MGA Zone 56	N/A
Geoid Model	N/A	Ausgeoid98
Reference Point	Landcentre 6959847.6515 E 503483.9814 N	Landcentre 49.3481 RL
Survey Control	PSM103234 504511.795E 6998595.975N	1.977 RL

Note: On 01-01-2000, Australia formally changed its reference spheroid from AGD to GDA94, and its map grid from AMG to MGA. MGA coordinates are approximately 200m different from AMG. For more details including definitions of GDA compliance and GDA compatibility, visit : http://www.aamhatch.com.au/papers/GDA_Comp.pdf



SOURCE DATA

	Source	Description	Ref No	Date
Laser scanning	AAMHatch	70,000 Hz	2101317	23/09-14/10.05
GPS base data	AAMHatch	Static GPS	2101317	23/09-14/10.05
Base Stn coords	Landcentre	Published Value	2101317	23.09.05
Test points	JF+P	Total station	2101317	10.10.05

EXPECTED ACCURACY

Project specifications and technical processes were designed to achieve data accuracies as follows:

	Measured Point	Derived Point	Basis of Estimation
Vertical data	0.113	0.15	Deductive estimate
Vertical data			Comparison with 143 test points
Horizontal data		<0.37	Deductive estimate (1/3000 flying height)

Notes On Expected Accuracy

- Values shown represent standard error (68% confidence level or 1 sigma), in metres
- “Derived points” are those interpolated from a terrain model.
- “Measured points” are those observed directly.
- Accuracy estimates for terrain modeling refer to the terrain definition on clear ground. Ground definition in vegetated terrain may contain localised areas with systematic errors or outliers which fall outside this accuracy estimate
- Laser strikes have been classified as “ground”, based upon algorithms tailored for major terrain/vegetation combinations existing in the project area. The definition of the ground may be less accurate in isolated pockets of dissimilar terrain/vegetation combinations.

LIMITATIONS OF DATA

- Features depicted are as shown on the legend.
- The definition of the ground under trees may be less accurate.

DATA VALIDATION

- Ground data in this volume has been compared to 143 test points obtained by field survey and assumed to be error-free. The test points were distributed in 1 group across the mapping area and located on clear ground. Comparison of the test points with elevations interpolated from measured data resulted in:
Standard Error (RMS): 0.113m
- Data classification has been manually checked and edited against any available imagery.

USE OF DATA

- Intended use : Planning, Conceptual Design

5. CONDITIONS OF SUPPLY

The data in this volume has been commissioned by **NORTH EAST BUSINESS PARK**.

The data in this volume is provided by AAMHatch Pty Limited (AAMHatch) to **NORTH EAST BUSINESS PARK** under AAMHatch standard Terms of Engagement, which provide a license for **NORTH EAST BUSINESS PARK** to access and use the data only for the project and explicit purpose for which it is provided. AAMHatch retains ownership of all Intellectual Property Rights in relation to this data or modifications, enhancements or subsets of this data. The data must not be sold, lent or distributed to any other party; and used subject to the following conditions:

1. This file (README.PDF) is always stored with the unaltered data contained in this volume.
2. The data is not altered in any way without the approval of AAMHatch. The data may be copied from this file to another.
3. The data is not used for purposes beyond that explicitly agreed in the description of the Services provided by AAMHatch.

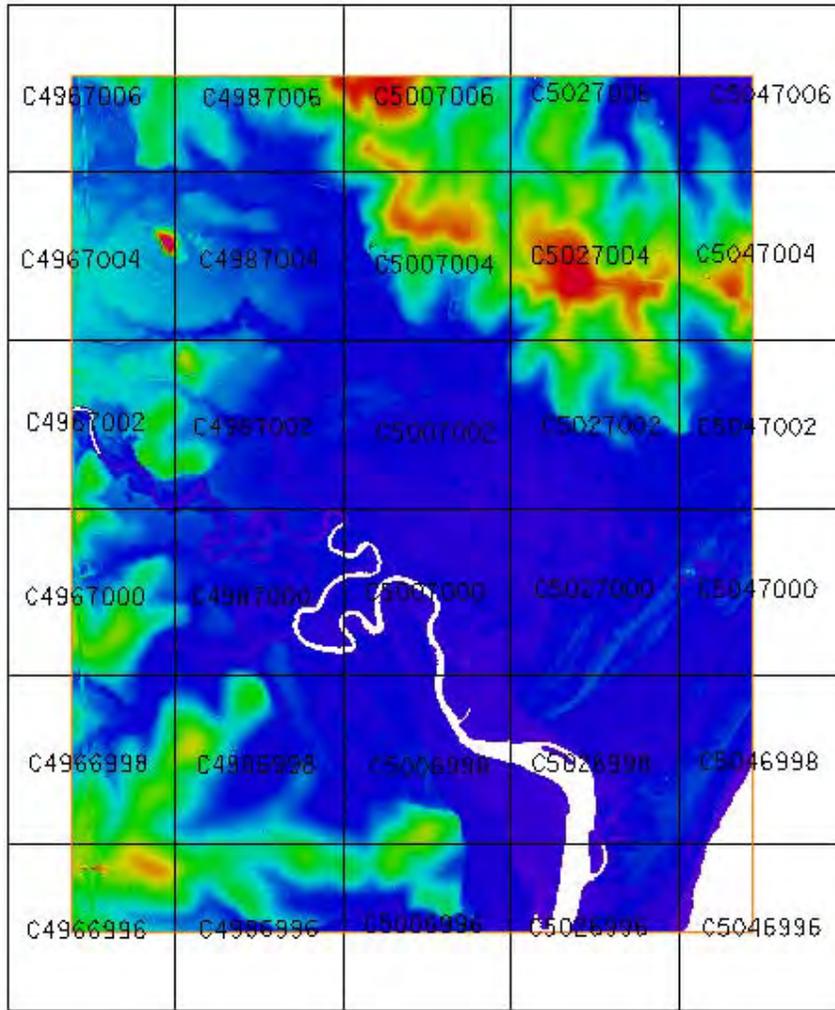
Any breach of these conditions will result in the immediate termination of the license issued by AAMHatch, and **NORTH EAST BUSINESS PARK** will indemnify AAMHatch from all resulting liabilities.

Any problems associated with the information in the data files contained in this volume should be reported to:

AAMHatch Pty Limited

16 Julia St,
FORTITUDE VALLEY QLD 4006
Telephone [REDACTED]
Facsimile [REDACTED]
Email [REDACTED]
Web www.aamhatch.com.au

6. VALIDATION PLOT



7. FILES SUPPLIED

10/19/2005 09:01a	1,785,803	C4966996.GRD	Space Separated ASCII
10/19/2005 09:01a	4,425,635	C4966998.GRD	Space Separated ASCII
10/19/2005 09:01a	5,130,653	C4967000.GRD	Space Separated ASCII
10/19/2005 09:01a	3,534,548	C4967002.GRD	Space Separated ASCII
10/19/2005 09:01a	4,247,483	C4967004.GRD	Space Separated ASCII
10/19/2005 09:01a	2,198,549	C4967006.GRD	Space Separated ASCII
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10/19/2005 09:02a	7,412,746	C5006998.GRD	Space Separated ASCII
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NORTH EAST BUSINESS PARK

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10/17/2005 04:27p	33,313	tile_system.dxf	Tile Layout AutoCAD DXF

Appendix C

Northeast Business Park
Cut and Fill Drawing

Northeast Business Park MIKE21 Flood Study

October, 2007

Northeast Business Park Pty Ltd



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Author: [Redacted] Water Engineer [Redacted] Senior Water Engineer

Signed: [Redacted]

Reviewer: [Redacted] Senior Water Engineer

Signed: [Redacted]

Approved by: [Redacted] Senior Water Engineer

Signed: [Redacted]

Date: October 2007

Distribution: Northeast Business Park Pty Ltd, Caboolture Shire Council

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- Appendix B AAMHatch Digital Data Documentation
- Appendix C Northeast Business Park - Cut and Fill Drawing
- Appendix D Q10 Flood model results
- Appendix E Q50 Flood model results

Executive summary

Northeast Business Park Pty Ltd is proposing to develop a 326 ha multiuse precinct on 760 ha of privately owned land located at Nolan Drive, Morayfield. This degraded site is a former pine plantation on the southern banks of the Caboolture River near Burpengary. The development will have a marine industry and business focus and provide new public access to the riverfront.

The terms of reference for this Flood Study were set at a meeting on the 10 August 2005 attended by Trefor Jones and Leanne Salter of the Caboolture Shire Council (CSC), Northeast Business Park Pty Ltd and Parsons Brinckerhoff. At this meeting the flood plain management policy and the stormwater quality requirements were discussed. Prior to the modelling work being undertaken, CSC was consulted to ensure that the flood model met their requirements. Trefor Jones of CSC was contacted on the 13 September 2005 to confirm that freshwater is the dominant flow at the development site. The adopted tidal boundary condition was set at the Mean High Water Springs (MHWS), which is 0.81 m AHD. This provides a more conservative representation of the tidal conditions as the MHWS is the long term average of the heights of two successive high waters when the range of tide is greatest, at full and new moon.

This investigation details the floodplain modelling for the proposed Northeast Business Park. Modelling was undertaken using the MIKE21 software package developed by the Danish Hydraulics Institute. The outcomes of the modelling have been assessed against CSC's two main floodplain management conditions:

- no net loss of flood storage across the development site
- no resultant increase in flood levels over adjoining properties.

Two models are presented in this report:

- Base Case — developed to determine the existing condition peak flood levels throughout the floodplain. This case represents the existing floodplain topography as surveyed in October 2005. Model calibration and verification was undertaken against three historical events (1972, 1989 and 1991). Model sensitivity, model fitness and a mass balance were also assessed. The base case MIKE21 model is representative of the current conditions and is appropriate to assess development within the floodplain.
- Development Case — represents the proposed development with flood mitigation works. This development case includes the cut and fill plan as supplied by Northeast Business Park Pty Ltd (Drawing 0304 SK36, issue SD04, dated 30 July 2007 Ref 20430-10D).

The preferred mitigation case consists of:

- north by-pass channel — cut to 1.5 m AHD, grass managed
- wider north by-pass channel — cut to 2.5 m AHD, grass managed

- Raft Creek — cut to 2.0 m AHD, grass managed
- south by-pass channel — cut to 1.5 m AHD, grass managed
- eight earth diversion banks — three near the marina, three on the eastern boundary, one in the north-western section and one in the mid section of the development.

It is estimated that the total earthworks for the flood mitigation is 1,272,764 m³.

The development case (flood mitigation case 1) shows overall reductions in the peak water levels for the 100 year ARI events across the flood plain. This is due to the flood mitigation works that increase the conveyance through the development site and therefore reduce the flood conveyance through the northern section of the lower Caboolture River floodplain (north of the Caboolture River).

The changes in the flow velocities within Caboolture River due to the flood mitigation works are insignificant when compared to the base case velocities. As expected the navigation channel has the most impact on river velocities.

Overall the proposed works represent a net benefit for the community in terms of flooding. The peak flood levels will be lowered in much of the surrounding flood plain with localised peak flood level increases occurring only within the site boundary or in locations where existing infrastructure will not be impacted.

The following recommendations are made:

- the detailed design of any structures (bridges, culverts, etc) that are proposed within the floodplain (over, under, or through) will need to be appropriately modelled to assess the impacts on the floodplain
- the maintenance of the grass managed areas is essential to the flood mitigation proposed in this study. These areas must be designed such that the vegetation/land cover/land use relate to a Manning's n roughness value of 0.035. Deviations from this value may need to be remodelled
- structural input is recommended for the design of the earth diversion banks to avoid 'washouts' and therefore compromise the flood mitigation proposed.

1. Introduction

Northeast Business Park Pty Ltd is proposing to develop a 326 ha multiuse precinct on 760 ha of privately owned land located at Nolan Drive, Morayfield. This degraded site is a former pine plantation on the southern banks of the Caboolture River near Burpengary. The development will have a marine industry and business focus and provide new public access to the riverfront.

The Northeast Business Park is located immediately downstream of the Bruce Highway and is within the study area of the 1994 Flood Study. AWE investigations indicated that the designated flood levels for the upstream end of the site is 7.88 m AHD (Bruce Highway Bridge) down to 2.47 m AHD at the confluence of King John Creek and the Caboolture River.

Figure 1-1 shows the proposed development locality and boundary.

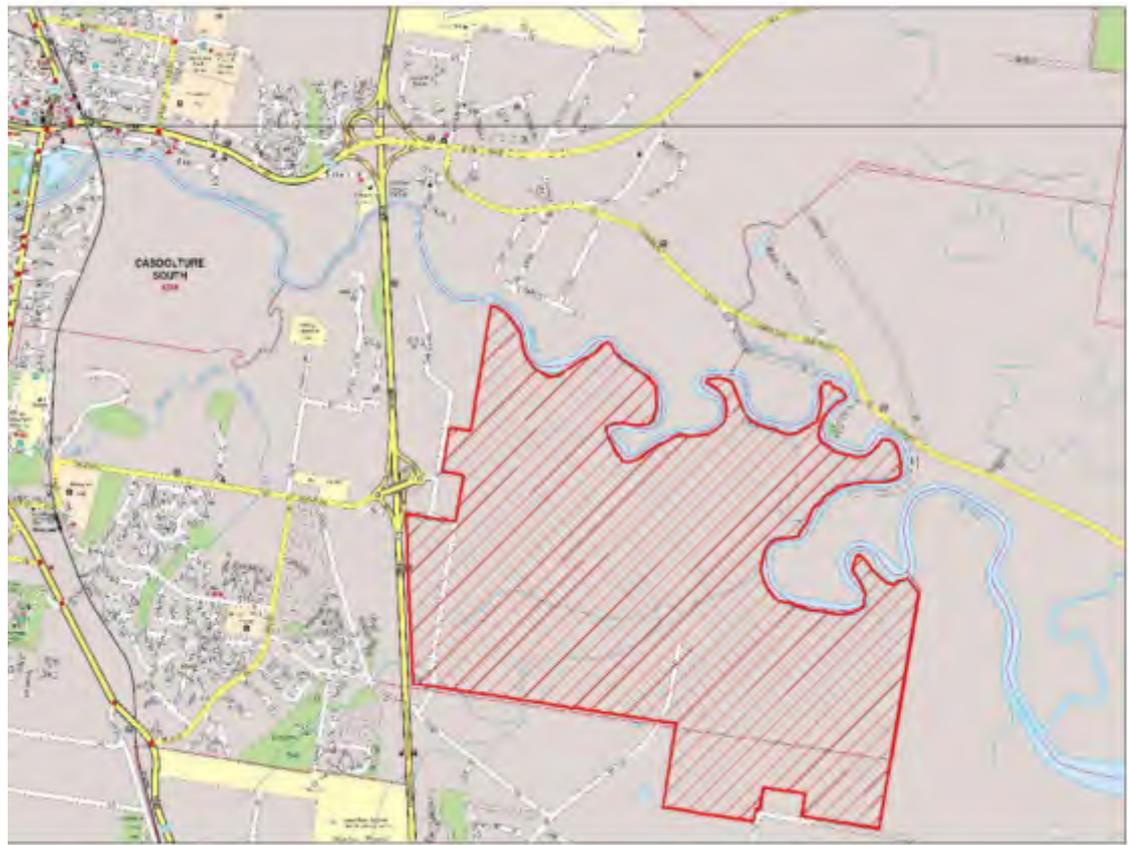


Figure 1-1: Location of Northeast Business Park

1.1 Study objectives

The primary objectives of this report are as follows:

- to provide Northeast Business Park Pty Ltd with advice showing the proposed earthworks plan over the development site, subject to Council's requirements of no adverse impact over adjoining properties
- to provide Northeast Business Park Pty Ltd with recommendations for any further flood mitigation strategies required to meet Council's requirements.

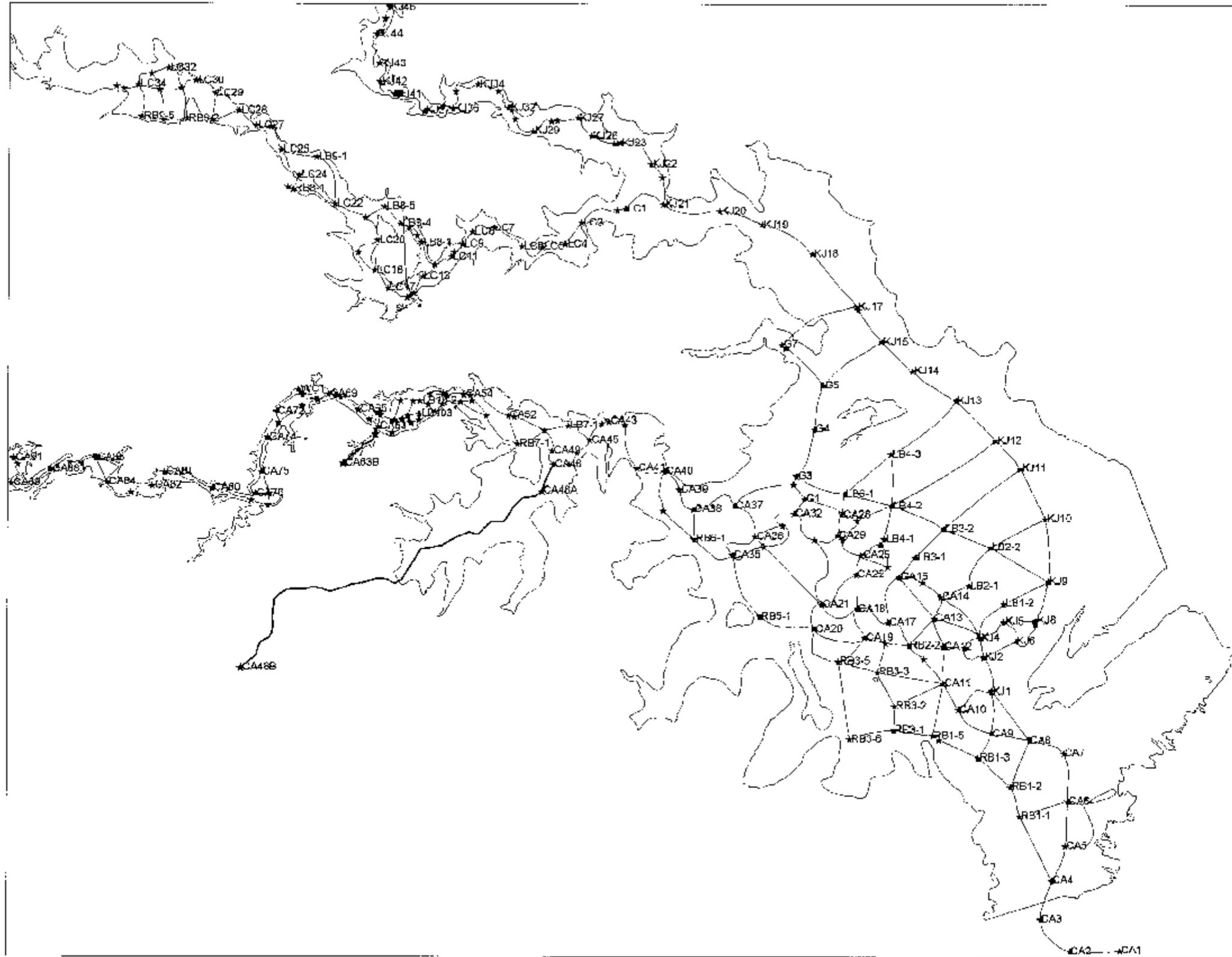
1.2 Background

The terms of reference for this Flood Study were set at a meeting on the 10 August 2005 attended by Trefor Jones and Leanne Salter of the CSC, Northeast Business Park Pty Ltd and Parsons Brinckerhoff (PB). At this meeting the flood plain management policy and the stormwater quality requirements were discussed. Prior to the modelling work being undertaken, CSC was consulted to ensure that the flood model met their requirements. Trefor Jones of CSC was contacted on the 13 September to confirm that freshwater is the dominant flow at the development site. The adopted tidal boundary condition was set at the Mean High Water Springs (MHWS), which is 0.81 m AHD. This provides a more conservative representation of the tidal conditions as the MHWS is the long term average of the heights of two successive high waters when the range of tide is greatest, at full and new moon.

The previous 1994 flood modelling by AWE has provided an acceptable basis for the determination of broad scale flood level prediction and broad scale flood inundation mapping. However, for the reasons outline below, for this study a two-dimensional (2D) flood modelling approach was adopted utilising MIKE21, developed by the Danish Hydraulics Institute.

The schematisation of the AWE EXTRAN model of the Caboolture River downstream of Captain Whish Bridge illustrates the complexity of the flood flow patterns expected in the area (Figure 1-2). One-dimensional (1D) (quasi-2D) models such as the AWE model require all flow paths to be pre-determined at model setup stage, thus requiring assumptions of expected flood behaviour over a range of flow magnitudes. In these models the floodplain is represented as a series of connected 1D links. Each 1D link is defined by a series of cross section spaced at intervals along the link. The accuracy of the model is governed by how well the cross section represents the shape of the waterway and how well the links represent the flow paths.

Discussions with CSC indicated that the 1994 Flood Study is the current flood model for use in Council's planning procedures. As such, there should be good correlation between the 1994 model and the MIKE21 model. Any significant differences between the models would need to be explained to a reasonable standard.



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 Project: **NORTHEAST BUSINESS PARK
 AWC MODEL SETUP**

Job No	2138171B
Drawing No	Figure 1.2
Scale	
Rev	3

1.3 Previous investigations

Australian Water Engineering (AWE) previously undertook flood plain modelling of the Caboolture River catchment for the Caboolture Shire Council (CSC) in April 1994. The AWE report entitled 'Caboolture Flood Study' comprising the Caboolture River, King John Creek and Lagoon Creek' details the investigations associated with that study. That investigation is summarised as follows.

- A hydrologic model of the entire Caboolture River catchment was developed using the RAFTS software package. Inflow hydrographs for the catchment were used in this study.
- A hydraulic model of the Caboolture River floodplain, including King John Creek and Lagoon Creek was constructed using the EXTRAN software package. An estimation of the flood behaviour throughout the catchment was investigated using this model.
- The 1-D model was calibrated using three historical events: February 1972, April 1989 and December 1991. The calibrations of the hydrologic and hydraulic models were satisfactory and were generally able to reproduce the observed discharges and flood levels with acceptable levels of accuracy. However, the 1D model does not take into account lateral variations.
- The effect of high ocean levels in Moreton Bay is generally limited to the lower 5 km or 6 km long floodplain reach upstream of the mouth of the Caboolture River. Upstream of these lower reaches, flooding is due to stormwater runoff rather than high tides.
- The flood inundation maps produced indicated that extensive areas downstream of the Bruce Highway will be inundated by floodwaters during the 10 year, 50 year and 100 year ARI flood events indicating that the location of Northeast Business Park will need a detailed flood report as part of the planning application.

1.4 Caboolture Shire Plan

The Design and Development Manual (Part A - Roadworks and Stormwater Drainage) — Draft, April 2005 — sets out the criteria for submission of operational works drawings required by Council. The document aims to give supplementary information to the Caboolture Shire Council Planning Scheme, and therefore is focused on infrastructure development rather than flood studies. However, the document refers to flood models and/or floodplains as follows.

Section 8.9 Minimum Flood Immunity Levels (see Table 1-1) contains the following information.

Table 1-1: Minimum flood immunity levels from Caboolture Shire Council Design and Development Manual

Location	Minimum Design Allotment Levels for Urban Zones or Level of Flood Free Area in Rural and Rural Residential Zones
Adjacent to River, Creek or Waterway	Calculated 100 year ARI ultimate flood levels + 300 mm freeboard
Adjacent to Engineered Channels	Calculated 100 year ARI ultimate flood levels + 300 mm freeboard
In areas affected by tidal water	Adopted 100 year ARI storm surge level + 300 mm freeboard (the adopted 100 year ARI storm surge is 2.3 m AHD. This value incorporates greenhouse effects)
Adjacent to roads and overland flow paths	Calculated 100 year ARI ultimate flood levels + 50 mm freeboard

Section 8.17 Open Channels states that the requirements of Queensland Urban Drainage Manual (QUDM) Section 8 shall apply. In addition to QUDM, the following criteria shall also apply:

“All hydrologic and hydraulic calculations for the purpose of determining ultimate flood levels and development fill and flood levels shall be based on the 100 year ARI flows for a fully developed catchment and a fully vegetated waterways corridor using minimum Manning’s n of 0.15, unless otherwise approved by Council.”

1.5 Caboolture Shire Council Flood Plain Management Policy 803/02

This document details the policy for managing re-zoning or sub-division applications.

For residential zones the document states:

- alteration of site contours, including filling, may be undertaken subject to no net loss of flood storage across the subject land for all storm events up to and including the 1 in 100 year event
- the determination of flood storage is to be by computer model based on pre and post development field contour surveys.

For rural zones the document states:

- subdivision of floodable land will only be approved for rural zoned properties where each of the proposed parcels of land has an area of land in its natural state prior to any earthworks being carried out which satisfies additional criteria (refer to Appendix A).

For zones other than Residential, Rural Residential or Rural, the document states:

- subdivision applications will be considered on the circumstances of the individual proposals. Such proposals are subject to additional criteria (refer to Appendix A).

2. Existing environment

The site is adjacent to the Caboolture River estuary and large parts of the site are located within the floodplain. Tidal and freshwater wetlands occur throughout the lower areas of the site. One natural waterway traverses the site, along with several constructed channels.

Vegetation has been largely cleared from the terrestrial areas. The site was last used as a softwood plantation and prior to that was variously grazed and cropped, including sugar cane (4Site Natural Solutions, 2004).

Natural vegetation generally occurs in the low lying areas of the site, including drainage lines, freshwater swamps, tidal creeks and the banks of the Caboolture River. Appendix A shows the Ecosystem Constraints Plan from the Caboolture River Business Park Development Folder.

Soils generally have a sandy loam surface, and across the site fall into three categories — red massive, deep yellow massive and deep grey poorly drained soils. They vary from well drained to poorly drained, and parts of the site have also been identified as being subject to potential acid sulfate soils (4Site Natural Solutions, 2004). This is discussed in further detail in the Geological Report undertaken by J.E. Siemon (September 2005).

2.1 Topography

The site slopes north-east from the Bruce Highway towards the Caboolture River which forms the northern site boundary. Ground levels vary between 1.5 and 5.0 m Australian Height Datum (AHD) and small hills rise up to 14 m and 17.5 m AHD along the southern and western boundaries.

Within the site is one natural waterway (Raft Creek) and several constructed channels. Raft Creek enters the site approximately 600 m to the east of the south-western site corner and flows in a northeast direction towards the Caboolture River (4Site Natural Solutions, 2004). A large constructed channel traverses the site in an east-northeast direction to flow into the Caboolture River. This channel begins in an adjoining property past the western border.

Stormwater runoff generally flows to the waterways on site where it is directed to the Caboolture River. Significant catchment areas external to the development boundary convey overland stormwater flows through the site to the Caboolture River. Due to the relatively flat topography low lying areas on the southern part of the site are poorly drained with minor ponding of water occurring after significant rainfall events (4Site Natural Solutions, 2004).

Low lying areas adjacent to the Caboolture River are inundated during high tides. This has been highlighted by the presence of marine vegetation within these areas, comprising tidal mangroves and salt marsh communities.

3. Methodology

2D modelling allows the entire topography of the floodplain to be described and modelled. The flow paths do not need to be predefined, because the model determines the flow distributions based on water levels and ground levels at each time step in the model run. 2D modelling therefore provides a more accurate determination of the extent, magnitude and direction of flood flows and impacts on flood associated with development of the site.

In summary, the methodology adopted for this study was as follows:

- prepare base case MIKE21 model:
 - develop base case topographical model
 - incorporate roads and Council's river cross sections (bathymetry) into topographical model
 - prepare roughness model based on aerial photography
- calibrate and verify MIKE21 model against recorded historical events (1972, 1989 and 1991)
- run base case model for 100 year ARI event, based on hydrology extracted from 1994 AWE flood model
- assess sensitivity of the model to changes in roughness values and confirm the tidal boundary impacts within the boundaries of the development site by comparing model results with different downstream boundary conditions:
 - 0 m AHD (Mean Sea Level)
 - 0.81 m AHD (Mean High Water Spring)
 - 1.6 m AHD (a level greater than MHWS)
- incorporate proposed cut and fill option into development case
- run development case for the 100 year ARI
- compare flood levels before and after development.
- prepare flood mitigation cases

3.1 Boundary conditions

The inflows used in the 2D model were extracted from the AWE EXTRAN model, the locations of which are described in the next section.

The downstream boundary conditions was derived from Department of Natural Resources and Mines publication on Semidiurnal Tidal Planes 2006.

3.2 Tools

The following tools were used to develop the flood model:

- Acad – the master plan was provided in this format and the report figures were generated in this format
- 12d – the bathymetry, terrain, and Mike21 grid were all generated using 12D and then exported to x y z s format. The model results for the earthworks calculations were provided as 12D models
- DHI software – Mike21 processor, toolbox programs
- PB 'in-house' DHI programs – suite of tools developed for pre and post processing MIKE21 models.

3.3 Post-processing

Post processing was undertaken using a suite of in-house tools specifically generated to extract results from Mike21. These are based on the Mike Zero and Mike21 toolkit programs, however can be executed outside the DHI user interface. The following are all generated as part of these programs:

- water surface levels
- water depths
- velocities
- froude numbers
- courant, Friedrich, Levy ratio
- noise
- afflux

Microsoft Excel is also utilised to generate long section plots of:

- water surface levels
- inflow hydrographs
- river profiles.

4. Data used

4.1 Topographical data

The hydraulic model was developed using the following topographical data sources.

General topography — aerial survey presented on a 4.6 m estimated point density from AAMHATCH dated October 2005. Superfluous points not adding to the terrain definition within 0.15 m were removed. This data was also used to provide details of the roads throughout the floodplain. The digital data documentation is contained in Appendix B.

Mapping & Hydrographic Surveys supplied detailed bathymetric survey of the Caboolture River from Beachmere (Caboolture River mouth) to the Caboolture Weir. The survey was undertaken in 2006–2007. This processed data was integrated with the above terrain data and mesh geometry was developed with a grid spacing of 10 m. The grid spacing of 10 m was chosen to provide an acceptable level of model accuracy, whilst also enabling acceptable model run time.

The topography map in Figure 4-1 shows the adopted base case model topography.

4.2 Bed friction data

The bed friction was developed using aerial photos from Studio Tekton (2005 & 2007), CSC (1999–2000) and Department of Natural Resources and Mines' MAPVIEW Aerial Photography, version 2.2.0, build 9 (1997 - 2004). The base values are shown in Table 4-1.

Table 4-1: Base value roughness derived from aerial photography

Land Use	Manning's n	MIKE21 roughness (=1/n)
Floodplain	0.06	16.67
River	0.02	50
Roads	0.025	40
Mangroves	0.12	8.33
Tributaries	0.10	10

The roughness map in Figure 4-2 shows the base value case model friction.

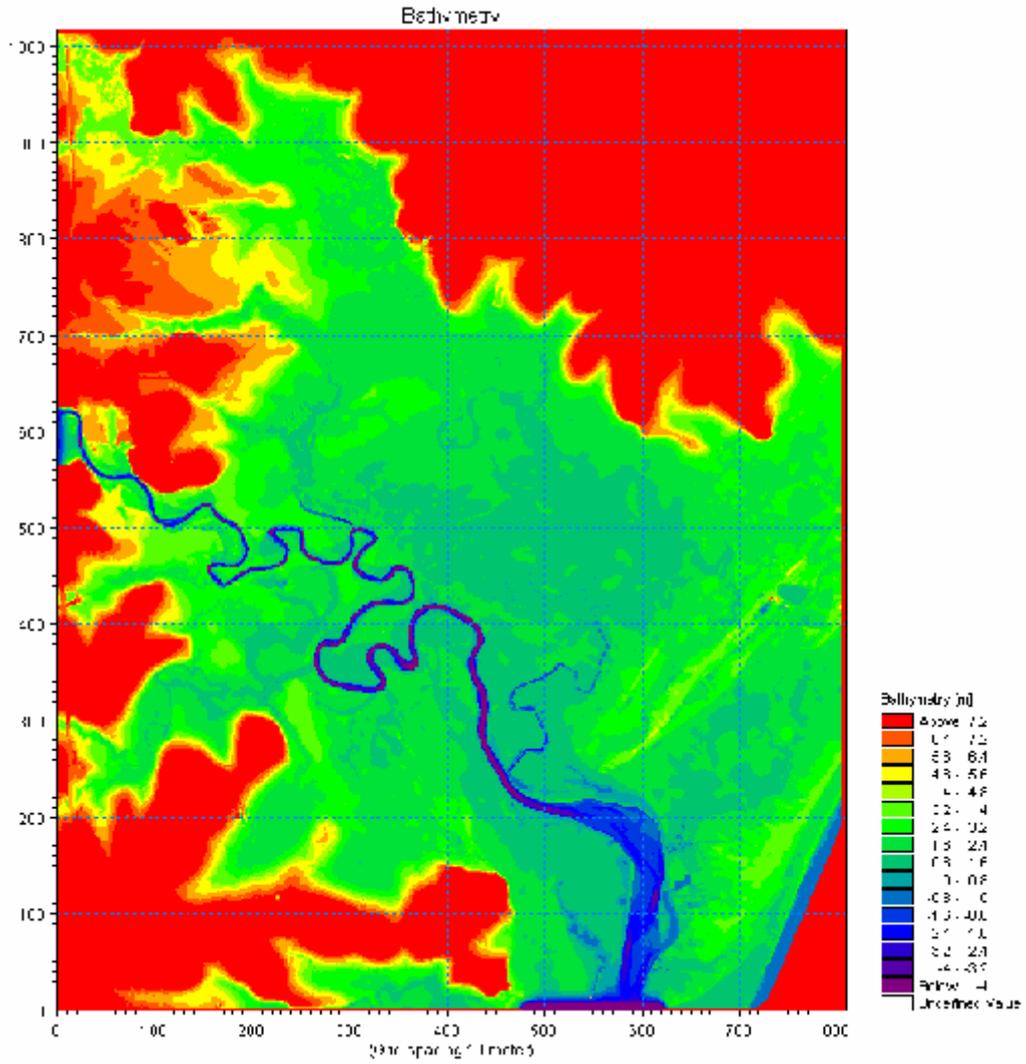


Figure 4-1: Base case topography

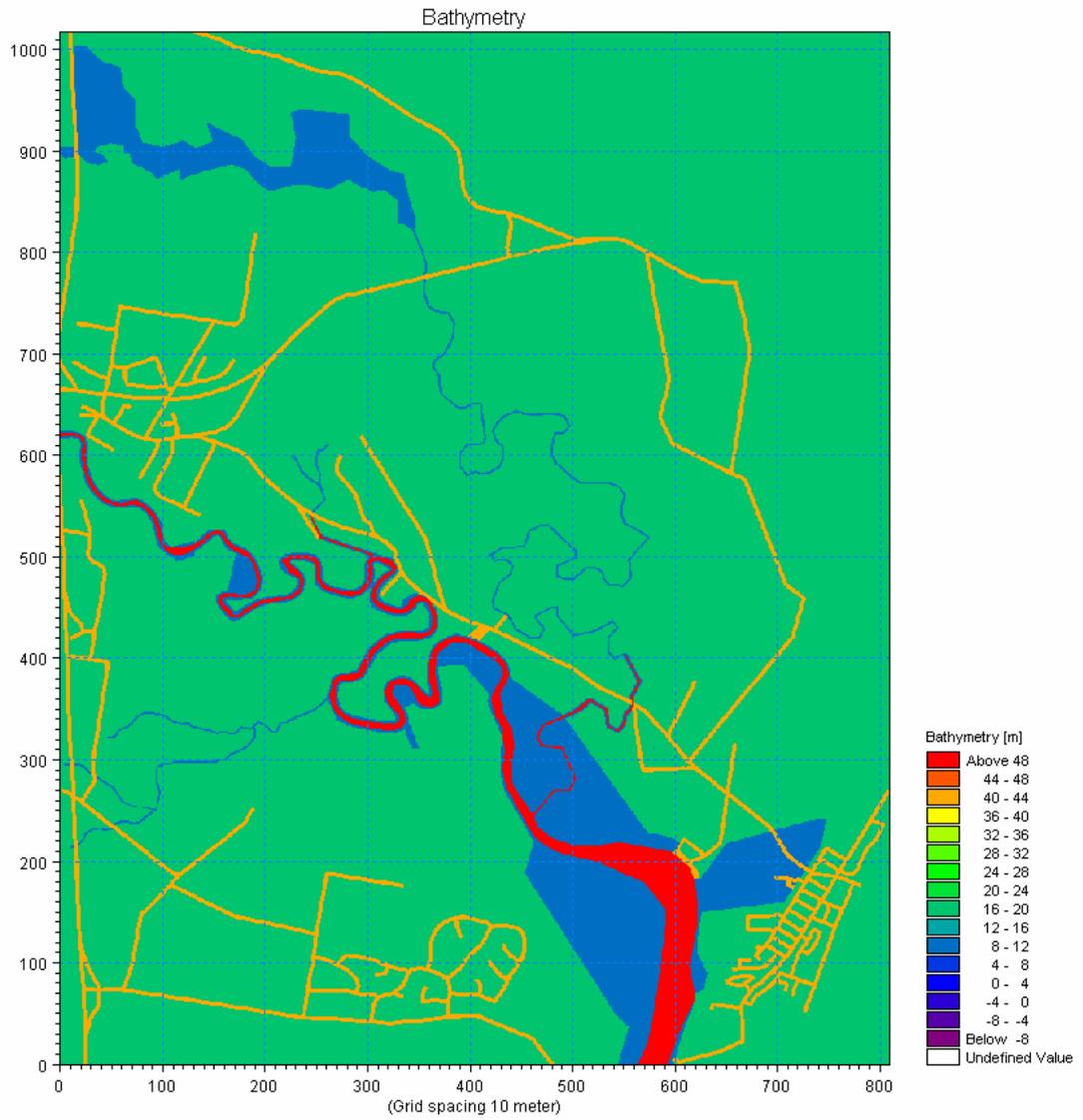


Figure 4-2: Base case friction map

4.3 Boundary conditions

The 1994 hydrological model was used to determine the flow hydrograph in the flood model. The hydrological model was not reviewed or updated. Table 4-2 details the peak inflows used for the 1 in 10, 50 and 100 year ARI events and the approximate location in the MIKE21 model grid. Figure 4-3 presents the approximate location within the model and Figure 4-4 presents the flood hydrographs adopted from the 1994 study as inflows for the 1 in 100 year ARI event.

Table 4-2: Peak discharges at model inflow locations

Location In	flow type	1994 model 100 yr flow (m ³ /s)	1994 model 50 yr flow (m ³ /s)	1994 model 10 yr flow (m ³ /s)	MIKE21 grid location (j, k)
CA 43- Caboolture River at Caboolture Township (modelled as a boundary condition)	Boundary condition	1395	1388	842	0, 616 - 0, 623
LC1-Lagoon Creek – Upper Catchment (modelled as a source)	Boundary condition	247	238	153	7,894
KJ23-King John Creek – Upper Catchment (modelled as a source)	Boundary condition	73	68	40	5,980
CA 29	Point source	62	50	29	277,671
CA 20	Point source	101	85	53	89,268
CA 7	Point source	33	27	15	673,244
RB6_1	Point source	40	32	21	38,426
KJ 19	Point source	60	50	30	343,767
KJ 13	Point source	49	42	26	496,682
KJ 10	Point source	50	41	24	695,476

The western boundary of the MIKE21 model was the Bruce Highway. Therefore the upper Caboolture River floodplain was not modelled. However, Lagoon Creek and King John Creek downstream of the Bruce Highway were included in the model domain as boundary conditions. The local inflows were modelled as point sources.

The downstream boundary was modelled as a constant water level set at 2.07 m Mean High Water Springs (MHWS), given as the height above Lowest Astronomical Tide (LAT). This was obtained from Semidiurnal Tidal Planes 2006 (Queensland Department of Transport) and translates to a downstream water level of 0.81 m AHD as the AHD datum level at Beachmere (Caboolture River mouth) is 1.26 m above LAT.

The initial water surface for all models was set at 0.81 m AHD. This allows the areas in the model that are below 0.81 m AHD to be 'wet' at the start of the model simulation.

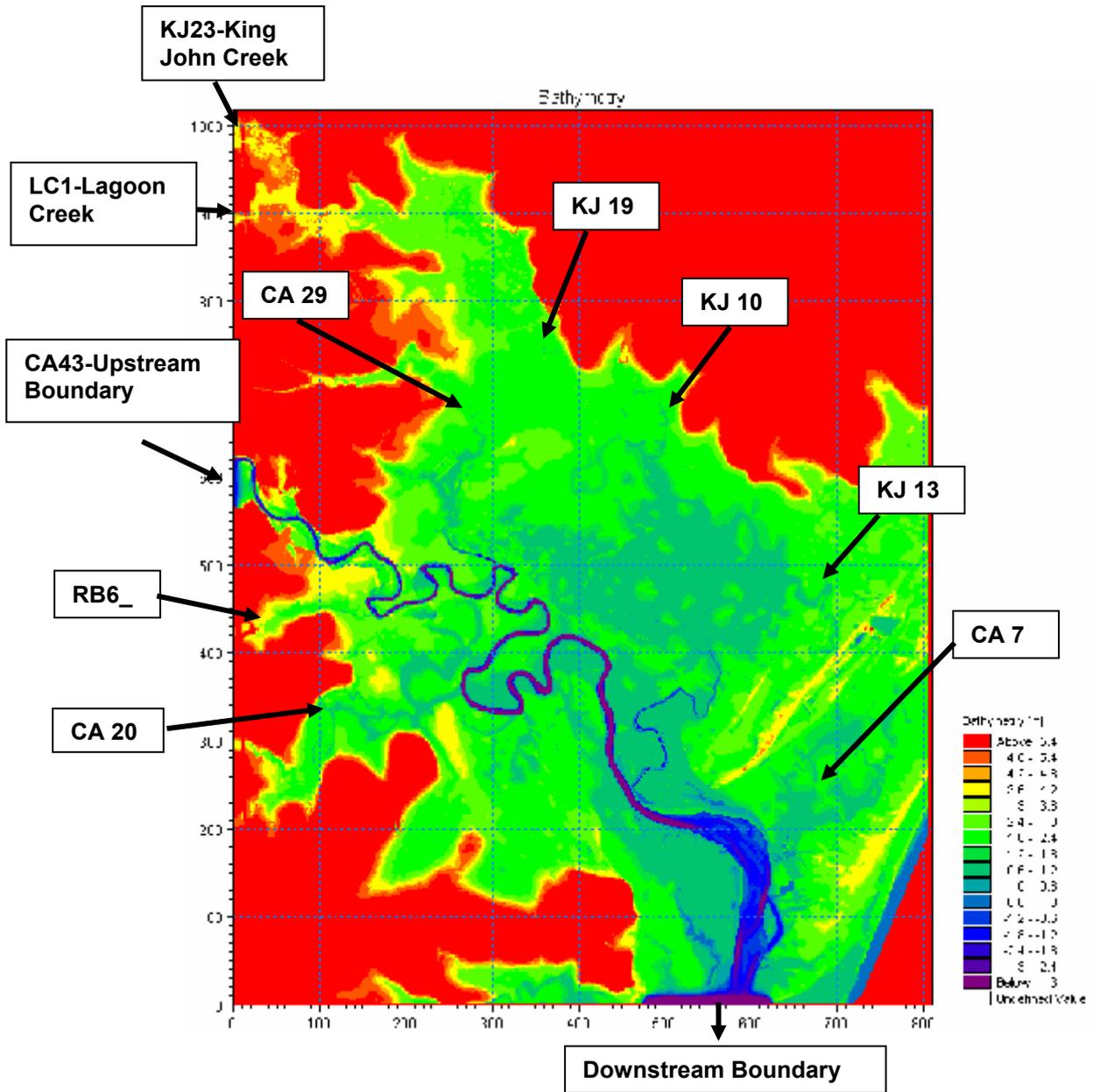


Figure 4-3: Inflows location and title

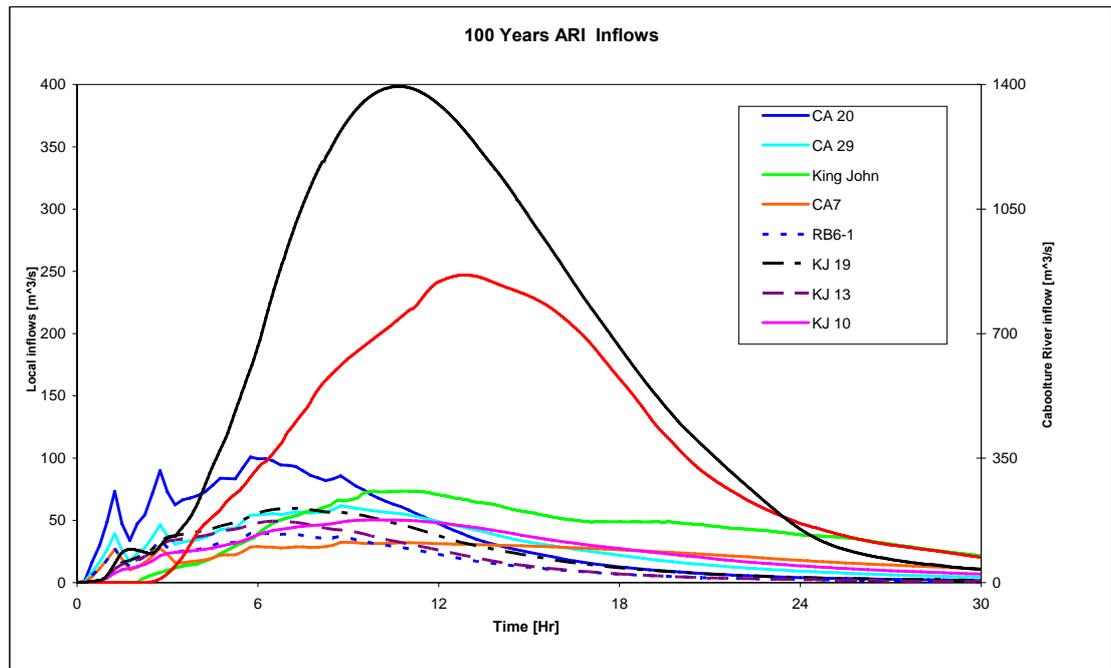


Figure 4-4: Inflows Hydrographs for the 100 year ARI design event

4.4 Model calibration and verification

Model calibration and verification was undertaken using three historical events, as detailed in the 1994 study:

- February 1972 — thought to be in the order of a 15 to 40 year ARI event
- April 1989 — thought to be in the order of a 10 to 20 year ARI event
- December 1991 — thought to be in the order of a 15 to 20 year ARI event

The December 1991 event was used to calibrate the model while the February 1972 and April 1989 events were used to verify the model.

The 1994 hydrological model contained the flow hydrographs of the three events at the upstream end of the flood model. A simulation of each historical flood event was undertaken using these flows with the base case model as described above.

Table 4-3 details the peak inflows used and the approximate location in the MIKE21 model grid.

Table 4-3: Peak inflows for historical events

Location F	February 1972 flow	April 1989 flow	December 1991 flow	UTM coordinates (j, k)
Caboolture River at Caboolture Township (modelled as a boundary condition)	1062 m ³ /s	863 m ³ /s	885 m ³ /s	0, 566 - 0, 622
Lagoon Creek – Upper Catchment (modelled as a source)	197 m ³ /s	174 m ³ /s	175 m ³ /s	10, 900
King John Creek – Upper Catchment (modelled as a source)	62 m ³ /s	37 m ³ /s	41 m ³ /s	3, 981

4.4.1 Model calibration – 1991 event

The MIKE21 model was calibrated against the recorded flood level of the 1991 event. Manning's n was adjusted (+/- 20%) and the resultant water surface levels were compared with the recorded data.

The Caboolture River, Lagoon Creek and King John Creek inflows hydrographs for the 1991 event were derived from the 1994 hydrological model and are presented in Figure 4-5.

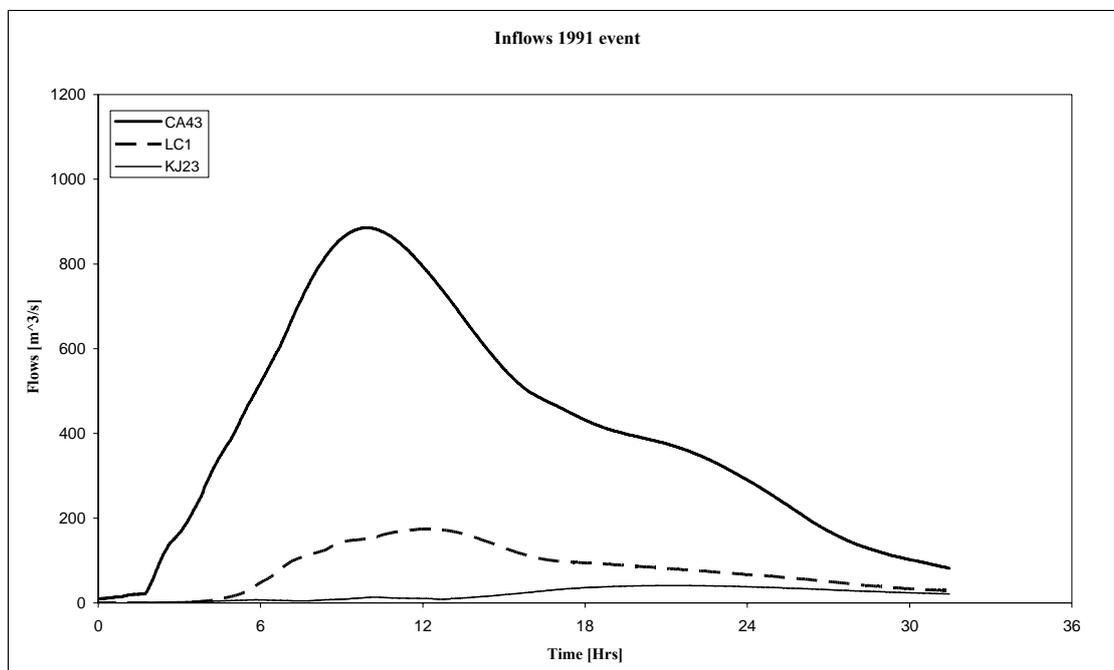


Figure 4-5: Inflows hydrograph for the 1991 event

The results of the calibration are presented in Figure 4-6, which is a long section through the Caboolture River and King John creek. The resultant water levels for each of the calibration cases as well as the recorded 1991 values are shown in Figure 4-6.

As it can be seen from Figure 4-6 and Table 4-4, a good fit between the model results and the recorded data was obtained. Therefore the roughness values adopted for the base case in this study are:

- Channel 0.02
- Road 0.025
- Floodplain 0.06
- Mangrove 0.12
- Tributary 0.1

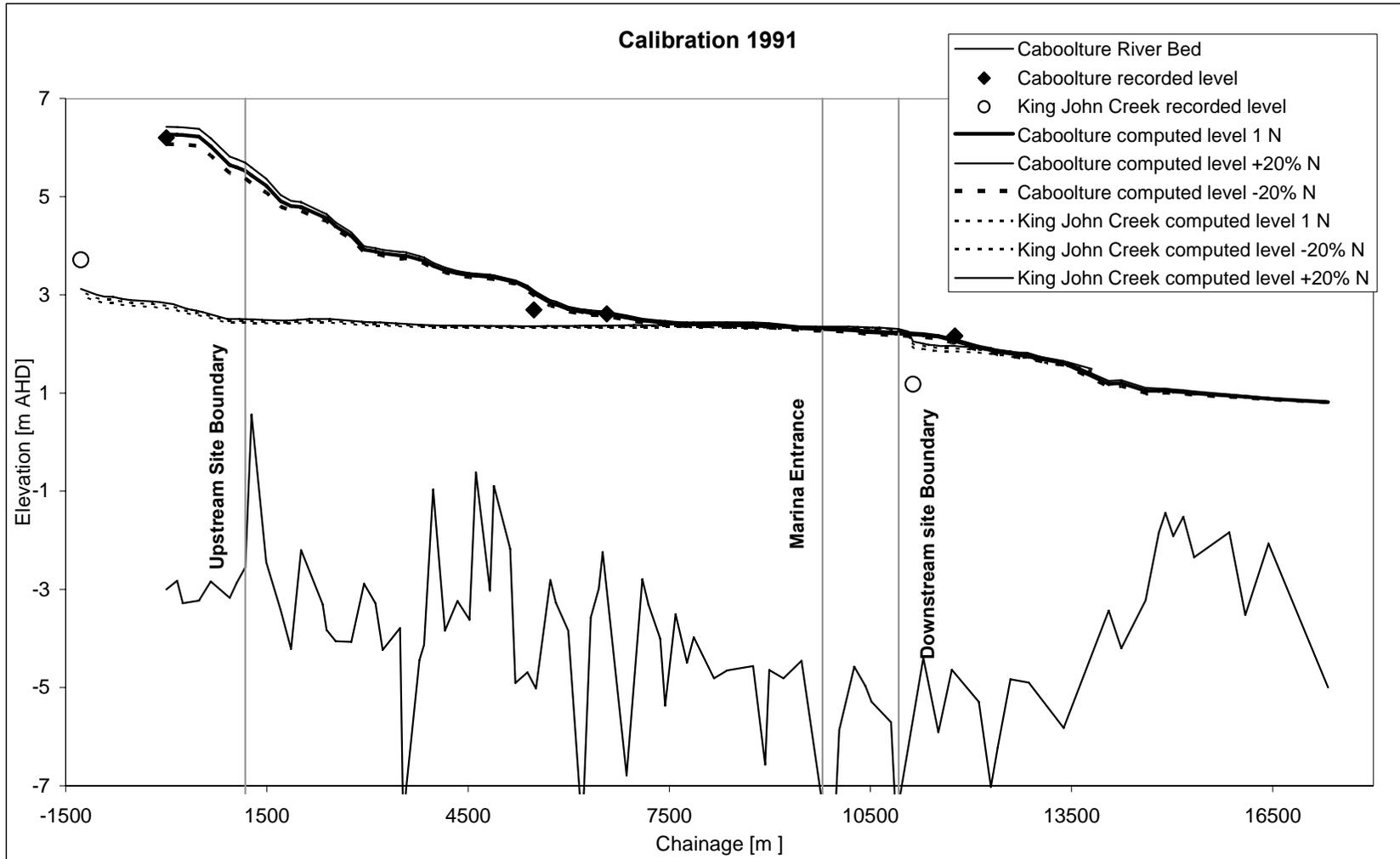


Figure 4-6: Water surface level long section for the three roughness cases

Table 4-4: Statistical analysis of the three roughness cases

Chainage W	aterway	Description	Recorded	Case 1		Case 2		Case 3	
				model diffe	rence mode	l diffe	rence	model diffe	rence
0	Caboolture River	Bruce Highway U/S	6.2	6.42	0.22	6.26	0.06	6.07	-0.13
30	Caboolture River	Bruce Highway D/S	NA						
1830	Caboolture River	Lawrence street	NA						
5482	Caboolture River	Beachmere Rd/ Goong	2.69	3.06	0.37	3.01	0.32	2.95	0.26
6569	Caboolture River	Beachmere Rd/ Riversleigh	2.61	2.67	0.06	2.62	0.01	2.58	-0.03
11758	Caboolture River	Beachmere Montys	2.16	2.12	-0.04	2.08	-0.08	2.03	-0.13
15422	Caboolture River	Baker flat road/esplanade	NA						
-1285	King John Creek	Bribie Island Road	3.71	3.12	-0.59	3.07	-0.64	2.99	-0.72
11128	King John Creek	Beachmere Road	1.18	2.05	0.87	1.99	0.81	1.92	0.74
		Standard deviation from 0 for Caboolture River			0.22		0.19		0.19
		Standard deviation from 0 for John Creek			1.05		1.03		1.03
		Standard deviation from 0 for entire domain			0.51		0.48		0.48

4.4.2 Model verification – 1989 event

The Caboolture River, Lagoon Creek and King John creek inflows hydrographs for the 1989 event were derived from the 1994 hydrological model. These inflows are shown in Figure 4-7.

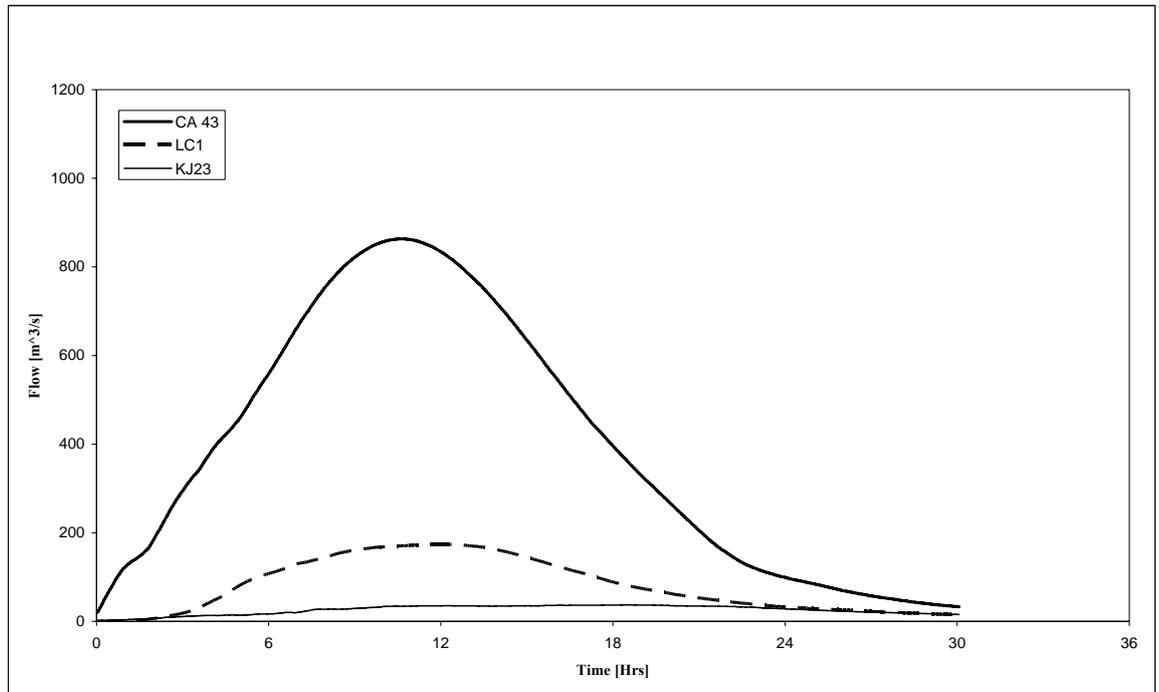


Figure 4-7: Inflows hydrographs for the 1989 event

Figure 4-8 presents a long section through the Caboolture River and King John Creek, presenting the maximum water surface level for the 1989 event. Table 4-5 presents the statistical analysis results for this event. The modelled results and the recorded levels are very similar.

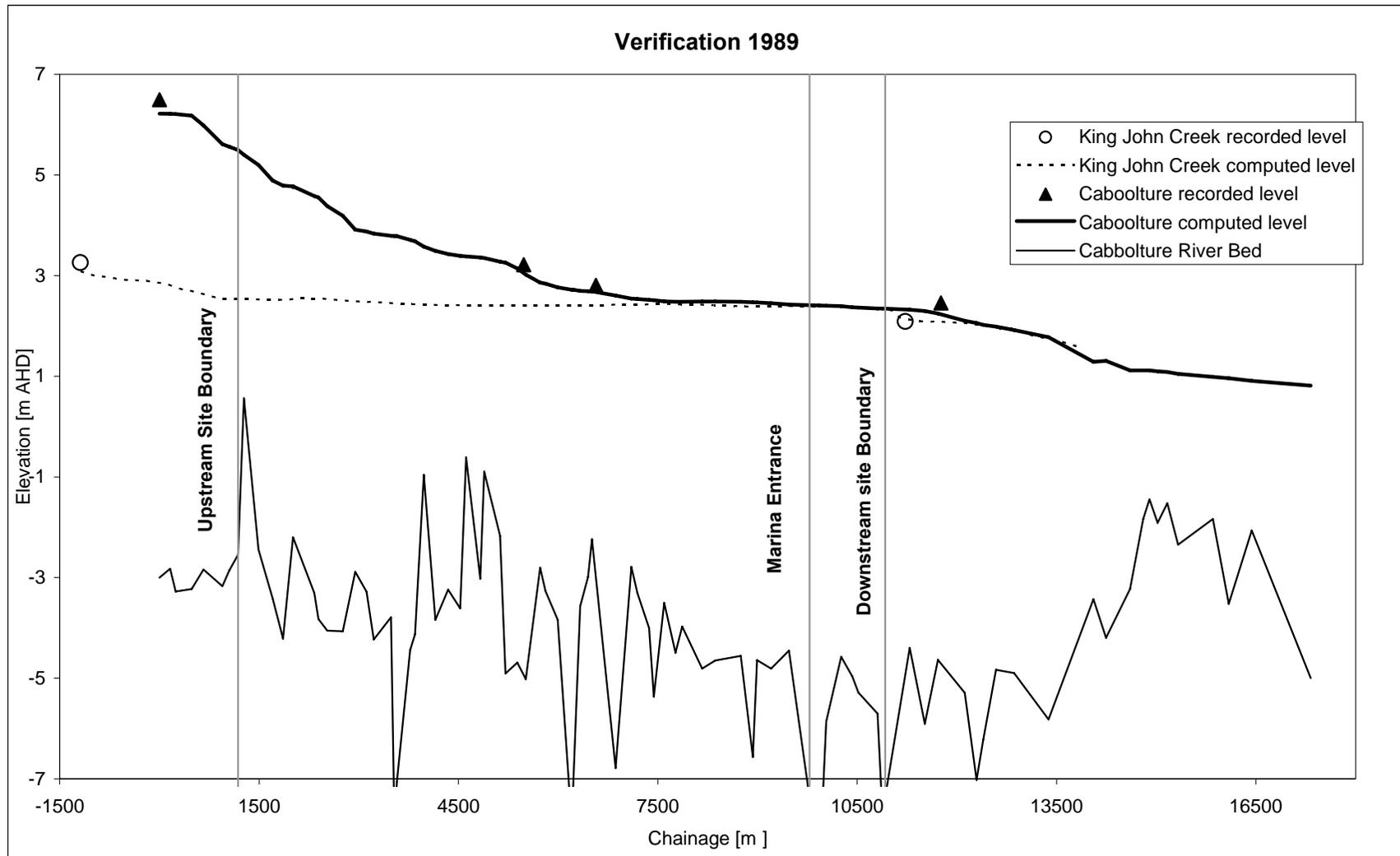


Figure 4-8: Water surface long section for the 1989 event

Table 4-5: Statistical analysis of the water surface level for the 1989 event

Chainage W	aterway	Description	Recorded	Modelled	Difference
0	Caboolture River	Bruce Highway U/S	6.5	6.22	-0.28
30	Caboolture River	Bruce Highway D/S	NA		
1830	Caboolture River	Lawrence street	NA		
5482	Caboolture River	Beachmere Rd/Goong	3.22	3.02	-0.20
6569	Caboolture River	Beachmere Rd/Riversleigh	2.81	2.69	-0.12
11758	Caboolture River	Beachmere Montys	2.46	2.25	-0.21
15422	Caboolture River	Baker flat road/esplanade	NA		
-1285	King John Creek	Bribie Island Road	3.26	3.13	-0.13
11128	King John Creek	Beachmere Road	2.09	2.17	0.08
		Standard deviation from 0 for Caboolture River			0.24
		Standard deviation from 0 for John Creek			0.15
		Standard deviation from 0 for entire domain			0.20

4.4.3 Model verification – 1972 event

The Caboolture River, Lagoon Creek and King John creek inflows hydrographs for the 1972 event were derived from the 1994 hydrological model. These inflows are shown in Figure 4-9.

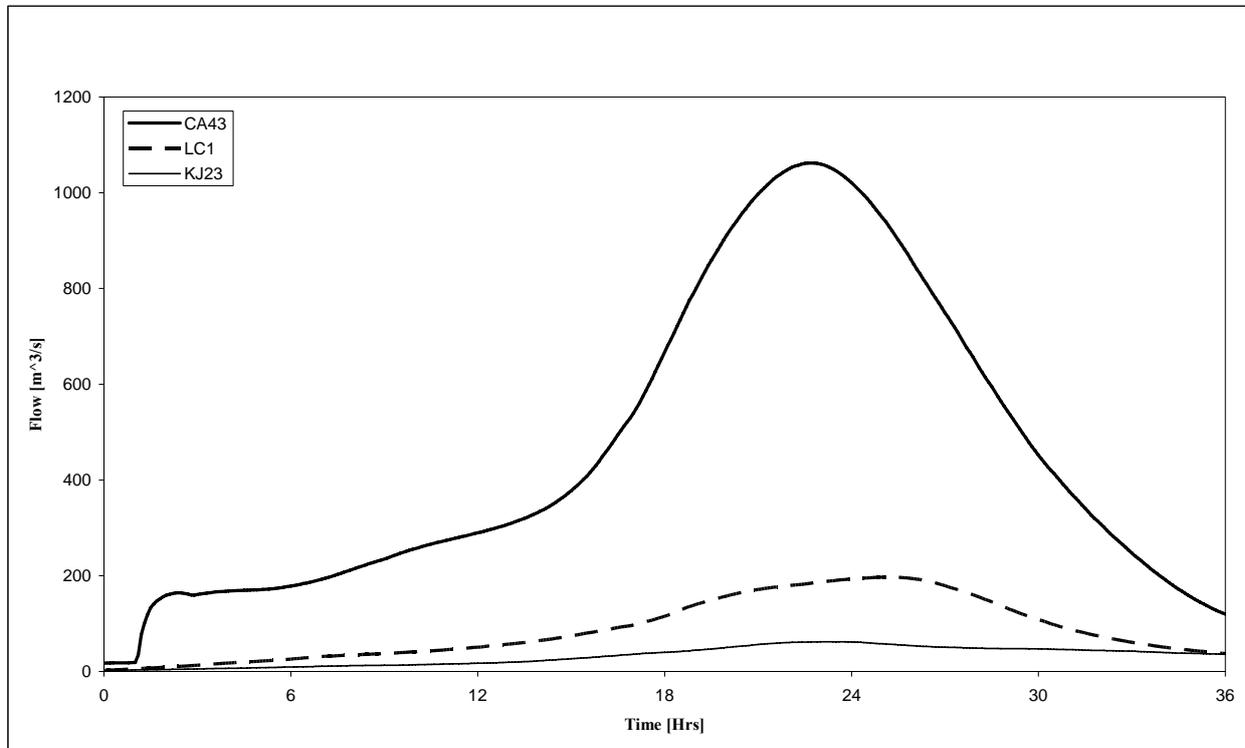


Figure 4-9: Inflows hydrographs for the 1972 event

Figure 4-10 presents the long section through the Caboolture River and King John Creek, providing the maximum water surface level during that event. Table 4-6 presents the statistical analysis for the 1972 event.

It was observed that the recorded levels were significantly higher than the modelled levels along the Caboolture River after chainage 6,500 m. The higher levels may have been caused by a significantly high sea level.

To test the possibility that the recorded high water levels were caused by a high sea level, the 1972 model was run with a high downstream boundary of 1.6 m AHD, which was derived from the recorded value of 1.83 m AHD at Baker Flat Road. However, Figure 4-10 shows that even with this high downstream boundary level, the recorded levels are still significantly higher.

Therefore the most likely explanation for the difference in water level is that a change in the channel bathymetry has taken place between 1982 and 2006. A deepening and widening of the channel may have taken place during that period. A geomorphological study is required to confirm this variation. The fact that good calibration and verification data were obtained for the two most recent events and not the oldest is also consistent with the theory that a change in bathymetry has occurred.

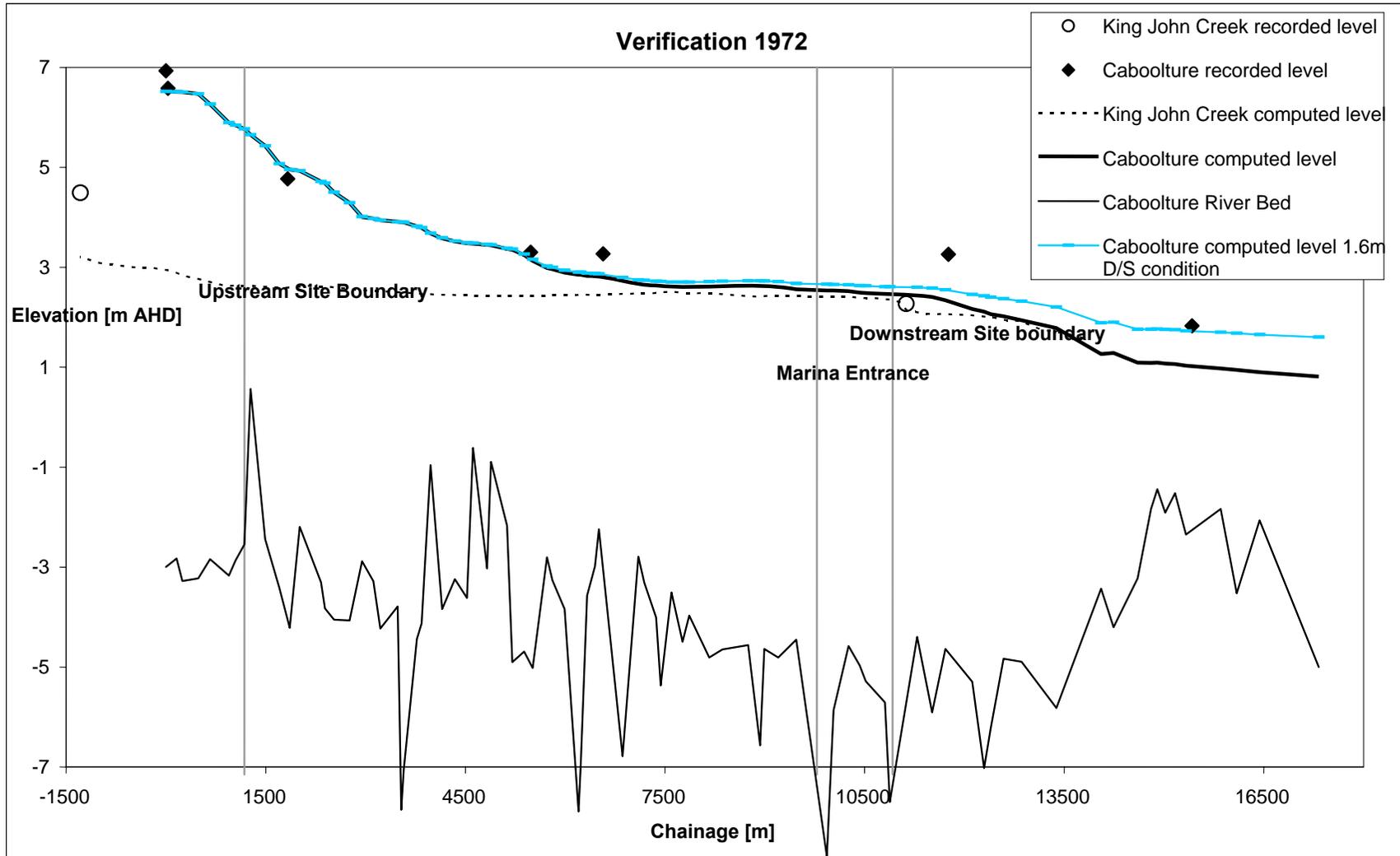


Figure 4-10: Water surface level for the 1972 event

Table 4-6: Statistical analysis of the water surface level for the 1972 event

Chainage W	aterway	Description	Recorded	Modelled	Difference
0	Caboolture River	Bruce Highway U/S	6.93	6.52	-0.41
30	Caboolture River	Bruce Highway D/S	6.58	6.52	-0.06
1830	Caboolture River	Lawrence street	4.77	4.95	0.18
5482	Caboolture River	Beachmere Rd/Goong	3.3	3.35	0.05
6569	Caboolture River	Beachmere Rd/Riversleigh	3.27	2.83	-0.44
11758	Caboolture River	Beachmere Montys	3.26	2.44	-0.82
15422	Caboolture River	Baker flat road/esplanade	1.83	1.03	-0.80
-1285	King John Creek	Bribie Island Road	4.49	3.07	-1.42
11128	King John Creek	Beachmere Road	2.27	2.08	-0.19
		Standard deviation from 0 for Caboolture River			0.54
		Standard deviation from 0 for John Creek			1.43
		Standard deviation from 0 for entire domain			0.73

4.4.4 Data discussion

The discrepancies between modelled and recorded flood data occur for a number of reasons. The field measurements of maximum flood levels are generally taken from flood marks and accumulations of flood debris giving a point estimate of water levels reached during the flood, which could be affected by wave action and temporary blockages, among other factors.

It should be noted that the floodplain has probably changed over time between each of the historic events and the present day, with differences likely in terms of geometry, land usage and vegetation. The models used in this analysis were developed from the latest available topographical data and do not necessarily represent the catchment at the time of the historic event. This will account for some of the discrepancies between modelled and recorded flood levels.

The correlation between recorded and modelled data shown in Table 4-4, Table 4-5 and Table 4-6, and shown in Figure 4-6, Figure 4-8 and Figure 4-10 are considered to be acceptable for modelling a catchment of this size. The MIKE21 base case model gives a good overall reproduction of the February 1972, April 1989 and December 1991 flood events, and as such can be used confidently to optimise the master plan in terms of floodplain management.

4.5 Model sensitivity

To assess the sensitivity of the model, changes in the downstream condition and roughness values were assessed.

Figure 4-11 presents the water surface level long sections for three cases with difference downstream conditions: 0 m AHD, 0.81 m AHD and 1.6 m AHD. As it can be seen, changes to the downstream boundary condition did not make a significant impact on water surface levels. The maximum absolute difference at the development site is less than 0.1 m when comparing 0 m AHD boundary condition and the 1.6 m AHD boundary condition with the 0.81 m AHD boundary condition.

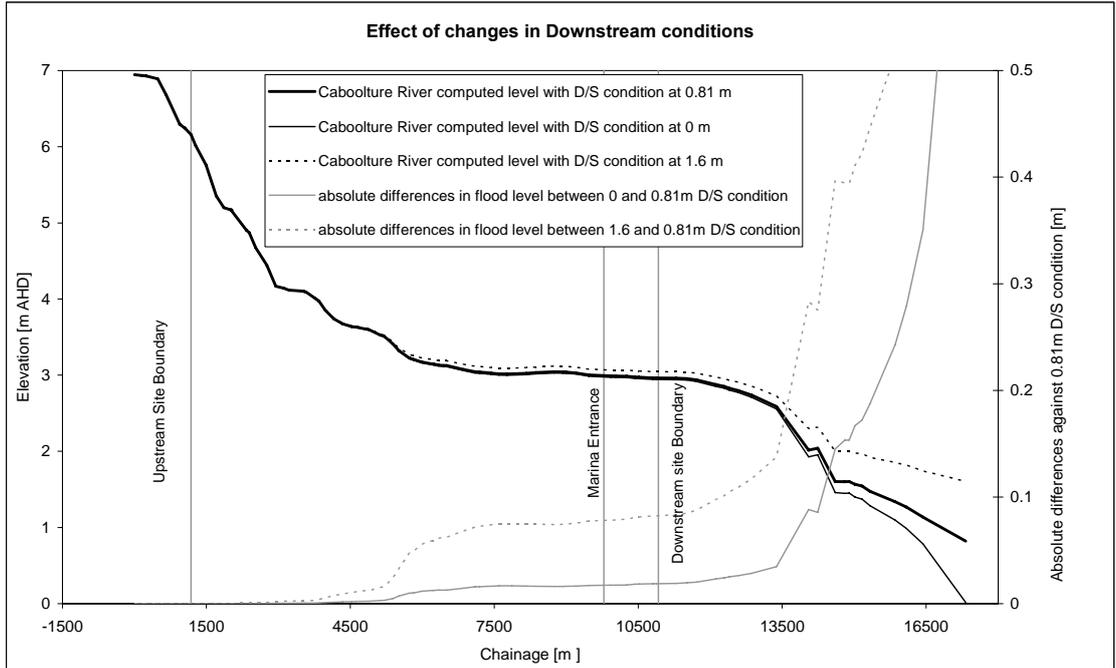


Figure 4-11: Longitudinal profile of water surface elevations due to changes of downstream boundary condition.

Figure 4-12 presents the water surface long sections for three cases where the roughness values were altered as presented in Table 4-7. Figure 4-12 shows that changes to the roughness values do not make a significant impact on the water surface level at the site of the proposed development with the maximum absolute difference less than 0.1 m.

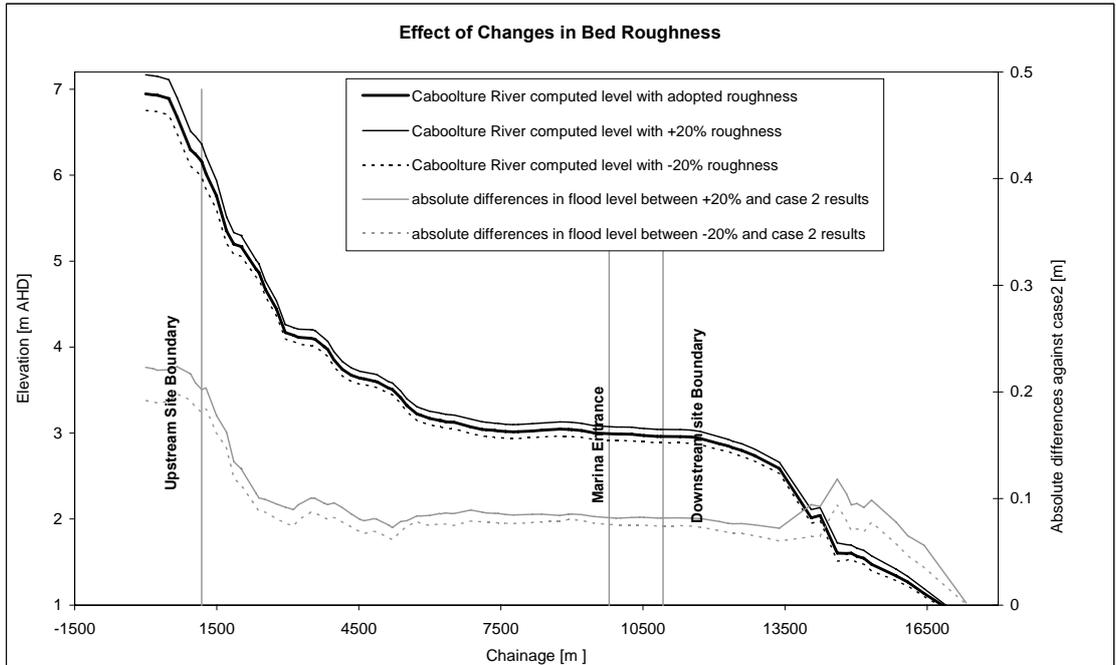


Figure 4-12: Water surface long section with changing roughness condition

Table 4-7: Manning's n values applied in the calibration runs

	Floodplain River	er	Road	Mangrove	Tributary	Multiplier
Base case	0.060	0.020	0.025	0.120	0.10	1
Roughness -20%	0.048	0.016	0.02	0.096	0.08	0.8
Roughness +20%	0.072	0.024	0.030	0.144	0.12	1.2

Figure 4-13 shows that the volume of water stored in the domain changes significantly with the roughness values. Thus, demonstrating that due to the large width of the floodplain, a small change in water level creates a significant change in the volume of water stored in the domain.

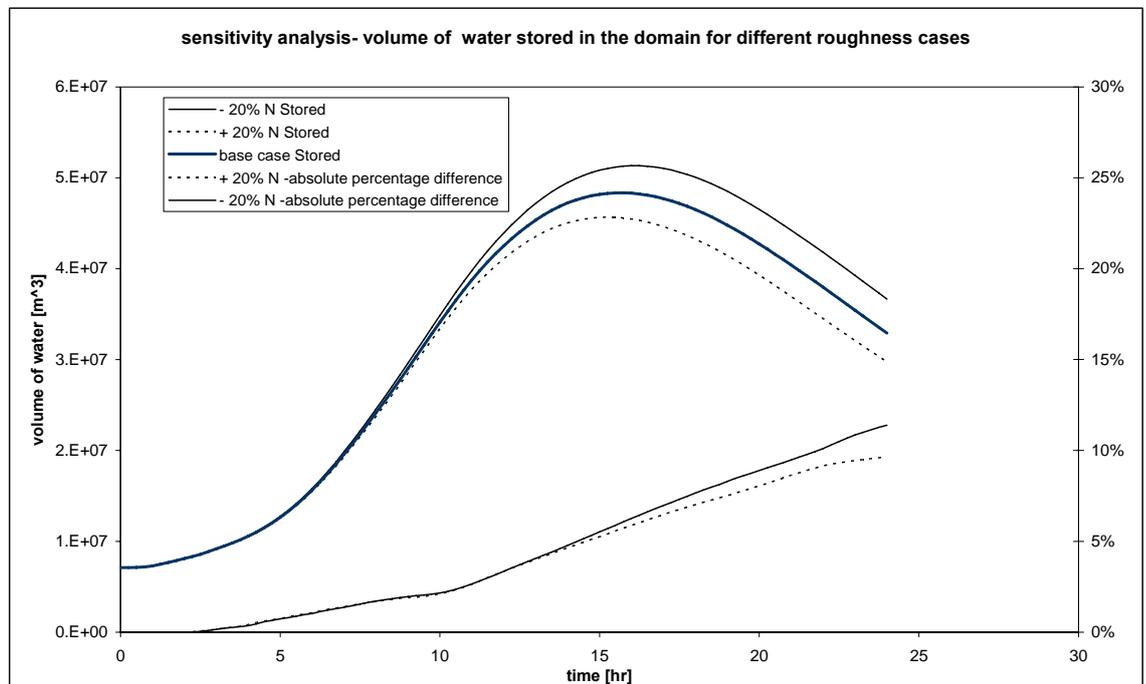


Figure 4-13: Volume of water in domain with changing roughness condition

Therefore the modelled water surface levels are not very sensitive to changes in the downstream boundary conditions or to changes in roughness values.

4.6 Model fitness

Model Fitness is illustrated by Figure 4-14, Figure 4-15 and Figure 4-16, where the maxima of the following parameters are described throughout the model domain:

1. Froude number
2. Courant Friedrichs Levy condition (CFL)
3. Signal variance or noise in the model

The Froude numbers indicate sub-critical flow through the model domain, with the maximum not exceeding 1.0. Consequently the scenario being simulated is consistent with the model formulation, particularly with respect to the flow being in sub-critical regime

The MIKE21 solution scheme is centred (on average) in time and space finite difference solver. Consequently, there are no implicit limits on CFL except that temporal and spatial scales are resolved.

The finite difference grid is 10 m, which is considered adequate to model all significant flow paths, and in particular at the area of interest. The CFL is less than 1.20 and according to the work of Abbot et al. (1981) the behaviour phase is stable and reasonable for $CFL < 10$.

Small numerical oscillations were created as part of the numerical calculation within the MIKE21 engine. The numerical amplitude of this noise can be compared to a wave of similar energy, as the signal variance is a measure of energy.

To produce an afflux map with 1 cm accuracy, the afflux must be within ± 0.5 cm. Thus the pre- and post-development water surface results need to have accuracy within ± 0.25 cm. From Figure 4-16 it can be seen that the noise in the model is within this tolerance.

Therefore, the model is representative of the floodplain in terms of model fitness.

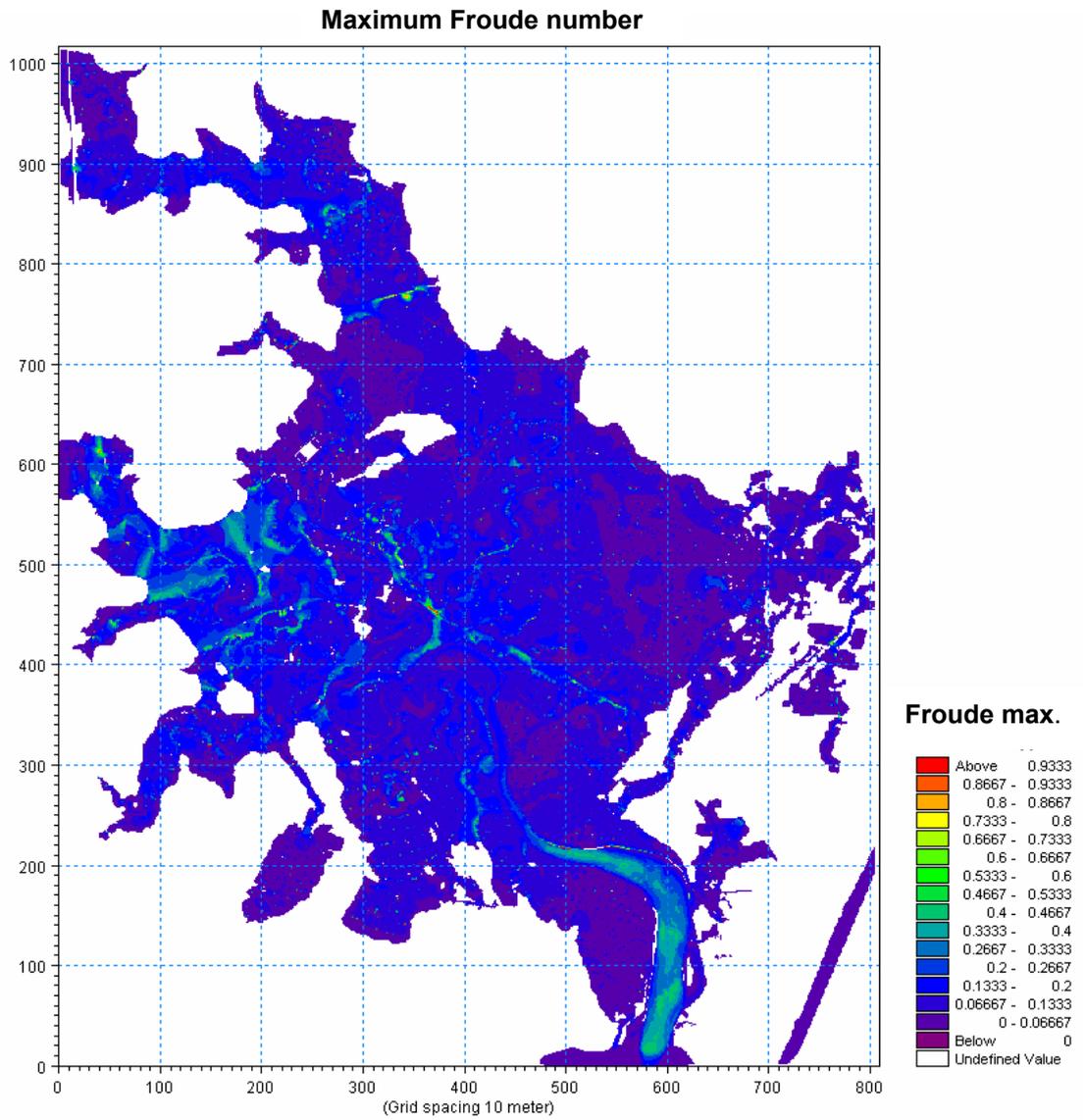


Figure 4-14: Froude map for the 100 year base case model

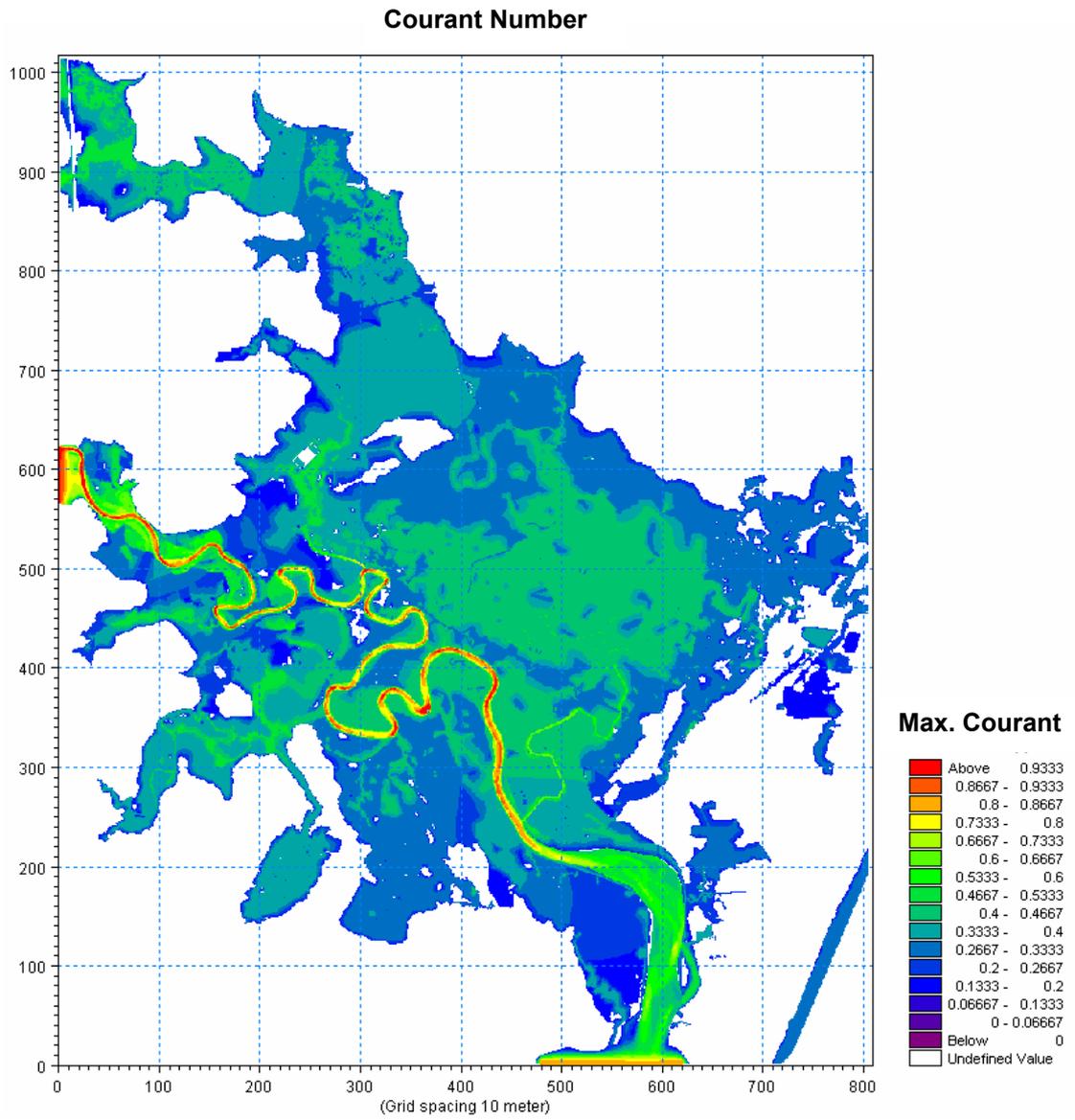


Figure 4-15: Courant map for the 100 year base case model

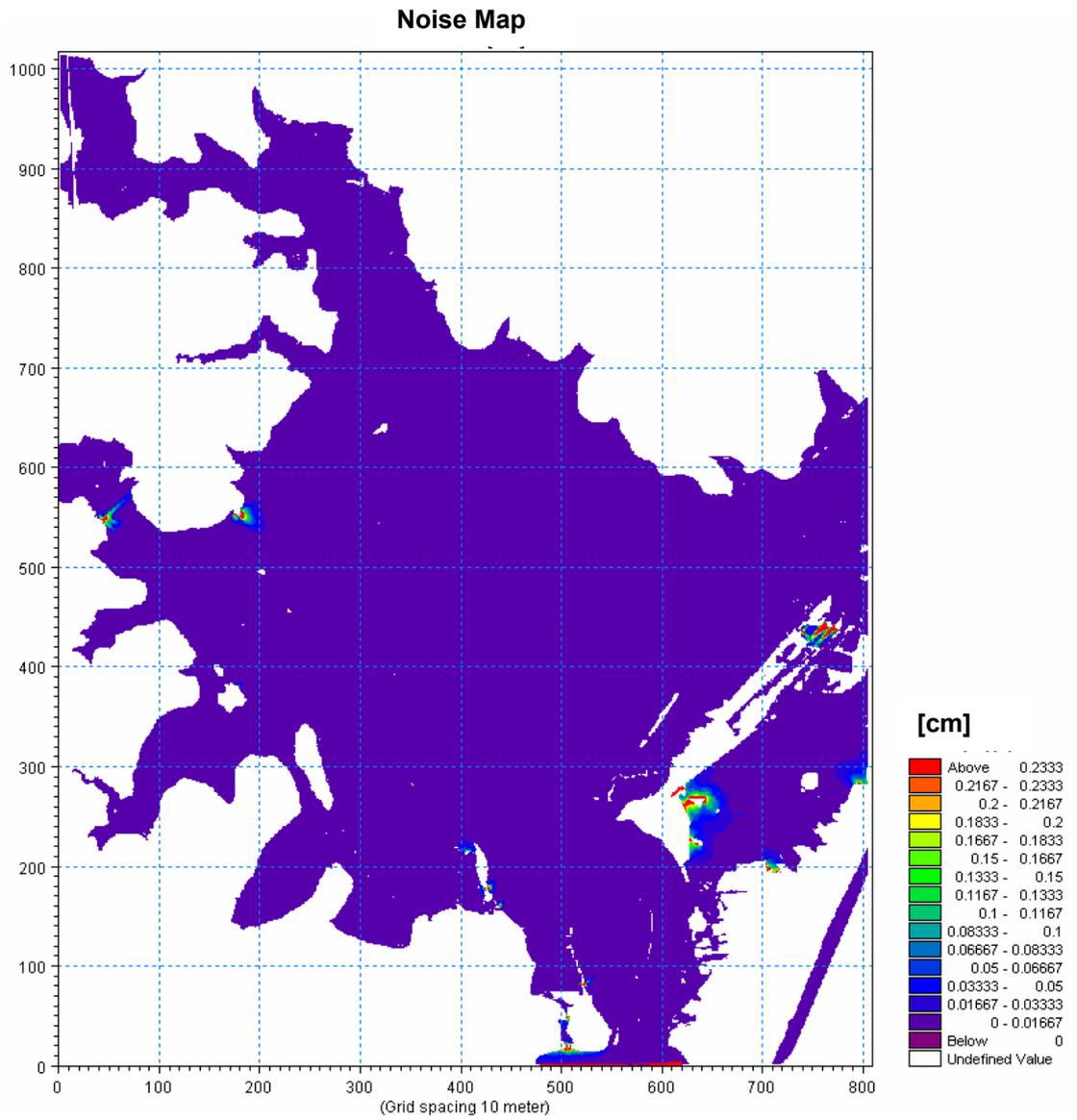


Figure 4-16: Noise map for the 100 year ARI event with steady-state flow

4.7 Mass Balance

To check the validity of the MIKE21 model an investigation of the mass balance was also undertaken. This is a relationship between the inflow and outflow volume, and represents the theoretical mass gain in the model domain.

This theoretical mass gain was then compared to the actual mass gain measured in the domain. The difference between these two values represents the absolute mass gain error.

Figure 4-17 presents the absolute mass gain error, and the relative mass gain error against the inflow volume. This figure shows that at approximately 0.2% of the inflow, the relative mass gain error is insignificant

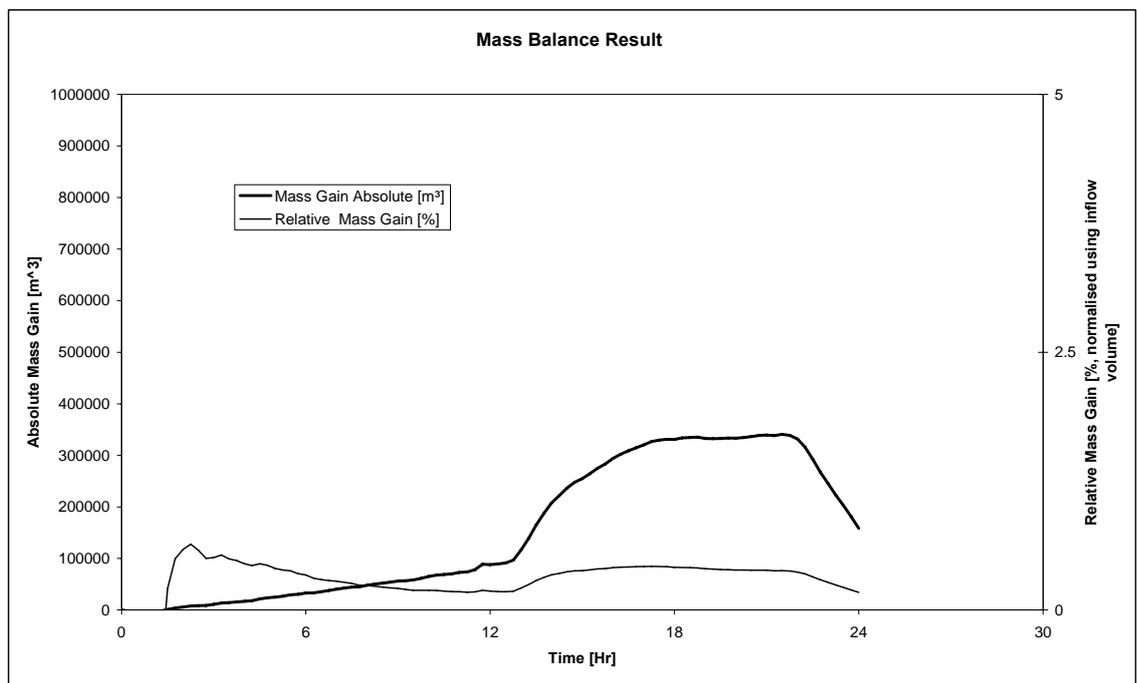


Figure 4-17: Mass balance result

4.8 Base case results

The following section contains the model results for the 1 in 100 year ARI event. Appendix D contains the 1 in 10 year ARI model results and Appendix E contains the 1 in 50 year ARI model results.

4.8.1 Base case

The resultant water levels for the base case are shown in Figure 4-18 and range from 0.81 m to 8 m. Flow vectors shown in this figure are indicative of the wide floodplain and demonstrates the spreading of flood water that occurs downstream of Captain Whish bridge. The majority of velocities shown are less than 1.0 m/s; however, within sections of the main Caboolture River velocities exceed 2.0 m/s.

Figure 4-19 presents the base case flood depths. The maximum depth within the floodplain is 4 m. As expected the depth within Cabooture River the depth is greater than 4 m.

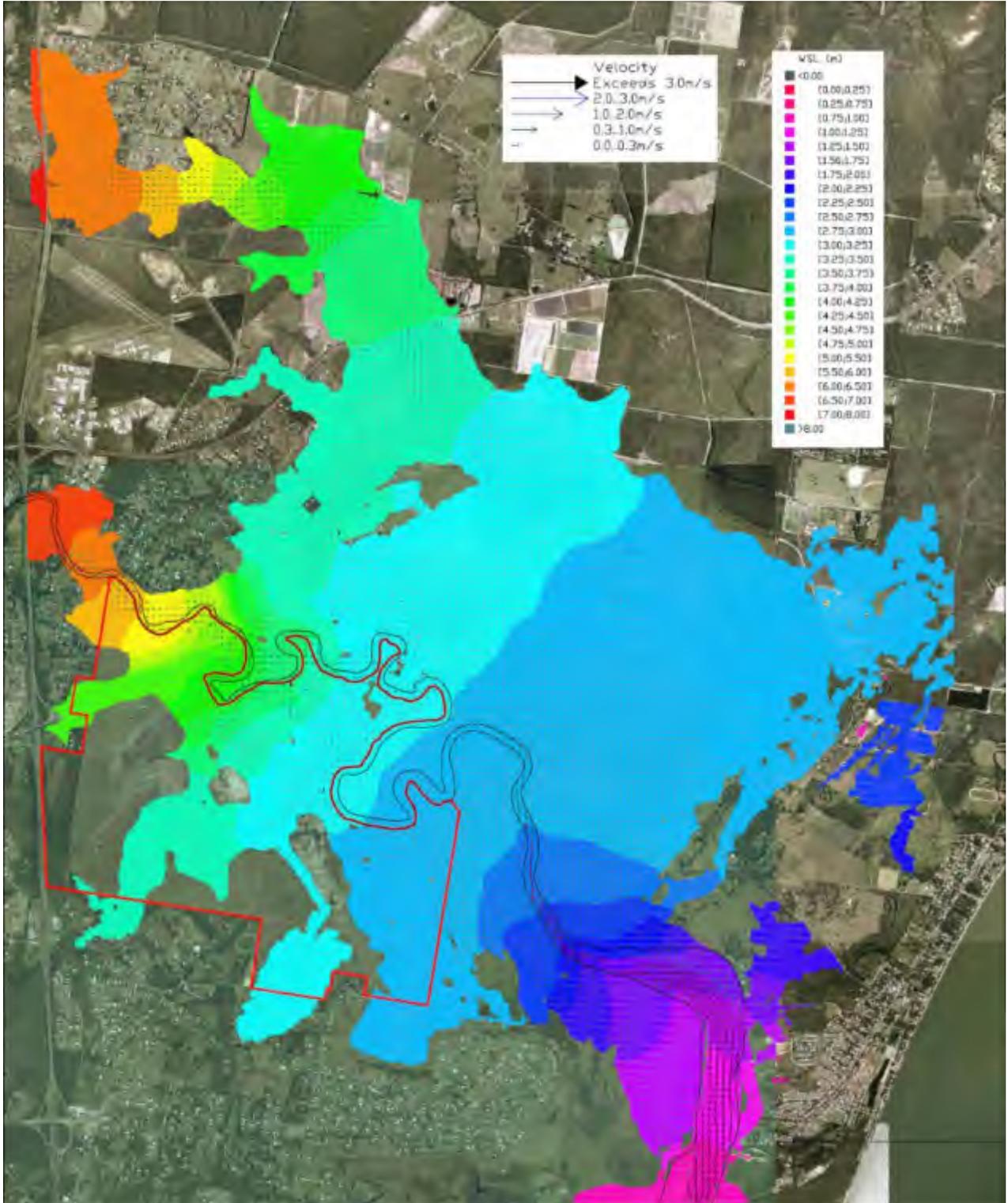


Figure 4-18: Base case water surface level

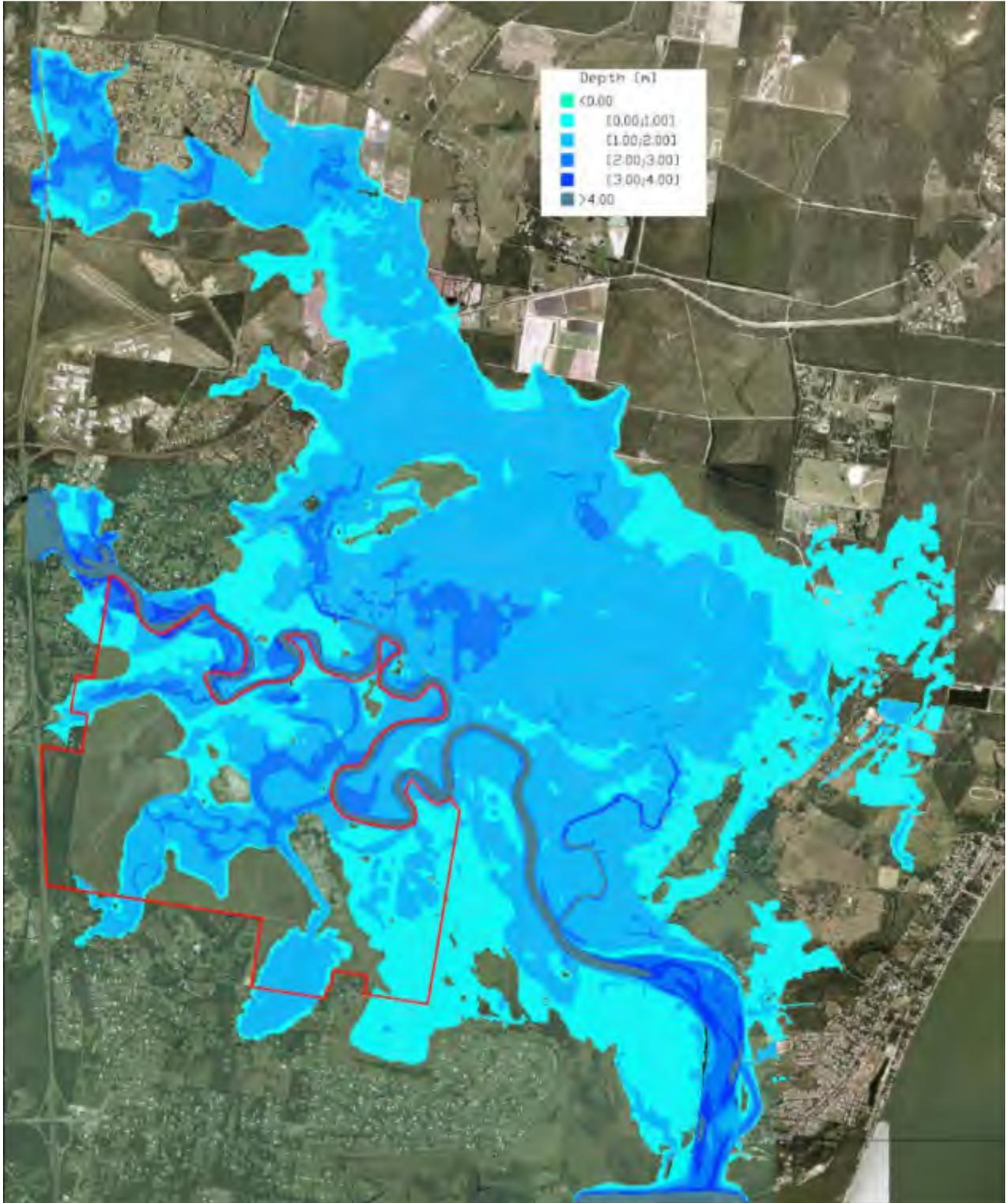


Figure 4-19: Base case flood depth

4.8.2 Un-mitigated case

To determine the impacts of the proposed development the base case model terrain was amended as per the cut and fill diagram provided by Northeast Business Park Pty Ltd. (Appendix C - Drawing 0304 SK36, issue SD04, dated 30 July 2007 Ref 20430-10D). The alterations made reflect the earthworks associated with the proposed development:

The schematic in 4-20 shows the un-mitigated development scenario. The areas that need to be above the 100 year ARI peak flood level within the development boundaries (e.g. commercial, residential or industrial) are shown.

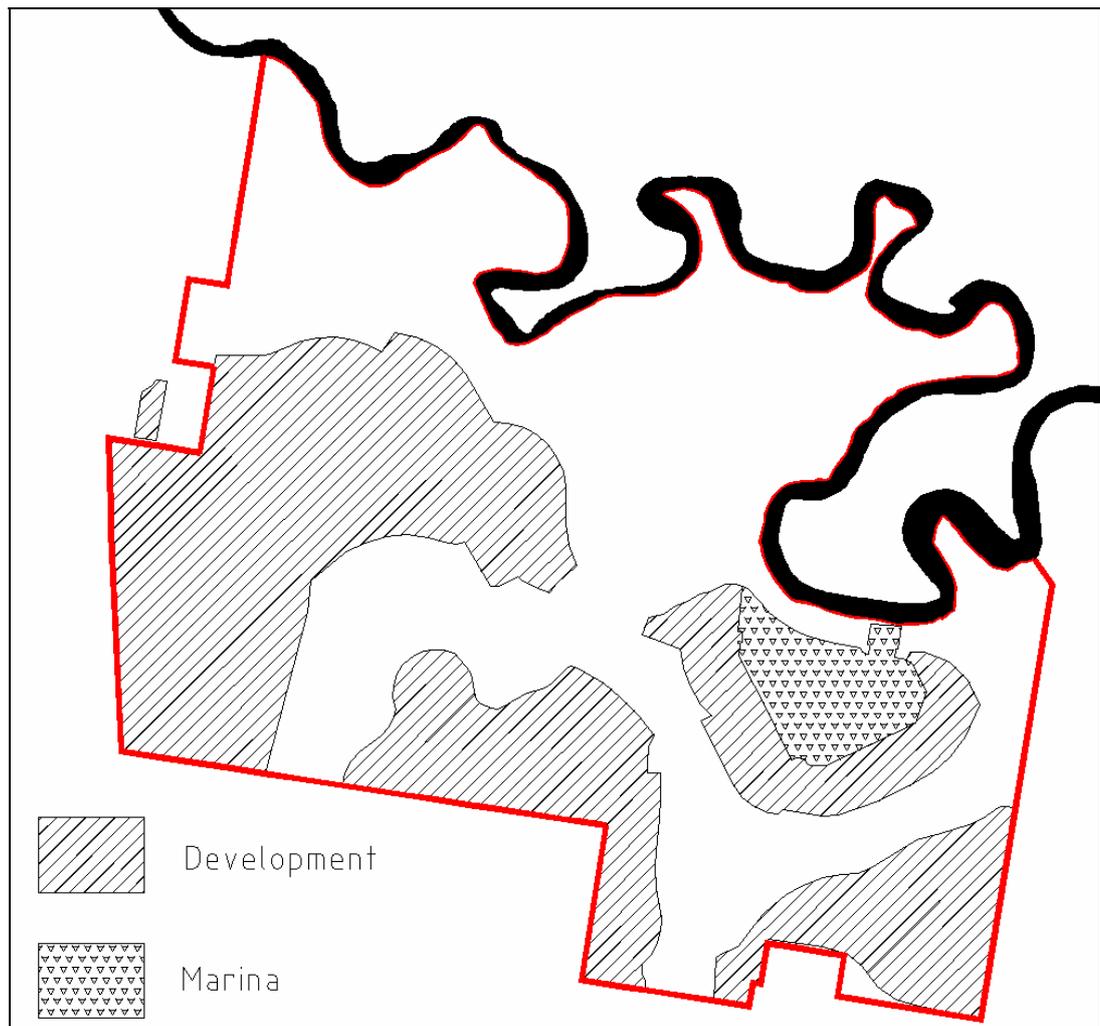


Figure 4-20: Schematic of the changes to the base case for the un-mitigated case

In addition to the development site cut and fill earthworks, a section of the Caboolture River will be dredged in compliance with the navigational requirements. The dredged section will be roughly trapezoidal in shape with a base width of 40 m (minimum), a bed level of -4.25 m AHD and 1:3 side slopes. The upstream end of the dredging will be the upstream point of the navigational section of the river (approximately E502671, N6999503). The downstream end of the dredging in the model is the downstream model boundary. The actual downstream extent of the dredging is beyond the model boundaries. This was incorporated into the river bathymetry for the un-mitigated and mitigated scenarios. Figure 4-21 shows the impact of the dredging on the river bed.

The bed level of the marina basin was set at -3.5 m AHD.

Bed friction values and inflows remain the same as the base case scenario.

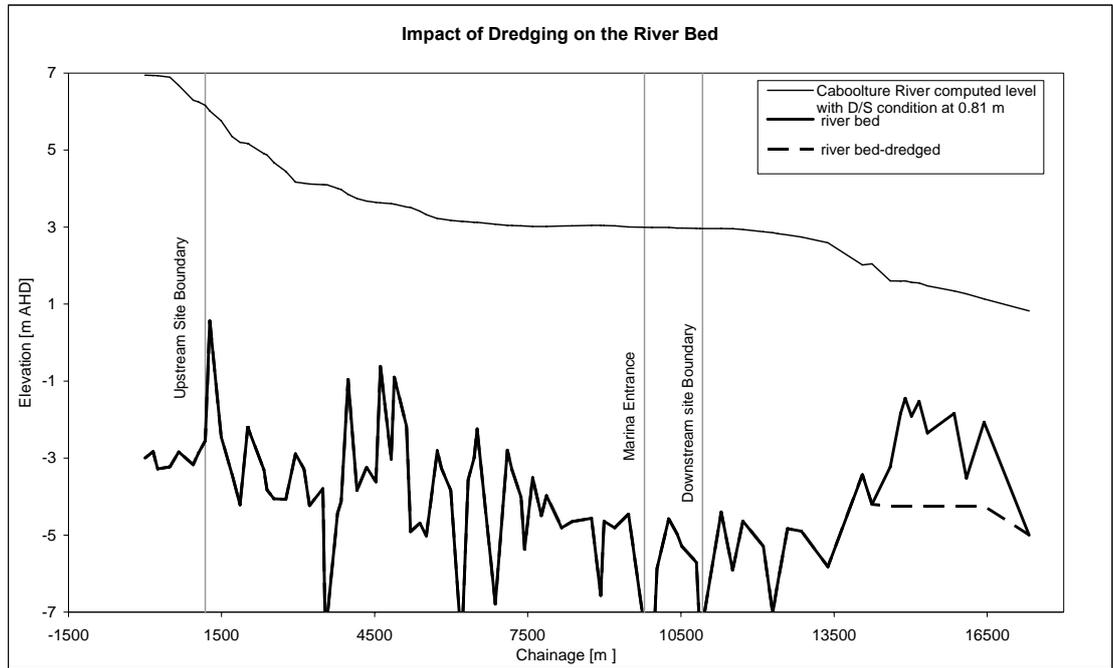


Figure 4-21: Effects of dredging on the river bed

4.8.3 Un-mitigated model results

The proposed un-mitigated case produces high afflux across the flood plain. The impact is particularly significant to the north-east of the development site (Figure 4-22). The development is forcing the flood water towards the northern side of the Caboolture River. These results show that mitigation measures are required to reduce the impact of the excess affluxes.

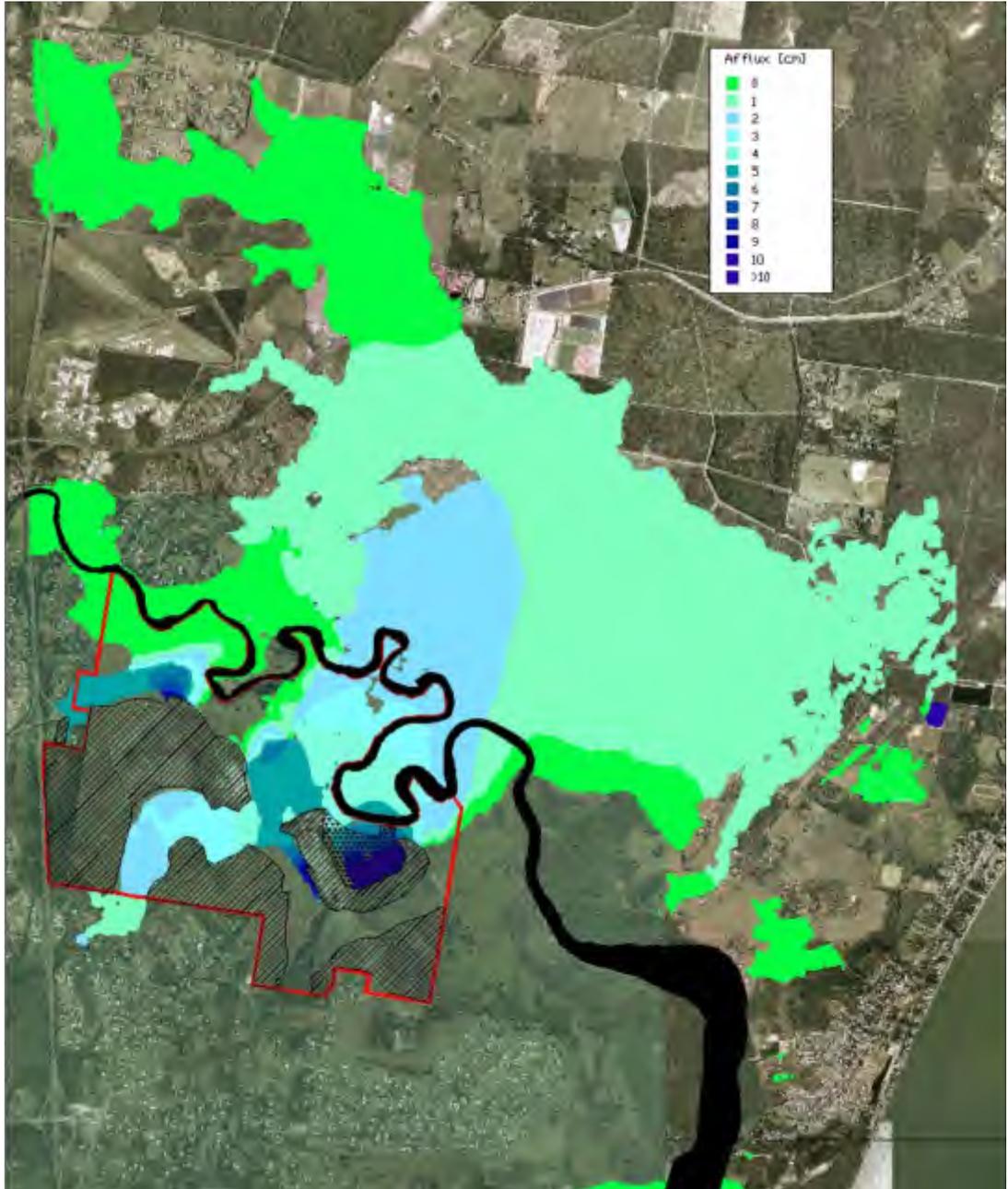


Figure 4-22: Afflux map for the un-mitigated case

5. Modelling scenarios

The scenarios modelled are presented in Table 5-1. These scenarios were investigated as part of this modelling study.

Table 5-1: Description of modelling scenarios

Scenario Description	tion
Existing case	Reference case without the proposed development
Un-mitigated case	Includes the proposed development and the dredge channel for navigation
Mitigation case	Includes the proposed development, the dredge channel, mitigation measures 1.

5.1 Base case

A description of this case is contained in Section 4 above. This case was modelled in order to determine existing flood levels. The reported flood levels and affluxes in all other modelled scenarios have been assessed against these flood levels.

5.2 Un-mitigated case

A description of this case is contained in Section 4 above. This case was modelled in order to determine if flood mitigation works were required.

5.3 Mitigation case

In addition to the changes to the un-mitigated topography noted in Section 4.8.2, there is a need to mitigate the increased peak flood levels outside the development boundary due to the proposed works, as per CSC Shire Plan. This is achieved by increasing the flood conveyance within the development's boundaries and by constructing earth diversion banks.

The shape of the storage is dictated by the master plan layout and constraints associated with development near or adjacent to rivers and creeks. For the Caboolture River, no development can occur within 100 m of the top of bank. For Raft Creek this distance is 80 m.

The mitigation philosophy to offset the increase in peak flood levels outside the development site is based on two criteria:

- increase flow conveyance between the proposed developed land
- construct earth diversion banks to help canalise the flow within the site.

The inclusion of a detention basin was not considered for the following reasons:

- a large volume of water will need to be stored before the detention basin could have a significant effect on the large volumes of flood water
- land restrictions
- depth restrictions requiring the detention basin to remain above the tidal limit will force the basin to be shallow and have no real impact.

Based on these principles and the development and environmental constraints, Figure 5-1 shows the general location of the flood mitigation elements within the development that will be optimised within the development site.

The following section describes each flood mitigation element, of which a summary is presented in Section 5.4.

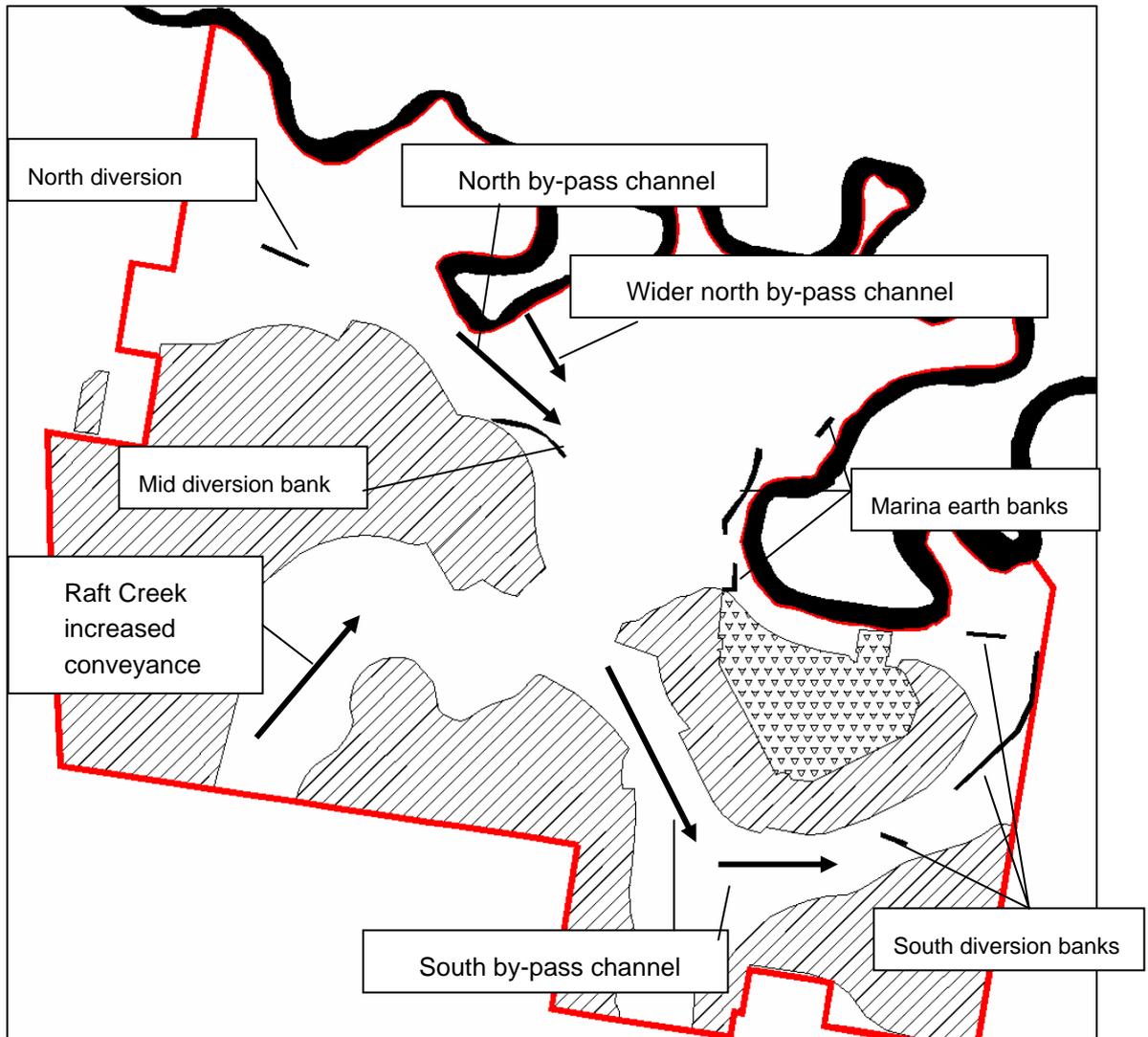


Figure 5-1: Schematic of the mitigation philosophy

5.3.1 Details – mitigation options for the north by-pass channel

Earthworks within the north by-pass channel will reduce the afflux on the north side of the proposed development. Figure 5-2 shows the location of this flood mitigation element.

The objective of this mitigation is to increase the conveyance on the south side of the river and convey the water towards the south-east side of the proposed development thus the afflux upstream of the development is reduced. The approximate volume which needs to be cut to reduce the natural ground to a height of 1.5 m AHD within this area is approximately 123,460 m³. This scenario is necessary for all mitigation cases.

Manning's n roughness of the ground was reduced from 0.06 to 0.035 within the boundaries of the north by-pass channel.

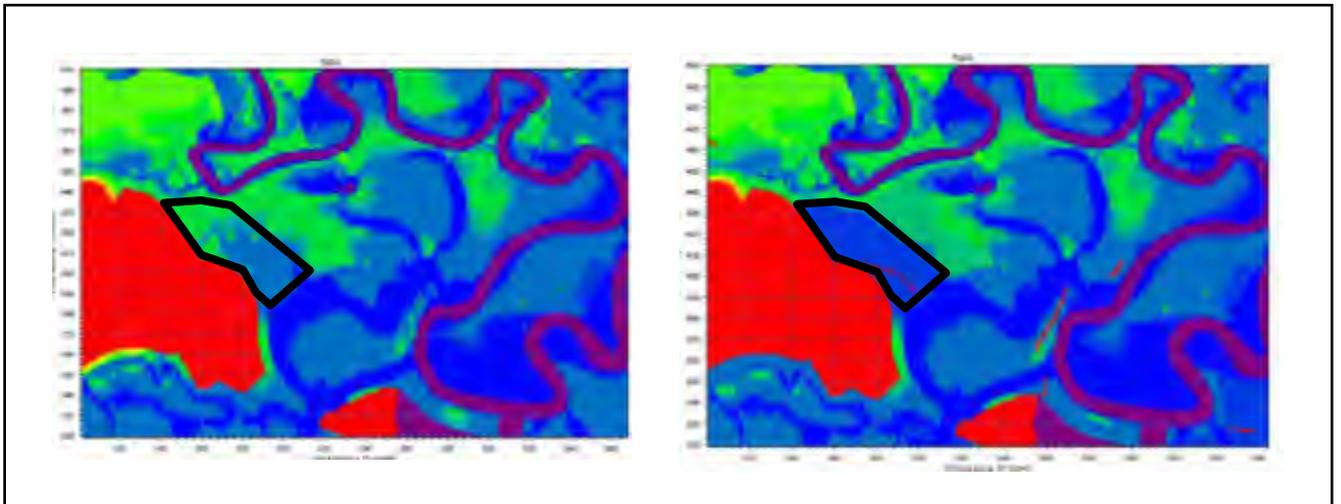


Figure 5-2: Proposed north channel by-pass (un-mitigated and mitigated cases)

5.3.2 Details – mitigation options for the wider north by-pass channel

The wider north by-pass channel increases the conveyance in this area of the floodplain. The roughness value used in this area is a reduced manning's n of 0.035. This area is shown in Figure 5-3.

The additional volume involved with cutting the natural ground to a height of 2.5 m AHD is approximately 36,721 m³.

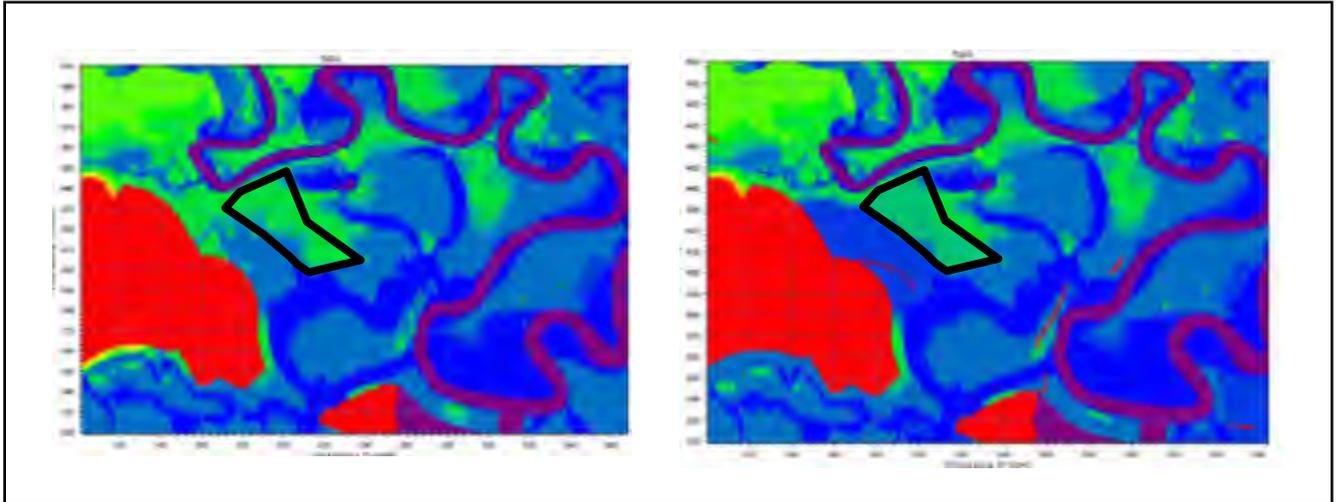


Figure 5-3: Proposed wider north by-pass channel mitigation (un-mitigated and mitigated cases)

5.3.3 Details – mitigation options for earth diversion banks

Earth diversion banks are located at four locations within the development site. Figure 5-4 shows the location of these diversion banks.

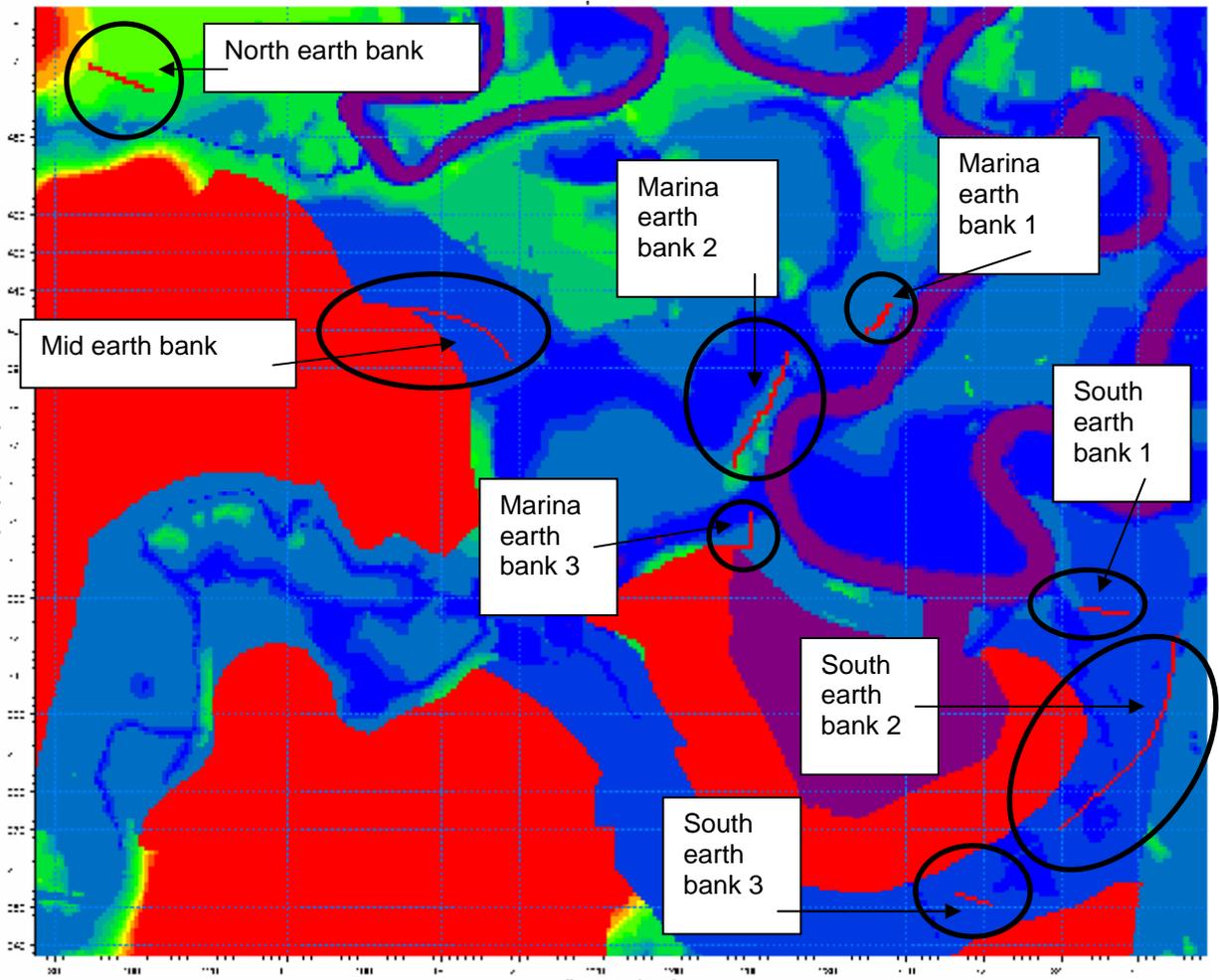


Figure 5-4: Proposed earth diversion embankments

The north earth bank is needed to prevent afflux on the west side of the development while the three marina earth banks are required to prevent affluxes north of the marina.

The mid earth bank is required to direct the flood flows into the marina earth banks while the south earth banks prevent increased peak flood levels at the downstream boundary.

The earth diversion banks will be designed such that they are a minimum of 0.3 m above the 1 in 100 year ARI flood level, with one in four sides. The final design of these earth banks will require structural input.

5.3.4 Details – mitigation options for south by-pass channel

The flow conveyance on the south side of the river needs to be enhanced wherever possible. An important flow route exists south of the proposed marina. Figure 5-5 shows the location of the south by-pass channel mitigation.

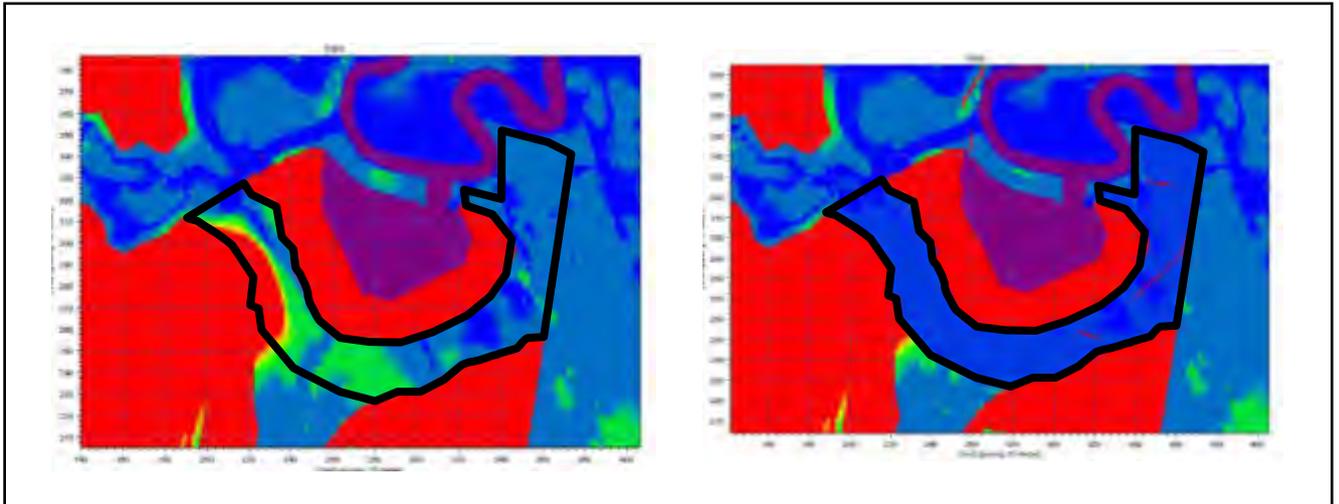


Figure 5-5: Proposed south by-pass channel mitigation (unmitigated and mitigated cases)

Land within the south by-pass channel will be cut to 1.5 m AHD. The Manning's n roughness coefficient varies from 0.06 to 0.035 depending on the mitigation requirements (refer Table 5-2.).

The volume of natural ground which needs to be removed to reach a level of 1.5 m AHD is approximately 972,118 m³.

5.3.5 Detail – mitigation options in Raft Creek area

A section in the southern parts of Raft Creek (within the Development's boundaries) is constricted and increases the peak water levels. This area is shown in Figure 5-6. The offset is a cut parallel to Raft Creek.

The volume of ground that needs to be cut to a height of 2.0 m AHD is 140,465 m³.

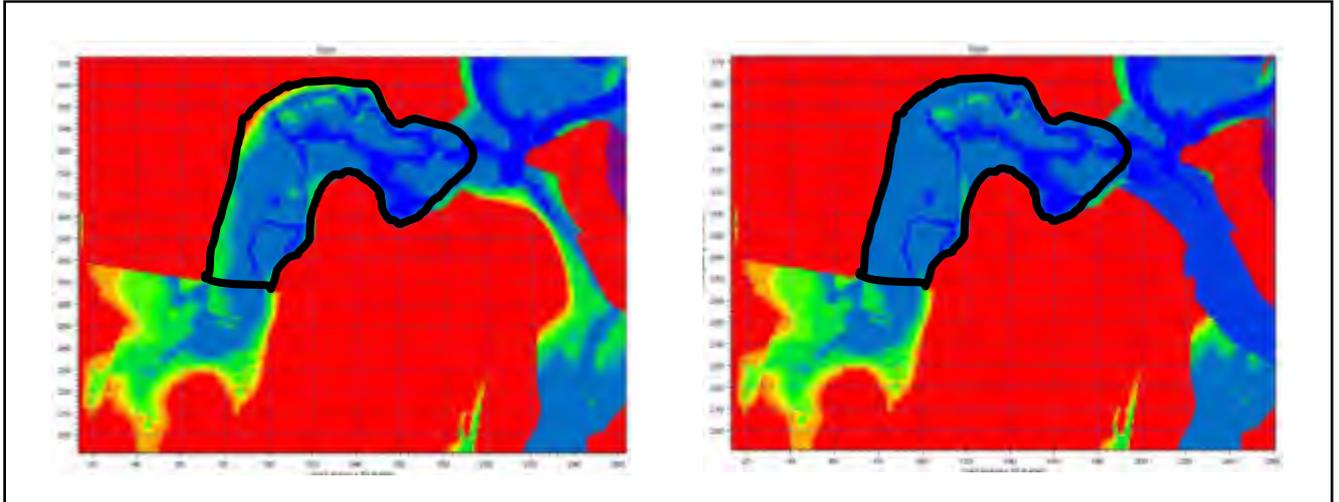


Figure 5-6: Proposed mitigation in Raft Creek area (un-mitigated and mitigated cases)

5.3.6 Details – grass managed areas

Figure 5-7 presents the area where grass management is required. In these areas, depending on the mitigation case, the roughness is decreased from 0.06 to 0.035.

This decrease would represent a change to a smoother ground surface, where the grass is maintained at a low level such as the type of grass on a golf course or sports ground.

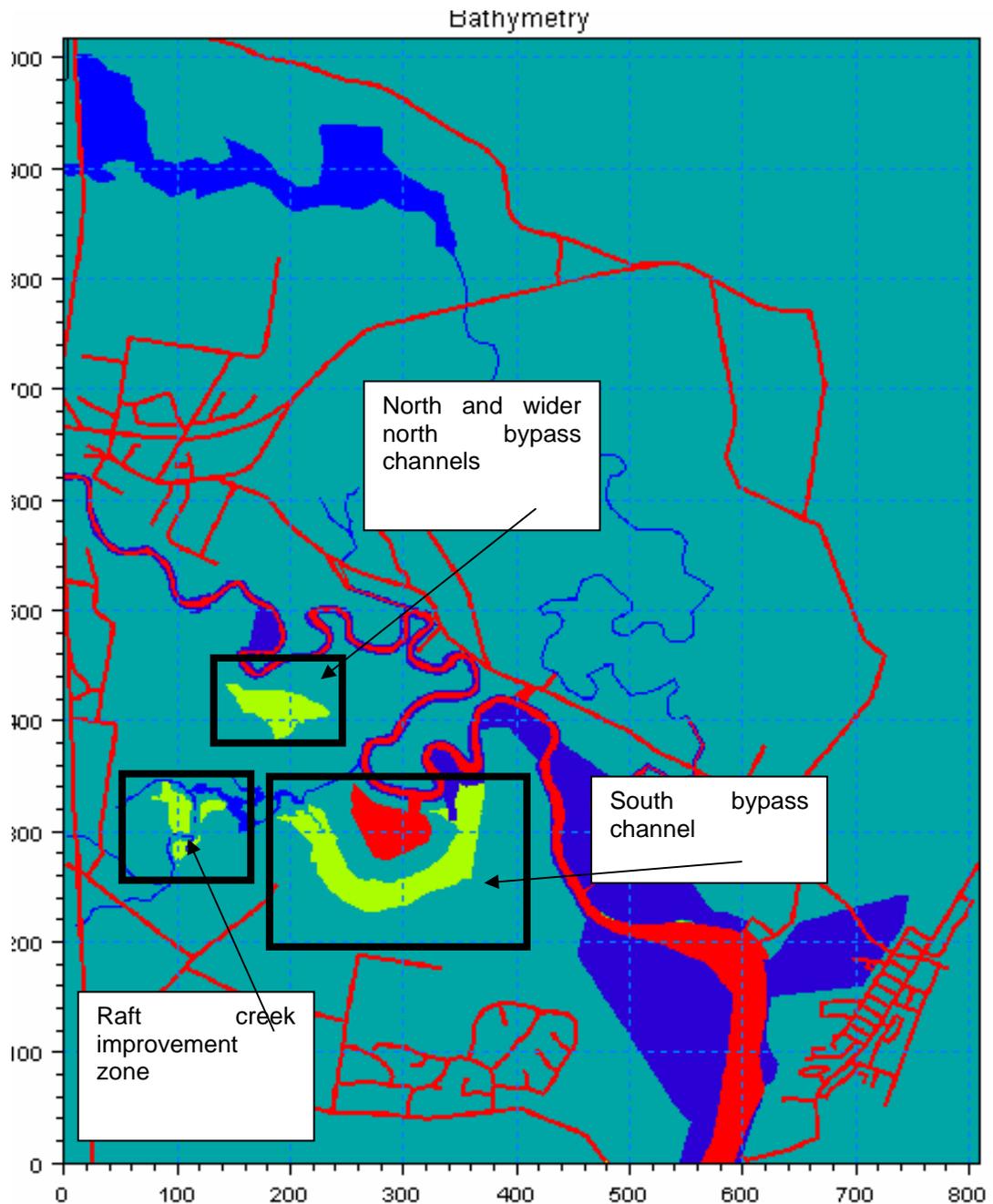


Figure 5-7: Proposed grass managed area with reduced Manning's n

5.4 Summary – mitigation case

The following summarises the preferred mitigation case undertaken for this study as well as an estimate of the volume of earthworks required.

- North by-pass channel: reduced roughness, cut to 1.5 m (123,460 m³).
- Wider north-by-pass channel: reduced roughness, cut 2.5 m (36,721 m³).
- South by-pass channel: reduced roughness, cut to 1.5 m (972,118 m³).
- Raft Creek-improvement: reduced roughness, cut to 2 m (140,465 m³)
- Total volume of cut: 1,272,764 m³.
- Eight earth diversion banks — three near the marina, three on the eastern boundary, one in the north-western section and one in the mid section of the development.

6. Mitigation results

The following section provides the results for the mitigation case for the 1 in 100 year ARI event only. Appendix D contains the 1 in 10 year ARI model results and Appendix E contains the 1 in 50 year ARI model results.

6.1 Preferred mitigation case

Figure 6-1 presents the afflux for the preferred mitigation case. The afflux is considerably reduced within the floodplain. CSC's floodplain guidelines are met as there is no afflux outside the development boundary.

In this case all proposed cut (north by-pass channel, wider north by-pass channel, south by-channel and raft channel) have been modelled with a reduced roughness as per Figure 5-7.

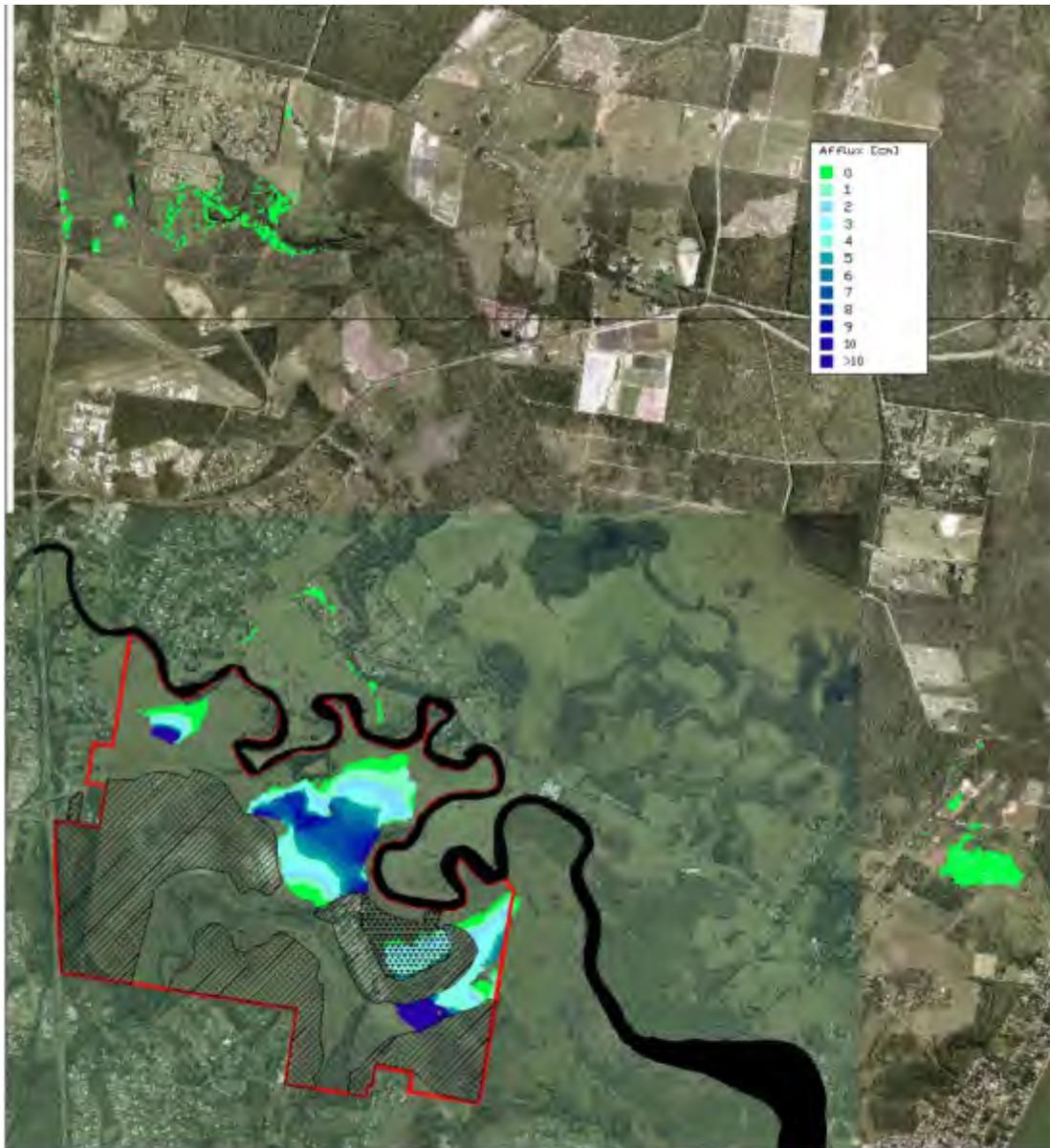


Figure 6-1: Preferred mitigation case afflux map

6.2 Water surface level and speed results

The maximum water surface level and maximum flow velocity for the preferred mitigation case are shown in Figure 6-2. The water surface elevations range from 0.81 m AHD to 7.5 m AHD. The majority of velocities shown are less than 1.0 m/s; however, within sections of the main Caboolture River velocities exceed 2.0 m/s.

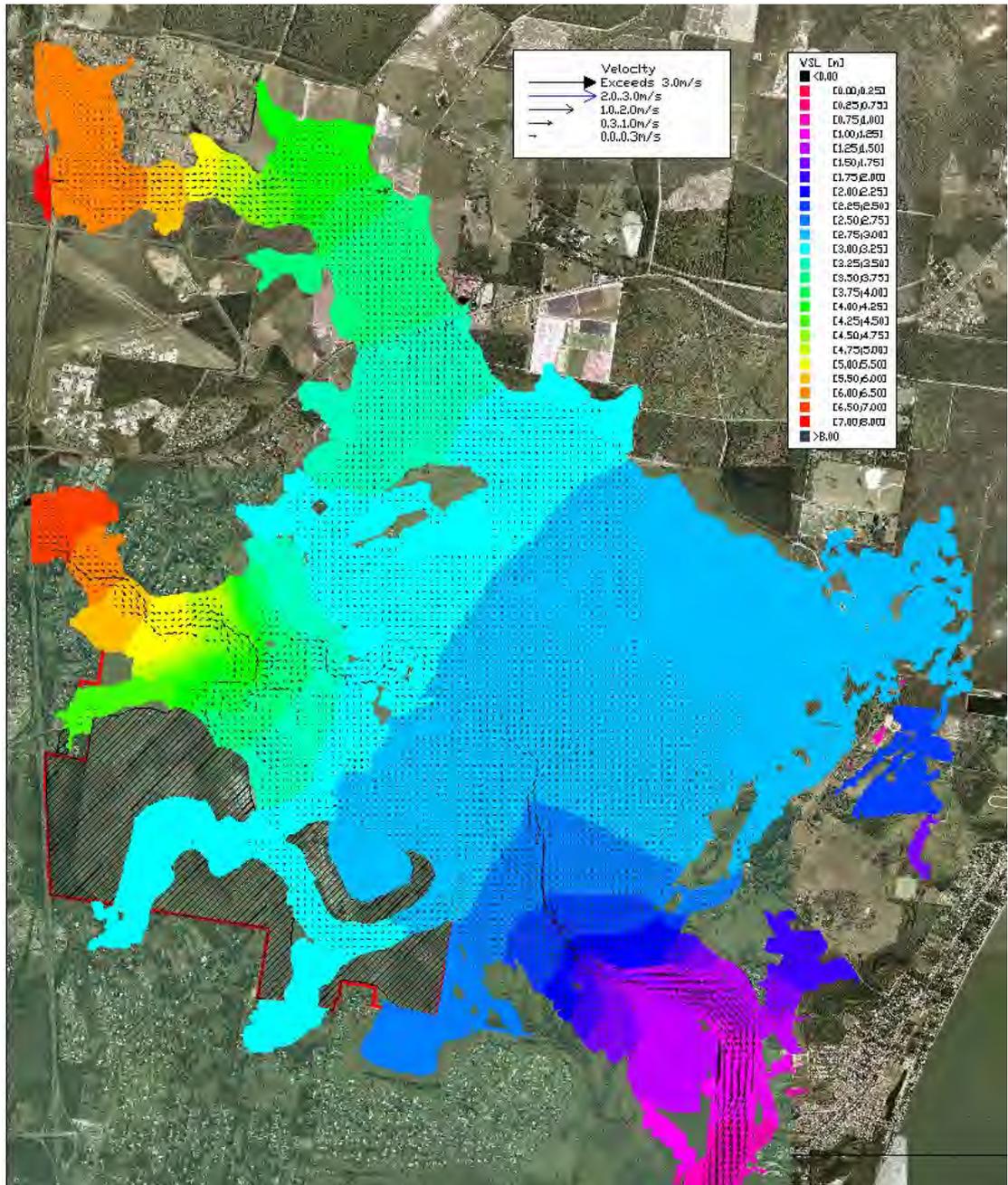


Figure 6-2: Maximum water surface level and velocity for the preferred mitigation case

Figure 6-3 presents the preferred mitigation case flood depths. The maximum depth within the floodplain is 4 m. The depth within Caboolture River the depth is greater than 4 m.

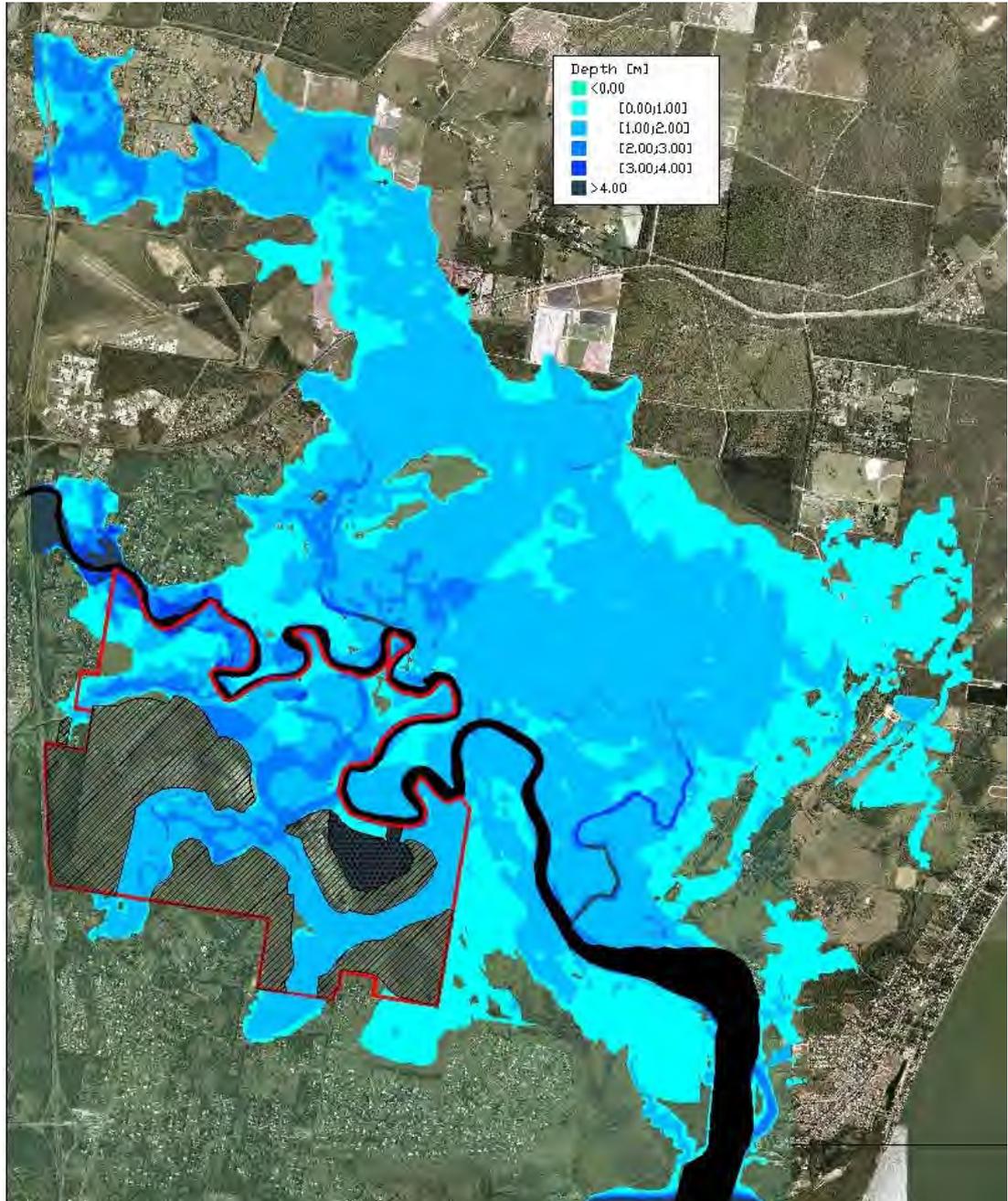


Figure 6-3: Water depths for the preferred mitigation case

Figure 6-4 presents the long section of the water surface levels for the existing, Un-mitigated and the preferred mitigated case. The comparison of the three cases shows very little difference in water surface levels.

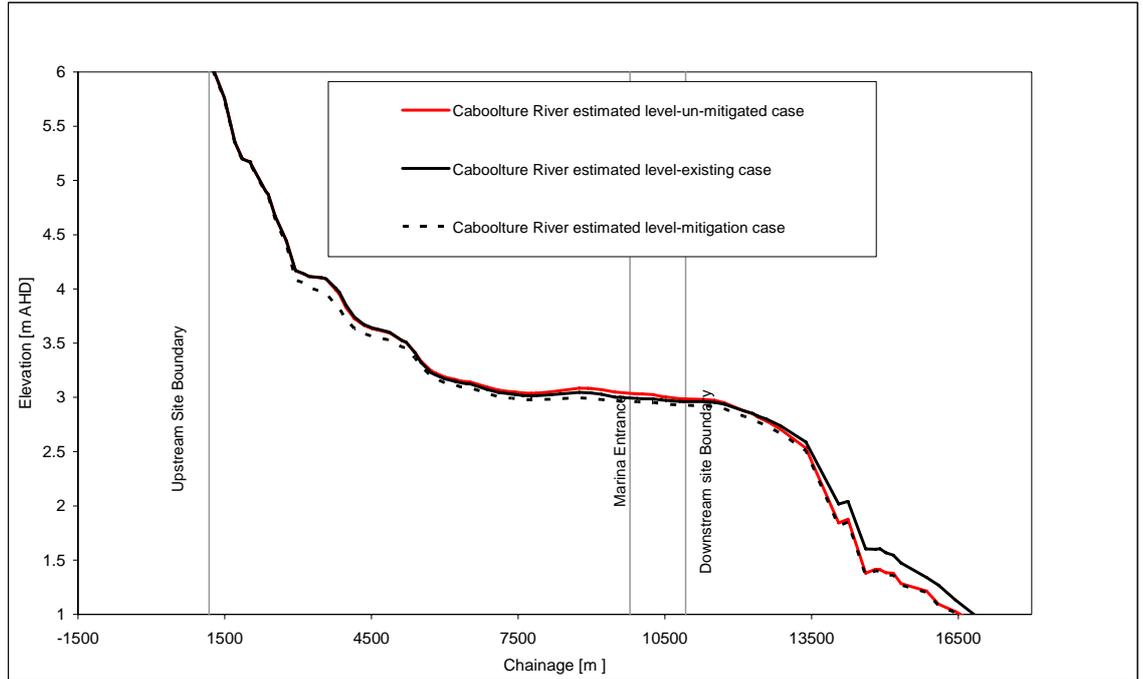


Figure 6-4: Water surface long section profile for different options

6.3 Details of the flow pattern

6.3.1 Flow details on the proposed site

The flow patterns on site need to be understood such that suitable scour protection can be designed to protect area subject to high velocities. The velocity and volume of water going through the site are presented in this section.

To assess the flow patterns on the site, the volume and velocity of flow were extracted from the modelling results of Mitigated Case 1 at four locations, as shown in Figure 6-5. These locations were selected as the flow was significantly constricted thus providing the largest flow velocity.

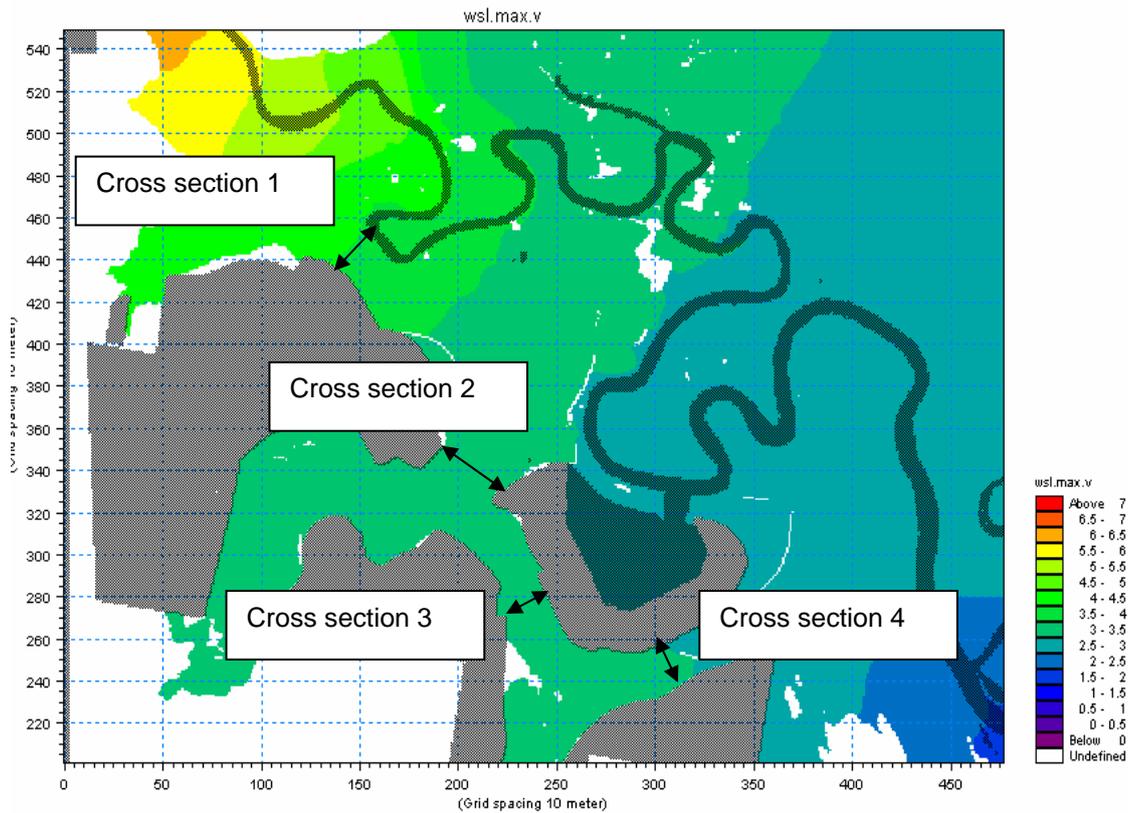


Figure 6-5: Flow volume and speed cross section locations

Figure 6-6 presents the flow velocity at each cross section location for each time step of the flood model. The speed is relatively small and never exceeds 0.8 m/s. Therefore the soil in the proposed by-pass channels should not be prone to erosion. The spike at cross section three is most likely due to local inflows from Raft Creek coming through the cross section before the peak of the Caboolture River flows. Regardless, the largest speed predicted at cross section three occurs at approximately nine hours.

Figure 6-7 presents the flow volume at each cross section location for each time step of the flood model. As expected cross section one has the highest peak discharge. The peak flows have spread throughout the floodplain somewhat and therefore have reduced in magnitude at the other cross sections. Cross sections three and four have similar discharges due to the similarity of preferred mitigation works: similar ground elevations, roughness values and flow areas.

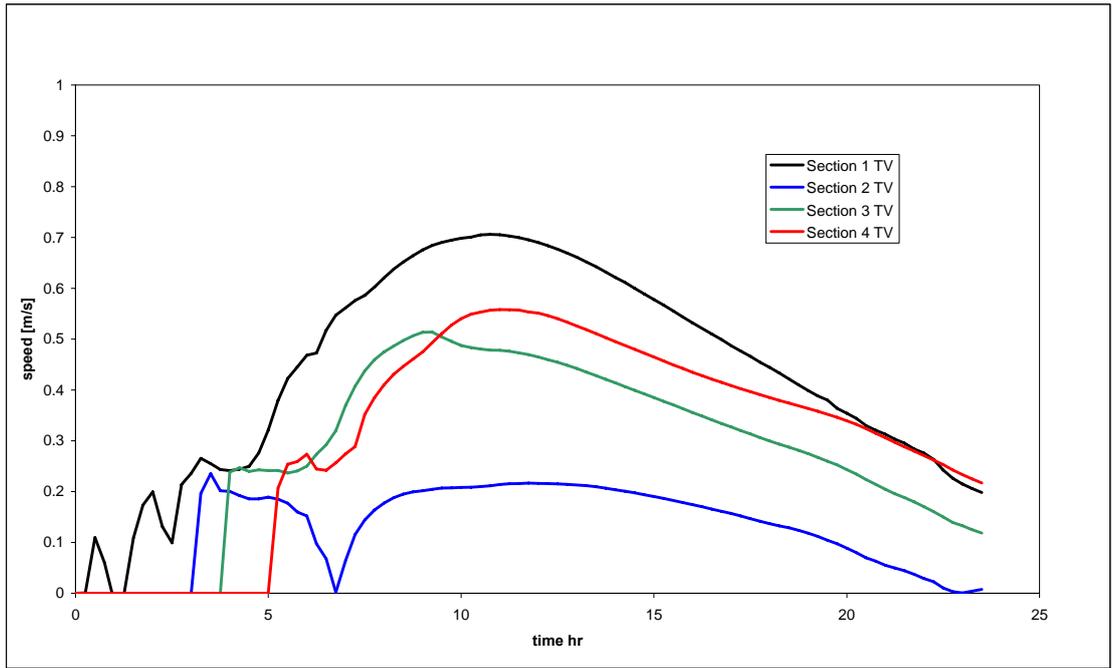


Figure 6-6: Velocity at cross sections

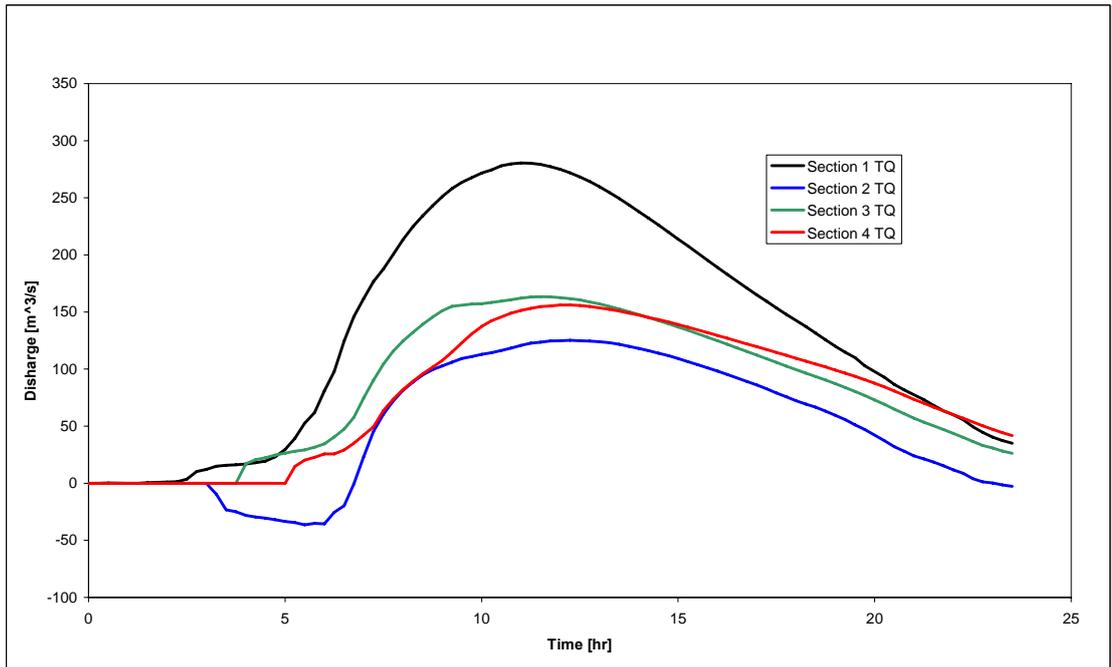


Figure 6-7: Flow discharge at cross sections

6.3.2 Flow velocities in Caboolture River

Figure 6-8 shows the velocities along the centreline of the Caboolture River. The figure shows that the velocities are generally maintained between the pre-development and post-development scenarios. The exception is the velocity within the navigation channel at the downstream end.

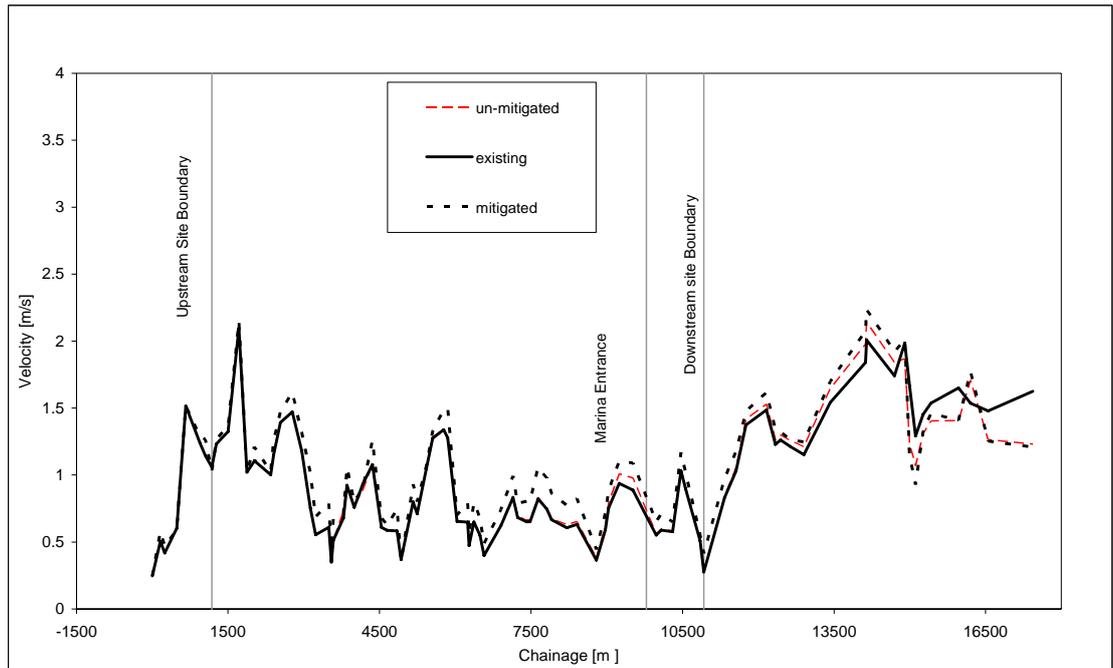


Figure 6-8: Longitudinal section of water velocity along the Caboolture River (m/s)

6.4 Design details of the proposed earth diversion banks

Table 6-1 presents the height at which the earth diversion banks needs to be set. This table also shows the flow velocity at which the bank would have to be protected in order to prevent erosion and scour.

Table 6-1: Details of proposed earth diversion banks

Earth diversion bank	Ground [m AHD]		Maximum WSL [m AHD]		Maximum Speed [m/s]		Height of earth diversion banks above ground with 300mm freeboard [m]	
	US	DS	US	DS	US	DS	US	DS
North	4.2	3.2	4.9	4.6	0.92	0.9	1	1.7
Mid north	1.5	1.5	3.5	3.3	1.3	0.2	2.3	2.1
Marina 1	2.0	2.0	3.1	3.2	1.1	1.0	1.4	1.5
Marina 2	1.1	2.7	3.3	3.1	1.4	0.6	2.5	0.7
Marina 3	1.0	2.0	3.1	3.2	1.5	0.01	2.4	1.5
South 1	1.5	1.5	2.9	2.9	0.35	0.3	1.7	1.7
South 2	1.5	1.5	2.9	2.9	1	0.4	1.7	1.7
South 3	1.5	1.5	3.0	2.9	0.4	0.35	1.8	1.7

6.5 Net benefits for wider floodplain

The preferred flood mitigation as described above has a net benefit to the wider floodplain. Figure 6-9 present the reduction in peak flood levels for the 1 in 100 year ARI event. The increased conveyance through the development site by use of earth diversion banks, grass management and additional earthworks reduces the flood risk to the wider community.

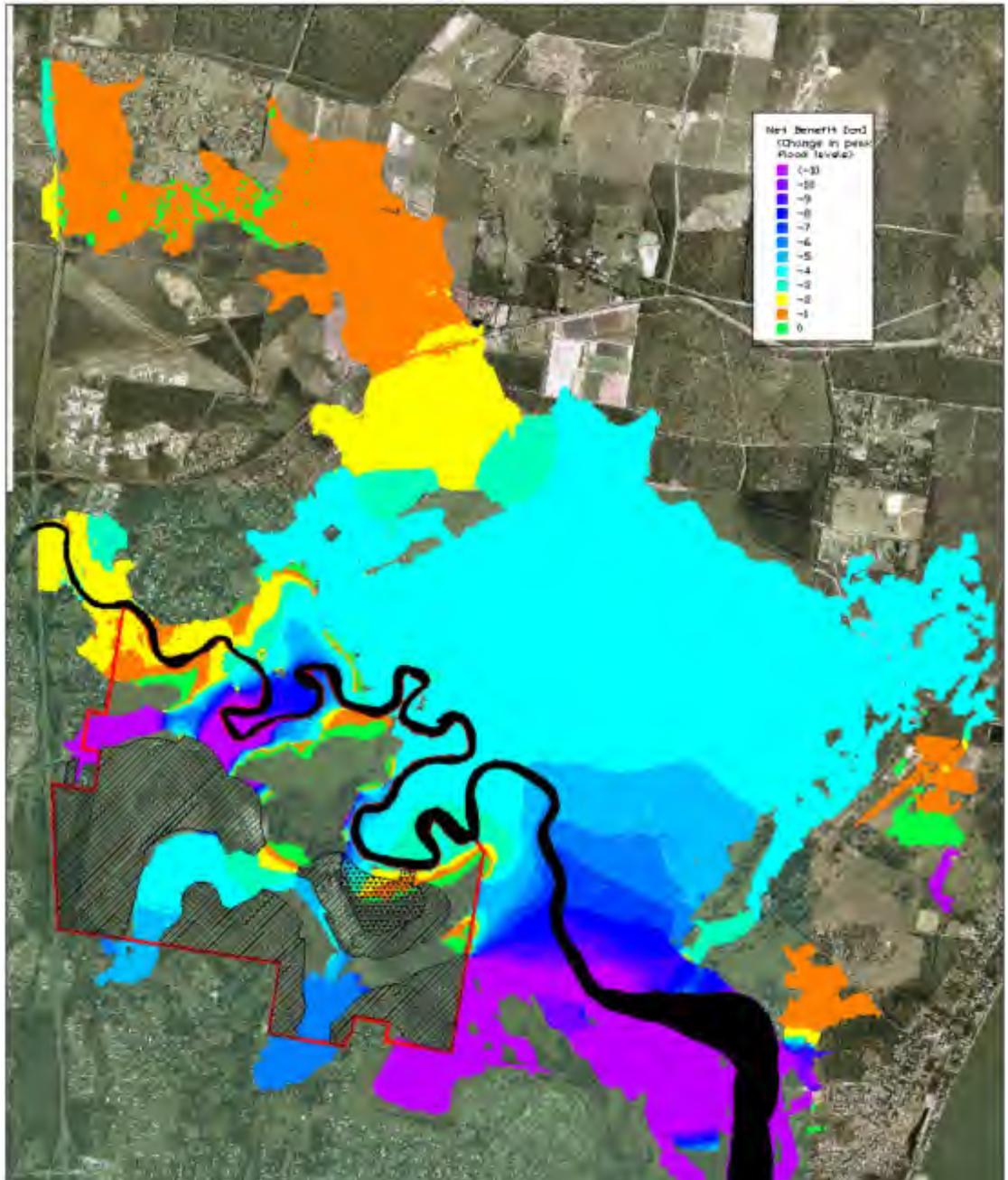


Figure 6-9: Net benefit map showing decrease in peak flood levels

7. Conclusions and recommendations

The purpose of this flood study is to provide floodplain information for the planning application that includes the development of Northeast Business Park; 760 ha of industrial, commercial, parkland and future residential land use within Caboolture Shire Council (CSC). The conclusions and recommendations made in this report are only applicable to the floodplain within and immediately surrounding the area of the proposed development.

7.1 Base case model

The following remarks are made in relation to the base case flood model:

- calibration was undertaken against the 1991 event
- verification was undertaken against the 1972 and 1989 historical events with a good match between measured and modelled water surface level
- the flood model is not sensitive to changes in downstream boundary conditions within the context of the development site
- the model fitness assessments based on Froude numbers, Courant- Friedrichs -Levy ratio and model noise, demonstrate the stability of the model
- the maximum relative mass gain error is insignificant at 0.2% of the total inflow.

Therefore the MIKE21 flood model can be used confidently to simulate the flow across the floodplain, providing a tool to assess the flood mitigation requirements.

7.2 Proposed development

The development case includes the cut and fill plan as per master plan (Drawing 0304 SK36, issue SD04, dated 30 July 2007 Ref 20430-10D), and includes a 40 m wide dredged navigable channel downstream of the fish habitat area.

The flood model results showed that the un-mitigated master plan increased the peak flood levels for the 1 in 100 year ARI event across the majority of the floodplain. Therefore flood mitigation was required as per CSC's floodplain policy.

Flood mitigation was required to offset the increased peak flood levels outside the development site and was based on two principles:

- increase flow conveyance between the proposed developed land
- construct earth diversion banks to help canalise the flow within the site.

Four mitigation cases were presented in this report. In each mitigation option a combination of earth diversion banks and additional land cuts were required. The flood mitigation elements were located in four distinct areas within the development: North by-pass channel, wider north by-pass channel, Raft Creek and the southern by-pass channel.

The preferred mitigation case consists of:

- north by-pass channel — cut to 1.5 m AHD, grass managed
- wider north by-pass channel — cut to 2.5 m AHD, grass managed

- Raft Creek — cut to 2.0 m AHD, grass managed
- south by-pass channel — cut to 1.5 m AHD, grass managed
- eight earth diversion banks — three near the marina, three on the eastern boundary, one in the north-western section and one in the mid section of the development.

It is estimated that the total earthworks for the flood mitigation is 1,272,764 m³.

The development case shows overall reductions in the peak water levels for the 100 year ARI events across the flood plain. This is due to the flood mitigation works that increase the conveyance through the development site and therefore reduce the flood conveyance through the northern section of the lower Caboolture River floodplain (north of the Caboolture River).

The changes in the flow velocities within Caboolture River due to the flood mitigation works are insignificant when compared to the existing case velocities. As expected the navigation channel has the most impact on river velocities.

Overall the proposed works represent a net benefit for the community in terms of flooding. The peak flood levels will be lowered in much of the surrounding flood plain with localised peak flood level increases occurring only within the site boundary or in locations where existing infrastructure will not be impacted.

7.3 Recommendations

The detailed design of any structures (bridges, culverts, etc) that are proposed within the floodplain (over, under, or through) will need to be appropriately modelled to assess the impacts on the floodplain.

The maintenance of the grass managed areas is essential to the flood mitigation proposed in this study. These areas must be design such that the land use relates to a Manning's n roughness value of 0.035. Deviations from this value may need to be remodelled.

Structural input is recommended for the design of the earth diversion banks to avoid 'washouts' and therefore compromise the flood mitigation proposed.

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- Caboolture Shire Council, River Cross Section Data, supplied via email from L.Salter, 20 September 2005.
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Appendix A

Caboilture Shire Council
Flood Plain Management Policy
803/02

COUNCIL POLICY No: 803/02**FLOOD PLAIN MANAGEMENT**

RESOLUTION:

The calculated average recurrence interval event (ARI) is a calculated flood caused by any body of water which rises as the result of a calculated event or the joint probability of a combination of calculated events including storm water runoff, storm/cyclonic surge, tide or other event.

1. FOR REZONING CONTROL

An application for rezoning will not be approved unless the applicant can demonstrate that the minimum requirements for subdivision control can be met in the zone into which the subject land is proposed to be placed.

2. FOR SUBDIVISION CONTROL**(a) Residential Zones**

- (i) Subdivision of land below the calculated 100 year ARI flood contour will not be approved.
- (ii) Council may permit works to achieve the criteria set in Clause 2(a)(i) subject to the following:-
 - Alteration of site contours, including filling, may be undertaken subject to no net loss of flood storage across the subject land for all storm events up to and including a 1 in 100 year event.
 - The determination of flood storage is to be by computer model based on pre and post development field contour surveys.
 - Where site contours are amended such work is to be undertaken in such a manner that adjoining properties remain free draining and with no resultant increase in flood levels.

(b) Rural Residential Zones A, B and C.

- (i) within each allotment at least three thousand (3,000) square metres in one parcel which is above the calculated fifty (50) year ARI flood contour prior to alteration of the natural ground profile and
- (ii) within each allotment at least one thousand (1000) square metres in one parcel with a minimum depth or width of twenty five (25) metres, included in the area of land in (i) above, which is above the calculated one hundred (100) year ARI flood contour prior to alteration of the natural ground profile.

- (iii) the area above the 100 year flood contour [item (ii) refers] must front onto a dedicated road and have a minimum frontage to the road of 10 metres.
 - (iv) Creeks or watercourses having defined bed and banks are not permitted to traverse Rural Residential B and C allotments.
 - (v) The area occupied by creeks and watercourses having defined bed and banks plus a minimum distance of 10 metres from the "top-of bank" are to be contained within drainage reserves external to Rural Residential B and C allotments.
 - (vi) The determination whether or not a creek or watercourse has defined bed and banks and the determination of the "top-of-bank" is to be to the satisfaction of the Shire Engineer.
 - (vii) Where construction works not approved by the Shire Engineer are undertaken to alter the shape of a creek or watercourse prior to determination of items (iv), (v) and (vi) the area below the flood contour associated with a 10 year storm event plus a minimum distance of 10 metres from the 10 year flood contour is to be contained within a drainage reserve external to allotments.
- (c) Rural Zone – Subdivision of floodable land will only be approved for rural zoned properties where each of the proposed parcels of land has an area of land in its natural state prior to any earthworks being carried out which satisfies all the following requirements –
- (i) At least one thousand (1000) square metres in each parcel with a minimum depth or width of twenty five (25) metres above the calculated one hundred (100) year ARI flood contour;
 - (ii) has a slope not steeper than one (1) vertical to six (6) horizontal before undertaking any earthworks;
 - (iii) each parcel must front onto a dedicated road or be connected to a dedicated road by a constructed access which is above the calculated five (5) year ARI flood contour and the construction of which does not raise the flood levels on the adjoining parcels of land.
 - (iv) each parcel must exhibit a means of egress to a high ground retreat from the area specified in Clause (c) (i).
- (d) Zones other than Residential, Rural Residential or Rural
- Subdivision applications will be considered on the circumstances of the individual proposals. Such proposals other than those to accommodate existing lawful buildings should be capable of complying with the following guidelines:-

- (i) All parcels of land formed by subdivision should be capable of having the floor level of any building constructed above the calculated one hundred (100) year ARI flood contour for habitable buildings and above the calculated fifty (50) year ARI flood contour for non-habitable buildings and with a maximum height of floor levels above natural ground level of one (1) metre;
- (ii) the construction of such buildings or the filling of land adjacent the buildings must not restrict the flow of floodwater, significantly increase the flood levels or create drainage problems on adjacent parcels of land;
- (iii) Where filling of land will not restrict the flow of flood waters, significantly increase flood levels or create drainage problems on adjacent parcels of land, Council may permit the filling of land to meet the above requirements where the natural ground level is within one (1) metre of the calculated one hundred (100) year ARI flood contour. All fill batters must be less than one (1) vertical to ten (10) horizontal.

3. FOR BUILDING APPLICATION CONTROL

- (a) In areas affected by flood water, where the construction of such buildings is allowed "As of Right" in the zone in which the land is situated:-
 - (i) The floor level of habitable rooms must be not lower than the higher of:-
 - (1) 300mm above the highest recorded flood level as determined by Council; or
 - (2) above the calculated one hundred (100) year ARI flood level where such level has been determined by Council.
 - (ii) The floor level of non-habitable buildings (garages, carports, farm sheds etc.) may be constructed at or below the highest recorded flood level as determined by Council.
- (b) In areas affected by tidal water:
 - (i) The floor of habitable rooms must not be lower than RL 2.3 metres AHD.
 - (ii) The minimum ground or floor level of RL 2.0 metres AHD to be provided to non-habitable buildings.
 - (iii) Septic Trench Installation.

Septic trenches are to be constructed so as to have a minimum surface RL of 2.0 metres AHD.

Where filling of land is necessary to facilitate the construction of a septic trench installation, only an evenly graded clean sand fill is to be used.

The following discretions may be exercised:

1. For minor additions to an already existing building, Council may approve a floor level on a non-habitable building at or above RL 1.7 metres AHD.
2. Septic trench surface levels of RL 1.7 metres AHD may be approved as follows:
 - (a) Where a septic system is being added to an existing building or,
 - (b) Where filling of the subject land to increase the surface level to RL 2.0 metres AHD or higher may create drainage and seepage problems on adjacent parcels of land.

The discretion given in (1) and (2) will be subject to the following conditions:

- (a) Owner signing a Statutory Declaration stating that the owner is aware of the possibility of tidal/storm surge flooding.
 - (b) The property notes for the subject property being noted so that future purchasers will be aware of the problem prior to purchase.
3. In those instances where filling of the subject land to raise the surface level of septic trenches is required and Council considers that such filling may:
 - (i) Restrict the flow of floodwaters, tidal water or stormwater, or,
 - (ii) Increase flood levels of adjacent parcels of land, or,
 - (iii) Create drainage and seepage problems on adjacent parcels of land.

then Council may refuse the application or require that plans be amended to demonstrate how sanitary and sullage wastes are to be disposed of to the satisfaction of Council.

- (c) In areas where Council has determined fill levels in accordance with a master drainage scheme:
 - (i) The floor level of habitable rooms must be not lower than the recommended minimum height of 225mm above the determined fill level for the subject property
 - (ii) The floor level of non-habitable rooms must be at or above the determined fill level for the subject property.
 - (iii) Septic Trench Installation

Septic trenches are to be constructed so that the surface level of the trenches are at or higher than the determined fill level of the subject property.

Where filling of land is necessary to facilitate the construction of a septic trench installation, only an evenly graded clean sand fill is to be used.

The following discretion may be exercised:

- (1) For minor additions to an already existing building, Council may approve a floor level on a non-habitable building at or above RL 1.7 metres AHD.
- (2) Septic trench surface levels of RL 1.7 metres AHD and higher may be approved as follows:
 - (a) Where a septic system is being added to an existing building or
 - (b) Filling of the subject land to increase the surface level to the determined fill level or higher may create drainage and seepage problems on adjacent parcels of land.

The discretion given in (1) and (2) will be subject to the following conditions:

- (a) Owner signing a Statutory Declaration stating that the owner is aware of the possibility of drainage problems.
 - (b) The property notes for the subject property being noted so that future purchasers will be aware of the problem prior to purchase.
- (3) In those instances where filling of the subject land to raise the surface level of septic trenches is required and Council considers that such filling may -
- (i) Restrict the flow of floodwaters, tidal water or stormwater, or,
 - (ii) Increase flood levels on adjacent parcels of land, or
 - (iii) Create drainage and seepage problems on adjacent parcels of land.

Then Council may refuse the application or require that plans be amended to demonstrate how sanitary and sullage wastes are to be disposed of to the satisfaction of Council.

(d) Where filling of land is necessary to facilitate the construction of a concrete slab on ground type building to the levels specified in Clauses (a)(i) and (ii), (b)(i) and (ii) c(i) and (ii) above and Council considers that such filling may:

- (i) restrict the flow of floodwaters, tidal water or stormwater or,
- (ii) increase flood levels on adjacent parcels of land, or,
- (iii) create drainage and seepage problems on adjacent parcels of land,

then Council may refuse the application or require that plans be amended to delete such filling and provide for the building floor level to be elevated above the natural ground level to comply with Clauses (a)(i), (b)(i) and (c)(i). In this case, the supporting structure must be designed to minimise the effects on d(i) and d(ii) above where this is relevant.



Appendix B

AAMHatch Digital Data Documentation



DIGITAL DATA DOCUMENTATION

NORTH EAST BUSINESS PARK

DIGITAL TERRAIN DATA (CABOOLTURE REGION)

VOLUME 210131701NOB

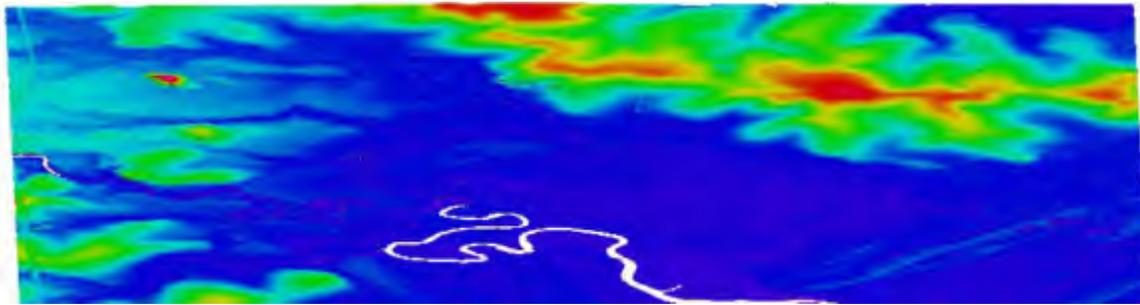
Summary

Project

Airborne Laser Scanning was collected over the Caboolture region between 23rd September 2005 and 14th October 2005. Data was collected without incident over approx. 8262 ha.

Data

Data files on this volume include;
Thinned ground points (XYZ) in space separated ASCII Files.



CONTENTS

Page Nos.

1. Project Report.....	2
2. Data Installation.....	3
3. Additional Services	4
4. Metadata.....	5
5. Conditions Of Supply.....	7
6. Validation Plot.....	8
7. Files Supplied	8

1. PROJECT REPORT

Acquisition: Airborne Laser Scanning (ALS) data was acquired from a fixed wing aircraft between 23rd September 2005 and 14th October 2005.

Ground Support: GPS base station support was provided by Landcentre VRS01 Woolloongabba without incident. The ground check points acquired by Jones Flint & Pike allowed an assessment of the accuracy of the ALS data.

Data Processing: Reduction of the ALS data proceeded without any significant problems. Laser strikes were classified as ground points and non-ground points were removed using a single algorithm across the project area. Manual checking and editing of the data classification against intensity imagery further improved the quality of the terrain model.

Data Presentation: The data provided on this volume has been supplied in accordance with a specification agreed with the primary client. Subsequent users experiencing difficulties in handling the data should please contact AAMHatch to arrange a more appropriate data presentation

Further Issues: There are no further issues to report.

3. ADDITIONAL SERVICES

AAMHatch can perform the following additional services on the data contained on this volume if required:

- Change horizontal datum : to AMG or other local grid
- Alter geoid modeling : by transforming ALS data to fit orthometric survey heights
- Improve data classification : by tailoring parameters to suit regional variations
- Further classification : Assist building identification by further classifying non-ground strikes
- Data thinning : to remove superfluous points not adding to the terrain definition
- Data subset : by dividing the data into different tiles or polygons
- Data presentation : by creating contours, profiles, perspectives, flythroughs, colour-coded height plots etc.
- Ground truthing : by comparing the ALS terrain model with extra independent height data
- Data gridding : to convert the measured spot heights into a regular grid
- Extra data : Extra data was collected beyond that supplied on this volume.
- Intensity Image : Greyscale image created from laser's intensity returns. (sample below)



4. METADATA

DATA CHARACTERISTICS

Characteristic	Description
Format	Space delimited ASCII
Size	4800000 data points (approximate)
Captured terrain model	0.9m average point separation
Supplied terrain model	4.6m estimated point density, separated into ground & non-ground
Data thinning	Points not contributing to the terrain definition within 0.15m removed
Laser footprint size	0.24m

REFERENCE SYSTEMS

	Horizontal	Vertical
Datum	GDA94	AHD
Projection	MGA Zone 56	N/A
Geoid Model	N/A	Ausgeoid98
Reference Point	Landcentre 6959847.6515 E 503483.9814 N	Landcentre 49.3481 RL
Survey Control	PSM103234 504511.795E 6998595.975N	1.977 RL

Note: On 01-01-2000, Australia formally changed its reference spheroid from AGD to GDA94, and its map grid from AMG to MGA. MGA coordinates are approximately 200m different from AMG. For more details including definitions of GDA compliance and GDA compatibility, visit : http://www.aamhatch.com.au/papers/GDA_Comp.pdf



SOURCE DATA

	Source	Description	Ref No	Date
Laser scanning	AAMHatch	70,000 Hz	2101317	23/09-14/10.05
GPS base data	AAMHatch	Static GPS	2101317	23/09-14/10.05
Base Stn coords	Landcentre	Published Value	2101317	23.09.05
Test points	JF+P	Total station	2101317	10.10.05

EXPECTED ACCURACY

Project specifications and technical processes were designed to achieve data accuracies as follows:

	Measured Point	Derived Point	Basis of Estimation
Vertical data	0.113	0.15	Deductive estimate
Vertical data			Comparison with 143 test points
Horizontal data		<0.37	Deductive estimate (1/3000 flying height)

Notes On Expected Accuracy

- Values shown represent standard error (68% confidence level or 1 sigma), in metres
- “Derived points” are those interpolated from a terrain model.
- “Measured points” are those observed directly.
- Accuracy estimates for terrain modeling refer to the terrain definition on clear ground. Ground definition in vegetated terrain may contain localised areas with systematic errors or outliers which fall outside this accuracy estimate
- Laser strikes have been classified as “ground”, based upon algorithms tailored for major terrain/vegetation combinations existing in the project area. The definition of the ground may be less accurate in isolated pockets of dissimilar terrain/vegetation combinations.

LIMITATIONS OF DATA

- Features depicted are as shown on the legend.
- The definition of the ground under trees may be less accurate.

DATA VALIDATION

- Ground data in this volume has been compared to 143 test points obtained by field survey and assumed to be error-free. The test points were distributed in 1 group across the mapping area and located on clear ground. Comparison of the test points with elevations interpolated from measured data resulted in:
Standard Error (RMS): 0.113m
- Data classification has been manually checked and edited against any available imagery.

USE OF DATA

- Intended use : Planning, Conceptual Design

5. CONDITIONS OF SUPPLY

The data in this volume has been commissioned by **NORTH EAST BUSINESS PARK**.

The data in this volume is provided by AAMHatch Pty Limited (AAMHatch) to **NORTH EAST BUSINESS PARK** under AAMHatch standard Terms of Engagement, which provide a license for **NORTH EAST BUSINESS PARK** to access and use the data only for the project and explicit purpose for which it is provided. AAMHatch retains ownership of all Intellectual Property Rights in relation to this data or modifications, enhancements or subsets of this data. The data must not be sold, lent or distributed to any other party; and used subject to the following conditions:

1. This file (README.PDF) is always stored with the unaltered data contained in this volume.
2. The data is not altered in any way without the approval of AAMHatch. The data may be copied from this file to another.
3. The data is not used for purposes beyond that explicitly agreed in the description of the Services provided by AAMHatch.

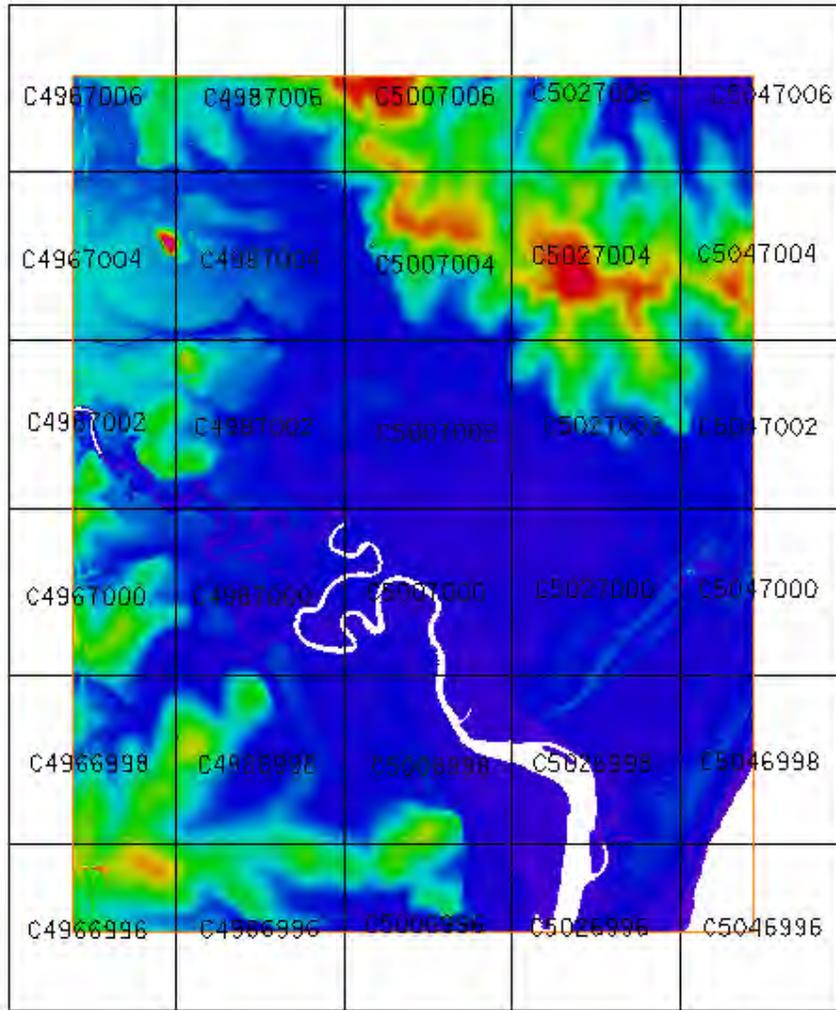
Any breach of these conditions will result in the immediate termination of the license issued by AAMHatch, and **NORTH EAST BUSINESS PARK** will indemnify AAMHatch from all resulting liabilities.

Any problems associated with the information in the data files contained in this volume should be reported to:

AAMHatch Pty Limited

16 Julia St,
FORTITUDE VALLEY QLD 4006
Telephone [REDACTED]
Facsimile [REDACTED]
Email [REDACTED]
Web www.aamhatch.com.au

6. VALIDATION PLOT



7. FILES SUPPLIED

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NORTH EAST BUSINESS PARK

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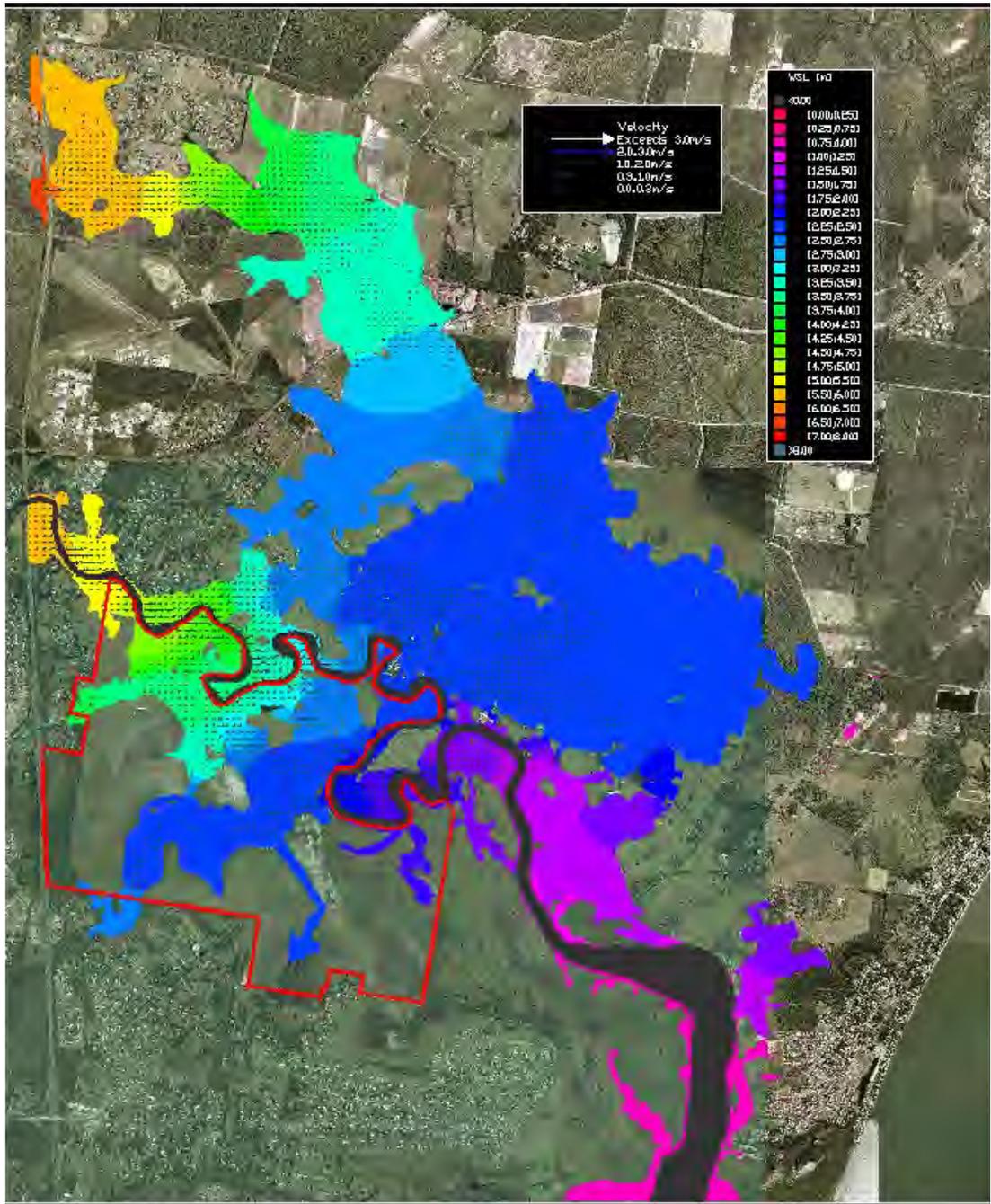


Appendix C

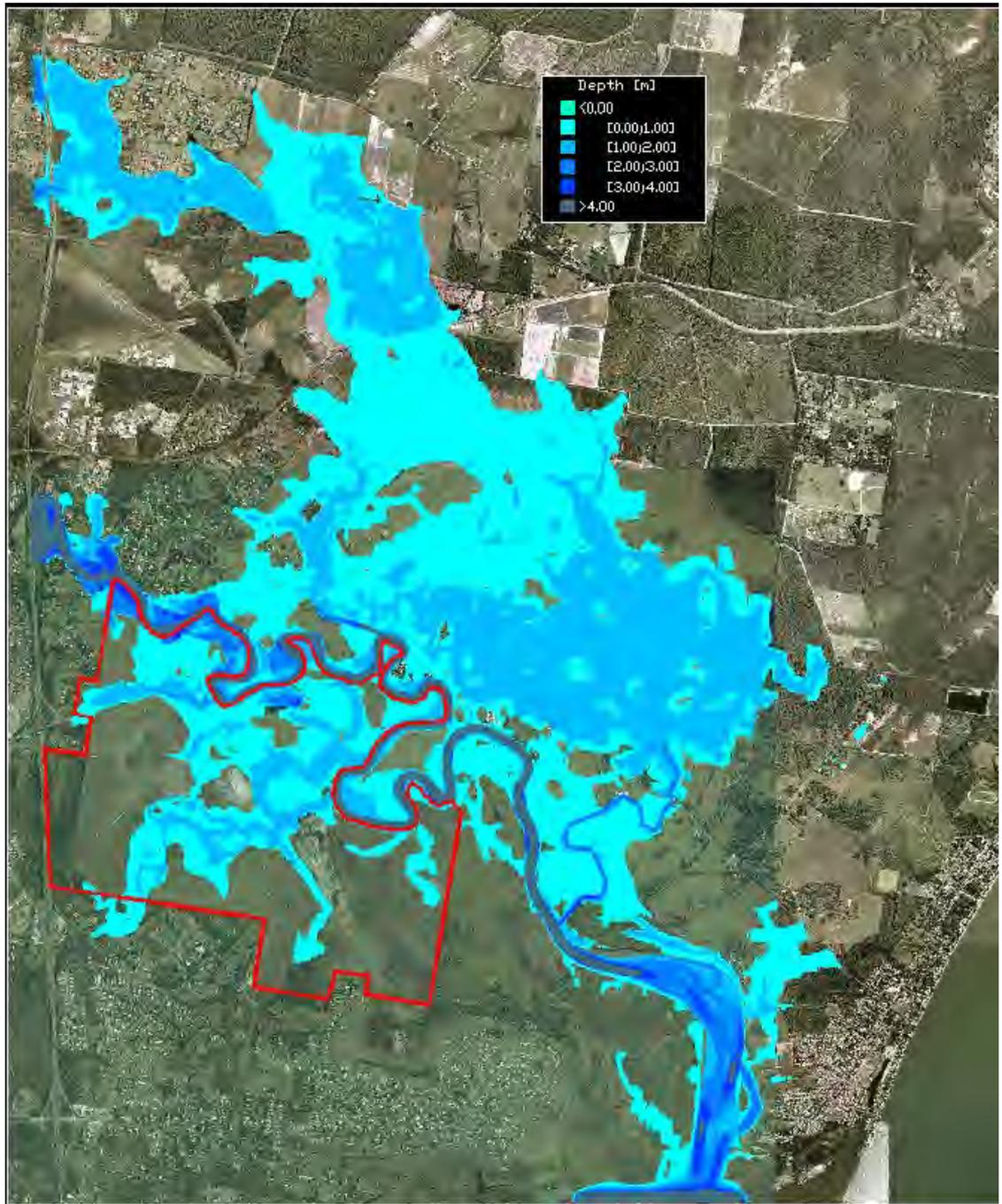
Northeast Business Park
Cut and Fill Drawing

Appendix D

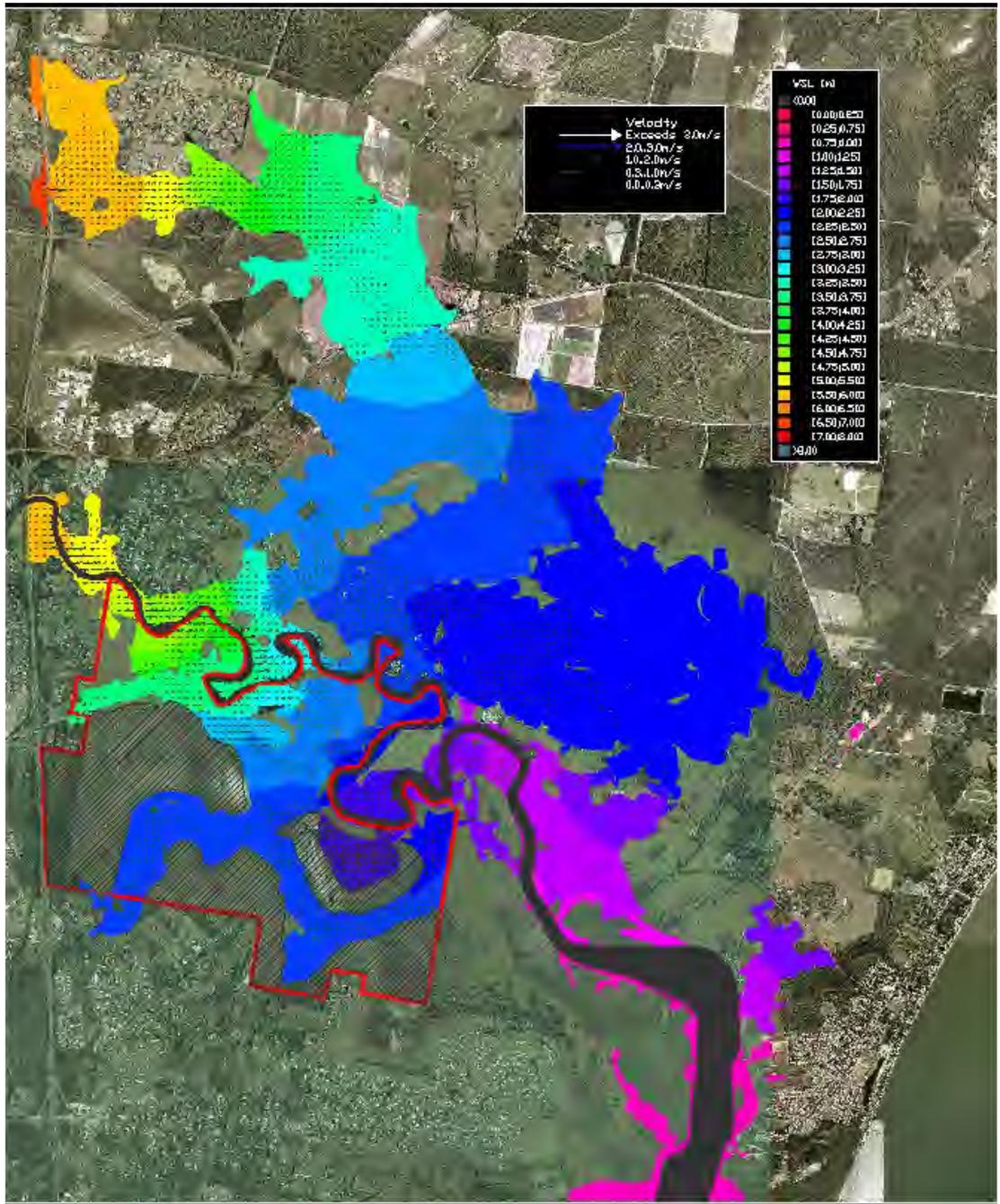
Q10 Flood model results



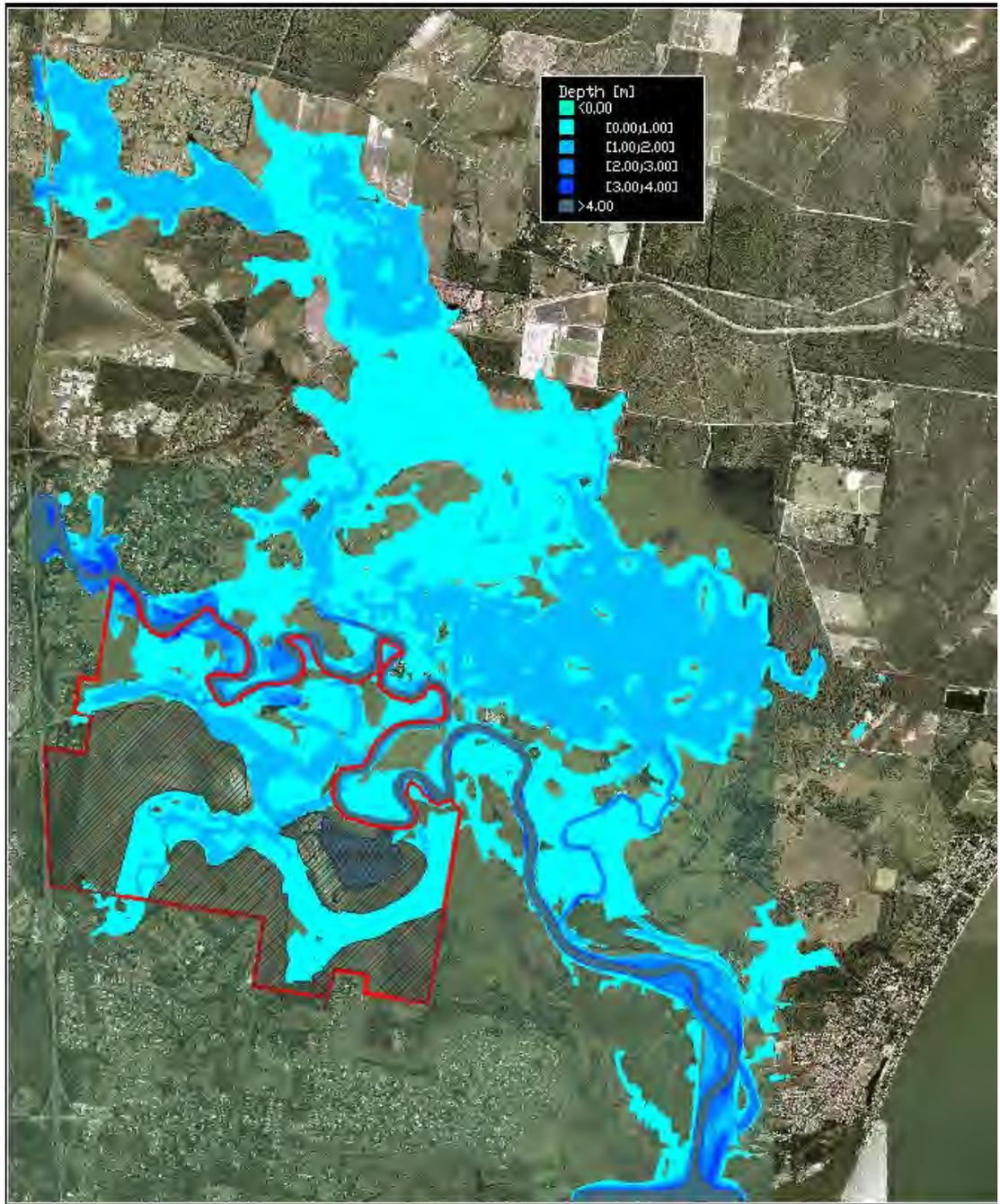
Maximum water surface levels and velocities for the existing 1 in 10 year ARI event



Maximum water depths for the existing 1 in 10 year ARI event



Maximum water surface levels and velocities for the post development 1 in 10 year ARI event

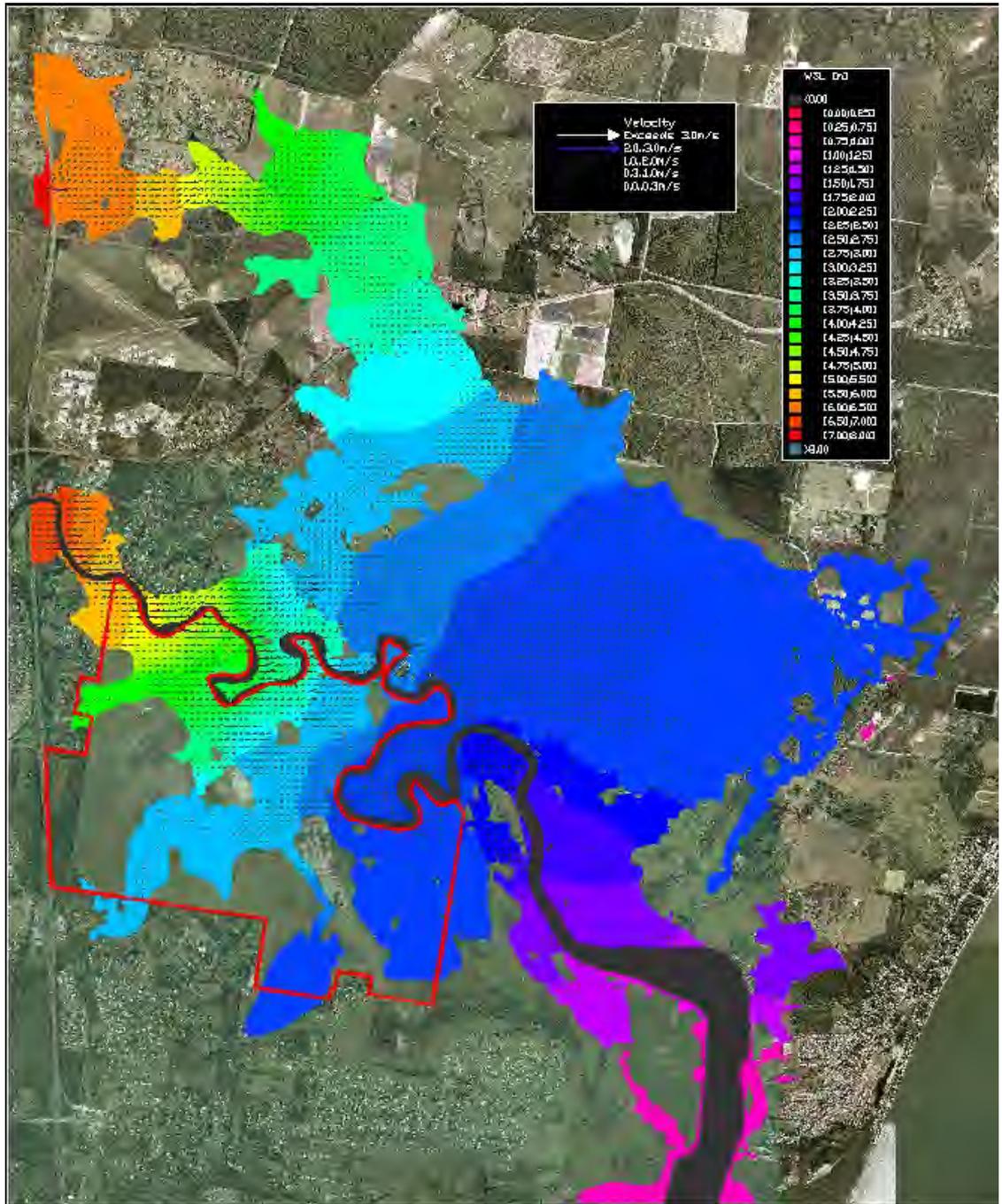


Maximum water depths for the post development 1 in 10 year ARI event

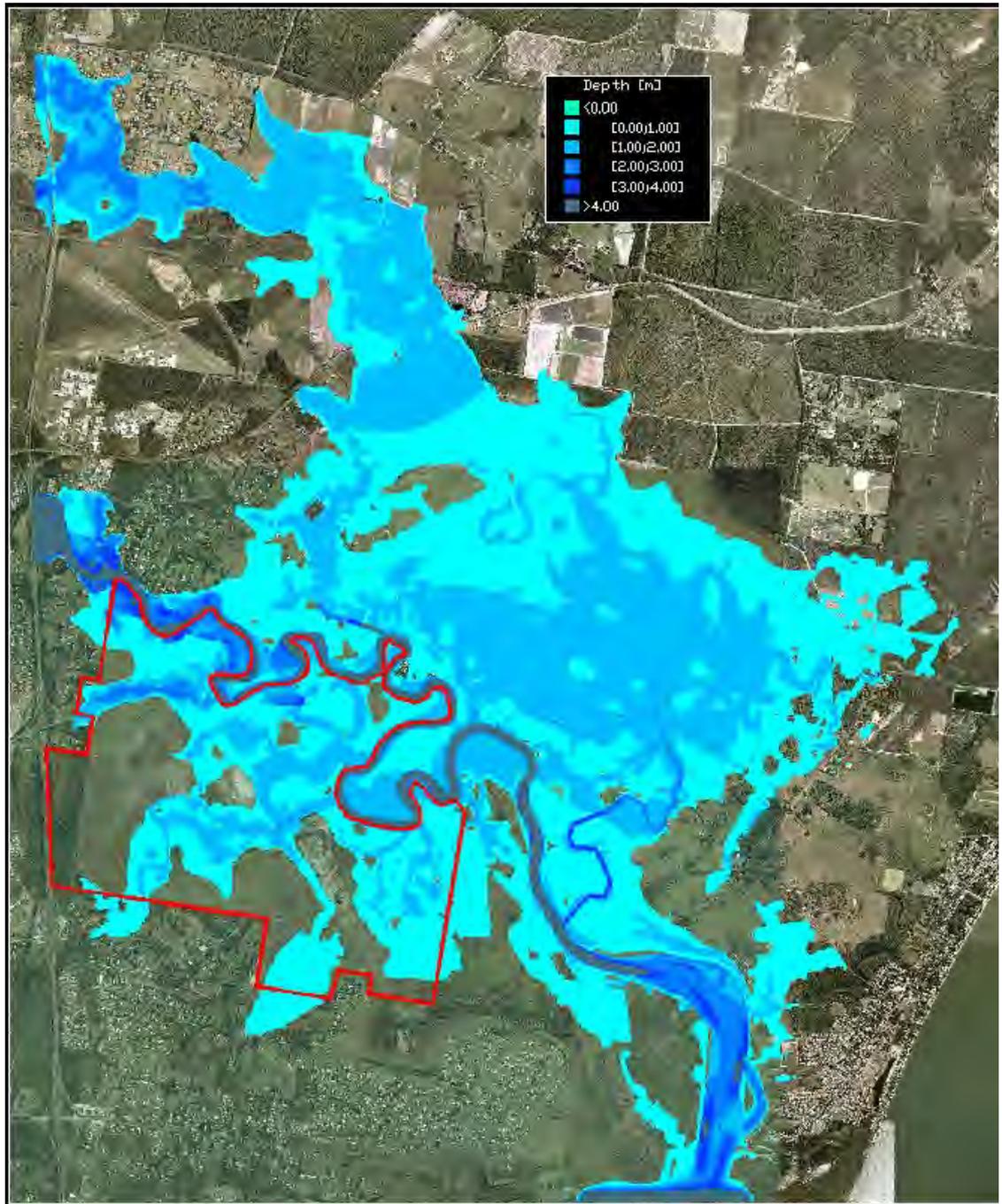


Appendix E

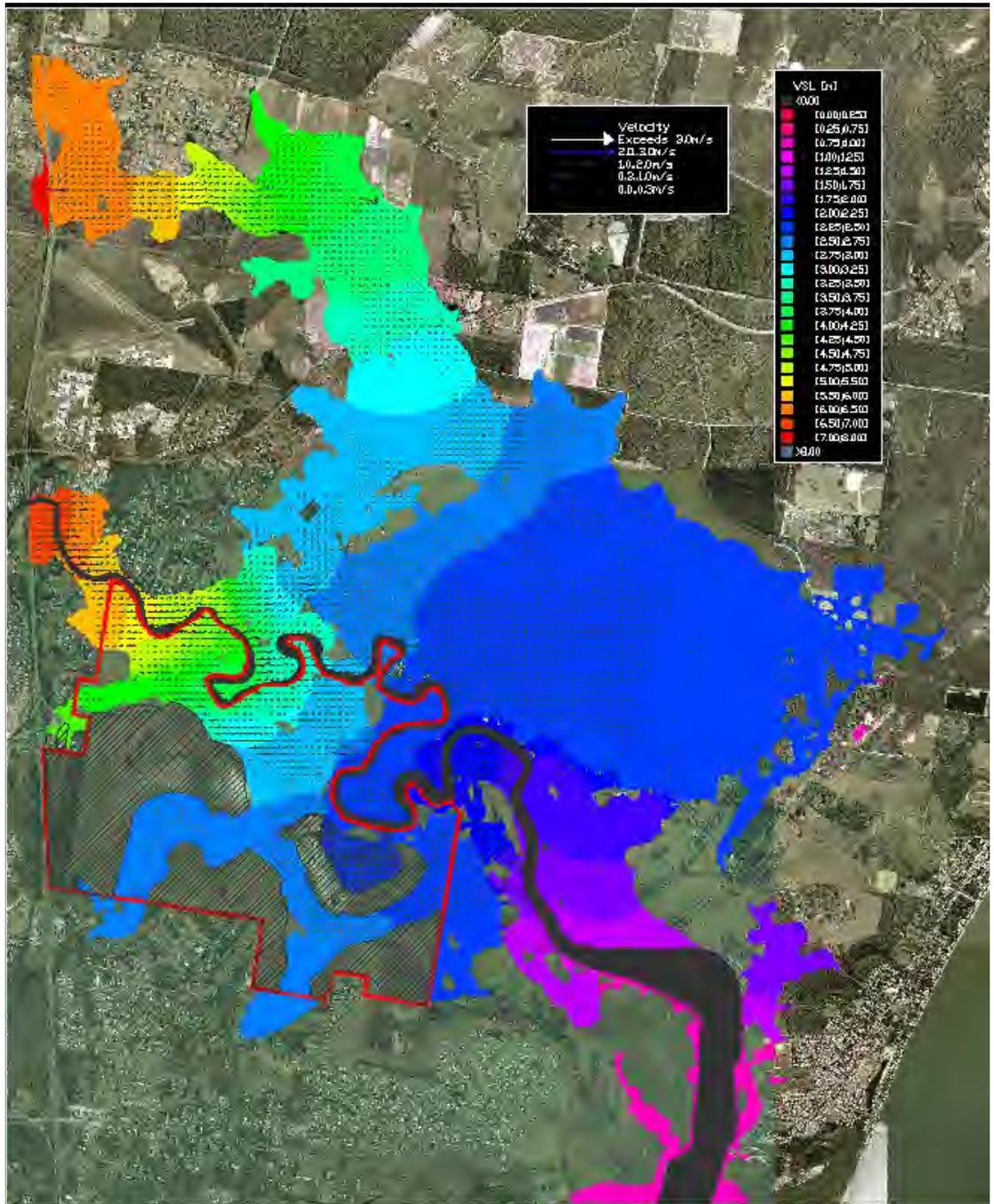
Q50 Flood model results



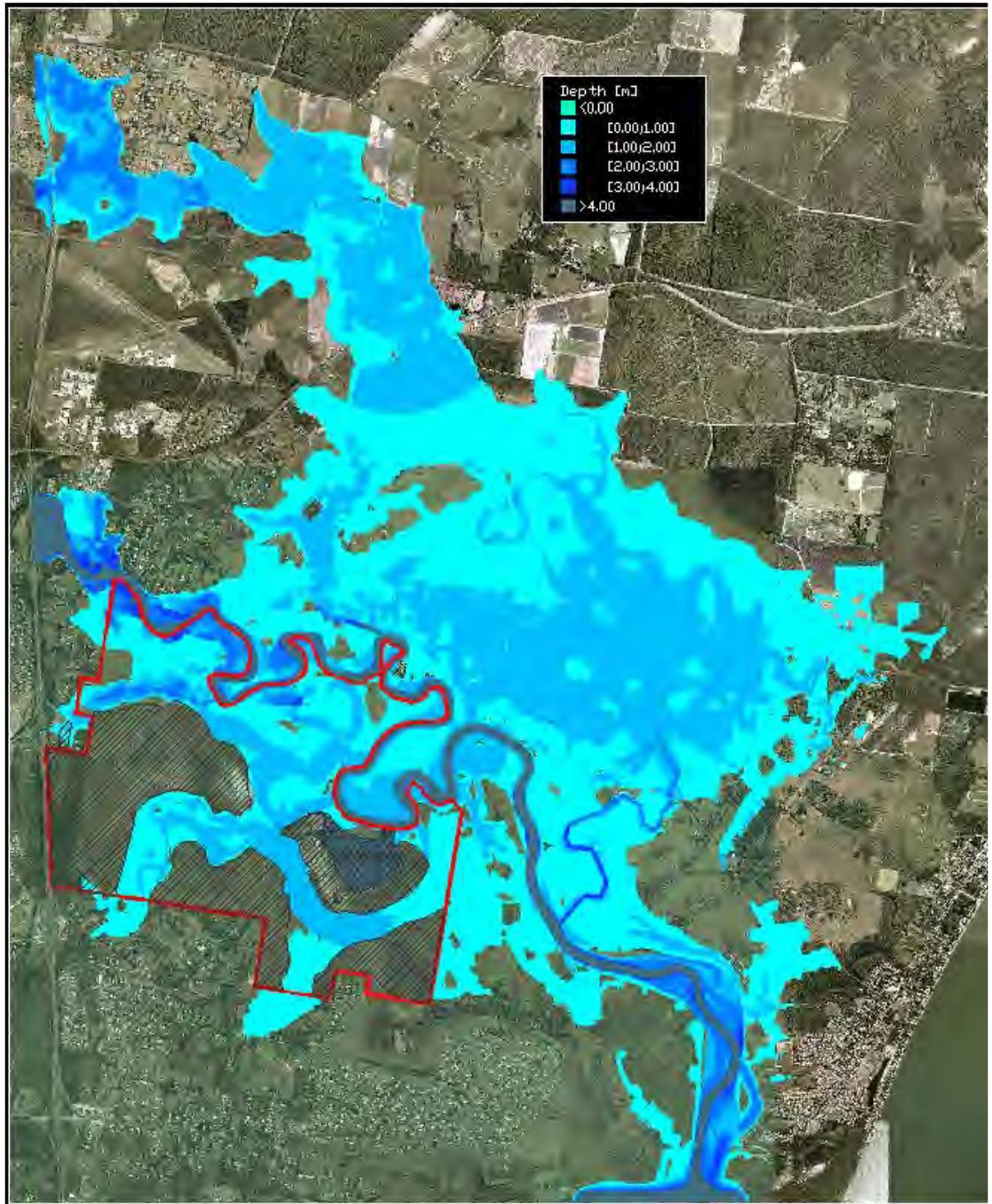
Maximum water surface levels and velocities for the existing 1 in 50 year ARI event



Maximum water depths for the existing 1 in 50 year ARI event



Maximum water surface levels and velocities for the post development 1 in 50 year ARI event



Maximum water depths for the post development 1 in 50 year ARI event



Boral resources Qld P/L – Tomato Island Quarry, Bundaberg





SmartMap Information Services

Version 2.8

Environment and Resource Management

Home Feedback Help Logout

- [-] Search
 - Profile
 - Find/Locate
- Admin Area
- Imagery
- Notings
- Place Names
- Survey Marks
- Survey Plans

- [-] Mapping
 - Profile
 - Settings

- [-] Data Suppression
 - Area By Filter
 - Area By Scale
 - Survey Mark Filter
 - Noting Filter

- [-] Map Suppression
 - Layers
 - User Defined

- Shading
- Define Area
- Build Map
- Refresh Map
- Export SmartMap

- [+] Other Services

- [+] Admin

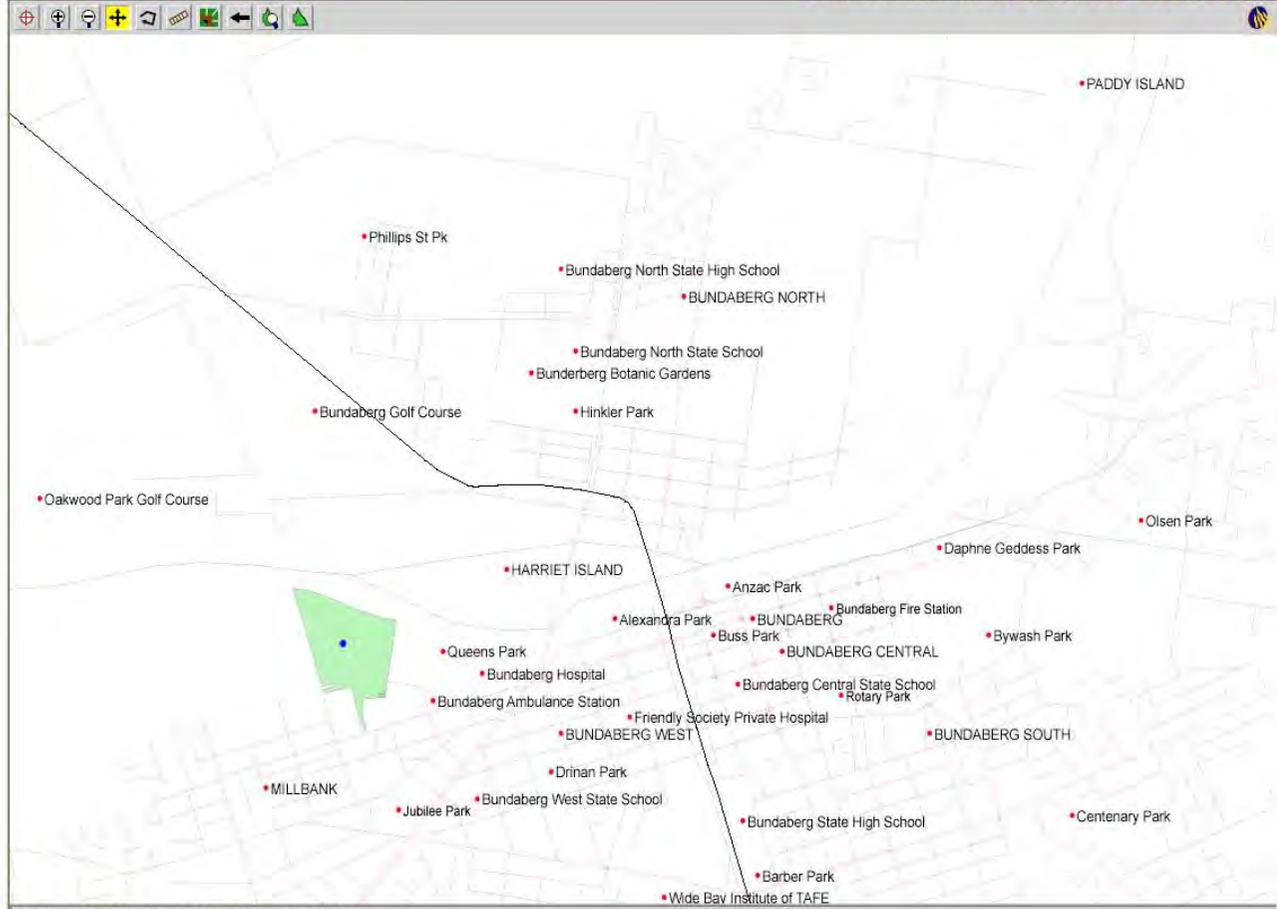
Hide Keymap

Spatial Search Results

[Search Imagery at Point](#)
[Survey Search on selected plan/s](#)

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Segment/Parcel: 36046/113
Tenure: FH - FREEHOLD
Area: 22.6720 ha
Excluded Area: 0.00 m²
Surveyed: Yes
Coverage: Base
Accuracy: B&D ENTRY CONTROLLED - 0.1M
Locality: MILLBANK
Local Government: BUNDABERG REGIONAL
Address: 325A BOURBONG STREET, MILLBANK

[Retrieve Plan Image](#)
[Display additional data](#)
[Current Title Search](#)
[Build Map](#)



Assessment Report

Coastal Protection and Management Act 1995

Reconfiguring a lot in a CMD

APPLICATION NOTES: 1. Each assessment report prepared to support recommendations made for decision is to be structured in the format shown below. 2. Explanatory notes for completing the report are given under each heading in brackets. 3. The report is to be completed, where indicated, to confirm conclusion of supervisory review/endorsement, and decision stages of the process.	
COUNCIL DA NUMBER: 325.2010.31068.1 (Bundaberg Regional Council) DERM REF NUMBER: 359569 (SPCC01573211)	FILE NO: MBH3327
DEVELOPMENT TRIGGER: Concurrence trigger: <ul style="list-style-type: none"> Reconfiguring of a lot that is land situated completely or partly within a coastal management district: SP Reg, schedule 7, table 2, item 14(a). AND advice trigger: <ul style="list-style-type: none"> Reconfiguring a lot if any part of the lot is situated in or within 100 m of a wetland: SP Reg, schedule 7, table 2, item 43 	
DEVELOPMENT DESCRIPTION: Reconfiguration to add additional land to existing allotment to accommodate upgrade of Millbank pump station.	
LOCATION DESCRIPTION: Lot 2 on RP107432 (to be reconfigured to Lot 1 and Lot 2 on SP212107) at 325 Bourbong St, MILLBANK; and Lot 1 on RP96317 (to be reconfigured to Lot 1 on SP212107) at 325A Bourbong St, MILLBANK	
APPLICANT: Bundaberg Regional Council	

1. Proposal description

- Bundaberg Regional Council need to upgrade Millbank pump station to cater for increased and future population loadings (see ERA assessment report for details). The upgraded pump station will be located entirely on a freehold allotment (no State Land involved). Some additional land is being acquired to accommodate the upgraded pump station as it will not fit on the existing allotment that the current pump station is located on.
- The upgraded pump station will be in part located on the allotment that the existing pump station is located upon, but will also require some additional land. To achieve this, BRC is acquiring a partial portion of land from an adjoining landholder. This requires a reconfiguration of the allotments to allow some of the land to be transferred from the existing Lot 2 on RP96317, onto the existing Lot 1 on RP107432 to make it 612m² larger. The new Lot 1 on SP212107 will be 1182m² (0.1192ha), while the new balance allotment, Lot 2 on SP212107, will be 226 107m² (22.6107ha).
- The allotment the pump station is/will be located within 450m of the tidal reaches of the Burnett River at Millbank. The allotment next door that belongs to the neighbour (Lot 2 on RP96317), which will be subject to reconfiguration to slice off the 612m² of land to add to the existing pump station allotment, adjoins the Burnett River directly and is therefore partly within the Coastal Management District (CMD).
- All the new allotment that the upgraded pump station will be wholly located on is completely outside the CMD. It is not considered that the development of the new pump station will have any significant impact on the CMD, however as a precaution conditions in relation to sediment and erosion control, fuel storage and acid sulfate soils management have been included to cover any impacts during the construction phase of the project that may not be covered by the ERA approval for the operational phase when the upgraded pump station is commissioned.

2. Assessment Considerations

a) The Coastal Protection and Management Act 1995

<i>Considerations under section 104(2)</i>	<i>Relevance to the proposal</i>
a) Natural coastal, riverine and estuarine processes, including for example, erosion and accretion, wave and tidal currents, littoral drift, tidal prism and tidal inundation.	Yes – even though any proposed development is not within erosion prone area
b) Natural topography and drainage of coastal land, including, for example, the integrity of dune systems and natural surface runoff.	Yes – very gentle slop towards Burnett River, with drainage from site flowing though Queens Park in Bundaberg, which appears to following the areas natural drainage path.
c) Coastal wetlands and other coastal ecological systems, including, for example the wildlife, biological diversity and water quality of the wetlands or systems.	Yes – drainage from the site, including overflows from the pump station flow towards the Burnett River (classified as a wetland), but impacts from ERA operation considered under ERA approvals. Construction phase impact
d) Places or objects that have cultural heritage, landscape, historical, anthropological, archaeological or aesthetic significance or value, including for example, significance or value under Aboriginal tradition or Torres Strait Islander custom. ¹	None identified.
e) Public access to the foreshore.	Not relevant
<i>Consideration under section 104(1)</i>	<i>Relevance to the proposal</i>
The potential impact of the development on coastal management.	Not relevant
<i>Consideration under section 104(A)</i>	<i>Relevance to the proposal</i>
The application is partly or completely within a declared wild river area. a) The assessment manager must refuse to receive operational works applications, other than for specified works, (as defined in section 48 of <i>Wild Rivers Act 2005</i>). c) The assessment manager's and any concurrence agency's decision must comply with the applicable code mentioned in the wild river declaration for the area if the application is for specified works.	Not in Wild River Area
<i>Considerations under section 110</i>	<i>Relevance to the proposal</i>
The land is within an erosion prone area or within 40m of the foreshore and should be surrendered for coastal management.	No surrender. Only the remainder of the neighbours balance allotment, which will remain as rural use, is within the erosion prone area. Land surrender would not achieve any coastal management outcomes, and can be considered later in any subsequent RaLs for this land area submitted.

b) The State plan and regional plans

<i>Policy #, key coastal site, etc</i>	<i>Policy name/matter for assessment</i>	<i>Relevance to the proposal and assessment against the policy or consideration</i>
State and regional policies		
2.1.2	Settlement pattern and design	N/A – not an urban footprint related application

¹ Note that the consideration of amenity and aesthetics is only required where the DERM is acting as the assessment manager for the application.

2.2.2	Erosion prone area	Not relevant, as only the remainder of the neighbours balance allotment, which will remain as rural use, is within the erosion prone area.
2.2.4	Coastal Hazards	N/A, not on coast, and consideration to flood levels given in ERA approval conditions (see ERA assessment report).
2.3.1	Future need for access	N/A
2.4.1	Water quality management	Water quality will not be impacted by operation once completed, and in fact the usage for which the land is being reconfigured will result in less risk of sewage overflow to the Burnett River. Water protection conditions were set for the construction phase though, as soil will be disturbed and civil construction undertaken.
2.4.4	Stormwater management	As above for water quality
2.8.1	Areas of state significance (natural resources)	N/A
2.8.2	Coastal wetlands	Burnett River is a coastal wetland, but only the balance allotment area is within 450m of the Burnett River. Water protection conditions for construction phase were included, and ERA approval includes conditions for operational phase of pump station also.
2.8.3	Biodiversity	N/A

c) Native title comments following notification

Native title over the subject land has been extinguished as the tenure is freehold and as such notification under the Commonwealth *Native Title Act 1993* was not required.

d) Certification of drawings by a RPEQ or licensed surveyor

Proposed allotment plans have been certified by a licensed surveyor.

3. Consultations

- Nil

4. Critical issues

- Nil

5. Conditions

Conditions to be included on the RaL response include:

- Water protection from construction related pollution (concrete agitator wash water, fuels, chemicals and oil and grease) erosion and sediment impacts during construction; and
- Acid sulphate soils controls in case they are required.

6. Referral agency advice/response

Wetlands advice will not be given as all wetlands considerations will be covered in RaL approval and ERA approval conditions that have been set.

7. Recommendation

It is recommended that the proposed development should be:

Select:	If approved, select:	If approved, also select:
<input checked="" type="checkbox"/> Approved or	<input checked="" type="checkbox"/> With a development permit or	<input checked="" type="checkbox"/> With conditions or
<input type="checkbox"/> Refused	<input type="checkbox"/> With a preliminary approval or	<input type="checkbox"/> No conditions
	<input type="checkbox"/> In part only	

Assessing Officer: [REDACTED]

Signed:

Date: 1/9/2011

8. Review and Endorsement

Manager/Director: [REDACTED]

Signed:

Date:

Delegate: [REDACTED]

Signed:

Date:

Assessment report

Licensing

Environmentally relevant activities

APPLICATION NOTES:

1. Each assessment report prepared to support recommendations made for decision is to be structured in the format shown below.
2. Explanatory notes for completing the report are given under each heading in brackets.
3. The report is to be completed, where indicated, to confirm conclusion of supervisory review/endorsement, and decision stages of the process.

This assessment report is for environmentally relevant activities to be assessed via the Integrated Development Assessment System in the Sustainable Planning Act 2009.

COUNCIL DA NUMBER: 325.2010.31068.1	EPA PROJECT NO: 359569
EPA DA NUMBER: SPCE01573011	FILE NO: MBH3327
APPLICATION TYPE: DERM is a concurrence agency (multiple jurisdictions, ERA MCU and Coastal MCU)	
DEVELOPMENT TRIGGERS: 1) ERA 63(1)(b) Sewage treatment – operating a sewage pumping station with a total design capacity of more than 40KL in an hour; and 2) RaL in the CMD (see Coastal assessment report for details)	
DEVELOPMENT DESCRIPTION: Millbank Sewage Pump Station Upgrade	
LOCATION DESCRIPTION: Lot 1 on RP107432 (which will be reconfigured to Lot 1 on SP212107) at 325A Bourbong St, MILLBANK; and Lot 2 on RP96317 (which will be reconfigured to Lot 1 on SP212107 also and the balance allotment reconfigured to Lot 1 on SP212107) at 325 Bourbong St, MILLBANK	
APPLICANT: Bundaberg Regional Council	
TRADING AS: As above	

1. Issues

Bundaberg Regional Council (BRC) has identified the need to augment the existing Millbank Pump Station to respond to increased loadings from the Millbank sewage network service area due to new connections and to allow additional capacity for future connections. The Millbank Pump Station is the final pump station in the network feeding into the Millbank STP and is therefore a critical asset in terms of the having to convey the total of all flows from the upstream network.

The upgrade of the pump station involves installing new sections of rising main, construction of a new wet well pump station and the conversion of existing pump station wet well into an offline emergency storage. The peak design capacity of the upgraded pump station will be 234.1 L/s, which translates to 846 kL/hour (well above the 40 kL/hour ERA 63(1)(b) trigger for pump stations).

The pump station will not have the emergency storage capacity that is recommended as best practice for such infrastructure, but will have a range of other emergency event design features that BRC claim will address this shortcoming adequately.

The natural ground surface level in the area where the pump station is located is below the Q100 AEP flood design level, but the new pump station is designed to have the top pump station well and all critical support infrastructure such as the back up generator above the Q100 flood level.

The surrounding land uses and distance to surrounding sensitive receptors place the location of the new pump station in good standing to avoid nuisance noise and odour complaints.

The upgraded pump station will be located entirely on a freehold allotment (no State Land involved). Some additional land is being acquired to accommodate the upgraded pump station as it will not fit on the existing allotment that the current pump station is located on (a separate assessment report has been completed for the RaL in the CMD).

2. Description of operation

The new pump station capacity is predicted to ultimately have to serve an equivalent population of 16,852 persons, which translates to an Average Dry Weather Flow (ADWF) of 47 L/s. This is based on an allowance of 240L/EP/day, which is within the range recommended by the using DERM (previously NRW) *Planning guidelines for water supply and sewerage* of between 150-275 L/EP/day. This document also requires critical assets to be designed to cater handle Peak Wet Weather Flows (PWWF) of 5 x ADWF, or in this case 234.1 L/s). Thus the peak design capacity of the upgraded pump station, with both the duty and standby pumps in operation at once is 234.1 L/s.

The upgraded pump station is designed for all weather operation and can continue operation during inundation via vacuum sealing. The natural ground level of the site is 460mm below the adopted Q100 flood design level. The station will be raised so that the top cover plate will sit 380mm above this flood level.

The pump station will not have the emergency storage capacity that is recommended as best practice under the Water Services Association of Australia (WSAA) Sewage Pumping Station code of Australia. This is due to BRC adopting a resolution to use the existing wet well from the old pump station as off line storage instead of constructing a new storage (they are also constrained for space). This has resulted in emergency storage volume of only 2.75 hours of storage at Average Dry Weather Flow (ADWF) for the new pump station, with the above best practice guideline recommending 4 hours at ADWF for critical infrastructure pump stations.

BRC has proposed to address this shortcoming by having a range of other emergency event design features built into the proposed pump station including:

- having a permanent on site diesel generator to allow for full dual pump pump station operation through power failure;
- installation of a suction riser to allow sewage to be pumped out of the offline storage and a bypass connection into the rising main itself to allowing pumping as required into a tanker to give increase times until the storage capacity is used up;
- a third pump will also be installed at the pump station, which can be brought into service immediately so the duty/standby pump arrangement is maintained at all times, even when one of the two in service duty/standby pumps fail;
- SCADA via telemetry to notify of pump failure, power failure or phase switching issues, high level and impending overflow conditions;
- network pump station control strategies that can be implemented to hold back some upstream flows.

The upgraded new pump station will be in part located on the allotment that the existing pump station is located upon, but will require some additional land. To achieve this, BRC is acquiring a partial portion of land from an adjoining landholder. This requires a reconfiguration of the allotments to allow some of the land to be transferred from the existing Lot 2 on RP96317, onto the existing Lot 1 on RP107432 to make it 612m² larger. The new Lot 1 on SP212107 will be 1182m² (0.1192ha), while the new balance allotment Lot 1 on SP212107 will be 226 107m² (22.6107ha).

3. Emissions, discharges and environmental compliance

The primary concern in relation to potential discharge from any sewage pump station relates to the uncontrolled release of untreated sewage during an emergency event. In the case of the Millbank pump station, being the last leg of the network feeding to the Millbank STP, the entire sewage volume from the serviced network flows through this pump station. This means that the volume that must be stored during an emergency event such as power supply failure, pump failure, blockages or rising main ruptures are significant. The volume that is released to the environment in the event of an emergency overflow can also be significant. Effective engineering and operational controls are essential to minimise the risk of uncontrolled overflow events occurring.

In the unlikely event that the emergency controls and procedures designed to prevent overflows do not work when the pump station experiences an operational failure, any overflow of raw sewage would flow into an adjacent drain to the west and through a series of ponds in Queens Park behind the Mater Hospital. These ponds would likely hold a certain amount of the overflow unless the event occurred during wet weather when stormwater flows are travelling through the drain and ponds. The ponds ultimately discharge to the Burnett River during flow events (see Figure 1 below).



Figure 1 – Site surrounds and drainage path to Burnett River

Odour emissions can also impact sewage pumping stations if wet wells and associated manholes are not properly sealed. The age of the sewage in the network at the point where the pumping station is located is also an important consideration. Old sewage (>4 hours in warm climate areas) has potential to begin to turn septic and emit significant odours from network locations such as manholes, and particularly pump stations. The Millbank pump station, being in the downstream extent of the serviced network, has enhanced risk of odour generation over upstream pump stations. Odours from the sewage emanate from compounds such as hydrogen sulphide, ammonia, organic sulphide compounds such as mercaptans, and organic nitrogen compounds. Septicity (where conditions result in anaerobic decomposition of the sewage organic compounds) greatly enhances the odour generation potential of the sewage stream.

Sewage pump stations have large pumps that do have the potential to generate nuisance noise. Because the pumps are located in the in-ground wet well, the noise of the pumps is generally localised and would generally only impact on sensitive receptors located very close to the pump station. In this case it is considered that the distances involved to the nearest noise sensitive receptors (~100m) means that there is very little potential for nuisance from the normal operation of the pump station.

Power failure or emergency situations could result in extraneous noise being generated as the backup power generator comes into operation, or pumps and tankers are operated at the pump station to manage the sewage flow in emergency situations. These circumstances are not expected to occur very frequently, and any such noise generated for short periods in the event of an emergency would not be considered to be unreasonable.

4. Assessment considerations

Initial overall considerations are presented in the Development Approval Assessment Checklist (attached). Support and substantiation for the identified relevant considerations are given below under the appropriate headings:

i) Standard criteria (as applicable)

NOTE: when considering the standard criteria, comments related only to those considered relevant are required. For criteria considered not relevant to the matter, no notation is made. Information provided should reflect the complexity of issues for the application. Example text is provided for guidance.

Ecological sustainable development

The proponent has demonstrated the principles of ecologically sustainable development by proposing an upgrade of the existing pump station that currently carries an increasing risk of overflow into the surrounding environment as its capacity is exceeded and the age of the installation increases. The decision made to issue the permit has integrated the long and short term economic, environmental, social and equity considerations.

Matters for consideration and conditions to be considered under the *Environmental Protection Regulation 2008*

s.51 of EP Reg – Matters to be considered

Legislative considerations	Details and/or special conditions
(a) each of the following under any relevant environmental protection policies— (i) the management hierarchy; (ii) environmental values; (iii) quality objectives; (iv) the management intent.	The proposal is consistent with the management hierarchy for water provided in the <i>Environmental Protection (Water) Policy 1997</i> no waste water streams will be generated from the pumping process. The contamination of stormwater is to be avoided by taking measures to minimise the risk of sewage overflows. The proposal is consistent with the management hierarchy provided for air emissions in the <i>Environmental Protection (Air) Policy 2008</i> , as air emissions will be avoided following best practice odour prevention for pump station operation.

Legislative considerations	Details and/or special conditions
<i>(b) the characteristics of the contaminants or materials released from carrying out the activity;</i>	The characteristics and impacts of contaminant releases have been considered, with the main impacts considered to be: i) Release of untreated sewage during emergency situations This risk has been minimised as far as possible by design and operational controls, and conditions to ensure that the risk of release of the above mentioned contaminants of concern related to the activity are considered essential.
<i>(c) the nature and management of, including the use and availability of technology relating to, the processes being, or to be, used in carrying out the activity;</i>	The nature of the process and available technology has been considered for pump station operation, including emergency overflow management techniques.
<i>(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes;</i>	The impact of release of contaminants to the ponds in Queens Park and the Burnett River has been considered it is considered that the risk of overflow has been minimised as far as possible and the risk to the receiving environment is considered to be at an acceptable level. The impact of noise emissions from the activity on surrounding residents and other noise sensitive receptors around the proposed development site has also been considered it is not considered that the pump station will create a nuisance. There is potential for temporary or ongoing odour issues, and a condition requiring this to be appropriately controlled has been included.
<i>(e) the characteristics of the receiving environment and the potential impact on it from carrying out the activity;</i>	The ponds in the park are a public area, and any releases must be managed to protect the public that may access these areas. The Burnett River is the ultimate receptor of overflows, but the volume and flows are expected to cope with the very rare overflow that might occur if managed appropriately to control the overflow volumes that might be generated during this unlikely event.
<i>(f) for each affected person for the activity—the order of occupancy or use between the person carrying out the activity and the affected person;</i>	The residents that are potentially impacted by odours from the upgraded pump station were occupying their homes first, however a pump station of smaller size has existed on the site for many years. This will be taken into consideration when looking at how they may react to noise emissions from the activity.
<i>(g) the remaining capacity of the receiving environment to accept contaminants or wastes released from future activities while protecting the environmental values;</i>	Burnett River EVs and future assimilative capacity are protected by the conditions which minimise the risk of any overflows.
<i>(h) the quantity and type of greenhouse gases released, and the measures proposed to demonstrate the release is minimised using best practice methods that include strategies for continuous improvement.</i>	The proposal does not involve the direct release of any greenhouse gases. There may be some incidental greenhouse gases released from the use of electrical equipment, but it is expected that the need to minimise electricity usage in such equipment is enough incentive to ensure these activities are minimised as far as possible.

s.52 of EP Reg – Conditions to be considered

Legislative considerations	Details and/or special conditions
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Legislative considerations	Details and/or special conditions
(a) <i>Implementing a system for managing risks to the environment</i>	A condition will require that the applicant develop a Site Based Management Plan (SBMP) to identify and manage environmental risks associated with the activity. The applicant has provided a draft SBMP with the application that will be further refined prior to the activity commencing.
(b) <i>Implementing measures for avoiding or minimising the release of contaminants or waste</i>	<p>Conditions in relation to minimising noise and avoiding nuisance odour are also included in the approval to ensure that the operator has to implement effective measures for these contaminants when operating the pump station.</p> <p>A condition is included to ensure the emergency storage tank is cleaned after use to ensure that odour is not generated from residues when emptied after use.</p>
(c) <i>Ensuring an adequate distance between any sensitive receptors and the relevant site for the activity to which the decision relates</i>	The current separation distances are considered adequate to prevent noise nuisance during normal operation. Odour has potential to cause impacts over these distances, but condition requiring no odour nuisance is included. There are options available to be implemented to control odours from pump stations (scum sprays, ferric and milk of magnesia dosing) if such measures were ever required to be implemented.
(d) <i>Limiting or reducing the size of the initial mixing zone or attenuation zone, if any, that may be affected by the release of contaminants</i>	N/A
(e) <i>Treating contaminants before they are released</i>	Odour treatment may be required at some stage for the operator to comply with the condition not to cause nuisance odour when operating the 4 pump station. There are options available to be implemented to control odours from pump stations (such as scum sprays, ferric and milk of magnesia dosing) if such measures were ever required to be implemented.
(f) <i>Restricting the type, quality, quantity, concentration or characteristics of contaminants that can be released</i>	N/A apart from must not cause nuisance noise and odour conditions. The quality and quantity of any sewage released during an extreme emergency release cannot be controlled.
(g) <i>The way in which contaminants may be released</i>	Releases are not authorised. Any emergency release/overflow will represent a breach of DA conditions.
(h) <i>Ensuring a minimum degree of dispersion happens when a contaminant is released</i>	N/A
(i) <i>Protecting environmental values, and meeting quality objectives, under relevant environmental protection policies</i>	<p>Water release limits were not considered necessary to protect the environmental values of the Burnett River (noting that no EVs/WQOs are yet declared for the Burnett River under the <i>Environmental Protection (Water) Policy 2009</i>). As stated, release quality and quantity could not effectively be controlled anyway.</p> <p>Conditions are prescribed to ensure that the quality of stormwater is not adversely affected by the proposed development. Compliance will ensure that environmental values of the Burnett River are not compromised.</p>

Legislative considerations	Details and/or special conditions
	<p>It was considered necessary to impose a condition requiring the activity not to cause nuisance odour to ensure that the proposed activities do not compromise the environmental values or air quality objectives provided in the <i>Environmental Protection (Air) Policy 2008</i>.</p> <p>The proposal is not expected to compromise any environmental values for the acoustic environment or quality objectives for sensitive receptors, as provided in the <i>Environmental Protection (Noise) Policy 2008</i>. Conditions have been included to address noise nuisance should this occur.</p>
<i>(j) Recycling, storing, transferring, or disposing of waste in a particular way</i>	A condition was included about size of emergency waste water storage for failure of pump station.
<i>(k) Rehabilitating land to achieve particular outcomes</i>	N/A
<i>(l) measures for the ongoing protection of environmental values that are, or may be, adversely affected by the activity.</i>	Condition prohibiting release of wastewater or other water contaminants is included, and a condition requiring no nuisance noise or odours also included to protect EVs.

s.53 of EP Reg – Matters to be considered for decisions imposing monitoring requirements

Legislative considerations	Details and/or special conditions
<p><i>(a) the potential impact on the receiving environment of—</i></p> <p><i>(i) the activity to which the decision relates and</i></p> <p><i>(ii) the release of the contaminant</i></p>	<p>The potential impact of the release of contaminants to Burnett River have been considered.</p> <p>Monitoring for noise in the event a valid complaint is received will be required under the standard Departmental conditions, as it is considered necessary if the operations fails to control these emissions effectively. Ongoing routine monitoring for dust, odour and noise was not considered necessary however.</p>
<i>(b) the characteristics of the contaminant</i>	Odour and noise are all expected to only present nuisance value impacts to the surrounding environment, and are thus not considered to be as high risk and not require monitoring to be conducted unless a complaint is made.
<i>(c) the potential for a control measure to fail and the effect of a failure of a control measure on the receiving environment</i>	Emergency release control measures have been considered and failure of these measures, and the failure has been considered, but no monitoring considered required due to rarity of any such incident ever occurring and monitoring in such circumstances impractical for release. Receiving waters may need monitoring in event of release, but it is not considered necessary to include a condition to make sure client does this.
<i>(d) the protocols relevant to monitoring the release of the contaminant</i>	N/A
<i>(e) whether the monitoring should be continuous or intermittent</i>	Continuous monitoring of proper pump station operation and warning of overflow considered necessary and imposed under conditions.

Chapter 4 Part 3 of EP Reg – Additional regulatory requirements for particular environmental management decisions

s.55 of the EP Regs - For an activity that involves or may involve the **release of water or waste to land**, the administering authority must consider the following matters

Emergency overflow releases are considered to be to drains and therefore be a release to water rather than land (see s56 considerations below).

s.56 of the EP Regs - For an activity that involves or may involve the **release of water, other than stormwater, to surface water**, the administering authority must consider the following matters

Considerations	Applicable/ Not applicable
<i>(a) any available toxicity data relevant to the release and the receiving environment;</i>	Sewage toxicity generally considered to have known impacts. As any discharge is short term and very infrequent, only acute considerations of toxicity considered (ie BOD of sewage and impacts on DO levels of receiving water bodies). Overflows have potential to deplete oxygen in water bodies and cause aquatic life mortality. Also, biohazard present in sewage also.
<i>(b) if there is an initial mixing zone— (i) whether there is any practicable alternative that would reduce or eliminate the initial mixing zone; and (ii) whether the size of the initial mixing zone is likely to adversely affect an environmental value or the ecological condition of the receiving environment, including, for example, a watercourse or wetland; and (iii) whether concentrations of contaminants in the initial mixing zone are acutely toxic to the biota.</i>	N/A, no release authorised.
<i>(3) The administering authority must also consider whether to impose conditions about the following matters— (a) releasing the water to tidal waters only during particular tidal conditions, including, for example, phases of the tide;</i>	N/A, no release authorised.
<i>(b) releasing the water to non-tidal waters only if the rate of flow of the surface water is greater than a particular level.</i>	N/A, no release authorised.

S57 of EP Regs - For an activity that involves or may involve the **release of stormwater to the receiving environment**, the administering authority must consider the following matters

No release of stormwater involved in proposal. All equipment and activities contained in wet well and will not allow stormwater contact.

S58 of the EP Regs - For an activity that involves, or may involve, the **release of water or waste to a referable wetland or a significant coastal wetland for treatment**, the administering authority must consider the following matters

No release of water or waste authorised.

S59-60 of the EP Regs – Boat Mooring/berthing and Bulk material moving and handling

N/A

S61 of EP Regs - For an activity that involves, or may involve, **disturbance of acid sulfate soil**, the administering authority must consider the following matters

Considerations	Applicable/ Not applicable
(a) 'State Planning Policy 2/02—Planning and Managing Development Involving Acid Sulfate Soils' (SPP 2/02); and (b) the guideline for SPP 2/02 (the guideline).	Only related to construction activities, and not the ongoing operation of the pump station ERA. ASS for construction considered to be the Assessment Managers jurisdiction under operational works approvals.
(3) The administering authority must also consider whether to impose conditions about the following matters— (a) minimising the generation of contaminated water;	See above
(b) treating acid sulfate soils;	See above
(c) treating or disposing of leachate and run-off;	See above
(d) managing the fluctuations in the watertable;	See above
(e) maintaining minimum levels of cover over any buried acid sulfate soils.	See above

S62 & S63 of EP Regs

Considerations	Applicable/ Not applicable
For an activity that involves, or may involve, disturbance of acid-producing rock , the administering authority must consider the matters outlined in Section 62, Ch 4, Part 3 of the <i>Environmental Protection Regulation 2008 (EP Reg)</i> . Example of an activity involving disturbance of acid-producing rock—tailings from processing acid-producing rock in a mining operation.	N/A
For an activity that involves, or may involve, the release of waste directly to groundwater (the receiving groundwater) , the administering authority must consider the matters outlined in Section 63, Ch 4, Part 3 of the <i>Environmental Protection Regulation 2008 (EP Reg)</i> . Example of direct release of waste to groundwater— an activity involving the release of contaminated water to groundwater through a well, deep-well injection or a bore.	N/A

S64 of EP Regs - For an activity that involves, or may involve, **the release of contaminants indirectly to groundwater (the receiving groundwater)**, for example of indirect release of waste to groundwater— storage of contaminated water in a pond allowing infiltration of contaminated water to groundwater), the administering authority must consider the following matters

N/A, as all wastewater storage will be in sealed concrete tanks and there will be no release to groundwater authorised.

Plans, standards and agreements

The information provided by the company has been and compared against best practice guidelines for the operation of sewage pump stations. The Water Services Association of Australia (WSAA) Sewage Pumping Station code of Australia was consulted as the best practice guideline.

Environmental impact statement EIS

An EIS was not required for this application.

Receiving environment

The surrounding receiving environment consists of a vacant allotment, cane farming machinery sheds and cane paddock stretching to the bank of the Burnett River to the north of the site, the Bundaberg Mater Hospital approximately 100m to the east of the site, a residence 90m to the west of the site, and several residences between 110 to 150 m to the south of the site. The Millbank STP lies 1.2km to the WNW of the plant on the bank of the Burnett River.

The current zoning of the subject site and surrounding areas and the location of sensitive land uses have been considered.

Best practice environmental management

BRC have indicated that the option to install a storage facility to hold 4 hours of emergency storage is not viable, or feasible given current space constraints with the site. For this reason they have indicated that they cannot agree to a development approval condition that requires 4 hours of storage.

BRC claim that the 2.75 hours of storage that will be provided by conversion of the existing wet well from the current pump station to an emergency storage, combined with the installation of a permanent on site generator, operation and level alarms via SCADA and remote telemetry, and tankering features mean that the risk associated with emergency overflows is addressed appropriately in the absence of the best practice storage allowance.

The new pump station will be a significant improvement over the existing pump station, is required to service future needs, and will reduce the risk of overflow/emergency release incidents considerably over the existing pump station.

Financial implications

Capital funding for such infrastructure can be significant, and this has been considered, particularly in relation to the lack of sufficient emergency storage volume proposed by BRC compared to best practice recommendations.

Public interest

The community of Bundaberg require the pump station upgrade to service an expanding population in the area. The new pump station will reduce the risk of overflows, which is also in the public interest.

Site management plan

BRC has demonstrated its commitment to conduct its activities in an environmentally responsible manner by development of its site/activity based management plan which covers operation, maintenance and emergency response procedures for operation of the pump station.

ii) Native title comments following notification (if applicable)

DERM is not assessment manager, BRC is.

iii) Notifiable activity (if applicable)

This is not a Notifiable Activity.

iv) Wild river area consideration (if applicable)

Not within a Wild River declared area.

5. Consultations

David Gill of BRC was consulted in relation to the issue of best practice emergency storage volumes, and which of four options presented in a design report commissioned by BRC were being adopted in the current application for development approval. David indicated that BRC had adopted the 2.75 hour storage option, as it had not to date proven possible to acquire the additional land that would be required to have four hours storage volume. BRC has indicated that a permanent on-site generator will be installed to ensure uninterrupted power supply to the pump station, which reduces the risk of overflow during power supply or phase failures. BRC also indicated that a complete spare pump, capable of replacing either the duty or standby pump, will also be kept on site, and can be brought online rapidly to greatly reduce risk of an overflow because of pump failure.

David also review the draft conditions proposed by the department and has accepted the conditions on behalf of BRC subject to modification of the condition requiring a minimum of 4 hours of emergency storage being reduced down to BRC's proposed level of 2.75 hours storage.

6. Project killers

It is considered that because of the proposed engineering and operational emergency situation control measures, the lack of storage that would constitute best practice is not a project killer in this case.

7. Point source database

Copy of development approval or the original development approval and subsequent decision notices has been sent to: psd.help@epa.qld.gov.au Yes No

8. Streamlined conditions

The following conditions are used:

Full streamlined conditions

Some streamlined conditions

No streamlined conditions

Non-streamlined condition	Reason for recommendation
(A2) Any offline storage must contain allowance for washing down of the emergency storage after each use or other odour control measures should be implemented as part of the proposed storage option.	Offline storage can hold residues after use and draining which can become significant odour source.
(LW10) Provision of backup power supply Permanent backup generator(s) with capability to automatically start and provide power for full pump station operation in the event of power failure must be installed.	To ensure on site generator is available, as this was one of the measures that BRC have put forward to control the risk of not having the full 4 hours of ADWF emergency storage available, which is best practice.
(LW11) Spillage of all chemicals and fuels must be contained within an on-site containment system and controlled in a manner that prevents environmental harm. <i>NOTE: All petroleum product storage's must be designed, constructed and maintained in accordance with AS 1940 - Storage and Handling of Flammable and Combustible Liquids.</i>	This is a DERM standard condition, but it is not a standard condition off the pump station guideline that has standard conditions specifically for pump stations. The condition is considered to be required as the generator will be diesel and will have fuel tanks and/ or off plant storage tanks. Also, so pump stations utilise dosing to control odour, and if such equipment is installed in the future (not currently proposed to be installed) then this condition is considered necessary to control the storage of any liquid dosing chemicals

<p>Definitions section:</p> <p>"ADWF" means average dry weather flow experienced in the serviced network feeding through the pump station, being the average flow measured over a period of seven consecutive days, the period to be chosen such that rainfall is less than 0.25mm/d, infiltration of stormwater into the sewerage system is at a minimum and any abnormal influences such as public holidays are excluded" (definition taken from Volume 1, Section 2.2 <i>Guidelines for Planning and Design of Sewerage Schemes (1991)</i> Water Resources Commission, Department of Primary Industries).</p> <p>"ERA" means Environmentally Relevant Activity as defined under the <i>Environmental Protection Regulation 2008</i>.</p>	<p>such as ferric chloride etc that may be used for this.</p> <p>Some definitions of terms that were used throughout the approval that are not included in the definitions section or included anywhere in the Macquarie Dictionary.</p>
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9. Recommendation

It is recommended that the proposed development should be:

Select:	If approved select:	If approved, also select:
<input checked="" type="checkbox"/> Approved or	<input checked="" type="checkbox"/> With a development permit or	<input checked="" type="checkbox"/> With conditions or
<input type="checkbox"/> Refused	<input type="checkbox"/> With a preliminary approval or	<input type="checkbox"/> No conditions
	<input type="checkbox"/> In part only	

Assessing Officer: [REDACTED]

Signed:

Date: 30/8/2011

10. Review and endorsement

Manager/Director: [REDACTED]

Signed:

Date:

Delegate: [REDACTED]

Signed:

Date:

DERM Permit ¹ number: SPCE01573011

Assessment manager reference:	BRC ref# 325.2010.31068.1
Date application received:	21 March 2011
Permit type:	Concurrence Agency Response
Date of decision:	01 September 2011
Decision:	For a concurrence agency response Conditions must attach to any development approval
Relevant laws and policies:	<i>Environmental Protection Act 1994</i> and any related statutory instruments and subordinate legislation
Jurisdiction(s):	<i>Sustainable Planning Regulation 2009</i> - Schedule 7, table 2, item 1 Material change of use - Environmentally relevant activities

Development Description(s)

Property/Location		Development
325A Bourbong St, MILLBANK	Part of Lot 2 on RP107432 (to be reconfigured to Lot 1 on SP212107)	ERA 63(1)(b) Sewage treatment – operating a sewage pumping station with a total design capacity of more than 40KL in an hour
325 Bourbong St, MILLBANK	Lot 1 on RP96317 (to be reconfigured to Lot 1 on SP212107)	

Reason(s) for inclusion of conditions

In accordance with section 289 of the *Sustainable Planning Act 2009*, the reason(s) for inclusion of conditions stated in this permit required by the concurrence agency response for the application are as follows:

The conditions are included pursuant to section 73B of the *Environmental Protection Act 1994*.

Delegate

Delegate, Chief Executive administering the
Environmental Protection Act 1994
Department of Environment and Resource Management
02 September 2011

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management.

CONDITIONS

Interest: General

(G1) Limitations of approval

This development permit authorises the operation of an 846kL per hour sewage pumping station located at Lot 2 on RP107432 (to be reconfigured to Lot 1 on SP212107) and Part of Lot 1 on RP96317 (to be reconfigured to Lot 1 on SP212107) at 325 and 325A Bourbong St, Millbank.

(G2) The owner and operator must ensure that the pumping station is constructed so that openings to the well (such as maintenance holes) are not lower than a 1 in 100 year flood level.

(G3) Prevention of environmental harm

The operator must ensure that environmental harm is not caused by this ERA except where specifically permitted by a condition of this development approval.

(G4) Maintenance of measures, plant and equipment

The operator must:

- (a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this development approval; and
- (b) maintain such measures, plant and equipment in a an effective condition and keep records of the maintenance and
- (c) operate such measures, plant and equipment in an effective manner.

(G5) Site Based Management Plan.

From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review and 'continual improvement' in the overall environmental performance of all ERAs that are carried out. The SBMP (including contingency plans and emergency response plans) must be made available to the administering authority when requested.

The SBMP must achieve the following outcomes:

- (a) environmental aspects and potential impacts are identified;
- (b) a contingency plan and emergency response plan is in place;
- (c) a network plan of the sewage collection system including connected sewage pumping stations and likely overflow points is maintained;
- (d) control measures that minimise the potential for environmental harm are in place;
- (e) organisational structures, accountability and responsibility is recorded;
- (f) effective communication arrangements are documented and practical;
- (g) all contaminant releases are monitored;
- (h) staff are trained and aware of the requirements of this permit;
- (i) appropriate records are kept; and
- (j) reviews of environmental performance and continual improvement are undertaken periodically.

(G6) The SBMP must not be implemented or amended in a way that contravenes any condition of this development approval.

(G7) Contingency plans

The contingency plan in the SBMP must include provisions for the following:

- (a) standard connections for emergency by-pass pumping;
- (b) standard connections for mobile generators, or a back-up power source that automatically starts in the event of power failure and stops when power is restored (with manual override facility);
- (c) stand-by pumping equipment and associated controls;
- (d) identified critical components and a system to ensure adequate and timely access to spare parts; and
- (e) easy all weather access for maintenance and emergency activities such as tankering of excess sewage as required.

(G8) Emergency response plan

The emergency response plan in the SBMP must include the following provisions:

- (a) an implementation manual;
- (b) staff training;
- (c) identification of the part of the environment to which a sewage release may occur (e.g. for water bodies, a description of where contaminants may enter the particular water body).
- (d) a remediation and clean-up plan to be implemented in areas affected by sewage releases;
- (e) a receiving environment (surface waters/land) monitoring program, to be implemented in the event of a sewage release to waters/land to examine/assess environmental impacts (for waters this must include upstream and downstream monitoring); and
- (f) an investigation and improvement plan to establish the cause of sewage releases, initiate preventative measures, and report on the effectiveness of such preventative measures.

(G9) Records

The operator must record, compile and keep all maintenance and monitoring results required by this development approval and present this information to the administering authority when requested.

(G10) All records required by this development approval must be kept for 5 years.

(G11) Notification

The operator must notify the administering authority via the 24 hour hotline (1300 130 372) as soon as practicable and no later than 4 hours after becoming aware of sewage releases described below.

1) Any sewage release (any volume) that:

- (a) poses a threat to public health (e.g. contamination of waterways with primary recreation values); or
- (b) results in any observable environmental impact (e.g. fish kill, distress to wildlife, marine plants or other aquatic life); or
- (c) discharges to, or is likely to impact, a sensitive environment (e.g. Ramsar wetland, marine park, or area designated as a conservation zone under a relevant planning scheme).

2) Any dry weather release of sewage in excess of 5 000 litres.

(G12) The operator must record information for all sewage releases described in condition G11 and provide it to the administering authority (on the form attached as Appendix 1) within 14 days of the release.

(G13) If the notification requirements in condition G11 do not apply, the operator must notify the administering authority in the form of an annual summary for any dry weather release of sewage less than 5 000 litres and for all wet weather releases.

(G14) Monitoring

The operator must ensure that all monitoring, assessments and reports required by this development approval are conducted by a person(s) with appropriate experience and/or qualifications. Water monitoring must be undertaken in accordance with the DERM Water Quality Sampling Manual.

(G15) Trained / experienced operator(s)

The operator must ensure that the daily operation and maintenance of the sewage pumping station is carried out by a person(s) with experience and/or qualifications appropriate to ensuring the effective operation of the sewage pumping station.

(G16) Equipment calibration

The operator must ensure that all instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this development approval are calibrated, and operated and maintained in accordance with the manufacturers' specifications.

(G17) Complaint response

The operator must record the following details for all complaints received and this information must be provided to the administering authority on request:

- (a) time, date, name and contact details of the complainant;
- (b) reasons for the complaint;
- (c) any investigation(s) undertaken;
- (d) conclusions formed; and
- (e) any actions taken.

Interest: Air

(A1) Nuisance

The operator must ensure that the release of odours or airborne contaminants resulting from the ERA do not cause environmental nuisance.

- (A2) Any offline storage must contain allowance for washing down of the emergency storage after each use or other odour control measures should be implemented as part of the proposed storage option.

Interest: Noise

(N1) Noise nuisance

The operator must ensure that noise resulting from the ERA does not cause environmental nuisance.

(N2) Noise monitoring

When requested by the administering authority, the operator must undertake noise monitoring to investigate any complaint of noise nuisance. The monitoring must be undertaken and results must be notified to the administering authority in the format and within the time specified by the administering authority in the request. Monitoring must include:

- (a) measurement of $L_{A90, adj}$, 15 mins
- (b) measurement of $L_{A10, adj}$, 10 mins
- (c) measurement of $L_{A1, adj}$, 10 mins
- (d) the level and frequency of occurrence of impulsive or tonal noise;
- (e) atmospheric conditions including wind speed and direction;
- (f) effects due to extraneous factors such as traffic noise; and
- (g) the location, date and time of monitoring.



- (N3) The operator must ensure that the method of measurement and reporting of noise levels complies with the latest edition of the administering authority's Noise Measurement Manual.

Interest: Land and Waters

(LW1) Release to land and waters

The operator must ensure that contaminants are not released to land or waters (including the bed and banks of any waters).

(LW2) Pumping station design

The operator must ensure that the total pump flow rate of the pumping station (whether using one or more pumps) has a capacity of 846kL per hour.

- (LW3) The operator must ensure that additional storage capacity is provided to accommodate emergency flows up to 465kL based on a maximum detention time of 2.75 hours.

- (LW4) The operator must ensure that the pumping station is fitted with inflow and outflow gauges to monitor flow.

(LW5) Alarm system

To warn of imminent sewage pumping station overflow, the operator must ensure that the sewage pumping station is fitted with the following:

- (a) pump-failure alarms; and
- (b) level alarms for sewage contained in the pump well.

- (LW6) The operator must ensure that the alarms specified in condition LW5 comprise, as a minimum:

- (a) a flashing red light with signage to indicate sewage pumping station failure; and
- (b) monitoring and communication systems to immediately alert the operator of a sewage pumping station system failure.

- (LW7) The operator must ensure the alarm system installed is triggered immediately after any of the following events:

- (a) low flow, high water, pump failure, or power failure at the sewage pumping station;
- (b) overflow to detention structures;
- (c) low flow in on-line sewer monitoring; or
- (d) low flow at the sewage treatment plant.

- (LW8) The operator must ensure that all alarms are able to operate without mains power.

- (LW9) The operator must test and validate the alarm system at least once each month and maintain a log of all alarm testing, faults identified and remedial action taken.

(LW10) Provision of backup power supply

Permanent backup generator(s) with capability to automatically start and provide power for full pump station operation in the event of power failure must be installed and operated during any power supply failure.

(LW11) A complete and working pump and starter of equivalent capacity to the duty/standby pumps must be kept on site at all times for use as a rotatable spare in the event of a failure that requires pump replacement.

(LW12) Spillage of all chemicals and fuels must be contained within an on-site containment system and controlled in a manner that prevents environmental harm.

NOTE: All petroleum product storage's must be designed, constructed and maintained in accordance with AS 1940 - Storage and Handling of Flammable and Combustible Liquids.

Definitions

Words and phrases used throughout this guideline are defined below. Where a definition for a term used in this guideline is sought and the term is not defined within this guideline the definitions provided in the relevant legislation must be used.

"ADWF" means average dry weather flow experienced in the serviced network feeding through the pump station, being the average flow measured over a period of seven consecutive days, the period to be chosen such that rainfall is less than 0.25mm/d, infiltration of stormwater into the sewerage system is at a minimum and any abnormal influences such as public holidays are excluded" (definition taken from Volume 1, Section 2.2 *Guidelines for Planning and Design of Sewerage Schemes (1991)* Water Resources Commission, Department of Primary Industries).

"approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the *Sustainable Planning Act 2009*.

"ERA" means Environmentally Relevant Activity as defined under the *Environmental Protection Regulation 2008*.

" $L_{A\ 90, \text{adj}, 15 \text{ mins}}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 90% of any 15 minute measurement period, using fast response.

" $L_{A10, \text{adj}, 10 \text{ mins}}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using fast response.

" $L_{A1, \text{adj}, 10 \text{ mins}}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using fast response.

"operator" means any of the following:

- A person having the benefit of this development approval
- The holder of a registration certificate for this development approval
- Anyone undertaking the activity to which this development approval relates (Note: it is an offence to carry out work under a development approval without a relevant registration certificate).

END OF CONDITIONS

ATTACHMENT 1 – Written Overflow Notification Form

a) Registered operator	
Name of registered operator	
Development approval reference number	
Registration certificate reference number	
b) Designated contact person	
Name	
Position and Organisation	
Contact details	
Address:	
Phone number(s):	
Email:	
c) Details of sewage release	
Exact location (e.g. street address, sewage pumping station number, map reference, GPS coordinates etc)	
Infrastructure from which sewage was released (e.g. maintenance hole, rising main, pump/ lift station etc)	
Date and time release started	
Date and time release ceased	
Date and time release first identified	
Date and time of first notification to DERM (and method of notification)	
Approximate volume of substance released (specify how volume was estimated)	
Description of substance released (e.g. household sewage, stormwater, trade waste)	
d) Cause of sewage release	
Describe reason, or suspected reason, for the sewage release (e.g. blockage, power failure, equipment failure, human error, wet weather etc)	
Weather conditions leading up to and during sewage release (e.g. dry, raining, humid, storms, high tide etc)	
e) Environmental harm	
Describe any environmental harm, or nuisance, caused as a result of the sewage release (e.g. visible sewage, odour, dead fish or other aquatic fauna, dead vegetation or other aquatic flora, erosion etc)	
Describe the receiving environment (e.g. pristine or disturbed, urban or rural, waters used for drinking water, recreational use, agricultural use or industrial use etc)	
If sewage was released to water:	
Specify name of water body or closest named downstream water body	
Describe type of water body (e.g. bay, ocean, river, creek, tributary, stormwater drain, gully, wetland, dam etc)	

Approximate volume of substance released to water			
If sewage was released to land:			
Describe land (e.g. private property, public recreational area etc)			
Approximate volume of substance released to land			
Approximate area impacted by the release			
f) Actions taken			
Describe actions taken to stop or minimise the release (e.g. isolate relevant pump, contain release, divert flow, clear blockage, backup power supply, repair fault, tanker sewage etc)			
Describe actions taken to mitigate any environmental harm caused by the sewage release (e.g. contain sewage, remove sewage, remove bulk solids, flush impacted area with fresh water, disinfect impacted area, warning signs etc)			
Provide details of any sampling performed in relation to the overflow (e.g. dissolved oxygen, pH, conductivity, turbidity, ammonia, total Nitrogen, total Phosphorus, BOD, COD, total suspended solids, E. coli, faecal coliforms etc)			
Were samples taken in accordance with the DERM Water Quality Sampling Manual?			
Were samples sent to a NATA (or suitably accredited) laboratory for analyses?			
g) prevention of recurrence			
Describe proposed actions to prevent a recurrence of the sewage release			
Additional information			
Notification completed by			
Name	Position	Signed	Dated







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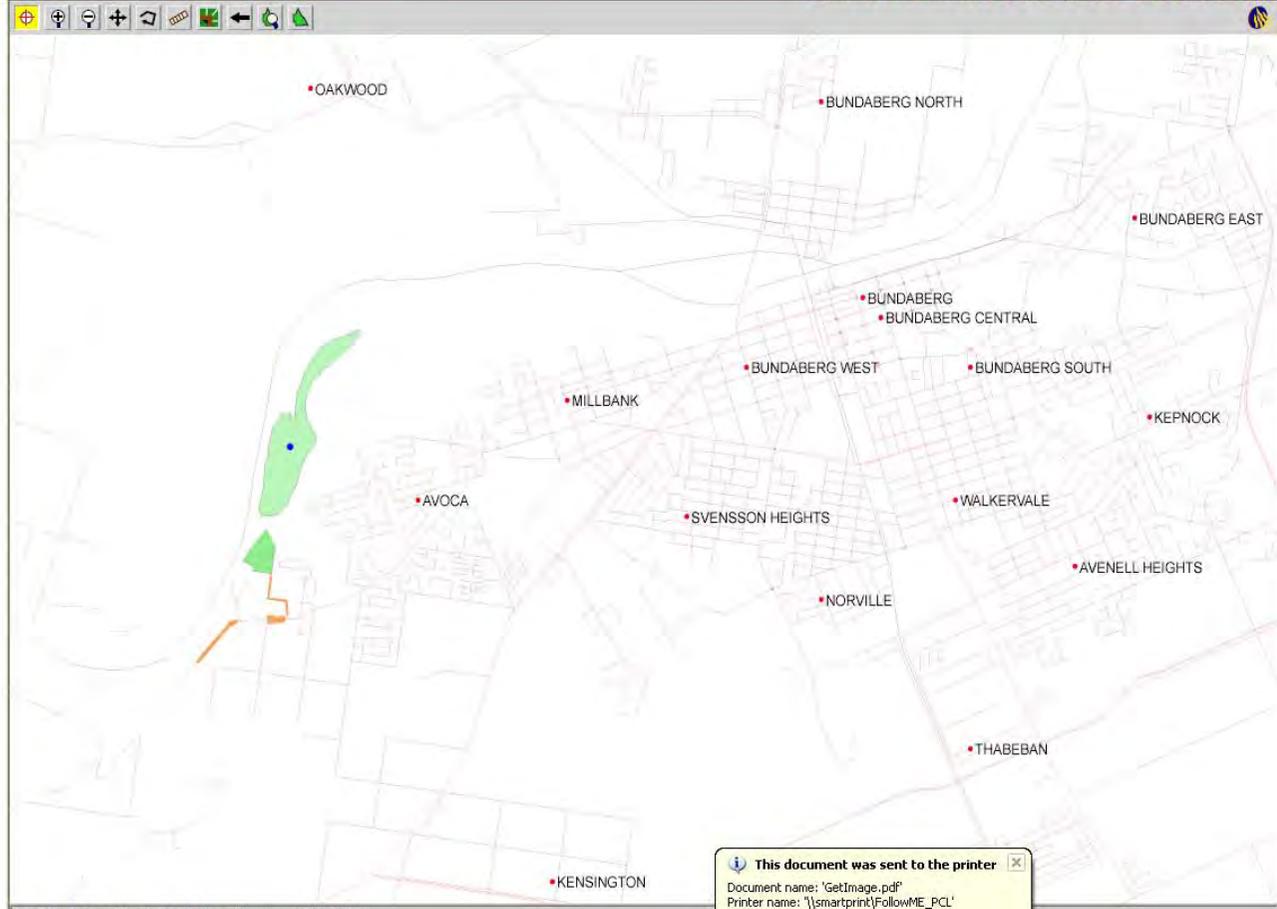
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 - Notings
 - Place Names
 - Survey Marks
 - Survey Plans
- [-] Mapping
 - Profile
 - Settings
- [-] Data Suppression
 - Area By Filter
 - Area By Scale
 - Survey Mark Filter
 - Noting Filter
- [-] Map Suppression
 - Layers
 - User Defined
- Shading
 - Define Area
 - Build Map
 - Refresh Map
 - Export SmartMap
- [+] Other Services
- [+] Admin
- Hide Keymap

Spatial Search Results

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[Survey Search on selected plan\(s\)](#)

Lot/Plan: 274/C37603
Segment/Parcel: 33423/5
Tenure: FH - FREEHOLD
Area: 43.3010 ha
Excluded Area: 0.00 m²
Surveyed: Yes
Coverage: Base
Accuracy: B&D ENTRY CONTROLLED - 0.1M
Locality: AVOCA
Local Government: BUNDABERG REGIONAL
Address: TOMATO ISLAND ,AVOCA

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Department of Environment and Heritage Environment Program Environmental Authority	EA Planner & Final Report Environmental Authorities	Page 1 of 3 Document Date: 25/09/1998	3-A
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EA Planner & Final Report (3-A)

NOTE: 1. This checklist is to be used as part of processing of all applications for environmental authorities.
 2. It is used to plan the assessment process and provides basis for the final report for EA, recording relevant considerations applied, corresponding recommendations and the final decision made.
 3. The whole process is summarised in the applicable procedure 3-2 and fully described in individual function specific procedures referred to below.

SECTION 1: ADMINISTRATION (Applicable Procedure 3-3)

Application Summary

AUTHORITY NUMBER: CM0083 *CM0201* FILE NO (if applicable): LBR12

NAME OF APPLICANT: Smiths Premix Pty Ltd

TRADING AS:

ADDRESS FOR SERVICE OF NOTICE (Not PO Box):

STREET: 39 Enterprise Street

SUBURB: CITY / TOWN: Bundaberg POST CODE: 4670

IEMS APPLICATION: YES/

LIST ALL ERAs (No./description/size): 11a, 20c, 22c, 62

APPLICABLE DATES			
	Original	Revised	
Application received			Actual Decision Date
Application Date			Decision Notification: Due Date Date notified
Due date for receipt of additional information			Take effect date for: LICENCE/APPROVAL
Extension of Time Notice Issue Date			Term to remain in force APPROVAL/PROVIS. LICENCE
Decision Due Date			Review Date

Cancel provision of full licence

FEES			
Date received		Confirmation of required fees (Reg. Sch. 1 and 6)	
Receipt No. issued	N/A	Balance owed/refunded	
Total amount paid		Fee Waiver applied for (see Checklist 3-FW)	YES/NO

Administration Acceptance: Receipt and initial administration checks. See procedure 3-3 (checklist 3-ADM)

OFFICER: [REDACTED]

DATE: 28/6/99

SECTION 2: ASSESSMENT (Applicable Procedures 3-4, 3-8 & 3-9)**Nominated Assessing Officer:****Application Issues (including site details, background, process description):**

stormwater, groundwater, final landform design, rehabilitation, dust, noise

Application Status

Action	Required Y/N	Date Completed	Applicable References
Initial Review	Y	15-4-99	Procedure 3-4 (Checklist 3-ASS)
Fee Waiver	N		Procedure 3-8 (Checklist 3-FW, 3-RIS)
Additional Information s.62	N		Procedure 3-4 (Checklist 3-ASS)
Extension of time s.65			Procedure 3-4 (Checklist 3-ASS)

Assessment Requirements

All considerations listed below to be assessed initially for relevance. Only considerations with specific relevance to the application issues be individually identified and assessed in detail as per applicable procedure / checklist requirements.

Considerations	Required Yes/No	Date Completed	Applicable References
EPP WATER:			Procedures 3-4
Waste management evaluation procedure (s.15)	Y	21-4-99	Checklist 3-PW
Water quality objectives (s.11)	N	21-4-99	Checklist 3-PW
Waste water recycling (s.16)	Y	21-4-99	Checklist 3-PW
Waste water releases on land (s.17)	Y	21-4-99	Checklist 3-PW
Waste water releases to surface water (s.18)	N	21-4-99	Checklist 3-PW
Stormwater management (s.19)	Y	21-4-99	Checklist 3-PW
Direct waste water release to ground waters (s.20)	N	21-4-99	Checklist 3-PW
Incidental waste water release to ground waters (s.21)	Y	21-4-99	Checklist 3-PW
Construction of artificial wet lands for waste treatment (s.22)	N	21-4-99	Checklist 3-PW
Use of nat. biological controls in treat of w/water (s.23)	N	21-4-99	Checklist 3-PW
Acid sulphate soils (s.24)	N	21-4-99	Checklist 3-PW
Waste reception facilities for ships (s.25)	N	21-4-99	Checklist 3-PW
Monitoring particular releases (s.26)	Y	21-4-99	Checklist 3-PW
Impact monitoring (s.27)	N	21-4-99	Checklist 3-PW
EPP NOISE			Procedure 3-4
Evaluation procedure (s.13)	Y	21-4-99	Checklist 3-PN
Matters for consideration (s.14)	Y	21-4-99	Checklist 3-PN
Planning levels (s.15)	Y	21-4-99	Checklist 3-PN
Plan as a condition (s.17)	N	21-4-99	Checklist 3-PN
EPP AIR			Procedure 3-4
Evaluation procedure (s.11)	Y	21-4	Checklist 3-PA
Matters for consideration (s.12)	Y	21-4	Checklist 3-PA
Air poll. Dispers. modelling and monitor of the releases (s.13)	Y	21-4	Checklist 3-PA
OTHER CONSIDERATIONS			Procedure 3-4
Guidelines	Y	21-4	Checklist 3-CON
Model Licences / Skeleton Licence Conditions (General)	Y	21-4	Proc 3-9/Check 3-CON
Standards	Y	21-4	Checklist 3-CON
Codes of Practice	Y	21-4	Checklist 3-CON
EPPC	Y	21-4	Checklist 3-CON
Other Legislation	Y	21-4	Checklist 3-CON
National Strategies	Y	21-4	Checklist 3-CON
SECTION 44			Procedure 3-4
Standard Criteria	Y	21-4	Checklist 3-SC
Applicant Suitability	N	21-4	Procedure 3-4
Views expressed at Conference	N	21-4	Procedure 3-4
NATIVE TITLE ACT			Procedure 3-4
Notification to Interested Parties	N	21-4	Checklist 3-ASS
Response received	N	21-4	Checklist 3-ASS
NOTIFIABLE ACTIVITIES - CONTAMINATED LANDS (s.118E)			Procedure 3-4
Notification of Land form			Notify Land form (s.118E/F)

Department of Environment and Heritage Environment Program Environmental Authority	<h2 style="margin:0;">EA Planner & Final Report</h2> <p style="margin:0;">Environmental Authorities</p>	Page 3 of 3 Document Date: 25/09/1998	3-A
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Consultations			
Action	Required Yes/No	Date Completed	Applicable References
Site visit	yes	15-4-99	Procedure 3-4
Meetings/Conference:			Procedure 3-4
Draft conditions accepted by applicant: YES/NO			
If no, provide reasons/explanation: .			
Additional Comments/Issues:			

Recommendation	
Application to be: (delete as appropriate)	
<input checked="" type="radio"/> GRANTED (s.45)	<input type="radio"/> REFUSED (s.48)
<input type="radio"/> PROVISIONAL LICENCE (s.47)	
If waiver of fees applied for (recommendation as per attached Fee Waiver checklist): N/A.	
Application to be	<input checked="" type="radio"/> GRANTED
	<input type="radio"/> REFUSED
Name:	Date: 21-4-99.

SECTION 3: REVIEW & ENDORSEMENT (Applicable Procedure 3-5)	
Plan Approved: (see procedure 3-4)	Supervisor: [Redacted] Date: 28/6/99
Recommendation Reviewed and Endorsed: (see procedure 3-5)	Supervisor: [Redacted] Date: 28/6/99.

SECTION 4: DECISION (Applicable Procedure 3-6)	
Decision process in accordance with Procedure 3-6 (Checklist 3-Dic): Statutory requirements satisfied, decision made, effective date determined.	
Recommendations (delete/insert as applicable):	
	APPROVED REFUSED <input checked="" type="checkbox"/> VARIED
Date to take effect from for:	LICENCE: 21/7/99
Term to remain in force for:	APPROVAL: [Redacted]
	Provisional Licence: N/A.
Reasons for refusal/Variations made:	
For waiver of fees application (delete/insert as applicable): N/A.	
Fees due: \$	<input checked="" type="radio"/> GRANTED REFUSED
Delegate: [Redacted]	Date: 2/7/99.

SECTION 5: NOTIFICATION, RECORD & REGISTER (Applicable Procedure 3-7)	
Process in accordance with procedure 3-7 (Checklist 3-ADM):	
Applicant notified of decision, records and the Register updated, follow up action initiated, files completed and process closed.	
Officer: [Redacted]	Date: 21-4-99 2/7/99

Department of Environment and Heritage
 Environment Program
 Environmental Management
 Environmental Authority

EA Process Checklist:
APPLICATION ASSESSMENT

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3-ASS

EA Process Checklist - Application Assessment (3-ASS)

NOTE:

1. This checklist is to be completed, when required, as part of assessment of an application for environmental authority.
2. It is supplementary to and be attached to the main process checklist 3-A EA Planner and Final Report.
3. The relevant process is fully described in the applicable procedure 3-4.

AUTHORITY NO:

FILE NO:

(The above identification is required only on documents generated, controlled and filed separately from the main process report.)

PART 1: INITIAL REVIEW

Item/Action	Corrective Action/Comments	✓(Yes) if correct & completed or insert NA
1. Verify correctness of ERAs, fees received and applicable dates recorded in section 1 (Administration) of checklist 3-A. NOTE: Applicable Dates table is to be kept up to date with notices issued for additional information and extension of time and the Decision Due Date revised as appropriate.		
2. Confirm application details as per Guidelines 1-7 of "Guidelines for Completing an Application," by verifying that the following details are given: i) full name of applicant ii) Queensland business name (if applicable) iii) ACN number iv) address for service of notice (not a post office box) v) applicable ERAs vi) real property description of premises (e.g. Lot No; RP description; Title Reference, etc.).		
3. Identify specific issues relevant to application (background, process, site details, etc.)		✓
4. Complete initial review of application as per procedure 3-4, confirm application status, e.g. requirement for additional information, extension of time, fee waiver application, etc.		✓

PART 2: PLANNING

5. Determine specific assessment considerations relevant to the identified application issues (complete "Required" column in assessment requirements of checklist 3-A as appropriate. NOTE: i) All considerations/criteria to be initially assessed, but only the relevant ones selected for detailed evaluation. ii) Considerations to include all EPPs, other considerations, section 44, Native Title, etc.		✓
6. Propose appropriate consultations, site visits, meetings.		✓
7. Obtain approval of assessment plan by supervisor/delegate (section 3 of checklist 3-A to be signed).		

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PART 3 DETAILED ASSESSMENT
NOTE: The application to be assessed in detail against the requirements of identified relevant considerations (refer to the checklist 3-A).

Item/Action	Corrective Action/Comments	✓(Yes) if correct & completed or insert NA
8. Evaluate application by stated procedure in applicable environmental protection policies and consider/report their relevant provisions on separate checklists. (e.g. see Checklists 3-PW for EPP WATER, 3-PN for EPP NOISE and 3-PA for EPP AIR). NOTE: i) Consideration to be given to each relevant criterion. ii) Issues identified under each criterion to be addressed by appropriate recommendation or proposed licence condition(s).		✓
9. Evaluate other considerations identified as relevant in main process checklist 3-A and complete applicable individual checklists with resulting recommendations and conditions.		✓
9.1 For applications involved with native title: consider native title requirements to determine whether notification to interested parties is required. If yes, notification sent allowing for a response time of up to 28 days.		N/A
10. Consider Standard Criteria and report on separate checklist 3-SC. NOTE: i) Consideration to be given for each criteria ii) If particular standard criteria was considered elsewhere, (e.g. as part of EPP consideration) appropriate comment (reference) is made in the checklist 3-SC.		✓
11. Carry out technical evaluation by assessing the following: a) Requirements of EA Guidelines 9-13, namely: <ul style="list-style-type: none"> • description of activity(s) e.g. site, discharge points, proposed operation, process details, etc. • description of environment e.g. maps, zoning details etc. • stormwater management plan • waste minimisation plan • contaminant releases and likely effects of: <ul style="list-style-type: none"> discharges to water discharges to air discharges to land noise discharge of other contaminants. b) Requirements of EA Guidelines 14-22 (where applicable), namely description of: <ul style="list-style-type: none"> • contaminants discharged to waters • contaminants discharged to air • contaminants discharged to land • noise emissions • landfills • disposal methods for solid and liquid wastes transported off the premises • discharge of any other contaminant • interference with an environmental value cause by light emitted • interference with an environmental value caused by structure-borne vibration. 		✓

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PART 3 - DETAILED ASSESSMENT		
21. For Provisional Licence only, additionally ensure: - conditions in s47 1(a) and (b) are met - applicant's undertaking to comply with EPPs is received.		N/A
22. For Refusal of EA (s.48) only, clearly state: - reasons for the refusal and right for review or appeal against the decision - if applicant is not suitable person to hold the authority (e.g. conviction of an offence in Qld. or interstate).		N/A
23. For fee waiver application: COMPLETE AND ATTACH FEE WAIVER CHECKLISTS 3-FW and 3-RIS (if applicable).		N/A
24. Endorsement of draft EA by supervisor (if required): - submit for review - endorsement obtained		/
25. Draft EA: - submit to applicant for acceptance/comment - acceptance obtained/comments evaluated.		
26. Finalise recommendation for EA and substantiating report on application. Attach to completed main checklist 3-A and all other process checklists used and forward for endorsement and decision.		
SECTION COMPLETED		NAME: [REDACTED] DATE: 21-4-99

Department of Environment and Heritage
Environmental Program
Environmental Management
Environmental Authority

Standard Criteria Checklist & Report

Environmental Authorities

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3-SC

Standard Criteria Checklist & Report (3-SC)

- NOTE:**
1. This checklist is to be completed as part of the assessment process for an appropriate environmental management decision (EA, EMP, EPO) and be attached to the main process report to assist the delegate in making a decision.
 2. Each of the listed standard criteria to be considered for its specific relevance, if not considered elsewhere.
 3. Where relevant, a standard criterion should be considered to the extent that is reasonable under the circumstances.

**ENVIRONMENTAL MANAGEMENT
DECISION (EA, EMP, EPO) NO:**

FILE NO:

(The above identification is required only on documents generated, controlled and filed separately from the main process report).

STANDARD CRITERIA FOR DECIDING APPLICATION

(a) Consider principles of ecologically sustainable development as set out in the National Strategy for Ecologically Sustainable Development.

Comments/Issues/Reasons for Conditions (not addressed elsewhere): *Part land use goals required*
Resulting Conditions: *(A8) (A9)*

(b) Consider Applicable Environmental Protection Policies. (If not considered elsewhere)

Comments/Issues/Reasons for Conditions: *Considered*
Resulting Conditions:

(c) Consider Applicable Commonwealth, State or local government plans, standards, agreements or requirements. (If not considered elsewhere)

Comments/Issues/Reasons for Conditions: *Considered*
Resulting Conditions:

(d) Consider Applicable environmental impact study, assessment or report. (If not considered elsewhere)

Comments/Issues/Reasons for Conditions: *N/A*
Resulting Conditions:

(e) Consider the character, resilience and values of the receiving environment. (If not considered elsewhere)

Comments/Issues/Reasons for Conditions: *Considered*
Resulting Conditions:

(f) Consider all submissions made by the applicant and interested parties, e.g. consultation. (If not considered elsewhere)

Comments/Issues/Reasons for Conditions: *Considered*
Resulting Conditions:

(g) Consider best practice environmental management for the activity. (If not considered elsewhere)

Comments/Issues/Reasons for Conditions: *considered*
Resulting Conditions:

(h) Consider the financial implications of the recommendations related to operation of the activity or applicable industry. (If not considered elsewhere)

Comments/Issues/Reasons for Conditions: *considered*
Resulting Conditions:

(i) Consider public interest in the activity(ies). (If not considered elsewhere)

Comments/Issues/Reasons for Conditions: *considered*
Resulting Conditions:

(j) Consider any other matter prescribed by Regulation. (If not considered elsewhere)

IEMS required/included *(YES) NO*
Comments/Issues/Reasons for Conditions: *Industry, marketing etc.*
Resulting Conditions: *(A6) (A7)*
Names of Regulations considered: *N/A*

REPORT APPROVALS

Completed	Reviewed and Endorsed	Accepted
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Date: <i>21-4-99</i>	Date: <i>28/0/99</i>	Date: <i>2/7/99</i>

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Other Consideration Checklist & Report (3-CON)

NOTE:

1. This checklist is to be completed as part of the assessment process for an appropriate environmental management decision (EA, EMP, EPO) and be attached to the main process report to assist the delegate in making a decision.
2. Each of the listed references to be considered for its specific relevance, if not considered elsewhere.
3. Where relevant, a reference should be considered to the extent that is reasonable under the circumstances.

ENVIRONMENTAL MANAGEMENT DECISION (EA, EMP, EPO) NO:

FILE NO:

(The above identification is required only on documents generated, controlled and filed separately from the main process report).

OTHER CONSIDERATIONS FOR MAKING DECISION

Selected applicable relevant references below to be identified by and appropriate details given.

Guidelines

- Departmental Guidelines
- ANZECC Guidelines
- ERA specific guide
- Other Guidelines
- Other Licences (for consistency)

Comments/Issues/Reasons for Conditions: *Licence based on CSR licence in same area.*

Resulting Conditions: *many*

Model Licences / Skeleton Licence Conditions (General)

- Model Licences
 - Skeleton Licence Conditions - General (if not considered elsewhere)
- NOTE: For a listing of approved conditions (refer to procedure 3-9)

Comments/Issues/Reasons for Conditions: *As above*

Resulting Conditions: *many*

Standards

- Applicable Australian Standards
- Other standard

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

Code of Practices

- Relevant Code(s):

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

EPPC

- Relevant EPPC

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

Other Legislation/Agencies

- Applicable Legislation:

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

National Strategies

- Strategies:

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

REPORT APPROVALS

Completed	Reviewed and Endorsed	
Assessing Officer:	Supervisor:	Delegate:
Date: <i>21-4-99</i>	Date: <i>23/6/99</i>	Date: <i>28 2/7/99</i>

Department: Environment and Heritage
 Environment Program
 Environmental Authorities

**EPP (Air) Checklist - Environmental
 Management Decisions**
 Environmental Authorities

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3-PA

EPP (Air) Checklist-Environmental Management Decisions (3-PA)

NOTE: 1. This checklist is to be completed as part of the process of making an environmental management decision for an environmental authority or an environmental management program and be attached to the main process report to assist the delegate in making a decision.
 2. Section numbers refer to provisions of the Environmental Protection (Air) Policy 1997.

AUTHORITY NO:

FILE NO:

(The above identification is required only on documents generated, controlled and filed separately from the main process report.)

**Environmental Management Decisions for Environmental Authorities and
 Environmental Management Programs**

Section 11 Evaluation Procedure

Determine or identify the environmental values and carry out the following steps:

- a) consider how the activity/ies may affect the environmental values;
- b) evaluate the activity/ies in relation to the following-
 - i) any program developed by the chief executive under part 5, division 1;
 - ii) the air quality goals;
 - iii) any relevant approved code of practice;
 - iv) the standard criteria and other matters that must be considered under the Act;
 - v) the matters mentioned in Section 12 (see below);
- c) review potential conditions with the applicant to achieve the objective of the EPP (Air).

Comments/Issues/Reasons for Conditions: *Dust may be a concern. Dust monitoring required - Dust minimisation - noise, required.*

Resulting Conditions:

(B1 - B10), (B12 - B16)

Section 12 Matters for Consideration

Evaluate the relevant activity/ies in relation to the following matters:

- a) the characteristics of the releases of contaminants to air from the relevant activity/ies;
- b) any of the following matters of which you are aware-
 - i) the order in which the applicant and affected persons started to occupy land at or near the relevant site;
 - ii) the views of affected persons about releases of contaminants to the air environment from the relevant activity/ies;
 - iii) any other information or other matter concerning the effect of the relevant activity/ies on the air environment.

Comments/Issues/Reasons for Conditions: *Dust should be inert although a nuisance.*

Resulting Conditions:

(N/A)

Department of Environment and Heritage Environmental Program Environmental Authorities	EPP (Air) Checklist - Environmental Management Decisions Environmental Authorities	Page 2 of 2 Document Date: 25/09/1998	3-PA
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Section 13 Air pollution dispersion modelling and monitoring of releases

To be applied if it is likely that the releases will, with other releases in the area known to the administering authority, cause environmental harm.

Dispersion modelling

Consider whether the applicant has, or will be required, to carry out air pollution dispersion modelling for the releases or proposed releases, in a way that complies with a relevant protocol, for the assessment of:

- a) predicted air quality against an air quality goal; or
- b) the potential for reducing the impact on the air environment; or
- c) the cumulative effect of the releases; or
- d) the appropriate dimensions or location of a chimney from which it is proposed to release contaminants into the air environment.

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

Monitoring

Consider requiring the applicant to monitor :

- a) the contaminants released by the relevant activity; and
- b) the impacts of the contaminants released on the air environment

Consider the following when assessing whether or not to require monitoring:

- a) whether monitoring is needed to assess compliance with the applicant's environmental authority or environmental management program and, if monitoring is needed, the frequency of the monitoring;
- b) whether continuous monitoring of releases is needed;
- c) whether monitoring is needed to verify the conclusions of an environmental impact assessment, study or report about the relevant activity;
- d) if monitoring is needed - the protocols for monitoring the releases and the air environment.

Comments/Issues/Reasons for Conditions: *Just monitoring required.*

Resulting Conditions: *(H8-H9)*

EPP AIR: ADDITIONAL ASSESSMENT COMMENTS (if required)

REPORT APPROVALS		
Completed	Reviewed and Endorsed	Accepted
Assessing Officer: <i>[Signature]</i>	Supervisor: <i>[Signature]</i>	Delegate: <i>[Signature]</i>
Date: <i>21-4-99</i>	Date: <i>28/6/99</i>	Date: <i>27/9/99</i>

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**EPP (Noise) Checklist - Environmental
Management Decisions**
Environmental Authorities

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EPP (Noise) Checklist-Environmental Management Decisions (3-PN)

NOTE 1. This checklist is to be completed as part of the process of making an environmental management decision for an environmental authority and be attached to the main process report to assist the delegate in making a decision.
2. Section numbers refer to provisions of the Environmental Protection (Noise) Policy 1997.

AUTHORITY NO:

FILE NO:

(The above identification is required only on documents generated, controlled and filed separately from the main process report.)

Environmental Management Decisions for Environmental Authorities

Section 13 Evaluation Procedure

Determine or identify the environmental values (S.10) and carry out the following steps:

- a) consider how the noise relevant activity/ies may affect the environmental values;
- b) evaluate the relevant activity/ies in relation to the following-
 - i) any program developed by the chief executive under part 7, division 1;
 - ii) the acoustic quality objective;
 - iii) any relevant code of practice approved by the Minister;
 - iv) the standard criteria and other matters that must be considered under the Act;
 - v) the matters mentioned in Section 14 (see below);
- c) review potential conditions with the applicant to achieve the objective of the Act.

Comments/Issues/Reasons for Conditions: *No complaints have been received but activity will be monitored to ~~prevent~~ in the event of a complaint*

Resulting Conditions:

(F1).

Section 14 Matters for Consideration

Evaluate the noise relevant activity/ies in relation to the following matters:

- a) whether the noise relevant activity/ies is the use or operation of a beneficial asset;
- b) the characteristics of the noise from the noise relevant activity/ies;
- c) any of the following matters of which it is aware-
 - i) the lawful use of the site (e.g. town planning approvals, etc.), apart from under the Act, of the applicant carrying out the relevant activity/ies at the relevant site.
 - ii) the order in which the applicant and affected persons started to occupy land at or near the relevant site;
 - iii) the order in which the applicant and affected persons started to carry out the noise relevant activity/ies and other activities that may be affected by noise from the noise relevant activity/ies;
 - iv) the views of affected persons about noise from the noise relevant activity/ies;
 - v) other noises ordinarily present at or near the relevant site;
 - vi) any other information or other matter concerning the effect of the noise relevant activity/ies on the acoustic environment.

Comments/Issues/Reasons for Conditions: *Neighb, residence, occupation.*

Resulting Conditions:

N/A.

Section 15 Planning Levels

If a noise relevant activity/ies is the use or operation of a beneficial asset (S.5), the setting of a reasonable noise level for the activity/ies:

- a) may have regard to any relevant planning levels; and
- b) must have regard to the acoustic quality objective and all the relevant circumstances for the case.

NOTE: If a reasonable noise level for the activity/ies is set that is not less than a planning level specified for the activity/ies, the ways in which the source noise can be abated must be considered.

Comments/Issues/Reasons for Conditions: *Limits have been set in event of a complaint. Hours of operation are limited.*

Resulting Conditions: (F1), (F2-F12).

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EPP (Noise) Checklist - Environmental Management Decisions

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Section 17 Plan as a Condition - Environmental Authority

If an environmental authority needs to include a condition that the noise relevant activity/ies be carried out under a noise management plan, the terms of the plan may deal with, for example:

- a) the measures to be taken under the plan to minimise the adverse effects of the noise relevant activity/ies on the environmental values; and
- b) who is responsible for carrying out each of the measures; and
- c) maximum, Leq and background levels (plus any other appropriate noise descriptors and associated time periods) for the noise relevant activity/ies; and
- d) monitoring the noise from the noise relevant activity/ies; and
- e) processes for dispute resolution that the applicant must follow to deal with complaints received about the impact of noise from the activity/ies.

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

EPP NOISE - ADDITIONAL ASSESSMENT COMMENTS (if required)

REPORT APPROVALS

Completed	Reviewed and Endorsed	Accepted
Assessing Officer: [Redacted]	Supervisor: [Redacted]	Delegate: [Redacted]
Date: 21-4-99	Date: 28/6/99	Date: 29/7/99

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EPP (Water) Checklist - Management of Activities (3-PW)

NOTE:

- This checklist is to be completed as part of the process of making an environmental management decision for an environmental authority, an environmental management program or an environmental protection order and be attached to the main process report to assist the delegate in making a decision.
- Section numbers refer to provisions of the Environmental Protection (Water) Policy 1997.

ENVIRONMENTAL MANAGEMENT

DECISION (EA, EMP, EPO) NO:

FILE NO:

(The above identification is required only on documents generated, controlled and filed separately from the main process report)

MANAGEMENT OF ACTIVITIES	
List below any waters (including groundwaters) affected by releases of contaminants and briefly describe the type of release in the following table.	
Relevant Issues	Description
e.g. Release to Back creek	sewage treatment plant - secondary effluent

Section 15: Waste management evaluation procedure

In making a recommendation about the appropriateness of any proposed water treatment process or disposal method, consider the following Waste Management procedure and assess the position of the proposal or activity in the following hierarchy:

- Step 1: Prevention** - evaluate waste prevention options and require the relevant person to implement appropriate waste prevention;
- Step 2: Recycling** - if waste prevention does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water recycling options and require the relevant person to implement appropriate treatment and recycling;
- Step 3: Disposal to land, sewer or surface waters** - if waste water treatment and waste water recycling does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water disposal options of release on land, release to sewer and release to a surface water and require the relevant person to implement appropriate treatment and disposal;
- Step 4: Disposal of Groundwaters** - if waste water treatment and waste water disposal does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water disposal to ground water and require the relevant person to implement appropriate treatment and disposal.

Comments/Recommendations:
 stormwater diversion required at 3 of 9 sites. water high is ss will be recycled at 3/4 sites. water will be treated prior to release at 3/4 sites.

Section 11: Setting Water Quality Objectives (As set out in Sections 7, 8 and 9)

Environmental Values Identified for Specified Waters:
Indicators Identified for Specified Waters:
Water Quality Guidelines Identified for Specified Waters:
Comments/Issues/Reasons for Conditions:
Water Quality Objectives and Licence Conditions Set:

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EPP (Water) Checklist - Management of Activities

Environmental Authorities

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Section 16 Waste water recycling

Consider:

- a) the water quality objectives for waters affected by the recycling; and
- b) the maintenance of acceptable health risks.

Comments/Issues/Reasons for Conditions: *only water contamination will be hydrocarbons, suspended solids & pH.*

Resulting Conditions: *water to be recycled, oil water is to be treated, turbid water treated in settling ponds.*

Section 17 Waste water releases on land

Consider:

- a) the existing quality of waters that may be affected by the release and the water quality objectives for the waters;
- b) available land and wet weather storage;
- c) the cumulative effect of the release concerned and any other releases of contaminants to waters that could be affected by the release that are known to the administering authority;
- d) the need to protect soil and plants from damage;
- e) the maintenance of acceptable health risks;
- f) any applicable code of practice approved under s219 of the Act.

Comments/Issues/Reasons for Conditions: *hard rock quarry water will have high ss. Released to grass to remove ss.*

Resulting Conditions: *(C3).*

Section 18 Waste water releases to surface water (other than contaminated stormwater)

Consider:

- a) whether the size of the initial mixing zone will adversely affect an environmental value, especially biological integrity and suitability for recreational use;
- b) whether concentrations of contaminants in the initial mixing zone are acutely toxic to the biota;
- c) the existing quality of the surface water;
- d) the cumulative effect of the release concerned and any other releases of contaminants to the surface water known to the administering authority;
- e) future releases to the surface water known to the administering authority;
- f) the water quality objectives for waters outside the initial mixing zone.

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

Section 19 Stormwater Management

If an activity involves, or is likely to involve the release of contaminated stormwater to a roadside gutter, a stormwater drain or a surface water, consider whether the management of stormwater releases from the activity is adequate to prevent or minimise environmental harm in waters affected by the release, by evaluating:

- a) the existing quality of a water that may be affected by the release and the water quality objectives for the water;
- b) the cumulative effect of the release in question and any other releases of contaminants to the water known to the administering authority;
- c) the technology, management and nature of processes being, or to be used in carrying out the activity;
- d) any relevant urban stormwater quality management plan prepared under section 42;
- e) the topography of the locality and local climatic conditions;
- f) if the activity involves exposing or disturbing soil - the soil type, its characteristics and the way it is managed.

Comments/Issues/Reasons for Conditions: *Stormwater at 3 of sites must report of sedimentation ponds to settle ss.*

Resulting Conditions: *(C3), (C4), (C5), (D15), (D16), (D17), (D18), (D19), (D13), (D12), (D10), (D1-D9)*

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**EPP (Water) Checklist -
 Management of Activities**
 Environmental Authorities

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Section 20: Direct waste water release to ground waters

Consider:

- whether the size of the attenuation zone will adversely affect an environmental value, especially in the draw-down zones of any bores used to obtain water for irrigation, stock or supply for drinking;
- the existing quality of the ground water;
- the cumulative effect of the release concerned and any other releases to the ground water known to the administering authority;
- the water quality objectives for waters outside the attenuation zone.

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

Section 21: Incidental waste water release to ground waters

Consider:

- the existing quality of, and the water quality objectives for, the ground water or a surface water likely to be affected by the release;
- the cumulative effect of the release concerned and any other releases of waste water to the ground water known to the administering authority;
- requiring the relevant person to minimise or prevent infiltration of waste water to the ground water.

Comments/Issues/Reasons for Conditions: *Plugging of all drill holes*

Resulting Conditions: *(c7)*

Section 22: Construction of artificial wetlands for waste water treatment

If an activity involves the construction of an artificial wetland for waste water treatment in a natural wetland, consider whether the existing ecological values, or the ecological values likely to exist after rehabilitation, of the natural wetland are so significant that the artificial wetland should not be constructed in the natural wetland by evaluating:

- whether the natural wetland is of local, regional or national importance using wetlands criteria given in the ANCA Directory;
- whether the natural wetland no longer functions as a wetland because its ecological values have been degraded as evidenced by:
 - the substantial loss of invertebrates from the benthic region; or
 - the substantial invasion by exotic plants so that native plants can no longer compete; or
 - the wetland is no longer fulfilling ecological functions including, for example, providing breeding, feeding or roosting sites for resident or migratory aquatic biota and birds;
- whether the degradation could be reversed by cost-effective remedial or rehabilitation measures;
- potential improvements to downstream water quality through building the artificial wetland;
- whether there is an alternative site for construction of the artificial wetland.

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

Section 23: Use of natural biological controls in treatment of waste water

Consider:

- any safety information available about the controls and the recommended dose levels for the controls; and
- the likely persistence and effect of the controls on the environment; and
- whether there are any potential pathogens in the controls.

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

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**EPP (Water) Checklist -
Management of Activities**
Environmental Authorities

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Section 24 Acid sulphate soils

If an activity involves the exposure or disturbance of acid sulphate soils or the lowering of a water table associated with acid sulphate soils, consider requiring the relevant person to implement appropriate management actions, including, for example:

- a) avoiding or minimising the disturbance of the soils;
- b) neutralising the soils;
- c) managing water table fluctuations, freshwater flows and tidal water levels to ensure the maintenance of adequate water cover over the soils;
- d) burying neutralised soils on the site under cleanfill;
- e) burying soils under permanent water or a permanent water table so the soils are not exposed to oxygen;
- f) treating or disposing of leachate and run off in an appropriate way.

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

Section 25 Waste reception facilities for ships

If an activity involves a place for the mooring, docking or berthing of ships, consider requiring the relevant person to provide waste reception facilities, by evaluating:

- a) waste reception facilities should be required only for wastes that usually need to be released from ships using the place;
- b) the type of waste reception facilities required depends on the activities for which the place is used and may include, for example:
 - i) sewage pump-out stations or other fixed onshore facilities; and
 - ii) vacuum tankers for collection of oil or sewage or other mobile onshore facilities; and
 - iii) an adequate number of easily accessible onshore rubbish bins and toilets; and
 - iv) mobile barges for oil, sewage and rubbish collection; and
 - v) quarantine facilities.
- c) larger ships may be able to keep wastes on-board and treat or dispose of the wastes at reception facilities at their home port or elsewhere.
- d) any relevant quarantine laws about the reception from overseas ships of waste particularly animal waste, drainage from sick bays or medical facilities, galley scraps, medical wastes and organic refuse;
- e) any relevant obligations under MARPOL 73/78 in relation to Annexes I, II and V.

Comments/Issues/Reasons for Conditions:

Resulting Conditions:

Section 26 Monitoring particular releases

1. If an activity involves the release of waste water on land or to a water, consider requiring the relevant person to monitor the waste water releases by evaluating:

- a) whether monitoring is needed:
 - i) to decide if a condition of an environmental authority or environmental management program or an environmental protection order is being complied with; or
 - ii) to decide if a system to prevent contamination of land or waters by waste water is required or an existing system is functioning properly; or
 - iii) because of the risk, and likely consequences, of the system failing;
- b) the variability of waste water released from the activity;
- c) the protocols for monitoring the releases;
- d) requiring the relevant person to use continuous monitoring equipment where it is reasonable and practicable.

Comments/Issues/Reasons for Conditions: *Monitoring for SS & pH at Enterprise St.*

Resulting Conditions:

(H11)

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Section 26 Monitoring particular releases

2. 3. If the relevant person is required to carry out monitoring, consider the following factors in nominating the frequency of the monitoring and the indicators to be monitored:

- a) the type of activity to be carried out;
- b) the risk of harm to environmental values involved in carrying out the activity;
- c) the frequency of monitoring needed:
 - i) to decide if a condition of an environmental authority or environmental management program or an environmental protection order is being complied with; or
 - ii) to decide if a system to prevent contamination of land or waters by waste water is functioning properly; or
 - iii) because of the risk and potential consequences of the system failing;
 - iv) to ascertain the variability of waste water released from the activity;
- d) any factors specific to the site where the activity is, or will be, carried out.

Comments/Issues/Reasons for Conditions:

 Resulting Conditions:

Section 27 Impact monitoring

1. If an activity involves the release, or potential release, of waste water on land or to a water, consider requiring the relevant person to carry out impact monitoring of the effect of the waste water releases. In evaluating the need for monitoring and setting suitable conditions consider:

- a) the protocols for monitoring the land or water to which the waste water is released; and
- b) take into account impact monitoring is generally only required:
 - i) for large or hazardous activities with potential for causing significant environmental harm; or
 - ii) to measure the size of the initial mixing zone or attenuation zone from a large or complicated release; or
 - iii) to verify the conclusions of an environmental impact assessment, study or report; or
 - iv) to decide future disposal strategies; or
 - v) if there is concern over levels of a particular contaminant in a water and there are known activities that release that contaminant to the water.

Comments/Issues/Reasons for Conditions:

 Resulting Conditions:

2. If the relevant person is required to carry out impact monitoring, an administering authority must consider the following factors in nominating the frequency of the monitoring and the indicators to be monitored:

- a) the type of activity to be carried out;
- b) the risk of harm to environmental values involved in carrying out the activity;
- c) the water quality objectives for a water affected by the activity;
- d) any factors specific to the site where the activity is, or will be, carried out.

Comments/Issues/Reasons for Conditions:

 Resulting Conditions:

EPP WATER: ADDITIONAL ASSESSMENT COMMENTS (if required)

REPORT APPROVALS

Completed	Reviewed and Endorsed	Accepted
Assessing Office: <i>[Signature]</i>	Supervisor: <i>[Signature]</i>	Delegated: <i>[Signature]</i>
Date: 21-4-99.	Date: 20/6/99	Date: 2/7/99.

Permit¹

S619 Environmental Protection Act 1994

Development Approval for a MCU involving an ERA

Permit number: ENDC00542106

Valid From: 17-JUL-2006

Details

Permit Holder(s)	Name	Address
Principal Holder	Boral Resources (QLD) Pty Ltd	AMP Centre Level 39 50 Bridge Street SYDNEY NSW 2000

Location(s)	Lot and Plan	Activity(s)
Tomato Island Quarry	274 CP37603	<p>ERA 11(a) Crude oil storing or petroleum product storing - crude oil or petroleum product in tanks or containers having a combined total storage capacity of 10 000 L or more but less than 500 000 L. (11(a) Crude oil storing >10000 but <500000L2)</p> <p>ERA 20(b) Extracting rock or other material - extracting rock (other than rock mined in block or slab form for building purposes), sand (other than foundry sand), clay (other than clay used for its ceramic properties, kaolin or bentonite), gravel, loam or other material (other than gravel, loam or other material under a mining tenement or petroleum authority) from a pit or quarry using plant or equipment having a design capacity of 5 000 t or more, but less than 100 000 t, a year. (20(b) Extraction >5000 but <100000 t/a1)</p> <p>ERA 22(b) Screening etc. materials - screening, washing, crushing, grinding, milling, sizing or separating material extracted from the earth (other than under a mining tenement or petroleum authority) or by dredging using plant or equipment having a design capacity of more than 5 000 t, but less than 100 000 t, a year. (22(b) Screening >5000 t but <100000 t/a1)</p> <p>ERA 28 Motor vehicle workshop - operating a workshop or mobile workshop in the course of which motor vehicle mechanical or panel repairs are carried out in the course of a commercial or municipal enterprise (other than on a farm or under a mining tenement) or on a commercial basis. (28 Motor vehicle workshop1)</p>

Conditions of Approval

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Environmental Protection Agency and the Queensland Parks and Wildlife Service.

Permit¹

Permit number: ENDC00542106

Agency interest: General

G1 Please Refer to Appendix 1 for Schedule of conditions



.....
Signed

Environmental Protection Agency

Date 17/7/06

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Environmental Protection Agency and the Queensland Parks and Wildlife Service.



Permit¹

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Permit¹

Permit number: ENDC00542106

Agency interest: General

G1 Please Refer to Appendix 1 for Schedule of conditions

[Redacted Signature]

Signed

[Redacted Name]

Environmental Protection Agency

Date 17/1/06

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Environmental Protection Agency and the Queensland Parks and Wildlife Service.



APPENDIX 1

Schedule of Conditions

Schedule A - Activity

Access to Copy of Development Approval

- (A1) A copy of this Development Approval must be kept in a location readily accessible to personnel carrying out the activity.

Records

- (A2) Any record or document required to be kept by a condition of this Development Approval must be kept at the authorised place for a period of at least five years and be available for examination by an authorised person. For daily and weekly records, the record retention requirements of this condition will be satisfied if any daily and weekly records are kept for a period of at least three (3) years and these records are then kept in the form of annual summaries after that period.

Alterations

- (A3) No change, replacement or operation of any plant or equipment is permitted if the change, replacement or operation of the plant or equipment increases, or is likely to substantially increase, the risk of environmental harm above that expressly provided by this Development Approval.

An example of a substantial increase in the risk of environmental harm is an increase of 10% or more in the quantity of the contaminant to be released into the environment.

Monitoring and Measurements

- (A4) All determinations of the quality of contaminants released to the environment and all measurement and reporting of noise levels that are required by this Development Approval must be undertaken by a person or body possessing appropriate experience and qualifications to perform the required determinations and the required measurements.
- (A5) All instruments and devices used for the measurement or monitoring of any parameter under any condition of this Development Approval must be calibrated, and appropriately operated and maintained.

Integrated Environmental Management System (IEMS)

- (A6) The Registered Operator must:
- (a) develop and implement an Integrated Environmental Management System which provides for the following functions:
 - (i) the monitoring of releases of contaminants into the environment and an environmental assessment of the releases. This must include site plans identifying monitoring locations and standard operating procedures for sampling; and
 - (ii) staff training and awareness of environmental issues. This must include a site environmental induction for all employees; and
 - (iii) the conduct of scheduled environmental and energy audits; and
 - (iv) waste prevention, treatment and disposal; and
 - (v) a program for continuous improvement; and
 - (vi) reporting arrangements on the effectiveness of the environmental management of the activities.

- (b) on or before **1 September 1999** lodge a detailed description of the Integrated Environmental Management System and its documentation with the Administering Authority for its review and comment; and
 - (c) on or before **1 December 1999**, have completed and implemented the Integrated Environmental Management System; and
 - (d) have due regard to that comment in the finalisation of the Integrated Environmental Management System.
- (A7) A copy of the Integrated Environmental Management System must be kept in a location readily accessible to personnel carrying out the activity eg at each site.

Mine Plan

- (A8) The Registered Operator must:
- (a) develop and implement a mine plan which provides for the following functions:
 - (i) final land form design and post disturbance land use; and
 - (ii) specific locations for annual extraction; and
 - (iii) annual rehabilitation targets and species selection for the rehabilitation program; and
 - (iv) development and maintenance of the 20m vegetated buffer zone around the perimeter of the three sites.
 - (b) on or before **1 September 1999** lodge a detailed description of the Mine Plan and its documentation with the Administering Authority for its review and comment; and
 - (c) on or before **1 December 1999**, have completed and implemented the Mine Plan; and
 - (d) have due regard to that comment in the finalisation of the Mine Plan.
- (A9) The annual extraction rates and the annual rehabilitation targets for the following year must be submitted to the Administering Authority with each successive Annual Return.

END OF CONDITIONS FOR SCHEDULE A

Schedule B - Air

Release of Contaminants to the Atmosphere

- (B1) Stockpiles must be maintained using all reasonable and practicable measures to minimise the release of wind blown dust or particulate matter to the atmosphere. When dust is generated from open air stockpiles, water sprays must be used to suppress all visible dust.
- (B2) Trafficable areas must be maintained using all reasonable and practicable measures to minimise the release of wind blown dust or traffic generated dust to the atmosphere. On all unsealed roads water sprays or a water truck must be used to suppress all visible dust.
- (B3) The Registered Operator shall ensure that all reasonable and practicable measures are in place to prevent wind blown releases and spillage from trucks transporting material from the licensed premises.
- (B4) The Registered Operator must take appropriate measures to inform and instruct the drivers of all trucks (including contract transporters) that they must comply with the requirements set out in condition (B3).
- (B5) Any dust collected by equipment used to prevent the release of dust and particulate matter into the atmosphere must be disposed of in a way that will prevent it from becoming airborne.
- (B6) Machinery must be serviced and maintained on a regular basis to suppress the release of exhaust emissions.

- (B7) While operating any dry crushing or screening equipment, water sprays must be fitted and in working order and used to ensure the product is in a moist state.
- (B8) Rock drills must be operated with dust collection equipment as necessary to prevent the release of dust and particulate matter into the atmosphere.
- (B9) The removal of overburden shall only occur when wind speed is less than 10 km/h.
- (B10) The combined effects of all operations must not cause the dust fall out at the boundaries of the licensed sites to exceed 130 mg/m²/day.

Environmental Condition Monitoring

- (B11) The Registered Operator must install and maintain in working order an anemometer to monitor wind speed and direction, at the Hard Rock Quarry.

Dust Monitoring

- (B12) The Registered Operator must continually monitor dust fallout at the locations described in Dust Management Plan.
- (B13) The Registered Operator must record results from dust fallout monitoring.

Dust Management Plan

- (B14) By **1 November 1999** the Registered Operator must prepare and submit to the Administering Authority a Dust Management Plan.
- (B15) The Dust Management Plan must address at least the following issues:
 - (a) prevention of dust nuisance at sensitive areas;
 - (b) development of a program to monitor dust fallout at nearby residences using dust fallout monitors. The program must outline the frequency of monitoring, the analysis technique and location of the dust monitoring stations;
 - (c) determine natural wind conditions which may result in increased dust nuisance.
- (B16) The Dust Management Plan must be implemented by the Registered Operator following its approval in writing by the Administering Authority.
- (B17) A copy of the Dust Management Plan must be kept onsite.
- (B18) The Registered Operator must submit details of any amendment to the approved Dust Management Plan to the Administering Authority with the Annual Return which immediately follows the enactment of any such amendment.
- (B19) The Registered Operator must submit an interpretative report on the results from the dust monitoring program with the Annual Return.

END OF CONDITIONS FOR SCHEDULE B

Schedule C - Water

Water Quality Monitoring

- (C1) The Registered Operator must monitor surface water in active areas of the quarry, according to the requirements of the Department of Natural Resources, to determine if the Tertiary basalt and Elliott formation rock strata have been ruptured.

- (C2) All determinations of the quality of contaminants released to waters must be made in accordance with methods prescribed in the Department of Environment and Heritage Water Quality Sampling Manual, 2nd Edition, February 1995, or more recent additions or supplements to that document as such become available.

Release of Contaminants to Waters

- (C3) Contaminants must not be directly or indirectly released from the licensed place to any waters or the bed and banks of any waters except as permitted under as a condition of this Development Approval or to a sewer under a trade waste agreement as approved from time to time by the relevant Local Government.
- (C4) Contaminated stormwater may only be discharged, incidentally or intentionally, at the locations outlined in Table 1.

SCHEDULE C TABLE 1
Approved water discharge locations

Site	Discharge location
Tomato Island	No discharge permitted.

- (C5) The release of any excess waters from the site must traverse at least 200 m of grassland prior to release to a natural water or stormwater drain.
- (C6) Stormwater from stockpile and work areas must be directed to settling ponds designed to contain a 1 in 10 year (72 hour) rainfall event.
- Please note: This may require stormwater drainage and bunding around the perimeter of stockpiles in the low-lying areas.

Groundwater

- (C7) Extraction is to be carried out such that at least 2 meters of the Tertiary basalt remains as a capping over the underlying Elliott formation as a protection for the underlying groundwater resource.
- (C8) Any test holes drilled into the Tertiary basalt or Elliott formation must be plugged with concrete in the lowest 2 meters of the Tertiary basalt formation.
- (C9) A record must be kept, for each drill hole, of the depth of the Elliott formation/Tertiary basalt interface.
- (C10) Activities carried out on site must be conducted using all reasonable means necessary to prevent the rupture of the Tertiary basalt and Elliott formation and the release of groundwaters to the surface.
- (C11) In the event of a rupture of the Tertiary basalt and Elliott formation, which results in the release or potential release of groundwaters, the Registered Operator must report the rupture to the Department of Natural Resources and the Administering Authority.
- (C12) In the event of a rupture of the Tertiary basalt and Elliott formation, which results in the release or potential release of groundwaters, repairs must be carried out on the rock strata to the satisfaction of the Department of Natural Resources.

Bunding

- (C13) By the **1 September 1999**, at each site, an area is to be provided which is only used as an area for the storage of petroleum products, generated wastes and empty drums and as a workshop area for mobile equipment.

- (C14) By the **1 September 1999**, the area described in condition (C13) must be covered and sealed with an impervious surface.
- (C15) By the **1 September 1999**, all petroleum products, which are not in use, and waste prior to disposal, must be stored in the area described in condition (C13).
- (C16) By the **1 September 1999**, all petroleum product storage tanks must be bunded according to AS 1940.
- (C17) By the **1 September 1999**, all empty petroleum product drums must be stored on a concrete hard-stand area with their closures in place.
- (C18) By the **1 September 1999**, each site must have a designated, concreted vehicle wash-down bay to contain all vehicle wash-down waters.
- (C19) By the **1 September 1999**, drains or bunds must be provided to ensure stormwater run-off is excluded from the area described in condition (C13) and (C18).
- (C20) By **10 June 2000**, Wash-down water from hosing and cleaning of the motor vehicle workshops, must be contained.
- (C21) By **10 June 2000**, all water contaminated by hydrocarbons including but not limited to vehicle wash-down waters, floor wash-down waters of the motor vehicle workshops and captured water from the storage bunds must be treated by an oil water separator prior to release. Alternatively the water may be removed by a licensed regulated waste transport company for treatment and release at an appropriate facility. For this option a register must be kept of all significant rainfall events and receipts of collection of contaminated water by the regulated waste company, as per condition (G2).

Sediment and Erosion Control

- (C22) No contaminated water is to be directly released from the site.
- (C23) Effective erosion and sediment controls must be provided and maintained during any site clearing and construction of works. Such measures must include diversion drainage works and temporary sedimentation traps.
- (C24) Diversion drains, appropriate grades or equivalent must be installed to ensure surface waters from disturbed areas, including operational or trafficable areas, are diverted to the water storage ponds.
- (C25) Drainage through and from all trafficable areas and production activities must be designed to minimise surface flow velocities.
- (C26) There must be no disturbance to, filling of or obstruction of any part of a watercourse channel.

Stormwater Management Plan

- (C27) By **1 September 1999** the Registered Operator must prepare and submit to the Administering Authority a Stormwater Management Plan.
- (C28) The Stormwater Management Plan must address at least the following issues:
 - (a) a site plan for each site outlining directional flow of stormwater; and
 - (b) location of discharge points as described in Table 1 of Schedule C; and
 - (c) location, storage capacity and maintenance of the sediment ponds; and
 - (d) the disposal of excess water not able to be contained on site; and
 - (e) a program with scheduled, timed commitments for the modifications to the Hard Rock Quarry site to ensure the containment of all contaminated water.

- (C29) The Stormwater Management Plan must be implemented by the Registered Operator following its approval in writing by the Administering Authority.
- (C30) A copy of the Stormwater Management Plan must be kept at the licensed place.
- (C31) The Registered Operator must submit details of any amendment to the approved Stormwater Management Plan to the Administering Authority with the Annual Return which immediately follows the enactment of any such amendment.

END OF CONDITIONS FOR SCHEDULE C

Schedule D - Noise and vibration

Noise Monitoring

- (D1) The Registered Operator must monitor and record noise levels to demonstrate compliance with condition (D5) and (D12) upon receipt of a request from the Administering Authority.
- (D2) The method of measurement and reporting of noise levels must comply with the Department of Environment and Heritage Noise Measurement Manual, second edition, March 1995, or more recent additions or supplements to that document as become available.
- (D3) While undertaking the monitoring outlined in condition (D2), the airblast overpressure caused by blasting must be monitored immediately outside the closest boundary of the closest occupied property to where the charge was set off.
- (D4) While undertaking the monitoring outlined in condition (D2) the ground vibration caused by blasting must be monitored immediately outside the closest boundary of the closest occupied property to where the charge was set off.
- (D5) In the event of a written complaint about noise that the Administering Authority considers is reasonable, then the emission of noise from the activity must not result in levels greater than those specified in Table 1 of the Noise Schedule until the circumstances which gave rise to the complaint are resolved.

SCHEDULE F TABLE 1
Noise Criteria

Noise Level at a Noise Sensitive Place Measured as the Adjusted Maximum Sound Pressure Level $L_{Amax,adj,T}$	Period
Background plus 5 dB (A)	7 am - 6 pm
Background plus 3 dB (A)	6 pm - 10 pm
Background plus 3 dB (A)	10 pm - 7 am

Noise Limits at a Commercial Place Measured as the Adjusted Maximum Sound Pressure Level $L_{Amax,adj,T}$	Period
Background plus 10 dB (A)	7 am - 6 pm
Background plus 8 dB (A)	6 pm - 10 pm
Background plus 8 dB (A)	10 pm - 7 am

- (D6) Extraction operations, other than as provided by another condition of this Development Approval, shall be carried out only between the hours of 6:00 am to 5:30 pm Monday to Friday and between 6:00 am and 12:00 noon on Saturday.

- (D7) The loading of materials extracted under this Development Approval shall be carried out only between the hours of 6:00 am and 5:30 pm Monday to Friday and between 6:00 am and 12:00 noon on Saturday.
- (D8) Unless written consent is received from the Administering Authority prior, drilling operations shall only be carried out between the hours of 6:00 am to 5:00 pm Monday to Friday.
- (D9) Unless written consent is received from the Administering Authority prior, the operations referred to in conditions (D6), (D7) and (D8) shall not be carried out on Sundays or any designated Queensland or Australian Public Holiday.
- (D10) No activity associated with extraction will occur within a distance of 200 m of any residence without approval from the local council.
- (D11) The absolute maximum instantaneous sound pressure level, when measured at a noise sensitive or commercial place, $\text{Max } L_{\text{pA T}}$, must not exceed 70 dB(A).

Blasting

- (D12) Mechanical extractive techniques are to be the preferred option for extracting rock with blasting techniques used only after mechanical means have been considered and rejected based upon reasonable grounds.
- (D13) Blasting must only occur within the hours of 10:00 am and 4:00 pm Monday to Friday on days not excluded under condition (D9). In circumstances where safety requirements necessitate blasting may be carried out at times other than those set out in this condition.
- (D14) The Administering Authority and local council must be informed of an intended blast not less than 24 hours prior to the blast.
- (D15) Blasting shall not occur more frequently than once per day without approval from the local council.

END OF CONDITIONS FOR SCHEDULE D

Schedule E - Waste

General

- (E1) The Registered Operator must not:
 - (a) allow waste to burn or be burned at or on the licensed place; nor
 - (b) remove waste from the licensed place and burn such waste elsewhere.

Off Site Movement

- (E2) Where regulated waste is removed from the licensed place (other than by a release as permitted under another schedule of this Development Approval), the Registered Operator must monitor and keep records of the following:
 - (a) the date, quantity and type of waste removed; and
 - (b) name of the waste transporter and/or disposal operator that removed the waste; and
 - (c) the intended treatment/disposal destination of the waste.

- (E3) Wastes generated on site must be disposed of in a manner approved by the Administering Authority.
- (E4) If the Registered Operator becomes aware that a person has removed regulated waste from the licensed place and disposed of the regulated waste in a manner which is not authorised by this Development Approval or improper or unlawful, then the Registered Operator must, as soon as practicable, notify the Administering Authority of all relevant facts, matters and circumstances known concerning the disposal.
- (E5) Any liquid waste spilled which could reasonably cause environmental damage must be cleaned up as soon as practicable and properly disposed of in a manner approved by the Administering Authority. Liquid waste in this condition may include but is not limited to oil, hydraulic fluids and petroleum products.

END OF CONDITIONS FOR SCHEDULE E

Schedule F - Land

- (F1) Except as permitted under another condition of this Development Approval the environmentally relevant activities must be carried out by such practicable means necessary to prevent the release or likelihood of release of contaminants to land.
- (F2) Where it is not practicable to prevent any release of contaminants to land as required by condition (F1), the environmentally relevant activities must be carried by such practicable means necessary to minimise the release or likelihood of release of any such contaminants to land.

END OF CONDITIONS FOR SCHEDULE F

Schedule G - Community

Complaint Recording

- (G1) All complaints received by the Registered Operator relating to releases of contaminants from operations at the licensed place must be recorded and kept with the following details:
 - (a) time, date and nature of complaint;
 - (b) type of communication (telephone, letter, personal etc.);
 - (c) name, contact address and contact telephone number of complainant (Note: if the complainant does not wish to be identified then "Not identified" is to be recorded);
 - (d) response and investigation undertaken as a result of the complaint;
 - (e) name of person responsible for investigating complaint; and
 - (f) action taken as a result of the complaint investigation and signature of responsible person.

Incident Recording

- (G2) A record must be maintained of at least the following events:
 - (a) the time, date and duration of equipment malfunctions where the failure of the equipment resulted in the release of contaminants reasonably likely to cause environmental harm;
 - (b) any uncontrolled release of contaminants reasonably likely to cause environmental harm and
 - (c) any emergency involving the release of contaminants reasonably likely to cause material or serious environmental harm requiring the use of fire fighting equipment.

Notification of Emergencies and Incidents

- (G3) Where the Registered Operator has not given notification to the Administering Authority under section 37 of the Environmental Protection Act, as soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this Development Approval, the Registered Operator must notify the Administering Authority of the release by telephone or facsimile.
- (G4) Where the Registered Operator has not given notification to the Administering Authority under section 37 of the Environmental Protection Act, the notification of emergencies or incidents as required by condition (G3) must include but not be limited to the following:
- (a) The Registered Operator;
 - (b) the location of the emergency or incident;
 - (c) the number of the Development Approval;
 - (d) the name and telephone number of the designated contact person;
 - (e) the time of the release;
 - (f) the time the Registered Operator became aware of the release;
 - (g) the suspected cause of the release;
 - (h) the environmental harm and or environmental nuisance caused, threatened, or to be caused by the release; and
 - (i) actions taken to prevent further any release and mitigate any environmental harm and or environmental nuisance caused by the release.
- (G5) Where the Registered Operator has not given notification to the Administering Authority under section 37 of the Environmental Protection Act, not more than 14 days following the initial notification of an emergency or incident, the Registered Operator must provide written advice of the information supplied in accordance with condition (G4) in addition to:
- (a) proposed actions to prevent a recurrence of the emergency or incident;
 - (b) outcomes of actions taken at the time to prevent or minimise environmental harm and or environmental nuisance.

Exception Reporting

- (G6) The Registered Operator must notify the Administering Authority in writing within 28 days of completion of analysis of any result of a monitoring program required by a condition of this Development Approval which indicates an exceedance of any limit specified in this Development Approval.
- (G7) The written notification required by condition (G6) above must include:
- (a) The full analysis results, and
 - (b) Details of investigation or corrective actions taken, and
 - (c) Any subsequent analysis.

END OF CONDITIONS FOR SCHEDULE G

END OF Development Approval

Schedule H - Definitions

Words and phrases used throughout this development approval are defined below:

Where a definition for a term used in this Development Approval is sought and the term is not defined within this Development Approval, the definitions provided in the *Environmental Protection Act 1994*, its regulations, and Environmental Protection Policies shall be used.

Word Definitions

"administering authority" means the Environmental Protection Agency or its successor.

"you" means the Registered Operator or owner / occupier of the land which is the subject of this Development Approval.

"site" means the place to which this Development Approval relates or the premises to which this development approval relates.

"authorised place" means the place authorised under this Development Approval for the carrying out of the specified environmentally relevant activities.

"authority" means level 1 licence (without development approval), or level 1 approval (without development approval), or level 2 approval (without development approval) under the *Environmental Protection Act 1994*.

"approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the *Integrated Planning Act 1997*

"dust sensitive place" means -

- a dwelling, mobile home or caravan park, residential marina or other residential place;
- a motel, hotel or hostel;
- a kindergarten, school, university or other educational institution;
- a medical centre or hospital;
- a protected area;
- a park or gardens; or
- a place used as an office or for business or commercial purposes.
and includes the curtilage of any such place.

"odour sensitive place" has the same meaning as a "dust sensitive place"

"dwelling" means any of the following structures or vehicles that is principally used as a residence-

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a water craft in a marina.

"noxious" means harmful or injurious to health or physical well being.

"offensive" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"nuisance sensitive place" includes -

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- a kindergarten, school, university or other educational institution; or
- a medical centre or hospital; or
- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- a public thoroughfare, park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes.
and includes a place within the curtilage of such a place reasonably used by persons at that place.

"**L_{A 10, adj, 10 mins}**" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

"**L_{A 1, adj, 10 mins}**" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response

"**L_{A, max adj, T}**" means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

"**noise affected premises**" means a "noise sensitive place" or a "commercial place"

"**noise sensitive place**" means -

- a dwelling, mobile home or caravan park, residential marina or other residential premises; or
 - a motel, hotel or hostel; or
 - a kindergarten, school, university or other educational institution; or
 - a medical centre or hospital; or
 - a protected area; or
 - a park or gardens.
- and includes the curtilage of such place.

"**commercial place**" means a place used as an office or for business or commercial purposes.

"**intrusive noise**" means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration -

- is clearly audible to, or can be felt by, an individual; and
- annoys the individual.

In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 - 1997 Acoustics - Description and Measurement of Environmental Noise Part 2 - Application to Specific Situations.

"**protected area**" means -

- a protected area under the Nature Conservation Act 1992; or
- a marine park under the Marine Parks Act 1992; or
- a World Heritage Area.

"**waters**" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

"**50th percentile**" means not more than three (3) of the measured values of the quality characteristic are to exceed the stated release limit for any six (6) consecutive samples for a release/monitoring point at any time during the environmental activity(ies) works.

"**80th percentile**" means not more than one (1) of the measured values of the quality characteristic is to exceed the stated release limit for any five (5) consecutive samples for a sampling point at any time during the environmental activity(ies) works

"**dredge spoil**" means material taken from the bed or banks of waters by using dredging equipment or other equipment designed for use in extraction of earthen material.

"**land**" in the "land schedule" of this document means land excluding waters and the atmosphere.

"**mg/L**" means milligrams per litre.

"**NTU**" means nephelometric turbidity units

"**regulated waste**" means non-domestic waste mentioned in Schedule 7 of the Environmental Protection Regulation 1998 (whether or not it has been treated or immobilised), and includes:

- for an element - any chemical compound containing the element; and
- anything that has contained the waste.

"licensed vehicle" means a vehicle authorised to be used under the licence to transport regulated waste.

"registered vehicle" means "licensed vehicle"

"clinical waste" means waste that has the potential to cause disease including, for example, the following:

- animal waste;
- discarded sharps;
- human tissue waste;
- laboratory waste.

"infectious waste" means "clinical waste"

"vibration sensitive place" means a noise sensitive place or a commercial place.

"annual return" means the return required by the annual notice (under section 316 of the Environment Protection Act, 1994) for the section 86(2) licence that applies to the development approval.

END OF DEFINITIONS FOR SCHEDULE H

END OF Development Approval

FOLDED OR MUTILATED PLANS WILL BE REJECTED - PLAN MAY BE ROLLED

M.S. Form 5.8.3

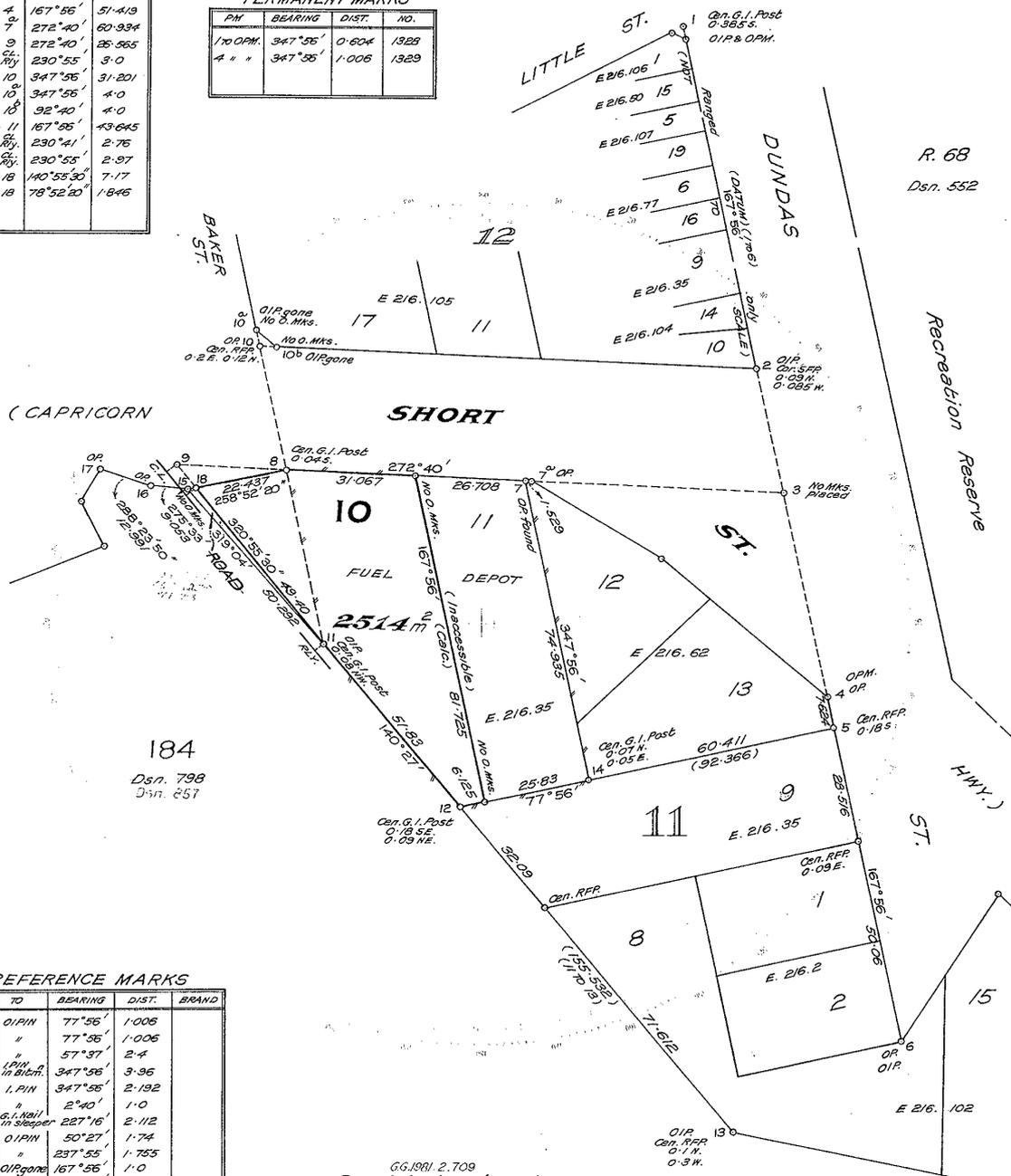
TRAVERSES ETC.

LINE	BEARING	DIST.
2 to 3	167°56'	31.201
3 " 4	167°56'	51.419
3 " 9	272°40'	60.934
8 " 9	272°40'	25.565
9 " 10	230°55'	3.0
8 " 10	347°56'	31.201
10 " 10	347°56'	4.0
10 " 10	32°40'	4.0
8 " 11	167°56'	43.645
11 " 11	230°41'	2.76
18 " 11	230°55'	2.97
9 " 18	140°55'30"	7.17
15 " 18	78°52'20"	1.846

PERMANENT MARKS

PM	BEARING	DIST.	NO.
170 O.P.M.	347°56'	0.604	1329
" " "	347°56'	1.006	1329

DRAWING OF PLAN MUST BE RESTRICTED TO THE SPACE INSIDE THE BLUE LINES



REFERENCE MARKS

SRI.	TO	BEARING	DIST.	BRAND
1	O.P.M.	77°56'	1.006	
2	"	77°56'	1.006	
6	"	57°37'	2.4	
7	1.P.M. in Blk.	347°56'	3.96	
8	1.P.M.	347°56'	2.192	
9	"	2°40'	1.0	
9	St. Nail in Subst.	227°16'	2.112	
11	O.P.M.	50°27'	1.74	
13	"	237°55'	1.755	
10	O.P.M.	167°56'	1.0	
10	"	272°40'	1.0	

Pegs placed at Stations 9 & 18.

For Additional Plan & Document Notings Refer to GISF

<p>1. [Name] hereby certify that I am a duly qualified surveyor and the land comprised in this plan (together personally or by [Name]) is my own (or jointly) account responsibility, and that the plan is accurate, that the said survey was performed in accordance with the Surveyors Act 1937 and the Surveyors Regulation 1978 and that the said survey was completed on 13-7-80</p> <p>Done: 13-7-80</p> <p>SURVEY RECORDS No. 102 LODGED</p>	<p>MERIDIAN</p> <table border="1"> <tr> <th>LINE</th> <th>PLAN BEARING</th> <th>A.M.S. BEARING</th> </tr> <tr> <td>170 6</td> <td>167°56'</td> <td>E. 216.62</td> </tr> </table>	LINE	PLAN BEARING	A.M.S. BEARING	170 6	167°56'	E. 216.62	<p>PLAN OF Allotment 10 of Section 11</p> <p>SCALE 1:800</p> <p>AUTHORITY N.G.L. 753 D.M.S. REF. 80K2/599 DRAWN [Name] MAP REF. [Name]</p>	<p>PARISH <u>SELMA</u></p> <p>County <u>Denison</u></p> <p>L.A. District <u>Springburn</u></p> <p>PLANE. 216.112</p>
	LINE	PLAN BEARING	A.M.S. BEARING						
170 6	167°56'	E. 216.62							
<p>TOWN OF EMERALD</p>									

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SmartMap Information Services

Version 2.8

Environment and Resource Management

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 - Find/Locate
- Admin Area
- Imagery
- Notings
- Place Names
- Survey Marks
- Survey Plans

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 - Settings
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 - Survey Mark Filter
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 - Layers
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- Shading
- Define Area
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[+] Other Services

[+] Admin

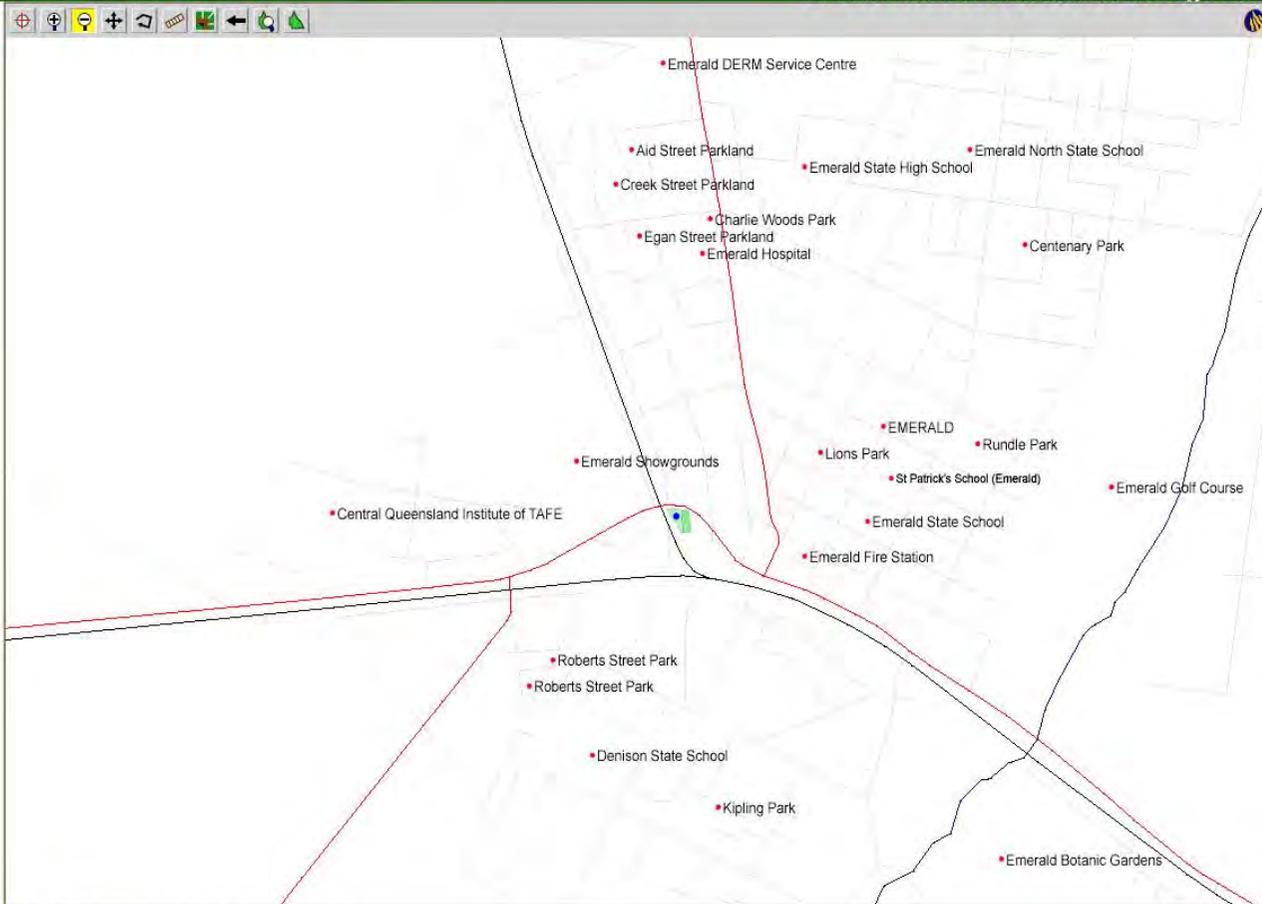
Hide Keymap

Spatial Search Results

[Search Imagery at Point](#)
[Survey Search on selected plan\(s\)](#)

Lot/Plan: 10/E216112
Segment/Parcel: 47029/63
Tenure: LL - LANDS LEASE
Area: 2514.00 m²
Excluded Area: 0.00 m²
Surveyed: Yes
Coverage: Base
Accuracy: STANDARD 1:2500 CADASTRAL MAP - 1.5M
Locality: EMERALD
Local Government: CENTRAL HIGHLANDS REGIONAL
Address: 7 SHORT STREET, EMERALD

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23° 30' 31" S, 148° 08' 58" E Map Number: 8550-41441

Environmental Authority/Development Approval Assessment Checklist

PROJECT NUMBER EPA EA/DA NUMBER:	CR0050	FILE NO:	EMD793
IPA Assessment Manager:	<input checked="" type="checkbox"/> (refer to 2.0)	EP Act Authority (refer to 6.0) (except Personal Licence refer to 5.0):	<input type="checkbox"/> Level 2 Approval <input type="checkbox"/> Level 1 Licence <input type="checkbox"/> Personal Licence <input type="checkbox"/> Level 1 Approval
IPA Concurrence Agency:	<input type="checkbox"/> (refer to 3.0)	IP Act Approval (refer to 6.0):	<input checked="" type="checkbox"/> Preliminary <input type="checkbox"/> Concurrence
IPA Referral Coordination:	<input type="checkbox"/> (refer to 4.0)	Mining	<input type="checkbox"/> Type:

1.0	FEES AND FORMS (ALL APPLICATIONS):	√ if relevant
	Have correct fees been paid? NO FEE APPLICABLE	<input type="checkbox"/>
	Have correct form/s been received?	<input checked="" type="checkbox"/>

2.0	ASSESSMENT MANAGER:	√ if relevant
2.1	Determination of Assessment Manager:	Iterate Activity
	EPA acts as the Assessment Manager if the following are satisfied (√ to be shown)	
	i) Development is not assessable under a planning scheme.	<input checked="" type="checkbox"/>
	ii) Application does not include other IDAS development eg town planning consent.	<input checked="" type="checkbox"/>
	iii) No other Assessment Manager is prescribed for the development in the IPA Regulation.	<input checked="" type="checkbox"/>
2.2	As Assessment Manager:	
	Has acknowledgment notice been prepared and sent to applicant?	<input type="checkbox"/>
	Is an Information Request required?	<input type="checkbox"/>
	If so, has Information Request been sent to applicant?	<input type="checkbox"/>

3.0	CONCURRENCE AGENCY INFORMATION	√ if relevant
	Has a copy of acknowledgment notice been received?	<input type="checkbox"/>
	Is an Information Request required?	<input type="checkbox"/>
	If so, has Information Request been sent to applicant and copy to Local Council (if application not referral coordination)?	<input type="checkbox"/>

4.0	REFERRAL COORDINATION	√ if relevant
	Is full copy of application received from Council?	<input type="checkbox"/>
	Has DLGP application for Referral Coordination been received?	<input type="checkbox"/>
	Is an Information Request required?	<input type="checkbox"/>
	If so, has Information Request been sent to DLGP?	<input type="checkbox"/>

5.0	ENVIRONMENTAL AUTHORITY WITH DEVELOPMENT APPROVAL (not applicable to preliminary approvals and level 2 ERAs)	√ if relevant
	Has a separate application for licence or level 1 approval (s.82) been received?	<input type="checkbox"/>

6.0	APPLICATION ASSESSMENT REQUIREMENTS
OPERATIONAL NOTES:	
1. All considerations listed below to be assessed initially for relevance and ticked if applicable.	
2. When ticked as relevant further, more detailed assessment of the consideration is appropriate. An explanatory statement of the issue must be given in the Assessment Report (AR).	

ASSESSMENT CONSIDERATIONS		√ if relevant
6.1	EPP WATER: (if not applicable, proceed to item 6.2)	
	Is there release of waste waters? (if no, proceed to item s24). No release of waste waters	<input type="checkbox"/>
s11	Water quality objectives : Are water quality objectives defined? Quote objective in assessment report.	<input type="checkbox"/>
s15	Waste management evaluation procedure: Is the activity likely to affect a water?	<input checked="" type="checkbox"/>
s16	Waste water recycling: Does the activity involve waste water recycling?	<input checked="" type="checkbox"/>
s17	Waste water releases on land: Does the activity involve the release of wastewater to land?	<input type="checkbox"/>
s18	Waste water releases to surface water: Is there a release (not stormwater) to surface waters?	<input type="checkbox"/>
s19	Stormwater management: Is there a release of contaminated stormwater to waters?	<input type="checkbox"/>
s20	Direct waste water release to ground waters: Is there a direct release to groundwater?	<input type="checkbox"/>
s21	Incidental waste water release to ground waters: Is there an incidental release to groundwater?	<input type="checkbox"/>
s22	Construction of artificial releases wetlands for waste treatment: Does the activity involve the construction of an artificial wetland for wastewater treatment in a natural wetland?	<input type="checkbox"/>
s23	Use of natural biological controls in treatment of waste water: Are natural biological controls used in treatment of waste water	<input type="checkbox"/>
s24	Acid sulfate soils: Does the activity involve the exposure or disturbance of acid sulfate soils or the lowering of a watertable associated with acid sulfate soils?	<input type="checkbox"/>
s25	Waste reception facilities for ships: Does the activity involve a place for docking of ships?	<input type="checkbox"/>
s26	Monitoring particular releases: Is there a release to land or waters?	<input type="checkbox"/>
s27	Impact monitoring: Is there a release of wastewater to land or waters?	<input type="checkbox"/>
6.2	EPP NOISE: Does, or can, the activity adversely affect the environmental values (noise relevant activity)? If 'no', proceed to item 6.3.	
s13	Evaluation procedure: Is evaluated procedure followed?	<input type="checkbox"/>
s14	Matters for consideration: Is consideration given to s14 matters?	<input type="checkbox"/>
s15	Planning levels: Does the activity involve the use or operation of a beneficial asset?	<input type="checkbox"/>
s17	Plan as a condition: Is a noise management plan necessary?	<input type="checkbox"/>
6.3	EPP AIR: Does, or can, the activity adversely affect the environmental values (relevant activity)? If 'no', proceed to item 6.4.	
s11	Evaluation procedure: Is evaluation procedure followed?	<input type="checkbox"/>
s12	Matters for consideration: Is consideration given to section 12 matters?	<input type="checkbox"/>
s13	Air pollutant dispersion modelling and monitoring of releases: Is it likely that the releases will cause environmental harm?	<input type="checkbox"/>
6.4	EPP Waste: Does, or can, the activity involve generation, transport or receipt of waste? If 'no', proceed to item 6.5.	
s15	Generating waste: is it relevant?	<input checked="" type="checkbox"/>
s16	Transporting waste: is it relevant?	<input checked="" type="checkbox"/>
s17	Receiving waste: is it relevant?	<input type="checkbox"/>
s19	Waste Management Program: could there be need to require one?	<input type="checkbox"/>
6.5	OTHER CONSIDERATIONS	
	Guidelines: Are any relevant guidelines considered? Yes – Australian Standards on Dust/Noise Monitoring and Storage of Flammable and Combustible Liquids	<input checked="" type="checkbox"/>
	Operational Policies: Are any Agency operational policies considered? SBMP Guideline	<input checked="" type="checkbox"/>
	Codes of Practice: Are any codes of practice considered?	<input type="checkbox"/>
	Standards: Are any Australian (or International) Standards considered? Yes as above	<input checked="" type="checkbox"/>
	National Strategies: Are any National Strategies considered?	<input checked="" type="checkbox"/>

EA/DA Assessment Checklist:

EADA

6.6	SECTIONS 78, 84, 91, 102, 111, 168, 173, 181, 207, 209, 210, 242, and 304 (as applicable)	
	Additional Information: Has any additional information given in relation to the application been considered?	<input type="checkbox"/>
	Standard Criteria: Relevant considerations specified in Assessment Report	<input checked="" type="checkbox"/>
	Public Notice: Have any submissions and views expressed at a conference been considered?	<input type="checkbox"/>
	Applicant Suitability: Is an investigation into applicant suitability required?	<input type="checkbox"/> N/A
	IEMS: Submission received for the activity	<input type="checkbox"/> N/A
	Mining Standard Conditions: Is applicant able to comply with the relevant standard EA conditions	<input type="checkbox"/> N/A
	Mining MRA application: Is the status of any application under the MRA relevant	<input type="checkbox"/> N/A
6.7	NATIVE TITLE ACT (where applicable)	
	Notification to interested parties sent, where required.	<input type="checkbox"/> N/A
	Response received (for comments, refer to assessment report - AR).	<input type="checkbox"/> N/A
6.8	NOTIFIABLE ACTIVITIES - CONTAMINATED LAND (s.371)	
	Notification of Land: Is the activity listed in Schedule 2 of Environmental Protection Act? If "yes" send "Notification of Land" form (s.371) or (s.372) to Contaminated Land Section.	<input type="checkbox"/> N/A

CONSULTATIONS	√ if relevant	Date Completed
Site visit.	<input type="checkbox"/>	
Meetings/Conference	<input type="checkbox"/>	
Draft conditions sent to applicant.	<input checked="" type="checkbox"/>	
Applicant acceptance of final condition (discuss project killers in assessment report).	<input checked="" type="checkbox"/>	JULY 2008
If Assessment Manager - conditions sent to applicant and copy of decision notice sent to Local Authority.	<input type="checkbox"/>	
If Concurrence Agency - conditions sent to applicant and Assessment Manager.	<input type="checkbox"/>	

OFFICER: XXXXXXXXXX	DATE: 29 August 2008
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Section 3.5.33 Integrated Planning Act 1997**EPA Permit¹ number: CR0050**

EPA Permit¹ number:	CR0050
Date application received by EPA:	29 July 2008
Permit¹ Type:	Development Approval involving an ERA
Date of Decision:	2 September 2008
Relevant Laws and Policies:	<i>Environmental Protection Act 1994</i> and any subordinate legislation
Jurisdiction:	Item 1 in Table 2 of Schedule 2 of the <i>Integrated Planning Regulation 1998</i>

Development Description:**Carrying out of:**

ERA 11(b) Crude oil or petroleum product storing – storing crude oil or a petroleum product in tanks or containers having a combined total storage capacity of 500,000L or more.

at the following place(s):

Lot 10 and 11 County of Denison, Parish of Selma (Short Street EMERALD QLD).

Additional comments or advice about the application

N/A

Additional information for applicants

This concurrence response pursuant to section 79 of the *Environmental Protection Act 1994* applies only to the environmentally relevant activity(ies) component of the development and does not remove the need to obtain any further approval for this development which may be required pursuant to this or other legislation, both State

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Environmental Protection Agency and the Queensland Parks and Wildlife Service

and Commonwealth. Applicants are advised to check with all relevant statutory authorities for such approvals as may be required.

It is a requirement of the *Environmental Protection Act 1994* that if the owner or occupier of this site becomes aware a Notifiable Activity (as defined under schedule 2 of the *Environmental Protection Act 1994*) is being carried out on this land or that the land has been affected by a hazardous contaminant, they must, within **30 days** after becoming aware the activity is being carried out, give notice to the Environmental Protection Agency. A list of Notifiable Activities is provided within Schedule 2 of the *Environmental Protection Act 1994*.


Delegate
Environmental Protection Agency
2 September 2008.

CONDITIONS OF APPROVAL

The following schedules of development conditions are to be attached to the development approval:

- General;
- Air;
- Water
- Noise;
- Land; and
- Community.

The aforementioned description of the environmentally relevant activity (ERA) for which this development approval is issued is simply a restatement of the activity as prescribed in the legislation at the time of issuing this development approval. Where there is any conflict between the above description of the ERA for which this development approval is issued and the conditions as specified in this development approval as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

Agency Interest - General**A1 Prevent and/or minimise likelihood of environmental harm**

In carrying out the ERA, you must take all reasonable and practicable measures to prevent and / or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm; in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this approval.

NOTE: This approval authorises the ERA. It does not authorise environmental harm unless a condition contained within this approval explicitly authorises that harm. Where there is no condition or the approval is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

A2 Maintenance of measures, plant and equipment

The operator of an ERA to which this approval relates must:

- a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this approval;
- b) maintain such measures, plant and equipment in a proper and efficient condition; and
- c) operate such measures, plant and equipment in a proper and efficient manner.

A3 Site based management plan

A Site Based Management Plan (SBMP) must be submitted and implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review and 'continual improvement' in the overall environmental performance of all environmentally relevant activities that are carried out.

A4 The SBMP must address the following matters:

- a) Environmental commitments – a commitment by senior management to achieve environmental goals;
- b) identification of environmental issues and potential impacts;
- c) control measures for routine operations to minimise likelihood of environmental harm;
- d) stormwater management;
- e) waste Management;
- f) contingency plans and emergency procedures for non-routine situations;
- g) organisational structure and responsibility;
- h) effective communication;
- i) monitoring of the contaminant releases;

v

- j) conducting environmental impact assessments;
- k) staff training;
- l) record keeping; and
- m) periodic review of environmental performance and continual improvement.

A5 The SBMP must be implemented by **28 October 2008**.

A6 **Records**

Record, compile and keep all monitoring results required by this document and present this information to the administering authority when requested, in a specified format.

A7 Records must be kept for five years, and must include the following information:

- a) date of pickup of waste;
- b) description of waste;
- c) cross reference to relevant waste transport documentation;
- d) quantity of waste;
- e) origin of waste;
- f) destination of the waste; and
- g) intended fate of the waste, for example, type of waste treatment, reprocessing or disposal.

Note: Records of documents maintained in compliance with a waste tracking system established under the *Environmental Protection Act 1994* or any other law for regulated waste will be deemed to satisfy this condition.

A8 **Industry guidelines, action plans and codes**

The holder of this approval must:

- a) comply with the *International Safety Guide for Oil Tankers and Terminals (ISGOTT)*; and
- b) comply with the current version of *Australian Standard As 1940: The storage and handling of flammable and combustible liquids*.

A9 **Tank Monitoring**

The holder of this approval must utilise a method or methods of leak detection that is provided by a leak detection system compliant with the following:

- a) can detect a leak from any portion of the underground system;
- b) is conducted at least monthly; and
- c) is capable of detecting a loss of 0.76L/hour with a probability of detection of at least 95%.

- A10** The leak detection system may be one or more of the following:
- a) automatic tank gauging (ATG);
 - b) site inventory reconciliation Analysis (SIRA);
 - c) interstitial monitoring;
 - d) line leak detection for pressure piping; and
 - e) groundwater monitoring.
- A11** Records of monthly tank monitoring using the SIRA method, including dips, daily site reconciliation and water tests are to be kept on site and made available to the administering authority upon request.

Agency Interest - Air

- B1 Release of visible light**
Any visible light released from the activity must not, in the opinion of an authorised person, cause an environmental nuisance at or beyond the boundary of the site.
- B2 Odour Nuisance**
The release of noxious or offensive odours (s) or any other noxious or offensive airborne contaminant(s) resulting from the activity must not cause an environmental nuisance at any nuisance sensitive or commercial place.
- B3** When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
- B4** If the administering authority determines the odour released to constitute an environmental nuisance, then the approval holder must:
- a) address the complaint including the use of appropriate dispute resolution if required; and
 - b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.
- B5 Dust Nuisance**
The release of dust and/or particulate matter resulting from the activity must not cause an environmental nuisance at any nuisance sensitive or commercial place.

- B6** Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place:
- a) dust deposition of 120 milligrams per square metre per day, when monitored in accordance with the latest version of *Australian Standard AS 3580.10*; and
 - b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a dust sensitive place downwind of the site, when monitored in accordance with:
 - Australian Standard AS 3580.9.6 'Ambient air - Particulate matter - *Determination of suspended particulate PM10 high-volume sampler with size-selective inlet - Gravimetric method*'; or
 - any alternative method of monitoring PM10 which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.
- B7** When requested by the administering authority, monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter, and the results thereof notified to the administering authority within 14 days following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include:
- a) for a complaint alleging dust nuisance, dust deposition; and
 - b) for a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere over a 24hr averaging time.
- B8** If monitoring indicates exceedence of the relevant limits in condition B6, then the development approval holder must:
- a) address the complaint including the use of appropriate dispute resolution if required; and
 - b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.
- B9** **Total hydrocarbon releases to air**
- The holder of this approval must determine by measurement or estimation the total mass of hydrocarbon contaminants released from the licensed place to the atmosphere each year.
- Note:** Where possible hydrocarbons must be grouped according to photo-chemically reactive functional groups.

- B10** The determination of the total mass of contaminants released to the atmosphere annually must include all point source and non-point source releases.
- B11** **Reporting of total hydrocarbons releases to air**
An annual report on the total mass of hydrocarbons released to the atmosphere must be included with each annual return and include, but not be limited to:
- a) total mass of hydrocarbons released;
 - b) the percentage increase or decrease in the contaminant releases; and
 - c) the ratio of total mass quantity of point source releases to non-point source releases.

Agency Interest - Water

- C1** **Release of Contaminants to Waters**
Contaminants must not be directly or indirectly released from the licensed place to any waters or the bed and banks of any waters except to sewer as permitted or otherwise agreed from by the relevant Local Government.
- C2** **Petroleum and oil separation**
All petroleum and oil contaminated or potentially contaminated waters generated on the licensed place must be treated by appropriate oil separation methods.
- C3** **Tank dewatering/maintenance**
Contaminants arising from tank dewatering or tank maintenance operations must not be released into any spillage control compound.
- C4** Contaminants arising from tank dewatering operations must not be released or disposed to waters except in accordance with the requirements of this environmental authority.
- C5** **Plant and equipment maintenance**
The maintenance and cleaning of vehicles and any other equipment or plant must be carried out in areas from where contaminants cannot be released into any waters, roadside gutter or stormwater drainage system.
- C6** **Overfill protection measures**
The holder of this approval must ensure that effective and appropriate measures are used to prevent the overfilling of vessels or containers and prevent the spillage of material during material transfer operations. Effective and appropriate measures may include but are not limited to the use of high level alarms and operator diligence.

C7 Bunding

All chemical and petroleum product storage tanks must be bunded so that the capacity of the bund complies with the current version of *Australian Standard AS 1940: The storage and handling of flammable and combustible liquids*.

C8 All tanker loading/unloading areas must have a system for collecting any likely product spills.

C9 Oil Separation and Collection

Settleable solids must be removed from the oil separator as often as necessary to maintain the required hydraulic capacity.

C10 Solids and liquid wastes collected in the oil separator must be collected, stored and disposed of in a manner which prevents contamination of any waters or any land.

Agency Interest - Noise**D1 Noise nuisance**

Noise from activities must not cause an environmental nuisance at any noise affected premises.

D2 All noise from activities must not exceed the levels specified in **Table 3 - Noise limits** at any noise affected premises.

D3 Noise monitoring

When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within **14 days** to the administering authority.

Monitoring must include:

- a) $L_A 10$, adj, 10 mins
- b) $L_A 1$, adj, 10 mins
- c) the level and frequency of occurrence of impulsive or tonal noise;
- d) atmospheric conditions including wind speed and direction;
- e) effects due to extraneous factors such as traffic noise; and
- f) location date and time of recording.

D4 Noise is not considered to be a nuisance under condition D1 if monitoring shows that noise does not exceed the following levels in the time periods specified in **Table 3 - Noise limits**.

Table 3 - Noise limits

Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a 'Noise sensitive place'					
L _{A10} , adj, 10 mins	B/g + 5	B/g + 5	B/g + 0	B/g + 5	B/g + 5	B/g + 0
L _{A1} , adj, 10 mins	B/g + 10	B/g + 10	B/g + 5	B/g + 10	B/g + 10	B/g + 5
	Noise measured at a 'Commercial place'					
L _{A10} , adj, 10 mins	B/g + 10	B/g + 10	B/g + 5	B/g + 10	B/g + 10	B/g + 5
L _{A1} , adj, 10 mins	B/g + 15	B/g + 15	B/g + 10	B/g + 15	B/g + 15	B/g + 10

- D5** The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's *Noise Measurement Manual*.
- D6** If monitoring indicates exceedence of the relevant limits in condition D4, then the environmental authority holder must:
- address the complaint including the use of appropriate dispute resolution if required; and
 - immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.

Agency Interest - Land

Preventing contaminant release to land

- E1** Spillage of all chemicals and fuels must be contained within an on-site containment system and controlled in a manner that prevents environmental harm.

NOTE: All petroleum product storage's must be designed, constructed and maintained in accordance with the current version of *Australian Standard AS 1940 - Storage and Handling of Flammable and Combustible Liquids*.

Agency Interest - Community

Complaint response

- F1** All complaints received must be recorded including investigations undertaken, conclusions formed and action taken. This information must be made available to the administering authority on request.

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Spatial Search Results

[Search Imagery at Point](#)
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Lot/Plan	2/RP607544
Segment/Parcel:	47018/19
Tenure:	FH - FREEHOLD
Area:	1.5340 ha
Excluded Area:	0.00 m ²
Surveyed:	Yes
Coverage:	Base
Accuracy:	STANDARD 1:2500 CADASTRAL MAP - 1.5M
Locality:	EMERALD
Local Government:	CENTRAL HIGHLANDS REGIONAL
Address:	88 OPAL STREET EMERALD

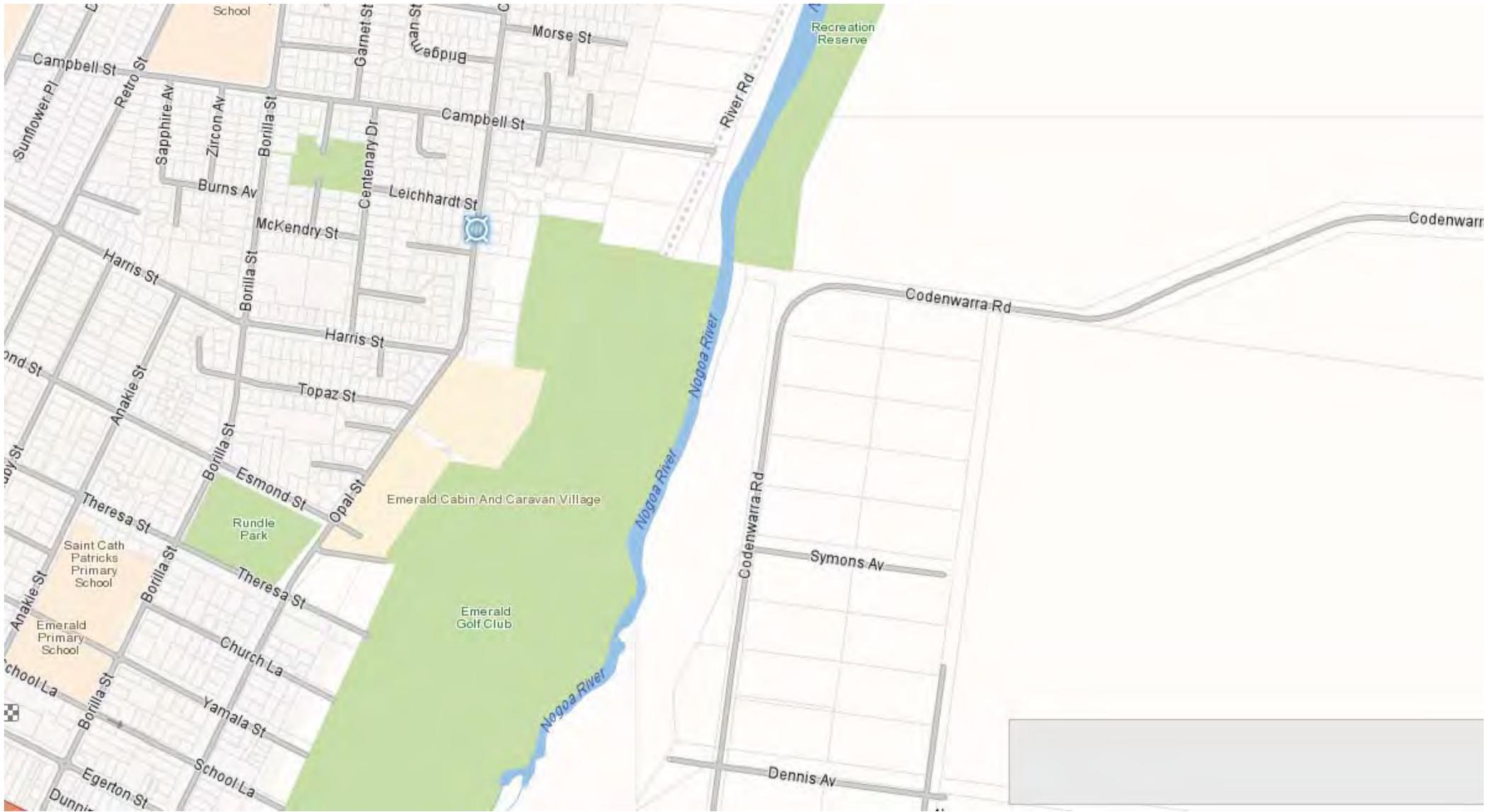
[Retrieve Plan Image](#)
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23° 31' 09" S, 148° 09' 46" E Map Number: 8550-41413

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Done Local intranet 100%

1) Emerald Shire Council Municipal Water Treatment Plant, Opal St Emerald.



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Spatial Search Results for Lot 12 on Plan E216109

[Search Imagery at Point](#)
[Survey Search on selected plan\(s\)](#)

Lot/Plan	12/E216109
Segment/Parcel:	47027/38
Tenure:	RE - RESERVE
Area:	2.0260 ha
Excluded Area:	0.00 m ²
Surveyed:	Yes
Coverage:	Base
Accuracy:	STANDARD 1:2500 CADASTRAL MAP - 1.5M
Locality:	EMERALD
Local Government:	CENTRAL HIGHLANDS REGIONAL
Address:	BATTS STREET ,EMERALD

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[Display additional data](#)
[Current Title Search](#)
[Build Map](#)

Feature Name:	ESC WORKS DEPOT
Locality:	EMERALD
Local Government:	CENTRAL HIGHLANDS REGIONAL
Segment/Parcel:	47027/38

23° 31' 14" S, 148° 08' 36" E Map Number: 8550-41442

Local intranet 100%

2) Animal Housing and Motor Vehicle Workshop, Batts St Emerald



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Spatial Search Results for Lot 2 on Plan RP619614

[Search Imagery at Point](#)
[Survey Search on selected plan\(s\)](#)

Lot/Plan	2/RP619614
Segment/Parcel:	47033/42
Tenure:	FH - FREEHOLD
Area:	20.2200 ha
Excluded Area:	0.00 m ²
Surveyed:	Yes
Coverage:	Base
Accuracy:	UPGRADE ADJUSTMENT - 5M
Locality:	EMERALD
Local Government:	CENTRAL HIGHLANDS REGIONAL
Address:	AMETHYST DRIVE, EMERALD

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[Display additional data](#)
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[Build Map](#)

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 Find/Locate

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 Imagery
 Notings
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 Survey Marks
 Survey Plans

[-] Mapping
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 Settings

[-] Data Suppression
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[-] Map Suppression
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Shading
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 Build Map
 Refresh Map
 Export SmartMap

[-] Other Services
 Current Title Search

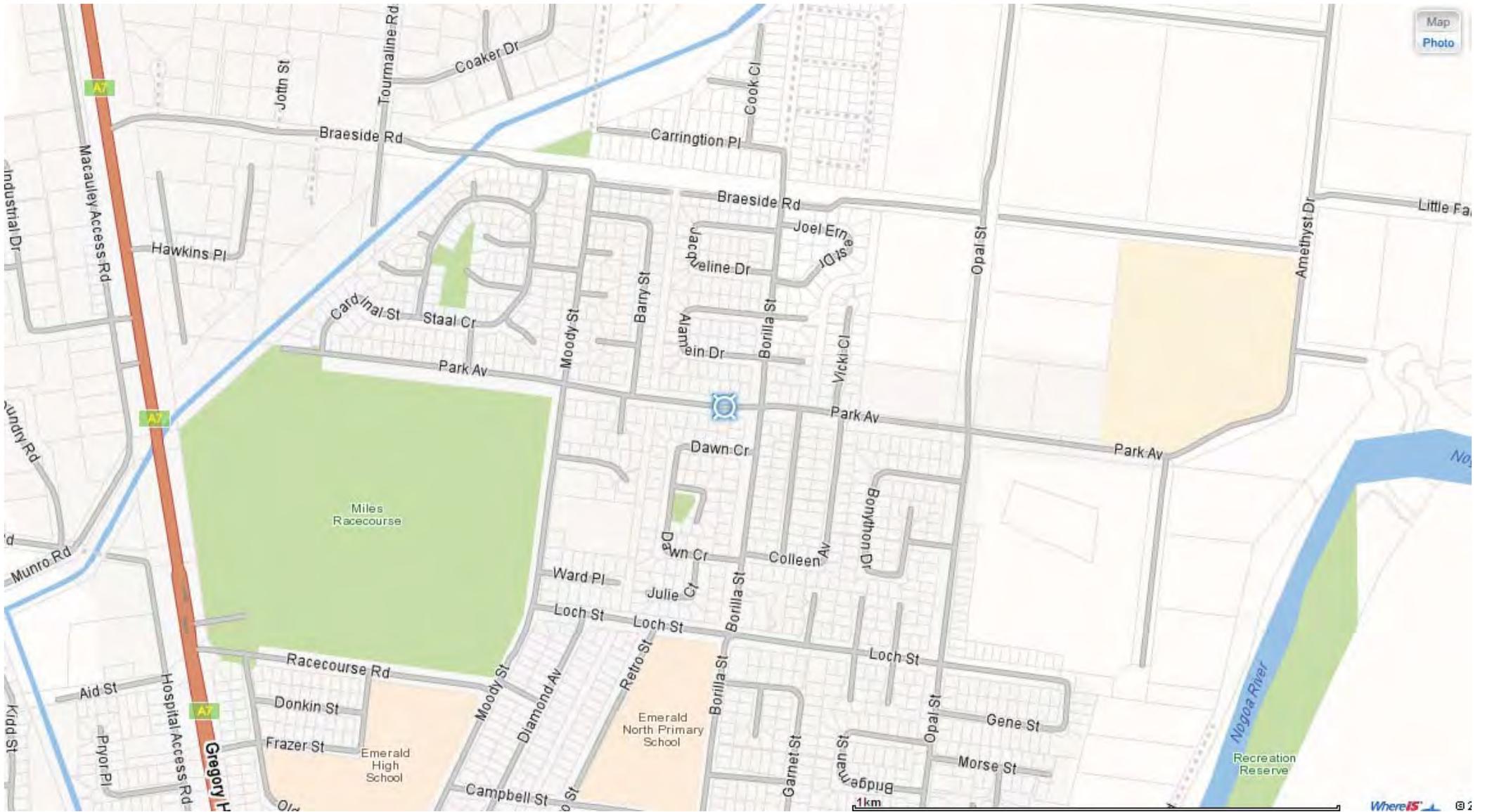
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 Bug Fixes

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23° 30' 14" S, 148° 09' 55" E Map Number: 8550-41414

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3) Sewage Treatment Plant, Park Ave, Emerald



Map
Photo

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Spatial Search Results for Lot 50 on Plan RP842957

[Search Imagery at Point](#)
[Survey Search on selected plan\(s\)](#)

Lot/Plan	50/RP842957
Segment/Parcel:	47027/140
Tenure:	FH - FREEHOLD
Area:	6594.00 m ²
Excluded Area:	0.00 m ²
Surveyed:	Yes
Coverage:	Base
Accuracy:	STANDARD 1:2500 CADASTRAL MAP - 1.5M
Locality:	EMERALD
Local Government:	CENTRAL HIGHLANDS REGIONAL
Address:	GLASSON STREET EMERALD

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 Bug Fixes

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Map navigation tools: Home, Back, Forward, Refresh, Zoom In, Zoom Out, Print, Full Screen, Help.

Map coordinates: 23° 31' 04" S, 148° 08' 46" E. Map Number: 8550-41442

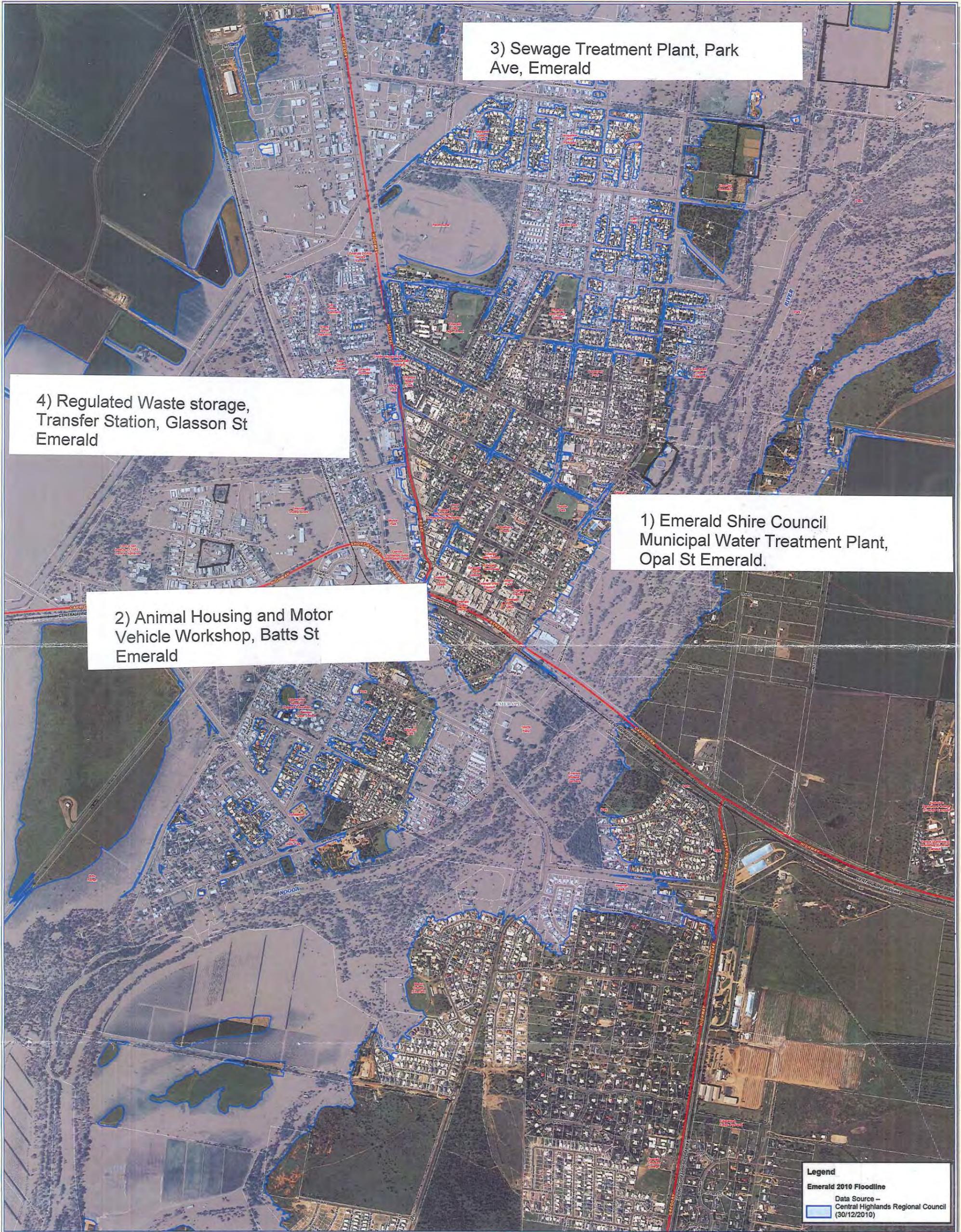
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Local intranet 100%

4) Regulated Waste storage, Transfer Station, Glasson St Emerald



TOWN OF EMERALD - 2010 FLOOD



3) Sewage Treatment Plant, Park Ave, Emerald

4) Regulated Waste storage, Transfer Station, Glasson St Emerald

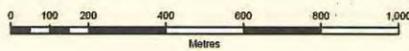
1) Emerald Shire Council Municipal Water Treatment Plant, Opal St Emerald.

2) Animal Housing and Motor Vehicle Workshop, Batts St Emerald

Legend
 Emerald 2010 Floodline
 Data Source – Central Highlands Regional Council (30/12/2010)

Queensland Reconstruction Authority
 1800 110 841
www.qldreconstruction.org.au

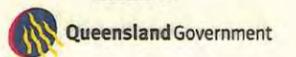
MAP INFORMATION
 Imagery: Flying date of aerial photography: 31st December 2010
 Photo scale: 44M (approx) GCS GDA94
 Pixel Sample Size: 0.5 metre
 Contour: Shown as white lines
 Digital Contour Database (GCS94) is current as January 2011.
 Positional accuracy representing the maximum error has been calculated at ± 5 metres.
 Local Authority: Central Highlands Regional Council
 Locality: Emerald



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 Technical enquiries:
 The Manager
 GIS Mapping Services (Client Outcomes)
 Department of Environment and Resource Management
 GPO Box 2454, Brisbane, QLD 4001

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QUEENSLAND FLOOD MAPPING SERIES
EMERALD 2010 FLOOD
 EDITION 1



Queensland Reconstruction Authority

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SECTION 1: APPLICATION SUMMARY

AUTHORITY NUMBER:

FILE NO: L-EM/01

NAME OF APPLICANT: EMERALD SHIRE COUNCIL

TRADING AS:

ADDRESS FOR SERVICE OF NOTICE (Not PO Box):

STREET 65 EGERTON STREET

SUBURB EMERALD

CITY / TOWN EMERALD

POST CODE 4720

LIST ALL ERAs (No./Description): 15 - SEWAGE TREATMENT; 16 - MUNICIPAL WATER TREATMENT; 75 - WASTE DISPOSAL; 82 - WASTE TRANSFER STATION; 83 - REGULATED WASTE TRANSPORT

FEES <i>29/2/96</i>	
Date received	<i>12/3/96</i>
Receipt No. issued	<i>58672 + 58551</i>
Total amount paid	<i>\$41.60</i>
Confirmation of required fees (Reg. Sch. 1 and 6)	<i>✓</i>
Balance owed/ refunded	
Fee Waiver applied for (see Checklist 6-3)	<i>NO</i>

APPLICABLE DATES		
	Original	Revised
Application received	<i>29/2/96</i>	
Application Date		
Due date for receipt of additional information	<i>Provisional issued on 6/3/96.</i>	
Extension of Time Notice Issue Date		
Decision Due Date		<i>13/2/98</i>
Date Decision notified		

SECTION 2: RECEIPT AND APPLICATION CHECKS (ADMINISTRATION)

Item/Action	Corrective Action/Comments	✓ (OK) if correct & completed or insert NA
1. Payment of fees received, sent for processing, copy of receipt attached to Application.		<i>✓</i>
2. Application submitted to correct administering authority.		<i>✓</i>
3. Application accepted (on correct form, duly completed and signed, fees sent correspond to listed ERA's etc.)		<i>✓</i>
3.1 If corrective action required: amend application / corrected details received and accepted.		<i>✓</i>
4. Available details recorded in the tables for Fees and Dates (above) including the original Decision Due Date.		<i>✓</i>
5. Relevant details of the application recorded in the database and unique authority number assigned.		<i>✓</i>
6. Official file established, original application filed, working package prepared (including appropriate checklists and report forms) and forwarded for allocation. Nominated Assessing Officer: A. Bismarck		<i>✓</i>
SECTION COMPLETED	NAME: [REDACTED] DATE: <i>5/8/98</i>	

SECTION 3: APPLICATION ASSESSMENT		
Item/Action	Corrective Action/Comments	✓ (OK) if correct & completed or insert NA
1. Application details confirmed as per application Guidelines 1-7 of "Guidelines for Completing an Application"		OK
2. Fees required and applicable dates in Section 1 - "Application Summary " completed and verified. NOTE: Applicable Dates table is to be kept up to date with notices issued for additional information and extension of time and the Decision Due Date revised as appropriate.		N/A
3. Evaluation of application by stated procedure in applicable environmental protection policies and their relevant provisions considered and reported on separate checklists. (see Checklist 3-D for EPP WATER and 3-E for EPP NOISE). NOTE: Consideration to be given to each criterion in deciding application and setting conditions.		OK
4. Technical evaluation of application - as per Guidelines 9-13 and, where applicable, 14-22 of "Guidelines for Completing an Application".		OK
5. Additional information (if required) - section 62 notice and justification prepared and decided - applicable dates revised and recorded (see Section 1) - notice sent to applicant - reply received and accepted NOTE: Additional information must be requested within 10 days of application receipt, to allow the Application Date to be changed.		N/A
6. Applicant suitability checks (if required) - as per Guideline 8 of "Guidelines for Completing an Application": - enquiry made - checks completed and findings recorded.		N/A N/A
7. Site inspection (if required): - completed - inspection report prepared and filed.		N/A N/A
8. Standard Criteria considered and reported on - SEE SEPARATE CHECKLIST 3-B NOTE: Consideration to be given to each criteria in deciding application and setting conditions.		OK
9. All available information relating to application assessed, results / recommendations recorded & filed for future reference.		OK
10. Report on application prepared including compliance with any applicable EPP and consideration of: - standard criteria - additional information given in relation to the application - report about "applicant's suitability".		OK N/A N/A

SECTION 3: APPLICATION ASSESSMENT (Continued)		
Item/Action	Corrective Action/Comments	✓ (OK) if correct & completed or insert NA
11. Extension of time (if required): - section 65 notice and justification prepared and decided - applicable dates revised and recorded (Section 1) - notice sent to applicant.		N/A N/A N/A
12. Draft for Environmental Authority prepared in approved form, determination of conditions based on Skeleton Licence Procedure 3-4.		OK
13. Environmental Management Program (if required): section 82 notice and justification prepared.		N/A
14. For Provisional Licence only, additionally ensure: - conditions in s47 1(a) and (b) are met - applicant's undertaking to comply with EPPs received.		N/A N/A
15. For Refusal of EA (s.48) only, clearly state: - reasons for the refusal and right for review or appeal against - if applicant is not suitable person to hold the authority (eg. conviction of an offence in Qld. or interstate).		N/A N/A
16. For fee waiver application - FEE WAIVER CHECKLIST 3-C COMPLETED AND ATTACHED		N/A
17. Endorsement of draft EA by supervisor (if required): - submitted for review - endorsement obtained.		N/A N/A
18. Draft EA: - submitted to applicant for acceptance/comment - acceptance obtained/comments evaluated.		OK OK
19. Recommendation for EA and substantiating report on application finalised, forwarded for endorsement and decision. Recommendation made: Environmental Authority to be: LICENCE		OK
SECTION COMPLETED	NAME: A.B. DATE: 20/02/98	OK

SECTION 4: SUPERVISION REVIEW / ENDORSEMENT		
Item/Action	Corrective Action/Comments	✓ (OK) if correct & completed or insert NA
1. Recommendation for EA and final report on application reviewed, supported and endorsed for delegate decision. NOTE: If fee waiver applicable - Complete Checklist 3-C Section 2.		✓
SECTION COMPLETED	SUPERVISOR: [REDACTED] DATE: 13/2/98	

SECTION 5: DECIDING APPLICATION BY DELEGATE		
Item/Action	Corrective Action/Comments	✓ (OK) if correct & completed or insert NA
1. Final recommendation for EA and associated Report on Application accepted.		
2. Requirements for deciding application (s44) satisfied by: - compliance with applicable EPPs - consideration of: <ul style="list-style-type: none"> • standard criteria • additional information given • report about "applicant suitability". 		
3. Conditions of EA (s46): - are relevant and considered necessary or desirable - as required under an applicable EPPs - licensee required to do the following (where appropriate): <ul style="list-style-type: none"> • to install and operate stated plant and equipment in a stated way within stated times • to take stated measures to minimise the likelihood of environmental harm being caused • to carry out and report on a stated monitoring program • to prepare and carry out an EMP • to give relevant information reasonably required for administration and enforcement of the Act - prohibit the licensee from changing, replacing or operating plant and equipment if it increases, or is likely to substantially increase the risk of environmental harm.		
4. Decision on application made. NOTE: The Administering Authority must decide each application within 28 days after the Application Date, unless decided otherwise (as allowed by the legislation) DECISION SUMMARY: (delete / insert as applicable) DATE OF DECISION: EA GRANTED (SECTION 45) LICENCE	13/2/98	
5. Decision documentation of the approved form signed, dated and its "effective date" determined. EA/PROVISIONAL LICENCE TAKING EFFECT FROM: Date :	1/3/98	
6. For Fee Waiver application only - actioned as per checklist 3-C, Section 3.		N/A
SECTION COMPLETED	DELEGATE: DATE:	

SECTION 6: NOTIFICATION OF DECISION, RECORDS & REGISTER		
Item/Action	Corrective Action/Comments	✓ (OK) if correct & completed or insert NA
1. For fee waiver application - actioned as per checklist 3-C, Section 4.		
2. Decision formally notified to applicant, in approved form and with applicable attachments, to appropriate address. NOTE: Notification required within 10 days of Decision Date, the date to be recorded in the table of Dates in Section 1.		
3. Application records, including EA Register, database and files updated with all outstanding details. (See Note 1 below)		
4. Required follow up actions initiated within "control system" to ensure required responses are obtained on time (eg: setting of due date for issue of annual notices for licences - s.68)		
5 Official files checked for completeness and stored for future reference, as required.		
SECTION AND PROCESS COMPLETED	NAME: DATE:	

Note 1: The correctness of details entered in electronic data base is to be independently validated upon the entry to ensure accuracy and integrity of the stored information.

ADDITIONAL INFORMATION

- NOTE 1. This checklist is to be completed as part of the assessment process for an appropriate environmental management decision (EA,EMP,EPO) and be attached to the main process report to assist the delegate in making a decision.
- 2: Each of the listed standard criteria to be considered for its specific relevance, if not considered elsewhere.
- 3 Where relevant, a standard criterion should be considered to the extent that is reasonable under the circumstances.

ENVIRONMENTAL MANAGEMENT
DECISION (EA, EMP, EPO) NO:

FILE NO: *L-EM/01*

(The above identification is required only on documents generated, controlled and filed separately from the main process report).

STANDARD CRITERIA FOR DECIDING APPLICATION

(a) Consider principles of ecologically sustainable development as set out in the National Strategy for Ecologically Sustainable Development.

Comments/Issues: *Considered*
Conditions Addressing Issues: *Schedule A- General cond. + All ~~the~~ activity specific conditions.*

(b) Consider Applicable Environmental Protection Policies. (If not considered elsewhere)

Comments/Issues: *Considered, see reports attached to this sheet.*
Conditions Addressing Issues:

(c) Consider Applicable Commonwealth, State or local government plans, standards, agreements or requirements. (If not considered elsewhere)

Comments/Issues: *All licensed activities are subject to compliance with above*
Conditions Addressing Issues: *standards, agreements + requirements.*

(d) Consider Applicable environmental impact study, assessment or report. (If not considered elsewhere)

Comments/Issues: *No EIS, assessment or report has been submitted by the applicant*
Conditions Addressing Issues:

(e) Consider the character, resilience and values of the receiving environment. (If not considered elsewhere)

Comments/Issues: *Considered by imposing conditions for individual activities.*
Conditions Addressing Issues:

(f) Consider all submissions made by the applicant and interested parties. e.g. consultation. (If not considered elsewhere)

Comments/Issues: *No submissions have been made.*
Conditions Addressing Issues:

(g) Consider best practice environmental management for the activity. (If not considered elsewhere)

Comments/Issues: *Considered by imposing conditions for operating ERAs.*
Conditions Addressing Issues:

(h) Consider the financial implications of the recommendations related to operation of the activity or applicable industry. (If not considered elsewhere)

Comments/Issues: *Flexibility of licence conditions allows allocation of funds that will not*
Conditions Addressing Issues: *adversely affect viability of the shire.*

(i) Consider public interest in the activity(ies). (If not considered elsewhere)

Comments/Issues: *Council is one of the major employers in the shire (except mines).*
Conditions Addressing Issues:

(j) Consider any other matter prescribed by Regulation. (If not considered elsewhere)

IEWS required/included Yes ~~NO~~
Comments/Issues: *By the 1st Annual Return to review current*
Conditions Addressing Issues: *IEWS in light with new guideline.*

Names of Regulations considered:

Environmental Protection (Water) Policy
Checklist - Management of Activities
 Environmental Management Decision

NOTE 1: 1. This checklist is to be completed as part of the process of making an environmental management decision for an environmental authority, an environmental management program or an environmental protection order and be attached to the main process report to assist the delegate in making a decision.
 2. Section numbers refer to provisions of the Environmental Protection (Air) Policy 1997.

**ENVIRONMENTAL MANAGEMENT
 DECISION (EA, EMP, EPO) NO:**

FILE NO:

(The above identification is required only on documents generated, controlled and filed separately from the main process report)

MANAGEMENT OF ACTIVITIES

List below any waters (including groundwaters) affected by releases of contaminants and briefly describe the type of release in the following table.

Relevant Issues	Description
e.g. Release to Back creek	sewage treatment plant - secondary effluent
<i>Dam</i>	<i>Tertiary treated effluent.</i>

Section 15 Waste management evaluation procedure

In making a recommendation about the appropriateness of any proposed water treatment process or disposal method, consider the following Waste Management procedure and assess the position of the proposal or activity in the following hierarchy:

- (a) **Step 1: Prevention** - evaluate waste prevention options and require the relevant person to implement appropriate waste prevention;
- (b) **Step 2: Recycling** - if waste prevention does not, or is likely to, eliminate all waste water, evaluate waste water treatment and waste water recycling options and require the relevant person to implement appropriate treatment and recycling;
- (c) **Step 3: Disposal to land, sewer or surface waters** - if waste water treatment and waste water recycling does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water disposal options of release on land, release to sewer and release to a surface water and require the relevant person to implement appropriate treatment and disposal;
- (d) **Step 4: Disposal of Groundwaters** - if waste water treatment and waste water disposal does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water disposal to ground water and require the relevant person to implement appropriate treatment and disposal.

Comments/Recommendations: *Considered step 3 - Disposal to land.*

Section 11 Setting Water Quality Objectives (As set out in Sections 7,8 and 9)

Environmental Values Identified for Specified Waters:

Indicators Identified for Specified Waters:

N/A. Refer. S. 11/3)

Water Quality Guidelines Identified for Specified Waters:

Comments/Issues: *Water QHy objectives do not apply to waste water in a storage - including dam, sewage lagoon.*

Water Quality Objectives and Licence Conditions Set:

Section 16 Waste water recycling

Consider:

- (a) the water quality objectives for waters affected by the recycling; and
- (b) the maintenance of acceptable health risks.

Comments/Issues:

N/A

Conditions Addressing Issues:

Section 17 Waste water releases on land

Consider:

- (a) the existing quality of waters that may be affected by the release and the water quality objectives for the waters;
- (b) available land and wet weather storage;
- (c) the cumulative effect of the release concerned and any other releases of contaminants to waters that could be affected by the release that are known to the administering authority;
- (d) the need to protect soil and plants from damage;
- (e) the maintenance of acceptable health risks;
- (f) any applicable code of practice approved under s219 of the Act.

Comments/Issues: *Effluent from the Council's Dam is sold for irrigation. Quality of the effluent is controlled under the other Law/*

Conditions Addressing Issues: *Regulations (Council's)*

Section 18 Waste water releases to surface water (other than contaminated stormwater)

Consider:

- (a) whether the size of the initial mixing zone will adversely affect an environmental value, especially biological integrity and suitability for recreational use;
- (b) whether concentrations of contaminants in the initial mixing zone are acutely toxic to the biota;
- (c) the existing quality of the surface water;
- (d) the cumulative effect of the release concerned and any other releases of contaminants to the surface water known to the administering authority;
- (e) future releases to the surface water known to the administering authority;
- (f) the water quality objectives for waters outside the initial mixing zone.

Comments/Issues:

No releases exist.

Conditions Addressing Issues:

Section 19 Stormwater Management

If an activity involves, or likely to involve the release of contaminated stormwater to a roadside gutter, a stormwater drain or a surface water, consider whether the management of stormwater releases from the activity is adequate to prevent or minimise environmental harm in waters affected by the release, by evaluating:

- (a) the existing quality of a water that may be affected by the release and the water quality objectives for the water;
- (b) the cumulative effect of the release in question and any other releases of contaminants to the water known to the administering authority;
- (c) the technology, management and nature of processes being, or to be used in carrying out the activity;
- (d) any relevant urban stormwater quality management plan prepared under section 42;
- (e) the topography of the locality and local climatic conditions;
- (f) if the activity involves exposing or disturbing soil - the soil type, its characteristics and the way it is managed.

Comments: *Stormwater Mgt Plans for different ERAs have been requested.*

Conditions Addressing Issues: *by the First Annual Return.*

Section 24 Acid sulphate soils

If an activity involves the exposure or disturbance of acid sulphate soils or the lowering of a watertable associated with acid sulphate soils, consider requiring the relevant person to implement appropriate management actions, including, for example:

- (a) avoiding or minimising the disturbance of the soils;
- (b) neutralising the soils;
- (c) managing watertable fluctuations, freshwater flows and tidal water levels to ensure the maintenance of adequate water cover over the soils;
- (d) burying neutralised soils on the site under cleanfill;
- (e) burying soils under permanent water or a permanent watertable so the soils are not exposed to oxygen;
- (f) treating or disposing of leachate and run off in an appropriate way.

Comments:

Conditions Addressing Issues:

Section 25 Waste reception facilities for ships

If an activity involves a place for the mooring, docking or berthing of ships, consider requiring the relevant person to provide waste reception facilities, by evaluating:

- (a) waste reception facilities should be required only for wastes that usually need to be released from ships using the place;
- (b) the type of waste reception facilities required depends on the activities for which the place is used and may include, for example:
 - (i) sewage pump-out stations or other fixed onshore facilities; and
 - (ii) vacuum tankers for collection of oil or sewage or other mobile onshore facilities; and
 - (iii) an adequate number of easily accessible onshore rubbish bins and toilets; and
 - (iv) mobile barges for oil, sewage and rubbish collection; and
 - (v) quarantine facilities.
- (c) larger ships may be able to keep wastes on-board and treat or dispose of the wastes at reception facilities at their home port or elsewhere.
- (d) any relevant quarantine laws about the reception from overseas ships of waste particularly animal waste, drainage from sick bays or medical facilities, galley scraps, medical wastes and organic refuse;
- (e) any relevant obligations under MARPOL 73/78 in relation to Annexes I, II and V.

Comments/Issues:

Conditions Addressing Issues:

Section 26 Monitoring particular releases

1. If an activity involves the release of waste water on land or to a water, consider requiring the relevant person to monitor the waste water releases by evaluating:

- (a) whether monitoring is needed:
 - (i) to decide if a condition of an environmental authority or environmental management program or an environmental protection order is being complied with; or
 - (ii) to decide if a system to prevent contamination of land or waters by waste water is required or an existing system is functioning properly; or
 - (iii) because of the risk, and likely consequences, of the system failing;
- (b) the variability of waste water released from the activity;
- (c) the protocols for monitoring the releases;
- (d) requiring the relevant person to use continuous monitoring equipment where it is reasonable and practicable.

Comments/Issues: *Monitoring of the effluent quality should be carried out in accordance with Schedule 1.*

Conditions Addressing Issues:

Environmental Protection (Air) Policy Checklist - Environmental Management Decisions

- NOTE**
1. This checklist is to be completed as part of the process of making an environmental management decision for an environmental authority or an environmental management program and be attached to the main process report to assist the delegate in making a decision.
 2. Section numbers refer to provisions of the Environmental Protection (Air) Policy 1997.

AUTHORITY NO:

FILE NO: *L-EM/01*

(The above identification is required only on documents generated, controlled and filed separately from the main process report.)

Environmental Management Decisions for Environmental Authorities and Environmental Management Programs

Section 11 Evaluation Procedure

Determine or identify the environmental values and carry out the following steps:

- (a) consider how the activity/ies may affect the environmental values;
- (b) evaluate the activity/ies in relation to the following-
 - (i) any program developed by the chief executive under part 5, division 1; *N/A*
 - (ii) the air quality goals; ✓
 - (iii) any relevant approved code of practice; ✓
 - (iv) the standard criteria and other matters that must be considered under the Act; ✓
 - (v) the matters mentioned in Section 12 (see below); ✓
- (c) review potential conditions with the applicant to achieve the objective of the EPP (Air).

Comments/Issues: *Considered.*

Conditions Addressing Issues:

Section 12 Matters for Consideration

Evaluate the relevant activity/ies in relation to the following matters:

- (a) the characteristics of the releases of contaminants to air from the relevant activity/ies; ✓
- (b) any of the following matters of which you are aware-
 - (i) the order in which the applicant and affected persons started to occupy land at or near the relevant site; ✓
 - (ii) the views of affected persons about releases of contaminants to the air environment from the relevant activity/ies; ✓
 - (iii) any other information or other matter concerning the effect of the relevant activity/ies on the air environment.

Comments/Issues: *No complaints have been received by the DoE*

Conditions Addressing Issues: *Condition (D1) provides for Complaint Recording.*

Environmental Protection (Air) Policy Checklist - Environmental Management Decisions

Section 13 Air pollution dispersion modelling and monitoring of releases

To be applied if it is likely that the releases will, with other releases in the area known to the administering authority, cause environmental harm.

Dispersion modelling

Consider whether the applicant has, or will be required, to carry out air pollution dispersion modelling for the releases or proposed releases, in a way that complies with a relevant protocol, for the assessment of:

- (a) predicted air quality against an air quality goal; or
- (b) the potential for reducing the impact on the air environment; or
- (c) the cumulative effect of the releases; or
- (d) the appropriate dimensions or location of a chimney from which it is proposed to release contaminants into the air environment.

Comments/Issues: *N/A*

Conditions Addressing Issues:

Monitoring

Consider requiring the applicant to monitor:

- (a) the contaminants released by the relevant activity; and
- (b) the impacts of the contaminants released on the air environment

Consider the following when assessing whether or not to require monitoring:

- (a) whether monitoring is needed to assess compliance with the applicant's environmental authority or environmental management program and, if monitoring is needed, the frequency of the monitoring;
- (b) whether continuous monitoring of releases is needed;
- (c) whether monitoring is needed to verify the conclusions of an environmental impact assessment, study or report about the relevant activity;
- (d) if monitoring is needed - the protocols for monitoring the releases and the air environment.

Comments/Issues: *N/A*

Conditions Addressing Issues:

REPORT APPROVALS

Completed	Reviewed and Endorsed	Accepted
Assessing Officer:	Supervisor:	Delegate:
Date: <i>20/02/98</i>	Date: <i>13/01/98</i>	Date: <i>13/02/98</i>

SUMMARY COMMENTS - REVIEW AND ACCEPTANCE

- NOTE**
1. This checklist is to be completed as part of the process of making an environmental management decision for an environmental authority and be attached to the main process report to assist the delegate in making a decision.
 2. Section numbers refer to provisions of the Environmental Protection (Noise) Policy 1997.

AUTHORITY NO:

FILE NO: L-EM/01

(The above identification is required only on documents generated, controlled and filed separately from the main process report.)

Environmental Management Decisions for Environmental Authorities

Section 13 Evaluation Procedure

Determine or identify the environmental values (S.10) and carry out the following steps:

- (a) consider how the noise relevant activity/ies may affect the environmental values; ✓
- (b) evaluate the relevant activity/ies in relation to the following-
 - (i) any program developed by the chief executive under part 7, division 1; N/A
 - (ii) the acoustic quality objective; ✓
 - (iii) any relevant code of practice approved by the Minister; ✓
 - (iv) the standard criteria and other matters that must be considered under the Act; ✓
 - (v) the matters mentioned in Section 14 (see below); ✓
- (c) review potential conditions with the applicant to achieve the objective of the Act. ✓

Comments/Issues: *Considered.*

Conditions Addressing Issues:

Section 14 Matters for Consideration

Evaluate the noise relevant activity/ies in relation to the following matters:

- (a) whether the noise relevant activity/ies is the use or operation of a beneficial asset; N/A
- (b) the characteristics of the noise from the noise relevant activity/ies; ✓
- (c) any of the following matters of which it is aware-
 - (i) the lawful use of the site (e.g. town planning approvals, etc.), apart from under the Act, of the applicant carrying out the relevant activity/ies at the relevant site. ✓
 - (ii) the order in which the applicant and affected persons started to occupy land at or near the relevant site; ✓
 - (iii) the order in which the applicant and affected persons started to carry out the noise relevant activity/ies and other activities that may be affected by noise from the noise relevant activity/ies; ✓
 - (iv) the views of affected persons about noise from the noise relevant activity/ies; ✓
 - (v) other noises ordinarily present at or near the relevant site; ✓
 - (vi) any other information or other matter concerning the effect of the noise relevant activity/ies on the acoustic environment. ✓

Comments/Issues: *No complaints have been registered by the DOE re. to Council's activities.*

Conditions Addressing Issues:

Section 15 Planning Levels

If a noise relevant activity/ies is the use or operation of a beneficial asset (S.5), the setting of a reasonable noise level for the activity/ies::

- (a) may have regard to any relevant planning levels; and
- (b) must have regard to the acoustic quality objective and all the relevant circumstances for the case.

NOTE: If a reasonable noise level for the activity/ies is set that is not less than a planning level specified for the activity/ies, the ways in which the source noise can be abated must be considered.

Comments/Issues: *N/A*

Conditions Addressing Issues:

Section 17 Plan as a Condition - Environmental Authority

If an environmental authority needs to include a condition that the noise relevant activity/ies be carried out under a noise management plan, the terms of the plan may deal with, for example:

- (a) the measures to be taken under the plan to minimise the adverse effects of the noise relevant activity/ies on the environmental values; and
- (b) who is responsible for carrying out each of the measures; and
- (c) maximum, Leq and background levels (plus any other appropriate noise descriptors and associated time periods) for the noise relevant activity/ies; and
- (d) monitoring the noise from the noise relevant activity/ies; and
- (e) processes for dispute resolution that the applicant must follow to deal with complaints received about the impact of noise from the activity/ies.

Comments/Issues: *N/A*

Conditions Addressing Issues:

REPORT APPROVALS

Completed	Reviewed and Endorsed	Accepted
Assessing Officer: [Redacted]	Supervisor: [Redacted]	Delegate: [Redacted]
Date: <i>20/02/98</i>	Date: <i>13/2/98</i> <i>From Draft</i>	Date: <i>13/2/98</i>

SUMMARY COMMENTS - REVIEW AND ACCEPTANCE

[Empty box for summary comments]



Integrated Authority No. CW0019

Section 311 Environmental Protection Act 1994

This integrated authority issued in accordance with section 311 of the Environmental Protection Act 1994 (the EP Act), provides for the carrying out of different Environmentally Relevant Activities or Environmentally Relevant Activities at different places managed in an integrated way. This integrated authority comprises one or more type of environmental authority in accordance with sections 86, 93, 95, 104, 113 and 311 of the EP Act, and this integrated authority details the conditions that are relevant to each stated type of environmental authority.

Under the provisions of the Environmental Protection Act 1994 this environmental authority is issued to:

Emerald Shire Council
65 Egerton Street
Emerald QLD 4720

in respect of carrying out the Environmentally Relevant Activities (ERA's) at the different places and under the types of environmental authorities described in Table 1:

This environmental authority is subject to the conditions set out in the attached schedules.

The anniversary date of this environmental authority is 1 March

This environmental authority takes effect from 30 September 2003.

.....
Signed

.....
Date

[REDACTED]
Acting District Manager
Delegate of Administering Authority
Environmental Protection Act 1994

Note: This environmental authority document is not proof of the current status of the environmental authority. The current status of the environmental authority may be ascertained by contacting the Environmental Protection Agency.

Table 1: This integrated authority consists of the following part(s):

Each part consists of conditions relevant to the sites and Environmentally Relevant Activities (ERA's) listed below.

The description of the ERA(s) for which this authority is issued is simply a restatement of the ERA(s) as prescribed in the legislation at the time of issuing the authority. Where there is any conflict between the above description of the ERA(s) for which this authority is issued and the conditions as specified in this authority as to the scale, intensity or manner of carrying out of the ERA(s) then such conditions prevail to the extent of the inconsistency.

The authority is issued subject to conditions as set out in the schedule(s) attached that form part of the integrated authority.

Part 1: General Conditions

Part 2: Level 2 Approval (Section 104)

Location	Lot	Plan	ERA No.	ERA Name
Opal Street, Emerald Qld 4720	2 4 6 31	RP60754 4 E2166 E21686 RP61421 9	16	Municipal water treatment plant – treating water for domestic use (other than treatment that only involves disinfections).
Batts St, Emerald Q 4720	12	E216109	43	Animal housing – commercially operating a boarding or breeding kennel, dog pound, greyhound training facility or veterinary clinic in which animals are boarded other than overnight for treatment.

Part 3: Licence/s (without development approval) (Section 93)

Location	Lot	Plan	Era. No.	Era. Name
Park Avenue Emerald Q 4720	4 2	E21680 RP619614	15(e)	Sewage Treatment- operating- a standard sewage treatment works having a peak design capacity to treat sewage of 10 000 or more equivalent person but less than 50 000 equivalent persons.
Batts St Emerald Q 4720	12	E216109	28	Motor Vehicle Workshop: operating a workshop or mobile workshop in the course of which motor vehicle mechanical or panel repairs are carried out in the course of a commercial or municipal enterprise (other than on a farm or under a mining tenement) or on a commercial basis.

Part 3: Licence/s (without development approval) (Section 93) – continued...

Mosquito creek		R276 Portion 21	20b	Extracting rock or other material: extracting rock (other than rock mined in block or slab form for building purposes), sand (other than foundry sand), clay (other than clay used for its ceramic properties, kaolin or bentonite), gravel, loam or other material (other than gravel, loam, or other material under a mining authority) from a pit or quarry using plant or equipment having a design capacity of 50 000 tonnes or more, but less than 100 000 tonnes per year.
Selma Hills – Capricorn Highway	188	DSN702		
Gemfields	304	USL47045		
Schofield Mt	6	CP902		
Itinerant activity	nil	nil	22(b)	Screening etc. materials - screening, washing, crushing, grinding, milling, sizing or separating material extracted from the earth (other than under a mining tenement or an authority, lease, license or permit mentioned in item 21C or 21D) or by dredging using plant or equipment having a design capacity of- 5 000 tonnes or more but less than 100 000 tonnes per year.
Mosquito Creek		R276 Portion 21	22(b)	Screening etc. materials - screening, washing, crushing, grinding, milling, sizing or separating material extracted from the earth (other than under a mining tenement or an authority, lease, license or permit mentioned in item 21C or 21D) or by dredging using plant or equipment. 5 000 tonnes or more, but less than 100 000 tonnes a year.
Selma Hills – Capricorn Highway	188	DSN702		
Gem fields	304	USL47045		
Schofield Mt	6	CP902		
Bogantungan 4702	1	CP910324	75(a)(i)	Waste disposal - operating a facility for-disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 50 tonnes but not more than 2 000 tonnes per year.
Willow Gemfields Q 4702	5	CP911741	75(a)(i)	Waste disposal - operating a facility for-disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of more than 50 tonnes but not more than 2 000 tonnes per year.
Rubyvale-Sapphire Road Q 4700	1	SP114679	75(a)(ii)	Waste disposal - operating a facility for-disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of- 2 000 tonnes or more, but less than 5 000 tonnes per year.
Lochless Road Emerald Q 4720	1	DSN808887	75(a)(iv)	Waste disposal - operating a facility for-disposing of only general waste or limited regulated waste, if the facility is designed to receive waste at the rate of - 10 000 t or more, but less than 20 000 t per year.

Part 3: Licence/s (without development approval) (Section 93) – continued...

Itinerant activity in the shire of Emerald	nil	nil	83(b)(i)	Regulated waste transport- transporting regulated waste commercially or in quantities of more than 250kg in a load- for other regulated waste- for 1 or more licensed vehicles but not more than 35 licensed vehicles.
Emerald Transfer Station	50	RP842957 Parish of Selma Glasson Street Emerald	84(b)	Regulated waste storage – operating a facility for receiving and storing other than regulated waste.
Lochless Road Emerald Q 4720	1	DSN808887	84(a)	Regulated waste storage - operating a facility for receiving and storing more than 500 tyres in whole or equivalent parts (other than tyres stored for recycling or reprocessing under item 80).

Part 4: Licences (with development approval) (Section 86)

Location	Lot	Plan	ERA No.	ERA Name
Bottle Tree Rd Emerald Q 4720	4	860073	15(c)	Sewage treatment – operating – a standard sewage treatment works having a peak design capacity to treat sewage of 1 500 or more equivalent person but less than 4 000 equivalent persons.
Railway Water Reserve Comet Q 4702	65	HT43	16	Municipal water treatment plant – treating water for domestic use (other than treatment that only involves disinfection).

PART 1 – General Conditions

This part consists of General Conditions that apply to all Parts of this integrated authority.

Schedule A – Activity

Prevent and /or minimise likelihood of environmental harm

- (A1) In carrying out the environmentally relevant activities, you must take all reasonable and practicable measures to prevent and / or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm, in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this authority.

NOTE: This authority authorises the environmentally relevant activity. It does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

Maintenance of measures, plant and equipment

- (A2) The holder must:
- (i) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; and
 - (ii) Maintain such measures, plant and equipment in a proper and efficient condition; and
 - (iii) Operate such measures, plant and equipment in a proper and efficient manner.

Annual Monitoring Report

- (A3) An annual monitoring report must be provided to the administering authority with the annual return. This report shall include but not be limited to:
- (i) A summary of monitoring results from the previous twelve (12) months obtained under any monitoring program required under this authority. This must include graphs showing relevant limits and a comparison of the previous twelve (12) months monitoring results to both limits defined in this authority as well as limits in prior results;
 - (ii) An evaluation / explanation of the data from any monitoring programs;
 - (iii) A summary of any record of quantities of releases required to be kept under this authority;
 - (iv) A summary of the record of equipment failures or events recorded for any site under this authority;
 - (v) An outline of actions taken or proposed to minimise the environmental risk from any deficiency identified by the monitoring or recording programs;
 - (vi) The number of domestic tenements newly connected to the sewage treatment works during the previous twelve (12) months;
 - (vii) The progressive total number of connections; and
 - (viii) A summary of any trade waste agreements entered into or amended during the year, including the nature of the industry.

Records

(A4) Records must be kept for five years, and must include the following information:

- (i) Date of pickup of waste;
- (ii) Description of waste;
- (iii) Cross reference to relevant waste transport documentation;
- (iv) Quantity of waste;
- (v) Origin of the waste;
- (vi) Destination of the waste; and
- (vii) Intended fate of the waste, for example - type of waste treatment, reprocessing or disposal.

NOTE: Records of documents maintained in compliance with a waste tracking system established under the Environmental Protection Act 1994 or any other law for regulated waste will be deemed to satisfy this condition.

Integrated Environmental Management System (IEMS)

(A5-1) Within six months of the date of effect of this integrated authority, the holder of this environmental authority must:

- (i) Develop an Integrated Environmental Management System (IEMS) which provides for the effective management by the holder of the actual and potential environmental impacts resulting from the carrying out of the activities;
- (ii) Submit it to administering authority for their approval; and
- (iii) Commence the implementation and maintenance of the IEMS

(A5-2) The IEMS must provide for at least the following functions:

- (i) Training staff in the awareness of environmental issues related to carrying out the activities, which must include at least:
- (ii) The environmental policy of the holder, so that all persons that carry out the activities are aware of all relevant commitments to environmental management; and
- (iii) Any relevant environmental objectives and targets, so that all staff are aware of the relevant performance objectives and can work towards these; and
- (iv) Control procedures to be implemented for routine operations for day to day activities to minimise likelihood of environmental harm, however occasioned or caused; and
- (v) Contingency plans and emergency procedures to be implemented for non-routine situations to deal with foreseeable risks and hazards including corrective responses to prevent and mitigate environmental harm (including any necessary site rehabilitation); and
- (vi) Organisational structure and responsibility to ensure that roles, responsibilities and authorities are appropriately defined to manage environmental issues effectively; and
- (vii) Effective communication to ensure two-way communication on environmental matters between operational staff and higher management;
- (viii) Their obligations in respect of monitoring, notification and record keeping obligations under the IEMS and relevant environmental authorities and/or development approvals; and
- (ix) Monitoring of the release of contaminants into the environment including procedures, methods, record keeping and notification of results;
- (x) Conducting assessment of the environmental impact of any release of contaminants into the environment; and
- (xi) The conduct of environmental and energy audits; and
- (xii) Waste prevention, treatment and disposal; and
- (xiii) A program for continuous improvement.

(A5-3) The holder of this environmental authority must not implement or amend an IEMS (including any environmental management plan) that contravenes any condition of this environmental authority or any development condition applicable to carrying out the activities.

END OF CONDITIONS FOR SCHEDULE A

Schedule B – Air

Nuisance

- (B1) The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any odour sensitive place.

Dust nuisance

- (B2) The release of dust and / or particulate matter resulting from the activity must not cause an environmental nuisance at any dust sensitive place.

END OF CONDITIONS FOR SCHEDULE B

Schedule C – Water

No conditions prescribed for this schedule.

END OF CONDITIONS FOR SCHEDULE C

Schedule D - Noise and vibration

Noise nuisance

- (D1) Noise from activities must not cause an environmental nuisance at any noise-affected premises.

END OF CONDITIONS FOR SCHEDULE D

Schedule E – Waste

No conditions prescribed for this schedule.

END OF CONDITIONS FOR SCHEDULE E

Schedule F – Land

No conditions prescribed for this schedule.

END OF CONDITIONS FOR SCHEDULE F

Schedule G – Community

Complaint response

- (G1) In the event of a complaint being made to the licence holder who considers that complaint not frivolous or vexatious but does constitute annoyance or environmental harm, then the licence holder must record and investigate the complaint and implement a plan to address it. . This information must be made available to the administering authority on request

END OF CONDITIONS FOR SCHEDULE G

Schedule H – Definitions

Refer to Schedule H, Part 2.

END OF CONDITIONS FOR SCHEDULE H

END OF CONDITIONS FOR PART 1

PART 2 - LEVEL 2 APPROVAL (S) (Section 104)

This part is for the carrying out of a level 2 environmentally relevant activity, under chapter 4, part 3, division 3 of the Environmental Protection Act 1994.

Schedule B – Air

Nuisance

(B1) The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any odour sensitive place.

Dust nuisance

(B2) The release of dust and / or particulate matter resulting from the activity must not cause an environmental nuisance at any dust sensitive place.

END OF CONDITIONS FOR SCHEDULE B

Schedule C – Water

Release to waters

(C1-1) Contaminants must not be released from the licensed place to any waters or the bed and banks of any waters.

(C1-2) Water from the Opal Street Water Treatment Plant may be released to the Emerald Golf Course.

Stormwater Management

(C2) There must be no release of Storm water runoff that has been in contact with any contaminants at the site to any waters, roadside gutter or stormwater drain, except for within the lagoon and / or tanks at the Water Treatment Plant site.

END OF CONDITIONS FOR SCHEDULE C

END OF CONDITIONS FOR PART 2

PART 3 - LICENCE(S) (WITHOUT DEVELOPMENT APPROVAL) (Section 93)

This part is for the carrying out of a level 1 environmentally relevant activity without a development approval, under chapter 4, part 3, division 2, subdivision 1 of the Environmental Protection Act 1994.

Schedule B – Air

Dust nuisance

Screening and Extraction

- (B1) When requested by the Administering Authority, dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter, and the results notified within 14 days to the administering authority following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include:
- (i) For a complaint alleging dust nuisance, dust deposition; and
 - (ii) For a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere over a 24hr averaging time.

Schedule C – Water

Release of contaminants to waters

- (C1-1) Contaminants must not be directly or indirectly released from the licensed premises to which this environmental authority relates to any waters or the bed and banks of any waters except as permitted under a schedule of the this environmental authority or to a sewer as permitted or otherwise agreed from time to time by the relevant Local Government.

Comet Water Treatment Plant

- (C1-2) Monitoring must be undertaken and records kept of contaminant releases to waters from the discharge location for the parameters specified in Schedule C Table 1. Monitoring must be carried out as soon as practical when a discharge occurs, and at least fortnightly whilst discharging. All determinations of the quality of contaminants released must be:
- (i) Made in accordance with methods prescribe in the latest edition of the Environmental Protection Agency Water Quality Sampling Manual; and
 - (ii) Carried out on samples that are representative of the discharge.
- (C1-3) Contaminants must only be released to waters from the discharge location and in compliance with the release limits listed in Schedule C Table 1.

Schedule C Table 1 Discharge Location: backwash water from dam to Comet River.

Monitoring Point	Discharge Location	Quality Characteristics	Release Limits	
			Minimum	Maximum
1	Comet River	pH	6	8
1	Comet River	Turbidity		20% of turbidity in Comet River

1 – monitoring point is described as the exit point from the reed bed.

- (C1-4) Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable. Such spillages must not be cleaned up by hosing, sweeping or otherwise releasing such wastes, contaminants or material to any stormwater drainage system, roadside gutter or waters.

Erosion protection measures and sediment controls

- (C2) Erosion protection measures and sediment control measures must be implemented and maintained at the screening and extraction sites to minimise erosion and the release of sediment. The size of any sedimentation dam must be sufficient to contain the run-off expected from a 24-hour storm with an average recurrence interval of 1 in 5 years.

Pumps

- (C3) Pumps whose failure would or would be likely to result in a direct or indirect release of contaminants to waters must be fitted with stand-by pumps and pump-failure alarms. Pumps and pump failure alarms must be able to operate without mains is such power failure occurs and, when in operations, must be detectable to those responsible for remedial action.

Stormwater Management Plan

- (C4-1) The holder of this environmental authority must develop, (as part of the IEMS), implement, and maintain an effective and appropriate Stormwater Management Plan that details how the holder of this environmental authority will manage the actual and potential environmental impacts resulting from the contamination of stormwater at the licensed premises.
- (C4-2) The Stormwater Management Plan must address at a minimum the following:
- (i) The prevention of incident stormwater and stormwater runoff from contacting wastes or contaminants; and
 - (ii) Diversion of upstream runoff away from areas containing wastes or contaminants; and
 - (iii) Minimisation of the size of contaminated areas; and
 - (iv) Cleaning of contaminated areas without water; and
 - (v) Installation of pollution control equipment such as oil separators, silt and rubbish traps, sedimentation ponds, settling pits and stormwater diversion systems; and
 - (vi) Paving and roofing of contaminated areas; and
 - (vii) Sampling and monitoring of contaminated stormwater released from the licensed premises and assessment of the impact of any such release on the receiving environment; and
 - (viii) Reporting the results of the monitoring of stormwater releases that may be required by the administering authority and any assessment of the impact of the releases on the receiving environmental to the administering authority; and
 - (ix) If soil is to be exposed or disturbed as a result of the activities conducted
 - a) Minimisation of the amount of soil to be exposed or disturbed by staging works and the presence of any acid sulphate soils;
 - b) Re-vegetation of exposed or disturbed areas;
 - c) Installation of sediment control structures such as settling basins;
 - d) Diversion of upstream runoff from exposed or disturbed areas.

Reclaimed Water – Blackgully Sewage Treatment Plant

- (C5-1) Reclaimed water must not be used for any other purpose, other than for disposal to land in accordance with the conditions of integrated authority.
- (C5-2) The holder of this integrated authority must ensure that all employees, agents and contractors potentially exposed to reclaimed water are to be instructed in personal hygiene measures and appropriate health and safety procedures associated with using reclaimed water.
- (C5-3) Connection of the reclaimed water system into any potable supply system is not permitted.
- (C5-4) Childproof taps are to be used to prevent children from drinking reclaimed water.
- (C5-5) Notices warning persons not to use or drink or have contact with the reclaimed water must be prominently displayed and must be maintained in a clearly visible and legible condition. The signs must:
- (i) Be displayed at places where persons can gain access to or have contact with the reclaimed water, for example, at taps, cocks, valves and contaminant release area(s); and
 - (ii) Be distinctively colour coded (deep purple) and marked with the words: WARNING: RECLAIMED WATER - DO NOT DRINK and are to include an appropriate warning symbol as well as text; and
 - (iii) Must be in compliance with AS 1319 - Safety Signs for the occupational environment; and
 - (iv) All piping and conduits must be identified in accordance with AS 1345 - Identification of the Contents of Piping, Conduits and Ducts; and
 - (v) Be in English, and, where necessary, in another appropriate language(s).
- (C5-6) Lockable valves or removable handles must be fitted to reclaimed water pipelines where there is public access to the pipelines and any part of the reclaimed water distribution system.

END OF CONDITIONS FOR SCHEDULE C

Schedule D – Noise

Black Gully Sewage Treatment Plant, Comet Water Treatment Plant

- (D1-1) In the event of a complaint about noise from the activity, the emission of noise from the activity must not result in levels greater than those specified in Schedule D Table 1.

SCHEDULE D TABLE 1

Noise Level at a Noise Sensitive Place Measured as the Adjusted Maximum Sound Pressure Level L <small>Amax adj, T</small>	Period
Back ground noise level plus 5 dB(A)	7 am - 6 pm
Back ground noise level plus 5 dB(A)	6 pm - 10 pm
Back ground noise level plus 3 dB(A)	10 pm - 7 am
Noise Limits at a Commercial Place Measured as the Adjusted Maximum Sound Pressure Level L <small>Amax adj, T</small>	Period
Back ground noise level plus 10 dB(A)	7 am - 6 pm
Back ground noise level plus 10 dB(A)	6 pm - 10 pm
Back ground noise level plus 8 dB(A)	10 pm - 7 am

- (D1-2) When requested by the Administering Authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within 14 days to the administering authority. Monitoring must include:
- (i) LA 10, adj, 10 mins
 - (ii) LA 1, adj, 10 mins
 - (iii) The level and frequency of occurrence of impulsive or tonal noise;
 - (iv) Atmospheric conditions including wind speed and direction;
 - (v) Effects due to extraneous factors such as traffic noise; and
 - (vi) Location, date and time of recording.
- (D1-3) The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual or equivalent document.

END OF CONDITIONS FOR SCHEDULE D

Schedule E – Waste

Waste Management

- (E1) The holder of this environmental authority must use the waste management hierarchy when making decisions in regard to waste management at all licensed premises:
- (i) Waste avoidance
 - (ii) Waste re-use
 - (iii) Waste recycling
 - (iv) Energy recovery from waste
 - (v) Waste disposal.

Off Site Movement

- (E2) Where regulated waste is removed from the licensed premises (other than by a release as permitted under another schedule of this environmental authority), the environmental authority holder must monitor and keep records of the following:
- (i) The date, quantity and types of waste removed; and
 - (ii) Name of the waste transporter and/ or disposal operator that removed the waste; and
 - (iii) The intended treatment/disposal destination of the waste.

Notification of the Improper Disposal of Regulated Waste

- (E3) If the holder of the environmental authority becomes aware that a person has removed regulated waste from the licensed premises and disposed of the regulated waste in a manner which is not authorised by this environmental authority or improper or unlawful, then the holder must, as soon as practicable, notify the administering authority of all relevant facts, matters and circumstances known concerning the disposal.

Waste Disposal Facilities

Design and Operating Criteria

- (E4-1) Keep and maintain records of source, volumes and composition of all waste types accepted at the premises and report these values to the administering authority by 31 August each year.
- (E4-2) The holder of this environmental authority must not allow waste to burn or be burned at or on the licensed premises nor must the environmental authority holder remove waste from the licensed places and burn such waste elsewhere.
- (E4-3) No waste is permitted to be disposed of beyond the boundaries of the landfill units.
- (E4-4) The environmental authority holder must ensure that any active disposal trench is excavated into low permeability soils of sufficient thickness and appropriate characteristics to effectively attenuate landfill leachate percolating from the trench to an extent that the migration of landfill leachate to groundwater shall not cause environmental harm or environmental nuisance.
- (E4-5) All active waste disposal trenches must be constructed in such a manner that the floor of the trench is graded with a slope downward from the active tipping face to a sump to enable accumulation of contaminated stormwater to be removed during trench operation.
- (E4-6) The environmental authority holder must use temporary berms of low permeability material to minimise the exposure of waste deposited in active disposal trenches to rainwater that may accumulate in the trenches.
- (E4-7) The disposal of putrescible wastes is not permitted into water.
- (E4-8) At Lochless landfill, deposited waste must be covered with 0.20 metre thick earthen material or other dense and incombustible alternative material of a thickness and nature acceptable to the administering authority, as soon as practicable, so that no putrescible wastes are exposed.
- (E4-9) Sufficient cover material for at least two weeks operation must be stored and be readily available at the licensed premises.

Site Security - Lochlees Landfill

- (E5-1) The environmental authority holder must erect and maintain a security fence with lockable gate of a type and height that prevents unauthorised vehicular access to the facility.
- (E5-2) The environmental authority holder must ensure that, at all times while the facility is open, at least one person is present who is responsible for the control and operations of the facility and whose duties must include but are not limited to the following:
- (i) Controlling the reception, storage and removal of waste;
 - (ii) Maintaining the facility at an appropriate environmental standard; and
 - (iii) Controlling all employees working in the facility; and
 - (iv) Supervising all persons entering the facility.
- (E5-3) The environmental authority holder must ensure that all access gates are locked when the activity is unattended.

Litter

- (E6) The environmental authority holder must ensure that the movement of litter off the licensed place does not cause environmental harm or nuisance through the use of practicable and effective litter control measures and management practices. Such measures may include, but are not limited to: minimisation of the areas of uncovered wastes; frequent application of cover to deposited wastes; the use of relocatable litter screens around areas of waste deposition; the use of fixed litter control fencing around the site perimeter or other places; the implementation of regular litter collection programs that include cleaning of site perimeter fencing.

Dust Control

- (E7-1) The following materials must not be used for dust suppressant purposes or be released on rehabilitated areas or areas being rehabilitated:
- (i) Any leachate;
 - (ii) Any landfill gas condensate;
 - (iii) Waste oil and
 - (iv) Any stormwater that has become contaminated following contact with waste.
- (E7-2) All filled areas must be re-vegetated as soon as practicable on the completion of waste disposal operations.
- (E7-3) Rehabilitation must be carried out in such a manner as to minimise releases of wind blown dust and erosion.
- (E7-4) Access to areas awaiting rehabilitation or being rehabilitated must be restricted by suitable barriers to prevent disturbance of these areas.

Signage

- (E8) The environmental authority holder must prominently display on the licensed site appropriate signs with the following information:
- (i) Types of waste that must be deposited at the site and a contact telephone number for information on alternative disposal options;
 - (ii) Prominent list of material acceptable for recycling and the location of them to be deposited on site;
 - (iii) Contact telephone number for information and complaints;
 - (iv) A warning sign indicating that unlawful disposal and unauthorised scavenging is prohibited;
 - (v) A warning sign indicating that open burning is prohibited.

Fire Prevention and Control

- (E9-1) The environmental authority holder must, at all times, maintain clear access for fire fighting vehicles and equipment to available water supplies.
- (E9-2) The environmental authority holder must provide and maintain at all time a sufficient firebreak that meets the satisfaction of the Regional Fire Commander.
- (E9-3) The environmental authority holder must act to ensure that any unauthorised fire on the licensed place is promptly extinguished.

Public Health Issues

- (E10-1) The environmental authority holder must take all practical measure to ensure that the environmentally relevant activity is conducted at all times in a nuisance free manner, particularly regarding fly breeding, mosquito breeding and rat harbourage and breeding.
- (E10-2) The environmental authority holder must carry out any works required by the administering authority to prevent or abate any public health problem or nuisance that may arise as the result of the operation of the licensed premises.

Bird and Animal Control

- (E11-1) The holder of this environmental authority shall institute effective measures to prevent environmental harm or nuisance due to the congregation of birds at the licensed place.
- (E11-2) The holder of this environmental authority must also prevent the access of animals to deposited wastes. Such measures may include, but not be limited to minimisation of the areas of uncovered wastes; frequent application of cover to deposited wastes; and provision of animal proof fencing.

Sediment and Erosion Control

- (E12) A system of suitable diversion drains or embankments must be constructed and maintained to divert surface waters away from any area of the licensed place where contact with wastes or contaminants may occur, including but not limited to:
 - (i) Active disposal trenches; and
 - (ii) Areas used for the storage of wastes; and
 - (iii) Areas previously used for waste disposal.

Site Closure and Post- closure Care - Lochless and the Rubyvale Sapphire landfills

- (E13-1) At least 12 months prior to the completion of waste receipt operations at the Lochless and the Rubyvale Sapphire landfills, the holder of this environmental authority must submit to the administering authority closure plans and a post-closure care and maintenance plans.
- (E13-2) The closure plans referred to in (E13-1) must describe the proposed actions of the holder of the environmental authority in relation to:
 - (i) Final cover system;
 - (ii) Final surface contours (including allowances for land subsidence);
 - (iii) Land use in post-closure;
 - (iv) Surface drainage;
 - (v) Leachate management.
- (E13-3) The holder of this environmental authority must have due regard to the comments of the administering authority regarding the closure plans submitted by the holder of this authority, as referred in (E13-1).

- (E13-4) The holder of this environmental authority must commence closure activities no less than 28 days after the date on which the waste disposal facility ceases to receive waste.
- (E13-5) The post-closure care and maintenance plan referred to in (E13-1) must describe the licensee's proposed action in relation to:
- (i) Maintenance of the integrity of the site including the final cover system and any associated vegetation; and
 - (ii) Maintenance of any leachate management systems.
- (E13-6) The holder of this environmental authority shall have due regard to the comments of the administering authority regarding the post-closure care and maintenance plan submitted by the holder of this authority, as referred in (E13-1).
- (E13-7) The holder of the environmental authority must conduct post-closure care of any landfill unit for 30 years or until it can be demonstrated to the administering authority that the site is geotechnically stable and will not release contaminants to the environment. Such care must include, but shall not be limited to:
- (i) Maintenance of the integrity and effectiveness of any final cover systems;
 - (ii) Maintenance and operation of any leachate collection system.

Lochless Road Landfill - Landfill lift and unit criteria

- (E14-1) Exposed wastes must be limited to the working face of the landfill unit and the area of exposure must be minimised to the greatest extent practicable.
- (E14-2) The working face of the landfill unit must not exceed 30 meters in width at any time and waste must not be deposited in lifts exceeding a vertical height of three (3) meters.
- (E14-3) Every lift of waste deposited within the landfill facility must be evenly and properly consolidated by mechanical plant to the greatest extent practicable.
- (E14-4) Deposited waste must be covered:
- (i) With earthen material to a thickness of at least 0.2 meters; or
 - (ii) With an alternative dense and incombustible material of sufficient thickness and nature to ensure that there is no exposure of waste.
 - (iii) At least once every operating day; and
 - (iv) At more frequent intervals if putrescible waste is deposited at a frequency necessary to ensure that such waste is not left in an exposed state.
- (E14-5) Notwithstanding condition (E14-4), the environmental authority holder is not required to undertake coverage of the deposited waste on Saturdays and/or Sundays subject to the following performance measures:
- (i) Compliance with other conditions of this environmental authority;
 - (ii) Even and proper consolidation of the deposited waste by mechanical plant at the end of every operating day; and
 - (iii) Constructing small bunds or diversion drains around the working face of the landfill unit so as to minimise ingress of rainfall and stormwater runoff into deposited waste if on any afternoon, rainfall is falling at the premises or is forecast for the area within the next twenty-four (24) hour period, (excluding a significant rainfall that has made it impractical for machinery to work at the working face;
 - (iv) Receiving only non-putrescible waste for disposal in the landfill unit on these days; and
 - (v) No disposal of waste from the kerbside collection or limited regulated waste on these days.
- (E14-6) Earthen material necessary for coverage of deposited waste must be stored and be readily available at the licensed premises in a quantity sufficient for not less than two weeks operations of the landfill.
- (E14-7) An all weather internal road must be provided and maintained at all times to the working face of the landfill facility.

Management of Landfill Gas

(E15) A system of landfill gas management must be maintained to effectively minimise the likelihood of any subsurface migration of landfill gas from the landfill unit and prevent any uncontrolled emission of landfill gas through final capping.

Leachate Collection and Disposal

(E16-1) For any new sections of the landfill that utilise areas that have not previously been used for waste disposal, a liner system must be installed and maintained to effectively minimise the likelihood of any release of contaminants to groundwater and minimise likelihood of subsurface migration of landfill gas from the landfill unit.

(E16-2) For any new sections of the landfill that utilize areas that have not previously been used for waste disposal, a leachate collection system must be installed and maintained to effectively and efficiently:

- (i) Collect leachate generated in a landfill stage or part of a stage;
- (ii) Convey the collected leachate out of a landfill stage or part of a stage to an appropriate leachate storage facility for that landfill stage or part of that stage; and
- (iii) Minimise the height of the leachate above the floor of any landfill stage or part of that stage.

(E16-3) To ensure compliance with conditions (E16-1) and (E16-2), all landfill stages or parts of those stages of the landfill unit must be designed and operated in accordance with the following criteria or their equivalent:

- a) If a landfill stage or part of a stage accepts less than 75,000 tonnes of waste per year;
 - (i) An engineered earthen liner of at least 0.6 meters thickness, placed in at least two layers, achieving a maximum permeability of no greater than 1×10^{-9} ms⁻¹; and
 - (ii) A leachate collection system capable of maintaining the level of leachate over the uppermost layer in the lining at no more than 0.3m; and
- b) The holder of the authority may use an alternative liner system to the liner standards in (a) above, after it is demonstrated to the administering authority that the alternative liner system achieves the permeability standards set in (a) above.

Prohibition on releasing leachate, stormwater runoff that has been in contact with waste materials, and landfill gas condensate to surface waters

(E16-4) Leachate, stormwater runoff that has been in contact with waste material in the landfill unit, and any landfill gas condensate collected must not be released to any surface waters or the bed or banks of any such waters. Such leachate, stormwater runoff and landfill gas condensate must not be released to any sedimentation pond or any other element of the sediment control system that releases contaminants to such waters.

Regulated Waste Transport

Tanker Conditions

(E17-1) The tank fixed to the vehicle for the purpose of transporting regulated waste must be-

- (i) Constructed of a suitable material for the regulated waste being transported;
- (ii) Constructed as to prevent spillage or leakage of the regulated waste;
- (iii) Maintained in a sound condition at all times;
- (iv) Mounted in a manner acceptable to the administering authority;
- (v) Fitted with roll-over protection where possible;
- (vi) Provided with a sampling point of a type approved by the administering authority

(E17-2) Where regulated waste is transported in bulk, the holder of this environmental authority must ensure that sampling points are provided on each compartment of the vessel in which the waste is being transported.

- (E17-3) The sampling point provided in accordance with condition (E17-2) must -
- (i) Allow for a representative sample of the regulated waste being transported to be obtained;
 - (ii) Be provided with protection to prevent damage.
- (E17-4) The holder of this environmental authority must ensure that all waste transfer equipment is -
- (i) Fitted to the vehicle as to not extend beyond the outer body line of the vehicle;
 - (ii) Provided with protection to prevent damage.
- (E17-5) The holder of this environmental authority must cause all waste transfer hoses on the vehicle to be -
- (i) Capped to prevent residue leaking from the hoses at all times whilst the vehicle is in transit; and
 - (ii) Maintained in good condition so as to prevent spillage or leakage of regulated waste.
- (E17-6) The holder of this environmental authority must ensure that a load-measuring device is -
- (i) Available on the vehicle at all times; and
 - (ii) Of a type approved by the administering authority.
- (E17-7) The holder of this environmental authority must cause all waste transfer points fitted to the tank to be effectively closed at all times to prevent the spillage or leakage of regulated waste whilst the vehicle is in transit.
- (E17-8) Any vehicle registered with the administering authority may be replaced with another vehicle provided it is of similar type and no less fit for the transportation of the regulated waste.
- (E17-9) The licence holder must provide details of changes to the 'licensed vehicle' fleet to the administering authority prior to the use of these vehicles for the transport of any regulated waste. The information must be provided in the 'Details of regulated waste vehicles' form.
- (E17-10) Regulated waste is not permitted to be released from any vehicle or any container transported by that vehicle other than at a proper and appropriate place that can lawfully accept such waste.
- (E17-11) Any loss or spillage of regulated wastes must be cleaned up forthwith.
- (E17-12) Regulated waste must be handled and transferred in a proper and efficient manner to prevent any leakage or spillage of waste.
- (E17-13) All vehicles (including load areas), containers and secondary containers used to transport regulated waste must be:
- (i) Maintained in a proper and efficient condition at all times to prevent spillage or leakage of waste;
 - (ii) Be kept clean at all times whilst regulated waste is not being transported; and
 - (iii) In the case of containers and secondary containers, mounted securely in a proper and efficient manner.
- (E17-14) The holder of this environmental authority must cause to be carried in the cabin of the transport vehicle at all times whilst transporting regulated waste -
- (i) A legible copy of the part of the environmental authority that relates to regulated waste transport; and
 - (ii) A legible copy of the environmental authority applicable to the trailer or tow.
- (E17-15) The holder of this environmental authority must on request by an authorised person -
- (i) Make the vehicle available for inspection;
 - (ii) Produce the copies of the environmental authority.

Tray Conditions

- (E18) The tray of the vehicle must be -
- (i) Constructed of an impervious material; and
 - (ii) Constructed so as to contain any spills on the tray; and
 - (iii) Maintained in a sound condition; and
 - (iv) Kept clean at all times.

Asbestos Waste

- (E19) All asbestos transported must be:
- (i) Handled and packaged in accordance with the guidelines set out in the 'Worksafe Australia Asbestos Code of Practice' (or updated versions thereof); and
 - (ii) Handled and packaged in accordance with Workplace Health and Safety Code of Practice on Safe Treatment, Removal and Disposal of Asbestos- Cement Sheeting (or updated versions thereof); and
 - (iii) Repackaged immediately if rupturing of the package occurs.

Lead Waste

- (E20) When the regulated waste transported is lead waste, the regulated waste must be:
- (i) Placed in bins/containers on the vehicle and the lead waste double wrapped with polythene sheets, approximately 0.2 millimetre thick, and sealed with adhesive tape
 - (ii) Labelled to indicate the presence of lead and what precautions need to be taken; and
 - (iii) Securely stowed on the vehicle during transit in such way as not to cause the packaging to rupture; and
 - (iv) Off loaded in such a manner as to not cause the packaging to rupture; and
 - (v) Repackaged immediately in the event that packages are ruptured.

Insurance

- (E21) You must hold and keep a current liability insurance policy with a third party property clause to cover costs of clean up or removal incurred by or on behalf of the administering authority as a result of fire, explosion, leakage or spillage of regulated waste as a result of any vehicle

Regulated Waste Handling

- (E22-1) The holder of this environmental authority must ensure that permanent records are kept for every load of regulated waste transported on the highway, and should include the following information:
- (i) Date of pickup of waste;
 - (ii) Description of waste;
 - (iii) Cross reference to relevant waste transport documentation;
 - (iv) Quantity of waste;
 - (v) Origin of waste;
 - (vi) Destination of the waste;
 - (vii) Method of waste treatment, reprocessing or disposal.

- (E22-2) When regulated waste is transported on a highway the holder of this environmental authority must cause -
- (i) Written instructions as to clean up to be available in the cabin of the vehicle in case of any escape, spill or leak of regulated waste from the vehicle;
 - (ii) The administering authority to be immediately advised of any escape, spill or leak of regulated waste from the vehicle;
 - (iii) Any escape, spill or leak of regulated waste from the vehicle to be immediately cleaned up if it is possible to be done safely;
 - (iv) A spill kit suitable for the waste being carried to be available with the vehicle;
 - (v) Safety equipment to be available with the vehicle;
 - (vi) An Emergency Procedure Guide(s) to be carried in the cabin of the vehicle when required for the vehicle; and
 - (vii) The vehicle to be marked on the front with the Dangerous Goods Class Label for the regulated waste applicable to the vehicle.
- (E22-3) The holder of this environmental authority must cause the driver of the vehicle to be aware of all conditions of the licence.
- (E22-4) All regulated waste removed from the site must be removed by a person who holds a current authority to transport such waste under the provisions of the Environmental Protection Act 1994.
- (E22-5) The regulated waste being transported by the holder of this environmental authority must only dispose of that regulated waste at premises that under the Environmental Protection Act 1994 can legally receive such waste.

END OF CONDITIONS FOR SCHEDULE E

Schedule F – Land

Release of contaminants to land - Black Gully and Park Avenue Sewage Treatment Plants

- (F1-1) The defined contaminant release points are described as:
- (i) Releases from Black Gully as specified under Third Party Agreement as specified in conditions (F6-1) to (F6-4);
 - (ii) Releases from Park Avenue Sewage Treatment Plant effluent storage dam to LN1 (watercourse) for re-use under Third Party Agreement as specified in conditions (F6-1) to (F6-4); and
 - (iii) Releases from Park Avenue Sewage Treatment Plant for the purposes of irrigation at the Emerald Cemetery.
- (F1-2) The irrigation of effluent must be carried out in a manner such that:
- (i) Vegetation is not damaged;
 - (ii) Soil erosion and soil structure damage is avoided;
 - (iii) There is no surface ponding of effluent;
 - (iv) Percolation of effluent beyond the plant root zone is minimised;
 - (v) The capacity of the land to assimilate nitrogen, phosphorus, salts, organic matter as measured by oxygen demand and water is not exceeded; and
 - (vi) The quality of ground water is not adversely affected.

Monitoring of Quality Characteristics of release to land

(F2-1) The quality of reclaimed water released to land must comply at sampling and in situ measuring points specified with each of the release limited and monitoring locations specified in Schedule F, Table 1, and Schedule F, Table 2 for each quality characteristic.

Schedule F – Table 1 – Release Quality Characteristic limits

Quality characteristic	Release limit – restricted public access (TPA)	Limit type	Monitoring Frequency
5-day Biological Oxygen Demand	20 mg/L	Maximum	Quarterly
Suspended Solids	30 mg/L	Maximum	Weekly
pH (pH units)	6.5 - 8.0	Range	Weekly
Faecal Coliforms (organisms/100 ml)	< 1000 thermotolerant coliforms/100 ml	Median with 90% compliance	Quarterly

Schedule F – Table 2 – Monitoring locations

Quality characteristic	Park Avenue Monitoring location	Park Avenue Effluent Storage Dam Monitoring Location	Black Gully Monitoring location
5-day Biological Oxygen Demand	Discharge from the chlorine contact tank	Outlet No. 4 Lagoon at Treatment Plant	Outlet of plant (upstream from the discharge to the storage)
Suspended Solids	Discharge from the chlorine contact tank	Outlet No. 4 Lagoon at Treatment Plant	Outlet of plant (upstream from the discharge to the storage)
pH (pH units)	Discharge from the chlorine contact tank	Outlet No. 4 Lagoon at Treatment Plant	Outlet of plant (upstream from the discharge to the storage)
Faecal Coliforms (organisms/100 ml)	Effluent being irrigated on the cemetery	Outlet of effluent storage dam	From the storage adjacent to the outlet of the storage

- (F2-2) The daily quantity of contaminants released must be determined or estimated by an appropriate method.
- (F2-3) A report addressing the following points must be submitted to the administering authority within 6 months of this date of effect of this licence:
- a. irrigation of effluent must be carried out in a manner such that:
 - i. Vegetation is not damaged;
 - ii. Soil erosion and soil structure damage is avoided;
 - iii. There is no surface ponding of effluent;
 - iv. Percolation of effluent beyond the plant root zone is minimised;
 - v. The capacity of the land to assimilate nitrogen, phosphorus, salts, organic matter as measured by oxygen demand and water is not exceeded; and
 - vi. The quality of ground water is not adversely affected.
 - b. details of how the irrigator complies with the general environmental duty provided for by Section 319 of the Act in respect of the use and disposal of such effluent, particularly in relation to environmental sustainability of any effluent disposal, protection of public health and protection of environmental values of waters.
- (F2-4) A management plan must be submitted to the administering authority within 6 months of this date of effect of this licence. The management plan must address the following issues:
- (i) Minimise the volume of effluent in LN1 (watercourse) at any time
 - (ii) A procedure to remove effluent from natural channels prior to runoff events and/or after rainfall likely to cause runoff events
 - (iii) A record must be kept of any removal or discharge off site, including destination, transporter, dates and volumes

Contaminant Release Precautions

- (F3) When conditions prevent the irrigation of treated effluent to land (such as during or following rain events), the contaminants must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent (such as wet weather storage or tanking off site to another treatment plant or sewer).

Preventing contaminant release to land

- (F4-1) Spillage of all chemicals and fuels must be contained within an on-site containment system and controlled in a manner that prevents environmental harm.

NOTE: All petroleum product storage's must be designed, constructed and maintained in accordance with AS 1940 - Storage and Handling of Flammable and Combustible Liquids.

- (F4-2) Pipelines and fittings for the release of contaminants to land must be clearly identified. Standard water taps, hoses and cocks must not be fitted to contaminant release pipelines, and the contaminant release system must not be connected to other service pipelines. Lockable valves or removable handles must be fitted to the contaminant release pipelines where there is public access to the contaminant release areas.

Release of contaminants to land - Black Gully and Park Avenue Sewage Treatment Plants (conditions F6-1 to F6-4)

Quantity of Contaminants Released to Land

- (F5-1) The holder of this authority must keep records of the volume, date, times of commencement and duration on each occasion there is a release of reclaimed water to the Emerald Cemetery.

Reclaimed Water Release to a Third Party

- (F6-1) The quality of reclaimed water released to land, or given to another person for irrigation purposes or other use, must comply, at the sampling and in-situ measurement point/s specified in Schedule F - Table 2, with each of the release limits specified in Schedule F - Table 1 for each quality characteristics.
- (F6-2) If the holder of this authority gives or transfers ownership of the treated sewage effluents to another person(s) the holder of this authority must:
- (i) Prior to giving such effluent or transferring ownership of such effluent to that person(s), obtain from that person details of how that person intends to comply with the general environmental duty provided for by Section 319 of the Act in respect of the use and disposal of such effluent, particularly in relation to environmental sustainability of any effluent disposal, protection of public health and protection of environmental values of waters; and
 - (ii) Only give or transfer ownership of such effluent in accordance with a written agreement between the holder of this environmental authority and that person(s): and
 - (iii) Upon becoming aware that the person is not or is not likely to comply with the general environmental duty provided by Section 319 of the Act, cease the giving and transferring ownership of such effluent, as the case may be.
- (F6-3) The continued supply of effluent under the existing third party effluent re-use programs shall remain lawful for a period of 12 months commencing from the date this authority takes effect. This condition prevails to the extent of any inconsistency with condition (F6-2).
- (F6-4) The holder of this authority must keep a copy of all agreements entered into to give ownership of treated sewage effluents and must:
- (i) Provide a copy of the agreement to the administering authority within thirty (30) days of the agreement taking effect; and
 - (ii) Advise the administering authority in writing of rescission of any agreement within thirty (30) days of such rescission.

Quarries

Land rehabilitation

- (F8-1) The authorised place must be rehabilitated (including all disturbed areas such as slopes, borrow pits, stockpile and screening areas) in a manner such that:
- (i) Suitable native species of vegetation are planted and established;
 - (ii) Potential for erosion of the site is minimised;
 - (iii) The quality of stormwater, water and seepage released from the site is such that releases of contaminants such as suspended solids, turbidity, total dissolved salts, pH, total iron, total aluminium, and total manganese are not likely to cause environmental harm;
 - (iv) The likelihood of environmental nuisance being caused by release of dust is minimised;
 - (v) The water quality of any residual water bodies meets criteria for subsequent uses and does not have potential to cause environmental harm;
 - (vi) The final landform is geo-technically stable and not subject to slumping; and
 - (vii) Any actual and potential acid sulphate soils in or on the site are either not disturbed; or, submerged, or treated so as to not be likely to cause environmental harm.
- (F8-2) Rehabilitation of disturbed areas must take place progressively as works are staged and new areas of extraction are commenced.

Sediment and Erosion Control

- (F9-1) A system of diversion drains and/or embankments must be constructed and maintained to divert surface waters away from any area of the licensed places where contact with waste or contaminants may occur.

- (F9-2) Diversion drains, appropriate grades (to minimise surface water flow velocities) or equivalent measures must be installed to ensure surface waters from disturbed areas, including operational or trafficable areas, are diverted to the sediment control system.
- (F9-3) Erosion control and sediment control structures must be maintained at all times during the periods of construction and rehabilitation and checked, repaired or replaced as required after each rain event.
- (F9-4) Erosion protection measures and sediment control structures must be provided and maintained to effectively minimise any likelihood of erosion and release of sediments from the licensed place and be maintained during any operational activities, any site clearing, any construction and any rehabilitation. Such measures must include diversion drainage works and temporary sedimentation traps.

Extraction of Rock or other Materials

- (F10-1) The IEMS must identify all sources of environmental harm for extractive sites, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused.
- (F10-2) The IEMS must ensure that extractive activities include:
- (i) Any site rehabilitation is carried out in such a manner so as to minimise releases of wind blown dust and erosion
 - (ii) Access to any areas requiring rehabilitation or being rehabilitated is restricted by suitable barriers to prevent disturbance of these areas
 - (iii) The quality of stormwater released from the site is such that releases of suspended solids, turbidity, total dissolved salts are not likely to cause environmental harm;
 - (iv) Rehabilitation of disturbed areas must take place progressively as works are staged and new areas of extraction are commenced within the licensed premises.

END OF CONDITIONS FOR SCHEDULE F

Schedule G - Monitoring And Reporting

Complaint Recording

- (G1) All complaints received by the holder of this environmental authority relating to releases of contaminants from operations at the licensed place must be recorded and kept with the following details:
- (i) Time, date and nature of complaint;
 - (ii) Type of communication (telephone, letter, personal etc.);
 - (iii) Name, contact address and contact telephone number of complainant;
 - (iv) Response and investigation undertaken as a result of the complaint;
 - (v) Name of person responsible for investigating complaint; and
 - (vi) Action taken as a result of the complaint investigation and signature of responsible person.

Report Submission

- (G2) The holder of this environmental authority must ensure that the results of all monitoring performed in accordance with this environmental authority for the period covered by the return is submitted with the Annual Return.

Incident Recording

- (G3) A record must be maintained of at least the following events:
- (i) The time, date and duration of equipment malfunctions where the failure of the equipment resulted in the release of contaminants reasonably likely to cause environmental harm;
 - (ii) Any uncontrolled release of contaminants reasonably likely to cause environmental harm and
 - (iii) Any emergency involving the release of contaminants reasonably likely to cause material or serious environmental harm requiring the use of fire fighting equipment.

Notification of Emergencies and Incidents

(G4-1) Where the licensee has not given notification to the administering authority under section 37 of the Environmental Protection Act, as soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this environmental authority, the holder of this environmental authority must notify the administering authority of the release by telephone or facsimile.

(G4-2) Where the licensee has not given notification to the administering authority under section 37 of the Environmental Protection Act, the notification of emergencies or incidents as required by condition number (G4-1) must include but not be limited to the following:

- (i) The holder of the environmental authority;
- (ii) The location of the emergency or incident;
- (iii) The number of the environmental authority;
- (iv) The name and telephone number of the designated contact person;
- (v) The time of the release;
- (vi) The time the holder of the environmental authority became aware of the release;
- (vii) The suspected cause of the release;
- (viii) The environmental harm and or environmental nuisance caused, threatened, or to be caused by the release; and
- (ix) Actions taken to prevent further any release and mitigate any environmental harm and or environmental nuisance caused by the release.

(G4-3) Where the licensee has not given notification to the administering authority under section 37 of the Environmental Protection Act, not more than 14 days following the initial notification of an emergency or incident, the holder of the environmental authority must provide written advice of the information supplied in accordance with condition number (G4-1) in addition to:

- (i) Proposed actions to prevent a recurrence of the emergency or incident;
- (ii) Outcomes of actions taken at the time to prevent or minimise environmental harm and or environmental nuisance, and

Exception Reporting

(G5) The holder of this environmental authority must notify the administering authority in writing of any monitoring result that indicates that any licence limit has been exceeded within 28 days of completion of analysis and must include;

- (i) The full analysis results, and
- (ii) Details of investigation or corrective actions taken, and
- (iii) Any subsequent analysis.

END OF CONDITIONS FOR SCHEDULE G

Schedule H – Definitions

Words and phrases used throughout this licence or development approval are defined below:

Where a definition for a term used in this authority is sought and the term is not defined within this authority the definitions provided in the Environmental Protection Act 1994, its regulations, and Environmental Protection Policies shall be used.

Word Definitions

"administering authority" means the Environmental Protection Agency or its successor.

"you" means the holder of this Environmental Authority or owner / occupier of the land which is the subject of this Development Approval.

"site" means the place to which this environmental authority relates or the premises to which this development approval relates.

"authorised place" means the place authorised under this environmental authority/development approval for the carrying out of the specified environmentally relevant activities.

"this authority" means this environmental authority/development approval.

"authority" means level 1 licence (without development approval), or level 1 approval (without development approval), or level 2 approval (without development approval) under the Environmental Protection Act 1994.

"approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the Integrated Planning Act 1997

"dust sensitive place" means -

- a dwelling, mobile home or caravan park, residential marina or other residential place;
- a motel, hotel or hostel;
- a kindergarten, school, university or other educational institution;
- a medical centre or hospital;
- a protected area;
- a park or gardens; or
- a place used as an office or for business or commercial purposes.
and includes the curtilage of any such place.

"odour sensitive place" has the same meaning as a "dust sensitive place"

"dwelling" means any of the following structures or vehicles that is principally used as a residence-

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a water craft in a marina.

"noxious" means harmful or injurious to health or physical well being.

"offensive" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"nuisance sensitive place" includes -

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- a kindergarten, school, university or other educational institution; or
- a medical centre or hospital; or
- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- a public thoroughfare, park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes.
and includes a place within the curtilage of such a place reasonably used by persons at that place.

"LA 10, adj, 10 mins" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

"LA 1, adj, 10 mins" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response

"**LA, max adj, T**" means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

"**noise affected premises**" means a "noise sensitive place or a **commercial place**"

"**noise sensitive place**" means -

- a dwelling, mobile home or caravan park, residential marina or other residential premises; or
 - a motel, hotel or hostel; or
 - a kindergarten, school, university or other educational institution; or
 - a medical centre or hospital; or
 - a protected area; or
 - a park or gardens.
- and includes the curtilage of such place.

"**commercial place**" means a place used as an office or for business or commercial purposes.

"**intrusive noise**" means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration -

- is clearly audible to, or can be felt by, an individual; and
- annoys the individual.

In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 - 1997 Acoustics - Description and Measurement of Environmental Noise Part 2 - Application to Specific Situations.

"**protected area**" means -

- a protected area under the Nature Conservation Act 1992; or
- a marine park under the Marine Parks Act 1992; or
- a World Heritage Area.

"**waters**" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

"**50th percentile**" means not more than three (3) of the measured values of the quality characteristic are to exceed the stated release limit for any six (6) consecutive samples for a release/monitoring point at any time during the environmental activity(ies) works.

"**80th percentile**" means not more than one (1) of the measured values of the quality characteristic is to exceed the stated release limit for any five (5) consecutive samples for a sampling point at any time during the environmental activity(ies) works

"**dredge spoil**" means material taken from the bed or banks of waters by using dredging equipment or other equipment designed for use in extraction of earthen material.

"**land**" in the 'land schedule' of this document means land excluding waters and the atmosphere.

"**mg/L**" means milligrams per litre.

"**NTU**" means nephelometric turbidity units

"**regulated waste**" means non-domestic waste mentioned in Schedule 7 of the Environmental Protection Regulation 1998 (whether or not it has been treated or immobilised), and includes:

- for an element - any chemical compound containing the element; and
- anything that has contained the waste.

"**licensed vehicle**" means a vehicle authorised to be used under the licence to transport regulated waste.

"**registered vehicle**" means "licensed vehicle"

"**clinical waste**" means waste that has the potential to cause disease including, for example, the following:

- animal waste;
- discarded sharps;
- human tissue waste;
- laboratory waste.

"**infectious waste**" means "clinical waste"

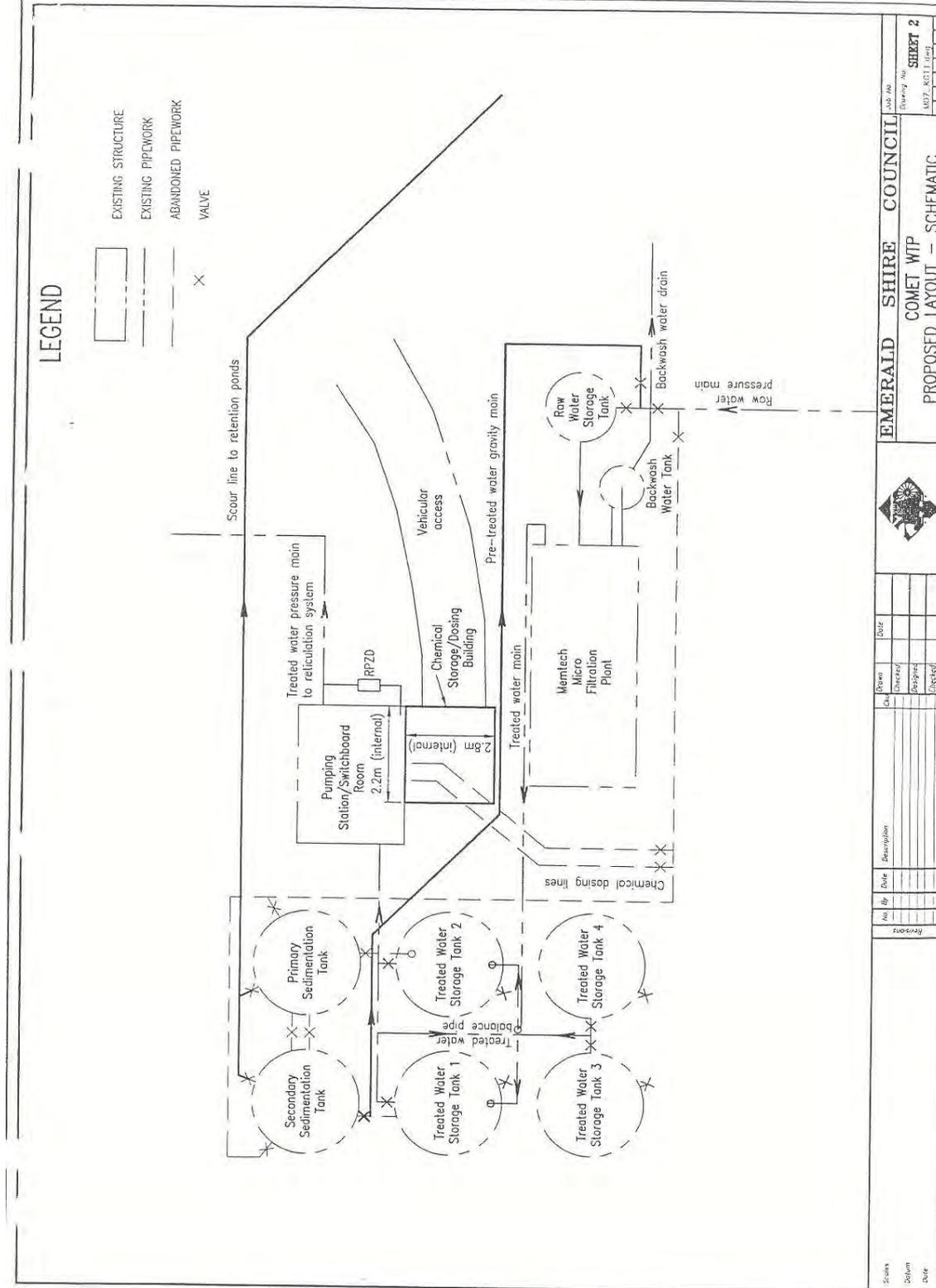
"**vibration sensitive place**" means a noise sensitive place or a commercial place.

"**annual return**" means the return required by the annual notice (under section 316 of the Environment Protection Act, 1994) for the section 86(2) licence that applies to the authority.

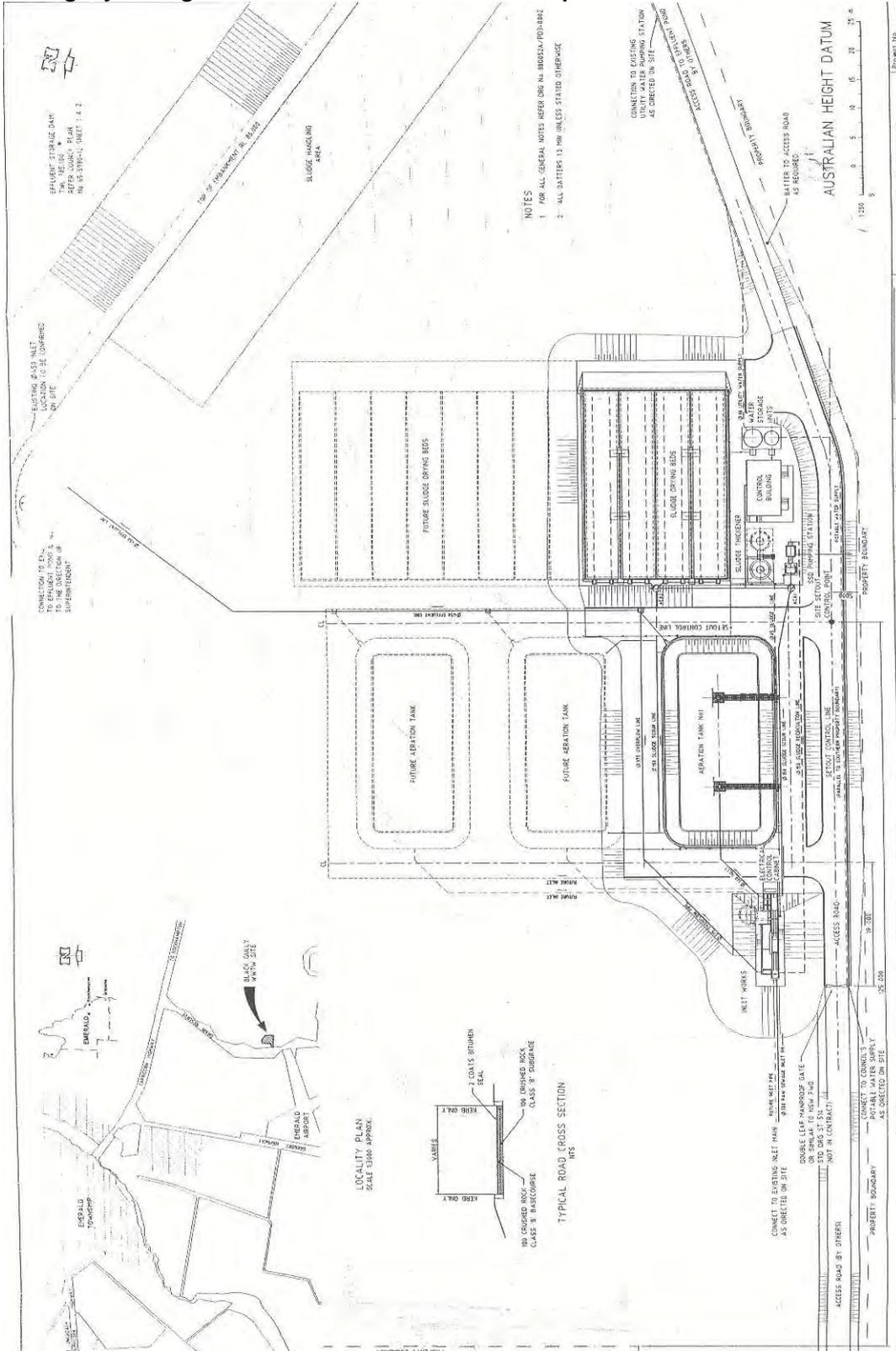
END OF DEFINITIONS FOR SCHEDULE H

Schedule I - Plan of development

Comet Water Treatment Plant – Plan of development



Blackgully Sewage Treatment Plant – Plan of development



END OF CONDITIONS FOR SCHEDULE I

END OF CONDITIONS FOR PART 3



PART 4 - LICENCE(S) (WITH DEVELOPMENT APPROVAL) (Section 86)

This part and its conditions must be considered in conjunction with any conditions imposed on your development approval(s) granted under the Integrated Planning Act 1997 or its equivalent for the activities under this part.

Schedule A – Activity

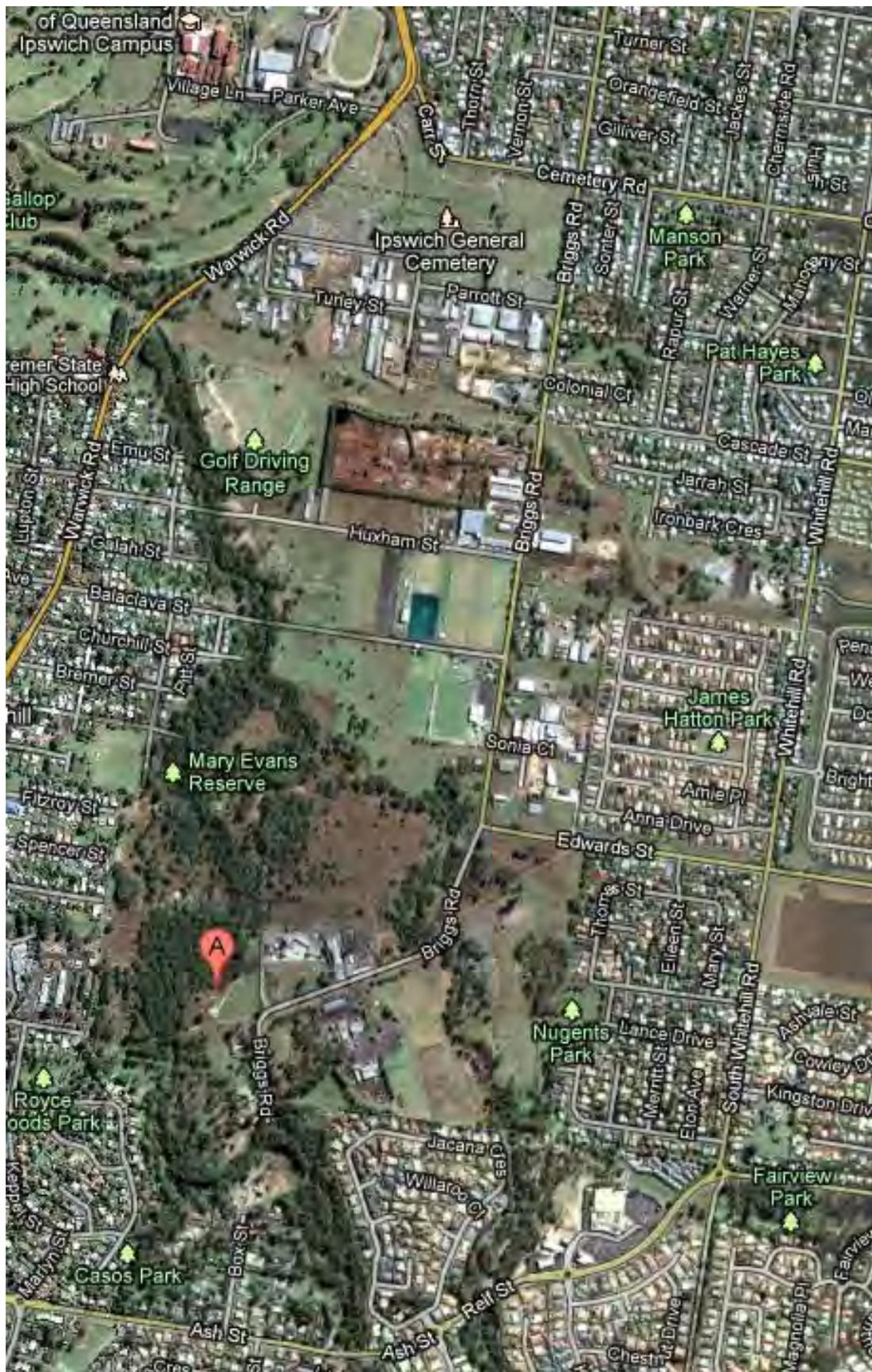
(A1-1) The environmental authority holder must adhere to the General Conditions in Part 3 of this integrated authority.

END OF CONDITIONS FOR SCHEDULE A

END OF CONDITIONS FOR PART 4

OV5 - Flooding and Urban Stormwater Flow Path Areas

-  1 in 20 Development Line
-  1 in 100 Flood Line
-  Urban Stormwater Flow Path Areas
-  Indicative and subject to further detailed assessment
-  River / Watercourse





SmartMap Information Services

Version 2.8

Environment and Resource Management

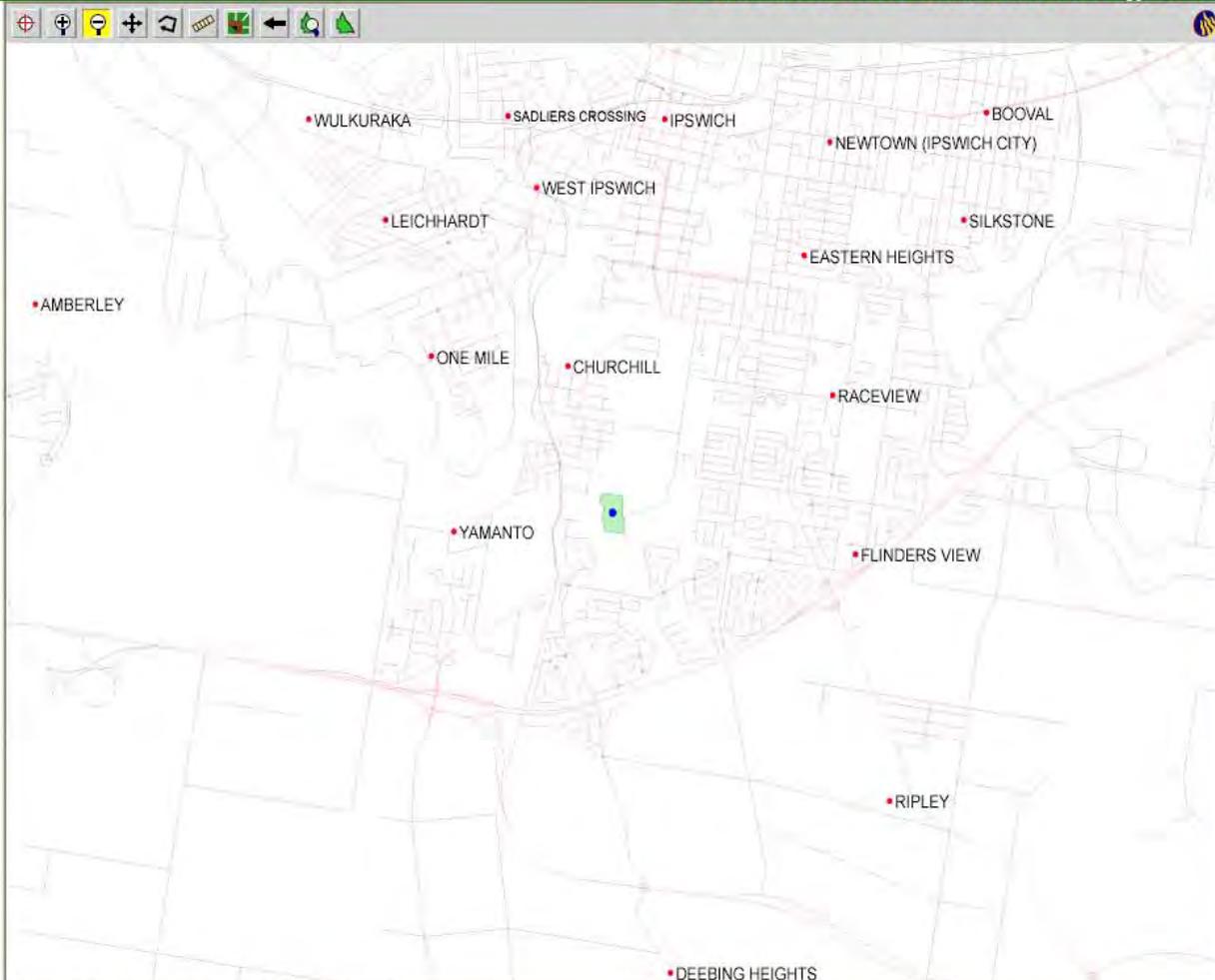
- [-] Search**
 - Profile
 - Find/Locate
- Admin Area
- Imagery
- Notings
- Place Names
- Survey Marks
- Survey Plans
- [-] Mapping**
 - Profile
 - Settings
 - [-] Data Suppression**
 - Area By Filter
 - Area By Scale
 - Survey Mark Filter
 - Noting Filter
 - [-] Map Suppression**
 - Layers
 - User Defined
 - Shading
 - Define Area
 - Build Map
 - Refresh Map
 - Export SmartMap
- [+] Other Services**
- [+] Admin**
- Hide Keymap

Spatial Search Results for Lot 2 on Plan RP97218

[Search Imagery at Point](#)
[Survey Search on selected plan\(s\)](#)

Lot/Plan: 2/RP97218
Segment/Parcel: 52001/3
Tenure: FH - FREEHOLD
Area: 7.1700 ha
Excluded Area: 0.00 m²
Surveyed: Yes
Coverage: Base
Accuracy: B&D PLOT CONTROLLED - 2M
Locality: FLINDERS VIEW
Local Government: IPSWICH CITY
Address: 221-233 BRIGGS ROAD, FLINDERS VIEW

[Retrieve Plan Image](#)
[Display additional data](#)
[Current Title Search](#)
[Build Map](#)



27° 36' 31" S, 152° 41' 56" E. Map Number: 9442-41234

Assessment Checklist / Report

Checklist to complete for Assessment of Applications to conduct Environmentally Relevant Activities

Assessment Checklist – Low Risk ERA Applications

This assessment checklist / report is for low risk environmentally relevant activity (ERA) applications for Development Approvals (DA) and Concurrence Agency Responses under the Sustainable Planning Act 2009 (SPA) and pursuant to Chapter 4 of the Environmental Protection Act 1994 (EP Act). Completion of this assessment checklist is evidence that the criteria to be evaluated by the administering authority has been taken into consideration when making a decision.

Council DA Number:	N/A
DERM Project Reference:	363693
DERM DA Number:	SPDE01935111
File No:	IPS537 Vol 1
Registration Certificate:	Yes
Application Type:	Development Approval Single Jurisdiction
DERM role:	Concurrence Agency
Development Trigger:	MCU Start of a new ERA ERA 63(3) – Operate sewage pumping station with total design capacity of 40KL per hour or greater, if the operation of the sewage pumping station is not an essential part of the operation of a sewage treatment works.
Applicant name:	Central SEQ Distributor – Retailer Authority (t/a Queensland Urban Utilities)
Applicant address:	Level 2, TC Bierne Centre, 315 Brunswick Street Mall, Fortitude Valley QLD 4006
Proposed ERA address:	221 – 233 Briggs Road, Flinders View QLD 4305 (Lot 2 RP97218)

Preliminary Assessment Check	Yes	No	NA
Double-check the “DERM Validation Checklist - Development Approval Application” to make sure the application is a ‘properly made application’ under SPA S261 – correct fee, correct application form, owner’s consent signed on form, mandatory information supplied as required on the application form and for concurrence agency applications, has a copy of the acknowledgement notice been received. If No , notify PALM to follow-up, timeframe not started and contact client.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Contacted Assessment Manager to advise application for CAR has been received.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If Assessment Manager, double check that the acknowledgement notice has been issued by PALM and to correct referral agencies. If No , notify PALM to issue acknowledgement notice, contact applicant and referral agencies.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If Assessment Manager, have all referral agencies (concurrence and advice agencies) advised DERM of the date they received the referral, a copy of the application, acknowledgement notice and their date of response.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Check the lot and plan descriptions are correct (ensures decision notice is legal).	<input checked="" type="checkbox"/>		
Check that name of the entity is correct (ensures decision notice is legal).	<input checked="" type="checkbox"/>		
Check the registered company or business address (ensures decision notice is legal and delivered to appropriate location).	<input checked="" type="checkbox"/>		

Assessment Checklist / Report

Assessment General

General	Yes	No	NA	Comments
Are there discharges and associated contaminants being released from the site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Discharges to air <input type="checkbox"/>
				Discharges to land <input type="checkbox"/>
				Discharges to water <input checked="" type="checkbox"/>
				Potential odour <input checked="" type="checkbox"/>
				Other <input type="checkbox"/>
Is there a need to consider advice from other DERM business units impacted by the proposal (e.g. wastewater discharge that may impact a conservation area)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<p>No intentional or planned releases are forecast from the site. However, releases do occur during wet weather events where the hydraulic capacity of the SPS to pump sewage is exceeded.</p> <p>In these circumstances, the sewage is highly diluted (from groundwater or stormwater infiltration) and discharge into a generally fast-flowing stream etc. Potential impacts of such releases are considered negligible and no further advice is considered necessary to properly assess the application.</p> <p>Odour impacts are expected to be negligible, based upon the adoption of QUU's 'standard design' for SPS and flexibility in engineering to deal with any odour issues. The engineering design for sewage pump stations and mitigation measures for odour arising from the operation of the SPS are fairly standardised.</p>
Is there historical environmental compliance issues associated with the site or client that are relevant to the decision?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Surcharges are commonplace for most sewage pump station infrastructure during wet weather events where the hydraulic loading on the SPS exceeds the nominal pumping capacity (usually 5 time average dry weather flow).</p> <p>However, with the exception of armouring all sewerage infrastructure to prevent infiltration – which would be prohibitively</p>

Assessment Checklist / Report – Low Risk ERA Applications

				<p>expensive to achieve across the entire network – there are limited options to reduce the frequency or severity of such events.</p> <p>QUU operates a large number of sewage treatment plants that are not in compliance with the development condition of the development approvals under which they operate, and a number of program notices and transitional environmental programs (TEPs) are in place to provide a series of agreed steps to return the infrastructure back into compliance.</p> <p>However, these non-compliances generally are not indicative of any systemic or operational problem with the operator. Rather, the issue pertains to QUU's inheritance of overloaded, poor performing infrastructure, as part of the water reforms.</p>
Is Native Title applicable?	<input type="checkbox"/>		<input checked="" type="checkbox"/>	The entire site subject to the proposed development has previously been subject of a grant of exclusive tenure (freehold – granted 9 April 1963) and was the subject of a deed of grant (ref: 10002053) granted 22 April 1862.
Are there notifiable activities involved in this decision?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		The activity is not, nor does it involve, a notifiable activity under Schedule 3 of the <i>Environmental Protection Act 1994</i> .

Sustainable Planning Act 2009 Assessment Considerations

Officers MUST complete the standard assessment process in accordance with the <i>Sustainable Planning Act 2009 (SPA)</i>		Yes	No	NA	Comments
SPA1	To the extent relevant to this development and within the limits of DERM's jurisdiction, the application has been assessed against the matters stated in S282(1) and (2) (referral agency assessment) and the provisions in Chapter 6, Part 5, Division 2 (specifically S313(2) and (3) if DERM is assessment manager).	<input type="checkbox"/>	<input type="checkbox"/>		<p>Matters concerning Queensland's EPP's are addressed below.</p> <p>The client's proposal does not conflict with and meets the intent and policies of the various State planning provisions, including the SEQ Regional Plan, relevant State Planning Regulatory Policies (SPRPs) and State Planning Policies (SPPs). The activity is not the subject of a Code of Environmental Compliance under the <i>Environmental Protection Act 1994</i>, and is consistent with DERM's current operational policies relevant to the activity.</p>

Assessment Checklist / Report – Low Risk ERA Applications

					<p>The activity is consistent with the Ipswich City Council Planning Scheme (see <i>Sustainable Planning Act 2009</i>). The proposed activity is exempt development under the ICC Planning Scheme. It is within the 1 in 20 Flood Line overlay.</p> <p>The proposed development area is also subject to the Ipswich City Council Temporary Local Planning Instrument – 01/2011, which adopts altered flood line levels arising from the January 2011 floods. This is a relevant consideration for the proposed development. The positioning of SPS typically (and unsurprisingly) situated at low points to convey sewage from the gravity main to a rising main that pumps to another SPS or sewage treatment plant.</p> <p>It is unlikely that there will be any amenity impacts arising from the proposed activity, given the nature of surrounding land uses. However, the installation of pipework – which is not a part of the activity to which this application relates – has a greater potential for amenity impacts to occur.</p>
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Environmental Protection Act 1994 Assessment Considerations

Officers MUST complete the standard assessment process under the <i>Environmental Protection Act 1994 (EP Act)</i> :-		Yes	No	NA	Comments
EPA1	EP Act 73A (1) - Standard Criteria (defined under EP Act Schedule 4)				
	(a) the principles of ecologically sustainable development as set out in the 'National Strategy for Ecologically Sustainable Development';	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The proposed sewage pumping station represents reasonably justified activity as part of the maintenance of the sewerage infrastructure servicing the Flinders View area. Existing infrastructure is approaching hydraulic limits, and the upgrade / replacement of the rising main is necessary to cater for increased catchment occupancy, and consequently, minimise the frequency and severity of loss of sewage to the environment during wet weather events.</p> <p>The proposed activity contributes to the needs of the broader</p>

Assessment Checklist / Report – Low Risk ERA Applications

				<p>community, and does not compromise the ability for future generations to provide for their own requirements.</p> <p>On balance, in my view, the proposed upgrade of the rising main with the consequential installation and operation of a temporary SPS presents a sound solution to a current operational issue; with beneficial consequences from the perspective of environmental emissions. Therefore, I am satisfied that the activity is justified on the grounds of ecological sustainability.</p>
	(b) any applicable environmental protection policy;	☒	☐	<p><u>Environmental Protection (Water) Policy 2009</u> There are no intentional releases from the ordinary operation of a SPS, however it is reasonably anticipated that releases of sewage (usually highly diluted) may occur from SPS during major wet weather events (where the hydraulic flows exceeds 5 time ADWF). Only unplanned events that affect the normal operation of the SPS (e.g. catastrophic failure resulting from pump failure) should result in discharges to the environment.</p> <p>The frequency of these releases is sufficiently low that I am satisfied that the potential risks to environmental values arising from the proposed activity are unlikely to result in deterioration of environmental values for waters.</p> <p><u>Environmental Protection (Air) Policy 2008</u> The operation of a sewage pumping station also represents a potential source of odour. The closest nuisance sensitive receptor – the Boral Concrete factory – is about 40m from the proposed SPS. The applicant has not supplied air quality modelling for the application, however this SPS is modelled upon QUU’s ‘standard design’ and modelling for previous applications for similar infrastructure have shown that tight odour contours are achieved using odour control technologies and structures.</p> <p>It is improbable that there will be any encroachment of residential or commercial premises into the current buffer distances over the 5-year operation of the facility. Therefore, the lack of air emissions modelling presents limited cause for</p>

Assessment Checklist / Report – Low Risk ERA Applications

				<p>concern from the perspective of risk of odour complaints.</p> <p>In the unlikely event that odour does become a problem, QUU have already agreed to particular conditions that include augmentation and installation of odour control technologies. Consequently, given the conditions of the approval prohibit the operation of the SPS after 5 years (from the commissioning date); the likelihood of odour or other emissions to air being problematic is low.</p> <p><u>Environmental Protection (Noise) Policy 2009</u> The nearest nuisance sensitive receptor is the Boral Concrete facility, about 40m from the proposed SPS. The nearest residential receptor is almost 300m away.</p> <p>Noise is not typically a problem from the operation of SPS's, and QUU has made numerous commitments to respond to any noise complaints – which include changes to infrastructure if required.</p> <p>The significant buffer distance between residential receptors, and the fairly high noise emissions from the nearby cement batching plant, coupled with the characteristically low noise emissions from SPSs is, in my view, sufficient evidence to show that the projected impacts on the acoustic environment are unlikely to compromise environmental values in the area. General 'default' noise conditions regarding the hours at which building works may be undertaken appear sufficient basis to regulate the impacts of the activity on the acoustic environment.</p> <p><u>Environmental Protection (Waste Management) Policy 2000</u> The EPP (Waste) is not relevant to the proposed construction and operation of the SPS.</p>
	(c) any applicable Commonwealth, State or local government plans, standards, agreements or requirements;	<input checked="" type="checkbox"/>		<p style="text-align: center;"><input type="checkbox"/></p> <p>The proposed activity is consistent with the relevant plant, standards and agreements that apply to the proposed development.</p>

Assessment Checklist / Report – Low Risk ERA Applications

				<p>Particular plans include the:</p> <ul style="list-style-type: none"> Ipswich City Council Planning Scheme; South east Queensland Regional Plan 2009 – 2031 (the 'SEQ Regional Plan'). <p>The proposed development is not within an Urban Development Area (see <i>Urban Land Development Authority 2007</i>) and is not subject to a declaration under the <i>Queensland Reconstruction Authority Act 2011</i>.</p> <p>The application has not been referred, either by the applicant or the State Government, to the Commonwealth Government for assessment under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> as impacting on a matter of national environmental significance.</p>
	(d) any applicable environmental impact study, assessment or report;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>The client has submitted an adequate amount of material to assess the proposal and for DERM to make a decision, taking into account the nature of the proposed development, the well-established responses (including engineering responses) to any non-compliance issues and the typically low risk of environmental harm arising from the activity.</p> <p>The application is not subject to an environmental impact statement (EIS), and (unsurprisingly) no EIS has been submitted.</p>
	(e) the character, resilience and values of the receiving environment;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>Client has identified the characteristics of the environment in which the proposed activity is to operate and considered these in appropriate project design and operational management strategies.</p> <p>Given the proposed infrastructure is designed to achieve zero-discharge during normal operation, it is unlikely that there will be any impacts arising from the proposed activity. The nature of surrounding land uses – in particular the Boral Concrete facility – are such that the contribution of the proposed SPS to altering the character of the receiving environment is negligible.</p>

Assessment Checklist / Report – Low Risk ERA Applications

					<p>The area itself is highly disturbed, with surrounding land uses including the Boral Concrete facility, the Ipswich City Council works depot, and large tracts of residential development. The SPS itself will be situated on the fringe of a vegetated gully adjacent to Deebing Creek. While the values of such vegetation can be significant in a highly disturbed landscape, the very low risks of impact arising from the activity, and the variety of contributors to the catchment of the Deebing Creek, means it is improbable that the activity will have any appreciable impact on the receiving environment.</p>
	(f) all submissions made by the applicant and submitters;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The assessment has considered all the documents submitted by the client and properly made submissions. There have been no public submissions in relation to the proposed development – nor would any such submissions be anticipated for a development of this type in this location.</p> <p>All information supplied by the applicant has been considered in the assessment of the proposed activity.</p>
	(g) the best practice environmental management for the activities;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The client proposes to use the same or improved technologies and practices compared to other similar activities being carried out elsewhere.</p> <p>The proposed infrastructure is contemporary, and sufficiently robust to provide for technological improvements or adjustments to deal with any compliance issues. The proposed SPS is capable of pumping 5 time Average dry weather flow (ADWF) – a well-established engineering standard rather than an environmental standard. However DERM is yet to provide any alternative performance targets against which the performance of such infrastructure might be measured. Infiltration of stormwater and groundwater into sewerage infrastructure is the root cause of the problem and while addressing the rate of infiltration would be the desirable response to surcharge events from SPSs, doing so across the entire sewerage network would be prohibitively expensive.</p> <p>Therefore, it is considered that the proposed development</p>

Assessment Checklist / Report – Low Risk ERA Applications

					represents current best-practice environmental management for SPS design.
	(h) the financial implications of the requirements under the development approval as they would relate to the type of activity or industry carried out, or proposed to be carried out under the permit;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The conditions of the development approval have been designed to take into account the cost of compliance by the applicant. In particular, the conditions compel the operator to respond – with relevant engineering or procedural changes – to deal with any issues arising from the unlawful discharge of contaminants to the environment. The potential cost of total elimination of risk – an alternative conditioning strategy - would significantly increase the cost to the operator, which is considered unnecessary and unjustified given the low risk of environmental compliance issues from the proposed activity.</p> <p>The proposal includes installation of relevant back-up and contingency systems to deal with foreseeable events (e.g. backup generators in the event of power loss, telemetry to report abnormal operation, flow meters to identify low flow situations) – all at a considerable cost.</p>
	(i) the public interest;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The proposed activity provides an overall benefit to the public, from the perspective of maintenance and functionality of public utilities, minimising risk of environmental harm (including potential health issues that may occur if the infrastructure upgrade does not go ahead) and protection of environmental values in the area.</p> <p>I am unaware of any issues that might negate the merits of this project from the perspective of public interest criteria.</p>
	(j) any applicable site management plan;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The client has submitted a site-based management plan (SBMP) for the activity as part of the initial application. The SBMP identifies key areas of environmental risk arising from the operation of a SPS, and defines the roles and responsibilities of parties to the operation of the pump station.</p> <p>Importantly, from the perspective of the mitigation of environmental risk, the SBMP identifies infrastructure, procedures and responsibilities for dealing with unforeseen events and emergency situations – including surcharges.</p>

Assessment Checklist / Report – Low Risk ERA Applications

	(k) any relevant integrated environmental management system or proposed integrated environmental management system (IEMS);	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Notwithstanding the terms and obligations described under the SBMP (see above), and other commitments made by the applicant during the negotiation phase for the application, the applicant has not submitted an IEMS or other EMS.
	(l) any other matter prescribed under a regulation.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	There are no relevant regulatory requirements for the proposed development.
EPA2	EP Act 73A (1) – Any additional information given in relation to the application	<input type="checkbox"/>		<input checked="" type="checkbox"/>	Following preliminary enquires with the applicant, specifically in relation to impacts and mitigation strategies for air or noise arising from the activity, and the proposed term of operation for the “temporary” sewage pump station, the applicant supplied additional information (in the form of an email) to DERM. This information has been considered, and has been relied upon significantly, in the assessment and conditioning of the development approval.
EPA3	EP Act S73A (2) – consider S282 or chapter 6, part 5, division 2 of SPA as above.	<input checked="" type="checkbox"/>			The application has been considered and assessed in consideration of the following instruments: <ul style="list-style-type: none"> • Regulatory provisions (none applicable); • State Planning Policies (none applicable); • Master plans (none applicable); • Codes (including the <i>Environmental Protection Act 1994</i>); • Ipswich City Council Planning Scheme; • Local planning instruments.
EPA4	EP Act S73A (3) – Is the application for an increase in scale and intensity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>		This is a new development, and is not an increase in the scale or intensity of an existing chapter 4 activity.

Environmental Protection Regulation 2008 Assessment Considerations

Officers MUST consider the matters under Chapter 4, Part 2 and 3 of the <i>Environmental Protection Regulation 2008</i> (EP Reg) for environmental management decisions relating to the activity:-		Yes	No	NA	Comments
EPA5	EP Reg S51 - matters that must be considered for environmental management decisions. The administering				

Assessment Checklist / Report – Low Risk ERA Applications

	authority must, for making an environmental management decision relating to an activity, consider the following matters: (a) each of the following under any relevant environmental protection policies (EPP) —				
Air EPP	(i) the management hierarchy (S9 order of preference – avoid, recycle, minimise then manage)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The management hierarchy has been considered, and acceptable solutions have been put in place to address and potential for emissions to air (esp. odour) from the proposed activity. Responses to air emissions include appropriate responses to engineer out the problem (i.e. avoid).
	(ii) environmental values (S7 and Schedule 1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I am satisfied that the applicant has taken into account the potential for impacts on environmental values arising from the operation of the proposed SPS. While I don't believe on balance the proposed development will result in a noticeable improvement of the environmental values of the area, I am equally satisfied that the activity will not result in a deterioration of the receiving environment (hence environmental values).
	(iii) quality objectives (S8 and Schedule 1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The applicant has <u>not</u> supplied air emissions modelling as part of the application material. The proposed SPS is based on a 'standardised design', similar to that developed for both Redbank and Leichardt SPS, which have demonstrated negligible impact on air quality in the immediate vicinity of the activity site.</p> <p>DERM has secured the agreement of the applicant to a maximum 5-year operation of the proposed temporary SPS – which I believe sufficiently balances the risks of impacts of the activity on air quality objectives and DERM's mandate to protect environmental values – including deterioration of air quality against each of the air quality objectives under the <i>Environmental Protection (Air) Policy 2009</i>.</p> <p>The primary emissions from the operation of a sewage pumping station for which there is an air quality objective is Hydrogen sulphide (H₂S). Technologies and responses for management of H₂S emissions are standardised – and the utilisation of such technologies in response to any substantiated complaints have been agreed to by the applicant.</p>
Water	(i) the management hierarchy (S13)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The client has considered the management hierarchy in the

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EPP					<p>project design and development of management strategies for the proposed activity and operation.</p> <p>The proposed SPS has hydraulic pumping capacity of 5 times ADWF – a commonly applied engineering standard – which (perhaps unintentionally) does contribute to a balance between the costs of preventing impacts on the water environment and the risks of such discharges occurring.</p> <p>The costs of achieving high sewage detention through major wet weather events increases exponentially beyond 5 times ADWF, as most sewage treatment plants are capable of treating only flows up to 3 times ADWF, with flows in excess of that level being subject only to screening and bypass. If such discharges are not bypassed, there is a risk of loss of biological medium at the STP which has longer-term environmental impacts which that medium is re-established. Therefore, the benefits of increasing the pumping capacity of the proposed STP may move the discharge location but, on balance, may have greater environmental impacts.</p>
	(ii) environmental values (S6 and Schedule 1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>In my view, the proposed development will not adversely affect the environmental values of the receiving environment as it relates to waters.</p> <p>The proposed SPS is designed as a zero-discharge facility. It is anticipated that releases to water may occur only in the event of a catastrophic failure to infrastructure, or excessive hydraulic loading – such as it typically achieved only during major wet-weather events.</p>
	(iii) water quality objectives (S7 Indicators and water quality guidelines, S10 water quality objectives and Schedule 1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Water quality objectives and indicators will not be compromised by the proposed activity as, in the longer term (including replacement of the rising main of which the installation of the SPS is only a component), will likely reduce the frequency of wet-weather surcharges (the current SPS nearing its hydraulic pumping capacity and acting as a “choke-point”).</p>
	(iv) the management intent (Management intent S14 and Management goals for water S9)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The proposal does not impact the management intent of the EPP. The proposed SPS is designed not to impact on water</p>

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					quality management intent as it is not designed to discharge to a water.
Noise EPP	(i) the management hierarchy (S9 Order of preference – avoid, minimise by firstly – orientate an activity to minimise noise then secondly – use best available technology, manage)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>While no noise modelling has been supplied for the proposed development, the emissions typically associated with the operation of a sewage pump station are negligible.</p> <p>The depth of the pump well in particular will likely result in very low noise emissions. This represents a significant attempt to 'avoid' noise through engineering.</p> <p>The applicant has committed to implanting procedural or engineering changes in the unlikely event that noise becomes an issue. I am satisfied that this represents a reasonable and balanced solution to any noise issues arising from the operation of the facility.</p>
	(ii) environmental values (S7 and Schedule 1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The proposed SPS is designed to operate 24 hours per day, so will emit noise at times where background noise (e.g. vehicle noise, industrial noise from Boral Concrete) is at its lowest.</p> <p>The prevailing background noise in the area where the SPS is proposed is dominated by the Boral Cement facility. It is highly improbable that, during business hours, the noise emitted from the proposed SPS would exceed levels that are greater than 10dB(A) below current background – that is, the SPS would be inaudible.</p> <p>The separation distances between the proposed SPS and any residential premises (which are generally more susceptible to noise issues when background noise levels are at the lowest) means that normal noise attenuation over distance is expected to result (again) in a contribution to the total acoustic environment from the operation of the SPS at a level less than 10dB(A) below background – i.e. inaudible.</p> <p>I am satisfied that the likely impost of noise arising from the activity will not have an adverse impact on the acoustic environment in the area, or on nuisance sensitive receptors.</p>

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	(iii) acoustic quality objectives (S8 and Schedule 1)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The applicant has <u>not</u> provided acoustic modelling for the projected impacts of the proposed activity on the acoustic environment, or how it would impact upon acoustic quality objectives.</p> <p>As no modelling has been supplied, it is not known whether the current acoustic environment complies with the acoustic quality objectives – but given the urban nature of the area, it seems improbable that it does.</p> <p>I am, however, satisfied that the noise emissions from the facility are not likely to contribute significantly to noise experienced at any nuisance sensitive receptor. That is, in my view (and based upon experience with similar SPSs in the Ipswich Region), that the proposed development will not adversely compromise acoustic quality when measured at nuisance sensitive receptors.</p>
	(iv) the management intent (S10 controlling background creep)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>If the total noise contribution of the operation of the sewage pump station results in noise levels that are 10dB(A) or more below the current background noise levels, the noise will be inaudible and will not contribute to background noise creep.</p> <p>It is likely that the total contribution of noise, when measured from nuisance sensitive receptors (and taking into account the natural attenuation over distance) that the operation of the SPS will not result in background noise creep at the closes residential areas. It is also improbable that noise will be audible at the nearest commercial premises, so will not contribute to background creep.</p>
Waste EPP	(i) the management hierarchy (S10 Preferred order of adoption – waste avoidance, waste re-use, waste recycling, energy recovery from waste, waste disposal and Schedule 1 – types of practices listed in the hierarchy.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The <i>Environmental Protection (Waste Management) Protection Policy 2000</i> and the waste management hierarchy is not relevant to the proposed development, as the proposed activity itself manages waste generated by other uses and does not, itself, generate waste.</p>
	(ii) environmental values (S7)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>There are no foreseeable impacts arising on the environment to environmental values in s. 7 of the <i>Environmental Protection (Waste Management) Policy 2000</i> as a result of the proposed change.</p>

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	(iii) waste principles (user pays, polluter pays, product stewardship)	☒	<input type="checkbox"/>	<input type="checkbox"/>	<p>There are no wastes generated directly in connection with the operation of a SPS; rather the infrastructure facilitates the management of wastes generated directly by other activities and uses.</p> <p>From time to time, as a result of an unforeseen discharge, the applicant may be required to manage wastes associated with a release event. The operation of a QUU SPS is atypical as the operator assumes a de facto ownership / responsibility of the waste (sewage) after it passes through their infrastructure, and becomes responsible for any environmental harm arising from the discharge of that sewage to the environment (either through designated discharge points at an STP or uncontrolled release).</p> <p>The applicant does, therefore, assume responsibility for management of any waste that is discharged to the environment – a concept that enshrines the user pays principle, polluter pays and product stewardship).</p> <p>The operator also incurs significant liability – in terms of infrastructure construction, maintenance and operation costs – for waste it receives through the sewerage network at its sewage treatment plants. Costs are recouped through rates or levies applied for management of wastewater, although it is unclear whether the operator adopts full cost recovery through its fee structure.</p>
	(a) environmental values declared under this regulation (e.g. EP Reg S81A – wetlands)	☒	<input type="checkbox"/>	<input type="checkbox"/>	<p>Wastes are not discharged to wetlands for treatment, and under normal operating conditions (i.e. up to 5 times ADWF) no discharges are expected from the infrastructure. Therefore, the application does not pose a risk to environmental values of wetlands.</p>
	(b) the characteristics of the contaminants or materials Released from carrying out the activity	☒	<input type="checkbox"/>	<input type="checkbox"/>	<p>Wastes, other than potential air emissions (odour – Hydrogen sulphide H₂S), are not released to the environment from the normal operation of the activity. In the event of any complaints re: odour emissions, strategies will be employed by the applicant to mitigation those emissions.</p>

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					People are particularly sensitive to H ₂ S, and the use of charcoal filters to remove sulphide odours has been identified as one odour mitigating strategy by the applicant.
	(c) the nature and management of, including the use and availability of technology relating to, the processes being, or to be, used in carrying out the activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The client has provided details on the types of technology being proposed for the activity and the process controls and strategies in place. The technology etc. is part of the 'standard' currently adopted by QUU – and is, in my view, provides adequate options to manage to a satisfactory level, any risk arising from the activity as it pertains to the release of contaminants form the site.
	(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Exposure to H₂S represents a health hazard and a risk to the environmental values of an area from the perspective of its liveability; with the <i>Environmental Protection (Air) Policy 2008</i> establishing air quality objectives and targets for H₂S of 160µg/m³ or 0.11ppm (vol/vol) averaged over 24 hours for the protection of health and safety, and 7.5 µg/m³ or 0.0049ppm vol/vol) averaged over 30 minutes for protection of aesthetic values respectively.</p> <p>The proposed SPS will not increase emissions, when compared to the SPS being replaced as part of the upgrade, but has the potential to decrease emissions through use of more contemporary (and effective) emission management technologies.</p> <p>During wet weather surcharges (hydraulic flows exceeding 5 time ADWF), all wastes would surcharge into Deebing Creek, which would be expected to be in a high flow state owing to the significant volumes of rainfall required to achieve these hydraulic flows, and highly dilute (owing to infiltration that causes such high hydraulic loading). The potential for environmental impact arising from such releases is low.</p>
	(e) the characteristics of the receiving environment and the potential impact on it from carrying out the activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The client has correctly identified the broader environmental attributes (soil, water, ecology) of the area around the location of the proposed activity site, including specific characteristics that could be impacted in the event of a catastrophic failure of that infrastructure.

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					<p>Any discharges to waters are likely to involve highly diluted sewage (approx ratio 1:4 corresponding to hydraulic overloading of the system), and enter the environment when environmental flows are high and sustained. Consequently, in most instances, it is unlikely that there will be any long term or chronic environmental impacts arising from such an event.</p> <p>In the event of pump failure, the operator has contingency plans to manage flows, including back-up generators and tankering of sewage. In the event of a release, normal protocol which is reinforced through the conditioning of the approval, demands upstream and downstream monitoring during and immediately following any discharge event.</p>
	(f) for each affected person (EP Reg S51(2)) for the activity—the order of occupancy or use between the person carrying out the activity and the affected person.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The applicant has identified nearby nuisance sensitive receptors; the closest being Boral Concrete – a pre-existing use. I am satisfied that the proposed development is unlikely to detrimentally affect Boral Concrete or other pre-existing occupants in the surrounding areas.</p> <p>The construction activities associated with the pipeline upgrade, but are beyond the terms of this application, are more inclined to impact on a wider range of existing sensitive receptors.</p>
	(g) the remaining capacity of the receiving environment to accept contaminants or wastes released from future activities while protecting environmental values	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>There are no projected localised impacts, on either soil or water, arising from the normal operation of the SPS. Given there are no predictable discharges from the SPS, modelling etc would not provide any meaningful basis upon which to assess the projected impacts of the activity on the receiving environment.</p> <p>Therefore, the operation of the SPS will not reduce the assimilative potential of the environment to manage or uptake contaminants from other sources.</p>
	(h) the quantity and type of greenhouse gases released, and the measures proposed to demonstrate the release is minimised using best practice methods that include strategies for continuous improvement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The proposed activity does not generate greenhouse emissions directly – rather it assumes</p>

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Conditioning

Conditioning approvals		Yes	No	NA	
C1	Have non-standard conditions been considered and used in the permit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		See attachment

Consultations

Consultations		Yes	No	NA	Comments
C2	Pre-design Conference	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Site visit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Other meetings	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Internal technical / scientific advice	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Permit conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Client accepted permit conditions

Provide a Statement of Reasons if the application should be refused

Assessing Officer: Name:



Signed:



20 June 2011

Peer Review Officer: Name:



Signed:

Assessment Time	8 hours
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Attachment 1 – Non-standard condition assessment
Sustainable Planning Act 2009 Condition Assessment Considerations

C3	If imposing non-standard conditions in the permit the following assessment must be addressed:-	Yes	No	NA	Comments
	SPA S345 - Conditions are relevant or reasonable	<input checked="" type="checkbox"/>		<input type="checkbox"/>	(a) The conditions are relevant to, but not an unreasonable imposition on the development or use of premises as a consequence of the development; or (b) Be reasonably required in relation to the development or use of premises as a consequence of the development.
	SPA S346 - Conditions generally that may be imposed.				
	(a) place a limit on how long a lawful use may continue or works may remain in place;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		The applicant has not supplied air emission modelling or noise modelling that demonstrates the likely impacts of the proposed activity on the air or acoustic environment respectively. There is considerable development pressure in the area, and it is considered that the planning environment is unlikely to change significantly (i.e. other developments unlikely to encroach into the current buffer distance) in the short term, but may change in the longer term. Application is for a temporary pumping station, which the applicant indicates will be required for only 5 years from the date of commissioning. If the applicant proposes to extend the term of operation for this SPS, the operator will be required to apply for a new development approval and supply information that demonstrates how the retention of that infrastructure will protect (or not compromise) environmental values in the area.
	(b) state a development may not start until other development permits or compliance permits, for development on the same premises, have been given or other development on the same premises, including development not covered by the development application, has been substantially started or completed;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		The proposed activity represents a preliminary step to replacement and upgrading of the Deebing Creek Trunk Sewer Main. It must precede other works associated with the upgrade.
	(c) require compliance with an infrastructure agreement relating to the land;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		The proposed activity does not require an infrastructure agreement relating to the land.

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	(d) require a document or work to be subject to compliance assessment;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		The activity is not of a class typically associated with compliance assessment under the <i>Sustainable Planning Act 2009</i> (c.f. building works, plumbing and drainage works).
	(e) require development, or an aspect of development, to be completed within a particular time;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The conditions imposed on the development approval are based upon the application materials, which do not demonstrate the likely impacts on air or noise environments. My experience with similar development suggests that impacts on the air or acoustic environment are unlikely at the distances where existing nuisance sensitive receptors are situated. Consequently, I am satisfied that the potential impacts are acceptable – provided nuisance sensitive receptors do not encroach into the current buffer distances.</p> <p>The approval will end within 5 years of the commissioning of the SPS. The condition requiring the facility to be commissioned with 1 year after the approval takes effect ensures the total lifespan of the activity is concluded within 6 years after the approval takes effect. Operation of the facility after that date will necessitate a new approval or amendment of a condition of the approval, which would have to be considered in view of changes in surrounding land uses from present day.</p>
	(f) require the payment of security under an agreement under section 348 to support condition mentioned in paragraph (e)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
	SPA S347 - Consider conditions that cannot be imposed.	<input checked="" type="checkbox"/>			There is, to my knowledge, no conflict between the conditions of the development approval in this approval and any other development approval over the site.
	SPA S348 - Has an agreement been entered into with the applicant to establish the obligations, or secure the performance, of the party to the agreement about a condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>		The applicant has agreed, via email, to the expiry of the approval 5 years after the SPS is commissioned.
	SPA S349 - Covenants not to be inconsistent with development approvals.	<input checked="" type="checkbox"/>		<input type="checkbox"/>	There are no known covenants over the site.

Environmental Protection Act 1994 Condition Assessment Considerations

C4	EP Act S73B (1) – Conditions <u>may</u> be imposed if they considered necessary and desirable.	<input checked="" type="checkbox"/>			DERM considers the proposed non-standard conditions to be necessary and desirable.
	EP Act S73B (2) – <u>Must</u> include any condition, that is required to	<input checked="" type="checkbox"/>			The regulatory requirements under the <i>Environmental Protection</i>

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	be imposed under a regulatory requirement.				<i>Regulation 2008</i> have been satisfied through the conditioning. No conditions have been imposed to satisfy a regulatory requirement mandating such conditions.
	EP Act S73B (3a) – Conditions may require all or any of the following:	<input checked="" type="checkbox"/>			
	(i) stated plant or equipment to be installed and operated in a stated way within a stated period;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The condition imposes requirements to monitor inflows to the SPS. The operation of a sewerage system – consisting of pipes etc. – ceased to be a component of ERA 63 at the commencement of the <i>Environmental Protection Regulation 1998</i>. This change meant DERM lost its capacity to regulate, or subject to a regime of conditioning, the operation of such infrastructure.</p> <p>The conditions re: monitoring inflow are designed to identify period of atypically low flow, which might be indicative of a pipeline failure. The use of such flow monitoring is commonplace in SPSs, and is an automated process that measures variance from normal inflow envelopes.</p> <p>The conditions generally do not impose any infrastructure requirements outside the ‘standard’ design and detailed (by the applicant) in the application as part of the proposed infrastructure.</p>
	(ii) stated measures be taken to minimise the likelihood of environmental harm being caused;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The conditions of the approval oblige the applicant to install and operate specific plant and measures in the event of non-compliance, especially in respect to either or both odour or noise issues. These conditions have been imposed as DERM has accepted the development application without requiring the applicant to provide empirical evidence of modelling of either air or noise from the facility.</p> <p>I am reasonably satisfied, based upon experience with other SPSs, that the risks of issues arising from air or noise emissions is very low and, taking this into account, the cost-benefit of requiring the applicant to supply this information for the operation of a temporary SPS is unwarranted.</p>
	(iii) carrying out and reporting on a stated monitoring program;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		The conditions of the approval require the operator to take

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					samples of the receiving waters (upstream and downstream) of the facility in the event of an uncontrolled release that is not caused by wet weather flows.
	(iv) the preparation and carrying out of a transitional environmental program;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		The conditions of the approval do not impose a requirement for the applicant to prepare and submit a transitional environmental program.
	(v) the giving of relevant information reasonably required by the administering authority for the administration or enforcement of this Act;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The conditions of the approval require the operator to give the administering authority information pertaining to releases to the environment from the infrastructure, and advice in the event of long-term reduced inflows (which may be indicative of major failure in the sewerage network).</p> <p>These conditions provide an opportunity to DERM to make informed decisions about whether to attend sewage release events, and the have a degree of oversight regarding manner in which the operator responds to any atypical situation that may, in its own right, indicate releases to the environment are occurring.</p>
	(vi) the carrying out or reporting about stated rehabilitation or remediation work relating to the chapter 4 activity the subject of the development approval;	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<p>The conditions of the approval compel the operator to rehabilitate the site after the activity ceases. This condition is written explicitly to ensure that it applies after the activity ceases; which it is expected to do within 5 years after the SPS is commissioned.</p> <p>It is improbable that the client would object to such a condition, as there would be a strong incentive to recover infrastructure associated with the SPS.</p>
	EP Act S73B (3b) – Has a condition been included that prohibits the changing, replacing or operating of any plant or equipment associated with the activity if the change, replacement or operation increases, or is likely to substantially increase, the risk of environmental harm.	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<p>No such condition is applied. The affirmative obligations imposed by the conditions adequately identify and specify the type of equipment that must be installed and maintained at the site. This form of conditioning, which takes into account the purpose for such equipment (to identify possible major leakage) and the acceptable solution (that is, monitoring flows) is demonstrably outcome focused.</p> <p>The conditions of the approval do, however, compel the operator to install relevant equipment etc. in response to any odour or noise issues arising from the activity.</p>

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	EP Act S73B (3c) – Has a condition been included under section 364 of the EP Act requiring the giving of financial assurance.	<input checked="" type="checkbox"/>	<input type="checkbox"/>		No financial assurance is considered necessary for the application.
	EP Act S73B (4) – A condition <u>may</u> be imposed even if it imposes an obligation that continues to apply after the activity stops.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The conditions of the approval regarding rehabilitation of the site after the activity ceases have been imposed on the approval.

Environmental Protection Regulation 2008 Condition Assessment Considerations

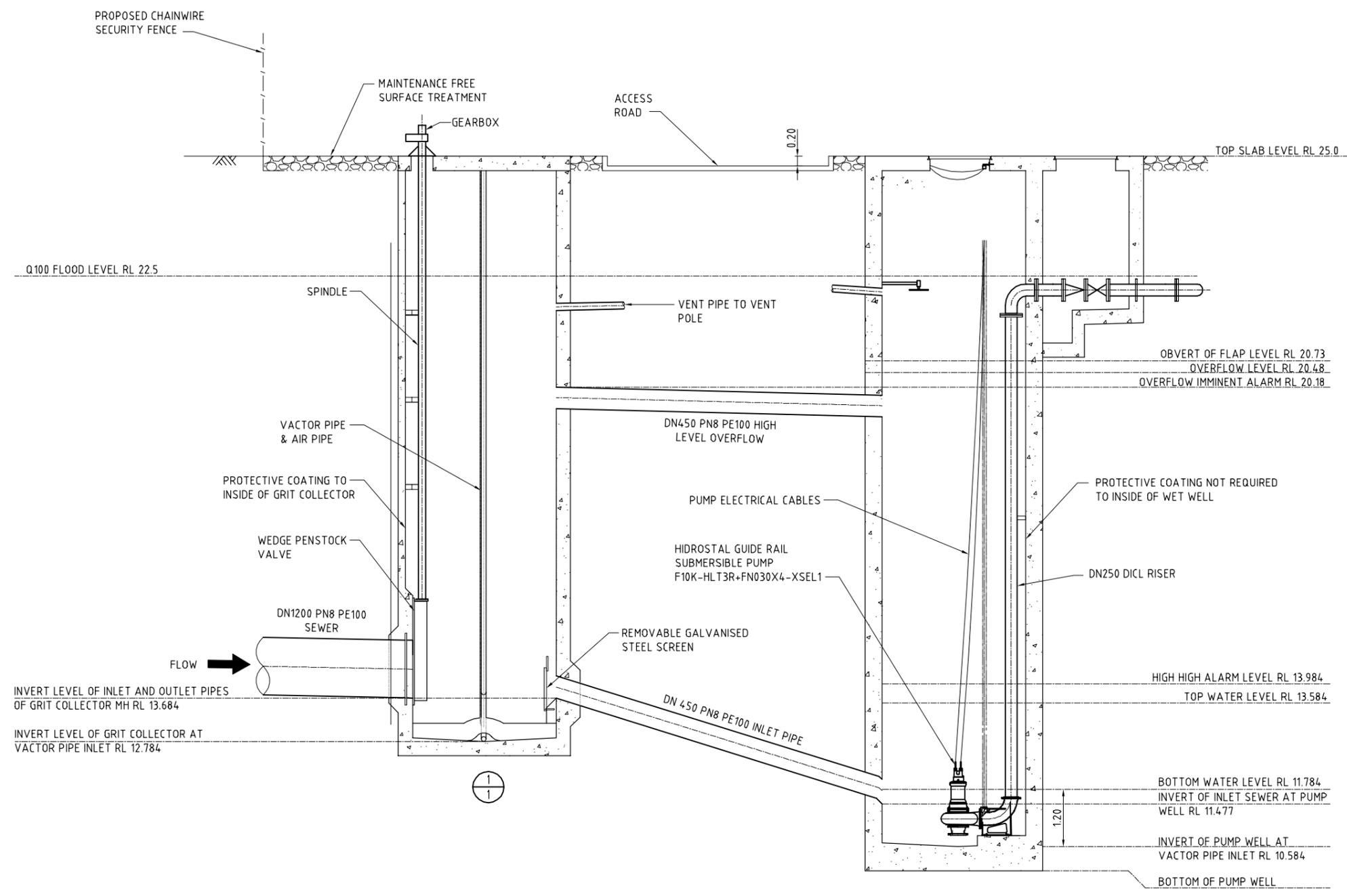
C5	EP Reg S52 – officers must consider whether to impose conditions about the following matters when conditioning permits.	<input checked="" type="checkbox"/>			Generally included in standard conditions, however a review is recommended for each permit. Select N/A if considered standard conditions address the requirement.
	(a) implementing a system for managing risks to the environment;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All conditions imposed on the approval seek to address risk through: <ul style="list-style-type: none"> • Defining steps or actions that must be undertaken (e.g. procedural actions); • Install and operate specified plant or equipment; • Imposing contingency and emergency response planning and implementation requirements; • Requiring the applicant to provide certain information to the administering authority about discharges to the environment and imposing monitoring requirements to ascertain the environmental impact of a spill.
	(b) implementing measures for avoiding or minimising the release of contaminants or waste;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The approval impose conditions, including some obligations that are triggered in the event of non-compliance, that require the applicant to install, operate and maintain particular infrastructure to minimise the release of wastes or contaminants to the environment. <p>These include:</p> <ul style="list-style-type: none"> • The obligation to monitor inflows; • The obligation to install, in response to a validated complaint, infrastructure to manage odour and noise as necessary; and • Requiring backup generators to be available in the event of power loss.

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	(c) ensuring an adequate distance between any sensitive receptors and the relevant site for the activity to which the decision relates;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The separation distances between the proposed activity site and the nearest nuisance sensitive receptor is only about 40m. The distance to the nearest residential premises is in excess of 300m. I consider these separation distances adequate given:</p> <ul style="list-style-type: none"> • The types of emissions from the facility; • The likely dispersion of these contaminants to air at the concentrations they may be emitted from the infrastructure; • The commitment by the operator – which has been reinforced through the conditions of the approval – to implement further engineering and process controls in the event non-compliances are observed.
	(d) limiting or reducing the size of the initial mixing zone or attenuation zone, if any, that may be affected by the release of contaminants;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The imposition of conditions on the approval relating to reducing the size of the initial mixing and attenuation zones were considered as part of the assessment, but are not considered relevant to this application.</p>
	(e) treating contaminants before they are released;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The applicant proposes to manage emissions primarily through engineering, although options including treatment (e.g. charcoal filters) as a way to manage H₂S emissions are reserved as contingency responses.</p>
	(f) restricting the type, quality, quantity, concentration or characteristics of contaminants that can be released;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The approval does not permit the release of contaminants, although the authority to release sewage from infrastructure when the inflow exceeds the hydraulic capacity of the SPS may be presumed.</p> <p>Given the circumstances where such a release might be accepted (operationally but not necessarily lawfully), it would be unreasonable and unnecessary to impose conditions restricting the type, quality, quantity, concentration or characteristics of the material being released.</p>
	(g) the way in which contaminants may be released;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The approval does not permit the release of contaminants.</p>
	(h) ensuring a minimum degree of dispersion happens when a contaminant is released;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The approval does not impose conditions regarding dispersion of contaminants, as it does not permit the release of contaminants.</p>
	(i) protecting environmental values, and meeting quality objectives, under relevant environmental protection policies;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>The conditions of the approval, which pertain largely to processes and procedures that must be followed, and infrastructure that must be installed, operated and maintained,</p>

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					are in place to minimise the frequency and severity of releases the environment. There is a flow on effect of such conditions that environmental values (including objectives and targets) are achieved.
	(j) recycling, storing, transferring or disposing of waste in a particular way;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The conditions of the approval do not mandate specific handling of wastes.
	(k) rehabilitating land to achieve particular outcomes;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	While the conditions of the approval mandate rehabilitation of the site, specific rehabilitation outcomes are not described in the approval.
	(l) measures for the ongoing protection of environmental values that are, or may be, adversely affected by the activity.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The conditions of the approval require the applicant to take certain, stated actions in respect to any observed non-compliance. These conditions require the applicant to remain vigilant and response to changing environmental issues and surrounding land uses.
	EP Reg S53 – officers must consider whether to impose monitoring conditions about the release of contaminants from the activity on the receiving environment.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The proposed conditions do not impose periodic monitoring or sampling regime, as it is a zero-discharge facility under normal operating conditions. However, event-based monitoring (i.e. to ascertain the environmental impact of any uncontrolled discharge) is imposed.
	EP Reg S55(3) Release of water or waste to land conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The release of wastewater to land has been considered in the assessment but is not relevant to the application.
	EP Reg S56(3) Release of water, other than stormwater, to surface water conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The release of water, other than stormwater, to surface waters has been considered in the assessment but is not relevant to the application.
	EP Reg S57(3) Release of stormwater conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The release of stormwater has been considered in the assessment but is not relevant to the application, given structural separation of the pump wells from stormwater.
	EP Reg S60(3) Storing or moving bulk materials conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The storage and moving bulk material has been considered in assessing the application but is not relevant to the application.
	EP Reg S61(3) Disturbance of acid sulfate soil conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is no acid-sulphate soil recorded in the area and no conditions have been imposed in respect to the management of acid-sulphate soils.
	EP Reg S62(3) Disturbance of acid producing rock conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There is no reason to suspect that acid producing rock is present at the site and no conditions have been imposed in respect to these issues.
	EP Reg S64(3) Indirect release of contaminants to groundwater conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The potential for indirect release of contaminants to groundwater has been considered, but is not relevant to this application.

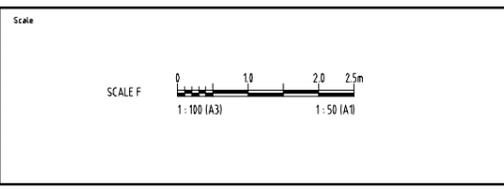


GRIT COLLECTOR & PUMP WELL - SECTION
SCALE F

NOT FOR CONSTRUCTION

LAST MODIFIED: 17/03/11 10:30 AM REVISIONS: CAD REF: J:\PROJECTS\60190304\60190304_0001\3D\WORKING\DRAWINGS\60190304_0001.DWG

This drawing is confidential and shall only be used for the purposes of this project.				
No.	BY	DATE	DESCRIPTION	APPD
C	L.D.	15.04.11	AMENDED CONCEPT DESIGN	K.L.
B	L.D.	23.03.11	AMENDED CONCEPT DESIGN	K.L.
A	L.C.	11.03.11	ISSUE FOR CONCEPT DESIGN	K.L.



THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE AECOM QUALITY ASSURANCE SYSTEM TO ISO 9001:2000

DESIGNED		CHECKED	
DRAWN		CHECKED	
APPROVED		DATE	

AECOM

RPEQ No.
AECOM Australia Pty Ltd A.B.N. 20 093 846 925

QUEENSLAND
UrbanUtilities

DEEBING CREEK SEWER UPGRADE		
TRUNK SEWER & TEMPORARY PUMP STATION - STAGE 1		
TEMPORARY PUMP STATION		
GRIT COLLECTOR & PUMP WELL SECTION		
Status	CONCEPT	Rev. C
Dwg No.	60190304-0005	

Permit

Sustainable Planning Act 2009

DERM Permit¹ number: SPDE01935111

This notice is issued by the Department of Environment and Resource Management pursuant to section 334 of the Sustainable Planning Act 2009 ("the Act").

1. Application Details

Date application made to DERM: 25 May 2011
Development approval applied for: Development permit
Development description(s):

Property	Lot/Plan	Aspect of Development
221 – 233 Briggs Road, FLINDERS VIEW QLD 4305	Lot 2 RP97218	ERA 63 Sewage treatment Threshold 3 - operating a sewage pumping station with a total design capacity of more than 40KL in an hour, if the operation of the pumping station is not an essential part of the operation of sewage treatment works

2. Approved plans and specifications:

Document No.	Document Name	Date
60190304-0004 Rev C	TRUNK SEWER & TEMPORARY PUMP STATION – STAGE 1, TEMPORARY PUMP STATION, GENERAL ARRANGEMENT	11/03/2011

Additional information for applicant

Contaminated Land

It is a requirement of the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware a notifiable activity (as defined by Schedule 2 of the *Environmental Protection Act 1994*) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 22 business days after becoming so aware, give notice to the administering authority.

Duty to notify environmental harm

Section 320 of the *Environmental Protection Act 1994* requires a person to notify the administering authority if the person becomes aware that an activity (whether by act or omission) has caused, or threatened, unlawful material or serious environmental harm. It is an offence to fail to notify in accordance with this section, and the duty extends to all persons (including employers and employees). This obligation exists irrespective of any conditions forming part of this development approval.

Environmentally relevant activities

The aforementioned description of any environmentally relevant activity (ERA) for which this permit is issued is simply a restatement of the ERA as prescribed in the legislation at the time of issuing this permit. Where there is any conflict between the abovementioned description of the ERA for which this permit is issued and the conditions specified herein as to the scale, intensity or manner of carrying out

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management.

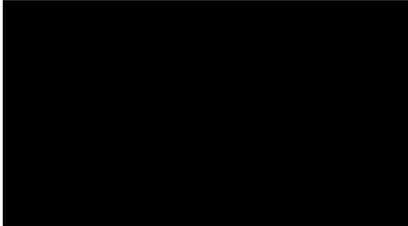
of the ERA, then such conditions prevail to the extent of the inconsistency.

This permit authorises the ERA. It does not authorise environmental harm unless a condition within this permit explicitly authorises that harm. Where there is no such condition, or the permit is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

In addition to this permit, the person to carry out the ERA must be a registered operator under the *Environmental Protection Act 1994*. For the person to become a registered operator, they must apply to the administering authority for a registration certificate under section 73F of the *Environmental Protection Act 1994*.

Trackable Waste

Where regulated waste is removed from site, the registered operator must monitor and keep records in accordance with schedule 2 of the *Environmental Protection (Waste Management) Regulation 2000* – Prescribed information for waste tracking.



Delegate of the Chief Executive
Department of Environment and Resource Management
1 September 2011

CONDITIONS

AGENCY INTEREST: GENERAL

Limitations of approval

General 1: This approval ceases to have effect five years from the date the sewage pumping station at the approved place is commissioned.

Note: For this condition, the sewage pump station is commissioned on the day corresponding to the first of the following events —

- *the day any period of validation (however described) for the sewage pumping station, as described in any contract for the construction of the sewage pumping station, has ended (whether or not the person undertaking the activity to which this approval relates is satisfied that the sewage pumping station meets the design specifications stated in that contract); or*
- *the person undertaking the activity to which this approval relates assumed responsibility (however described) from the person building the sewage pumping station for the management and operation of the sewage pumping station.*

General 2: The person undertaking the activity to which this approval relates must, within 7 days after the commissioning of the sewage pumping station, give written notice to the administering authority advising that the sewage pump station has been commissioned, and the date it was commissioned.

General 3: The total pumping capacity of the sewage pumping station must not exceed 140.0 Litres per second.

General 4: The sewage pump station must be constructed in accordance with the approved plan forming attachment 1 of this approval.

Prevent or minimise likelihood of environmental harm.

General 5: In carrying out an activity to which this approval relates, all reasonable and practicable measures must be taken to prevent or minimise the likelihood of environmental harm being caused.

Maintenance of measures, plant and equipment

General 6: The person undertaking the activity to which this approval relates must —

- (a) maintain such measures, plant and equipment in a proper and efficient condition; and
- (b) operate such measures, plant and equipment in a proper and efficient manner.

General requirements for keeping of records or reports

General 7: If a condition of this approval requires the person undertaking the activity to which this approval relates to make or keep a record (however described), or prepare a document², the person must do all of the following —

- (a) keep the record or document at the approved place (or another place approved, in writing, by the administering authority);
- (b) keep the record or document in a place that is accessible by all persons engaged in the activity;
- (c) produce the record or document for inspection by an authorised person or the administering authority if requested;
- (d) for each document or record made or created in response to a monitoring requirement, reporting requirement, investigation or incident — keep the record for a minimum of five (5) years from the date the document is made or created; and

² Note: Unless a condition of this approval requires a document to be made or kept in a specific format (e.g. in hardcopy format), the *Electronic Transactions (Queensland) Act 2001* applies to the document.

- (e) if the record of document is sent (in any form) to the administering authority — keep a copy of the document.

Copy of development approval must be kept at approved place

General 8: A copy of this development approval must be kept at the approved place.

Specific requirements to monitor flow and record monthly rolling average flows

General 9: The person undertaking the activity to which this approval relates must ensure a flow meter is

-
- (a) installed at the outlet works of the sewage pump station; and
 - (b) measuring or calculating the flow of sewage at all times whilst the sewage pump station is operational.

General 10: The person undertaking the activity to which this approval relates must calculate, and keep a record of, the rolling monthly 3-year average of flow past the flow meter.

Procedure or plan for responding to low flow incidents

General 11: The person undertaking the activity to which this approval relates must, within 30 business days after this approval takes effect, give the administering authority a written plan or procedure³ that describes the person's procedure for investigating and responding to low flow events, when referenced against the rolling monthly 3-year average flows calculated for the sewage pump station under condition General 10.

General 12: From the day the person gives the administering authority the plan or procedure under condition General 11, the person undertaking the activity to which this approval relates must respond to low flow incidents in accordance that plan or procedure unless the reason for the low flow is known.

General 13: To remove any doubt, the plan mentioned in condition General 11 may be amended or replaced by the person undertaking the activity to which this approval relates by giving a copy of the amended plan or procedure to the administering authority.

General 14: The person undertaking the activity to which this approval relates must notify the administering authority, in writing, if all of the following apply in relation to a single event —

- (a) a low flow event occurs (based upon the rolling monthly 3-year average flows);
- (b) the cause of that event cannot be determined; and
- (c) the low flow event persists for 10 or more consecutive days (but excluding any wet weather events that occur within the 10 day period).

Monitoring systems

General 15: The sewage pumping station must be fitted with the following —

- (a) pump failure alarms;
- (b) mains power failure alarm; and
- (c) multiple level alarms for sewage contained in the pump well, including high level alarm.

General 16: The alarms required under condition General 15 must activate if one or more of the following occurs —

- (a) any pump stops working;
- (b) mains power to the sewage pump station is cut (whether or not a back-up power generator is installed and able to maintain pumping capacity); or
- (c) any condition exists at the sewage pump station that may indicate that a release of sewage to the environment (whether or not within the boundaries of the approved place) has occurred or is likely to occur.

³ To remove any doubt, a plan or procedure that meets the content requirements of this condition that has been prepared for another sewage pumping station operated by the person undertaking the activity to which this approval relates may be used to satisfy this condition.

Example for condition General 16 — the height of sewage is abnormally low or is abnormally high.

General 17: The person undertaking the activity to which this approval relates must ensure that all alarms mentioned in condition General 15 are able to operate without mains power for a continuous period of at least 8 hours, measured from the point in time mains power is lost.

General 18: The person undertaking the activity to which this approval relates must do all of the following —

- (a) test each alarm system, backup power system, and all visual indicators and remote (telemetry) alarms at approximately monthly intervals; and
- (b) keep a record of all such tests, any faults identified during those tests, and any remedial action taken to rectify any faults detected during testing.

Site based management plan

General 19: The person undertaking the activity to which this approval relates must keep and implement a site-based management plan (SBMP) that provides for the management of the actual and potential environmental impacts resulting from the carrying out of the activity to which this development approval relates, and includes the following —

- (a) the functions and responsibilities of person's engaged in the activity (either by name or position) at the approved place;
- (b) day-to-day procedures for the management of the activity specifically with respect to the management of aspects of the activity that cause, or may cause, a release of contaminants to the environment;
- (c) the processes and procedures for manual handling and storage of chemicals (if any) used in the activity to which this approval relates;
- (d) obligations for monitoring the operation and performance of plant or equipment associated with the activity, and reporting particular non-compliance to the administering authority under a condition of this approval or otherwise in accordance with any legally imposed duty to notify (however described) under the *Environmental Protection Act 1994*;
- (e) describes training requirements for all persons engaged in the activity, including general environmental awareness, incident response, reporting and emergency procedures;
- (f) the location and instruction for the operation and maintenance of all equipment used for clean-up of any spillages;
- (g) the location of all overflow structures attached to the sewage pumping station;
- (h) investigation and response protocols to be utilised by persons engaged in the activity in response to any emergency, incident or event (including non-compliance events), the circumstances in which those protocols are to be applied, and describing escalation criteria for such events;
- (i) the sampling and analysis regimes under the conditions of this approval, identifying the person(s) responsible for taking compliance samples;
- (j) procedures for dealing with any abnormal situation or operation of the infrastructure used in the activity to which this approval relates (including any release of contaminants to the environment through an uncontrolled release, accident, incident or emergency or any situation or event that indicates non-compliance with the development conditions of this approval has occurred or may occur); and
- (k) response procedures for employees undertaking the activity arising from any emergency, incident or event (including any abnormal operating condition or circumstance observed or recorded in connection with the activity), including any protocols for the investigating any potential environmental harm arising from such emergencies, incidents or events.

General 20: The person undertaking the activity to which this approval relates must review the SBMP annually to ensure that it remains current, is consistent with the conditions of this development approval, and reflects contemporary practice at the approved place, and a record of the review kept at the approved place.

General 21: The person undertaking the activity to which this approval relates must give the administering authority a copy of the SBMP —

- (a) within 3 months after this development approval takes effect; and
- (b) if the plan in paragraph (a) is amended or replaced⁴ — within 14 days of the plan being amended or replaced.

General 22: The person undertaking the activity to which this approval relates must ensure the current SBMP is kept in hardcopy format at the approved place, or another place approved in writing by the administering authority.

Incident recording

General 23: The person undertaking the activity to which this approval relates must keep a record of the time, date and duration of equipment malfunctions where the failure of the equipment results in the release of contaminants not in accordance with conditions of this approval.

Notification of certain releases or events to be supplied to the administering authority

General 24: The person undertaking the activity to which this development approval relates must notify the administering authority as soon as practicable after becoming aware of any event where environmental harm is caused or threatened or any release of contaminants to air or waters that occurs otherwise than in accordance with the conditions of this development approval, unless one or more of the following applies —

- (a) the administering authority has been given notice of the release or event under any statutorily imposed duty to notify under the *Environmental Protection Act 1994*;
- (b) the release or event is done in compliance with an emergency direction or a statutory notice or obligation under the *Environmental Protection Act 1994* given or issued to the person;
- (c) the administering authority waives, in writing, the requirement to give such notification for the specific event or release, or provides a general written exemption^{5,6} for giving notification events or releases of the class of events into which the event or release falls.

General 25: If the person undertaking the activity to which this approval relates is required to give notification to the administering authority of an event or release under condition General 24, the notification must include the following information —

- (a) the name and telephone number of a designated contact person who is able to talk with the administering authority on behalf of the operator in relation to the event or release;
- (b) the location of the event or release, including a physical address and lot on plan description (if available) and any other information necessary to identify the specific location of the event or release;
- (c) the time of the event or release (if known);
- (d) the time the person became aware of the event or release;
- (e) if the event or release has impacted, or may impact on, a person's land — whether the person whose land has been, or may be, impacted by the event or release has been notified;
- (f) if the event or release involves a chemical — the name of the chemical (including its molecular formula), any known information about the chemical including its known environmental toxicity.

Note: The Pollution Hotline (1300 1 30 37 2) is the most appropriate contact for pollution incidents.

General 26: If the person undertaking the activity to which this approval relates is required under condition General 24 to notify the administering authority of an event or release, the person must, within 14 days (or a longer period approved in writing by an authorised person or the administering authority for any specific notification), give the administering authority a written notice that includes the following information —

⁴ Note: This requirement may be satisfied by giving the administering authority a copy of the SBMP in electronic format.

⁵ Any exemption under this condition may be amended or withdrawn by the administering authority.

⁶ To remove any doubt, section 76 of the *Justices Act 1899* (Proof of negative etc.) applies to an exemption under this condition.

- (a) the name of the registered operator of the activity to which this development approval relates, including both the development approval number and the registration certificate number;
- (b) the information included in the notification supplied under condition General 24, including any updates or changes to that information of which the person has become aware as a result of any incident response or investigation;
- (c) if the event or release involved a chemical — a material safety data sheet for the chemical;
- (d) a description of any observed effects on the environment of the release or event, and any anticipated long-term impacts;
- (e) the suspected cause of the release or event;
- (f) the results of any environmental sampling performed in relation to the release or event;
- (g) actions taken to mitigate any environmental harm (including environmental nuisance) caused by the release or event;
- (h) proposed actions to prevent a recurrence of the release or event; and
- (i) that the written advice is submitted under a condition of a development approval⁷.

Monitoring

General 27: All monitoring, assessments and reports required by this development approval are conducted by a person(s) with appropriate experience or qualifications.

Appropriately qualified person(s)

General 28: The daily operation and maintenance of the sewage pumping station must be carried out by a person(s) with experience or qualifications appropriate to ensure the effective operation of the sewage pumping station.

Equipment calibration

General 29: All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this approval must be calibrated, operated and maintained in accordance with the manufacturer's specifications.

AGENCY INTEREST: AIR

Dust or particulate matter during building work

Air 1: The release of dust or particulate matter resulting from building works from the activity to which this approval relates must not cause, or be likely to cause, an environmental nuisance at or beyond the boundary of the approved place.

Air 2: Subject to condition Air 3, the dust deposition rate and concentration of PM₁₀ or PM_{2.5} must not, during building work associated with the activity to which this approval relates, exceed the limits specified in the following table for the contaminant when measured at a nuisance sensitive or commercial place in accordance with the measurement method specified in the table.

Contaminant	Measurement	Limit	Measurement method
Dust	Deposition rate	120 mg/m ² /day	Australian Standard AS3580.10.1 of 2003 (or more recent editions)
PM ₁₀	Concentration	50µg/m ³ averaged over 24 hours	Either of the following — (a) AS 3580.9.6 of 2003 (or more recent editions); or (b) AS3580.9.7 of 2009 (or more recent editions).

⁷ This statement differentiates a notification made under a condition of this approval and a notification made under a statutorily imposed duty under the *Environmental Protection Act 1994*.

Contaminant	Measurement	Limit	Measurement method
PM _{2.5}	Concentration	25µg/m ³ averaged over 24 hours	Either of the following — (a) AS 3580.9.10 of 2006 (or more recent editions); or (b) AS3580.9.7 of 2009 (or more recent editions).

Note:

- Australian Standard AS 3580.9.6 of 2003 (or more recent editions) Ambient air – Particulate matter – Determination of suspended particulate matter PM₁₀ high volume sampler with size-selective inlet – Gravimetric method.
- Australian Standard AS 3580.9.10 of 2006 (or more recent editions) ‘Ambient air – Particulate matter – Determination of suspended particulate matter PM_{2.5} low-volume sampler – Gravimetric method.
- Australian Standard AS3580.9.7 of 2009 (or more recent editions) “Ambient air – Particulate matter – Determination of suspended particulate matter – Dichotomous sampler (PM₁₀ and PM_{2.5}) – Gravimetric method.

Air 3: If the Air Quality Sampling Manual (however described), published by the Queensland Government from time to time for the purpose of measuring or monitoring compliance with the *Environmental Protection Act 1994* specifies an alternative sampling protocol for PM₁₀ or PM_{2.5}, the concentration of the contaminant for the purposes of compliance with condition Air 2 may be determined using that protocol.

Air 4: Despite condition General 6, the person undertaking the activity to which this approval relates is required to install equipment to measure the dust deposition rate or the concentration of particulate matter (PM₁₀ or PM_{2.5}) for condition Air 2 only if directed in writing by the administering authority to undertake monitoring for those contaminants.

Noxious or offensive odours

Air 5: The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity to which this approval relates must not cause, or be likely to cause, a nuisance at or beyond the boundary of the approved place.

Reasonable adjustment of practices, procedures or infrastructure for resolving nuisance complaints

Air 6: The person undertaking the activity to which this approval relates must investigate, or commission the investigation of, any complaints of nuisance caused by noxious or offensive odours and, if those complaints are validated, make reasonable adjustments to processes or equipment to prevent a recurrence of odour nuisance.

Monitoring obligations in respect to air quality

Air 7: The person undertaking the activity to which this approval relates must, if directed in writing by the administering authority undertake, or commission the undertaking of, odour monitoring for contaminants released from the approved place at the site and other locations relevant to ascertaining the odour at affected premises.

AGENCY INTEREST: LAND

General restriction on the release of contaminants to waters

Land 1: The person undertaking the activity to which this approval relates must not cause or permit contaminants to be released to land.

Land 2: The person undertaking the activity to which this approval relates must ensure all chemicals and fuels stored at the approved place in containers of 200L or more (other than chemicals stored in intermediate bulk containers) are stored in a bunded area(s).

Land 3: The person undertaking the activity to which this approval relates must ensure that chemicals, other than those to which condition Land 2 applies, are stored in one or more of the following ways —
(a) in a bunded area;

- (b) in purpose-built containers (e.g. intermediate bulk containers) that conform to the relevant Australian standard for the storage of such materials; or
- (c) for containers of 20L or less — in a designated storage area.

Land 4: The person undertaking the activity to which this approval relates must ensure that all bunded areas are —

- (a) of a type and design sufficient to contain at least 110% of the volume of the largest container within the bund;
- (b) maintained and managed in a way that ensures the following —
 - (i) the capacity of the bund is not compromised by the entrapment of water;
 - (ii) materials or equipment are not stored within the bund;
 - (iii) all drains or valves servicing the bund are protected from accidental damage; and
 - (iv) all drains or valves are closed and locked off at all times when not being used to empty the bund.

Land 5: The person undertaking the activity to which this approval relates must not cause or permit chemicals that are known, or are likely, to react with each other to be stored within the same bund or containment area.

AGENCY INTEREST: NOISE

Noise Nuisance

Noise 1: Notwithstanding other conditions of this approval, noise from the activity to which this approval relates must not cause, or be likely to cause, an environmental nuisance at or beyond the boundary of the site.

Administering authority may require noise monitoring to be undertaken

Noise 2: If directed by the administering authority, the person undertaking the activity to which this approval relates must undertake, or commission the undertaking of, noise monitoring that addresses the following issues to investigate any complaint of noise nuisance, and give or send the results of that monitoring to the administering authority within 14 days after the results of the monitoring are received by the person —

- background noise;
- $L_{A10, adj, 15mins}$;
- $L_{A1, adj, 15 mins}$;
- $L_{Aeq, adj, 15 mins}$;
- the level and frequency or occurrence of impulsive or tonal noise;
- atmospheric conditions including wind speed and direction;
- effects due to extraneous factors such as traffic noise; and
- location, date and time of recording.

Noise 3 The method of measurement and reporting of noise levels must comply with the latest edition of the administering authority's Noise Measurement Manual.

Obligation to investigate complaints noise nuisance

Noise 4 Subject to condition Noise 5, the person undertaking the activity to which this approval relates must investigate, or commission the investigation of, all complaints alleging noise nuisance⁸ from the activity to which this approval relates.

Noise 5 The obligation for the person undertaking the activity to which the approval relates to investigate a nuisance complaint under condition Noise 4 is extinguished if all the following apply —

- (a) the facts and circumstances forming the basis for the complaint are substantially the same as those alleged in a former complaint by the same complainant;
- (b) the results of an investigation into the former complaint was that the complaint cannot be substantiated; and

⁸ The form of any investigations made under condition Noise 4 should be sufficient to enable a conclusion about the validity of the complaint to be made, but do not necessarily require formal noise monitoring in the form required under condition Noise 2.

- (c) the administering authority or an authorised person has not, by written notice, otherwise revived the obligation to investigate the complaint.

Reasonable adjustment for validated nuisance complaints

Noise 6 The person undertaking the activity to which this approval relates must make reasonable adjustment⁹ of practices, procedures or equipment to resolve any validated complaint investigated under condition Noise 4.

Examples of a reasonable adjustment include —

- (a) *changing the times of the day at which particular actions giving rise to the complaint happen;*
- (b) *replacing acoustic housing of equipment; or*
- (c) *enclosing, covering or closing open or exposed infrastructure if enclosing, covering or closing the infrastructure would not compromise or reduce its effectiveness.*

AGENCY INTEREST: SOCIAL

Complaint investigation and response

Social 1: The registered operator of the activity to which this development approval relates must record the following details for all complaints received —

- (a) time, date, name and contact details of the complainant;
- (b) reasons for the complaint;
- (c) any investigations undertaken in response to the complaint;
- (d) whether the complaint was validated through investigations; and
- (e) any actions taken to resolve the issues identified during the investigation and to prevent a recurrence of any identified issues.

AGENCY INTEREST: WATER

Release to waters

Water 1: A person must not cause or permit contaminants to be released from the activity to which this approval relates to any waters, or the bed and banks of any waters, unless all of the following apply —

- (a) the hydraulic flow into the sewage pump station exceeds 140 Litres per second at the time the contaminants are released;
- (b) the release is comprised only of that part of the hydraulic flow through the sewage pump station that is in excess of 140L/s; and
- (c) the release occurs only from release point 694,671 depicted in attachment 2 forming part of this approval.

Environmental monitoring and sampling following release event

Water 2: If contaminants are released to waters as a result of an event, the person undertaking the activity to which this approval relates must, if directed by the administering authority or an authorised person, do all of the following —

- (a) take environmental samples to ascertain or confirm the nature and extent of contamination arising from the release;
- (b) lodge such samples with a laboratory for analysis using a NATA-accredited methodology relevant to the analysis that must be performed;
- (c) give or send a copy of the results of such analysis the administering authority with the report submitted to the administering authority under condition General 26.

Stormwater management

Water 3: There must be no release of site stormwater runoff that has been in contact with any contaminants at the site to any waters, roadside gutter or stormwater drain.

⁹ See section 319 of the *Environmental Protection Act 1994* (General environmental duty) for things that must be considered in determining whether a change is a reasonable adjustment.

DEFINITIONS

Words and phrases used throughout this permit are defined below. Where a definition for a term used in this permit is sought and the term is not defined within this permit the definitions provided in the *Environmental Protection Act 1994* apply.

"approved place" means the part of site situated at 221 – 233 Briggs Road, FLINDERS VIEW QLD 4305 (Lot 2 RP97218) depicted in the approved plan forming Attachment 1 of this approval.

"background noise" means $L_{A90, T}$ being the A-weighted sound pressure level exceeded for 90 percent of the time period (not less than 15 minutes), using Fast response.

"commercial place" means a place, other than a nuisance sensitive place, used as an office or for business or commercial purposes including the place within the curtilage of that place reasonably used by persons at that place.

" $L_{A1,adj,15min}$ " means the A-weighted sound pressure level equal to or exceeded 1% of a 15 minutes sample period, measured using fast (F) response.

" $L_{A10, 15min}$ " means an A-weighted sound pressure level equal to or exceeded for 10% of a 15 minute sample period, measured using fast ("F") response.

" $L_{Aeq,adj,T}$ " means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a measuring period (T) has the same mean square sound pressure as a sound level that varies with time.

"land" means land excluding waters and the atmosphere.

"noxious" means harmful or injurious to health or physical well-being.

"nuisance sensitive place" includes a place that is one or more of the following —

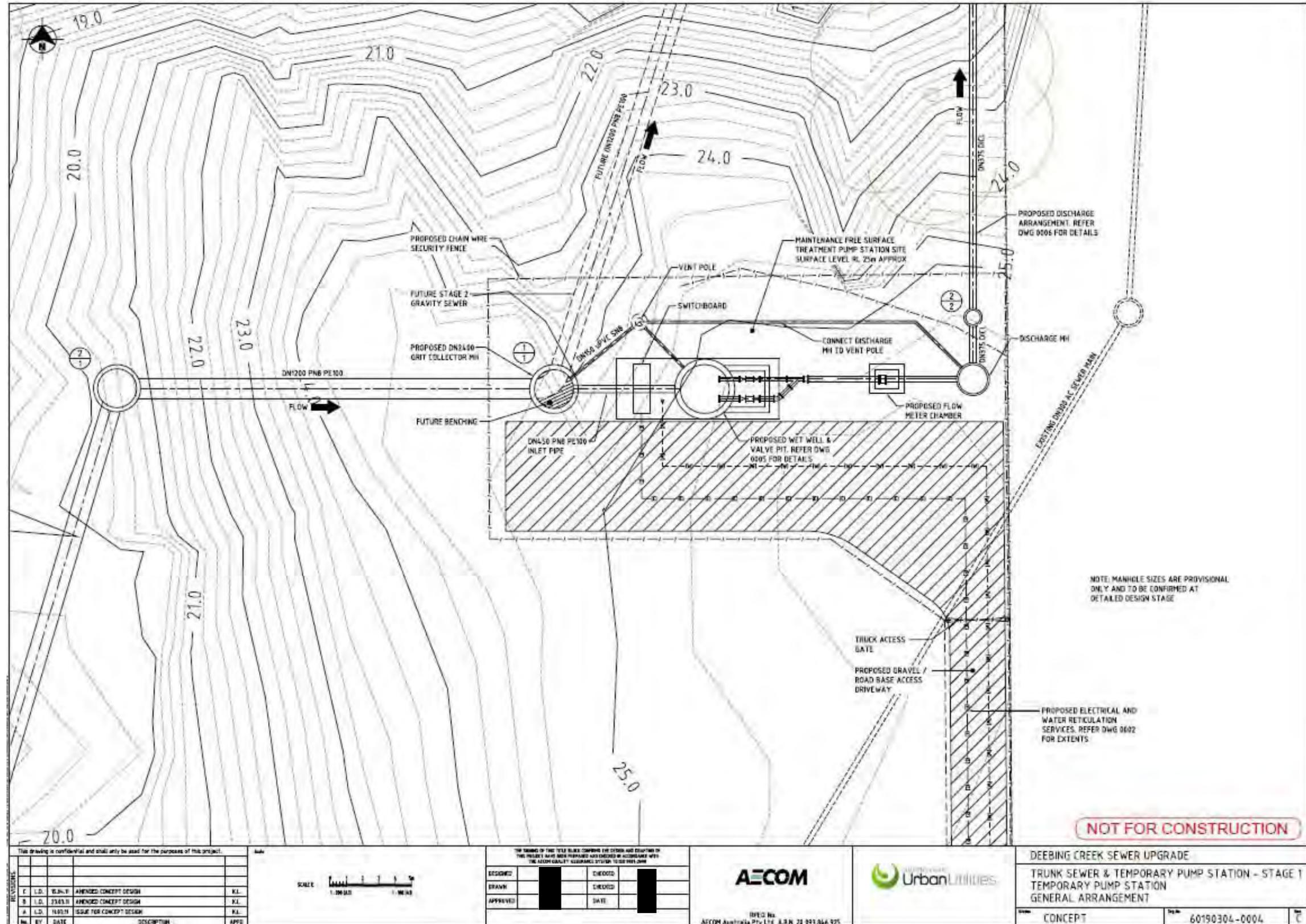
- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises;
- a motel, hotel or hostel;
- a kindergarten, school, university or other educational institution;
- a medical centre or hospital;
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area;
- a public thoroughfare, park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

"offensive" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

END OF CONDITIONS

ATTACHMENT 1 — DEEBING CREEK SEWAGE PUMPING STATION



ATTACHMENT 2 — DEEBING CREEK SEWAGE PUMPING STATION OVERFLOW



Decision

Summary Report for the Delegate making a Statutory Decision

Delegates Decision Report

This Decision Report is a summary of the project, key assessment considerations and environmental issues that are relevant for the delegate to consider in making a decision under the Sustainable Planning Act 2009 (SPA) and the Environmental Protection Act 1994 (EP Act) relating to applications for and amendment to Environmentally Relevant Activities.

Key Issues

Application Type: Development Permit
DERM role: Assessment Manager
Development Trigger:
Legislation and Section for Decision: SPA s334 Decision Notice
Risk Assessment Level: Low
Applicant name and address:
Location: 221 – 233 Briggs Road, Flinders View QLD 4305 (Lot 2 RP97218)
Project Description: Construction of a temporary (5 sewage pumping station) to facilitate the upgrade of the Deebing Creek Rising Main.
Permit Approved:
<input checked="" type="checkbox"/> Development Permit <input type="checkbox"/> Concurrence Agency Response <input type="checkbox"/> Preliminary Approval <input type="checkbox"/> In part only – Combined Preliminary Approval and Development Permit <input type="checkbox"/> Amended Concurrence Agency Response <input type="checkbox"/> Negotiated Decision Notice <input type="checkbox"/> Amended Development Permit <u>INCLUDING</u> <input type="checkbox"/> New conditions <input type="checkbox"/> Amended existing conditions <input type="checkbox"/> Amended Map

- Potential for emissions to air / odour affecting nearby nuisance sensitive receptors;
- Potential for noise impacts;
- Management of environmental impacts from unplanned releases (e.g. wet weather flows or catastrophic failures in infrastructure).

Air / Odour emissions

The operation of a sewage pumping station (SPS) presents a risk of emissions to air, specifically Hydrogen sulphide H₂S. Limits of detection for H₂S are low, and H₂S has the potential to compromise environmental values in the area.

The applicant (Queensland Urban Utilities (QUU)) has not supplied air dispersion modelling for the proposed development. There is, in my view, sufficient buffer distances between the proposed development site and the nearest nuisance sensitive receptors (~40m to the nearest commercial premises and almost 300m from the nearest residential premises) for natural attenuation and dispersion of any air emissions.

My assessment and recommendation that the approval be granted, subject to conditions, is based upon certain assumptions:

- the surrounding land uses will remain largely unchanged over the 5-year term of the operation of the pumping station; and

- modelling for two sewage pumping stations (Redbank No 34 and Leichardt), which are of a similar design to the proposed development, have demonstrated fairly tight dispersion contours and not been subject to odour complaints;
- the development approval lapses 5 years after the sewage pumping station is commissioned, which will necessitate provision of empirical data, taking into account any land use changes that occurred within the 5-year window, that can be used to condition a subsequent approval.

Conditions have been imposed that require the operator to respond appropriately (e.g. by installing relevant odour management or mitigation equipment) in the event of complaints about odour arising from the facility.

Noise emissions

The operation of a sewage pumping station represents a risk of impacts on the acoustic environment, although the probability of appreciable impacts on the acoustic environment is negligible.

The applicant has not supplied any acoustic noise modelling as part of the application. Under the *Environmental Protection Act 1994*, the administering authority is required to assess the impacts of the proposed development on the acoustic environment – in particular assessing the application for its projected impacts on attaining acoustic quality objectives and targets. The absence of any empirical evidence (e.g. modelling) means this assessment can be based upon assumptions from other recent applications for similarly designed pump stations, knowledge of the proposed activity site and sources of noise in that area, and opinion based upon personal experience.

Noise attenuates at a constant rate (provided certain assumptions are met), in accordance with the 'inverse square law'. The background noise at the site, while not measured, is likely to be dominated during working hours by the Boral Concrete facility, situated only about 40m away. It is improbable that the noise emissions from the sewage pumping station would be at least 10dB(A) below the noise emission from the nearby cement batching facility when measured at or near the boundary of the concrete facility or any other nuisance sensitive receptor. That is, it seems probable that the noise from the SPS would be inaudible.

The same assumptions that were relied upon, and that were considered, for recommending the approval be granted subject to conditions are the same as those that were relied upon for management of noise emissions. Similar trigger conditions to those applied for any air emissions / odour issues arising from the facility have been imposed as conditions of this approval.

Managing environmental impacts of unplanned releases

The hydraulic capacity of the sewage pumping station is 140L/s⁻¹. This corresponds to a flow equivalent to 5 time average dry weather flow (ADWF). The proposed upgrade of the Deebing Creek Sewer Main will ultimately increase the overall hydraulic capacity for managing sewage in the catchment, and cater for increased population in the catchment. Particularly in the period between installation of the new pipeline, and the date at which the total hydraulic loading approaches 5 time ADWF (noting the pipeline is built to cater for increases in population, rather than a static population in the catchment).

Periodically, wet weather events (esp. summer storms') results in surges in hydraulic loading that exceed the pumping capacity of the sewerage network, resulting in a surcharge to the environment. The proposed development would surcharge to Deebing Creek.

There is an imminent need to install and maintain infrastructure to service the sewerage network. The positioning of such infrastructure is often driven by engineering needs and land availability, rather than desire. The frequency of discharge events and properties of the receiving environment during wet-weather surcharges (highly diluted sewage discharged usually into fast flowing streams) means

that the impacts on the receiving environment are potentially difficult to quantify, and the imposition of rigorous environmental monitoring conditions cannot be justified. However, event-based investigation triggers have been applied through conditions, requiring the applicant to take relevant samples at discharge events (other than wet-weather discharges). Conditions of the approval also require monitoring of flows, which may assist in identification of any catastrophic failures in the gravity or rising mains associated with the sewerage network.

Consultation

DERM officers have met with the applicant on a previous occasion, where DERM's expectations in terms of the content of the application were clearly articulated to the client and their consultants.

A further email discussion took place following receipt of the application, during which the applicant confirmed:

- the proposed term of operation of the SPS is 5 years;
- the noise emissions from the SPS would likely be undetectable given the emissions from the Boral Concrete batching facility; and
- various commitments were made regarding responses to any issues arising from the activity.

The applicant also agreed to the proposed 5-year cessation of the effectiveness of the approval, commencing from the date of the commissioning of the SPS.

Recommendation It is recommended that the proposed application be:-

Select:	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Refused
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Provide a Statement of Reasons for why the application should be approved/refused:-

Not applicable – a statement of reasons is required only where the decision is to refuse the application.

Assessing Officer: Name: John Rice

Signed:

Date: 01/09/2011

**Delegate Review:
Comments**

Select:	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Refused
Name:	[REDACTED]	
Position / Title:	Manager	
Signed:	[REDACTED]	
Date:	1 September 2011	
Regional Services Environmental Services Department of Environment and Resource Management		Enquiries: Ipswich Office Ph. [REDACTED] Fax. [REDACTED]

Decision notice

This notice is issued by the Department of Environment and Resource Management pursuant to section 334 (decision notice) of the Sustainable Planning Act 2009 ("the Act").

Central SEQ Distributor-Retailer Authority
t/a Queensland Urban Utilities
GPO Box 2756
BRISBANE QLD 4001

cc. Chief Executive Officer
Ipswich City Council
PO Box 191
IPSWICH QLD 4305

Att: [REDACTED]
Ph: [REDACTED]
Email: [Anthony \[REDACTED\]](#)

Our reference: 462569

Re: Application for development approval

1. Application Details

Date application made to DERM: 25 May 2011
Development approval applied for: development permit
Aspect of development:

Material change of use of premises – For an environmentally relevant activity	<i>Sustainable Planning Regulation 2009</i> - Schedule 3, Part 1, Table 2, item 1	DERM Appl. no. – 363693 DERM Permit No. SPDE01935111
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Development description: ERA 63 Sewage treatment Threshold 3 – operating a sewage pumping station with a total design capacity of more than 40KL in an hour, if the operation of the pumping station is not an essential part of the operation of sewage treatment works.

Property/Location description: 221 – 233 Briggs Road, FLINDERS VIEW QLD 4305 (Lot 2 RP97218)

2. The name and address of each referral agency is as follows:
Nil.
3. The Chief Executive, Department of Environment and Resource Management (DERM) decision notice, for the aspect of development involved with the application the subject of this Notice is as follows —
- the application was decided on 01 September 2011 and is approved subject to conditions; and
 - the application is approved subject to the conditions attached to this Notice, and the conditions are stated to be assessment manager conditions.

4. Any other development permits or compliance permits necessary to allow the aspect of development the subject of this Notice to be carried out are stated below.

Nil.

5. Any code the applicant must comply with for self-assessable development related to the aspect of approved development the subject of this Notice is stated below.

Nil.

6. Details of any compliance assessment required under chapter 6, part 10 of the Act for documents or work in relation to the aspect of development the subject of this Notice are stated below.

Nil.

7. The assessment manager considers the assessment manager's decision for the aspect of development the subject of this Notice does not conflict with a relevant instrument.

8. Information about the rights of appeal for the applicant any submitters are attached to this Notice.

10. **Approved plans and specifications**

Document No.	Document Name	Date
60190304-0004 Rev C	TRUNK SEWER & TEMPORARY PUMP STATION – STAGE 1, TEMPORARY PUMP STATION, GENERAL ARRANGEMENT	11/03/2011

[REDACTED]
[REDACTED]
Delegate of the Chief Executive administering
Environmental Protection Act 1994
Department of Environment and Resource Management
1 September 2011

Enquiries:

[REDACTED]
Department of Environment and Resource
Management
1/114 Brisbane Street, IPSWICH QLD 4305
PO Box 864, IPSWICH QLD 4305
Phone: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]

Attachments

- DERM Permit No. SPDE01935111
- Approved plans and specifications
- Information Sheet – Appeals – *Sustainable Planning Act 2009* (extract from the *Sustainable Planning Act 2009*)

Permit

Sustainable Planning Act 2009

DERM Permit¹ number: SPCE00410110

This notice is issued by the Department of Environment and Resource Management pursuant to section 287 of the Sustainable Planning Act 2009 ("the Act").

Assessment manager reference (if any):	1989/2010/CA
Date application received:	06 May 2010
Permit type:	Concurrence Agency Response for a Material Change of Use involving an Environmentally Relevant Activity
Date of decision:	23 December 2010
Decision:	<p>The Chief Executive, Department of Environment and Resource Management (DERM) concurrence agency response for the concurrence agency referral jurisdiction for the aspect of development involved with the application the subject of this Notice is to tell the assessment manager as follows.</p> <p>(a) the application is approved subject to conditions; and</p> <p>(b) conditions must attach to any development approval, and those conditions are attached to this Notice.</p>
Relevant laws and policies:	<p><i>Environmental Protection Act 1994</i> <i>Environmental Regulation 2008</i> <i>Environmental Protection (Air) Policy 2008</i> <i>Environmental Protection (Noise) Policy 2008</i> <i>Environmental Protection (Waste Management) Policy 2000</i> <i>Environmental Protection (Waste Management) Regulation 2000</i> <i>Environmental Protection (Water) Policy 2009</i> <i>Sustainable Planning Act 2009</i> <i>Sustainable Planning Regulation 2009</i></p>
Jurisdiction(s):	<p>Material change of use - Environmentally relevant activities <i>Sustainable Planning Regulation 2009</i> - Schedule 7, table 2, item 1.</p>

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management.

Development Description(s)

Property	Lot/Plan	Aspect of Development
1 Lower Cross Street, GOODNA QLD 4300	Lot 1 Plan RP887551	ERA 8 Chemical storage Threshold 5 - storing 200m ³ or more of chemicals that are liquids, in containers of at least 10m ³ , other than chemicals mentioned in items 1 to 3 ERA 63 Sewage treatment Threshold 2(f) - operating sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 50000EP to 100000EP.

Reason(s) for inclusion of conditions

In accordance with section 289 of the *Sustainable Planning Act 2009*, the reason(s) for inclusion of conditions stated in this approval required by the concurrence agency response for the application are as follows.

The conditions are included pursuant to section 73B of the *Environmental Protection Act 1994*.

- considered by the administering authority to be necessary and desirable to ensure the protection of the environment and prevent environmental harm from occurring as a result of the activity;
- are required to be included by the administering authority by regulatory requirement;
- require —
 - plant or equipment to be installed and operated in a particular way;
 - measures to be taken to minimise the likelihood of environmental harm being caused;
 - carrying out and reporting of monitoring program;
 - the provision of relevant information reasonably required by the administering authority for the administration or enforcement of this Act; and
 - prohibit the changing, replacement or operating of any plant or equipment associated with the activity if the change, replacement or operation increases, or is likely to substantially increase, the risk of environmental harm.

This approval has been drafted so that —

- the conditions are relevant to, but not an unreasonable imposition, on the development; and
- the conditions are reasonably required in relation to the development.

This approval consists of the following schedules —

- Schedule A: General
- Schedule B: Air
- Schedule C: Land
- Schedule D: Noise
- Schedule E: Water
- Schedule F: Waste
- Schedule G: Definitions

Additional information for applicant

Contaminated Land

It is a requirement of the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware a notifiable activity (as defined by Schedule 2 of the *Environmental Protection Act 1994*) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 22 business days after becoming so aware, give notice to the administering authority.

Duty to notify environmental harm

Section 320 of the *Environmental Protection Act 1994* requires a person to notify the administering authority if the person becomes aware that an activity (whether by act or omission) has caused, or threatened, unlawful material or serious environmental harm. It is an offence to fail to notify in accordance with this section, and the duty extends to all persons (including employers and employees). This obligation exists irrespective of any conditions forming part of DERM's concurrence agency response.

Environmentally Relevant Activities

The aforementioned description of any environmentally relevant activity (ERA) for which this permit is issued is simply a restatement of the ERA as prescribed in the legislation at the time of issuing this permit. Where there is any conflict between the abovementioned description of the ERA for which this permit is issued and the conditions specified herein as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This permit authorises the ERA. It does not authorise environmental harm unless a condition within this permit explicitly authorises that harm. Where there is no such condition, or the permit is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

In addition to this permit, the person to carry out the ERA must be a registered operator under the *Environmental Protection Act 1994*. For the person to become a registered operator, they must apply to the administering authority for a registration certificate under section 73F of the *Environmental Protection Act 1994*.

Trackable Waste

Where regulated waste is removed from site, the registered operator must monitor and keep records in accordance with schedule 2 of the *Environmental Protection (Waste Management) Regulation 2000* – Prescribed information for waste tracking.



Delegate of Administering Authority

Department of Environment and Resource Management
23-DEC-2010

CONDITIONS

Schedule A: General

General 1 This approval authorises the construction and operation of a sewage treatment plant with a maximum daily treatment design capacity of 90,000 equivalent persons (EP) at 1 Lower Cross Street, Goodna QLD 4300 (Lot 1 RP887551).

Prevent or minimise likelihood of environmental harm

General 2 In carrying out the activity to which this approval relates, all reasonable and practical measures must be taken to prevent or minimise the likelihood of environmental harm being caused.

Maintenance of measures, plant and equipment

General 3 Any person undertaking an activity to which this approval relates must —

- install and operate all measures, plant and equipment necessary to ensure compliance with the conditions of this approval;
- maintain all measures, plant and equipment in a proper and efficient condition; and
- operate such measures, plant and equipment in a proper and efficient manner.

Records

General 4 If a condition of this approval requires the person undertaking the activity to which this approval relates to make or keep a record (however described), or prepare a document², the person must —

- keep the record or document at the approved place;
- keep the record or document in a place that is accessible by all persons engaged in the activity;
- produce the record or document for inspection by an authorised person or the administering authority for inspection if requested;
- for each document or record made or created in response to a monitoring requirement, reporting requirement, investigation or incident — keep the record for a minimum of five (5) years from the date the document is made or created;
- if the record or document is sent (in any form) to the administering authority — keep a copy of the document at the approved place in a way that is accessible to any person engaged in the activity at the approved place.

Copy of development approval must be kept at approved place

General 5 A copy of this development approval must be kept at the approved place.

Site Based Management Plan

General 6 From commencement of the activity to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review and continual improvement in the overall environmental performance of all activities that are carried out.

² Note: Unless a condition of this approval requires a document to be made or kept in a specific format (e.g. in hardcopy), the *Electronic Transactions (Queensland) Act 2001* applies to the document.

The Site Based Management Plan must provide for at least the following functions —

- (a) staff training in awareness of the environmental issues related to the activities and operational procedures and responsibilities for minimising potential impacts;
- (b) an environmental policy and commitments to best practice environmental management of the activities including specific performance targets and objectives;
- (c) control procedures to be implemented for routine operations for day to day activities to minimise the likelihood of environmental harm, however occasioned or caused;
- (d) contingency plans and emergency procedures to be implemented for non-routine situations to deal with foreseeable risks and hazards, including corrective responses to prevent and mitigate environmental harm (including any necessary site rehabilitation);
- (e) organisational structure and responsibility to ensure that roles, responsibilities and authorities are appropriately defined to ensure effective management of environmental issues;
- (f) effective communication procedures to ensure two-way communication on environmental matters between operational staff and higher management;
- (g) monitoring of contaminant releases to the environment including procedures, methods and record keeping and investigation into the environmental impact of any release that causes or is likely to cause serious or material environmental harm;
- (h) the periodic review of environmental performance and procedures, not less frequently than annually; and
- (i) a program for continuous improvement.

General 7 The contingency plans and emergency procedures required to be included in the SMBP must address the following measures —

- (a) the location of any overflow structures;
- (b) procedures to be implemented to reduce the likelihood of any pump failure and the likelihood of any release of contaminants;
- (c) response procedures to prevent any further release, or if not practical, to minimise the extent and duration of any release;
- (d) the practices and procedures to be employed to address any contaminants that have been released, or if not practicable, measures that will be employed to mitigate any further environmental impacts of the release (these actions must also take into account wet and dry weather conditions);
- (e) a description of the resources that will be available in the event of a release outside that permitted by this approval;
- (f) ensuring that these resources will be available and operational in the event of a release;
- (g) training of any persons that may be called upon to respond to any such incident;
- (h) procedures to investigate the cause of any release;
- (i) remedial procedures that will be put in place to address any environmental harm that may have occurred as the result of any release;
- (j) the provision of documented procedures to staff likely to attend any release that will allow them to respond accordingly; and
- (k) timely and accurate reporting of the circumstances and nature of release events to the administering authority.

Equipment Calibration

General 8 All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this approval must be calibrated, and appropriately operated and maintained.

Monitoring

General 9 A competent person(s) must conduct any monitoring required by this approval.

Annual Monitoring Report

General 10 An annual monitoring report, which includes the following information, must be prepared and submitted once in each period of 1 year on the annual return date, in hardcopy format or another format approved by the administering authority³ —

- (a) a summary of the previous twelve (12) months monitoring results obtained under any monitoring programs required under this approval and, in graphical form showing relevant limits, a comparison of the previous twelve (12) months monitoring results to both the limits in this approval and to relevant prior results;
- (b) an evaluation and explanation of the data from any monitoring programs;
- (c) a summary of any record of quantities of releases required to be kept under this approval;
- (d) a summary of the record of equipment failures or events recorded for any site under this approval made under condition General 13(a);
- (e) an outline of actions taken or proposed to minimise the environmental risk from any deficiency identified by the monitoring or recording programs; and
- (f) a summary of any trade waste agreements entered into or amended during the year, including the nature of the industry.

Trained and Experienced Operator(s)

General 11 The daily operation of the waste water treatment system and any associated pollution control equipment must be carried out by a person(s) with appropriate experience or qualifications to ensure the effective operation of that treatment system and control equipment.

Notification of unlawful discharges, environmental incidents and equipment malfunctions

General 12 The person undertaking the activity to which this approval relates must notify the administering authority within 24 hours if one or more of the following events occur (unless such notification has been made under section 320 (Duty to notify environmental harm) of the *Environmental Protection Act 1994*), and keep a record of such notification taking place —

- (a) if monitoring results reveal exceedence against release quality characteristics mentioned for treated wastewater that may be released to waters under this approval;
- (b) of any discharge event to land or waters arising from the activity to which this approval relates other than through the designated discharge point — any spill involving 5,000L or more of raw wastewater or treated wastewater;
- (c) any fire, explosion, accident or failure in any chemical storage area or involving any chemical delivery system resulting in a discharge of contaminants to land or waters (even if the contamination is contained within the approved place); or

³ Monitoring data that is submitted to electronically to the administering authority in accordance with condition General 10 does not need to be re-submitted in hardcopy format with the annual report. Submission of monitoring data in electronic format does not alleviate the obligation to notify the administering authority of any specific non-compliance required under another condition of this approval. Also, note that monitoring data may be supplied to another person, including a third party.

- (d) any act of malicious damage to the sewage treatment plant or associated infrastructure that may result in failure in one or more systems at the site or may cause a release of contaminants contrary to conditions Land 1 or Water 1.

General 13 A record must be made of the following events —

- (a) the time, date and duration of equipment malfunctions or failure where the malfunction results in the release of contaminants to the environment outside the quality characteristics permitted to be released by the conditions of this approval (whether at the discharge point or another place); or
- (b) any uncontrolled release of contaminants, including an estimate of the volume of contaminants released in the event.

Spills

General 14 Any spillage of regulated waste or chemicals must be cleaned up as soon as practicable after the spillage event.

Spill kit

General 15 An appropriate spill kit, protective equipment and relevant operator instructions and emergency procedures or guidelines for the management of wastes and chemicals associated with the activity to which this approval relates must be available to employees on site at all times.

Spill kit training

General 16 Any person engaging in the activity to which this approval relates must be trained in the use of the spill kit and the emergency guidelines.

Alarms to be operable without mains power

General 17 All alarms must be able to operate without mains power.

Notification of commissioning of upgraded sewage treatment plant

General 18 The person undertaking the activity to which this approval relates must notify the administering authority in writing of the commissioning of the Goodna STP Stage 4A within five (5) business days after it is commissioned.

Flood Line Immunity

General 19 All structures associated with the Goodna STP Stage 4A built after this approval takes effect (excluding pipes servicing discharge infrastructure) must be constructed in a way that achieves Q100 flood line immunity.

General plant layout to conform to plans

General 20 The layout of all fixed infrastructure that may release contaminants that is built after this approval takes effect must conform to the plan Goodna STP Stage 4A Site Plan, IW-GDSTP-4A-CIV-1100-0010 comprising Attachment 1 of this approval.

Schedule B: Air

Dust or particulate matter during building work

- Air 1** The release of dust or particulate matter resulting from building works from the activity to which this approval relates must not cause, or be likely to cause, an environmental nuisance at or beyond the boundary of the approved place.
- Air 2** Subject to condition Air 3, the dust deposition rate and concentration of PM₁₀ or PM_{2.5} must not, during building work associated with the activity to which this approval relates, exceed the limits specified in Table 1 for the contaminant when measured from a nuisance sensitive or commercial place in accordance with the measurement method specified in the table.

Table 1: Limits on dust deposition rate and concentration of particulate matter

Contaminant	Measure	Limit	Measurement method
Dust	Deposition rate	120 mg/m ² /day	Australian Standard AS3580.10.1 of 2003 (or more recent editions)
PM ₁₀	Concentration	50µg/m ³ averaged over 24 hours	Either of the following — (a) AS 3580.9.6 of 2003 (or more recent editions); or (b) AS3580.9.7 of 2009 (or more recent editions).
PM _{2.5}	Concentration	25µg/m ³ averaged over 24 hours	Either of the following — (a) AS 3580.9.10 of 2006 (or more recent editions); or (b) AS3580.9.7 of 2009 (or more recent editions).

Note:

- Australian Standard AS 3580.9.6 of 2003 (or more recent editions) Ambient air – Particulate matter – Determination of suspended particulate matter PM₁₀ high volume sampler with size-selective inlet – Gravimetric method.
- Australian Standard AS 3580.9.10 of 2006 (or more recent editions) ‘Ambient air – Particulate matter – Determination of suspended particulate matter PM_{2.5} low-volume sampler – Gravimetric method.
- Australian Standard AS3580.9.7 of 2009 (or more recent editions) ‘Ambient air – Particulate matter – Determination of suspended particulate matter – Dichotomous sampler (PM₁₀ and PM_{2.5}) – Gravimetric method.

- Air 3** If the Air Quality Sampling Manual (however described), published by the Queensland Government from time to time for the purpose of measuring or monitoring compliance with the *Environmental Protection Act 1994* specifies an alternative sampling protocol for PM₁₀ or PM_{2.5} — the concentration of the contaminant for the purposes of compliance with condition Air 2 may be determined using that protocol.
- Air 4** Despite condition General 3, the person undertaking the activity to which this approval relates is required to install equipment to measure the dust deposition rate or the concentration of particulate matter (PM₁₀ or PM_{2.5}) for condition Air 2 only if directed in writing by the administering authority to undertake monitoring for those contaminants.
- Air 5** Landscaping or revegetation must be undertaken to stabilise all exposed surfaces to prevent emissions to air as part of, or as soon as practicable following cessation of, building work.

Noxious or offensive odours

- Air 6** The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity to which this approval relates must not cause, or be likely to cause, a nuisance at or beyond the boundary of the approved place.

Reasonable adjustment of practices, procedures or infrastructure for resolving nuisance complaints

Air 7 The person undertaking the activity to which this approval relates must investigate, or commission the investigation of, any complaints of nuisance caused by noxious or offensive odours and, if those complaints are validated, make reasonable adjustments to processes or equipment to prevent a recurrence of odour nuisance.

Monitoring obligations in respect to air quality

Air 8 The person undertaking the activity to which this approval relates must, if directed in writing by the administering authority, undertake or commission the undertaking of odour monitoring for contaminants released from the approved place at the site and other locations relevant to ascertaining the odour at affected premises.

Air 9 The person undertaking the activity to which this approval relates must install a monitoring station, in accordance with Australian Standard AS2923 — 1987 (Ambient air – guide for measurement of horizontal wind for air quality applications) (or a later standard), to record and log the following parameters —

- barometric pressure;
- humidity;
- temperature; and
- wind speed and direction.

Schedule C: Land

Release of treated effluent to land

- Land 1** Unless expressly permitted under condition Land 2 of this approval and subject to any exemption, restriction or proviso about the release of the contaminant under that condition, contaminants must not be released to land.
- Land 2** Treated wastewater, sourced post disinfection, may be spray or drip irrigated for landscape maintenance on Lot 1 RP887551, if all the following apply —
- (a) no wastewater is released, or accumulated, within 10m of the property boundary;
 - (b) no wastewater is released within 30m of any watercourse;
 - (c) spray from irrigated effluent does not leave the boundary of the approved place;
 - (d) the public is excluded from the irrigation area, and signs are prominently displayed indicating that the area is being irrigated with effluent, to avoid contact with the water and not to drink it;
 - (e) vegetation is not damaged;
 - (f) there is no surface ponding of wastewater;
 - (g) the capacity of the land onto which the wastewater is irrigated to assimilate nitrogen, phosphorous, salts or other organic matter is not exceeded; and
 - (h) the quality of groundwater is not affected by the irrigation.
- Land 3** All valves or release pipes situated in areas intended for use by the public must be fitted with lockable valves or removable handles to prevent accidental exposure or release.
- Land 4** Sludges must not be —
- (a) disposed of on site; or
 - (b) stored any longer that is necessary to de-water the sludge for transportation off-site to a facility lawfully able to accept such wastes.

Provision of Treated Effluent to Other Person(s)

- Land 5** The quality of treated wastewater given to another person for irrigation or other use must comply with the release quality characteristics specified —
- (a) if the treated wastewater is to be used for a purpose to which the *Water Supply (Safety and Reliability) Act 2008* applies — with the standard specified in that Act taking into account the water's intended use; or
 - (b) for another purpose — only if the treated wastewater meets the release quality characteristics for discharge to waters mentioned in condition Water 2.
- Land 6** If the person undertaking the activity to which this approval relates gives or transfers ownership of the treated sewage effluent to another person(s) ("the third party"), the person undertaking the activity to which this approval relates must —
- (a) prior to giving such effluent or transferring ownership of such effluent to the third party, obtain from the third party details of how they will comply with the general environmental duty (GED) provided for by section 319 of the Act in respect of the use and disposal of such effluent, particularly in relation to the environmental sustainability of any effluent disposal, protection of public health and protection of environmental values of water; and
 - (b) only give or transfer ownership of such effluent on accordance with a written agreement between the person undertaking the activity to which this approval relates and the third party;
 - (c) include, in any third party agreement, the provision that supply of treated wastewater may be

discontinued at any time if the supplier reasonably believes that the third party is utilising treated wastewater in a way that may cause environmental harm, or is otherwise not complying with the GED; and

- (d) if the person becomes aware that the person is not or is not likely to comply with the general environmental duty provided by section 319 of the Act, cease the giving and transferring ownership of such effluent.

Note 1: Any recycled water management plan approved under the Water Supply (Safety and Reliability) Act 2008 that fulfils the above requirements is deemed to achieve compliance with this condition.

Erosion Control

- Land 7** Erosion protection and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment during all building works at the site.
- Land 8** The size of any sedimentation dam or pond must be sufficient to contain the run-off expected from a 24 hour storm with an average recurrence interval (ARI) of 1 in 5 years.

Acid Sulphate Soils

- Land 9** Acid sulphate soils must be managed so that contaminants are not directly or indirectly released to any waters.
- Land 10** All ponds used for the storage or treatment of acid sulphate soils or other contaminants must be constructed, installed and maintained —
 - (a) so as to prevent any release of contaminants through the bed or banks of the pond to any waters (including ground water);
 - (b) so that a freeboard of not less than 0.5 metres is maintained at all times; and
 - (c) so as to ensure the stability of the ponds' construction.
- Land 11** Suitable banks or diversion drains must be installed and maintained to exclude stormwater runoff from entering any ponds or other structures used for the storage or treatment of contaminants including acid sulphate soils or wastes.
- Land 12** Any temporary or permanent dewatering ponds or water bodies used to contain or treat acid sulphate soils must not be constructed within 50 metres of a watercourse.

Bunding

- Land 13** All chemical tank storages must be banded so that the capacity of the bund is sufficient to contain at least one hundred per cent (100%) of the largest storage tank plus ten per cent (10%) of the second largest tank within the bund.
- Land 14** All chemical drum storages must be banded so that the capacity of the bund is sufficient to contain at least twenty five per cent (25%) of the maximum design storage volume of the bund.
- Land 15** All tanker loading and unloading areas must be banded so that the capacity of the bund is sufficient to contain one hundred per cent (100%) of the largest compartment of any tanker using the area.
- Land 16** All bunding must be constructed of materials which are impervious to the materials stored within it.
- Land 17** The base and walls of all banded areas must be maintained free from gaps and cracks.

- Land 18** All fixed chemical storage tanks must be roofed.
- Land 19** Any stormwater captured within any bund must be free of contaminants prior to being discharged to a stormwater detention pond or irrigated to land.
- Land 20** All empty drums must be stored with their closures in place.

Schedule D: Noise

Noise limits and monitoring

Noise 1 Subject to condition Noise 2, the sound pressure level dB(A) from the activity to which this approval relates, but excluding noise from building works⁴ associated with the activity, must not exceed the maximum compliance limit specified in the following table when measured using the acoustic descriptor, and at the location, specified in the table⁵ —

Sound pressure (dB(A) measured as	Location of measurement	Maximum compliance limit (dB(A))
$L_{A10, 10 \text{ min}}$	At or beyond the boundary of the approved place	54
$L_{A10, \text{ adj, } 10 \text{ min}}$	Measured at a nuisance sensitive receptor	47

Noise 2 The limits in condition Noise 1 relating to noise measured at a nuisance sensitive place apply —

- to any nuisance sensitive place (other than a nuisance sensitive place situated within the boundaries of the approved place) at the time this approval takes effect; or
- to a nuisance sensitive place built or constructed after the date this approval takes effect — if the nuisance sensitive place is at least the same distance from the approved place as a nuisance sensitive place to which paragraph (a) applies.

Administering authority may require noise monitoring to be undertaken

Noise 3 If directed by the administering authority, noise monitoring, which addresses the following issues, must be undertaken to investigate any complaint of noise nuisance, and the results notified within 14 days to the administering authority —

- background noise;
- $L_{A10, \text{ adj, } 10 \text{ mins}}$;
- $L_{A1, \text{ adj, } 10 \text{ mins}}$;
- $L_{Aeq, \text{ adj, } 10 \text{ mins}}$;
- the level and frequency or occurrence of impulsive or tonal noise;
- atmospheric conditions including wind speed and direction;
- effects due to extraneous factors such as traffic noise; and
- location, date and time of recording.

Noise 4 The method of measurement and reporting of noise levels must comply with the latest edition of the administering authority's Noise Measurement Manual.

⁴ Note: Section 440R of the *Environmental Protection Act 1994* limits the hours at which building work causing an audible noise may be undertaken, and applies to building work undertaken as part of the activity to which this approval relates.

⁵ Note: If the sound pressure level emitted from the activity to which this approval relates complies with the limits specified in condition Noise 1, any environmental nuisance caused by that noise is not unlawful environmental harm (see section 493A of the *Environmental Protection Act 1994*).

Obligation to investigate complaints noise nuisance

Noise 5 Subject to condition Noise 6, the person undertaking the activity to which this approval relates must investigate, or commission the investigation of, all complaints alleging noise nuisance⁶ from the activity to which this approval relates.

Noise 6 The obligation for the person undertaking the activity to which the approval relates to investigate a nuisance complaint is extinguished if all the following apply —

- (a) the facts and circumstances forming the basis for the complaint are substantially the same as those alleged in a former complaint by the same complainant;
- (b) the results of an investigation into the former complaint was that the complaint cannot be substantiated; and
- (c) the administering authority or an authorised person has not, by written notice, otherwise revived the obligation to investigate the complaint.

Reasonable adjustment for validated nuisance complaints

Noise 7 The person undertaking the activity to which this approval relates must make reasonable adjustment⁷ of practices, procedures or equipment to resolve any validated complaint investigated under condition Noise 5.

Examples of a reasonable adjustment include —

- (a) changing the times of the day at which particular actions giving rise to the complaint happen;
- (b) replacing acoustic housing of equipment; or
- (c) enclosing, covering or closing open or exposed infrastructure if enclosing, covering or closing the infrastructure would not compromise or reduce its effectiveness.

⁶ The form of any investigations made under condition Noise 5 should be sufficient to enable a conclusion about the validity of the complaint to be made, but do not necessarily require formal noise monitoring in the form required under condition Noise 3.

⁷ See section 319 of the *Environmental Protection Act 1994* (General environmental duty) for things that must be considered in determining whether a change is a reasonable adjustment.

Schedule E: Water

Contaminants - Treated effluent and other material

- Water 1** Unless expressly permitted under conditions Water 2 to Water 6 of this approval, and subject to all restrictions or provisos relating to the release of contaminants stated in those conditions, contaminants must not be released to waters.
- Water 2** Treated wastewater may be released to waters at release point W1 located in the Brisbane River at AMTD 66.2km, adjacent to land described as Lot 1 on RP887551 if —
- (a) for flows up to three (3) times average dry weather flow (ADWF) — the treated wastewater complies with the release quality characteristics for treated wastewater specified in —
 - (i) for discharges occurring before Goodna STP Stage 4A is commissioned — Appendix 1; or
 - (ii) for discharges occurring after Goodna STP Stage 4A is commissioned — Appendix 2.
 - (b) for flows greater than 3 times average dry weather flow that bypass the primary treatment train — the wastewater has passed through 5mm screens and have grit removed prior to discharge.
- Water 3** Treated wastewater may be released to waters at release point W2 located in Goodna Creek at 0.6km AMTD, adjacent to land described as Lot 1 on RP887551 from the Permeate Flow-Splitter Tank, when all the following apply —
- (a) the treated wastewater cannot otherwise be discharged through release point W1;
 - (b) the flood water level in the Brisbane River is at R.L. 8.2m or higher;
 - (c) the treated wastewater complies with the release quality characteristics for treated wastewater stated in —
 - (i) for discharges occurring before Goodna STP Stage 4A is commissioned — Appendix 1; or
 - (ii) for discharges occurring after Goodna STP Stage 4A is commissioned — Appendix 2.

Toxicity of effluent (Acute and Chronic)

- Water 4** There must be no discharge of any contaminants to any waters where the no observed effect concentration (NOEC) for acute toxicity tests to any test organisms in a direct toxicity assessment (DTA) is observed at less than a 50% effluent concentration.
- Water 5** There must be no discharge of any contaminants to any waters where the NOEC for chronic toxicity tests to any test organisms in DTA is observed at less than a 25% effluent concentration.

Other characteristics and properties of treated wastewater at discharge point

- Water 6** Notwithstanding other conditions of this approval, treated wastewater discharged to waters —
- (a) must not have any properties or contain any organisms or other contaminants at a concentration that are capable of causing environmental harm; and
 - (b) must not produce any slick or other visible evidence of oil or grease, or contain visible floating oil, grease, scum, litter or other objectionable matter.

Programmed direct toxicity assessment (DTA)

- Water 7** The person undertaking the activity to which this approval relates must undertake, or commission the undertaking of, a Direct Toxicity Assessment (DTA) for treated wastewater being discharged through release point W1, at the following times —

- (a) 12 months after the commissioning of Goodna STP Stage 4A;
- (b) 24 months after the commissioning of Goodna STP Stage 4A; and
- (c) thereafter — once in each period of 2 years (or a longer period approved in writing by the administering authority.)

Direct toxicity assessment (DTA) procedures

Water 8 If the person undertaking the activity to which this approval relates is required to undertake a DTA under a condition of this approval, the DTA procedure must —

- (a) determine, using appropriate measures and protocols, the dilutions of effluent where the concentrations of toxicants in treated effluent are acutely toxic or chronically toxic to the test biota, including —
 - (i) specifying the appropriate test organisms to be utilised for DTA testing, in accordance with Section 8.3.6.8 of the ANZECC 2000 Guidelines, to provide an accurate indication of actual and chronic toxic effects in the receiving waters, taking into consideration locally occurring species⁸, and the nature of any change being investigated;
 - (ii) describing the basis for selection and characterisation of environmental waters for dilution of the effluent;
 - (iii) characterisation of the effluent waste stream, including potential toxicants present;
 - (iv) acute and chronic DTA testing conducted on end-of-pipe effluent discharged;
 - (v) identifying DTA end-points (including NOEC and LOEC);
 - (vi) describing quality assurance or quality control for samples and DTA test procedures; and
 - (vii) Applicable Toxicity Identification Evaluation (TIE) procedures to be followed should the administering authority require such an evaluation;
- (b) report DTA procedure results promptly to the administering authority, which must include —
 - (i) NOEC for all bioassay results;
 - (ii) LOEC for all bioassay results;
 - (iii) all relevant samples collection information for the effluent test sample and receiving environment dilution water;
 - (iv) timing of effluent test sample collection in relation to process performance;
 - (v) details of any manipulation of the test sample or receiving environment dilution water;
 - (vi) details of sample handling procedures, including delivery of samples;
 - (vii) results of the chemical analysis of the test sample for known toxicants of concern, receiving environment dilution water, and the test water for each of the dilutions;
 - (viii) time between test sample collection and commencement of the DTA procedure; and
 - (ix) interpretation of the results.
- (c) report on the progress or results of DTA testing to the administering authority no more than 20 business days following the initial results of the toxicity assessment.

Water 9 The DTA procedure must be designed and performed by a suitably qualified person, and the terms or that procedure given to the administering authority.

Response to any DTA revealing toxicity in effluent

Water 10 Where a DTA has demonstrated observable toxicological effects not compliant with Water 4 or Water 5, the person undertaking the activity to which this approval relates must —

⁸ Where locally occurring species cannot be sourced for DTA, substitute species are acceptable.

- (a) immediately advise the administering authority;
- (b) promptly investigate the toxicity results by —
 - (i) identifying any trend or excessive presence in any contaminant likely to cause the observed toxicity;
 - (ii) notify the administering authority of the causative agent for the observed increase in toxicity; and
 - (iii) take measures to reduce the toxicity of the effluent to a level where the compliance is achieved with conditions Water 4 and Water 5, or if compliance cannot be achieved using reasonable and practicable measures, the person must —
 - 1. sample and model dispersion of contaminants from release point W1 in the water column, to determine and confirm the extent of the acute or chronic toxicity zone; and
 - 2. submit within 3 months of receipt of results of the DTA a report, to the administering authority, describing the findings of that study and options to reduce the size of the acute or chronic toxicity zones, taking into account the NOEC and LOEC of treated wastewater being discharged through release point W1 (e.g. installation of a diffuser at the discharge point).

Water 11 The person undertaking the activity to which this approval relates does not contravene conditions Water 4 or Water 5 in the circumstances, and for the period, mentioned under condition Water 10(b)(iii)(1) and (2) while compliance with that condition is achieved.

Maximum limits and range values

Water 12 Despite condition Water 2 and Water 3, if the release quality characteristics for treated wastewater, following commissioning of the Goodna STP Stage 4A, specify a maximum compliance limit and other compliance limits, only the maximum compliance limit and the limit for pH applies —

- (a) for contaminants other than Ammonia - Nitrogen — for the first 6 months after the commissioning date; or
- (b) for Ammonia - Nitrogen — for the first 14 months after the commissioning date.

Manual analysis only used for testing compliance with water quality discharge limits

Water 13 Only samples of treated wastewater that are manually collected and analysed by a NATA certified laboratory are to be used for the purposes of determining whether the wastewater meets the release quality characteristics specified in this approval.

Investigation of cause of non-compliant treated wastewater reported by on-line analysers

Water 14 A procedure must be developed, and implemented, at the approved place to investigate and respond to any alarm or event where on-line analysers (whether or not the on-line analyser is required for compliance with a condition of this approval or otherwise) show treated wastewater does not conform, or is unlikely to conform, to release quality characteristics specified for the discharge of treated wastewater under condition Water 2 of this approval.

Monitoring protocols

Water 15 All determinations of the concentrations of contaminants in wastewater must be —

- (a) made in accordance with methods prescribed in the latest edition of the administering authority's water monitoring and sampling manual⁹ (however described); and

⁹ At the date of this approval, the *Monitoring and Sampling Manual 2009* describes the prevailing standard.

- (b) carried out on samples that are representative of the discharge.

Note: BOD and Ammonia-Nitrogen concentrations must be determined using composite samples involving 8 aliquots taken at 15 minute intervals over a 2 hours period where the discharge characteristics, taking into account variations in diurnal flow, are representative of concentrations of those contaminants on a dry weather day.

Monitoring parameters for treated wastewater

Water 16 The person undertaking the activity to which this approval relates must monitor treated wastewater at the frequency, and for the parameters (“release quality characteristics”), mentioned in —

- (a) before the commissioning of Goodna STP Stage 4A — Appendix 1; and
(b) after the commissioning of Goodna STP Stage 4A — Appendix 2.

Water 17 Samples that are taken for the purposes of determining compliance with the release quality characteristics of this approval must be taken —

- (a) before the commissioning of Goodna STP Stage 4A — at the open channel past the permeate flow splitter tank; and
(b) after the commissioning of the Goodna STP Stage 4A — at the effluent standpipe located on the outfall pipeline treated wastewater flow to the permeate flow splitter tank identified on drawing IW-GDSTP-4A-CIV-1100-1403, Revision P3 titled “Major Process Pipework Layout Plan” Sheet 3 of 4, comprising Attachment 2 of this approval.

Water 18 Despite conditions Water 16 and Water 17, if no discharge is occurring at the time when monitoring is to be undertaken in accordance with the conditions of this approval —

- (a) samples of treated wastewater must be taken;
(b) samples of treated wastewater may be taken from a point that will provide an indicative representation of the treated wastewater that would be discharged if, at that time, treated wastewater was being discharged; and
(c) the results of monitoring collected for the under this conditions must be reported as “non-discharge” samples in monitoring reports.

Monitoring of flows of treated wastewater

Water 19 The daily volume of treated wastewater released to waters must be determined by one or more flow meters and records kept of such determinations.

Calculation and Recording of Nutrient Loads Released to Waters

Water 20 The person undertaking the activity to which this approval relates must calculate, using the following methods, and keep records of monthly and annual loads of total nitrogen and total phosphorus in treated wastewater released to waters from discharge point W1 —

- **Monthly Load** = the sum of all the daily flows times the median concentration for that month;
- **Annual Load** = the sum of the monthly loads for the annual reporting period.

Note: The measured concentration of the nutrient is from the flow weighted composite sample taken that day or on the most recent sampling occasion if not taken that day.

Disinfection

Water 21 Following commissioning of the Goodna STP Stage 4A, disinfection of treated wastewater must be undertaken using non-chemical methods.

Recording of bypassed flows

Water 22 The quantity of bypassed flows must be measured and recorded for each bypass event.

Contingency planning for influent variation

Water 23 The person undertaking the activity to which this approval relates must calculate, using one or more flow meters, the average daily inflow to the sewage treatment plant based on the previous twelve month period, and must investigate any event where abnormally low flows occur into the sewage treatment plant that persist for more than ten (10) consecutive days.

Water 24 A record must be made of the results of any such investigation, including any corrective actions to pipes or other ancillary infrastructure¹⁰.

Information about the release point

Water 25 Release point W1 must be submerged such that the top of the outfall pipe is at least 0.5 metres below the Low Water Datum level in the Brisbane River.

Water 26 Infrastructure for the discharge of treated wastewater at release point W1 must not be altered or replaced if the alteration or replacement of the infrastructure would result in an increase in the size of the acute or chronic toxicity zone.

Influent quality and treatment train critical assessment

Water 27 An influent quality and treatment train assessment must be undertaken to determine the potential toxicity of effluent discharge before accepting any new source of trade waste or a change to any factor in the treatment train process that may result in an increased toxicological effect to aquatic organisms in the receiving environment, and records kept of such assessments.

Water 28 To remove any doubt, an assessment made for another purpose (whether or not that assessment is made for the purposes of compliance with any law of the State) that meets the content requirements of condition Water 27 is taken to comply with that condition to the extent the condition relates to the obligation to undertake the assessment.

Water 29 Where the assessment undertaken in accordance with condition Water 27 indicates that an increase in the toxicological effect on aquatic organisms is likely, and the change giving rise to that assessment is undertaken, a direct toxicity assessment (DTA) must be undertaken, taking into account the nature of the change, and the results of that DTA reported to the administering authority in writing.

Release Reduction Strategy

Water 30 The person undertaking the activity to which this approval relates must develop and implement an on-going strategy to maximise wastewater re-use and minimise the release to waters from the activity to which this approval relates that addresses the following matters —

- (a) implementation of re-use schemes to achieve maximum reuse of treated wastewater;
- (b) specific targets for achieving increased re-use of wastewater;
- (c) a market analysis at least every three years to identify existing and future opportunities for wastewater re-use;

¹⁰ Note: The *Environmental Protection Act 1994*, section 320, applies to any event where unlawful serious or material environmental harm has occurred, or is threatened.

- (d) on-going review of emerging technologies or re-use options that could achieve significant reductions in mass loads of contaminants released to the environment;
- (e) investigation of the feasibility of alternative options, practices and procedures to further minimise the volume and concentration of contaminants released to waters; and
- (f) programs to implement feasible options to achieve increased wastewater re-use and reduction in contaminant loads, including actions and timeframes for completion.

Water 31 To remove any doubt, a regional strategy (where the geographic coverage of that regional strategy to maximise wastewater re-use includes the approved place) that meets the content requirement of condition Water 30 is taken to fulfil the requirements of that condition.

Far-field Monitoring Program (FFMP)

Water 32 A Far-field Monitoring Program (FFMP) must be implemented, to monitor the effects of the release of contaminants from the Goodna Sewage Treatment Plant on the receiving environment, with the aims of identifying and describing the extent of any adverse impacts to local environmental values¹¹.

Water 33 The FFMP proposal must address at least the following —

- (a) monitoring for any potential adverse environmental impacts caused by the release, particularly in terms of additional nutrient inputs into the system;
- (b) monitoring of selected physicochemical parameters (including ammonia nitrogen, oxidised nitrogen (NO_x), organic nitrogen, total nitrogen, total phosphorus, filterable reactive phosphorous (FRP), pH, dissolved oxygen concentration and saturation, electrical conductivity, suspended solids, temperature and chlorophyll-a);
- (c) monitoring of biological indicators that detect the extent of influence of the discharge on the far-field environment and ensure that environmental values are protected (including nutrient processing, processed nitrogen tracking such as delta Nitrogen 15 (δN¹⁵) in mangroves and seagrass);
- (d) adequate sampling locations to quantify and qualify potential environmental impacts in each of the major reaches representing the far-field zone;
- (e) a description of the monitoring locations including GPS co-ordinates;
- (f) the proposed sampling depths;
- (g) the frequency or scheduling of sampling and analysis;
- (h) any historical datasets or water quality objectives/guidelines to be relied upon;
- (i) a description of the statistical methodology for the analysis of data; and
- (j) a description of any spatial and temporal controls.

Water 34 The FFMP must be prepared and submitted in writing to the administering authority within 3 months from when this development approval takes effect.

Water 35 As an alternative to a FFMP mentioned in conditions Water 32 and Water 33, to achieve compliance with the requirements for a FFMP, the person undertaking the activity to which this approval relates may become and remain a “participating member” in any water quality strategies and monitoring programs relevant to the “receiving environment” and endorsed in writing by the administering authority.

¹¹ Note: A single far-field monitoring program may be about 1 or more sewage treatment plants discharging into the Brisbane River.

- Water 36** The person undertaking the activity to which this development approval relates is deemed by the administering authority to be a “participating member” in regional studies in the following situations —
- (a) the holder is a “contributing member”, to the regional studies of water quality and ecosystem health;
 - (b) the holder is identified as a “contributing member” in a written statement to the administering authority from the authority carrying out the regional studies; and
 - (c) the holder continues to be a “contributing member” of such regional studies.
- Water 37** The person undertaking the activity to which this approval relates is deemed by the administering authority to be a “contributing member” until such time as —
- (a) the authority carrying out the regional studies notifies the administering authority in writing that the holder is no longer a “contributing member”;
 - (b) the administering authority has undertaken reasonable steps to confirm this with the person undertaking the activity to which this approval relates and the authority carrying out the regional studies; and
 - (c) the person notifies the administering authority in writing that they are no longer a “contributing member”.
- Water 38** If the person undertaking the activity to which this approval relates no longer meets the criteria as a “contributing member”, the person must submit a proposal to the administering authority that details how the person will fulfil the requirements for carrying out a FFMP, and must undertake the following —
- (a) within 30 days of ceasing to be a “contributing member”, submit a proposal to the administering authority that details how the person will fulfil the requirements for a FFMP via one of the alternatives prescribed in the conditions Water 32 to Water 34;
 - (b) carry out the FFMP alternative that is agreed, as submitted or amended, by the administering authority, commencing within 14 days of receipt of such written advice from the administering authority or such later date specified in writing by the administering authority; and
 - (c) from that date, otherwise comply in all respects with conditions for carrying out the alternative FFMP.

Stormwater Management

- Water 39** Suitable banks or diversion drains must be installed and maintained to exclude stormwater runoff from entering any ponds or other structures used for the storage or treatment of contaminants or wastes.
- Water 40** Contaminated stormwater must not be used for dust suppression and control activities.
- Water 41** The maintenance and cleaning of vehicles or other equipment must be carried out in areas from where the contaminants cannot be released into any waters, roadside gutter or waters.

Ponds and containment structures for contaminants

- Water 42** All ponds used for the storage or treatment of contaminants, sewage or wastes at the approved place must be constructed, installed and maintained —
- (a) so as to minimise the likelihood of any release of effluent through the bed or banks of the pond to any waters (including ground water);

- (b) so that a freeboard of not less than 0.5 metres is maintained at all times; and
- (c) so as to ensure the stability of the ponds construction.

Particular requirement to report Ammonia-nitrogen concentrations achieved

Water 43 The person undertaking the activity to which this approval relates must, within 14 months of the commissioning of Goodna STP Stage 4A, give the administering authority a report describing the concentration of Ammonia – Nitrogen, when measured at the sampling point mentioned in condition Water 16 of this approval, against the following statistical parameters for a continuous period of 12 months —

- (a) median; and
- (b) short-term 90th percentile.

Schedule F: Waste

- Waste 1** From the commencement of the activity to which this approval relates, a waste management plan must be implemented, which addresses the following issues —
- (a) the types and amounts of waste generated by the activity;
 - (b) how the waste will be dealt with, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices mentioned in the waste management hierarchy (section 10 of the *Environmental Protection (Waste Management) Policy 2000*);
 - (c) procedures for identifying and implementing opportunities to improve the waste management practices employed e.g. opportunities for beneficial reuse of biosolids;
 - (d) procedures for dealing with accidents, spills and other incidents that may impact on the waste management;
 - (e) details of any accredited management system employed, or planned to be employed, to deal with the waste;
 - (f) how often the performance of the waste management practices will be assessed (at least annually); and
 - (g) the indicators or other criteria on which the performance of the waste management practices will be assessed.
- Waste 2** Waste generated in the carrying out of the activity to which this approval relates must be stored, handled and transferred in a proper and efficient manner so as to prevent spillage or contamination of land or waters.
- Waste 3** The person undertaking the activity to which this approval relates must ensure that all regulated wastes consigned for transport off-site are transported only by a person who is lawfully entitled to transport the waste.

Definitions

“**approved place**” means the site situated at 1 Lower Cross Street, Goodna QLD 4300 (Lot 1 Plan RP887551).

“**average dry weather flow**” means the average inflow of sewage to the approved place on those days when no more than 25mm of rain fell within the preceding 7 days.

“**background noise**” means $L_{A90, T}$ being the A-weighted sound pressure level exceeded for 90 percent of the time period not less than 15 minutes, using Fast response.

“**commercial place**” means a place, other than a nuisance sensitive place, used as an office or for business or commercial purposes including the place within the curtilage of that place reasonably used by persons at that place.

“**commissioning**”, for the Goodna STP Stage 4A, means the point in time at which is the earlier of the following —

- (i) successful completion of formal process proving, as required under the Contract for the Goodna STP Stage 4A upgrade; or
- (ii) the 31 December 2012.

“**land**”, in Schedule C of this document, excludes waters and the atmosphere.

“ **$L_{A10, 10min}$** ” means an A-weighted sound pressure level equal to or exceeded for 10% of a 10 minute sample period, measured using fast (“F”) response.

“ **$L_{A10, adj, 10min}$** ” means an A-weighted sound pressure level equal to or exceeded for 10% of a 10 minute sample period, measured using fast (“F”) response, and adjusted for impulsiveness and tonality.

“ **$L_{Aeq, adj, 1hr}$** ” means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a 1 hour period has the same mean square sound pressure of a sound that varies with time.

“**LOEC**” (Lowest Observed Effect Concentration) means the lowest concentration of a material that has a statistically significant adverse effect on the exposed population of test organisms when compared to a control.

“**long term 80th percentile**” means that not more than one ten (10) of the measured values of the quality characteristic are to exceed the stated release limit for any fifty-two (52) consecutive samples where —

- (i) the consecutive samples are taken over a one (1) year period;
- (ii) the consecutive samples are taken at approximately equal periods; and
- (iii) the time interval between the taking of each consecutive sample is not less than three (3) days or greater than eleven (11) days.

“**NOEC**” (No Observed Effect Concentration) means the highest concentration of a toxicant at which no statistically significant effect is observable, compared to the controls; the statistical significance is measured at the 95% confidence level. Not detectable or below the limit of detection of a specified method of analysis.

“**noxious**” means harmful or injurious to health or physical well being.

“**nuisance sensitive place**” means a place that is one or more of the following —

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises;
- a motel, hotel or hostel;
- a kindergarten, school, university or other educational institution;
- a medical centre or hospital;
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or

- a public thoroughfare, park or gardens.

"offensive" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"PM_{2.5}" means particulate matter with an aerodynamic diameter of less than or equal to 2.5 µm (PM_{2.5}).

"PM₁₀" means particulate matter with an aerodynamic diameter of less than 10µm or equal to (PM₁₀).

"release point W1" means the discharge pipe located in the Brisbane River at AMTD 66.2km, adjacent to land described as Lot 1 on RP887551.

"release point W2" means the point located in Goodna Creek at 0.6km AMTD, adjacent to land described as Lot 1 on RP887551 comprising a pipe from the Permeate Flow-Splitter Tank identified on drawing IW-GDSTP-4A-CIV-1100-1403, Revision P3 titled "Major Process Pipework Layout Plan Sheet 3 of 4" and comprising Attachment 2 of this approval.

"release quality characteristic" means the characteristic or property (each being a contaminant under the *Environmental Protection Act 1994*) mentioned in —

- for treated wastewater released before Goodna STP Stage 4A is commissioned — Appendix 1; and
- for treated wastewater released after Goodna STP Stage 4A is commissioned — Appendix 2.

"short term 80th percentile" means that not more than one (1) of the measured values of the quality characteristic are to exceed the stated release limit for any five (5) consecutive samples where —

- the consecutive samples are taken over a five (5) week period;
- the consecutive samples are taken at approximately equal periods; and
- the time interval between the taking of each consecutive sample is not less than three (3) days or greater than eleven (11) days.

"short term 90th percentile" means that not more than one (1) of the measured values of the quality characteristic are to exceed the stated release limit for any ten (10) consecutive samples where —

- the consecutive samples are taken over a one (1) year period;
- the consecutive samples are taken at approximately equal periods; and
- the time interval between the taking of each consecutive sample is not less than three (3) days or greater than eleven (11) days.

"waters" includes any river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

END OF CONDITIONS

APPENDIX 1
RELEASE QUALITY CHARACTERISTICS FOR TREATED WASTEWATER BEFORE
COMMISSIONING OF GOODNA STP STAGE 4A

Quality characteristic	Release limit				
	Minimum	Median	Long-term 80th percentile	Short-term 80th percentile	Maximum
BOD ₅ (uninhibited)			15mg/L	23mg/L	
BOD ₅					30mg/L
Dissolved oxygen	2.0mg/L				
Suspended solids			20mg/L	30mg/L	40mg/L
pH	6.5				8.5
Free Chlorine					0.7mg/L
Faecal coliforms		1000 organisms per 100ml (minimum of 5 samples taken at not less than half-hourly intervals in any one day, with 4 out of 5 samples containing less than 4000 organisms per 100ml)			

APPENDIX 2
RELEASE QUALITY CHARACTERISTICS FOR TREATED WASTEWATER AFTER COMMISSIONING
OF GOODNA STP STAGE 4A

Quality characteristic	Compliance release limits						Frequency of monitoring
	Minimum	Median	Long-term 80th percentile	Short-term 80th percentile	Short-term 90th percentile	Maximum	
Ammonia-Nitrogen					2mg/L	4.0mg/L	Weekly
Biochemical Oxygen Demand — 5-day BOD ₅)		5.0mg/L	6.0mg/L	8.0mg/L		10.0mg/L	Weekly
Dissolved oxygen	4.0mg/L						Weekly
E. Coli						600 c.f.u / 100 ml	Weekly
Enterococci							Weekly only for a period of 12 months after the commissioning of Goodna STP Stage 4A
Filterable reactive phosphorous (FRP)							Weekly
Oxides of Nitrogen (NO _x)							Weekly
pH (range)	6.5					8.5	Weekly
Suspended solids		5.0mg/L	6.0mg/L	8.0mg/L		10.0mg/L	Weekly
Total Nitrogen		3.0mg/L + adjustment specified for NuS in Appendix 3				9.0mg/L	Weekly
Total Phosphorous		1.0mg/L				3.0mg/L	Weekly

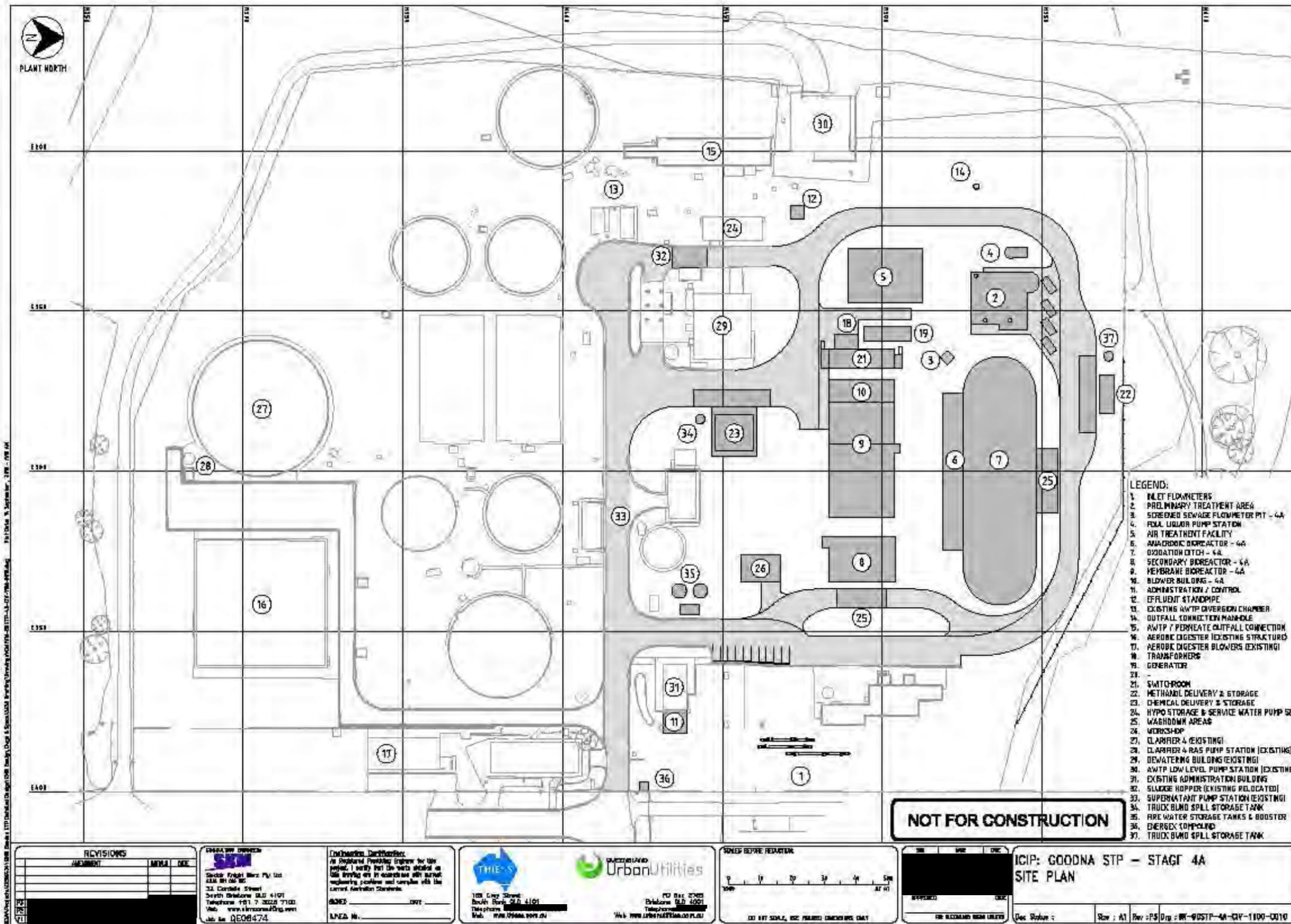
APPENDIX 3

ADJUSTMENT FOR MEDIAN NITROGEN CONCENTRATIONS BASED ON INFLUENT FLOW RATES

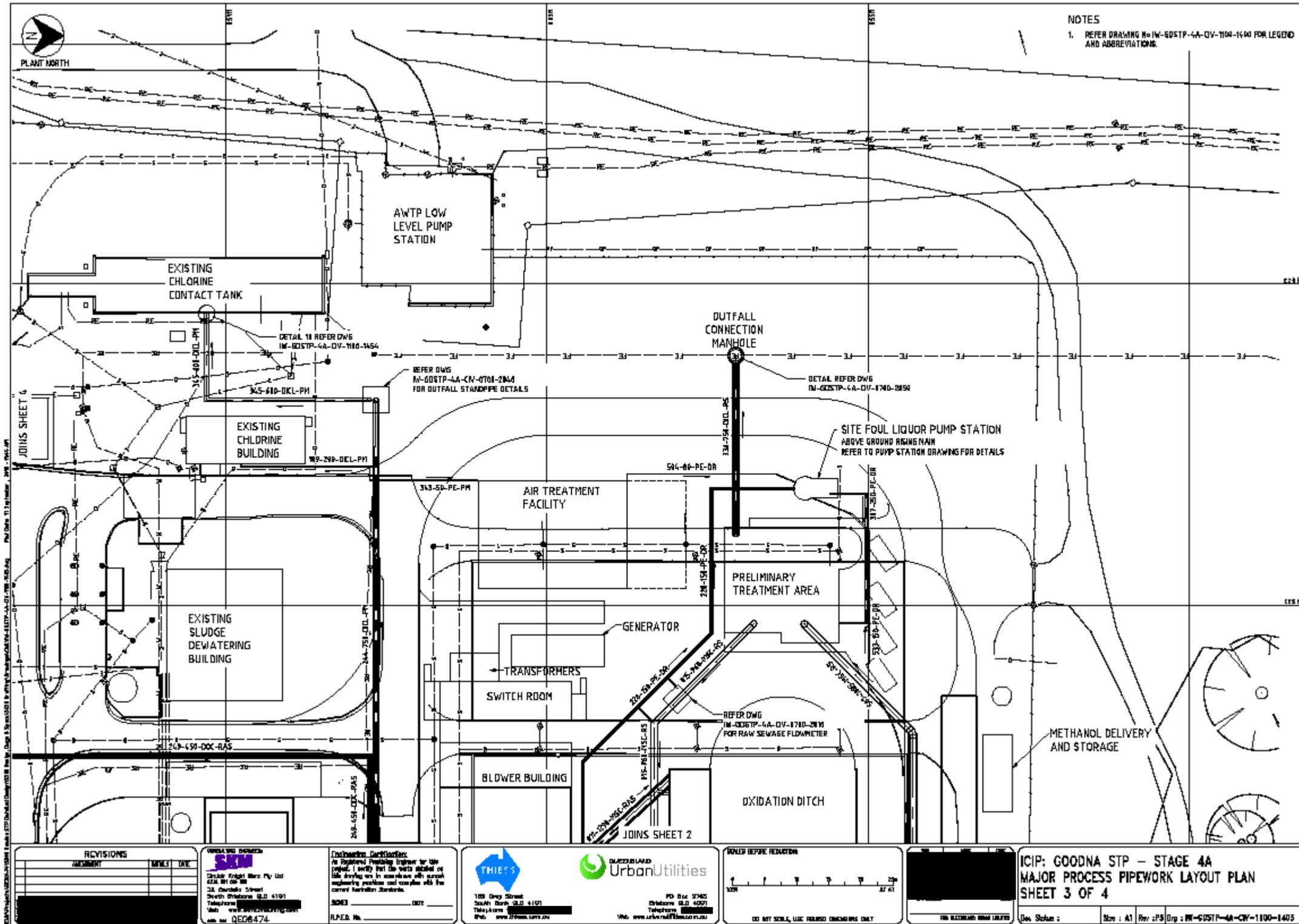
The adjusted Total Nitrogen compliance limit (Median) to allow for NUS (unbiodegradable soluble fraction) during low flow periods shall be in accordance with the following table, with value of Incremental NUS as determined in the table following based on actual average wastewater flows per equivalent population per day (L/c/d)

Flow L/c/d	150 to 170	170 to 190	Above 190
Incremental Nus (mgTN/L)	0.32	0.14	0.00

ATTACHMENT 1
Goodna STP Stage 4A Site Plan, IW-GDSTP-4A-CIV-1100-0010



ATTACHMENT 2
IW-GDSTP-4A-CIV-1100-1403, Revision P3 "Major Process Pipework Layout Plan" Sheet 3 of 4



Environmentally relevant activities

APPLICATION NOTES:

1. Each assessment report prepared to support recommendations made for decision is to be structured in the format shown below.
2. Explanatory notes for completing the report are given under each heading in brackets.
3. The report is to be completed, where indicated, to confirm conclusion of supervisory review/endorsement, and decision stages of the process.

This assessment report is for environmentally relevant activities to be assessed via the Integrated Development Assessment System in the Sustainable Planning Act 2009.

COUNCIL DA NUMBER: CA1989/2010	DERM PROJECT NO: 240454
DERM DA NUMBER: SPCE00410110	FILE NO: IPS471
APPLICATION TYPE: DERM is a concurrence agency	
DEVELOPMENT TRIGGER: Material Change of use of premises- for an environmentally relevant activity	
DEVELOPMENT DESCRIPTION: ERA 63(2)(f) – operating sewage treatment works, other than a no release works, with a total daily peak design capacity of more than 50,000EP to 100,000EP	
LOCATION DESCRIPTION: 1 Lower Cross Street, Goodna QLD 4300 (Lot 1 RP887551)	
APPLICANT: Queensland Urban Utilities	
TRADING AS: Queensland Urban Utilities	

1. Issues

The major issues associated with this application are:

- Water – discharges to the Brisbane River;
- Air – specifically odour, at the nearest nuisance sensitive receptors; and
- Noise – at the nearest nuisance sensitive receptors; and
- Re-use of treated wastewater.

2. Description of operation

General Description of the site and surrounding environment

The proposed development consists of an augmentation to the existing Goodna Sewage Treatment Plant (Goodna STP) to a daily treatment design capacity of 90,000EP, with eventual decommissioning of the existing plant.

The upgrade of the Goodna STP was encapsulated in a larger capital infrastructure project by the Ipswich City Council, referred to as the Ipswich City Infrastructure Project (ICIP), which examined the feasibility of upgrading 4 sewage treatment plants and other ancillary infrastructure. When first meted, the proposed upgrade to the Goodna STP was a 4-stage development spanning 2012 – 2026 – with the final daily treatment design capacity of 260,000EP.

On 1 July 2010, Queensland Urban Utilities (QUU) – a Local Government Statutory Authority – assumed responsibility for the operation of all sewage treatment work in the Ipswich City Council area, *inter alia*. As a single entity with a large sewage catchment (comprising multiple local government jurisdictions), QUU was positioned to manage sewage across a larger field and manage the entire lifecycle of wastewater across their catchment – including diverting it to other sewage treatment works to utilise available treatment capacity in the network. Consequently, the previous business case for the ICIP was reviewed – and in September 2010 (during the concurrence agency assessment period for the application), a decision was made that the final design for the sewage treatment plant would be 90,000EP.

A development approval is currently in force for the Goodna STP for ERA 63(2)(f) – permitting up to 100,000EP, although the current treatment level is less than 60,000EP. DERM retains its interest as a material change of use given the major change to the design, location and treatment processes at the site as a result of the proposed change.

The Goodna STP is situated at Lower Cross Street, Goodna. It is adjacent to a commercial piggery (to the West), a balance tank for the Bundamba Advanced Water Treatment Plant Reverse Osmosis Concentrate tanks (immediately to the East) and – atypically for a sewage treatment plant – a light industrial and residential area across Lower Cross Street, which is a small residential street. The Brisbane River is between 200 – 300m North of the site – which is also the location of a corresponding release works.

The proposed Goodna STP is a 5-stage Bardon Fo treatment system. The system is capable of treating flows to the standards required under the conditions of the approval up to 3 times average dry weather flow (ADWF) and sustaining that treatment standard for a period of up to 30 days – an event of magnitude not yet realised in SEQ. Wastewater inflows exceeding 3 time ADWF may be bypassed (although flow rates must be monitored and undergo a minimal level of treatment). A detailed schematic of the proposed sewage treatment works is included as part of QUU's response to DERM's information request for the application.

The current Goodna STP will continue to operate until the upgrade STP is built, and a commissioning and proving period has passed, after which time the existing STP will be decommissioned. Therefore, this assessment will focus on the proposed STP (referred to as Goodna STP Stage 4A) – rather than the existing STP.

In summary:

1. Sewage enter the sewage treatment plant via an inlet works, comprising primary step screens and grit removal (wastes from both processes collected for transportation off-site by a regulated waste transporter);
2. Influent exceeding 3 time ADWF will bypass the main treatment train following grit removal, and other sewage (that is, all flows below 3 time ADWF) will then pass through secondary screens.
3. Sewage is then passed through a biological nutrient process, comprising anaerobic, anoxic and aerobic zones (for biological N reduction) – Waste activated sludge or scum harvested from the biological treatment ponds is transferred by the WAS/Scum pump station to an aerobic digester.
4. Removal of phosphorous is achieved through biological reduction, with chemical P removal (utilising alum) available as a back-up.
5. Effluent then passes through a Membrane Biological Reactor (MBR), with mixed activated sludges returning to the start of the biological nutrient removal processes, and effluent (achieving Class A Recycled Water standards) is discharged to Brisbane River.

3. Emissions, discharges and environmental compliance

Water (including releases of treated effluent to water)

The applicant submitted, as part of the original referral application, detailed modelling of projected impacts of the construction of the proposed Goodna STP Stage 4A (originally for 260,000EP). The modelling was prepared in consultation with Healthy Waterways Partnership, and predicted impacts of the proposed development against various re-use scenarios (including 100% take-up of wastewater discharges by the Bundamba Advanced Water Treatment Plant, no take-up of wastewater by the AWTP, and various re-use scenarios for land disposal.)

Dr Ian Ramsay of DERM's Environmental Sciences unit oversaw the modelling, attended discussions where the results of that modelling was discussed, and reviewed the application for the development to the extent it related to the impacts of the proposed activity on the Brisbane River.

The treatment standard will achieve median concentrations of 3mg/L Nitrogen and 1mg/L Phosphorous (referred to as 3N:1P) and maximum concentrations of 9mg/L Nitrogen and 3mg/L Phosphorous), which represents current limit of technology treatment for a 90,000EP. This represents a significant improvement on the treatment standard of the current plant, for which the development approval specifies no limits for Nitrogen or Phosphorous. Disinfection will be achieved through a membrane bio-reactor, rather than chemical methods (e.g. Chlorine) which has been utilised for many years for disinfection at the end of the treatment train.

The conditions of the approval provide for a “proving period” of 6 months, during which only maximum limits apply to water discharges apply. Given the lack of nutrient limits on the current approval, I do not consider this approach to present an unreasonable risk. And the long-term benefits are pronounced.

Nitrogen concentrations were a significant point of discussion, specifically the non-useable fraction of Nitrogen, which is contingent in part on the total liquid content of influent. The relative proportion of non-usable Nitrogen increases as total flow rate decreases; thus limits for Nitrogen are based in part on flow rates and median and maximum limits. Thus, the median Nitrogen limit of 3mg/L includes an adjustment for non-usable Nitrogen based on influent flow rates (which are significantly driven by water restrictions and general water consumption).

Ammonia – Nitrogen also presented some challenges for the design engineers. A 2mg/L 90th percentile and 4mg/L maximum limit for Ammonia – Nitrogen, when combined with a median value of 3mg/L for Total Nitrogen – provides little margin for process or operator error. However DERM's position on the concentration limits for Ammonia-Nitrogen remains firm, given the toxicity of the contaminant. A default 90th percentile limit of 2mg/L will apply 14-months after the development approval takes effect (a process proving period), and a condition requiring the operator to supply 12-months of actual monitoring data has been imposed. This can then be used as evidence for QUU to justify a change to that limit, if there is evidence that achieving it presents a risk to the environment, or an unreasonable burden on the operator in terms of process tweaking (e.g. high oxidation and addition of methanol, which themselves present a risk of environmental harm is not managed appropriately).

Other requirements also exist to require the operator to undertake critical assessment and treatment train analysis before any significant changes to the nature of the influent (e.g. the acceptance of a new stream of trade waste) or a change in the treatment process (e.g. addition or substitution of a new chemical in the treatment) and, if any adverse ecological impacts are forecast, undertake a Direct Toxicity Assessment. A DTA is also required under the conditions of the approval at 12 and 24-months following commissioning of the Goodna STP Stage 4A, and biennially from that point onwards (unless a lower frequency is agreed by the administering authority), in line with advice from Dr Neil Tripodi of DERM's Environmental Sciences division.

Unfortunately, the regulatory structure for ERAs means that DERM has to assess the application independently of other uses. From the perspective of whole of effluent management, it would have been advantageous to impose limits on other contaminants (e.g. metals) in discharge water, which at elevated concentrations may compromise the suitability of uptake of treated effluent by the Bundamba Advanced Water Treatment Plant. Many of the re-use scenarios upon which the impacts of the proposed activity were based were contingent upon up-take by the AWTP. While some metals will undoubtedly be bound in sludges generated in the treatment process (which are trucked to landfill), heavy reliance is placed on general conditions prohibiting release of effluents that may cause environmental harm, and requiring practices to be adopted by QUU – as the operator – to monitor and secure their influent streams (e.g. by trade waste agreements and enforcement of those practices) rather than specific limits on metals.

Options for expanding re-use remain on the table; with the Water Grid Manager (to my knowledge) still investigating piping water directly from the Bundamba AWTP (which feeds off both the Bundamba and Goodna STPs) to the Lockyer Valley – although the cost implications of this remain unclear. With the current catchment-wide sewage management at hand, DERM has expressed strong preference for raw sewage to be released at Goodna (Brisbane River, with high tidal flushing) as opposed to Bundamba STP (Bremer River, with corresponding poor water quality and lower flushing rates). QUU's intention to expand the Goodna STP only to 90,000EP (rather than the 260,000EP originally proposed) and diversion of flows exceeding the 90,000EP to Wacol Sewage Treatment Plant – closer to the terminus of the Brisbane River and further from the intersection point of the Bremer and Brisbane Rivers); so environmentally a sound solution.

There is a potential for acid-sulphate soils on the site, and that these may be exposed during construction works associated with the sewage treatment plant and upgrades to the discharge outlet to the Brisbane River. Other sediment and erosion control measures will be enforced through conditions to prevent transportation of sediment to the Brisbane River during construction.

Therefore, in summary:

- The proposed Goodna STP has a treatment design capacity less than the current Goodna STP, but with LoT treatment (3N:1P) and high disinfection rates;
- Re-use scenarios etc, upon which modelling is contingent, suggest that the total contaminant loads to the Bremer River will not increase significantly (and taking into account the reduced EP and higher treatment standard when compared to the existing STP, may in fact reduce the total nutrient loading when compared to present loads).
- Conditions require the client to manage their inflow (e.g. through Trade Waste agreements) and demonstrate that adverse environmental affects aren't observed as a result of changed influent characteristics or process changes on site through DTAs, and there are requirements for scheduled DTAs.
- Other conditions will be imposed to ensure erosion and sediment controls are in place during construction works, to prevent off-site contamination of the Brisbane River.

Waste

Excluding treated effluent, which is dealt with under the Water section above, significant waste streams are associated only with management of waste activated sludges and scums generated in the sewage treatment process. At present, biosolids (including WAS) are disposed of to landfill and, in some situations, utilised under a beneficial re-use agreement.

With the exception of re-use of treated effluent (whether with or without undergoing advanced treatment through the Bundamba Advanced Water Treatment Plant), which is discussed above, and the re-use of biosolids, there are few options to reduce or limit the quantity or properties of wastes generated in the sewage treatment process.

All waste generating stages in the sewage treatment process are serviced by infrastructure to capture and contain any contaminants, including reducing the likelihood of spills or incidents, and in the case of primary and grit screenings, are serviced by infrastructure to contain and manage odours (see section on odours below).

As the proposed sewage treatment works is a membrane bio-reactor system, quantities of citric acid are used to clean and preserve the membrane whilst it is undergoing in situ cleaning. The waste products from this process are referred to as "clean-in place solution". All liquid wastes will be re-introduced through the treatment process, with a percentage being removed through sedimentation and settling, and the resultant liquor is then discharged through the normal discharge processes (within water discharge limits).

Other waste management practices will be employed at the site to manage any wastes associated with the construction of the site (e.g. any acid sulphate soils or asbestos contaminated soils associated with the existing site), and conditions stipulating the desired outcomes will be imposed on the approval.

Options to re-use wastewater are continually reviewed by the operator, and are also subject to review by the Water Grid Manager. Ultimately, the final decision of the Queensland Government in respect to wastewater re-use (which will be contingent upon suitable infrastructure to pipe wastewater to the end-users, gate prices per megalitre of water, and assessment of any other environmental impacts arising from the re-use of that wastewater in the Lockyer) will directly impact on the mass-loading of nutrients to the Brisbane River. However, regardless of the extent of wastewater re-use, the total nutrient load to the Brisbane River is likely to decrease from current levels, given the improved treatment standard demanded by the conditions of the approval.

Air (including odour)

Odour, and odour management, is a significant challenge for the applicant, as the nearest nuisance sensitive receptor is immediately across a small residential street from the boundary fence of the site. The Goodna STP has occupied the site for many decades, and there have been no odour complaints to DERM in recent history, and the only known odour complaints – which were handed through Ipswich City Council's own complaints management processes – were from the commercial piggery located to the west of the site. The current Goodna STP has no odour control equipment installed, and modelling indicated that odour could be an issue at nearest nuisance sensitive receptors during worst-case atmospheric conditions – and the reason no complaints have been received in recent times remains unclear. It seems plausible that there has been a degree of acclimatisation to odours from the STP site by local residents and business located across the street.

The major sources of odour from the proposed Goodna STP are the primary screening segregation and loading area, inflow balance tank, and the anaerobic and anoxic zones of the bioreactors, and the de-watering building. Odour modelling, supplied as part of the referral application, and that addressed all the potential sources of emissions described above, was referred to Dr Suhail Khan and Dr Ken Verrell of DERM's Environmental Sciences unit.

The results of modelling, which were supported by Dr Khan and Dr Verrell, indicate that with the appropriate pollution control equipment, forecast emissions – based on odour units – will comply with DERM's Odour Guidelines at a point just beyond the boundary of the site.

Conditions have been proposed that:

- require the undertake odour monitoring if directed by the administering authority;
- require the operator to monitor and record weather conditions (e.g. temperature, wind speed and direction, humidity), using an automated system, which may be of assistance in investigating nuisance complaints regarding odour; and
- prohibit odours that cause, or are likely to cause, an odour nuisance at or beyond the boundary of the site; and
- make reasonable adjustments to practices, processes etc. to prevent recurrence of odour issues for validated odour complaints.

While negotiations for the proposed Goodna STP Stage 4A determined that H₂S monitors would be in place all the time, the operator has presented a convincing argument about the reliability of these monitors and the presumption that measuring H₂S would necessarily be an indicator of odour emissions. Therefore, a more generalised condition that compels the operator to undertake odour monitoring if directed has been imposed.

The installation of pollution control equipment, and predicted concentration of H₂S – being the only gaseous contaminant likely to be released from the proposed STP that is the subject of a air quality

objective under the *Environmental Protection (Air) Policy 2009* – means that environmental values associated with the air environment are unlikely to be significantly affected by the proposed activity.

Noise

Noise, as with odour, presents a significant issue for the applicant given the proximity of the nearest nuisance sensitive receptors. However, modelling supplied by the applicant suggests that the noisiest part of the equipment – when measured at or beyond the boundary (with corresponding impacts on nuisance sensitive receptors) – is likely to arise from equipment associated with the current Goodna STP. The noise levels associated with the new equipment is, however, likely to increase marginally as a result of the proposed changes.

The site of the proposed development is, in some respects, unfortunate. The surrounding areas are subject to considerable development pressures and it seems probable that the existing buffer distances to the west and south of the sewage treatment plant will be reduced. To the east of the site, there is no buffer distance – although some of the nearest nuisance sensitive receptors are light industrial premises (which themselves generate some levels of noise). Therefore, significant pressure has been placed on the applicant to prove the likely impacts of the activity on the acoustic environment so that specific and measurable noise limits can be established at the boundary of the site – thus avoiding reliance conditions based on “causing nuisance measured from a nuisance sensitive place” and protecting QUU’s investment in their infrastructure by providing some comfort as to what fixed (rather than subjective) limits apply to the activity.

The applicant had in the referral application and subsequent supporting information regarding noise, forecast some tonality issues from the proposed Goodna STP (when operational) – but had not articulated any assumptions made in respect to tonality (e.g. the frequency at which that occurs) – so it was difficult to ascertain whether the modelling takes into account the appropriate acoustic weighting. Other issues of acoustic penalties for measured sound were not properly addressed in modelling results, and further information was sought. This additional information was revealed in a meeting with the client’s acoustic consultant – suggesting tonality was assessed to be at about 4KHz – so other consideration for low frequency noise need not be further developed.

The proposed conditions, which specifically avoid the use of subjective terms (e.g. nuisance) as a basis for setting any form of non-compliance limit, set a limit for noise measured at or beyond the boundary of the site and also a predicted measured sound, adjusted for any acoustic penalties such as tonality, at the nearest nuisance sensitive receptors or a distance within that distance to the boundary of the site (whether built before or after the approval takes effect).

While creating a noise nuisance will not be a breach of the conditions, the conditions oblige the operator to investigate complaints, and make reasonable adjustments to practices and procedures for validated complaints (e.g. changing times of day at which certain events will occur). Conditions have been introduced to attempt to preclude investigation of vexatious complaints.

The default provisions under the *Environmental Protection Act 1994*, s.440R, which limit the hours of day at which audible noise may be emitted from building works, still apply and general nuisance provisions and GED are expected to be sufficient to regulate and manage noise impacts associated with the building works.

4. Assessment considerations

Initial overall considerations are presented in the Development Approval Assessment Checklist (attached). Support and substantiation for the identified relevant considerations are given below under the appropriate headings:

i) **Standard criteria (as applicable)**

NOTE: when considering the standard criteria, comments related only to those considered relevant are required. For criteria considered not relevant to the matter, no notation is made. Information provided should reflect the complexity of issues for the application. Example text is provided for guidance.

Ecological sustainable development

There is an ongoing need to manage sewage flows, in particular in Ipswich, for which significant population and development pressures exist. Options, including re-diverting raw sewage to capitalise on existing treatment capacity in the sewage treatment network across QUU's jurisdiction have been considered, and were a critical aspect to the decision to limit the final treatment capacity of the Goodna STP to 90,000EP (with excess flows to be diverted to Wacol, which itself will be upgraded in the near future).

Options to reduce the environmental impacts of the proposed activity on the receiving environment, especially as it relates to management of treated effluent, have been considered and are the subject of further and ongoing review. I am satisfied that, on the basis of the current application materials, the options presented for the project adequately balance needs, options and solutions to the need for increased treatment capacity.

Therefore, I am satisfied that the principles of ecologically sustainable development have been met.

Environmental protection policies (EPPs) and regulatory requirements

The EPPs on water, air, noise and waste have been considered during the assessment of this application. The objectives and standards of EPP — water, air, noise and waste management have been incorporated in conditioning the approval.

Environmental Protection (Water) Policy 2009

The final approval will, taking in account treatment standards and forecast actual emissions, likely result in a reduction of nutrient loads to the Brisbane River when compared to current emissions. I am satisfied that regulatory requirements for the discharge of wastewater to surface waters have taken into account the principles specified in that requirement, and that all reasonable options to capitalise on the potential re-use of treated wastewater have been considered, and that the manner of discharge (through the current discharge point for the existing Goodna STP) will result in a low risk of environmental harm in the mid and far-field, with limited or no impacts observed in the initial mixing zone. Given discharges to the environment as a result of the upgrade will result in significantly improved discharge water quality that current emissions from the plant, I am satisfied that the impacts on the receiving environment from the perspective of water management are acceptable.

The discharge area for the Goodna STP is from the same infrastructure used for the current Goodna STP, and is adjacent to the ROC outfall for the Bundamba Advanced Water Treatment Plant. The Brisbane River typically scores a "C" rating under the Healthy Waterways report card, suggesting the river is under considerable strain, and with the assimilative capacity of that system largely utilised, that any significant increases in contaminants are likely to result in evidence of environmental harm.

However, there are limited options to reduce waste (or demand for sewage treatment) and the quality of wastewater flows to the Brisbane River will improve as a result of the upgrade, when compared to existing standards (both by LoT plant design of the plant and establishing of limits for Nitrogen and Phosphorous.)

Environmental Protection (Noise) Policy 2008

Noise emissions from the Goodna STP Stage 4A upgrade will be dominated by existing infrastructure; with the highest emissions from the existing blowers, which are situated right

near the nearest nuisance sensitive receptor. The current background noise levels exceed the acoustic quality objectives for residential areas, so any additional noise sources will undoubtedly result in further exceedences. The predicted impacts of the proposed activity on the acoustic environment have been modelled and quantified, and a set of compliance values established on the basis of that assessment.

The DERM Planning for Noise Control Guidelines have been considered, and while there is a degree of subjectivity as to the category the current nuisance sensitive receptors ought to be placed (as the boundaries of these places is within a near a light industry area, and adjacent to the existing Goodna STP, rather than a purely residential area) it seems likely that the forecast noise emissions will result in an exceedence of those guideline values – albeit to a level which is largely imperceptible to the human ear.

In my view, the cost of retro-fitting current infrastructure is unjustifiable given the extent of exceedence forecast as a result of the changes on site, and the application (including all supporting material) is sufficient to justify acceptance of the proposed activity, as it relates to noise emissions.

Environmental Protection (Waste Management) Policy 2000

A related issue, being the management hierarchy for wastes (including treated wastewater and biosolids generated from the sewage treatment process) have been fully examined above. I am satisfied that all reasonable reduction and re-use opportunities have been explored, and that adjustments in process (including diversion of raw sewage to other plants, from which the discharge will act on a less sensitive part of the receiving environment) have been implemented.

Environmental Protection (Air) Policy 2008

Air (odour) modelling shows that impacts on the receiving environment will be minimal beyond the boundary of the site, and the installation of odour control equipment, means that the air quality objective and targets will not be compromised by the proposed activity.

The only contaminant likely to be emitted to the air environment (other than dust, PM₁₀ and PM_{2.5} which will be transient only for the construction period) and for which there is an air quality target and objective is Hydrogen sulphide (H₂S). The levels predicted to be released are low, when compared to the current infrastructure. In my view, the applicant has demonstrate best-practice in odour (and air emission) management.

Environmental impact statement EIS

An Environmental Impact Statement has not been prepared, and is not required, for this application.

Receiving environment

Extensive modelling has been undertaken to demonstrate the impacts on the receiving environment will not cause environmental harm, and represent best-practice environmental management of such discharges.

With the exception of re-location of discharge works (currently adjacent to the discharge works associated with the Bundamba Advanced Water Treatment Plant's ROC) – which further review by QUU and the Water Grid Manager may achieve in the long term, I am satisfied that the option chosen by QUU represents the best option for management of discharges and presents an acceptable risk.

Best practice environmental management

The proposed sewage treatment plant achieves what is, for all intents and purposes, limit of technology for sewage treatment in terms of reducing discharges to the environment. In terms of air emissions, evidence of tight odour contours – achieved by pollution control equipment and monitoring of emissions – demonstrate that odour and air emissions are being appropriately

managed and are unlikely to affect nearby nuisance sensitive receptors – despite their proximity.

Other options to reduce the environmental impacts (e.g. relocating raw sewage to other infrastructure where the discharge points are located in less sensitive environments), and re-use treated effluent at other locations (involving land disposal rather than discharge to surface waters) have been considered in the project.

In consideration of the aforementioned issues, I am satisfied that the project has had regard to best-practice environmental management.

Financial implications

The conditions imposed on the approval impose significant cost implications for the operator, which will no doubt be transferred to the end user. However, in my view, the cost implications for the operator – mostly driven by their recognition of risk (e.g. of public complaints) rather than DERM imposed – are reasonable and justified, balancing risk of environmental harm and providing DERM an opportunity to intervene where irregularities are observed with the operation of the plant (e.g. through monitoring results).

The client has, themselves, sought to reduce the financial burden of upgrading and operating the plant or, where possible, delay expenditure and reinvesting it in water re-use schemes. Therefore, on balance, I am satisfied that the financial implications of compliance with the conditions of the approval are reasonable and justifiable.

Public interest

DERM has received no public submissions or enquires in relation to this application. The approval conditions will protect the environmental values of the local community and visitors to the site.

Management plan

As part of the application the operator has provided a Site Based Management Plan that includes the necessary site layout, plans, descriptions and stormwater plans and details of the material received and removed from site. Adequate site infrastructure remains in place from the past/continued operations.

ii) Native title comments following notification (if applicable)

Not applicable.

iii) Notifiable activity (if applicable)

Not applicable.

iv) Wild river area consideration (if applicable)

Not applicable.

5. Consultations

Consultation for this project has been ongoing for nearly two years, and involved numerous DERM officers (Ernst Bruynius, Dr Ian Ramsay, Dr Neil Tripodi, Dr Suhail Khan and Dr Ken Verrell) with corresponding expert parties representing the applicant (STP process engineers, acoustic and odour experts, and their project manager).

6. Project killers

No project killers identified, and to the contrary, in my view, the changes derived through this project would at worst case result in a neutral environmental outcome but most likely a positive environmental outcome.

7. Point source database

Applicant will be required to supply monitoring results, either in hardcopy format or another agreed format – point source database will be utilised or relevant advice will be supplied.

Streamlined conditions

The following conditions are used:

Full streamlined conditions

Some streamlined conditions

X

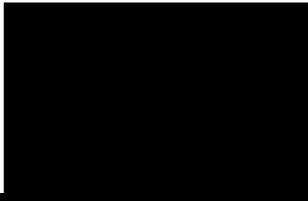
No streamlined conditions

8. Recommendation

It is recommended that the proposed development should be:

Select:	If approved select:	If approved, also select:
X Approved or	X With a development permit or	X With conditions or
<input type="checkbox"/> Refused	<input type="checkbox"/> With a preliminary approval or	<input type="checkbox"/> No conditions
	<input type="checkbox"/> In part only	

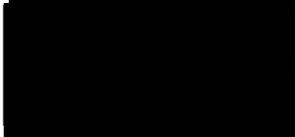
Assessing Officer: 

Signed: 

Date: 23/12/2010

9. Review and endorsement

Delegate: Scott Blanchard

Signed: 

Date: 23/12/2010

Enquiries
Telephone
Your reference
Our reference

Approval No.: SPDL00410210/ Ecotrack No: 240454/ File No: BNE43985



Queensland
Government

17 May 2010

Department of
Environment and Resource
Management

Ipswich City Council
PO Box 191
IPSWICH QLD 4305

Sustainable Planning Act 2009 (Material Change of Use) for development approval for assessable development to be carried out at Lower Cross Street, Goodna (Lot 1 on RP887551) (Council Reference: 1989/2010/CA)

The Department of Environment and Resource Management (DERM) – Contaminated Land Unit (CLU) has reviewed the supporting information for the above application and considers that an exemption stated in the *Sustainable Planning Regulation 2009*, Schedule 3, Part 1, Table 2, item 6(b) applies:

Item 6 - Making a material change of use of premises if all or part of the land forming part of the premises is on the environmental management register or contaminated land register, unless—

(b) there is currently a notifiable activity on the land and the activity is continuing.

Under section 371 (1) of the Environmental Protection Act, If the owner or occupier of land becomes aware a notifiable activity is being carried out on the land, the owner or occupier must, within 22 business days after becoming aware the activity is being carried out, give notice under the subsection to the administering authority in the approved form.

The removal of any contaminated soil from land that is listed on the Environmental Management Register (EMR) requires prior approval from DERM-CLU under the section 424 of the *Environmental Protection Act 1994* (EP Act).

Should you require any further information in relation to the above please do not hesitate to contact the above officer on the telephone number listed above.

Yours sincerely



**Team Leader (Contaminated Land Unit)
Department of Environment and Resource Management**

Concurrence Agency Response

This notice is issued by the Department of Environment and Resource Management pursuant to section 287 of the Sustainable Planning Act 2009 ("the Act").

Chief Executive Officer
Ipswich City Council
PO Box 191
IPSWICH QLD 4305

cc. Robin Lewis
Central SEQ Distributor-Retailer Authority
t/a Queensland Urban Utilities
GPO Box 2765
BRISBANE QLD 4001

Att:

[REDACTED]

Phone:

[REDACTED]

Our reference: 240254

Re: Concurrence Agency Response

1. Application Details

Assessment Manager ref: CA1989/2010

Date application referred to DERM: 6 May 2010

Development approval applied for: Development permit

Aspects of development:

Material change of use - Environmentally relevant activities	<i>Sustainable Planning Regulation 2009</i> - Schedule 7, table 2, item 1	DERM ref. no. – 240454 DERM Permit No. SPCE00410110
Material change of use - Contaminated land	<i>Sustainable Planning Regulation 2009</i> - Schedule 7, table 2, item 23	DERM ref. no. – 240454 DERM Permit No. SPCL00410210

Development descriptions: Application for MCU – Major Utility (Sewage Treatment) ERA 63(2)(f) and Chemical Storage (ERA 8, threshold 5)).

Property/Location description: Lot 1 RP887551 (1 Lower Cross Street, Goodna QLD 4300)

2. The Chief Executive, Department of Environment and Resource Management (DERM) concurrence agency response for each of the concurrence agency referral jurisdictions for the aspects of development involved with the application is to tell the assessment manager as follows:

The application is approved subject to conditions, which must attach to any development approval, and those conditions are stated in the attached part of this Notice for the above referral jurisdictions.

3. General advice to assessment manager

Aboriginal Cultural Heritage Act 2003

The applicant has complied with the duty of care in relation to Aboriginal cultural heritage as notification of the Goodna STP upgrade via Native Title and Aboriginal Cultural Heritage Notices has taken place in accordance with the Indigenous Land Use Agreement Clearance Procedure.

Vegetation Management Act 1999

A search of the regional ecosystem mapping, version 6.0 - accessed 10 May 2010 - has identified the subject site contains an area shown as either remnant vegetation or high value regrowth. A free copy of this mapping can be downloaded from www.derm.qld.gov.au.

Queensland's vegetation management framework regulates the clearing of certain native vegetation. It protects the State's biodiversity and, by conserving native vegetation, addresses land degradation issues such as salinity, soil degradation, erosion and declining water quality. If landholders want to clear native vegetation regulated under the vegetation management framework, the clearing must either qualify for an exemption, be conducted in accordance with the regrowth vegetation code or a permit must be obtained from the Department of Environment and Resource Management (DERM).

A guide to the exemptions under the Vegetation Management Framework is available from www.derm.qld.gov.au or alternatively, you can contact the Ipswich Office of DERM on (07) 3884 5300 and request a copy be sent directly to you.

Water Act 2000

The site is located within *Water Resource (Moreton) Plan 2007* area, the take of overland flow is limited by this plan. Operational works that is taking or interfering with overland flow is assessable development as prescribed under Schedule 3, Table 2, item 9 of the *Sustainable Planning Regulation 2009*.

4. Other information

Pursuant to sections 334 and 363 of the Act, a copy of a decision notice or negotiated decision notice issued by the assessment manager must be forwarded to DERM as a referral agency for the relevant application at PO Box 864, IPSWICH QLD 4305 and an electronic copy to palm@derm.qld.gov.au.

The State's Native Title Work Procedures provide that responsibility for assessment of native title issues for an IDAS application rests with the assessment manager. Therefore, DERM as a referral agency for the relevant application has not provided notification to native title parties.

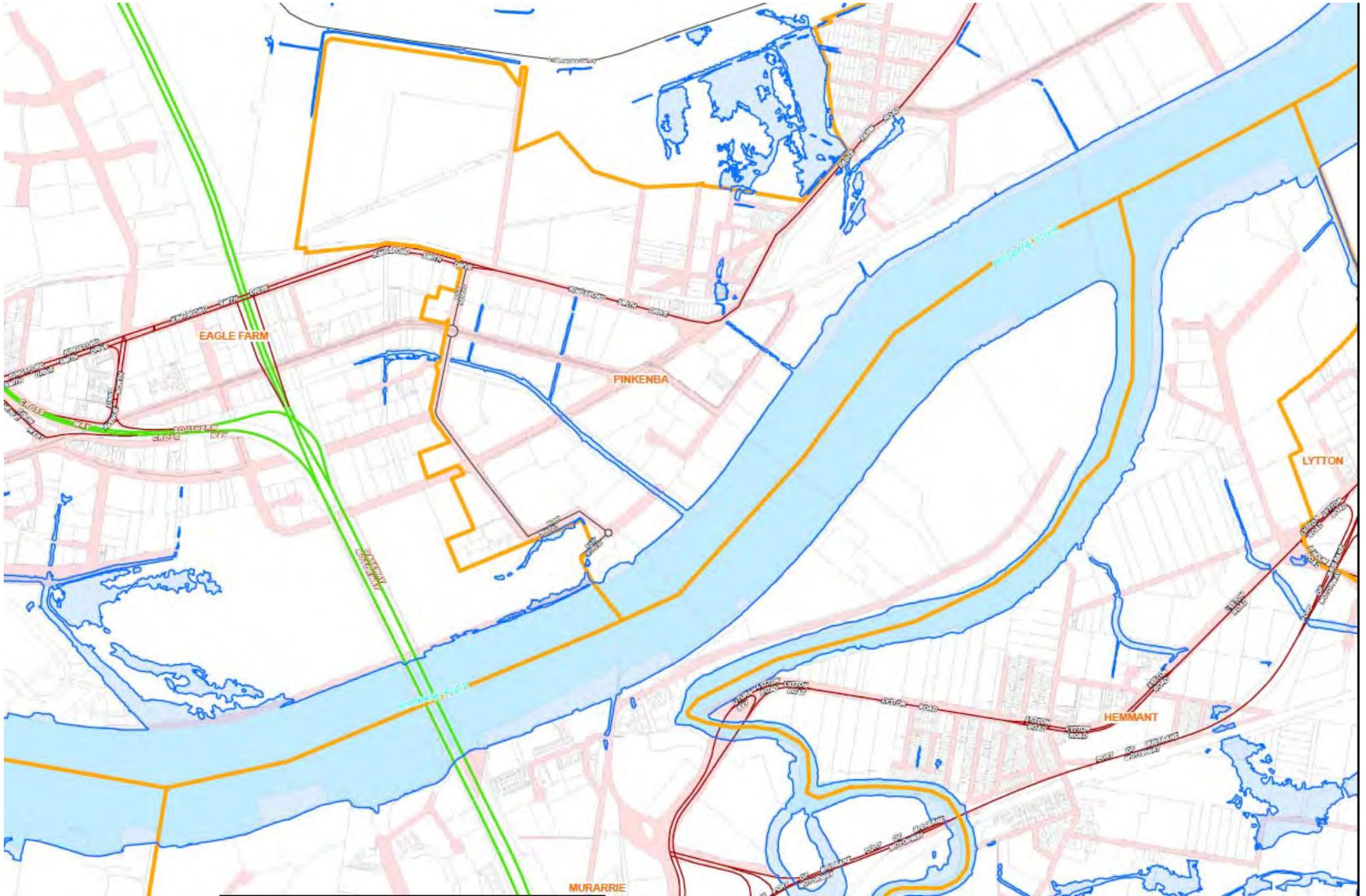
[REDACTED]
[REDACTED]
Delegate of the Administering Authority
Department of Environment and Resource Management
23-DEC-2010

Enquiries:

[REDACTED]
Department of Environment and Resource
Management
Level 1, 114 Brisbane Street, IPSWICH QLD 4305
PO Box 864, IPSWICH QLD 4305
Phone: [REDACTED] 7559
Fax: [REDACTED]
Email: John.Rice@[REDACTED]

Attachments

The parts of this Notice referred to above for each of the DERM referral jurisdictions involved with the application.



Lot 1 (120 Gosport Rd) SP113575, HEMMANT QLD



SmartMap Information Services

Home Feedback Help Logoff

Version 2.8

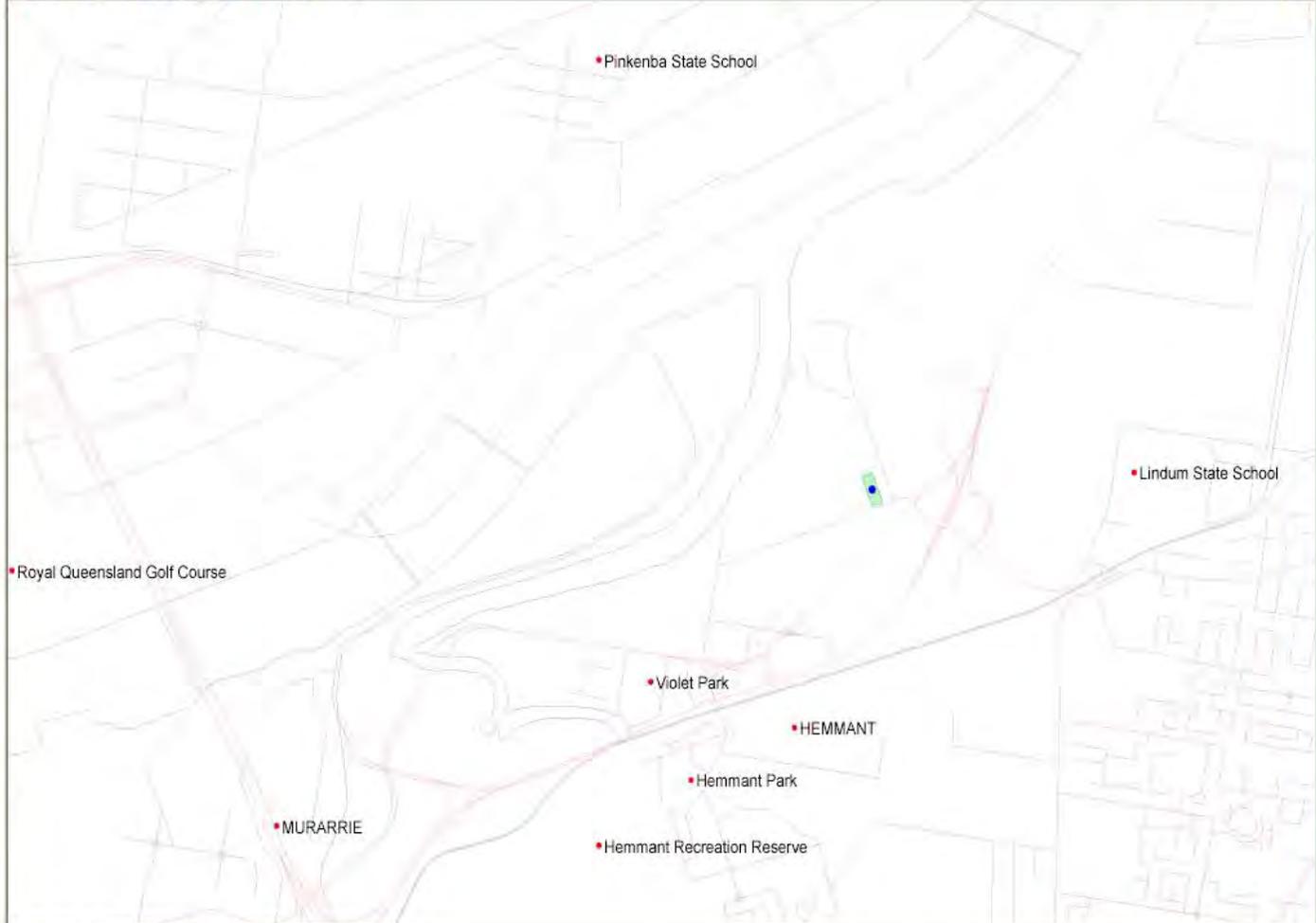
Environment and Resource Management

- [-] Search
 - Profile
 - Find/Locate
- Admin Area
 - Imagery
 - Notings
 - Place Names
 - Survey Marks
 - Survey Plans
- [-] Mapping
 - Profile
 - Settings
- [-] Data Suppression
 - Area By Filter
 - Area By Scale
 - Survey Mark Filter
 - Noting Filter
- [-] Map Suppression
 - Layers
 - User Defined
- Shading
 - Define Area
 - Build Map
 - Refresh Map
 - Export SmartMap
- [+] Other Services
- [+] Admin
- Hide Keymap

Spatial Search Results for Lot 1 on Plan SP113575

[Search Imagery at Point](#)
[Survey Search on selected plan\(s\)](#)

Lot/Plan	1/SP113575
Segment/Parcel:	1635/176
Tenure:	FH - FREEHOLD
Area:	8187.00 m ²
Excluded Area:	0.00 m ²
Surveyed:	Yes
Coverage:	Base
Accuracy:	STANDARD 1:2500 CADASTRAL MAP - 1.5M
Locality:	HEMMANT
Local Government:	BRISBANE CITY
Address:	120 GOSPORT STREET ,HEMMANT
Retrieve Plan Image	
Display additional data	
Current Title Search	
Build Map	





Assessment report

Licensing

13

Environmentally relevant activities

APPLICATION NOTES

- 1 Each assessment report prepared to support recommendations made for decision is to be structured in the format shown below
- 2 Explanatory notes for completing the report are given under each heading in brackets
- 3 The report is to be completed, where indicated, to confirm conclusion of supervisory review/endorsement, and decision stages of the process

This assessment report is for environmentally relevant activities to be assessed via the Integrated Development Assessment System in the Sustainable Planning Act 2009.

COUNCIL DA NUMBER: A002843827	DERM PROJECT NO: 349199
DERM DA NUMBER: SPCE00774310	FILE NO: BST1042
APPLICATION TYPE: Concurrence Agency Response	
DEVELOPMENT TRIGGER: ERA 7(3e) – Fertiliser manufacturing	
DEVELOPMENT DESCRIPTION: Ravensdown Fertiliser Australia	
LOCATION DESCRIPTION: 120 Gosport St Hemmant, Lot 1 on SP113575	
APPLICANT: Michelle Cottrell, Sinclair Knight Merz	
TRADING AS: Ravensdown Fertiliser Australia	

1. Issues

- Contaminated stormwater runoff – there is potential for product to be tracked out of the warehouse or spilled during loading or unloading operations in the rear yard. There are currently no treatment controls in place;
- Floodwaters entraining product – the site is low lying and adjacent to a tidal creek. Assessment has identified a flood risk and large amounts of product could be entrained if controls are not put in place;
- Dust – there is potential for the bagging operation to cause product dust to enter the adjacent creek.

2. Description of operation

Ravensdown operate a facility for the storage and mixing of bulk fertilisers, including urea, potassium chloride, ammonium sulphate and diammonium phosphate. The site consists of a large warehouse for the storage of bulk fertilisers. The total storage capacity at the site is 6500 tonnes of material at any one time which includes:

- Maximum storage of 5,000 tonnes for urea
- Maximum storage of 1,500 tonnes for combination of potassium chloride, ammonium sulphate and DAP.

None of the chemicals stored at the site (urea, potassium chloride, ammonium sulphate, DAP) are dangerous goods / hazardous (they are not included in section 3.2.4.2 of the Australian Dangerous Goods Code (ADGC), 7th edition).

The various products are mixed and bagged in 1 tonne flexible bags or smaller bag sizes. Bagging can occur inside the warehouse or outside under a large side awning depending on the available space. This is contrary to the application in which it states that bagging occurs only inside the warehouse. The filled

bags are then stored under the side awning prior to transport. Trucks enter the site at the front, travel down the eastern side and either unload bulk material into the rear of the warehouse or are loaded with bagged product on the western side under the awning. All trucks exit at the front on the site via the western side.

There is an onsite forklift for the movement of goods. This is serviced by a mobile contractor. There is no fuel storage on site. The site is sealed with drainage points draining via pipes to the creek on the western side, immediately adjacent to the site. Roof stormwater is diverted straight to the creek via pipes with the exception of one downpipe which discharges onto the rear yard. This will need to be diverted directly into a stormwater pipe to prevent this water picking up any contaminants in the rear yard, though realistically, effective housekeeping measures should ensure that the rear yard is cleaned prior to a rain event.

3. Emissions, discharges and environmental compliance

- Dust emissions – this could be an issue if the operator cannot limit bagging to inside the warehouse. Contrary to the application, the operator states that bagging is conducted under the awning outside the warehouse for up to 70% of the time. The operator also states that the products that they are handling are high quality granulated imported products and generate zero to very low levels of dust. Though there are no commercial or residential neighbours that could be affected, dust from bagging, should it occur, must be controlled to ensure no dust finds its way to the adjacent creek. This will have to be monitored and if necessary, changes to the awning to enclose a section for bagging might have to be made;
- Possible contaminants to stormwater - whilst all bulk materials are stored in the warehouse and the bags under the awning, there is the possibility for product to be spilled in the unroofed rear yard or be tracked out of the warehouse on the tyres of trucks and forklifts. There is no treatment of stormwater and the SW pits drain directly to the creek. Housekeeping and monitoring conditions are included as WA3 and WA4 on the DA to address this. If there is a visible failure of housekeeping or monitoring indicates that water quality is affected by the operation, then the operator will need to either improve housekeeping or come up with treatment options to prevent a breach of conditions WA1 and/or WA2 preventing contaminant release to waters. Council has included conditions to upgrade the rear yard SW pit to a gross pollutant trap and is also requiring monitoring against specific guidelines. DERM monitoring requirements are of the same frequency and for specific contaminants to ensure that the operator can meet both agencies requirements in the same monitoring event. Suspended solids has been included in the monitoring regime to acknowledge the potential for tracked mud to be release offsite in SW runoff;
- Possible entrainment of contaminants in flood water – the site is susceptible to flooding. This issue has been addressed by the applicant through their surface water management plan which outlines actions for reducing the risk of entrainment. These include: one-way valves on the SW drain pipe outlet to prevent rising water from backing up the pipes into the site; insertable flood barriers (boards) at the warehouse entrances and; emergency response plans for earlier warning and site preparation. These measures have to be implemented and certified under Council's conditions. DERM's SBMP condition G3 has been modified to include planning for flood in terms of routine operations (valves, boards etc) and non-routine situations (emergency procedures).

4. Assessment considerations

Support and substantiation for the identified relevant considerations are given below under the appropriate headings:

i) **Standard criteria (as applicable)**

Ecological sustainable development

The decision made to issue the permit has integrated the long and short term economic, environmental, social and equity considerations.

Section 51 Environmental Protection Regulation 2008

The administration authority must, for making an environmental management decision relating to an activity, consider the following matters, as set out in Section 51, Ch 4, Part 2 of the *Environmental Protection Regulation 2008 (EP Reg)*.

[s51]

(1) *The administering authority must, for making an environmental management decision relating to an activity, consider the following matters—*

(a) *each of the following under any relevant environmental protection policies—*

(i) *the management hierarchy; addressed below*

(ii) *environmental values; s11 EPP Water 2009 considered*

(iii) *quality objectives; s10 EPP Water 2009 considered*

(iv) *the management intent; Addressed in terms of preventing the release of any contaminants to waters and thus contribute to the improvement of highly disturbed waters (Aquarium Passage and Brisbane River)*

(aa) *environmental values declared under this regulation N/A*

(b) *the characteristics of the contaminants or materials released from carrying out the activity; Nil release – N/A*

(c) *the nature and management of, including the use and availability of technology relating to, the processes being, or to be, used in carrying out the activity; Considered and addressed below.*

(d) *the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes; Nil release – N/A*

(e) *the characteristics of the receiving environment and the potential impact on it from carrying out the activity; Nil release – N/A*

EPP Water considerations:

s13 – Management hierarchy for surface waters – prevention of contaminant contact with stormwater is considered the preferred management solution given the nature of the operation. Should the operator fail to prevent this then treatment systems will be required to prevent breach of conditions requiring no release of contaminants to waters.

Plans, standards and agreements

N/A

Environmental impact statement EIS

N/A

Receiving environment

The site is situated in an industrial area on Gosport St in Hemmant, near the corner with Anton Road, and is in the Australia Trade Coast area. The site consists of a large warehouse occupying two thirds of the site, carparking and entrance at the Gosport St side and a large sealed area at the rear for truck manoeuvring. Down the western side of the warehouse is a large awning and roadway for trucking loading and exiting. Immediately adjacent to this site boundary is a tidal mangrove-lined creek. The stormwater pipes from the roof and yard areas drain to this creek, hence the need to ensure that no contaminants are entrained in stormwater. This creek "flows" to Aquarium Passage and then the Brisbane River. There are no residential or other sensitive receivers in the immediate area with the nearest resident approximately one kilometre to the southeast.

Best practice environmental management

The application states that the plans developed will be implemented to ensure that the issues relating to stormwater and flood water will be managed effectively.

Financial implications

Monitoring and reporting regimes have been established by adopting specific conditions to enable continued assessments of environmental impacts. Adequate funds, equipment and staff time will be provided to meet the commitments of the conditions.

Public interest

No public submissions or enquires have been received for the application. The environmental values of the local community will be protected by the proposed conditions.

Site management plan

The company has demonstrated its commitment to conduct its activities in an environmentally responsible manner by development of its site based management plan. Their environmental monitoring program will commence in accordance with the issued conditions. The SBMP condition has been modified to explicitly state the need to implement control measures and planning for possible flood events.

ii) **Native title comments following notification (if applicable)**

N/A

iii) **Notifiable activity (if applicable)**

The site is not currently on the EMR for former uses. As none of the materials used are dangerous goods, the activity is not a notifiable activity under the *Environmental Protection Act 1994* and, as such, the site does not require listing on the EMR.

iv) **Wild river area consideration (if applicable)**

N/A

5. Consultations

- 18 June 2010 Pre-lodge site inspection with BCC, operator and applicant;
- June 2010 - Email correspondence with applicant regarding ERA requirements;
- 24 August 2010 - Email correspondence with applicant regarding BCC's information request;
- 11 October 2010 - Email correspondence with BCC regarding likely BCC stormwater/flood conditions;
- October 2010 – Email and telephone correspondence with Tony Bradshaw –DERM Project Support – regarding conditioning of DA with regard to water quality issues;

Table 2 - Stormwater Monitoring program

Monitoring point	Quality characteristics	Units	Frequency
Outlet of drainage pipes from rear yard to adjacent creek.	Suspended solids	mg/L	Quarterly upon release
Outlet of drainage pipes from rear yard to adjacent creek.	Total Nitrogen	mg/L	Quarterly upon release
Outlet of drainage pipes from rear yard to adjacent creek.	Total Phosphorus	mg/L	Quarterly upon release

WA5

All determinations of the quality of released stormwater must be performed by a person or body possessing appropriate experience and qualifications to perform the required determinations.

Related to compliance with WA4

WA6

All determinations of the quality of stormwater released to surface waters shall be made in accordance with methods prescribed in the Department of Environment and Resource Management's water quality *Monitoring and Sampling Manual 2009*, or more recent additions or supplements to that document as such become available.

Related to compliance with WA4

WA7

Records must be kept of the results of all determinations of the quality of stormwater released to surface waters for a period of at least five (5) years and be available to the administering authority upon request.

Related to compliance with WA4

8. Recommendation

It is recommended that the proposed development should be:

Select:	If approved select:	If approved, also select:
<input checked="" type="checkbox"/> Approved or	<input checked="" type="checkbox"/> With a development permit or	<input checked="" type="checkbox"/> With conditions or
<input type="checkbox"/> Refused	<input type="checkbox"/> With a preliminary approval or	<input type="checkbox"/> No conditions
	<input type="checkbox"/> In part only	

Assessing Officer: [Redacted]

Signed: [Redacted]

Date: 10/11/10

9. Review and endorsement

Review officer: [Redacted]

Signed: [Redacted]

Date: 10/11/10

Delegate: [Redacted]

Signe [Redacted]

Date: 10/11/10

Permit

Sustainable Planning Act 2009

DERM Permit ¹ number: SPCE00774310

This notice is issued by the Department of Environment and Resource Management pursuant to section 334 (decision notice) of the Sustainable Planning Act 2009 ("the Act").

Assessment manager reference (if any):	A002843827				
Date application received:	26-Jul-2010				
Permit type:	Concurrence agency response				
Date of decision:	10 November 2010				
Decision:	<p>The Chief Executive, Department of Environment and Resource Management (DERM) concurrence agency response for the concurrence agency referral jurisdiction for the aspect of development involved with the application. The subject of this Notice is to tell the assessment manager as follows.</p> <p>Concurrence Response for a MCU involving an ERA.</p> <p>Conditions must attach to any development approval, and those conditions are attached to this Notice.</p>				
Relevant laws and policies:	Sustainable Planning Act				
Jurisdiction(s):					
<table border="1"> <tr> <td>Jurisdiction</td> </tr> <tr> <td>Concurrence Response for a MCU involving an ERA.</td> </tr> </table>	Jurisdiction	Concurrence Response for a MCU involving an ERA.	<table border="1"> <tr> <td>Legislation</td> </tr> <tr> <td><i>Sustainable Planning Regulation 2009 - Schedule 7, table 2, item 1</i></td> </tr> </table>	Legislation	<i>Sustainable Planning Regulation 2009 - Schedule 7, table 2, item 1</i>
Jurisdiction					
Concurrence Response for a MCU involving an ERA.					
Legislation					
<i>Sustainable Planning Regulation 2009 - Schedule 7, table 2, item 1</i>					

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management.

10/11/10



Development Description(s)

Property	Lot/Plan	Aspect of Development
120 Gosport Street, HEMMANT QLD	Lot 1 Plan SP113575	ERA 7 Chemical manufacturing Threshold 3(e) - manufacturing, in a year, a total of 200t or more of fertiliser

Reason(s) for inclusion of conditions

In accordance with section 289 of the *Sustainable Planning Act 2009*, the reason(s) for inclusion of conditions stated in this permit required by the concurrence agency response for the application are as follows.

The conditions are included pursuant to section 73B of the *Environmental Protection Act 1994*.

General advice to assessment manager

Pursuant to sections 334 and 363 of the Act, a copy of a decision notice or negotiated decision notice issued by the assessment manager must be forwarded to DERM as a referral agency for the relevant application at *RSD-DASE South-Beenleigh PO Box 1164, 32 Tansey Street, BEENLEIGH, QLD 4207* and an electronic copy to eco.access@derm.qld.gov.au.

The State's Native Title Work Procedures provide that responsibility for assessment of native title issues for an IDAS application rests with the assessment manager. Therefore, DERM as a referral agency for the relevant application has not provided notification to native title parties.

Additional comments or advice about the application

As per Schedule 2, Part 2, section 8 (2)(b) of the *Environmental Protection Regulation 2008*, development approval for ERA 8 is not required if the storage of chemicals is for the purpose of carrying out an activity under section 7 (ERA 7 – Fertiliser manufacturing).

As per Schedule 7, Table 2, Item 23 of the *Sustainable Planning Regulation 2009*, this application does not require referral to the Contaminated Land Unit, DERM. A notice of an incorrect referral - DERM reference SPCL00774410 - for an MCU involving contaminated land is attached.

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which a development approval is issued is a restatement of the ERA as defined by legislation at the time the approval is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by a development approval as to the scale, intensity or manner of carrying out an ERA, then the conditions prevail to the extent of the inconsistency.

A development permit authorising the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the permit specifically authorises environmental harm.

A person carrying out an ERA must hold a registration certificate issued under the *Environmental Protection Act 1994*, or must be acting under a registration certificate, for the ERA.

Contaminated land

It is a requirement of the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware a Notifiable Activity (as defined in Schedule 3 and Schedule 4 of the *Environmental Protection Act 1994*) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the Department of Environment and Resource Management.

A notice of an incorrect referral - DERM reference SPCL00774410 - for an MCU involving contaminated land is attached.

[Redacted signature block]

Delegate

Chief Executive administering the *Environmental Protection Act 1994*
Department of Environment and Resource Management
10 November 2010

CONDITIONS

Condition for: ERA 7 Chemical manufacturing Threshold 3(e) - manufacturing, in a year, a total of 200t or more of fertiliser

Agency Interest: General

- G1 Prevent and/or minimise likelihood of environmental harm.
In carrying out an ERA to which this approval relates, all reasonable and practicable measures must be taken to prevent and / or to minimise the likelihood of environmental harm being caused.
- G2 Maintenance Of Measures, Plant and Equipment.
The operator of an ERA to which this approval relates must:
- install all measures, plant and equipment necessary to ensure compliance with the conditions of this approval; and
 - maintain such measures, plant and equipment in a proper and efficient condition; and
 - operate such measures, plant and equipment in a proper and efficient manner.
- G3 Site Based Management Plan.
From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review and 'continual improvement' in the overall environmental performance of all ERAs that are carried out.
The SBMP must address the following matters:
- Environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals.
 - Identification of environmental issues and potential impacts.
 - Control measures for routine operations and non-routine situations, including flood, to minimise likelihood of environmental harm.
 - Contingency plans and emergency procedures for non-routine situations, including flood.
 - Organisational structure and responsibility.
 - Effective communication.
 - Monitoring of contaminant releases.
 - Conducting environmental impact assessments.
 - Staff training.
 - Record keeping.
 - Periodic review of environmental performance and continual improvement.
- G4 The site based management plan must not be implemented or amended in a way that contravenes any condition of this approval.

- G5 Records.
Record, compile and keep all monitoring results required by this approval and present this information to the administering authority when requested.
- G6 All records required by this approval must be kept for 5 years.
- G7 Notification.
Telephone the DERM Pollution Hotline or local office as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this approval.
- G8 Information About Spills.
A written notice detailing the following information must be provided to DERM within 14 days of any advice provided in accordance with condition G7:
- a) the name of the operator, including their approval / registration number;
 - b) the name and telephone number of a designated contact person;
 - c) quantity and substance released;
 - d) vehicle and registration details;
 - e) person/s involved (driver and any others);
 - f) the location and time of the release;
 - g) the suspected cause of the release;
 - h) a description of the effects of the release;
 - i) the results of any sampling performed in relation to the release,
 - j) actions taken to mitigate any environmental harm caused by the release; and
 - k) proposed actions to prevent a recurrence of the release.
- G9 Spill Kit.
An appropriate spill kit, personal protective equipment and relevant operator instructions/emergency procedure guides for the management of wastes and chemicals associated with the ERA must be kept at the site, and in each vehicle used if the activity is a mobile ERA.
- G10 Spill Kit Training.
Anyone operating under this approval must be trained in the use of the spill kit.

Agency Interest: Air

- A1 Nuisance.
The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any nuisance sensitive or commercial place.
- A2 When requested by the administering authority, dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter, and

the results notified within 14 days to the administering authority following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include:

- a) for a complaint alleging dust nuisance, dust deposition; and
- b) for a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere over a 24hr averaging time.

A3 Dust Nuisance.

The release of dust and/or particulate matter resulting from the ERA must not cause an environmental nuisance at any nuisance sensitive or commercial place.

Agency Interest: Land

L1 Preventing Contaminant Release To Land.

Contaminants must not be released to land.

L2 Spillage of all chemicals and fuels must be contained within an on-site containment system and controlled in a manner that prevents environmental harm.

NOTE: All petroleum product storage's must be designed, constructed and maintained in accordance with AS 1940 - Storage and Handling of Flammable and Combustible Liquids.

Agency Interest: Noise

N1 Noise Nuisance.

Noise from the ERA must not cause an environmental nuisance at any nuisance sensitive place or commercial place.

N2 All noise from activities must not exceed the levels specified in Table 1 - Noise limits at any nuisance sensitive or commercial place.

N3 Noise Monitoring.

When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within 14 days to the administering authority. Monitoring must include:

- LA 10, adj, 10 mins
- LA eq, adj, 10 mins
- the level and frequency of occurrence of impulsive or tonal noise;
- atmospheric conditions including wind speed and direction;
- effects due to extraneous factors such as traffic noise; and
- location, date and time of recording.

N4 The method of measurement and reporting of noise levels must comply with the latest edition of the Department of Environment and Resource Management's Noise Measurement Manual.

Agency Interest: Social

S1 Complaint Response.

The operator of the ERA must record the following details for all complaints received and provide this information to the administering authority on request:

- a) Time, date, name and contact details of the complainant;
- b) reasons for the complaint;
- c) any investigations undertaken;
- d) conclusions formed; and
- e) any actions taken.

Agency Interest: Waste

W1 Waste Records

A record of all waste generated by the activity must be kept detailing the following information:

- a) date of pickup of waste;
- b) description of waste;
- c) quantity of waste;
- d) origin of waste;
- e) destination of the waste.

W2 Trackable wastes as listed in Schedule 1 of the *Environmental Protection (Waste Management) Regulation 2000* are to be managed as in accordance with a waste tracking system established under the above Regulation.

Agency Interest: Water

WA1 Contaminants other than settled/treated stormwater runoff waters must not be released from the site to surface waters or the bed or banks of surface waters.

WA2 There must be no release of stormwater runoff that has been in contact with any contaminants at the site to any waters, roadside gutter or stormwater drain.

WA3 Within three (3) months of this development approval being issued, the holder of this development approval must develop and implement a site housekeeping procedure for effective reduction of any spilled or tracked product in unroofed areas of the site. The housekeeping procedure must include, but not be limited to:

- (i) development of management initiatives to increase employee awareness of the need for and benefit of pollution prevention;
- (ii) improvement of material handling and storage to avoid spills and product tracking;
- (iii) operator training to reduce leaks, spills and product tracking;
- (iv) no bagging of product in unroofed areas;
- (v) minimising loading and unloading in unroofed areas;
- (vi) no loading and unloading in unroofed areas in rain events;
- (vii) sweeping and/or vacuuming of spilled or tracked product daily and prior to any rain event;
- (viii) no use of water to clean unroofed areas unless all water is captured and disposed of appropriately.

WA4 The holder of this development approval is responsible for the making of determinations and keeping of records of the quality of the stormwater released from the site for the quality characteristics and at the frequency and monitoring point specified in Table 2.

- WA5 All determinations of the quality of released stormwater must be performed by a person or body possessing appropriate experience and qualifications to perform the required determinations.
- WA6 All determinations of the quality of stormwater released to surface waters shall be made in accordance with methods prescribed in the Department of Environment and Resource Management's water quality *Monitoring and Sampling Manual 2009*, or more recent additions or supplements to that document as such become available.
- WA7 Records must be kept of the results of all determinations of the quality of stormwater released to surface waters for a period of at least five (5) years and be available to the administering authority upon request.

Table 1 - Noise limits

Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
Noise measured at a 'Noise sensitive place'						
L _{A10} , adj, 10 mins	Bkg + 5	Bkg + 5	Bkg + 0	Bkg + 5	Bkg + 5	Bkg + 0
L _{Aeq} , adj, 10 mins	Bkg + 3	Bkg + 3	Bkg + 0	Bkg + 3	Bkg + 3	Bkg + 0
Noise measured at a 'Commercial place'						
L _{A10} , adj, 10 mins	Bkg + 10	Bkg + 10	Bkg + 5	Bkg + 10	Bkg + 10	Bkg + 5
L _{Aeq} , adj, 10 mins	Bkg + 8	Bkg + 8	Bkg + 3	Bkg + 8	Bkg + 8	Bkg + 3

Bkg = background noise level measured as L_{A90}

Table 2 - Stormwater Monitoring program

Monitoring point	Quality characteristics	Units	Frequency
Outlet of drainage pipes from rear yard to adjacent creek.	Suspended solids	mg/L	Quarterly upon release
Outlet of drainage pipes from rear yard to adjacent creek.	Total Nitrogen	mg/L	Quarterly upon release
Outlet of drainage pipes from rear yard to adjacent creek.	Total Phosphorus	mg/L	Quarterly upon release

10/11/10

DEFINITIONS

Words and phrases used throughout this permit¹ are defined below. Where a definition for a term used in this permit¹ is sought and the term is not defined within this permit¹ the definitions provided in the relevant legislation shall be used.

"administering authority" means the Department of Environment and Resource Management or its successor.

"annual return" means the return required by the annual notice (under section 316 of the *Environment Protection Act 1994*) for the section 73F registration certificate that applies to the development approval.

"approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the *Sustainable Planning Act 2009*.

"approved plans" means the plans and documents listed in the approved plans section in the notice attached to this development approval.

"artificial waterway" means an artificial channel, lake or other body of water. Artificial waterway includes –

- an artificial channel that is formed because the land has been reclaimed from tidal water and is intended to allow boating access to allotments on subdivided land;
- other artificial channels subject to the ebb and flow of the tide; and
- any additions or alterations to an artificial waterway.

"authorised place" means the place authorised under this development approval for the carrying out of the specified environmentally relevant activities.

"commercial place" means a place used as an office or for business or commercial purposes.

"dwelling" means any of the following structures or vehicles that is principally used as a residence –

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a water craft in a marina.

"Department of Environment and Resource Management" means the department or agency (whatever called) administering the *Coastal Protection and Management Act 1995* or the *Environmental Protection Act 1994*.

"intrusive noise" means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration –

- is clearly audible to, or can be felt by, an individual; and
- annoys the individual.

In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 – 1997 Acoustics – Description and Measurement of Environmental Noise Part 2 – Application to Specific Situations.

" $L_{A 10, \text{adj}, 10 \text{ mins}}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

" $L_{A 1, \text{adj}, 10 \text{ mins}}$ " means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response.

" $L_{Aeq \text{adj}, T}$ " means an A-weighted sound pressure level of continuous steady sound, adjusted for tonal character, that within a measuring period (T) has the same mean square sound pressure as a sound level that varies with time.

"land" in the "land schedule" of this document means land excluding waters and the atmosphere.

"mg/L" means milligrams per litre.

"noxious" means harmful or injurious to health or physical well being.

"NTU" means nephelometric turbidity units.

"nuisance sensitive place" includes –

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- a kindergarten, school, university or other educational institution; or
- a medical centre or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- a public thoroughfare, park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

"offensive" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"regulated waste" means waste that -

- is commercial or industrial waste, whether or not it has been immobilised or treated; and
- is of a type, or contains a constituent of a type, mentioned in Schedule 7 of the *Environmental Protection Regulation 2008*

Regulated waste includes -

- for an element - any chemical compound containing the element; and
- anything that contains residues of the waste.

"site" means land or tidal waters on or in which it is proposed to carry out the development approved under this development approval.

"tidal water" means the sea and any part of a harbour or watercourse ordinarily within the ebb and flow of the tide at spring tides.

"watercourse" means a river, creek or stream in which water flows permanently or intermittently-

- in a natural channel, whether artificially improved or not; or
- in an artificial channel that has changed the course of the watercourse.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

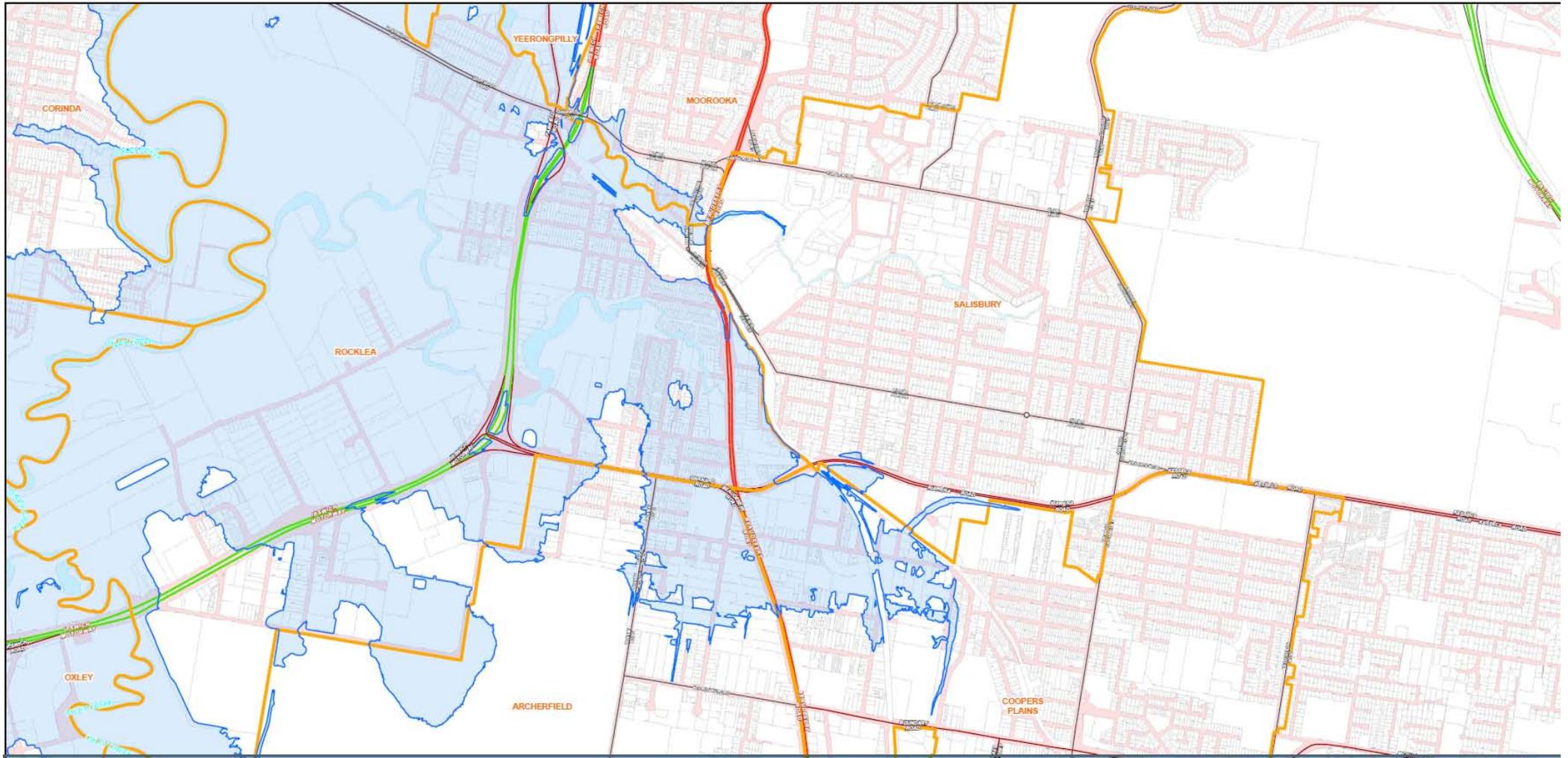
"works" or "operation" means the development approved under this development approval.

"you" means the holder of this development approval or owner / occupier of the land which is the subject of this development approval.

"50th percentile" means not more than three (3) of the measured values of the quality characteristic are to exceed the stated release limit for any six (6) consecutive samples for a release/monitoring point at any time during the environmental activity(ies) works.

"80th percentile" means not more than one (1) of the measured values of the quality characteristic is to exceed the stated release limit for any five (5) consecutive samples for a sampling point at any time during the environmental activity(ies) works

END OF CONDITIONS



Lot 1 (1477 Ipswich Rd) RP223672, Rocklea QLD 4106



SmartMap Information Services

Version 2.8

Environment and Resource Management

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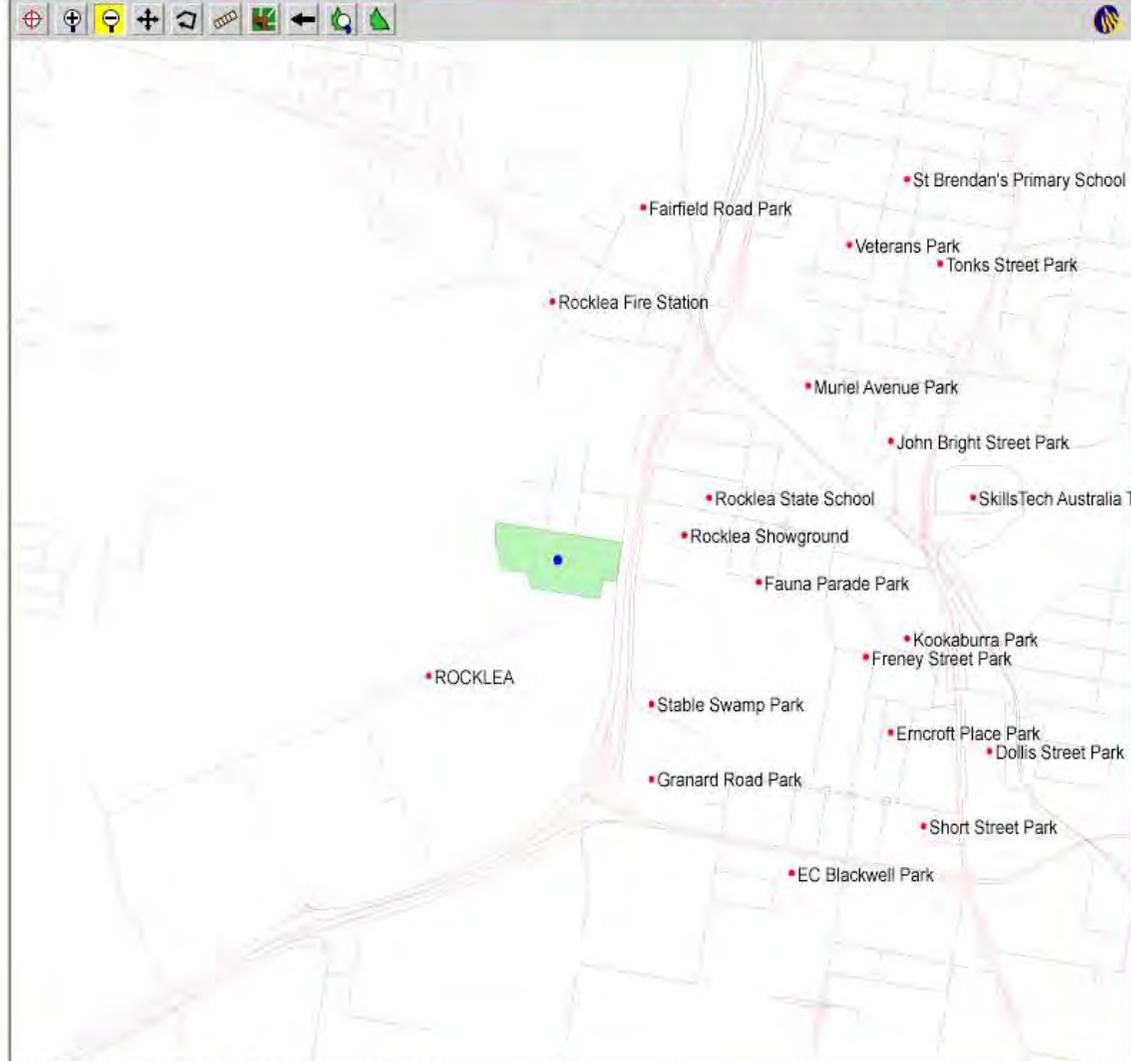
- [-] Search**
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- Admin Area**
- Imagery**
- Notings**
- Place Names**
- Survey Marks**
- Survey Plans**
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 - Profile
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 - Area By Filter
 - Area By Scale
 - Survey Mark Filter
 - Noting Filter
- [-] Map Suppression**
 - Layers
 - User Defined
- Shading**
 - Define Area
 - Build Map
 - Refresh Map
 - Export SmartMap
- [+] Other Services**
- [+] Admin**
- Hide Keymap**

Spatial Search Results for Lot 1 on Plan RP223672

[Search Imagery at Point](#)
[Survey Search on selected plan\(s\)](#)

Lot/Plan	1/RP223672
Segment/Parcel:	19473/23
Tenure:	FH - FREEHOLD
Area:	7.0840 ha
Excluded Area:	0.00 m ²
Surveyed:	Yes
Coverage:	Base
Accuracy:	STANDARD 1:2500 CADASTRAL MAP - 1.5M
Locality:	ROCKLEA
Local Government:	BRISBANE CITY
Address:	1477 IPSWICH ROAD ,ROCKLEA

[Retrieve Plan Image](#)
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H16- Tank Integrity Testing	Nil	activity. This condition has been removed as it is irrelevant for the activity being conducted on site. The condition relates to an underground fuel storage tank.
H25 - The registered operator of this development approval must arrange for the data gathered in accordance with this development approval to be analysed and interpreted to assess the nature and extent of any environmental impact of the environmentally relevant activity. The data, analysis and assessment must be submitted to the administering authority with each Annual Return.	H25 - The registered operator of this development approval must arrange for the data gathered in accordance with this development approval to be analysed and interpreted to assess the nature and extent of any environmental impact of the environmentally relevant activity. The data, analysis and assessment must be submitted to the administering authority with the Annual Return every three years.	The condition was amended to require reporting every three years as a compromise between Dulux's request for five-yearly monitoring and DERM's preference for annual monitoring. Three years is considered reasonable to identify and report on environmental impacts.
Total organic compounds definition	Volatile organic compounds definition	The total organic compounds definition has been replaced with volatile organic compounds to reflect the replacement of terms in the licence conditions.



A/Principal Environmental Officer
Brisbane City South
South East Region
Regional Service Delivery
Department of Environment and Resource Management

<p>H4(c): the following tests must be performed for each required determination specified in Table 1:</p> <ul style="list-style-type: none"> (i) gas velocity and volume flow rate; and (ii) temperature; and (iii) water vapour concentration (moisture content). 	<p>must be in accordance with a method as approved by New South Wales DEC/EPA, Victorian EPA or United States EPA.</p> <p>H4(d) the following tests must be performed for each required determination specified in Table 1:</p> <ul style="list-style-type: none"> (i) gas velocity and volume flow rate; and (ii) temperature. 	<p>Water vapour has been removed as it is not relevant to the activities conducted by Dulux.</p>
<p>H4(e) during the sampling period the following additional information must be gathered; operating conditions including:</p> <ul style="list-style-type: none"> (i) production rate at the time of sampling; (ii) raw materials used; (iii) number of equipment and mixing vessels operating; (iv) operating or mixing temperature; and (v) product made. 	<p>H4(f) during the sampling period the following additional information must be gathered; operating conditions including:</p> <ul style="list-style-type: none"> (i) production rate at the time of sampling and product made; (ii) raw materials used; (iii) number of equipment and mixing vessels operating; (iv) operating or mixing temperature; and (v) any typical factors that may influence air emissions (e.g. abnormal cleaning operations). 	<p>The additional requirement to record any factors that may influence air emissions will allow for improved interpretation of any abnormal results.</p>
<p>Schedule H – table 1 – Required release point determinations Requirement to monitor emissions annually.</p>	<p>Schedule H – table 1 – Required release point determinations Requirement to monitor emissions every six months for the first three years, then annually.</p>	<p>The increased monitoring requirement for the first three years of the amended DA will allow the DERM and Dulux to better characterise the emissions from the activity and therefore assess the environmental impact of the operation.</p>
<p>H12-HI5: Reporting of total hydrocarbons release to air</p>	<p>H12-HI5: Reporting of total volatile organic compounds (VOC) release to air</p>	<p>These conditions have been altered to replace 'hydrocarbons' with 'VOC' throughout to address VOC's as the main concern for the</p>

<p>(i) allow waste to burn or be burnt at or on the approved place; nor</p> <p>(ii) remove waste from the approved place and burn such waste elsewhere except as permitted by the conditions of this development approval.</p>	<p>approval may remove waste from the approved place for processing at an appropriately licensed facility.</p>	<p>to Geocycle for energy recovery in the Cement Australia kiln in Gladstone.</p>
<p>G13-G18 : Fugitive emissions (volatile organic carbon) minimisation plan</p>	<p>G13-G18 : Fugitive emissions (volatile organic compound) minimisation plan</p>	<p>This condition has been amended to correct the carbon to read compounding throughout the condition.</p>
<p>G22: Storage conditions</p> <p>There must be no visible leakage of the contents from any waste container</p>	<p>G22: All reasonable and practicable measures must be taken to prevent leakage of the contents from any waste container.</p> <p>G23: Any visible leakage of the contents from any waste container must cleaned up as quickly as practicable.</p>	<p>This condition was re-worded to respond to Dulux's concern that any visible leakage being a breach of the DA was unreasonable; the new wording still achieves the DERM's objective of preventing waste leakage having a detrimental environmental impact.</p>
<p>H4(a): all determinations of the quality of contaminants released must be performed by a person or body possessing appropriate experience and qualifications to perform the required measurements.</p>	<p>H4(a): all determinations of the quality of contaminants released must be performed by a person or body registered by the National Association of Testing Authorities (NATA) or by a person or body possessing appropriate experience and qualifications to perform the required measurements.</p>	<p>The inclusion of NATA requirement is standard for new DA's and is considered best practice.</p>
<p>Nil</p>	<p>All determinations of contaminant releases to the atmosphere must be made in accordance with methods prescribed in the most recent version of the Department of Environment and Resource Management's Air Quality Sampling Manual. If monitoring requirements for specific contaminants are not described in the Department of Environment and Resource Management's Air Quality Sampling Manual, monitoring protocols</p>	<p>The inclusion of this condition ensures monitoring is in accordance with methods considered acceptable by the DERM.</p>

Nil	Air pollution controls	the limit for future project managers. This condition has been added to allow Dulux to use either and activated carbon filter (as per the existing licence condition) or a biofilter (see below).
Nil	Biofilter	This condition has been added as Dulux have expressed an interest in potentially replacing their activated carbon filter with a biofilter. The wording of this condition has been supplied as a standard condition from the Technical Operations Branch (Suhail Khan).
B16 – B19: Activated carbon filter	Activated carbon filter	This condition has had some maintenance requirements added to it as recommended by the Technical Operations Branch (Suhail Khan).
Nil	Control of fugitive VOC emissions	This condition has been added as recommended by the Technical Operations Branch (Suhail Khan) to address concerns relating to fugitive VOC emissions from the site that are not otherwise addressed by the existing licence nor monitored by Dulux at the present time.
Nil	Tank lids	This condition has been added as a result of the improvement in VOC emissions that resulted from installation of tank lids.
Nil	Equipment cleaning	This condition has been added to address the VOC's released during cleaning operations which was discovered to be one of the major sources of VOC's during the EE process.
Nil	Volatile Organic Compounds (VOC) management plan	This condition has been added as recommended by the Technical Operations Branch (Suhail Khan) in an effort to prevent VOC emissions affecting the amenity and health of the local community.
G2: The registered operator of this development approval must not:	Addition of: G3: The registered operator of this development	The additional condition has been included to allow Dulux to continue to provide solvent waste

Nil	Throughput scale limit	<p>This condition has been added as a standard condition used to enforce the need to gain an MCU for a significant change in capacity. This condition is further insurance on the relaxing of the release limits. Dulux were opposed to setting a numeric throughput scale limit so the alternative wording that requires Dulux to calculate the impact of any changes in emissions and whether an MCU will be triggered is proposed.</p>
<p>Nil</p> <p>Schedule B – Table 1 – release heights and velocities:</p> <ul style="list-style-type: none"> • E10 & E11 – 13m • E17 – 13m 	<p>Housekeeping procedures</p> <p>Schedule B – Table 1 – release heights and velocities:</p> <ul style="list-style-type: none"> • E10 & E11 – 14m • E17 – 9m 	<p>This condition is proposed to further encourage Dulux to commit to continual improvement and VOC minimisation.</p> <p>These stack heights have been altered to reflect the existing (unchanged) stack heights. As no complaints or environmental issues have been report as a result of these existing stack heights, the lowering of one (in the condition not reality) is reasonable.</p>
<p>Schedule B – Table 3 – release limits of contaminants to atmosphere</p> <ul style="list-style-type: none"> • Total organic compounds (E5 & E6) – 120 g/min • Total organic compounds (E8) – 50 g/min • Total organic compounds (E9) – 10 g/min • Total organic compounds (E10 & E11) – 10 g/min • Total particulates (E10, E11 & E17) – 2 g/min 	<p>Schedule B – Table 3 – release limits of contaminants to atmosphere</p> <ul style="list-style-type: none"> • Volatile Organic Compounds (VOC) expressed as n-hexane equivalent – 750 g/min • Toluene – 650 g/min • Xylene – 280 g/min • Benzenes – 1 g/min • Total particulates (E10, E11 & E17) – 2 g/min (unchanged) 	<p>The release limits have been altered to bubble limits for the site as per Dulux’s request. The limits have been set through rigorous negotiation and scientific reasoning (see meeting notes and documents on file BST778).</p>
Nil	<p>Bubble release limit of VOC and Bubble release limit of Toluene, Xylene and Benzenes</p>	<p>These conditions outline the method of calculation for determining the bubble limit. This not only makes it clear how Dulux are to calculate whether they comply with the limit but it provides a record of how the DERM calculated</p>

Memorandum

Department of Environment
and Resource Management

Enquiries
Telephone
Your reference
Our reference

[Redacted]

BS7778

30 September 2010

To:

[Redacted] A/Manager – Brisbane City South, ES-RSD

From:

[Redacted] A/Principal Environmental Officer, Brisbane City South, ES-RSD

Subject:

Amendment of Dulux Group Pty Ltd's development approval for ERA 7(2)(b) – Chemical manufacturing (solvent-based paint).

Following commission of two environmental evaluations (EE), the DERM and Dulux have been collaborating on amending Dulux's licence conditions to more accurately reflect the activity being conducted in an aim to prevent future, ongoing breaches of the licence. The following conditions have been proposed for amendment for the reasons included in the table:

Existing condition	Proposed condition	Reason for amendment
Nil	Site based management plan	The site based management plan (SBMP) condition has been added to the DA as a standard condition. The standard condition has been amended to include the annual reporting of continual improvement due to the relaxing of Dulux's release limits. Without adding this reporting requirement, there is a risk that Dulux will not have sufficient encouragement to continually improve their work practices.

Assessment report
Environmental Protection Act 1994 – Chapter 4 activities

See above for maintaining oil-water separator.

Dulux have an oil-water separator associated with the 'first flush' of stormwater. Additionally, the site operates within a containment bund that holds water until it can be safely released or removed for treatment.

(g) treating the affected area.

Y, N

Examples— mulching, revegetating, using surface covers or soil agglomerants

- N/A

PART D: RECOMMENDATION

State the significant factors taken into account in making this assessment and state the reasons for the recommendation overall:

It is recommended that the proposed development should be:

Approved with conditions

Approved with no conditions

Refused

Deborah Bowden



15 October 2010

Assessing Officer

Signed

Date

Review and Endorsement

Insert any comments relevant for the delegates consideration:

Paul Butcher



19/10/10

Manager/Supervisor

Signed

Date

Assessment report

Environmental Protection Act 1994 – Chapter 4 activities

Use this assessment report for the assessment of applications for Environmentally Relevant Activities pursuant to Chapter 4 of the Environmental Protection Act 1994. Preparation of this assessment report is evidence that the criteria to be evaluated by the administering authority have been taken into consideration when making a decision. This assessment report may be used to assist in structuring requested information and clarification from applicants.

DERM PROJECT NO: 240187	DERM FILE NUMBER: BST778
NAME OF APPLICANT:	Dulux Group (Aust) Pty Ltd
DEVELOPMENT TYPE:	MCU for ERA 7.1 (Chemical Manufacturing)
REFERAL AGENCIES:	Nil
SITE LOT & PLAN NUMBER:	Lot 1 RP223672
SITE ADDRESS:	1477 Ipswich Road, Rocklea QLD

CRITICAL DATES (as set by the Process Manager)	DUE DATE	ACTUAL DATE
PRELIMINARY ADVICE		
INFORMATION REQUEST		17 March 2010
DRAFT CONDITIONS	13 October 2010	
ASSESSMENT REPORT	15 October 2010	

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PART A: GENERAL

1. Description of proposed activity

Dulux have been undertaking the proposed activity on site but have inadvertently allowed their DA to lapse. The site operates between 5am and 11pm Monday to Friday; during peak periods operations increase to include weekends and 24 hour operation. The site produces 40 million tonnes of paint per annum, approximately 80% of which is water-based paint. The bead plant mill manufactures a further 2.2 million litres of paint intermediate for internal use each year. There are plans to increase the plant's capacity to 70 million litres by 2015. Paint ingredients used at the site are: pigments, resin (latexes or emulsions), solvent (water and glycol) and additives. In general terms, the paint process involves dispersion, mixing and filling.

2. Site description

Dulux operate on a 10 hectare site bounded by industrial properties to the north and south, Stable Swamp Creek to the west, and Ipswich Road to the east. The site has *General Industry* designation under Brisbane City Council's City Plan 2000.

The site is described as having silty clay, graduating to medium and heavy clays with potential acid sulfate soils. Stable Swamp Creek is tidally influenced and groundwater at the site is believed to be 5-10m below the grounds surface.

3. Mapping assessment

Detail the mapping documents considered in completing this report:

- | | |
|--|---|
| <input type="checkbox"/> Proponent maps supplied | <input type="checkbox"/> Property map of assessment |
| <input checked="" type="checkbox"/> Proponent drawings supplied | <input type="checkbox"/> Local government maps |
| <input checked="" type="checkbox"/> Ecomaps with relevant layers | <input type="checkbox"/> Other <Insert details> |

4. Documents/plans submitted

Detail the documents provided by the applicant in respect to this assessment:

- | | |
|---|---|
| <input type="checkbox"/> Site management plan | <input type="checkbox"/> Monitoring programs |
| <input type="checkbox"/> Environmental management plan | <input type="checkbox"/> Environmental Impact Statement |
| <input checked="" type="checkbox"/> Stormwater management procedure | <input type="checkbox"/> Other <Insert details> |

5. History of Relevant Activities/Applicant (if relevant)

The applicant holds a DA for solvent-based paint manufacture (IPDE00962108) and a deemed approval for chemical storage; Dulux is the registered operator of solvent-based paint manufacture, water-based paint manufacture and chemical storage on site.

6. Third party advice

Dr Suhail Khan provided significant input into the recent amendment of the solvent-based DA. These conditions have been replicated on the water-based DA.

7. Summary of Contaminants (emissions/discharges)

The emissions of concern on site are volatile organic compounds (VOCs), particularly toluene, xylene and benzene.

8. Information Request

Identify whether an information request is required through Process Manager.

PART B: ASSESSMENT CONSIDERATIONS

Instructions:

All legislative considerations within each table must be assessed for relevance and marked as appropriate. An explanatory statement for the basis for the recommendation must be given in the row below.

- **Y** is marked when the criterion is **relevant** and **has been satisfied**.
- **N** is marked when the criterion is **relevant** but **has not been satisfied**.
- **NK** is marked when the criterion is relevant but when there is **not enough information known** to make an adequate assessment.
- **NA** is marked for a criterion when it is **not applicable**.

When considering the assessment criteria, comments should be given in sufficient detail for the delegate to be informed as to why they are relevant and how they impact on a decision. Information provided should reflect the complexity of issues.

Under each legislative criteria (marked in shaded box), there are often some prompt questions. These are merely used to provide some guide to assessing officers, and should not be the only matters taken into consideration.

1. Objective of the Environmental Protection Act 1994

<i>Section 3 of the Environmental Protection Act 1994 states: The object of this Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).</i>	Y, N, NK, NA
	Y
Dulux's solvent based licence was recently amended after lengthy negotiations with Dulux and significant work by Dr Suhail Khan of Technical Operations Branch to reach a satisfactory licensing outcome. The DERM ensured that the licence required continual improvement as well as set limits appropriate for the environment at Rocklea. These same conditions are proposed for the water-based licence.	

2. Scale or intensity

If the application is for an increase in the scale or intensity of a chapter 4 activity the administering authority must assess the application having regard to the following, as set out in sch73A of the *Environmental Protection Act 1994*:

3 (a) the proposed activity; and (b) the existing activity; and (c) the total likely or potential environmental harm the proposed activity and the existing activity, may cause.	Y, N, NK, NA
<ul style="list-style-type: none"> • Take into consideration the whole activity rather than just the part that is the increase, where there is an increase in the scale or intensity. 	Y
While this DA appears to be increasing the scale of the operations at Dulux's Rocklea site by adding waterbased paint manufacture to the list of permitted activities, this is not in fact the case. Dulux has been operating this activity on site for a number of years but has inadvertently allowed the licence to lapse.	

3. Environmental Management Decision

The administering authority must, for making an environmental management decision relating to an activity, consider the following matters, as set out in Section 51, Ch 4, Part 2 of the *Environmental Protection Regulation 2008 (EP*

Reg). The initial section of this report has been broken up into four sections, air, noise, waste & water, for ease of completion by the assessing officer. All sections must be addressed.

AIR

<i>(a) each of the following under any relevant environmental protection policies— (i) the management hierarchy;</i>	Y, N, NK, NA
<p>The management hierarchy is listed under section 9 of the <i>Environmental Protection (Air) Policy 2008</i>. Work progressively through each step as illustrated below:</p> <p>Avoid:</p> <ul style="list-style-type: none"> • Does the technology exist for emissions to be avoided? • If so, has this technology been adopted? • If the technology exists but has not been adopted, what explanation has the applicant given? • For example, using technology that avoids air emissions. <p>Recycle:</p> <ul style="list-style-type: none"> • Does the technology exist for emissions to be reused in a different part of the process? • If yes, and recycling practices have not been adopted, what explanation has the applicant given? • For example, re-using air emissions in another industrial process. <p>Minimise:</p> <ul style="list-style-type: none"> • What measures are being taken to minimise emissions? • How are emissions being treated? • What control measures are in place? • If no minimising actions are in place, what explanation has the applicant given? • For example, treating air emissions before disposal. <p>Manage:</p> <ul style="list-style-type: none"> • If emissions are being released, how is that process managed to avoid or minimise impacts? • For example, locating a thing that releases air emissions in a suitable area to minimise the impact of the air emissions. 	Y
<p>Dulux have implemented the following emission minimisation measure:</p> <ul style="list-style-type: none"> • Design and retrofitting of lids to the closed head bead mill (CHBM) pots: The lids eliminate the constant VOC draw off associated with the CHBM and have reduced emissions from emission point E6 by 80%. • Dust control devices that are maintained on a regular basis: as a result no significant dust releases have been reported. <p>As a result of two environmental evaluations, Dulux have reported that the current air emissions from the plant are not causing environmental harm. Further, there have been no odour complaints attributed to the Dulux factory in recent times. The release limits on Dulux’s solvent-based paint licence have recently been increased and changed to a bubble limit to prevent ongoing breaches of the DA; however, these new limits have been calculated through rigorous scientific assessment and negotiations with Dulux to minimise and manage the emissions as much as practicable. These limits therefore are considered appropriate to manage the emissions that are an inevitable consequence of the paint manufacturing process.</p>	

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(a) each of the following under any relevant environmental protection policies— (ii) environmental values;	Y, N, NK, NA
<p>The environmental values are listed under section 7 and schedule 1 of the <i>Environmental Protection (Air) Policy 2008</i>.</p> <ul style="list-style-type: none"> • Consider the environmental values that are relevant for the area (such as health and well being, biodiversity of ecosystems, protecting the aesthetic environment, protecting agriculture, and community amenity.) • Consider whether these environmental values will be enhanced or protected? • Consider whether these environmental values will be compromised/adversely affected by the emissions from the proposed activity? • If a risk has been identified, then refer to the schedules to identify the emission and the associated value being protected and minimum ambient standards? • Note: The standards are not point source, they are at airshed level, and they must not be used as proxy standards for emissions. The impact of point source emissions on ambient standards should be assessed and conditions applied to ensure that ambient standards are not compromised. 	Y
<p>The release limits on Dulux's existing solvent based licence that are now proposed for the water based licence have been designed to allow Dulux to operate without filling the capacity of the air shed. The relevant environmental values (as listed below) will be protected:</p> <ul style="list-style-type: none"> • Benzene – health and well being 10µg/m³ • Styrene – health and well being 280µg/m³ protecting aesthetic environment 75µg/m³ • Toluene – health and well being 410µg/m³ protecting aesthetic environment 1.1mg/m³ • Xylenes – health and wellbeing 950µg/m³ <p>For more information on how the licence limits were calculated in accordance with the EPP Air, see Dr Suhail Khan's document '<i>Rationale for the Selection of Bubble Release Limits</i>' F88, BST778(3).</p>	
(a) each of the following under any relevant environmental protection policies— (iii) quality objectives;	Y, N, NK, NA
<p>The quality objectives listed under section 8 and schedule 1 of the <i>Environmental Protection (Air) Policy 2008</i>.</p> <ul style="list-style-type: none"> • The quality objectives are the limit at which there can be confidence that these environmental values can be maintained. • Consider how the impacts on the ambient quality objectives are going to be minimised? • Consider how the activity is going to keep its impacts within the acceptable levels for the entire airshed? 	Y See (a)(ii) above.
(a) each of the following under any relevant environmental protection policies— (iv) the management intent.	Y, N, NK, NA
<ul style="list-style-type: none"> • Consider this criterion only in relation to water. 	NA

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<i>(b) the characteristics of the contaminants or materials released from carrying out the activity;</i>	Y, N, NK, NA
<p>A contaminant as defined under section 11 of the <i>Environmental Protection Act 1994</i>, can be—</p> <ul style="list-style-type: none"> (a) a gas, liquid or solid; or (b) an odour; or (c) an organism (whether alive or dead), including a virus; or (d) energy, including noise, heat, radioactivity and electromagnetic radiation; or (e) a combination of contaminants. <ul style="list-style-type: none"> • What releases to the environment are associated with the activity? • How hazardous/toxic is the release to the environment? • What are the concentrations of the contaminant(s) releases? • How do the contaminants react when in contact with other substances? 	Y
<p>The emissions of concern on site are volatile organic compounds (VOCs), particularly toluene, xylene and benzene. Dust is an additional concern but the use of dust control devices has minimised this emission. Toluene and xylenes affect the central nervous system; benzene is a known carcinogen. Dulux have reported that the existing levels of emissions result in very low levels of contaminants at sensitive receptors. Further, Dr Suhail Khan addresses environmental health impacts in his above referred document. From 2006 to 2009, Dulux’s annual maximum emissions (in g/min) for total VOCs was 581.5, for the site for toluene was 501.16, for benzene was 0.11 and for xylenes 172.94.</p>	
<i>(c) the nature and management of, including the use and availability of technology relating to, the processes being, or to be, used in carrying out the activity;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Provide details regarding the proposed technology for the activity. • Consider whether the type of technology and the way in which it is to be managed is best practice environmental management for that activity? • What explanation has the applicant provided if no best practice technology / management practices are proposed for the activity? • What process controls are in place and how do they detect/respond to process failures? • Note: Best practice environmental management is also examined under Standard Criteria (g). 	Y
<p>Dulux is utilising improving technologies to produce water-based paints with improved performance (compared to historical formulations) which is encouraging water-based paint market growth. As a result of increased consumption of water-based paints, Dulux are continuing to decrease the production of solvent-based paints in favour of water-based paints which in turn limits the VOC’s being released during manufacturing.</p>	
<i>(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Consider the receiving environment and the current sources of contaminants. Information may be derived through, for example, an Environmental Impact Assessment Report, ambient monitoring data, or an information request for the applicant. • Consider the contribution of this activity and the impact on ambient levels in the receiving environment. • Consider whether the release of contaminants will adversely affect or compromise the environmental values of the receiving environment. 	Y
<p>The release limits proposed retain some assimilative capacity in the air shed for the contaminants released from Dulux’s Rocklea site.</p>	

NOISE

(a) each of the following under any relevant environmental protection policies— (i) the management hierarchy;	Y, N, NK, NA
<p>The management hierarchy is listed under section 9 of the <i>Environmental Protection (Noise) Policy 2008</i>. Work progressively through each step as illustrated below:</p> <p>Avoid:</p> <ul style="list-style-type: none"> • Does the technology exists for emissions to be avoided? • If so, has this technology been adopted? • If the technology exists but has not been adopted, what explanation has the applicant given? • Example of avoid include, consider locating an industrial activity in an area that is not near a sensitive receptor. <p>Minimise:</p> <ul style="list-style-type: none"> • What measures are being taken to minimise emissions? • Consider firstly orientating an activity to minimise noise (eg facing a part of an activity that makes noise away from a sensitive receptor). • Consider secondly, the use of best available technology. • What control measures are in place? • If no minimising actions are in place, what explanation has the applicant given? <p>Manage:</p> <ul style="list-style-type: none"> • If emissions are being released, how is that process managed to avoid or minimise impacts? • For example, using heavy machinery only during business hours. 	Y
<p>Noise sources at the Dulux Rocklea site have been identified as: fork lift trucks, bulk liquid transfer pumps, on-site traffic, dust collectors and other equipment. Dulux minimise their noise emissions by maintaining equipment in good working order. No noise complaints have been registered for the site. Due to the limited noise sources and emissions from the site, the activity's noise is not causing environmental harm and thorough assessment against the EPP Air is not warranted.</p>	

(a) each of the following under any relevant environmental protection policies— (ii) environmental values;	Y, N, NK, NA
<p>The environmental values listed under section 7 and schedule 1 of the <i>Environmental Protection (Noise) Policy 2008</i>.</p> <ul style="list-style-type: none"> • Consider the environmental values that are relevant for the area (such as health and well being, biodiversity of ecosystems, protecting the aesthetic environment, protecting agriculture, and community amenity.) • Consider whether these environmental values will be enhanced or protected? • Consider whether these environmental values will be compromised/adversely affected by the emissions from the proposed activity? • If a risk has been identified, then refer to the schedules to identify the emission and the associated value being protected and minimum ambient standards? • Note: The standards are not point source, they are at airshed, water body or sensitive receptor level, and they must not be used as proxy standards for emissions. The impact of point source emissions on ambient standards should be assessed and conditions applied to ensure that ambient standards are not compromised. 	NA

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<i>(a) each of the following under any relevant environmental protection policies— (iii) quality objectives;</i>	Y, N, NK, NA
<p>The quality objectives listed under section 8 and schedule 1 of the <i>Environmental Protection (Noise) Policy 2008</i>.</p> <ul style="list-style-type: none"> • The quality objectives are the limit at which there can be confidence that these environmental values can be maintained. • Consider how the impacts on the ambient quality objectives are going to be minimised? • Consider how the activity is going to keep its impacts within the acceptable levels for the entire airshed, waterbody, sensitive receptor? 	NA

<i>(a) each of the following under any relevant environmental protection policies— (iv) the management intent.</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Consider this criterion only in relation to water. 	NA

<i>(b) the characteristics of the contaminants or materials released from carrying out the activity;</i>	Y, N, NK, NA
<p>A contaminant as defined under section 11 of the <i>Environmental Protection Act 1994</i>, can be—</p> <ul style="list-style-type: none"> (a) a gas, liquid or solid; or (b) an odour; or (c) an organism (whether alive or dead), including a virus; or (d) energy, including noise, heat, radioactivity and electromagnetic radiation; or (e) a combination of contaminants. <ul style="list-style-type: none"> • What releases to the environment are associated with the activity? • How hazardous/toxic is the release to the environment? • What are the concentrations of the contaminant(s) releases? • How do the contaminants react when in contact with other substances? 	NA

<i>(c) the nature and management of, including the use and availability of technology relating to, the processes being, or to be, used in carrying out the activity;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Provide details regarding the proposed technology for the activity. • Consider whether the type of technology and the way in which it is to be managed is best practice environmental management for that activity? • What explanation has the applicant provided if no best practice technology / management practices are proposed for the activity? • What process controls are in place and how do they detect/respond to process failures? • Note: Best practice environmental management is also examined under Standard Criteria (g). 	NA

<i>(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Consider the receiving environment and the current sources of contaminants. Information may be derived through, for example, an Environmental Impact Assessment Report, ambient monitoring data, or an information request for the applicant. • Consider the contribution of this activity and the impact on ambient levels in the receiving environment. • Consider whether the release of contaminants will adversely affect or compromise the environmental values of the receiving environment. 	NA

WASTE MANAGEMENT

(a) each of the following under any relevant environmental protection policies— (i) the management hierarchy;	Y, N, NK, NA
<p>The management hierarchy is listed under section 10 and Schedule 1 of the <i>Environmental Protection (Waste Management) Policy 2000</i>. Work progressively through each step as illustrated below:</p> <p>Avoid:</p> <ul style="list-style-type: none"> • Consider whether the technology exists for preventing the generation of waste or reducing the amount of waste generated? • If so, has this technology been adopted? • If the technology exists but has not been adopted, what explanation has the applicant given? • Examples of practices for achieving waste avoidance— <ul style="list-style-type: none"> - input substitution - increased efficiency in the use of raw materials, energy, water or land - process redesign - product redesign - improved maintenance and operation of equipment - closed-loop recycling. <p>Waste re-use:</p> <ul style="list-style-type: none"> • What measures are being taken to re-use waste, without first substantially changing its form? • Examples include - <ul style="list-style-type: none"> - recovering solvents, metals, oil, or components or contaminants from catalysts and re-using them for a secondary purpose - applying waste to land in a way that gives agricultural and ecological benefits - substituting waste for virgin material in a production process <p>Waste recycling:</p> <ul style="list-style-type: none"> • What measures are being taken to treat waste that is no longer useable in its present form and using it to produce new products? • Consider whether the technology exists for water recycling? • If no recycling is occurring and the technology exists, what explanation has the applicant given? <p>Energy recovery from waste:</p> <ul style="list-style-type: none"> • What measures are being taken to recover and use energy generated from waste? • Consider whether the technology exists for energy recovery from waste? • If no energy recovery from waste is occurring and the technology exists, what explanation has the applicant given? • Examples include burning waste, using the heat to heat water and using the hot water in an industrial process <p>Waste disposal:</p> <ul style="list-style-type: none"> • Consider whether the waste is being treated prior to disposing of the waste. How is that being done to cause the least harm to the environment? • If waste is being disposed without being treated, how is that process managed to avoid or minimise impacts? • Examples of treatment before disposal— <ul style="list-style-type: none"> - employing a biotreatment to degrade material into a compound or mixture - employing a physico-chemical treatment (for example, evaporation, drying, calcination, catalytic processing, neutralisation, precipitation or encapsulation) to obtain a compound or mixture - blending or mixing waste to obtain a compound or mixture - storing or repackaging waste - employing thermal processes, with or without catalysts, to convert waste into a non-hazardous material 	<p>Y</p>

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<ul style="list-style-type: none"> • Examples of disposal— <ul style="list-style-type: none"> - disposal to a landfill - destroying thermally without recovering heat or another secondary product 	
<p>Wastes attributed to the Dulux Rocklea site have been identified as: Solid waste (non-hazardous), liquid waste (non-hazardous) and hazardous waste (non-recoverable solvent waste).</p> <p>Dulux <i>avoid</i> producing waste at the Rocklea site through strategies relating to: waste reduction; plastic, cardboard/paper and water washings minimisation. Dulux have reformulated their paints to move away from high washout solvent demanding equipment (e.g. batch beadmills replaced by closed head bead mills) which minimised solvent use as has changes to washout procedures. Additional solvent use is also avoided by scheduling production to minimise the requirement for solvent washout.</p> <p>Dulux <i>reuse</i> disperser washout; white water and solvent mixer washouts in products; steel 200L drums and 1000L plastic shutz boxes are cleaned and reused by a drum reconditioner. One-trip wooden pallets get reused by the turf industry, while layer pads and lid cartons are reused by the can supplier.</p> <p>Plastics, cardboard, clean cans and lids are all <i>recycled</i>.</p> <p>All remaining wastes are disposed of to land fill or via a trade waste agreement with Brisbane City Council. No wastes are released directly to the environment.</p>	

<p>(a) each of the following under any relevant environmental protection policies— (ii) environmental values;</p>	Y, N, NK, NA
<p>The environmental values listed under section 7 of the <i>Environmental Protection (Waste Management) Policy 2000</i>.</p> <ul style="list-style-type: none"> • Consider the environmental values that are relevant for the area (such as health and well being, biodiversity of ecosystems, protecting the aesthetic environment, protecting agriculture, and community amenity.) • Consider whether these environmental values will be enhanced or protected? • Consider whether these environmental values will be compromised/adversely affected by the emissions from the proposed activity? • If a risk has been identified, then refer to the schedules to identify the emission and the associated value being protected and minimum ambient standards? • Note: The standards are not point source, they are at airshed, water body or sensitive receptor level, and they must not be used as proxy standards for emissions. The impact of point source emissions on ambient standards should be assessed and conditions applied to ensure that ambient standards are not compromised. 	NA

<p>(a) each of the following under any relevant environmental protection policies— (iii) quality objectives;</p>	Y, N, NK, NA
<p>The quality objectives listed under section 6 of the <i>Environmental Protection (Waste Management) Policy 2000</i>.</p> <ul style="list-style-type: none"> • The quality objectives are the limit at which there can be confidence that these environmental values can be maintained. • Consider how the impacts on the ambient quality objectives are going to be minimised? • Consider how the activity is going to keep its impacts within the acceptable levels for the entire airshed, waterbody, sensitive receptor? 	NA

<p>(a) each of the following under any relevant environmental protection policies— (iv) the management intent.</p>	Y, N, NK, NA
<ul style="list-style-type: none"> • Consider this criterion only in relation to water. 	NA

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<i>(b) the characteristics of the contaminants or materials released from carrying out the activity;</i>	Y, N, NK, NA
<p>A contaminant as defined under section 11 of the <i>Environmental Protection Act 1994</i>, can be—</p> <ul style="list-style-type: none"> (a) a gas, liquid or solid; or (b) an odour; or (c) an organism (whether alive or dead), including a virus; or (d) energy, including noise, heat, radioactivity and electromagnetic radiation; or (e) a combination of contaminants. <ul style="list-style-type: none"> • What releases to the environment are associated with the activity? • How hazardous/toxic is the release to the environment? • What are the concentrations of the contaminant(s) releases? • How do the contaminants react when in contact with other substances? 	NA
<i>(c) the nature and management of, including the use and availability of technology relating to, the processes being, or to be, used in carrying out the activity;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Provide details regarding the proposed technology for the activity. • Consider whether the type of technology and the way in which it is to be managed is best practice environmental management for that activity? • What explanation has the applicant provided if no best practice technology / management practices are proposed for the activity? • What process controls are in place and how do they detect/respond to process failures? • Note: Best practice environmental management is also examined under Standard Criteria (g). 	NA
<i>(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Consider the receiving environment and the current sources of contaminants. Information may be derived through, for example, an Environmental Impact Assessment Report, ambient monitoring data, or an information request for the applicant. • Consider the contribution of this activity and the impact on ambient levels in the receiving environment. • Consider whether the release of contaminants will adversely affect or compromise the environmental values of the receiving environment. 	NA

WATER

(a) each of the following under any relevant environmental protection policies— (i) the management hierarchy;	Y, N, NK, NA
<p>The management hierarchy is listed under section 15 of the <i>Environmental Protection (Water) Policy 1997</i>. Work progressively through each step as illustrated below:</p> <p>Waste prevention:</p> <ul style="list-style-type: none"> • Evaluate waste prevention options and implement appropriate waste prevention • Consider whether the technology exists for preventing the generation of waste or reducing the amount of waste generated? • If so, has this technology been adopted? • If the technology exists but has not been adopted, what explanation has the applicant given? <p>Waste water treatment and recycling:</p> <ul style="list-style-type: none"> • If waste prevention does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water recycling options and implement appropriate treatment and recycling. • What measures are being taken to treat and recycle waste? • Consider whether the technology exists for waste treatment and recycling? • If no treatment or recycling is occurring and the technology exists, what explanation has the applicant given? <p>Waste water treatment and waste water disposal options of release on land, release to sewer and release to a surface water:</p> <ul style="list-style-type: none"> • If waste water treatment and waste water recycling does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water disposal options of release on land, release to sewer and release to a surface water and implement appropriate treatment and disposal; • Consider how the waste is being treated prior to disposing of the waste. • How is that being done to cause the least harm to the environment? • Consider impacts of release on land, release to sewer and release to surface water. • Consider whether the technology exists to eliminate all waste water? If the technology exists, what explanation has the applicant given if this has not been adopted? <p>Waste water treatment and waste water disposal to ground water:</p> <ul style="list-style-type: none"> • If waste water treatment and waste water disposal does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water disposal to ground water and implement appropriate treatment and disposal. • Consider how the waste is being treated prior to disposing of the waste. • How is that being done to cause the least harm to the environment? • Consider impacts of release to ground water. 	<p>NA – No waste water is released directly to the environment as a result of the activity. All water used on site for washing utensils, kitchens etc is disposed of via a registered waste operator or trade waste.</p>

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<i>(a) each of the following under any relevant environmental protection policies— (ii) environmental values;</i>	Y, N, NK, NA
<p>The environmental values listed under section 7 and schedule 1 of the <i>Environmental Protection (Water) Policy 1997</i>.</p> <ul style="list-style-type: none"> • Consider the environmental values that are relevant for the area (such as health and well being, biodiversity of ecosystems, protecting the aesthetic environment, protecting agriculture, and community amenity.) • Consider whether these environmental values will be enhanced or protected? • Consider whether these environmental values will be compromised/adversely affected by the emissions from the proposed activity? • If a risk has been identified, then refer to the schedules to identify the emission and the associated value being protected and minimum ambient standards? • Note: The standards are not point source, they are at airshed, water body or sensitive receptor level, and they must not be used as proxy standards for emissions. The impact of point source emissions on ambient standards should be assessed and conditions applied to ensure that ambient standards are not compromised. 	NA

<i>(a) each of the following under any relevant environmental protection policies— (iii) quality objectives;</i>	Y, N, NK, NA
<p>The quality objectives listed under section 11 and schedule 1 of the <i>Environmental Protection (Water) Policy 1997</i>.</p> <ul style="list-style-type: none"> • The quality objectives are the limit at which there can be confidence that these environmental values can be maintained. • Consider how the impacts on the ambient quality objectives are going to be minimised? • Consider how the activity is going to keep its impacts within the acceptable levels for the entire airshed, waterbody, sensitive receptor? 	NA

<i>(a) each of the following under any relevant environmental protection policies— (iv) the management intent.</i>	Y, N, NK, NA
<p>The management intent is defined under: - section 16 of the <i>Environmental Protection (Water) Policy 1997</i>.</p>	NA

<i>(b) the characteristics of the contaminants or materials released from carrying out the activity;</i>	Y, N, NK, NA
<p>A contaminant as defined under section 11 of the <i>Environmental Protection Act 1994</i>, can be—</p> <ul style="list-style-type: none"> (a) a gas, liquid or solid; or (b) an odour; or (c) an organism (whether alive or dead), including a virus; or (d) energy, including noise, heat, radioactivity and electromagnetic radiation; or (e) a combination of contaminants. <ul style="list-style-type: none"> • What releases to the environment are associated with the activity? • How hazardous/toxic is the release to the environment? • What are the concentrations of the contaminant(s) releases? • How do the contaminants react when in contact with other substances? 	NA

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<i>(c) the nature and management of, including the use and availability of technology relating to, the processes being, or to be, used in carrying out the activity;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Provide details regarding the proposed technology for the activity. • Consider whether the type of technology and the way in which it is to be managed is best practice environmental management for that activity? • What explanation has the applicant provided if no best practice technology / management practices are proposed for the activity? • What process controls are in place and how do they detect/respond to process failures? • Note: Best practice environmental management is also examined under Standard Criteria (g). 	NA
<i>(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Consider the receiving environment and the current sources of contaminants. Information may be derived through, for example, an Environmental Impact Assessment Report, ambient monitoring data, or an information request for the applicant. • Consider the contribution of this activity and the impact on ambient levels in the receiving environment. • Consider whether the release of contaminants will adversely affect or compromise the environmental values of the receiving environment. 	NA

SITE CHARACTERISTICS

<i>(e) the characteristics of the receiving environment and the potential impact on it from carrying out the activity;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> Consider the broad impacts on the environment that will result from carrying out the activity? For example, building a dam may involve vegetation clearing, extraction of rock, and inundation of habitat. Consider the specific characteristics of the environment that are also impacted? For example rare and threatened species, acid sulphate soils, highly erodable soil, proximity to a heritage site? Outline the data sets and modelling tools that have been used to characterise the receiving environment and the impact of an activity. 	Y
The proposed ERA has been carried out at this site for a number of years; the continuation of this activity is not expected to have any broad environmental impacts outside those assessed under Air Emissions.	
<i>(f) for each affected person for the activity—the order of occupancy or use between the person carrying out the activity and the affected person;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> Consider the order in which the activity and affected person(s) in an area have been established. Consider whether there are pre-existing sensitive receptors adjacent to and in the vicinity of the proposed activity. Identify the process controls, technology, and management responses that will be used to avoid and mitigate impacts on pre-existing sensitive receptors. 	Y
The nearest residential properties and a primary school are located 600m to the north and north-east of the site. There have been no impacts reported on these receptors in recent years; Dulux has complaint response processes in place should an issue occur.	
<i>(g) the remaining capacity of the receiving environment to accept contaminants or wastes released from future activities while protecting the environmental values;</i>	Y, N, NK, NA
<p>Refer to</p> <ul style="list-style-type: none"> - schedule 1 of the <i>Environmental Protection (Air) Policy 2008</i>; - schedule 1 of the <i>Environmental Protection (Noise) Policy 2008</i>; - schedule 1 of the <i>Environmental Protection (Water) Policy 1997</i>. <ul style="list-style-type: none"> Whether the emissions from the activity exhaust / consume all of the available assimilative capacity of the ambient environment? Whether there is a potential for the proposed equipment/processes for the activity to improve the impacts on the receiving environment? Whether the emissions from the activity will cause an exceedance of the ambient quality objectives for environmental values? Whether the type of technology and the way in which it is to be managed is best practice environmental management for the activity? Have monitoring and reporting regimes been established to detect/respond to process failures and enable continued assessments of environmental impacts? The data sets and modelling tools that will be used to monitor changes in the characteristics of the receiving environment. 	Y
Release limits have been set at a level below the capacity of the receiving environment.	

<i>(h) the quantity and type of greenhouse gases released, and the measures proposed to demonstrate the release is minimised using best practice methods that include strategies for continuous improvement.</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Identify the nature and quantum of greenhouse gases being emitted by the activity. • Consider whether there are processes in place for minimising or operating these emissions? 	NA

4. Other Regulatory Requirements

Does the activity involve or potentially involve:

- the release of water or waste to land
- the release of water, other than stormwater, to surface water
- the release of water stormwater to the receiving environment
- the release of water or waste to a referable wetland or a significant coastal wetland for treatment
- berthing, docking or mooring a boat
- storing or moving bulk material
- disturbance of acid sulfate soil
- disturbance of acid-producing rock
- the release of waste directly to groundwater (the receiving groundwater)
- the release of contaminants indirectly to groundwater (the receiving groundwater).

For each item that has been ticked, the matching section outlined below will need to be completed. For matters that have not been selected, these sections should be deleted from the report.

For an activity that involves or may involve the **release of water stormwater to the receiving environment**, the administering authority must consider the following matters, as set out in Section 57, Ch 4, Part 3 of the *Environmental Protection Regulation 2008* (EP Reg).

<i>(a) the topography of, and climatic conditions affecting, the receiving environment;</i>	Y, N, NK, NA
<p>Stable Swamp Creek flows to the Brisbane River via Oxley Creek. These waterways are tidal downstream of the Dulux Rocklea site. Other than roof runoff (via stormwater drainage line 2), no stormwater is discharged directly to Stable Swamp Creek from the Dulux site.</p> <p>Stormwater drainage line 1 collects stormwater from the north road and northern section of the raw materials unloading area as well as controlled release of water from drum bund #2. The 'first flush' (2.5mm in a 15min period) water from stormwater drainage line one is treated in the factory triple interceptor (oil and water separator); the resultant water is discharged via sprinkler on site. After the 'first flush' water goes directly to the site containment dam.</p> <p>Stormwater drainage line 3 collects stormwater from the southern road and roof stormwater from the south east corner of the auto filling building. This water is discharged directly to the site containment dam.</p> <p>The site containment dam is emptied to Stable Swamp Creek if determined appropriate by the Maintenance Team Leader from inspection of water colour and clarity and presence/absence of film or scum on the surface.</p>	
<i>(b) if the activity involves exposing or disturbing soil—the soil type, its characteristics and the way it is managed;</i>	Y, N, NK, NA
NA	

<i>(c) if the activity involves the storage of materials or wastes that are exposed to rainfall or stormwater run-off—the characteristics and containment of the material or waste;</i>	Y, N, NK, NA
<p>The Dulux Rocklea site is contained within an earthen levee that can hold up to 3500 m³ of stormwater and/or firewater runoff for subsequent treatment and safe disposal if required. If suitable, water can be discharged from the site containment dam to Stable Swamp Creek via the main valve which is kept closed.</p> <p>The stormwater discharged from the site could come in contact with contaminants on the hard surfaces; a typical analysis of water in the site containment dam (from 15 April 2009):</p> <ul style="list-style-type: none"> • DO 4.0mg/L • pH 7.1 (6.5-8.0) • Suspended solids 6mg/L (<6mg/L) • Total organic C 13mg/L • COD as O₂ 47mg/L • Benzene <1.0µg/L (600µg/L) • Toluene <2.0µg/L • Ethyl Benzene <1.0µg/L • Meta & para-Xylene <2.0µg/L • Ortho-Xylene <1.0µg/L (200µg/L) • 1.2.4-Trimethylbenzene <1.0µg/L <p>The levels above in brackets indicate guideline trigger values from the EPP Water or ANZECC Guidelines; where there are no brackets there was insufficient data to produce guidelines or, in the case of DO, the guidelines are presented as %saturation. The contaminants in the stormwater being released from the Dulux Rocklea site are at (suspended solids) or below (all other contaminants tested) the guideline trigger values for Stable Swamp Creek.</p>	

5. The Standard Criteria

The standard criteria are defined under Sch 3 of the *Environmental Protection Act 1994*:

<i>(a) the principles of ecologically sustainable development as set out in the 'National Strategy for Ecologically Sustainable Development'</i>	Y, N, NK, NA
<p>The guiding principles set out in the 'National Strategy for Ecologically Sustainable Development' are:</p> <ul style="list-style-type: none"> - decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations - where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation - the global dimension of environmental impacts of actions and policies should be recognised and considered - the need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised - the need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised - cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms - decisions and actions should provide for broad community involvement on issues which affect them. <p>Note: This is only a summary of the <i>National Strategy for Ecologically Sustainable Development</i>. Where particular points are relevant, further guidance can be found at: http://www.environment.gov.au/esd/</p> <ul style="list-style-type: none"> • Identify short term and long term considerations? • Are there threats of serious environmental damage? If yes, expand in point (e) of the Standard Criteria. • Is there any relevant government or international policies or conventions? For example State Planning Policies, Policy position on Coal Seam Gas (CSG), Stockholm conventions (PCBs). • Consider impacts on species extinction, endangered species, species at risk, habitat at risk, eg koalas. • Consider contribution towards climate change, impacts on World Heritage Areas, Great Barrier 	Y

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<p>Reef.</p> <ul style="list-style-type: none"> • How will this business contribute to local and state economies? • Is the matter effectively dealt with through the national competition policy? • Are there any complainants in relation to this issue? Have they been consulted? 	
<p>As a major paint manufacturer, Dulux contributes to the local economy. There have been no complainants in relation to this site in recent times therefore there has been no need for consultation. The proposed ERA is a continuation of an existing activity occurring on site and is considered to meet the objectives of ecologically sustainable development.</p>	

<i>(b) any applicable environmental protection policy;</i>	Y, N, NA, NK
<ul style="list-style-type: none"> • Refer to assessment considerations under - Environmental Management Decisions. 	

<i>(c) any applicable Commonwealth, State or local government plans, standards, agreements or requirements;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • How has the information provided by the applicant been considered having regard to the nature of the industry, and the receiving environment? • Is the proposed project consistent with state and local government policy statements or approvals. Examples include State Planning Policies, the SEQ Regional Plan, the State Coastal Management Plan, National Action Plan on Salinity. • How have the National Health and Medical Research Council (NHMRC) and Australian and New Zealand Environment and Conservation Council (ANZECC) guidelines been used to assist in benchmarking the environmental performance of the proposed project? • Does the performance of the proposed activity conform to relevant Australian standards? 	Y
<p>The proposed site is zoned industrial under the Brisbane City Council City Plan 2000. The NHMRC and ANZECC guidelines have been utilised in assessing and conditioning this activity.</p>	

<i>(d) any applicable environmental impact study, assessment or report;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Has an Environmental Impact Study (EIS) been conducted and background information reviewed? • Consider the results of an environmental evaluation? • Has baseline data on ambient air and surface water quality been reviewed? How will this activity impact on values and quality of the receiving environment? • Is monitoring in place or will monitoring be required to assess the ongoing impact of the activity on the environment? • Is the proposed activity consistent with the recommendations of any EIS assessment report prepared for the activity? 	Y
<p>Dulux have prepared two environmental evaluations for the Rocklea Site; the resultant reports have provided significant data utilised in formulation of the proposed conditions and this assessment report.</p>	

<i>(e) the character, resilience and values of the receiving environment;</i>	Y, N, NA, NK
<ul style="list-style-type: none"> • Refer also to assessment considerations under - Environmental Management Decisions. • What is the nature of the surrounding environment? • Detail any sensitive receptors and proximity to these. • Have the characteristics of the environment in which the proposed project is to be developed been identified and taken into consideration in the project design and operational activities? • Is the current zoning of the subject site and surrounding areas and the location of sensitive land uses been considered? 	Y
<p>See above assessment that details the character, resilience and values of the receiving environment.</p>	
<p><i>Note: where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation – see (a) of the Standard Criteria.</i></p>	

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<i>(f) all submissions made by the applicant and submitters;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Have all of the documents submitted by the applicant been considered? • Have any properly made submissions by the public/other government agencies/local government been considered? • Note: A submitter for an application, as defined in <i>Schedule 4 of the EP Act</i>, means a person who makes a properly made submission about the application. • A properly made submission, as defined in <i>Schedule 4 of the EP Act</i> are: <ul style="list-style-type: none"> (a) for chapter 3 (Environmental Impact Statements) —see section 55(2); or (b) for chapter 5A, part 2, division 4—see section 310L(2). 	Y
All documents submitted by the applicant have been considered; no third party submissions have been applicable to this application.	

<i>(g) the best practice environmental management for activities under any relevant instrument, or proposed instrument, as follows—</i> <i>(i) an environmental authority;</i> <i>(ii) a transitional environmental program;</i> <i>(iii) an environmental protection order;</i> <i>(iv) a disposal permit;</i> <i>(v) a development approval;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • The best practice environmental management of an activity as set out under section 21 of the <i>EP Act</i>, is the management of the activity to achieve an ongoing minimisation of the activity's environmental harm through cost-effective measures assessed against the measures currently used nationally and internationally for the activity. • Is the applicant carrying out the proposed activity elsewhere, and if so, is the same or improved technology to be used? 	Y
Dulux are committed on continuous environmental improvement in the activities carried out at the Rocklea site.	

<i>(h) the financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out, under the instrument;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Consider the cost of implementing and complying with conditions that are proposed for the activity, are these reasonable? • Are the cost implications of the requirements likely to result in a competitive disadvantage compared to other operators of the same type of industry? 	Y
Dulux have agreed to the proposed conditions during negotiation of the amendment of their solvent-based paint DA; accordingly, the conditions are considered to be reasonable and unlikely to result in a competitive disadvantage.	

<i>(i) the public interest;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Will the proposal serve or diminish benefit to the community generally? • Consider matters such as economic benefits, employment, social welfare, access and equity considerations including community service obligations, occupational health and safety and multicultural values, providing a necessary service or is it going to detract from community values. • For example a sewerage treatment plant provides a public health benefit. 	NA

<i>(j) any applicable site management plan;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • A site management plan (SMP) means a site management plan approved under chapter 7, part 8 (contaminated land), as defined in <i>Schedule 4 of the EP Act</i>. • Is there a Site Management Plan to manage any existing contamination on the proposed land subject to this application? (Note: Check lot & plan details). • Is there any conflict between the requirements of the Site Management Plan and the activity? 	NA

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<i>(k) any relevant integrated environmental management system or proposed integrated environmental management system;</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • An integrated environmental management system (IMS), for an environmentally relevant activity or activities, means a system for the management of the environmental impacts of the carrying out of the activity or activities, as defined in <i>Schedule 4 of the EP Act</i>. • An IMS can include a site management plan or an activity based management plan. • Consider whether the IMS for the site includes sufficient measures to minimise the environmental impacts of carrying out the activity/ies? • Consider whether the IMS includes contingency plans to deal with equipment failures or adverse natural conditions? 	Y
Dulux have an Environmental Management System, the details of which are contained in appendix A of Environmental Evaluation 1; this EMS has sufficient measures to minimise environmental impact and includes contingencies for incidents such as spills and fires.	
<i>(l) any other matter prescribed under a regulation.</i>	Y, N, NK, NA
•	NA

PART C: CONDITIONS FOR APPROVAL

- No conditions are recommended.
- Ecotrack conditions are recommended.
- Non-Ecotrack conditions are recommended. (see below)

Drafting Guidelines

There are four key principles in drafting conditions:

- **Relevance** - must provide a relevant, and not unreasonable imposition on, the activity or the development or the use of premises:
 - There must be a nexus between the impact or issue being managed and the condition imposed;
 - Is it within our jurisdiction to impose – what action or activity is being regulated?
- **Reasonableness** - must be reasonably required in respect of the activity, development or the use of premises, given the environmental impact or issue that is trying to be managed or minimised
 - Assess the level of the impact or issue being managed compared to how onerous the condition is
- **Certainty** - must be reasonably capable of sensible interpretation.
 - Is it clear, unambiguous and easily interpreted?
- **Finality** - must not make the condition subject to some further act or approval.
 - Is the condition within the control of the recipient?
 - Is there a third party involved that could prevent the recipient from complying?

In addition, considerations should be taken into account in relation to enforcement of the condition:

- Is the condition **easy to audit**?
 - Can you assess compliance by visual observations or easy measurements or samples?
- If breached, it is **easy to prove a breach** of the condition?
 - What evidence would be needed to show the condition has been breached?
 - Have you dealt with only one issue per condition and kept the requirements as short and as simple as possible?

Finally the type of condition should be considered in respect to the outcome required:

- **performance based** - which specifies a result or outcome and allows the person subject to the condition to decide for themselves how they will reach this outcome; or
- **prescriptive conditioning** - which actually tells a person, or prescribes how they must achieve the outcome.

Generally for licensing type conditions, performance-based conditions may be more appropriate. Prescriptive conditions can be inflexible and can stifle innovation. Also, because prescriptive conditions are so specific, they may require more frequent amendment as time goes on. They also require the drafter to consider every possible eventuality.

Timeframes

- The timeframes associated with any condition must be **reasonable**.
- Timeframes cannot be impossible to **comply with**, for example – immediately is generally impossible to comply with.
- Timeframes must also be **easily determined**, for example – as soon as possible or practicable is very difficult to establish.

1. Conditions for Environmental Management Decisions

The administering authority must, for making an environmental management decision relating to an activity, consider whether to impose conditions about the following matters— as set out in Section 52, Ch 4, Part 2 of the *Environmental Protection Regulation 2008 (EP Reg)*.

<i>(a) implementing a system for managing risks to the environment;</i>	Y, N
Site Based Management Plan	
(A3) From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review of and 'continual improvement' in the overall environmental performance of all ERAs that are carried out.	
(A4) The SBMP must address the following matters: (i) environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals; (ii) identification of environmental issues and potential impacts; (iii) control measures for routine operations to minimize the likelihood of environmental harm; (iv) contingency plans and emergency procedures for non-routine situations; (v) a Volatile Organic Compound Management Plan as per conditions B42 and B43; (vi) a Liquid Organic Solvent Waste Management Plan as per conditions G6, G7, G8, G9, G10, G11 and G12; (vii) a Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan as per conditions G13, G14, G15, G16, G17 and G18; (viii) organisational structure and responsibility; (ix) effective communication; (x) monitoring of contaminant releases; (xi) conducting environmental impact assessments; (xii) staff training; (xiii) record keeping; and (xiv) annual review of environmental performance and continual improvement.	
(A5) A report on the annual review of environmental performance and continual improvement must be submitted to the administering authority with each Annual Return.	
(A6) The site based management plan must not be implemented or amended in a way that contravenes any condition of this approval.	
Volatile Organic Compounds (VOC) management plan	
(B42) The registered operator of this development approval must develop and implement a VOC management plan. This plan must be prepared to ensure that VOCs do not adversely affect the welfare and amenity of nearby land uses. The plan must include, but not necessarily be limited to: (i) identification of VOC sources; (ii) minimisation of VOC at the sources including management and control strategies; and (iii) monitoring of VOC emissions as appropriate.	
(B43) The elements of VOC management plan must include but not limited to: (i) objectives/Targets for what is intended to be achieved; (ii) management Strategies for the overall approach to be taken to meet/maintain the stated objectives/targets; (iii) tasks/Actions required to implement the nominated strategies, including any necessary approval applications, consultations and monitoring; (iv) performance Indicators against which the level of achievement of the stated objectives/targets will be measured; (v) frequency/Deadline or time frame in which each of the tasks/actions is to be carried out and/or completed; (vi) responsible Person/Organisation for carrying out each task/action; (vii) reporting and Review arrangements (including any auditing) for each task: how often; and to whom; and (viii) corrective Actions to be undertaken if the stated objectives/targets are not being met or maintained,	

including who is responsible for taking required actions.

Liquid Organic Solvent Waste Management Plan

- (G7) The registered operator of this development approval, must develop and implement a Liquid Organic Solvent Waste Management Plan which details how the registered operator of this development approval will effectively and appropriately manage solvent waste caused by the carrying out of the environmentally relevant activity.
- (G8) In developing the Liquid Organic Solvent Waste Management Plan and periodically updating it to incorporate changing practices and future options, the registered operator of the development approval must have regard to the following hierarchy of preferred methods of dealing with waste. Where reasonable and practicable, the method of dealing with waste which is higher in the hierarchy must be adopted over another method which is lower in the hierarchy.

Hierarchy of methods of dealing with waste

The most preferred method [method (1)]

- (1) Avoid the generation of waste in the first place, for example by utilising alternate materials and or processes.
- (2) Minimise the quantity and or hazardous nature of the waste generated, for example by utilising alternate materials and or processes and segregation of high strength waste streams from low strength waste streams.
- (3) Recycling of waste produced, for example by incorporating reuse, reprocessing, and utilisation of the waste for a worthwhile purpose.
- (4) Treatment of the waste to render it less or non-hazardous.
- (5) Disposal of the waste as a last resort.

The least preferred method [method (5)].

- (G9) The Liquid Organic Solvent Waste Management Plan must detail the following:
- (i) the source, quantity, nature of each solvent waste produced on site and the current method of disposal (in a table and graph form);
 - (ii) waste minimisation and cleaner production options addressing: target/objectives, management strategies, tasks, performance indicators, frequency, responsible person and reporting of reduction in quantity of all Liquid Organic Solvent wastes produced on site; and
 - (iii) provisions for carrying out and submitting to the administering authority a solvent waste audit within two (2) years from the date of issue of this development approval and thereafter every five (5) years.
- (G10) A copy of the Liquid Organic Solvent Waste Management Plan must be provided to the administering authority within thirty (30) days of its completion.
- (G11) A copy of the Liquid Organic Solvent Waste Management Plan must be kept at the approved place.
- (G12) The registered operator of this development approval must not implement a Liquid Organic Solvent Waste Management Plan or amend a Liquid Organic Solvent Waste Management Plan where such implementation or amendment would result in a contravention of any condition of this development approval.
- (G13) The registered operator of this development approval must submit details of any amendment to the Liquid Organic Solvent Waste Management Plan to the administering authority with the Annual Return which immediately follows the enactment of any such amendment.

Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan

- (G14) The registered operator of this development approval, must develop and implement a Fugitive Emissions

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<p>(Volatile Organic Compounds) Minimisation Plan which details how the registered operator of this development approval will effectively and appropriately manage Fugitive emission caused by the carrying out of the environmentally relevant activity.</p>	
<p>(G15) The Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan must address at least the following matters:</p> <ul style="list-style-type: none"> (i) the source of Fugitive Emission generated on site, and (ii) fugitive emission minimisation and cleaner production options including: target/objectives, management strategies, tasks, performance indicators, frequency, responsible person and reporting of performance . 	
<p>(G16) A copy of the Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan must be provided to the administering authority within thirty (30) days of its completion.</p>	
<p>(G17) A copy of the Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan must be kept at the approved place.</p>	
<p>(G18) The registered operator of this development approval must not implement a Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan or amend a Fugitive Emissions (Volatile Organic Carbon) Minimisation Plan where such implementation or amendment would result in a contravention of any condition of this development approval.</p>	
<p>(G19) The registered operator of this development approval must submit details of any amendment to the Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan to the administering authority with the Annual Return which immediately follows the enactment of any such amendment.</p>	
<ul style="list-style-type: none"> • The site-based management plan is a standard condition; the annual reporting requirement has been added to ensure continual improvement as there is a risk that as Dulux moves towards a higher portion of water-based paints there won't be as much incentive to continually improve the emissions as it will be "easier" for Dulux to meet their licence limits. • The other 'plans' have been imposed on the advice of Dr Suhail Khan of the Technical Operations Branch to limit the impact of the paint manufacturing activity on the environment and the community. 	
<p><i>(b) implementing measures for avoiding or minimising the release of contaminants or waste;</i></p>	<p>Y, N</p>
<ul style="list-style-type: none"> • See above management plan conditions and housekeeping procedures condition. 	
<p><i>(c) ensuring an adequate distance between any sensitive receptors and the relevant site for the activity to which the decision relates;</i></p>	<p>Y, N</p>
<p>Examples - a condition requiring riparian buffers, noise buffers or buffers for protecting endangered regional ecosystems</p>	
<p>N/A</p>	

<i>(d) limiting or reducing the size of the initial mixing zone or attenuation zone, if any, that may be affected by the release of contaminants</i>	Y, N
Attenuation zone - means the area around a release of contaminants to groundwater in which the concentration of the contaminants in the release is reduced to ambient levels through physico-chemical and microbiological processes.	
N/A	

<i>(e) treating contaminants before they are released;</i>	Y, N
Dust Collectors	
(B15) All particulate contaminants extracted from the Mill deck must be treated in Fabric Filter Dust Collectors (FFDC) and/or Dust collectors using Sintamatic dust collection elements prior to release to the atmosphere at release point E10.	
(B16) All particulate contaminants extracted from the Pigment Store must be treated in a fabric filter dust collector (FFDC) prior to release to the atmosphere at release point E11.	
(B17) All particulate contaminants extracted from the Bead Plant must be treated in a fabric filter dust collector (FFDC) prior to release to the atmosphere at release point E17.	
(B18) All collected material removed from the FFDC/Sintamatic Dust collectors must be removed and disposed of in a manner that will not cause the release of contaminants to the atmosphere or to waters.	
(B19) No particulate addition operations are to be performed at the Mill deck, Pigment Store or Bead Plant in the event of filter medium breakthrough.	
(B20) A filter medium breakthrough detector must be installed in the outlet of all FFDCs.	
(B21) Replacement bags for the FFDC and replacement cartridges for the Sintamatic dust collectors must be held on site or be readily available from a local contract maintenance service company at all times.	
Air Pollution Control Plant(s)	
(B22) All styrene vapours leaving the styrene bulk vessels (release point E15) and the bead plant process vessels (release points E16 and E16A) must be treated by the air pollution control plant prior to release to the atmosphere.	
(B23) The air pollution control plant referred to in condition B16 must consist of one of the following units: (i) Activated carbon filter (conditions B24 to B29 apply); or (ii) Bio-filter (conditions B30 to B32 apply).	
Activated Carbon Filter	
(B24) The operations performed at the Bead Plant must be shutdown in the event of carbon filter breakthrough (saturation).	
(B25) Activated Carbon Filter cartridges must be held on site or be readily available from a local contract maintenance service company at all times.	
(B26) The activated carbon filter(s), other source equipment, and control devices must be maintained as specified in manufacturer's specifications and in a manner to prevent or minimise the release of contaminants to the atmosphere.	
(B27) A carbon filter maintenance procedure must be prepared and implemented in accordance with the manufacturers' operating instructions/specifications.	
(B28) The activated carbon filter must have a removal efficiency of not less than 90 percent in respect of the release of volatile organic compounds.	

(B29) The activated carbon filter must be replaced when it becomes saturated with the VOCs and efficiency is reduced below the manufacturers' specifications.

Biofilter

(B30) The registered operator of this development approval must take all reasonable and practicable measures to ensure that the design and operation of the biofilter optimises the performance for the reduction of VOC emissions. Reasonable and practicable measures include, but are not limited to, the control of the:

- (i) pH of the filter bed;
- (ii) volumetric flow rate to the filter bed (cubic metres per hour);
- (iii) uniform distribution of the air stream to the filter bed;
- (iv) relative humidity of the air stream being directed to the biofilter;
- (v) temperature of the air stream being directed to the biofilter;
- (vi) nutritional requirements of the biofilter biomass;
- (vii) drying out due to direct sunlight; and
- (viii) potential collapse of the biofilter biomass due to rainfall.

(B31) The biofilter must be kept in a moist state such that the relative humidity of air entering the biofilter and air leaving the biofilter is as close as practicable to 100% relative humidity but in no case less than 95% relative humidity.

(B32) The registered operator of this development approval must replace biofilter packing media at the maturity of its life or as recommended by the manufacturer and implement a contingency plan to control VOC during the period of this replacement.

Paint Arrestor Filter

(B33) All paint mist and aerosols leaving the north Quality Control laboratory paint spray booth, the southern Quality Control laboratory paint spray booth, the central Quality Control laboratory paint spray booth and technical laboratory paint spray booth must be treated in a paint arrestor filter prior to release to the atmosphere.

Oil/water Interceptor Conditions

(D19) Collected waste oil/solvents and sludge from the separators must be removed as often as necessary to ensure effective operation of the separators.

(D20) Collected waste oil/solvents and sludge removed from the separators must be disposed of in a manner which does not cause contamination of any waters or land.

(D21) Detergents or other emulsifying agents must be prevented as far as reasonable and practicable from entering the separators.

- The proposed conditions have been included on the advice of Dr Suhail Khan of Technical Operations Branch to ensure appropriate treatment of contaminants prior to release to the environment.

(f) restricting the type, quality, quantity, concentration or characteristics of contaminants that can be released; **Y, N**

CONTAMINANT	RELEASE POINT NUMBERS	COMBINED RELEASE LIMITS (g/min)
Volatile Organic Compounds (VOC) expressed as n-hexane equivalent	E5, E6, E8, E9, E10 and E11	750 (see Note 1)
Toluene	E5, E6, E8, E9, E10 and E11	650 (see Note 2)
Xylenes	E5, E6, E8, E9, E10 and E11	280 (see Note 2)
Benzene	E5, E6, E8, E9, E10 and E11	1 (see Note 2)
Total Particulates	E10	2

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Total Particulates	E11	2
Total Particulates	E17	2

The proposed limits have been negotiated between the DERM, with significant input from Dr Suhail Khan, and Dulux to protect the environmental values as well as allow operation of the paint manufacturing activities at the Rocklea site.

(g) the way in which contaminants may be released; **Y, N**

Examples of a condition for paragraph (g)—
 - a condition restricting the release of a contaminant at a particular temperature, velocity or rate or during particular meteorological conditions or water flows
 a condition restricting the release of contaminant to a depth below the level of surface waters

SOURCE DESCRIPTION	RELEASE POINT NUMBER AND STACK DESCRIPTION	MINIMUM RELEASE HEIGHT FROM GROUND LEVEL (metres)	MINIMUM EFFLUX VELOCITY (metres/second)
Exhaust vents make up floor	E5	13	8
Exhaust vents make up floor	E6	13	8
Ammonia extraction mill deck	E7	13	8
Pot wash solvent extraction	E8	13	8
Solvent extraction filling room	E9	13	8
Mill deck dust extraction	E10	14	8
Mill deck dust extraction/pigment store	E11	14	8
Bead plant solvent extraction	E16 and E16a	13	8
Bead plant dust extraction	E17	9	8

The minimum release height and efflux velocity represent the existing operation conditions on the site; these have been determined as appropriate.

(h) ensuring a minimum degree of dispersion happens when a contaminant is released; **Y, N**

Example — a condition requiring the use of a diffuser for releasing a contaminant

N/A

(i) protecting environmental values, and meeting quality objectives, under relevant environmental protection policies; **Y, N**

See above release limits.

(j) recycling, storing, transferring or disposing of waste in a particular way; **Y, N**

General

- (G1) Waste must not be released to the environment, stored, transferred or disposed of contrary to any condition of this development approval.
- (G2) The registered operator of this development approval must not:
- (i) allow waste to burn or be burnt at or on the approved place; nor
 - (ii) remove waste from the approved place and burn such waste elsewhere except as permitted by the

conditions of this development approval.

- (G3) The registered operator of this development approval may remove waste from the approved place for processing at an appropriately licensed facility.
- (G4) Records of trade waste agreements must be made available for inspection on request.
- (G5) An area must be set aside for the segregation and storage of recyclable solid wastes.
- (G6) Procedures must be implemented to ensure all disposal of wastes generated in carrying out the environmentally relevant activity is to a proper and appropriate facility that accepts such wastes, except as specifically provided for under the conditions of this development approval.

Off Site Movement

- (G20) Where regulated waste is removed from the approved place (other than by a release as permitted under another schedule of this development approval), the registered operator of this development approval must monitor and keep records of the following:
 - (i) the date, quantity and type of waste removed;
 - (ii) name of the waste transporter and/or disposal operator that removed the waste; and
 - (iii) the intended treatment/disposal destination of the waste.

Storage Conditions

- (G21) The lids of all storage tanks and mixing vessels must be kept closed at all times except when the lid is opened for maintenance and operational (manual addition of raw materials) purposes.
- (G22) All drums containing raw, regulated waste or processed materials must be sealed to prevent loss of contents or exposure of the contents to the atmosphere.
- (G23) All reasonable and practicable measures must be taken to prevent leakage of the contents from any waste container.
- (G24) Any visible leakage of the contents from any waste container must be cleaned up as quickly as practicable.

Notification of Improper Disposal of Regulated Waste

- (G25) If the registered operator of this development approval becomes aware that a person has removed regulated waste from the approved place and disposed of the regulated waste in a manner which is not authorised by this development approval or improper or unlawful, then the registered operator of this development approval must, as soon as practicable, notify the administering authority of all relevant facts, matters and circumstances known concerning the disposal.

These conditions are a combination of standard conditions and conditions that have been altered in consultation with Dulux and Technical Operations Branch (DERM).

<i>(k) rehabilitating land to achieve particular outcomes;</i>	Y, N
<ul style="list-style-type: none"> • N/A 	

<i>(l) measures for the ongoing protection of environmental values that are, or may be, adversely affected by the activity.</i>	Y, N
See above release limits.	

2. Monitoring Conditions

When considering whether to impose a monitoring condition, the administering authority must consider the following:

Note: *In this section — **monitoring condition**, about the release of contaminants from an activity on the receiving environment, means a condition about any of the following matters—*

- (a) *monitoring the quantity, quality, characteristics, timing and variability of the release;*
- (b) *monitoring indicators of the effective operation of control measures;*
- (c) *monitoring the characteristics of the receiving environment;*
- (d) *assessing the effectiveness of remedial or rehabilitation measures;*
- (e) *monitoring the impact of the release on the values, objectives and biota in the receiving environment;*
- (f) *analysing monitoring data against objectives and standards including, for example, by predictive modelling;*
- (g) *reporting the results of monitoring in a stated form and timeframe;*
- (h) *reporting on the time and way in which the release is made to the receiving environment.*

(a) <i>the potential impact on the receiving environment of—</i>	Y, N
<ul style="list-style-type: none"> (i) <i>the activity to which the decision relates; and</i> (ii) <i>the release of the contaminant;</i> 	
Monitoring of Contaminant Releases to the Atmosphere	
<p>(H4) The registered operator of this development approval must conduct and keep records of a monitoring program of contaminant releases to the atmosphere at the release points, frequency, and for the parameters specified in Schedule H Table 1 and which complies with the following:</p> <ul style="list-style-type: none"> (i) all determinations of the quality of contaminants released must be performed by a person or body registered by the National Association of Testing Authorities (NATA) or by a person or body possessing appropriate experience and qualifications to perform the required measurements; (ii) monitoring provisions for the release points listed in Schedule H Table 1 must comply with the <i>Australian Standard AS 4323.1 - 1995</i> "Stationary source emissions Method 1: Selection of sampling provisions"; (iii) all determinations of contaminant releases to the atmosphere must be made in accordance with methods prescribed in the most recent version of the Department of Environment and Resource Management 's Air Quality Sampling Manual. If monitoring requirements for specific contaminants are not described in the Department of Environment and Resource Management 's Air Quality Sampling Manual, monitoring protocols must be in accordance with a method as approved by New South Wales DEC/EPA, Victorian EPA or United States EPA; (iv) the following tests must be performed for each required determination specified in Table 1: <ul style="list-style-type: none"> (i) gas velocity and volume flow rate; and (ii) temperature; (v) where practicable samples taken must be representative of the contaminants discharged when emissions are expected to be at maximum; and (vi) during the sampling period the following additional information must be gathered; operating conditions including: <ul style="list-style-type: none"> (i) production rate at the time of sampling and product made; (ii) raw materials used; (iii) number of equipment and mixing vessels operating; (iv) operating or mixing temperature; and (v) any typical factors that may influence air emissions (e.g. abnormal cleaning operations). 	
<p>Schedule H - Table 1 Required Release Point Determinations</p>	

DETERMINATION REQUIRED	RELEASE POINT NUMBERS	FREQUENCY
Semi-continuous monitoring of concentration and mass emission rate for Volatile Organic Compounds (VOC) as n-hexane equivalent	E5, E6, E8, E9, E10, E11, E15, E16 and E16a	6 monthly for the first three years, then annually.
Concentration and mass emission rate for Speciation of Volatile Organic Compounds	E5, E6, E8, E9, E10, E11, E15, E16 and E16a	6 monthly for the first three years, then annually.
Total solid particles	E10, E11 and E17	6 monthly for the first three years, then annually.

NOTES:

- VOC refers to total volatile organic compounds reported as n-hexane equivalent.
- VOC is to be measured for 17-hours of continuous monitoring for the period from 06:00 through 23:00 during typical site operations.
- VOC Sampling should be conducted using USEPA Method 25A – Determination of total gaseous organic concentration using a flame ionization analyser based on at least a 15-minute sampling frequency.
- VOC Speciation data should be obtained during the continuous monitoring period in order to quantify the composition of the emissions. This monitoring must include chemical compounds including toluene, xylene and benzene (this is not a limited list) and should be conducted using USEPA Method 18 or equivalent.

Monitoring of Contaminant Releases to Waters

(H5) For the purpose of ensuring the effectiveness of measures adopted to prevent and/or minimise likelihood of contaminated stormwater being released as required by condition D2, the registered operator of this development approval is responsible for the making of determinations and keeping of records of the quality of the stormwater released from the bunded areas located at the approved place to Stable SwampCreek for the quality characteristics, and at the frequency specified in Schedule H - Table 2:

Schedule H - Table 2

Quality Characteristic	Units	Frequency
Chemical Oxygen Demand	mg/L	3 monthly in the event of a release
Suspended Solids	mg/L	3 monthly in the event of a release
pH	pH scale	3 monthly in the event of a release
Dissolved Oxygen	mg/L	3 monthly in the event of a release
Total Organic Compounds (TOC)	(mg/l)	3 monthly in the event of a release
Phenolic compounds	(g/l)	3 monthly in the event of a release
Benzene	(g/l)	3 monthly in the event of a release
Toluene	(g/l)	3 monthly in the event of a release
Ethylbenzene	(g/l)	3 monthly in the event of a release

These monitoring conditions have been included to provide the DERM and Dulux with reliable information on the characteristics of the contaminants released for ongoing environmental impact monitoring and reporting of continual improvement. These conditions have been implemented in consultation with the Technical Operations Branch (DERM).

<i>(b) the characteristics of the contaminant;</i>	Y, N
See above.	
<i><State the reason for imposing this decision></i>	
•	

<i>(c) the potential for a control measure to fail and the effect of a failure of a control measure on the receiving environment;</i>	Y, N
<ul style="list-style-type: none"> See above. 	

<i>(d) the protocols relevant to monitoring the release of the contaminant;</i>	Y, N
<ul style="list-style-type: none"> See above. 	

<i>(e) whether the monitoring should be continuous or intermittent.</i>	Y, N
<ul style="list-style-type: none"> See above. 	

3. Additional Regulatory Requirements

(Note: select each table as appropriate & delete others)

For an activity that involves or may involve the **release of water or waste to land**, the administering authority must consider whether to impose conditions about each of the following matters, as set out in Section 55, Ch 4, Part 3 of the *Environmental Protection Regulation 2008 (EP Reg)*.

<i>(a) developing and implementing a land release management plan for the relevant area that protects the environmental values affected, or that may be affected, by the activity;</i>	Y, N
N/A	
<ul style="list-style-type: none"> Dulux only directly release stormwater to land. 	

<i>(b) the way in which, or rate at which, the water or waste may be released;</i>	Y, N
<ul style="list-style-type: none"> N/A 	

<i>(c) releasing the water or waste in a way that minimises infiltration to groundwater;</i>	Y, N
<ul style="list-style-type: none"> N/A 	

<i>(d) if the water or waste is to be transferred to another entity—the circumstances under which the transfer may occur;</i>	Y, N
See waste conditions above.	

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<i>(e) releasing the water to a bio-retention system, including, for example, a constructed wetland, for the removal of nutrients from the water.</i>	Y, N
<ul style="list-style-type: none"> N/A 	

For an activity that involves or may involve the **release of water stormwater to the receiving environment**, the administering authority must consider whether to impose conditions about each of the following matters, as set out in Section 57, Ch 4, Part 3 of the *Environmental Protection Regulation 2008* (EP Reg).

<i>(a) diverting upstream stormwater run-off away from the area contaminated or disturbed by the activity (the affected area);</i>	Y, N
<ul style="list-style-type: none"> N/A 	
<p>All stormwater dealt with in Dulux's stormwater management plan relates only to water falling on the site; no upstream stormwater run-off is believed to enter the site.</p>	

<i>(b) minimising the size of the affected area;</i>	Y, N
N/A	
<ul style="list-style-type: none"> Dulux separate the contaminated and uncontaminated (roof) stormwater runoff. 	

<i>(c) covering, paving, roofing and cleaning the affected area;</i>	Y, N
N/A	
<ul style="list-style-type: none"> Dulux have implemented cleaning procedures for hard surface areas. 	

<i>(d) cleaning the affected area without using water;</i>	Y, N
<ul style="list-style-type: none"> N/A 	

<i>(e) analysing and managing soil;</i>	Y, N
<ul style="list-style-type: none"> N/A 	

<i>(f) installing and maintaining appropriate control measures;</i>	Y, N
<p>Examples of <i>control</i> measures— bio-retention system, buffers for improving waste water quality, first flush stormwater diversion systems, oil separators, rubbish traps, sediment fences, sediment traps</p>	

See above for maintaining oil-water separator.

Dulux have an oil-water separator associated with the 'first flush' of stormwater. Additionally, the site operates within a containment bund that holds water until it can be safely released or removed for treatment.

<i>(g) treating the affected area.</i>	Y, N
Examples— mulching, revegetating, using surface covers or soil agglomerants	
<ul style="list-style-type: none"> • N/A 	

PART D: RECOMMENDATION

State the significant factors taken into account in making this assessment and state the reasons for the recommendation overall:		
It is recommended that the proposed development should be:	<input checked="" type="checkbox"/> Approved with conditions <input type="checkbox"/> Approved with no conditions <input type="checkbox"/> Refused	
		15 October 2010
Assessing Officer	Signed	Date

Review and Endorsement

Insert any comments relevant for the delegates consideration:		
Manager/Supervisor	Signed	Date

Development Approval

DERM Permit¹ number:	IPDE00962108
Application No.	SR1006
Relevant Laws and Policies:	<i>Environmental Protection Act 1994</i> and any subordinate legislation

Development Description

Property/Location

Lot 1, RP223672, County of Stanley, Parish of Yeerongpilly.

located at: 1477 Ipswich Road
ROCKLEA QLD 4106

Carrying out of Environmentally Relevant Activity (ERA)

7(2)(b) – Chemical manufacturing—manufacturing, in a year, the following total quantity of coating, food additives, industrial polish, sealant, synthetic dye, pigment, ink, adhesives or paint, other than water based paint—more than 1000m³ to 100 000m³

Additional Information for Applicants

This approval pursuant to the *Environmental Protection Act 1994* does not remove the need to obtain any further approval for this development which might be required by other State and / or Commonwealth Legislation. Applicants are advised to check with all relevant statutory authorities. Applicants also should comply with all relevant legislation.

It is a requirement of the *Environmental Protection Act 1994* that if the owner or occupier of this site becomes aware a notifiable activity (as defined under schedule 2 of the *Environmental Protection Act 1994*) is being carried out on this land or that the land has been affected by a hazardous contaminant, they must, within thirty (30) days after becoming so aware, give notice to the Department of Environment and Resource Management.

Environmentally Relevant Activities

The aforementioned description of any environmentally relevant activity (ERA) for which this permit is issued is simply a restatement of the ERA as prescribed in the legislation at the time of issuing this permit. Where there is any conflict between the abovementioned description of the ERA for which this permit is issued and the conditions specified herein as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This permit authorises the ERA. It does not authorise environmental harm unless a condition within this permit explicitly authorises that harm. Where there is no such condition, or the permit is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

In addition to this permit, the person to carry out the ERA must be a registered operator under the *Environmental Protection Act 1994*. For the person to become a registered operator, they must apply for a registration certificate under section 73F of the *Environmental Protection Act 1994*.



Delegate of Administering Authority
Environmental Protection Act 1994

Date: 01/10/2010

¹ Permit includes development approvals, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management and the Queensland Parks and Wildlife Service

Conditions of the Development Approval

This development approval consists of the following schedules of conditions relevant to various issues:

The aforementioned description of the environmentally relevant activity (ERA) for which this development approval is issued is simply a restatement of the activity as prescribed in the legislation at the time of issuing the approval. Where there is any conflict between the above description of the ERA for which this development approval is issued and the conditions as specified in this development approval as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This development approval consists of the following schedules-

Schedule A – General Conditions

Schedule B - Air

Schedule C – Water

Schedule D – Stormwater Management

Schedule E – Land Application

Schedule F – Noise

Schedule G –Waste Management

Schedule H – Monitoring and Reporting

Schedule I – Definitions

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SCHEDULE A - GENERAL CONDITIONS

Release of Contaminants Not Otherwise Provided For

- (A1) In carrying out the environmentally relevant activity, the registered operator of this development approval must take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, may cause environmental harm, in a manner that could be prevented, shall be carried out in a proper manner by a competent person in accordance with the conditions of this authority.

Maintenance of Plant and Equipment

- (A2) The registered operator of this development approval must:
- (i) install all plant and equipment necessary to ensure compliance with the conditions; and
 - (ii) maintain such plant and equipment in a proper and efficient condition; and
 - (iii) operate such plant and equipment in a proper and efficient manner.

In this condition, "plant and equipment" includes:

- (i) plant and equipment used to prevent and/or minimise the likelihood of environmental harm being caused;
- (ii) devices and structures to contain foreseeable escapes of contaminants and waste;
- (iii) fuel burning equipment;
- (iv) devices and structures used to store, handle, treat and dispose of waste;
- (v) monitoring equipment and associated alarms; and
- (vi) backup systems that act in the event of failure of a primary system.

Site Based Management Plan

- (A3) From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review of and 'continual improvement' in the overall environmental performance of all ERAs that are carried out.
- (A4) The SBMP must address the following matters:
- (i) environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals;
 - (ii) identification of environmental issues and potential impacts;
 - (iii) control measures for routine operations to minimize the likelihood of environmental harm;
 - (iv) contingency plans and emergency procedures for non-routine situations;
 - (v) a Volatile Organic Compound Management Plan as per conditions B42 and B43;
 - (vi) a Liquid Organic Solvent Waste Management Plan as per conditions G6, G7, G8, G9, G10, G11 and G12;
 - (vii) a Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan as per conditions G13, G14, G15, G16, G17 and G18;
 - (viii) organisational structure and responsibility;
 - (ix) effective communication;
 - (x) monitoring of contaminant releases;
 - (xi) conducting environmental impact assessments;
 - (xii) staff training;
 - (xiii) record keeping; and

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(xiv) annual review of environmental performance and continual improvement.

- (A5) A report on the annual review of environmental performance and continual improvement must be submitted to the administering authority with each Annual Return.
- (A6) The site based management plan must not be implemented or amended in a way that contravenes any condition of this approval.

Display of Development Approval

- (A7) A copy of this development approval must be kept in a location readily accessible to personnel carrying out the activity.

Records

- (A8) Except as otherwise stated by the conditions of this development approval, any record or document required to be kept by a condition of this development approval must be kept at the approved place for a period of at least ten (10) years and be available for examination by an authorised person. The record retention requirements of this condition will be satisfied if any daily and weekly records are kept for a period of at least five (5) years and these records are then kept in the form of annual summaries after that period.
- (A9) Copies of any record or document required to be kept by a condition of this development approval must be provided to any authorised person or the administering authority on request.

Alterations

- (A10) No change, replacement or operation of any plant or equipment is permitted if the change, replacement or operation of the plant or equipment increases, or is likely to substantially increase, the risk of environmental harm above that expressly provided by this development approval.

Throughput Scale Limit

- (A11) Where the registered operator proposes to undertake any change in process (except where any temporary change or planned response to equipment failure is required), including any alteration to stack parameters or emission rates or any increase in the plant's production rate by more than ten percent, the registered operator must, in accordance with a method agreed to in writing by the administering authority, calculate and assess the potential for an increase in: benzene, toluene and xylene released to the atmosphere; or any other contaminant released relevant to a change in the process.
- (A12) In the event that calculations (based on previous three years emission inventory data) show a change in process is likely to cause a 5% or greater increase in ground level concentrations for the emissions of benzene, toluene and xylene (or any other contaminant released relevant to a change in process) beyond the boundaries of the approved place, the registered operator must perform modelling of the emissions to determine ground level concentrations and to determine whether a change in process is a material change of use under the *Sustainable Planning Act 2009*.
- (A13) Where the modelling conducted in accordance with Condition A12 reveals that the change in process will not constitute a material change of use under the *Sustainable Planning Act 2009*, the registered operator is authorised to implement the change in process. The registered operator must within 14 days of the completion of the modelling under Condition A12, provide the modelling results to the administering authority.

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- (A14) The registered operator must keep written records of any change of process assessed to give rise to less than a 5% increase in ground level concentrations beyond the approved place for benzene, toluene or xylene.

Calibration

- (A15) All instruments and devices used for the measurement or monitoring of any parameter under any condition of this development approval must be calibrated, and appropriately operated and maintained.

Nuisance

- (A16) Notwithstanding any other condition of this development approval, this development approval does not authorise any release of contaminants which cause or are likely to cause an environmental nuisance beyond the boundaries of the approved place.

Housekeeping procedures

- (A17) The registered operator of this development approval must develop and implement a site housekeeping procedure for effective reduction of wastes and the minimisation of air emissions. The housekeeping procedure must include, but not be limited to:
- (ii) development of management initiatives to increase employee awareness of the need for and benefit of pollution prevention, preventative maintenance to reduce the emissions of VOC and effective use of raw materials;
 - (iii) improve material handling and storage to avoid spills;
 - (iv) segregate waste streams (solvent and water based) to optimize waste treatment system;
 - (v) perform preventative maintenance and practice emergency preparedness;
 - (vi) initiate routine maintenance and training to reduce leaks and spills;
 - (vii) mix paint according to need and schedule jobs to maximize colour runs;
 - (viii) provide operator training to improve transfer efficiency;
 - (ix) develop and implement rigid inventory control to reduce solvent use;
 - (x) reduce solvent evaporation by installing tank lids;
 - (xi) waste solvent must be collected and stored in closed containers;
 - (xii) employ best practice equipment cleaning methods; and
 - (xiii) recycle material onsite where practicable.

End of Conditions for Schedule A

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SCHEDULE B - AIR

Specified Releases of Contaminants to Atmosphere

- (B1) The release of contaminants to the atmosphere from a point source must only occur from a point source which is identified in the application for development approval, or listed in Table 1 and Table 2 of Schedule B of this development approval.
- (B2) Contaminants resulting from the operation of the sources described in Table 1 and Table 2 of the air schedule must only be released to the atmosphere from those release points specified in Table 1 and table 2 of Schedule B.
- (B3) Contaminants released from each release point specified in Table 1 of this schedule must be directed vertically upwards without any impedance or hindrance.
- (B4) Contaminants must be released to the atmosphere from a release point at a height not less than the corresponding height stated for that release point in Table 1 of Schedule B.
- (B5) Contaminants must be released to the atmosphere from a release point at a velocity not less than the corresponding velocity stated for that release point in Table 1 of Schedule B.

SCHEDULE B - Table 1

SOURCE DESCRIPTION	RELEASE POINT NUMBER AND STACK DESCRIPTION	MINIMUM RELEASE HEIGHT FROM GROUND LEVEL (metres)	MINIMUM EFFLUX VELOCITY (metres/second)
Exhaust vents make up floor	E5	13	8
Exhaust vents make up floor	E6	13	8
Ammonia extraction mill deck	E7	13	8
Pot wash solvent extraction	E8	13	8
Solvent extraction filling room	E9	13	8
Mill deck dust extraction	E10	14	8
Mill deck dust extraction/pigment store	E11	14	8
Bead plant solvent extraction	E16 and E16a	13	8
Bead plant dust extraction	E17	9	8

SCHEDULE B - Table 2

SOURCE DESCRIPTION	RELEASE POINT NUMBER AND STACK DESCRIPTION
North Quality Control laboratory paint spray booth	E1
Central Quality Control laboratory paint spray booth	E2
Southern Quality Control laboratory paint spray booth	E3
Lab fume cupboard	E4
Spray booth - tech lab	E13
Oven vent - colour centre	E14
Bulk tank venting -carbon filter	E15
Oven vents- QA laboratory	E18
Oven vents - Tech. lab.	E19

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- (B6) Contaminants must not be released to the atmosphere from a release point at a mass emission rate, as measured at a monitoring point specified in Schedule H, in excess of that stated in Table 3 of Schedule B.

SCHEDULE B - Table 3
Release Limits of Contaminants to Atmosphere

CONTAMINANT	RELEASE POINT NUMBERS	COMBINED RELEASE LIMITS (g/min)
Volatile Organic Compounds (VOC) expressed as n-hexane equivalent	E5, E6, E8, E9, E10 and E11	750 (see Note 1)
Toluene	E5, E6, E8, E9, E10 and E11	650 (see Note 2)
Xylenes	E5, E6, E8, E9, E10 and E11	280 (see Note 2)
Benzene	E5, E6, E8, E9, E10 and E11	1 (see Note 2)
Total Particulates	E10	2
Total Particulates	E11	2
Total Particulates	E17	2

Note 1: Release limit is based on 17-hour sampling period as explained in Conditions B7 and B8.

Note 2: Release limits are based on short term measured emission data as explained in Conditions B10 and B11.

Bubble Release Limit of VOC

(B7) The total mass emission rate of Volatile Organic Compounds (VOC), measured as n-hexane equivalent from the site at the release point numbers E5, E6, E8, E9, E10, and E11 (as listed in Schedule B Table 3), must not to exceed 750 grams/minute (based on a 17-hour sampling period's average measured data).

(B8) For the purpose of ensuring compliance with condition B7, the following methodology must be adopted (as specified in URS Report entitled: Dulux paint manufacturing facility in Rocklea – Site License Condition Amendments, 31 May 2010, URS # 42626259):

1. Conduct continuous sampling of emission sources E5, E6, E8, E9, E10, and E11 using a suitable instack monitoring methodology (such as flame ionisation detector (FID)) during the hours of 06:00 through 23:00 during typical site operating conditions.
2. Calculate the total emissions of VOC (as n-hexane) from emission sources E5, E6, E8, E9, E10 and E11 for the 17-hour sampling period, as follows:

$$\text{Total VOC from the Site} = \sum_{N=1}^6 \left[\frac{1}{T} \sum_{i=1}^n C_i^N \Delta t_i^N \right]$$

Where:

C_i^N is the measured VOC mass emission rate (grams/minute) for source N;

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Δt_i^N is the sampling period (minutes) for emission source N;

T is total sampling duration in minutes (17 hours x 60 minutes /hour = 1020 minutes) (see note below);

n is the number of measurements during the 17-hours of sampling; and

N is the number of emission sources (N=6).

Note: In the event of minor gaps in the continuous monitoring data, the gaps must be 'filled' using the mean of the available data set. If data gaps exceed 1.5 hours in total during the 17-hour sampling period of between 06:00 and 23:00 (representing a less than 90% data capture rate), the emission source must be re-sampled.

- (B9) A report on the total mass of VOC released to the atmosphere as required to be measured by condition B7 for the preceding twelve (12) month period must be submitted to the administering authority with each annual return and include, but not be limited to, the following information:
- (i) Total mass of VOC released from the site;
 - (ii) Average mass VOC emissions from each point source during the 17-hours of sampling;
 - (iii) Stack emission profile showing concentration and mass of VOC released from each point source;
 - (iv) Percentage increase or decrease in the VOC releases from previous years;
 - (v) Impact of any waste minimisation initiatives adopted on the total mass of VOC released;
 - (vi) Ratio of total mass of VOC released to the mass of the product manufactured; and
 - (vii) Solvent-based paint production capacity.

Bubble Release Limits of Toluene, Xylenes and Benzene

(B10) The total mass emission rates of Toluene, Xylenes and Benzene, measured from the site at the release point numbers E5, E6, E8, E9, E10 and E11 must not exceed as specified in Schedule B Table 3, based on short term measurements (e.g. 15-minutes sampling period).

(B11) For the purpose of ensuring compliance with condition B10, the following methodology must be adopted:

1. Conduct grab sampling of emission sources E5, E6, E8, E9, E10, and E11 using a suitable instack monitoring methodology (such as carbon tube analysis during the hours of 06:00 through 23:00 under typical site operating conditions.
2. Calculate the total emissions of Toluene, Xylenes and Benzene from emission sources E5, E6, E8, E9, E10 and E11, as follows:

$$\text{Toluene, Xylene, or Benzene emissions from the Site} = \sum_{N=1}^6 \left[\frac{1}{n} \sum_{i=1}^n C_i^N \right]$$

Where:

C_i^N is the measured Toluene, Xylenes or Benzene mass emission rate (grams/minute) for source N;

n is the number of measurements during the sampling for emission source N; and

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N is the number of emission sources (N=6).

Note: In the event of more than one measurement during the sampling for emission source **N**, estimate geometric mean and then calculate the bubble emissions as above, otherwise just sum the sources emissions data to calculate the bubble emissions.

- (B12) A report on the total mass of Toluene, Xylenes and Benzene released to the atmosphere as required to be measured by condition B10 for the preceding twelve (12) month period must be submitted to the administering authority with each annual return and include, but be not limited to, the following information:
- (i) Total mass of Toluene, Xylenes and Benzene released from the site;
 - (ii) The mass emissions of Toluene, Xylenes and Benzene from each point source;
 - (iii) Percentage increase or decrease in the Toluene, Xylenes and Benzene releases from previous years;
 - (iv) Impact of any waste minimisation initiatives adopted on the total mass of Toluene, Xylenes and Benzene released;
 - (v) Ratio of total mass of Toluene, Xylenes and Benzene released to the mass of the product manufactured; and
 - (vi) Solvent-based paint production capacity.

Labelling of Discharge Points

- (B13) All release points referred to in Tables 1 and 2 of Schedule B must be conspicuously marked with the corresponding release point number referred to in Table 1 of the air schedule.
- (B14) The label required for each release point must be readily visible from both ground level and at any required sampling point.

Dust Collectors

- (B15) All particulate contaminants extracted from the Mill deck must be treated in Fabric Filter Dust Collectors (FFDC) and/or Dust collectors using Sintamatic dust collection elements prior to release to the atmosphere at release point E10.
- (B16) All particulate contaminants extracted from the Pigment Store must be treated in a fabric filter dust collector (FFDC) prior to release to the atmosphere at release point E11.
- (B17) All particulate contaminants extracted from the Bead Plant must be treated in a fabric filter dust collector (FFDC) prior to release to the atmosphere at release point E17.
- (B18) All collected material removed from the FFDC/Sintamatic Dust collectors must be removed and disposed of in a manner that will not cause the release of contaminants to the atmosphere or to waters.
- (B19) No particulate addition operations are to be performed at the Mill deck, Pigment Store or Bead Plant in the event of filter medium breakthrough.
- (B20) A filter medium breakthrough detector must be installed in the outlet of all FFDCs.
- (B21) Replacement bags for the FFDC and replacement cartridges for the Sintamatic dust collectors must be held on site or be readily available from a local contract maintenance service company at all times.

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Air Pollution Control Plant(s)

- (B22) All styrene vapours leaving the styrene bulk vessels (release point E15) and the bead plant process vessels (release points E16 and E16A) must be treated by the air pollution control plant prior to release to the atmosphere.
- (B23) The air pollution control plant referred to in condition B16 must consist of one of the following units:
- (i) Activated carbon filter (conditions B24 to B29 apply); or
 - (ii) Bio-filter (conditions B30 to B32 apply).

Activated Carbon Filter

- (B24) The operations performed at the Bead Plant must be shutdown in the event of carbon filter breakthrough (saturation).
- (B25) Activated Carbon Filter cartridges must be held on site or be readily available from a local contract maintenance service company at all times.
- (B26) The activated carbon filter(s), other source equipment, and control devices must be maintained as specified in manufacturer's specifications and in a manner to prevent or minimise the release of contaminants to the atmosphere.
- (B27) A carbon filter maintenance procedure must be prepared and implemented in accordance with the manufacturers' operating instructions/specifications.
- (B28) The activated carbon filter must have a removal efficiency of not less than 90 percent in respect of the release of volatile organic compounds.
- (B29) The activated carbon filter must be replaced when it becomes saturated with the VOCs and efficiency is reduced below the manufacturers' specifications.

Biofilter

- (B30) The registered operator of this development approval must take all reasonable and practicable measures to ensure that the design and operation of the biofilter optimises the performance for the reduction of VOC emissions. Reasonable and practicable measures include, but are not limited to, the control of the:
- (i) pH of the filter bed;
 - (ii) volumetric flow rate to the filter bed (cubic metres per hour);
 - (iii) uniform distribution of the air stream to the filter bed;
 - (iv) relative humidity of the air stream being directed to the biofilter;
 - (v) temperature of the air stream being directed to the biofilter;
 - (vi) nutritional requirements of the biofilter biomass;
 - (vii) drying out due to direct sunlight; and
 - (viii) potential collapse of the biofilter biomass due to rainfall.
- (B31) The biofilter must be kept in a moist state such that the relative humidity of air entering the biofilter and air leaving the biofilter is as close as practicable to 100% relative humidity but in no case less than 95% relative humidity.

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- (B32) The registered operator of this development approval must replace biofilter packing media at the maturity of its life or as recommended by the manufacturer and implement a contingency plan to control VOC during the period of this replacement.

Paint Arrestor Filter

- (B33) All paint mist and aerosols leaving the north Quality Control laboratory paint spray booth, the southern Quality Control laboratory paint spray booth, the central Quality Control laboratory paint spray booth and technical laboratory paint spray booth must be treated in a paint arrestor filter prior to release to the atmosphere.

Dust Control

- (B34) All sealed surfaces intended to carry vehicular traffic must be kept clean.
- (B35) Any spillage of material onto sealed areas, as a result of delivery or handling, must be cleaned up without delay into storage bins or other suitable receptacles.

Control of Fugitive VOC Emissions

- (B36) The registered operator of this development approval must take all reasonable and practicable measures in the design and operation of the plant to minimise fugitive VOC emissions. For the purpose of this condition, examples of reasonable and practicable measures could be the following:
- (i) install cover on all open top vessels and tanks used to mix paint, disperse pigment and adjust viscosity and colour;
 - (ii) covers used on tanks and vessels must be VOC impermeable and must be kept closed at all times except to permit operator access;
 - (iii) clean vessels and tanks with detergent, hot alkali high pressure water or low Reid vapor pressure (less than 0.3 psia) solvent which minimise VOC emissions;
 - (iv) avoid heating solvent above 50 °C to minimise vapour generation;
 - (v) use submerged filling when transferring VOC containing materials;
 - (vi) visually inspect equipments for leaks on monthly basis; and
 - (vii) implementation of a monitoring program to regularly leak test all bulk chemical storage components including pumps, piping and controls, vessels and tanks.
- (B37) The ducting and extraction systems that transfer effluent gases from one location to another must be constructed, operated and maintained so as to minimise any leakage of effluent gases and vapours to the atmosphere occurring from these sources.
- (B38) In the event of emissions of contaminants occurring from industrial plant or ducting and extraction systems that transfer effluent gases from one location to another, the fault or omission that resulted in that emission must be corrected as soon as practicable.

Tank Lids

- (B39) The registered operator of this development approval must install and maintain tank lids to control VOC emissions to ensure that all open-top equipment be covered during the manufacturing process. This design must include, but are not limited to, the following requirements:
- (i) the mill, tank, vat or vessel must be equipped with a lid which completely covers these equipments, except for an opening no larger than necessary to allow for safe clearance for mixer shaft;
 - (ii) the cover remains closed, except when production, sampling, maintenance, or inspection procedures require access; and

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- (iii) the cover is maintained in good condition, such that when in place, it maintains contact with the rim of the opening for at least 90 percent of the circumference of the rim.

Equipment Cleaning

- (B40) The registered operator of this development approval must take all reasonable and practicable measures to control VOC emissions from equipment cleaning operations. For the purpose of this condition, examples of reasonable and practicable measures could include the following:
 - (i) using completely covered or enclosed equipment for organic solvent cleaning;
 - (ii) investigating alternative cleaning material (e.g. hot alkali or detergent) for reducing VOC emissions;
 - (iii) using rubber wipers to scrape the sides of the tank to reduce the amount of clinging paint, thus reducing the amount of solvent to clean the tank;
 - (iv) using high-pressure spray heads to clean process tanks (these heads can reduce cleaning material use by 80 to 90 percent);
 - (v) using plastic or foam pigs; and
 - (vi) using Teflon lined tanks which can reduce the amount of paint clinging to the side of the tank and makes cleaning easier.
- (B41) The cleaning solvent must not contain more than five percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof.

Volatile Organic Compounds (VOC) management plan

- (B42) The registered operator of this development approval must develop and implement a VOC management plan. This plan must be prepared to ensure that VOCs do not adversely affect the welfare and amenity of nearby land uses. The plan must include, but not necessarily be limited to:
 - (i) identification of VOC sources;
 - (ii) minimisation of VOC at the sources including management and control strategies; and
 - (iii) monitoring of VOC emissions as appropriate.
- (B43) The elements of VOC management plan must include but not limited to:
 - (i) objectives/Targets for what is intended to be achieved;
 - (ii) management Strategies for the overall approach to be taken to meet/maintain the stated objectives/targets;
 - (iii) tasks/Actions required to implement the nominated strategies, including any necessary approval applications, consultations and monitoring;
 - (iv) performance Indicators against which the level of achievement of the stated objectives/targets will be measured;
 - (v) frequency/Deadline or time frame in which each of the tasks/actions is to be carried out and/or completed;
 - (vi) responsible Person/Organisation for carrying out each task/action;
 - (vii) reporting and Review arrangements (including any auditing) for each task: how often; and to whom; and
 - (viii) corrective Actions to be undertaken if the stated objectives/targets are not being met or maintained, including who is responsible for taking required actions.

End of Conditions for Schedule B

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SCHEDULE C - WATER

Release of Contaminants to Waters

- (C1) Contaminants must not be directly or indirectly released from the approved place to any waters or the bed and banks of any waters except:
- (i) as permitted under the stormwater management schedule; or
 - (ii) to a sewer as permitted or otherwise agreed from time to time by the relevant local authority.

End of Conditions for Schedule C

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SCHEDULE D - STORMWATER MANAGEMENT

Contaminant Releases Caused by Rainfall

- (D1) The environmentally relevant activity must be carried out by such practicable means necessary to prevent and/or minimise the contact of incident rainfall and stormwater runoff with wastes or other contaminants.

Release of Contaminated Stormwater Runoff

- (D2) Except as otherwise provided by the conditions of the stormwater management schedule and the water schedule of this development approval, the environmentally relevant activity must be carried out by such practicable means necessary to prevent and/or minimise the release or likelihood of release of contaminated runoff from the approved place to any stormwater drain or waters or the bed or banks of any such waters. "Contaminated runoff" for the purpose of this condition means stormwater and/or stormwater runoff that contains contaminants that may cause environmental harm.

Maintenance and Cleanup

- (D3) The maintenance and cleaning of vehicles and any other equipment or plant must be carried out in areas from where contaminants cannot be released into any waters, roadside gutter or stormwater drainage system.

High Level Alarms

- (D4) All storage tanks must be fitted with high level alarms which are capable of providing the operator in charge of the material transfer operation with an audible and/or visible warning that the maximum of the vessel capacity has been reached.
- (D5) Material transfer operations must cease in the event of an audible and/or visible warning that the maximum of the vessel capacity has been reached.

Bunding

- (D6) All raw material tank storage areas, products tank storage areas, mixing tanks process areas and wastes tank storage areas must be bunded so that the capacity of the bund is sufficient to contain at least one hundred percent (100%) of the largest storage tank plus ten percent (10%) of the second largest tank within the bund.
- (D7) All raw material drum storage, products drum storage and wastes drum storage areas must be bunded so that the capacity of the bund is sufficient to contain at least twenty-five percent (25%) of the maximum design storage volume within the bund.
- (D8) All loading/unloading of bulk materials must take place only within designated vehicle loading/unloading areas.
- (D9) All tanker loading/unloading areas must be provided with a system for collecting and disposing of any potential spillage. The collection and disposal system must be sufficient to contain the total capacity of the largest compartment of any tank vehicle using the loading/unloading area.
- (D10) All bunding must be constructed of materials which are impervious to the materials stored.
- (D11) The base and walls of all bunded areas must be maintained and kept free from gaps and cracks.
- (D12) All required pipework from the bunded areas must be directed over the bund wall and not through it.
- (D13) All bunding must be roofed where practicable.

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- (D14) Where it is impractical to completely roof a bunded area the registered operator of this development approval must ensure that any stormwater captured within the bund is free from contaminants or wastes prior to any release.
- (D15) All spills outside bunded areas must be cleaned up as quickly as practicable using dry absorbent material to prevent such spills entering the stormwater system.

Segregation of Miscible/Non-miscible Materials

- (D16) Contaminants such as contaminated stormwater collected in bunded areas in which materials are stored which are miscible in water must not be released to any interceptor or other treatment plant which is incapable of removing such materials from the medium in which they are carried.
- (D17) Disposal of contaminated stormwater with materials miscible in water collecting within any bunded area must be via sewer with the approval of the relevant local authority in a trade waste permit or via recycling, reprocessing or treatment within the premises or disposal to an appropriate waste disposal facility that can accept such waste.

Specific Stormwater Conditions:

- (D18) All empty drums must be stored on a concrete hardstand area with their closures in place.

Oil/water Interceptor Conditions

- (D19) Collected waste oil/solvents and sludge from the separators must be removed as often as necessary to ensure effective operation of the separators.
- (D20) Collected waste oil/solvents and sludge removed from the separators must be disposed of in a manner which does not cause contamination of any waters or land.
- (D21) Detergents or other emulsifying agents must be prevented as far as reasonable and practicable from entering the separators.

End of Conditions for Schedule D

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SCHEDULE E - LAND APPLICATION

Release of Contaminants to Land

(E1) There must be no release nor likelihood of release of any contaminants to land.

End of Conditions for Schedule E

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SCHEDULE F - NOISE

Emission of Noise

- (F1) In the event of a complaint about noise that constitutes annoyance being made to the administering authority, that the administering authority considers is not frivolous or vexatious, then the emission of noise from the approved place must not result in levels greater than those specified in Table 1 of the Noise Schedule.

SCHEDULE F - TABLE 1

NOISE LIMITS AT A NOISE SENSITIVE PLACE	
Period	Noise Level at a Noise Sensitive Place Measured as the Adjusted Maximum Sound Pressure Level $L_{Amax,adj,T}$
7 am - 6 pm	Background noise level plus 5 dB(A)
6 pm - 10 pm	Background noise level plus 5 dB(A)
10 pm - 7 am	Background noise level plus 3 dB(A)
NOISE LIMITS AT A COMMERCIAL PLACE	
Period	Noise Level at a Commercial Place measured as the Adjusted Maximum Sound Pressure Level $L_{Amax,adj,T}$
7 am - 6 pm	Background noise level plus 10 dB(A)
6 pm - 10 pm	Background noise level plus 10 dB(A)
10 pm - 7 am	Background noise level plus 8 dB(A)

End of Conditions for Schedule F

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SCHEDULE G - WASTE MANAGEMENT

General

- (G1) Waste must not be released to the environment, stored, transferred or disposed of contrary to any condition of this development approval.
- (G2) The registered operator of this development approval must not:
- (i) allow waste to burn or be burnt at or on the approved place; nor
 - (ii) remove waste from the approved place and burn such waste elsewhere except as permitted by the conditions of this development approval.
- (G3) The registered operator of this development approval may remove waste from the approved place for processing at an appropriately licensed facility.
- (G4) Records of trade waste agreements must be made available for inspection on request.
- (G5) An area must be set aside for the segregation and storage of recyclable solid wastes.
- (G6) Procedures must be implemented to ensure all disposal of wastes generated in carrying out the environmentally relevant activity is to a proper and appropriate facility that accepts such wastes, except as specifically provided for under the conditions of this development approval.

Liquid Organic Solvent Waste Management Plan

- (G7) The registered operator of this development approval, must develop and implement a Liquid Organic Solvent Waste Management Plan which details how the registered operator of this development approval will effectively and appropriately manage solvent waste caused by the carrying out of the environmentally relevant activity.
- (G8) In developing the Liquid Organic Solvent Waste Management Plan and periodically updating it to incorporate changing practices and future options, the registered operator of the development approval must have regard to the following hierarchy of preferred methods of dealing with waste. Where reasonable and practicable, the method of dealing with waste which is higher in the hierarchy must be adopted over another method which is lower in the hierarchy.

Hierarchy of methods of dealing with waste

The most preferred method [method (1)]

- (1) Avoid the generation of waste in the first place, for example by utilising alternate materials and or processes.
- (2) Minimise the quantity and or hazardous nature of the waste generated, for example by utilising alternate materials and or processes and segregation of high strength waste streams from low strength waste streams.
- (3) Recycling of waste produced, for example by incorporating reuse, reprocessing, and utilisation of the waste for a worthwhile purpose.
- (4) Treatment of the waste to render it less or non-hazardous.
- (5) Disposal of the waste as a last resort.

The least preferred method [method (5)].

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- (G9) The Liquid Organic Solvent Waste Management Plan must detail the following:
- (i) the source, quantity, nature of each solvent waste produced on site and the current method of disposal (in a table and graph form);
 - (ii) waste minimisation and cleaner production options addressing: target/objectives, management strategies, tasks, performance indicators, frequency, responsible person and reporting of reduction in quantity of all Liquid Organic Solvent wastes produced on site; and
 - (iii) provisions for carrying out and submitting to the administering authority a solvent waste audit within two (2) years from the date of issue of this development approval and thereafter every five (5) years.
- (G10) A copy of the Liquid Organic Solvent Waste Management Plan must be provided to the administering authority within thirty (30) days of its completion.
- (G11) A copy of the Liquid Organic Solvent Waste Management Plan must be kept at the approved place.
- (G12) The registered operator of this development approval must not implement a Liquid Organic Solvent Waste Management Plan or amend a Liquid Organic Solvent Waste Management Plan where such implementation or amendment would result in a contravention of any condition of this development approval.
- (G13) The registered operator of this development approval must submit details of any amendment to the Liquid Organic Solvent Waste Management Plan to the administering authority with the Annual Return which immediately follows the enactment of any such amendment.

Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan

- (G14) The registered operator of this development approval, must develop and implement a Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan which details how the registered operator of this development approval will effectively and appropriately manage Fugitive emission caused by the carrying out of the environmentally relevant activity.
- (G15) The Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan must address at least the following matters:
- (i) the source of Fugitive Emission generated on site, and
 - (ii) fugitive emission minimisation and cleaner production options including: target/objectives, management strategies, tasks, performance indicators, frequency, responsible person and reporting of performance .
- (G16) A copy of the Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan must be provided to the administering authority within thirty (30) days of its completion.
- (G17) A copy of the Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan must be kept at the approved place.
- (G18) The registered operator of this development approval must not implement a Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan or amend a Fugitive Emissions (Volatile Organic Carbon) Minimisation Plan where such implementation or amendment would result in a contravention of any condition of this development approval.
- (G19) The registered operator of this development approval must submit details of any amendment to the Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan to the administering authority with the Annual Return which immediately follows the enactment of any such amendment.

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Off Site Movement

- (G20) Where regulated waste is removed from the approved place (other than by a release as permitted under another schedule of this development approval), the registered operator of this development approval must monitor and keep records of the following:
- (i) the date, quantity and type of waste removed;
 - (ii) name of the waste transporter and/or disposal operator that removed the waste; and
 - (iii) the intended treatment/disposal destination of the waste.

Storage Conditions

- (G21) The lids of all storage tanks and mixing vessels must be kept closed at all times except when the lid is opened for maintenance and operational (manual addition of raw materials) purposes.
- (G22) All drums containing raw, regulated waste or processed materials must be sealed to prevent loss of contents or exposure of the contents to the atmosphere.
- (G23) All reasonable and practicable measures must be taken to prevent leakage of the contents from any waste container.
- (G24) Any visible leakage of the contents from any waste container must be cleaned up as quickly as practicable.

Notification of Improper Disposal of Regulated Waste

- (G25) If the registered operator of this development approval becomes aware that a person has removed regulated waste from the approved place and disposed of the regulated waste in a manner which is not authorised by this development approval or improper or unlawful, then the registered operator of this development approval must, as soon as practicable, notify the administering authority of all relevant facts, matters and circumstances known concerning the disposal.

End of Conditions for Schedule G

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SCHEDULE H - MONITORING AND REPORTING

Complaint Recording

- (H1) All complaints received by the registered operator of this development approval relating to releases of contaminants from operations at the approved place must be recorded and kept in a log book with the following details:
- (i) time, date and nature of complaint;
 - (ii) type of communication (telephone, letter, personal etc.);
 - (iii) name, contact address and contact telephone number of complainant (Note: if the complainant does not wish to be identified then "Not identified" is to be recorded);
 - (iv) response and investigation undertaken as a result of the complaint;
 - (v) name of person responsible for investigating complaint; and
 - (vi) action taken as a result of the complaint investigation and signature of responsible person.

Notification of Emergencies and Incidents

- (H2) As soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this development approval, the registered operator of this development approval must notify the administering authority of the release by telephone or facsimile.
- (H3) The notification of emergencies or incidents as required by condition number H2 must include but not be limited to the following:
- (i) the name of the registered operator of the development approval;
 - (ii) the location of the emergency or incident;
 - (iii) the number of the development approval;
 - (iv) the name and telephone number of the designated contact person;
 - (v) the time of the release;
 - (vi) the time the registered operator of the development approval became aware of the release;
 - (vii) the suspected cause of the release;
 - (viii) the environmental harm and or environmental nuisance caused, threatened, or suspected to be caused by the release; and
 - (ix) actions taken to prevent further any release and mitigate any environmental harm and or environmental nuisance caused by the release.

Monitoring of Contaminant Releases to the Atmosphere

- (H4) The registered operator of this development approval must conduct and keep records of a monitoring program of contaminant releases to the atmosphere at the release points, frequency, and for the parameters specified in Schedule H Table 1 and which complies with the following:
- (i) all determinations of the quality of contaminants released must be performed by a person or body registered by the National Association of Testing Authorities (NATA) or by a person or body possessing appropriate experience and qualifications to perform the required measurements;
 - (ii) monitoring provisions for the release points listed in Schedule H Table 1 must comply with the *Australian Standard AS 4323.1 - 1995* "Stationary source emissions Method 1: Selection of sampling provisions";

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- (iii) all determinations of contaminant releases to the atmosphere must be made in accordance with methods prescribed in the most recent version of the Department of Environment and Resource Management's Air Quality Sampling Manual. If monitoring requirements for specific contaminants are not described in the Department of Environment and Resource Management's Air Quality Sampling Manual, monitoring protocols must be in accordance with a method as approved by New South Wales DEC/EPA, Victorian EPA or United States EPA;
- (iv) the following tests must be performed for each required determination specified in Table 1:
 - (i) gas velocity and volume flow rate; and
 - (ii) temperature;
- (v) where practicable samples taken must be representative of the contaminants discharged when emissions are expected to be at maximum; and
- (vi) during the sampling period the following additional information must be gathered; operating conditions including:
 - (i) production rate at the time of sampling and product made;
 - (ii) raw materials used;
 - (iii) number of equipment and mixing vessels operating;
 - (iv) operating or mixing temperature; and
 - (v) any typical factors that may influence air emissions (e.g. abnormal cleaning operations).

**Schedule H - Table 1
Required Release Point Determinations**

DETERMINATION REQUIRED	RELEASE POINT NUMBERS	FREQUENCY
Semi-continuous monitoring of concentration and mass emission rate for Volatile Organic Compounds (VOC) as n-hexane equivalent	E5, E6, E8, E9, E10, E11, E15, E16 and E16a	6 monthly for the first three years, then annually.
Concentration and mass emission rate for Speciation of Volatile Organic Compounds	E5, E6, E8, E9, E10, E11, E15, E16 and E16a	6 monthly for the first three years, then annually.
Total solid particles	E10, E11 and E17	6 monthly for the first three years, then annually.

NOTES:

- VOC refers to total volatile organic compounds reported as n-hexane equivalent.
- VOC is to be measured for 17-hours of continuous monitoring for the period from 06:00 through 23:00 during typical site operations.
- VOC Sampling should be conducted using USEPA Method 25A – Determination of total gaseous organic concentration using a flame ionization analyser based on at least a 15-minute sampling frequency.
- VOC Speciation data should be obtained during the continuous monitoring period in order to quantify the composition of the emissions. This monitoring must include chemical compounds including toluene, xylene and benzene (this is not a limited list) and should be conducted using USEPA Method 18 or equivalent.

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Monitoring of Contaminant Releases to Waters

- (H5) For the purpose of ensuring the effectiveness of measures adopted to prevent and/or minimise likelihood of contaminated stormwater being released as required by condition D2, the registered operator of this development approval is responsible for the making of determinations and keeping of records of the quality of the stormwater released from the bunded areas located at the approved place to Stable SwampCreek for the quality characteristics, and at the frequency specified in Schedule H - Table 2:

Schedule H - Table 2

Quality Characteristic	Units	Frequency
Chemical Oxygen Demand	mg/L	3 monthly in the event of a release
Suspended Solids	mg/L	3 monthly in the event of a release
pH	pH scale	3 monthly in the event of a release
Dissolved Oxygen	mg/L	3 monthly in the event of a release
Total Organic Compounds (TOC)	(mg/l)	3 monthly in the event of a release
Phenolic compounds	(µg/l)	3 monthly in the event of a release
Benzene	(µg/l)	3 monthly in the event of a release
Toluene	(µg/l)	3 monthly in the event of a release
Ethylbenzene	(µg/l)	3 monthly in the event of a release

Quality Determinations

- (H6) All determinations of the quality of contaminants released to waters must be made in accordance with methods prescribed in the *Department of Environment Water Quality Sampling Manual, 2nd Edition, February 1995*, or more recent additions or supplements to that document as such become available.
- (H7) All determinations of the quality of contaminants released must be performed by a person or body possessing appropriate experience and qualifications to perform the required measurements.

Noise Monitoring

- (H8) For the purposes of investigating any complaint made about annoyance and also for checking compliance with condition F1 of the noise schedule, monitoring and recording of the noise levels from the activity must be undertaken for the following descriptors, characteristics and conditions:
- (i) $L_{Amax, Adj T}$;
 - (ii) $L_{A_{bg}, T}$;
 - (iii) $L_{AN, T}$ (where N equals statistical levels of 1, 10, 90);
 - (iv) Max $L_{pA T}$;
 - (v) $L_{Aeq, T}$;
 - (vi) the level and frequency of occurrence of impulsive or tonal noise;
 - (vii) atmospheric conditions including temperature, relative humidity and wind speed and direction; and
 - (viii) effects due to extraneous factors such as traffic noise.
- (H9) In conjunction with the measurement and recording of the noise, the following parameters and conditions must be recorded:
- (i) location, date, time and duration of recording.

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- (H10) The method of measurement and reporting of noise levels must comply with the *Department of Environment and Heritage Noise Measurement Manual, second edition, March 1995*, or more recent additions or supplements to that document as become available.
- (H11) The measurement and reporting of noise levels must be undertaken by a person or body possessing appropriate experience and qualifications to perform the required measurements.

Reporting of Total Volatile Organic Compounds (VOC) Release to Air

- (H12) The registered operator of this development approval must determine by measurement or estimation the total mass of VOC released from the approved place to the atmosphere each year.
- (H13) The determination of the total mass of VOC released to the atmosphere annually must include all point source and non-point fugitive source releases.
- (H14) The registered operator of this development approval must submit a report detailing the methods to be used to determine the total mass quantity of VOC released to the atmosphere.
- (H15) A report on the total mass of VOC released to the atmosphere as required by condition H12 for the preceding twelve (12) month period must be submitted to the administering authority with each annual return and include, but not be limited to:
- (i) total mass of VOC released;
 - (ii) the percentage increase or decrease in the VOC releases;
 - (iii) the ratio of the total mass quantity of point source releases to non-point source releases;
 - (iv) the impact of any waste minimisation initiatives adopted on the total mass of VOC released; and
 - (v) the ratio of total mass of VOC released to mass of product which includes such VOC.

Oil/Water Interceptor Maintenance Recording

- (H16) A record must be maintained of the time and date of the desludging and maintenance of the oil/water interceptor.
- (H17) The record required by the above condition H20 must be maintained for a period of not less than five (5) years.

Report Submission

- (H18) The registered operator of this development approval must ensure that the results of all monitoring performed in accordance with this development approval for the period covered by the return are submitted with the Annual Return.

Environmental Impact Analysis Reporting

- (H19) The registered operator of this development approval must arrange for the data gathered in accordance with this development approval to be analysed and interpreted to assess the nature and extent of any environmental impact of the environmentally relevant activity. The data, analysis and assessment must be submitted to the administering authority with the Annual Return every three years.

End of Conditions for Schedule H

¹ Permit includes development approvals, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management and the Queensland Parks and Wildlife Service

SCHEDULE I - DEFINITIONS

For the purposes of this development approval the following definitions apply:

- (I1) "Act" means the *Environmental Protection Act 1994*.
- (I2) "administering authority" means the Department of Environment and Resource Management or its successor.
- (I3) "land" in the land application schedule means land excluding waters and the atmosphere.

Air Definitions

- (I4) "cubic metre" ("m³") means the volume of dry gaseous contaminant which occupies 1 cubic metre at a temperature of zero degrees Celsius and at an absolute pressure of 101.3 kilopascals.
- (I5) Volatile organic compounds (VOC) means any chemical compound based on carbon chains or rings with a vapour pressure greater than 2mm of mercury (0.27 kPa) at 25°C), that participate in atmospheric photochemical reactions. The substances that are specifically excluded are: methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonate salts. This is according to the definition of VOC outlined in the Australian Government National's Pollutant Inventory.
- (I5-a) "g/min" means grams per minute.
- (I5-b) "g/s" means grams per second.

Noise Definitions

- (I6) " $L_{Amax,adj,T}$ " means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over a time period of not less than 15 minutes, using Fast response.
- (I7) "background noise level" means either:
 - $L_{A90,T}$ being the A-weighted sound pressure level exceeded for ninety percent (90%) of the time period of not less than 15 minutes, using Fast response, or
 - $L_{avg,T}$ being the arithmetic average of the minimum readings measured in the absence of the noise under investigation during a representative time period of not less than 15 minutes, using Fast response.
- (I8) "Max $L_{pA,T}$ " means the maximum A-weighted sound pressure level measured over a time period of not less than 15 minutes, using Fast response.
- (I9) "noise sensitive place" means -
 - (a) a dwelling, mobile home or caravan park, residential marina or other residential premises; or
 - (b) a motel, hotel or hostel; or
 - (c) a kindergarten, school, university or other educational institution; or
 - (d) a medical centre or hospital; or
 - (e) a protected area; or
 - (f) a park or gardens.
- (I10) "commercial place" means a place used as an office or for business or commercial purposes.

¹ Permit includes development approvals, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management and the Queensland Parks and Wildlife Service

- (I11) "annoyance". In determining what constitutes "annoyance" regard must be had to *Australian Standard 1055.2 - 1989 Acoustics - Description and Measurement of Environmental Noise Part 2 Application to specific situations*.
- (I12) "protected area" means:
- a protected area under the *Nature Conservation Act 1992*; or
 - a marine park under the *Marine Parks Act 1982*; or
 - a World Heritage Area.
- (I13) "a park or gardens" is defined as " a park or garden open to the public as of right whether by the payment of a fee or otherwise".

End of Conditions for Schedule I

END OF CONDITIONS

¹ Permit includes development approvals, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management and the Queensland Parks and Wildlife Service

Decision notice

This notice is issued by the Department of Environment and Resource Management pursuant to section 334 of the Sustainable Planning Act 2009 ("the Act").

Dulux Group (Australia) Pty Ltd
PO Box 100
Archerfield QLD 4108

Our reference: 240187

Re: Application for development approval

1. Application Details

Date application made to DERM:

17-Feb-2010

Development approval applied for:

Development permit

Aspect of development:

Material change of use of premises – For an environmentally relevant activity	<i>Sustainable Planning Regulation 2009</i> - Schedule 3, Part 1, Table 2, item 1	DERM ref. no. - 240187 DERM Permit No. SPDE00195110
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Development description:

ERA 7 Chemical manufacturing threshold 1 – manufacturing 200m³ or more of water based paint in a year.

Property/Location description:

Lot 1 (1477 Ipswich Road) RP223672, Rocklea QLD 4106

3. The Chief Executive, Department of Environment and Resource Management (DERM) decision notice for the aspect of development involved with the application the subject of this Notice is as follows:

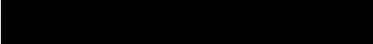
- (a) The application was decided on 19-Oct-2010 and is approved subject to conditions.
 - (b) The application is approved, and the approval is a development permit.
 - (c) The application is approved subject to the conditions attached to this Notice, and the conditions are assessment manager conditions.
4. Information about the rights of appeal for the applicant any submitters are attached to this Notice.



Delegate


Delegate, Chief Executive administering the *Environmental Protection Act 1994*
Department of Environment and Resource Management
19 October 2010

Enquiries:


Department of Environment and Resource Management
GPO Box 2771
Brisbane QLD 4001
Phone: 
Fax: 
Email: 

Attachments

DERM Permit No. SPDE00195110
Information Sheet – Appeals – *Sustainable Planning Act 2009* (extract from the *Sustainable Planning Act 2009*)

Permit

Sustainable Planning Act 2009

DERM Permit ¹ number: SPDE00195110

This notice is issued by the Department of Environment and Resource Management pursuant to section 334 of the Sustainable Planning Act 2009 ("the Act").

Assessment manager reference:	SPDE00195110				
Date application received:	17-Feb-2010				
Permit type:	Development permit				
Date of decision:	19-OCT-2010				
Decision:	Approved with conditions				
Relevant laws and policies:	Sustainable Planning Act				
<table border="1"> <tr> <td>Jurisdiction</td> </tr> <tr> <td>Development Approval for a Material change of use of premises – For an environmentally relevant activity</td> </tr> </table>	Jurisdiction	Development Approval for a Material change of use of premises – For an environmentally relevant activity	<table border="1"> <tr> <td>Legislation</td> </tr> <tr> <td><i>Sustainable Planning Regulation 2009 - Schedule 3, Part 1, Table 2, item 1</i></td> </tr> </table>	Legislation	<i>Sustainable Planning Regulation 2009 - Schedule 3, Part 1, Table 2, item 1</i>
Jurisdiction					
Development Approval for a Material change of use of premises – For an environmentally relevant activity					
Legislation					
<i>Sustainable Planning Regulation 2009 - Schedule 3, Part 1, Table 2, item 1</i>					

Development Description(s)

Property	Lot/Plan	Aspect of Development
1477 Ipswich Road, ROCKLEA QLD 4106	Lot 1 Plan RP223672	ERA 7 Chemical manufacturing Threshold 1 - manufacturing 200m ³ or more of water based paint in a year

Reason(s) for inclusion of conditions

In accordance with section 324 of the *Sustainable Planning Act 2009*, the reason(s) for inclusion of conditions stated in this permit required by the assessment manager for the application are as follows.

The conditions are included pursuant to section 73B of the Environmental Protection Act 1994.

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management.

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which a development approval is issued is a restatement of the ERA as defined by legislation at the time the approval is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by a development approval as to the scale, intensity or manner of carrying out an ERA, then the conditions prevail to the extent of the inconsistency.

A development permit authorising the carrying out of an ERA does not authorise any environmental harm unless a condition stated by the permit specifically authorises the harm.

A person carrying out an ERA must hold a registration certificate issued under the *Environmental Protection Act 1994*, or must be acting under a registration certificate, for the ERA.

Contaminated land

It is a requirement of the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware a Notifiable Activity (as defined in Schedule 3 and Schedule 4 of the *Environmental Protection Act 1994*) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the Department of Environment and Resource Management.



Delegate

Delegate, Chief Executive administering the *Environmental Protection Act 1994*
Department of Environment and Resource Management
19 October 2010

CONDITIONS

This development approval consists of the following schedules of conditions relevant to various issues:

Schedule A – General Conditions

Schedule B - Air

Schedule C – Water

Schedule D – Stormwater Management

Schedule E – Land Application

Schedule F – Noise

Schedule G –Waste Management

Schedule H – Monitoring and Reporting

Schedule I – Definitions

SCHEDULE A - GENERAL CONDITIONS

Release of Contaminants Not Otherwise Provided For

- (A1) In carrying out the environmentally relevant activity, the registered operator of this development approval must take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity that, if carried out incompetently, may cause environmental harm, in a manner that could be prevented, shall be carried out in a proper manner by a competent person in accordance with the conditions of this authority.

Maintenance of Plant and Equipment

- (A2) The registered operator of this development approval must:

- (i) install all plant and equipment necessary to ensure compliance with the conditions; and
- (ii) maintain such plant and equipment in a proper and efficient condition; and
- (iii) operate such plant and equipment in a proper and efficient manner.

In this condition, "plant and equipment" includes:

- (i) plant and equipment used to prevent and/or minimise the likelihood of environmental harm being caused;
- (ii) devices and structures to contain foreseeable escapes of contaminants and waste;
- (iii) fuel burning equipment;
- (iv) devices and structures used to store, handle, treat and dispose of waste;
- (v) monitoring equipment and associated alarms; and
- (vi) backup systems that act in the event of failure of a primary system.

Site Based Management Plan

- (A3) From commencement of an ERA to which this approval relates, a site based management plan (SBMP) must be implemented. The SBMP must identify all sources of environmental harm, including but not limited to the actual and potential release of all contaminants, the potential impact of these sources and what actions will be taken to prevent the likelihood of environmental harm being caused. The SBMP must also provide for the review of and 'continual improvement' in the overall environmental performance of all ERAs that are carried out.

- (A4) The SBMP must address the following matters:

- (i) environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals;
- (ii) identification of environmental issues and potential impacts;
- (iii) control measures for routine operations to minimize the likelihood of environmental harm;
- (iv) contingency plans and emergency procedures for non-routine situations;
- (v) a Volatile Organic Compound Management Plan as per conditions B42 and B43;
- (vi) a Liquid Organic Solvent Waste Management Plan as per conditions G7, G8, G9, G10, G11, G12 and G13;
- (vii) a Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan as per conditions G14, G15, G16, G17, G18 and G19;
- (viii) organisational structure and responsibility;
- (ix) effective communication;
- (x) monitoring of contaminant releases;
- (xi) conducting environmental impact assessments;
- (xii) staff training;
- (xiii) record keeping; and
- (xiv) annual review of environmental performance and continual improvement.

- (A5) A report on the annual review of environmental performance and continual improvement must be submitted to the administering authority with each Annual Return.
- (A6) The site based management plan must not be implemented or amended in a way that contravenes any condition of this approval.

Display of Development Approval

- (A7) A copy of this development approval must be kept in a location readily accessible to personnel carrying out the activity.

Records

- (A8) Except as otherwise stated by the conditions of this development approval, any record or document required to be kept by a condition of this development approval must be kept at the approved place for a period of at least ten (10) years and be available for examination by an authorised person. The record retention requirements of this condition will be satisfied if any daily and weekly records are kept for a period of at least five (5) years and these records are then kept in the form of annual summaries after that period.
- (A9) Copies of any record or document required to be kept by a condition of this development approval must be provided to any authorised person or the administering authority on request.

Alterations

- (A10) No change, replacement or operation of any plant or equipment is permitted if the change, replacement or operation of the plant or equipment increases, or is likely to substantially increase, the risk of environmental harm above that expressly provided by this development approval.

Throughput Scale Limit

- (A11) Where the registered operator proposes to undertake any change in process (except where any temporary change or planned response to equipment failure is required), including any alteration to stack parameters or emission rates or any increase in the plant's production rate by more than ten percent, the registered operator must, in accordance with a method agreed to in writing by the administering authority, calculate and assess the potential for an increase in: benzene, toluene and xylene released to the atmosphere; or any other contaminant released relevant to a change in the process.
- (A12) In the event that calculations (based on previous three years emission inventory data) show a change in process is likely to cause a 5% or greater increase in ground level concentrations for the emissions of benzene, toluene and xylene (or any other contaminant released relevant to a change in process) beyond the boundaries of the approved place, the registered operator must perform modelling of the emissions to determine ground level concentrations and to determine whether a change in process is a material change of use under the *Sustainable Planning Act 2009*.
- (A13) Where the modelling conducted in accordance with Condition A12 reveals that the change in process will not constitute a material change of use under the *Sustainable Planning Act 2009*, the registered operator is authorised to implement the change in process. The registered operator must within 14 days of the completion of the modelling under Condition A12, provide the modelling results to the administering authority.
- (A14) The registered operator must keep written records of any change of process assessed to give rise to less than a 5% increase in ground level concentrations beyond the approved place for benzene, toluene or xylene.

Calibration

- (A15) All instruments and devices used for the measurement or monitoring of any parameter under any condition of this development approval must be calibrated, and appropriately operated and maintained.

Nuisance

- (A16) Notwithstanding any other condition of this development approval, this development approval does not authorise any release of contaminants which cause or are likely to cause an environmental nuisance beyond the boundaries of the approved place.

Housekeeping procedures

- (A17) The registered operator of this development approval must develop and implement a site housekeeping procedure for effective reduction of wastes and the minimisation of air emissions. The housekeeping procedure must include, but not be limited to:
- (ii) development of management initiatives to increase employee awareness of the need for and benefit of pollution prevention, preventative maintenance to reduce the emissions of VOC and effective use of raw materials;
 - (iii) improve material handling and storage to avoid spills;
 - (iv) segregate waste streams (solvent and water based) to optimize waste treatment system;
 - (v) perform preventative maintenance and practice emergency preparedness;
 - (vi) initiate routine maintenance and training to reduce leaks and spills;
 - (vii) mix paint according to need and schedule jobs to maximize colour runs;
 - (viii) provide operator training to improve transfer efficiency;
 - (ix) develop and implement rigid inventory control to reduce solvent use;
 - (x) reduce solvent evaporation by installing tank lids;
 - (xi) waste solvent must be collected and stored in closed containers;
 - (xii) employ best practice equipment cleaning methods; and
 - (xiii) recycle material onsite where practicable.

End of Conditions for Schedule A

SCHEDULE B - AIR

Specified Releases of Contaminants to Atmosphere

- (B1) The release of contaminants to the atmosphere from a point source must only occur from a point source which is identified in the application for development approval, or listed in Table 1 and Table 2 of Schedule B of this development approval.
- (B2) Contaminants resulting from the operation of the sources described in Table 1 and Table 2 of the air schedule must only be released to the atmosphere from those release points specified in Table 1 and table 2 of Schedule B.
- (B3) Contaminants released from each release point specified in Table 1 of this schedule must be directed vertically upwards without any impedance or hindrance.
- (B4) Contaminants must be released to the atmosphere from a release point at a height not less than the corresponding height stated for that release point in Table 1 of Schedule B.
- (B5) Contaminants must be released to the atmosphere from a release point at a velocity not less than the corresponding velocity stated for that release point in Table 1 of Schedule B.

SCHEDULE B - Table 1

SOURCE DESCRIPTION	RELEASE POINT NUMBER AND STACK DESCRIPTION	MINIMUM RELEASE HEIGHT FROM GROUND LEVEL (metres)	MINIMUM EFFLUX VELOCITY (metres/second)
Exhaust vents make up floor	E5	13	8
Exhaust vents make up floor	E6	13	8
Ammonia extraction mill deck	E7	13	8
Pot wash solvent extraction	E8	13	8
Solvent extraction filling room	E9	13	8
Mill deck dust extraction	E10	14	8
Mill deck dust extraction/pigment store	E11	14	8
Bead plant solvent extraction	E16 and E16a	13	8
Bead plant dust extraction	E17	9	8

SCHEDULE B - Table 2

SOURCE DESCRIPTION	RELEASE POINT NUMBER AND STACK DESCRIPTION
North Quality Control laboratory paint spray booth	E1
Central Quality Control laboratory paint spray booth	E2
Southern Quality Control laboratory paint spray booth	E3
Lab fume cupboard	E4
Spray booth - tech lab	E13
Oven vent - colour centre	E14
Bulk tank venting -carbon filter	E15
Oven vents- QA laboratory	E18
Oven vents - Tech. lab.	E19

- (B6) Contaminants must not be released to the atmosphere from a release point at a mass emission rate, as measured at a monitoring point specified in Schedule H, in excess of that stated in Table 3 of Schedule B.

SCHEDULE B - Table 3
Release Limits of Contaminants to Atmosphere

CONTAMINANT	RELEASE POINT NUMBERS	COMBINED RELEASE LIMITS (g/min)
Volatile Organic Compounds (VOC) expressed as n-hexane equivalent	E5, E6, E8, E9, E10 and E11	750 (see Note 1)
Toluene	E5, E6, E8, E9, E10 and E11	650 (see Note 2)
Xylenes	E5, E6, E8, E9, E10 and E11	280 (see Note 2)
Benzene	E5, E6, E8, E9, E10 and E11	1 (see Note 2)
Total Particulates	E10	2
Total Particulates	E11	2
Total Particulates	E17	2

Note 1: Release limit is based on 17-hour sampling period as explained in Conditions B7 and B8.

Note 2: Release limits are based on short term measured emission data as explained in Conditions B10 and B11.

Bubble Release Limit of VOC

- (B7) The total mass emission rate of Volatile Organic Compounds (VOC), measured as n-hexane equivalent from the site at the release point numbers E5, E6, E8, E9, E10, and E11 (as listed in Schedule B Table 3), must not to exceed 750 grams/minute (based on a 17-hour sampling period's average measured data).
- (B8) For the purpose of ensuring compliance with condition B7, the following methodology must be adopted (as specified in URS Report entitled: Dulux paint manufacturing facility in Rocklea – Site License Condition Amendments, 31 May 2010, URS # 42626259):
1. Conduct continuous sampling of emission sources E5, E6, E8, E9, E10, and E11 using a suitable instack monitoring methodology (such as flame ionisation detector (FID)) during the hours of 06:00 through 23:00 during typical site operating conditions.
 2. Calculate the total emissions of VOC (as n-hexane) from emission sources E5, E6, E8, E9, E10 and E11 for the 17-hour sampling period, as follows:

$$\text{Total VOC from the Site} = \sum_{N=1}^6 \left[\frac{1}{T} \sum_{i=1}^n C_i^N \Delta t_i^N \right]$$

Where:

C_i^N is the measured VOC mass emission rate (grams/minute) for source N;

Δt_i^N is the sampling period (minutes) for emission source N;

T is total sampling duration in minutes (17 hours x 60 minutes /hour = 1020 minutes) (see note below);

n is the number of measurements during the 17-hours of sampling; and

N is the number of emission sources (N=6).

Note: In the event of minor gaps in the continuous monitoring data, the gaps must be 'filled' using the mean of the available data set. If data gaps exceed 1.5 hours in total during the 17-hour sampling period of

between 06:00 and 23:00 (representing a less than 90% data capture rate), the emission source must be re-sampled.

- (B9) A report on the total mass of VOC released to the atmosphere as required to be measured by condition B7 for the preceding twelve (12) month period must be submitted to the administering authority with each annual return and include, but not be limited to, the following information:
- (i) Total mass of VOC released from the site;
 - (ii) Average mass VOC emissions from each point source during the 17-hours of sampling;
 - (iii) Stack emission profile showing concentration and mass of VOC released from each point source;
 - (iv) Percentage increase or decrease in the VOC releases from previous years;
 - (v) Impact of any waste minimisation initiatives adopted on the total mass of VOC released;
 - (vi) Ratio of total mass of VOC released to the mass of the product manufactured; and
 - (vii) Water-based paint production capacity.

Bubble Release Limits of Toluene, Xylenes and Benzene

- (B10) The total mass emission rates of Toluene, Xylenes and Benzene, measured from the site at the release point numbers E5, E6, E8, E9, E10 and E11 must not exceed as specified in Schedule B Table 3, based on short term measurements (e.g. 15-minutes sampling period).
- (B11) For the purpose of ensuring compliance with condition B10, the following methodology must be adopted:
1. Conduct grab sampling of emission sources E5, E6, E8, E9, E10, and E11 using a suitable instack monitoring methodology (such as carbon tube analysis during the hours of 06:00 through 23:00 under typical site operating conditions.
 2. Calculate the total emissions of Toluene, Xylenes and Benzene from emission sources E5, E6, E8, E9, E10 and E11, as follows:

$$\text{Toluene, Xylene, or Benzene emissions from the Site} = \sum_{N=1}^6 \left[\frac{1}{n} \sum_{i=1}^n C_i^N \right]$$

Where:

C_i^N is the measured Toluene, Xylenes or Benzene mass emission rate (grams/minute) for source N;

n is the number of measurements during the sampling for emission source N; and

N is the number of emission sources (N=6).

Note: In the event of more than one measurement during the sampling for emission source N, estimate geometric mean and then calculate the bubble emissions as above, otherwise just sum the sources emissions data to calculate the bubble emissions.

- (B12) A report on the total mass of Toluene, Xylenes and Benzene released to the atmosphere as required to be measured by condition B10 for the preceding twelve (12) month period must be submitted to the administering authority with each annual return and include, but be not limited to, the following information:
- (i) Total mass of Toluene, Xylenes and Benzene released from the site;
 - (ii) The mass emissions of Toluene, Xylenes and Benzene from each point source;
 - (iii) Percentage increase or decrease in the Toluene, Xylenes and Benzene releases from previous years;
 - (iv) Impact of any waste minimisation initiatives adopted on the total mass of Toluene, Xylenes and Benzene released;
 - (v) Ratio of total mass of Toluene, Xylenes and Benzene released to the mass of the product manufactured; and
 - (vi) Water-based paint production capacity.

Labelling of Discharge Points

- (B13) All release points referred to in Tables 1 and 2 of Schedule B must be conspicuously marked with the corresponding release point number referred to in Table 1 of the air schedule.
- (B14) The label required for each release point must be readily visible from both ground level and at any required sampling point.

Dust Collectors

- (B15) All particulate contaminants extracted from the Mill deck must be treated in Fabric Filter Dust Collectors (FFDC) and/or Dust collectors using Sintamatic dust collection elements prior to release to the atmosphere at release point E10.
- (B16) All particulate contaminants extracted from the Pigment Store must be treated in a fabric filter dust collector (FFDC) prior to release to the atmosphere at release point E11.
- (B17) All particulate contaminants extracted from the Bead Plant must be treated in a fabric filter dust collector (FFDC) prior to release to the atmosphere at release point E17.
- (B18) All collected material removed from the FFDC/Sintamatic Dust collectors must be removed and disposed of in a manner that will not cause the release of contaminants to the atmosphere or to waters.
- (B19) No particulate addition operations are to be performed at the Mill deck, Pigment Store or Bead Plant in the event of filter medium breakthrough.
- (B20) A filter medium breakthrough detector must be installed in the outlet of all FFDCs.
- (B21) Replacement bags for the FFDC and replacement cartridges for the Sintamatic dust collectors must be held on site or be readily available from a local contract maintenance service company at all times.

Air Pollution Control Plant(s)

- (B22) All styrene vapours leaving the styrene bulk vessels (release point E15) and the bead plant process vessels (release points E16 and E16A) must be treated by the air pollution control plant prior to release to the atmosphere.
- (B23) The air pollution control plant referred to in condition B16 must consist of one of the following units:
 - (i) Activated carbon filter (conditions B24 to B29 apply); or
 - (ii) Bio-filter (conditions B30 to B32 apply).

Activated Carbon Filter

- (B24) The operations performed at the Bead Plant must be shutdown in the event of carbon filter breakthrough (saturation).
- (B25) Activated Carbon Filter cartridges must be held on site or be readily available from a local contract maintenance service company at all times.
- (B26) The activated carbon filter(s), other source equipment, and control devices must be maintained as specified in manufacturer's specifications and in a manner to prevent or minimise the release of contaminants to the atmosphere.
- (B27) A carbon filter maintenance procedure must be prepared and implemented in accordance with the manufacturers' operating instructions/specifications.

- (B28) The activated carbon filter must have a removal efficiency of not less than 90 percent in respect of the release of volatile organic compounds.
- (B29) The activated carbon filter must be replaced when it becomes saturated with the VOCs and efficiency is reduced below the manufacturers' specifications.

Biofilter

- (B30) The registered operator of this development approval must take all reasonable and practicable measures to ensure that the design and operation of the biofilter optimises the performance for the reduction of VOC emissions. Reasonable and practicable measures include, but are not limited to, the control of the:
- (i) pH of the filter bed;
 - (ii) volumetric flow rate to the filter bed (cubic metres per hour);
 - (iii) uniform distribution of the air stream to the filter bed;
 - (iv) relative humidity of the air stream being directed to the biofilter;
 - (v) temperature of the air stream being directed to the biofilter;
 - (vi) nutritional requirements of the biofilter biomass;
 - (vii) drying out due to direct sunlight; and
 - (viii) potential collapse of the biofilter biomass due to rainfall.
- (B31) The biofilter must be kept in a moist state such that the relative humidity of air entering the biofilter and air leaving the biofilter is as close as practicable to 100% relative humidity but in no case less than 95% relative humidity.
- (B32) The registered operator of this development approval must replace biofilter packing media at the maturity of its life or as recommended by the manufacturer and implement a contingency plan to control VOC during the period of this replacement.

Paint Arrestor Filter

- (B33) All paint mist and aerosols leaving the north Quality Control laboratory paint spray booth, the southern Quality Control laboratory paint spray booth, the central Quality Control laboratory paint spray booth and technical laboratory paint spray booth must be treated in a paint arrestor filter prior to release to the atmosphere.

Dust Control

- (B34) All sealed surfaces intended to carry vehicular traffic must be kept clean.
- (B35) Any spillage of material onto sealed areas, as a result of delivery or handling, must be cleaned up without delay into storage bins or other suitable receptacles.

Control of Fugitive VOC Emissions

- (B36) The registered operator of this development approval must take all reasonable and practicable measures in the design and operation of the plant to minimise fugitive VOC emissions. For the purpose of this condition, examples of reasonable and practicable measures could be the following:
- (i) install cover on all open top vessels and tanks used to mix paint, disperse pigment and adjust viscosity and colour;
 - (ii) covers used on tanks and vessels must be VOC impermeable and must be kept closed at all times except to permit operator access;
 - (iii) clean vessels and tanks with detergent, hot alkali high pressure water or low Reid vapor pressure (less than 0.3 psia) solvent which minimise VOC emissions;
 - (iv) avoid heating solvent above 50 °C to minimise vapour generation;
 - (v) use submerged filling when transferring VOC containing materials;

- (vi) visually inspect equipments for leaks on monthly basis; and
- (vii) implementation of a monitoring program to regularly leak test all bulk chemical storage components including pumps, piping and controls, vessels and tanks.

- (B37) The ducting and extraction systems that transfer effluent gases from one location to another must be constructed, operated and maintained so as to minimise any leakage of effluent gases and vapours to the atmosphere occurring from these sources.
- (B38) In the event of emissions of contaminants occurring from industrial plant or ducting and extraction systems that transfer effluent gases from one location to another, the fault or omission that resulted in that emission must be corrected as soon as practicable.

Tank Lids

- (B39) The registered operator of this development approval must install and maintain tank lids to control VOC emissions to ensure that all open-top equipment be covered during the manufacturing process. This design must include, but are not limited to, the following requirements:
- (i) the mill, tank, vat or vessel must be equipped with a lid which completely covers these equipments, except for an opening no larger than necessary to allow for safe clearance for mixer shaft;
 - (ii) the cover remains closed, except when production, sampling, maintenance, or inspection procedures require access; and
 - (iii) the cover is maintained in good condition, such that when in place, it maintains contact with the rim of the opening for at least 90 percent of the circumference of the rim.

Equipment Cleaning

- (B40) The registered operator of this development approval must take all reasonable and practicable measures to control VOC emissions from equipment cleaning operations. For the purpose of this condition, examples of reasonable and practicable measures could include the following:
- (i) using completely covered or enclosed equipment for organic solvent cleaning;
 - (ii) investigating alternative cleaning material (e.g. hot alkali or detergent) for reducing VOC emissions;
 - (iii) using rubber wipers to scrape the sides of the tank to reduce the amount of clinging paint, thus reducing the amount of solvent to clean the tank;
 - (iv) using high-pressure spray heads to clean process tanks (these heads can reduce cleaning material use by 80 to 90 percent);
 - (v) using plastic or foam pigs; and
 - (vi) using Teflon lined tanks which can reduce the amount of paint clinging to the side of the tank and makes cleaning easier.
- (B41) The cleaning solvent must not contain more than five percent by weight of the following halogenated compounds: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chloroform, or any combination thereof.

Volatile Organic Compounds (VOC) management plan

- (B42) The registered operator of this development approval must develop and implement a VOC management plan. This plan must be prepared to ensure that VOCs do not adversely affect the welfare and amenity of nearby land uses. The plan must include, but not necessarily be limited to:
- (i) identification of VOC sources;
 - (ii) minimisation of VOC at the sources including management and control strategies; and
 - (iii) monitoring of VOC emissions as appropriate.
- (B43) The elements of VOC management plan must include but not necessarily be limited to:

- (i) objectives/Targets for what is intended to be achieved;
- (ii) management Strategies for the overall approach to be taken to meet/maintain the stated objectives/targets;
- (iii) tasks/Actions required to implement the nominated strategies, including any necessary approval applications, consultations and monitoring;
- (iv) performance Indicators against which the level of achievement of the stated objectives/targets will be measured;
- (v) frequency/Deadline or time frame in which each of the tasks/actions is to be carried out and/or completed;
- (vi) responsible Person/Organisation for carrying out each task/action;
- (vii) reporting and Review arrangements (including any auditing) for each task: how often; and to whom; and
- (viii) corrective Actions to be undertaken if the stated objectives/targets are not being met or maintained, including who is responsible for taking required actions.

End of Conditions for Schedule B

SCHEDULE C - WATER

Release of Contaminants to Waters

- (C1) Contaminants must not be directly or indirectly released from the approved place to any waters or the bed and banks of any waters except:
- (i) as permitted under the stormwater management schedule; or
 - (ii) to a sewer as permitted or otherwise agreed from time to time by the relevant local authority.

End of Conditions for Schedule C

SCHEDULE D - STORMWATER MANAGEMENT

Contaminant Releases Caused by Rainfall

- (D1) The environmentally relevant activity must be carried out by such practicable means necessary to prevent and/or minimise the contact of incident rainfall and stormwater runoff with wastes or other contaminants.

Release of Contaminated Stormwater Runoff

- (D2) Except as otherwise provided by the conditions of the stormwater management schedule and the water schedule of this development approval, the environmentally relevant activity must be carried out by such practicable means necessary to prevent and/or minimise the release or likelihood of release of contaminated runoff from the approved place to any stormwater drain or waters or the bed or banks of any such waters. "Contaminated runoff" for the purpose of this condition means stormwater and/or stormwater runoff that contains contaminants that may cause environmental harm.

Maintenance and Cleanup

- (D3) The maintenance and cleaning of vehicles and any other equipment or plant must be carried out in areas from where contaminants cannot be released into any waters, roadside gutter or stormwater drainage system.

High Level Alarms

- (D4) All storage tanks must be fitted with high level alarms which are capable of providing the operator in charge of the material transfer operation with an audible and/or visible warning that the maximum of the vessel capacity has been reached.
- (D5) Material transfer operations must cease in the event of an audible and/or visible warning that the maximum of the vessel capacity has been reached.

Bunding

- (D6) All raw material tank storage areas, products tank storage areas, mixing tanks process areas and wastes tank storage areas must be bunded so that the capacity of the bund is sufficient to contain at least one hundred percent (100%) of the largest storage tank plus ten percent (10%) of the second largest tank within the bund.
- (D7) All raw material drum storage, products drum storage and wastes drum storage areas must be bunded so that the capacity of the bund is sufficient to contain at least twenty-five percent (25%) of the maximum design storage volume within the bund.
- (D8) All loading/unloading of bulk materials must take place only within designated vehicle loading/unloading areas.
- (D9) All tanker loading/unloading areas must be provided with a system for collecting and disposing of any potential spillage. The collection and disposal system must be sufficient to contain the total capacity of the largest compartment of any tank vehicle using the loading/unloading area.
- (D10) All bunding must be constructed of materials which are impervious to the materials stored.
- (D11) The base and walls of all bunded areas must be maintained and kept free from gaps and cracks.
- (D12) All required pipework from the bunded areas must be directed over the bund wall and not through it.
- (D13) All bunding must be roofed where practicable.

- (D14) Where it is impractical to completely roof a bunded area the registered operator of this development approval must ensure that any stormwater captured within the bund is free from contaminants or wastes prior to any release.
- (D15) All spills outside bunded areas must be cleaned up as quickly as practicable using dry absorbent material to prevent such spills entering the stormwater system.

Segregation of Miscible/Non-miscible Materials

- (D16) Contaminants such as contaminated stormwater collected in bunded areas in which materials are stored which are miscible in water must not be released to any interceptor or other treatment plant which is incapable of removing such materials from the medium in which they are carried.
- (D17) Disposal of contaminated stormwater with materials miscible in water collecting within any bunded area must be via sewer with the approval of the relevant local authority in a trade waste permit or via recycling, reprocessing or treatment within the premises or disposal to an appropriate waste disposal facility that can accept such waste.

Empty Drum Storage:

- (D18) All empty drums must be stored on a concrete hardstand area with their closures in place.

Oil/water Interceptor Conditions

- (D19) Collected waste oil/solvents and sludge from the separators must be removed as often as necessary to ensure effective operation of the separators.
- (D20) Collected waste oil/solvents and sludge removed from the separators must be disposed of in a manner which does not cause contamination of any waters or land.
- (D21) Detergents or other emulsifying agents must be prevented as far as reasonable and practicable from entering the separators.

End of Conditions for Schedule D

SCHEDULE E - LAND APPLICATION

Release of Contaminants to Land

(E1) There must be no release nor likelihood of release of any contaminants to land.

End of Conditions for Schedule E

SCHEDULE F - NOISE

Emission of Noise

- (F1) In the event of a complaint about noise that constitutes annoyance being made to the administering authority, that the administering authority considers is not frivolous or vexatious, then the emission of noise from the approved place must not result in levels greater than those specified in Table 1 of the Noise Schedule.

SCHEDULE F - TABLE 1

NOISE LIMITS AT A NOISE SENSITIVE PLACE	
Period	Noise Level at a Noise Sensitive Place Measured as the Adjusted Maximum Sound Pressure Level <i>L_{Amax adj, T}</i>
7 am - 6 pm	Background noise level plus 5 dB(A)
6 pm - 10 pm	Background noise level plus 5 dB(A)
10 pm - 7 am	Background noise level plus 3 dB(A)
NOISE LIMITS AT A COMMERCIAL PLACE	
Period	Noise Level at a Commercial Place measured as the Adjusted Maximum Sound Pressure Level <i>L_{Amax adj, T}</i>
7 am - 6 pm	Background noise level plus 10 dB(A)
6 pm - 10 pm	Background noise level plus 10 dB(A)
10 pm - 7 am	Background noise level plus 8 dB(A)

End of Conditions for Schedule F

SCHEDULE G - WASTE MANAGEMENT

General

- (G1) Waste must not be released to the environment, stored, transferred or disposed of contrary to any condition of this development approval.
- (G2) The registered operator of this development approval must not:
 - (i) allow waste to burn or be burnt at or on the approved place; nor
 - (ii) remove waste from the approved place and burn such waste elsewhere except as permitted by the conditions of this development approval.
- (G3) The registered operator of this development approval may remove waste from the approved place for processing at an appropriately licensed facility.
- (G4) Records of trade waste agreements must be made available for inspection on request.
- (G5) An area must be set aside for the segregation and storage of recyclable solid wastes.
- (G6) Procedures must be implemented to ensure all disposal of wastes generated in carrying out the environmentally relevant activity is to a proper and appropriate facility that accepts such wastes, except as specifically provided for under the conditions of this development approval.

Liquid Organic Solvent Waste Management Plan

- (G7) The registered operator of this development approval, must develop and implement a Liquid Organic Solvent Waste Management Plan which details how the registered operator of this development approval will effectively and appropriately manage solvent waste caused by the carrying out of the environmentally relevant activity.
- (G8) In developing the Liquid Organic Solvent Waste Management Plan and periodically updating it to incorporate changing practices and future options, the registered operator of the development approval must have regard to the following hierarchy of preferred methods of dealing with waste. Where reasonable and practicable, the method of dealing with waste which is higher in the hierarchy must be adopted over another method which is lower in the hierarchy.

Hierarchy of methods of dealing with waste

The most preferred method [method (1)]

- (1) Avoid the generation of waste in the first place, for example by utilising alternate materials and or processes.
- (2) Minimise the quantity and or hazardous nature of the waste generated, for example by utilising alternate materials and or processes and segregation of high strength waste streams from low strength waste streams.
- (3) Recycling of waste produced, for example by incorporating reuse, reprocessing, and utilisation of the waste for a worthwhile purpose.
- (4) Treatment of the waste to render it less or non-hazardous.
- (5) Disposal of the waste as a last resort.

The least preferred method [method (5)].

- (G9) The Liquid Organic Solvent Waste Management Plan must detail the following:
- (i) the source, quantity, nature of each solvent waste produced on site and the current method of disposal (in a table and graph form);
 - (ii) waste minimisation and cleaner production options addressing: target/objectives, management strategies, tasks, performance indicators, frequency, responsible person and reporting of reduction in quantity of all Liquid Organic Solvent wastes produced on site; and
 - (iii) provisions for carrying out and submitting to the administering authority a solvent waste audit within two (2) years from the date of issue of this development approval and thereafter every five (5) years.
- (G10) A copy of the Liquid Organic Solvent Waste Management Plan must be provided to the administering authority within thirty (30) days of its completion.
- (G11) A copy of the Liquid Organic Solvent Waste Management Plan must be kept at the approved place.
- (G12) The registered operator of this development approval must not implement a Liquid Organic Solvent Waste Management Plan or amend a Liquid Organic Solvent Waste Management Plan where such implementation or amendment would result in a contravention of any condition of this development approval.
- (G13) The registered operator of this development approval must submit details of any amendment to the Liquid Organic Solvent Waste Management Plan to the administering authority with the Annual Return which immediately follows the enactment of any such amendment.

Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan

- (G14) The registered operator of this development approval, must develop and implement a Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan which details how the registered operator of this development approval will effectively and appropriately manage Fugitive emissions caused by the carrying out of the environmentally relevant activity.
- (G15) The Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan must address at least the following matters:
- (i) the source of Fugitive Emission generated on site, and
 - (ii) fugitive emission minimisation and cleaner production options including: target/objectives, management strategies, tasks, performance indicators, frequency, responsible person and reporting of performance .
- (G16) A copy of the Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan must be provided to the administering authority within thirty (30) days of its completion.
- (G17) A copy of the Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan must be kept at the approved place.
- (G18) The registered operator of this development approval must not implement a Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan or amend a Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan where such implementation or amendment would result in a contravention of any condition of this development approval.
- (G19) The registered operator of this development approval must submit details of any amendment to the Fugitive Emissions (Volatile Organic Compounds) Minimisation Plan to the administering authority with the Annual Return which immediately follows the enactment of any such amendment.

Off Site Movement

- (G20) Where regulated waste is removed from the approved place (other than by a release as permitted under another schedule of this development approval), the registered operator of this development approval must monitor and keep records of the following:
- (i) the date, quantity and type of waste removed;
 - (ii) name of the waste transporter and/or disposal operator that removed the waste; and
 - (iii) the intended treatment/disposal destination of the waste.

Storage Conditions

- (G21) The lids of all storage tanks and mixing vessels must be kept closed at all times except when the lid is opened for maintenance and operational (manual addition of raw materials) purposes.
- (G22) All drums containing raw, regulated waste or processed materials must be sealed to prevent loss of contents or exposure of the contents to the atmosphere.
- (G23) All reasonable and practicable measures must be taken to prevent leakage of the contents from any waste container.
- (G24) Any visible leakage of the contents from any waste container must be cleaned up as quickly as practicable.

Notification of Improper Disposal of Regulated Waste

- (G25) If the registered operator of this development approval becomes aware that a person has removed regulated waste from the approved place and disposed of the regulated waste in a manner which is not authorised by this development approval or improper or unlawful, then the registered operator of this development approval must, as soon as practicable, notify the administering authority of all relevant facts, matters and circumstances known concerning the disposal.

End of Conditions for Schedule G

SCHEDULE H - MONITORING AND REPORTING

Complaint Recording

- (H1) All complaints received by the registered operator of this development approval relating to releases of contaminants from operations at the approved place must be recorded and kept in a log book with the following details:
- (i) time, date and nature of complaint;
 - (ii) type of communication (telephone, letter, personal etc.);
 - (iii) name, contact address and contact telephone number of complainant (Note: if the complainant does not wish to be identified then "Not identified" is to be recorded);
 - (iv) response and investigation undertaken as a result of the complaint;
 - (v) name of person responsible for investigating complaint; and
 - (vi) action taken as a result of the complaint investigation and signature of responsible person.

Notification of Emergencies and Incidents

- (H2) As soon as practicable after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this development approval, the registered operator of this development approval must notify the administering authority of the release by telephone or facsimile.
- (H3) The notification of emergencies or incidents as required by condition number H2 must include but not be limited to the following:
- (i) the name of the registered operator of the development approval;
 - (ii) the location of the emergency or incident;
 - (iii) the number of the development approval;
 - (iv) the name and telephone number of the designated contact person;
 - (v) the time of the release;
 - (vi) the time the registered operator of the development approval became aware of the release;
 - (vii) the suspected cause of the release;
 - (viii) the environmental harm and or environmental nuisance caused, threatened, or suspected to be caused by the release; and
 - (ix) actions taken to prevent further any release and mitigate any environmental harm and or environmental nuisance caused by the release.

Monitoring of Contaminant Releases to the Atmosphere

- (H4) The registered operator of this development approval must conduct and keep records of a monitoring program of contaminant releases to the atmosphere at the release points, frequency, and for the parameters specified in Schedule H Table 1 and which complies with the following:
- (i) all determinations of the quality of contaminants released must be performed by a person or body registered by the National Association of Testing Authorities (NATA) or by a person or body possessing appropriate experience and qualifications to perform the required measurements;
 - (ii) monitoring provisions for the release points listed in Schedule H Table 1 must comply with the *Australian Standard AS 4323.1 - 1995 "Stationary source emissions Method 1: Selection of sampling provisions"*;

- (iii) all determinations of contaminant releases to the atmosphere must be made in accordance with methods prescribed in the most recent version of the Department of Environment and Resource Management's Air Quality Sampling Manual. If monitoring requirements for specific contaminants are not described in the Department of Environment and Resource Management's Air Quality Sampling Manual, monitoring protocols must be in accordance with a method as approved by New South Wales DEC/EPA, Victorian EPA or United States EPA;
- (iv) the following tests must be performed for each required determination specified in Table 1:
 - (i) gas velocity and volume flow rate; and
 - (ii) temperature;
- (v) where practicable samples taken must be representative of the contaminants discharged when emissions are expected to be at maximum; and
- (vi) during the sampling period the following additional information must be gathered; operating conditions including:
 - (i) production rate at the time of sampling and product made;
 - (ii) raw materials used;
 - (iii) number of equipment and mixing vessels operating;
 - (iv) operating or mixing temperature; and
 - (v) any typical factors that may influence air emissions (e.g. abnormal cleaning operations).

**Schedule H - Table 1
Required Release Point Determinations**

DETERMINATION REQUIRED	RELEASE POINT NUMBERS	FREQUENCY
Semi-continuous monitoring of concentration and mass emission rate for Volatile Organic Compounds (VOC) as n-hexane equivalent	E5, E6, E8, E9, E10, E11, E15, E16 and E16a	6 monthly for the first three years, then annually.
Concentration and mass emission rate for Speciation of Volatile Organic Compounds	E5, E6, E8, E9, E10, E11, E15, E16 and E16a	6 monthly for the first three years, then annually.
Total solid particles	E10, E11 and E17	6 monthly for the first three years, then annually.

NOTES:

- VOC refers to total volatile organic compounds reported as n-hexane equivalent.
- VOC is to be measured for 17-hours of continuous monitoring for the period from 06:00 through 23:00 during typical site operations.
- VOC Sampling should be conducted using USEPA Method 25A – Determination of total gaseous organic concentration using a flame ionization analyser based on at least a 15-minute sampling frequency.
- VOC Speciation data should be obtained during the continuous monitoring period in order to quantify the composition of the emissions. This monitoring must include chemical compounds including toluene, xylene and benzene (this is not a limited list) and should be conducted using USEPA Method 18 or equivalent.

Monitoring of Contaminant Releases to Waters

- (H5) For the purpose of ensuring the effectiveness of measures adopted to prevent and/or minimise likelihood of contaminated stormwater being released as required by condition D2, the registered operator of this development approval is responsible for the making of determinations and keeping of records of the quality of the stormwater released from the bunded areas located at the approved place to Stable Swamp Creek for the quality characteristics, and at the frequency specified in Schedule H - Table 2:

Schedule H - Table 2

Quality Characteristic	Units	Frequency
Chemical Oxygen Demand	mg/L	3 monthly in the event of a release
Suspended Solids	mg/L	3 monthly in the event of a release
pH	pH scale	3 monthly in the event of a release
Dissolved Oxygen	mg/L	3 monthly in the event of a release
Total Organic Compounds (TOC)	(mg/l)	3 monthly in the event of a release
Phenolic compounds	(µg/l)	3 monthly in the event of a release
Benzene	(µg/l)	3 monthly in the event of a release
Toluene	(µg/l)	3 monthly in the event of a release
Ethylbenzene	(µg/l)	3 monthly in the event of a release

Quality Determinations

- (H6) All determinations of the quality of contaminants released to waters must be made in accordance with methods prescribed in the *Department of Environment and Resource Management's Water Quality Sampling Manual 2009*, or more recent additions or supplements to that document as such become available.
- (H7) All determinations of the quality of contaminants released must be performed by a person or body possessing appropriate experience and qualifications to perform the required measurements.

Noise Monitoring

- (H8) For the purposes of investigating any complaint made about annoyance and also for checking compliance with condition F1 of the noise schedule, monitoring and recording of the noise levels from the activity must be undertaken for the following descriptors, characteristics and conditions:

- (i) $L_{Amax, Adj T_i}$
- (ii) L_{Aeq, T_i}
- (iii) $L_{AN, T}$ (where N equals statistical levels of 1, 10, 90);
- (iv) Max $L_{pA T_i}$
- (v) L_{Aeq, T_i}
- (vi) the level and frequency of occurrence of impulsive or tonal noise;
- (vii) atmospheric conditions including temperature, relative humidity and wind speed and direction; and
- (viii) effects due to extraneous factors such as traffic noise.

- (H9) In conjunction with the measurement and recording of the noise, the following parameters and conditions must be recorded:

- (i) location, date, time and duration of recording.

- (H10) The method of measurement and reporting of noise levels must comply with the *Environmental Protection Agency Noise Measurement Manual, third edition, 1 March 2000*, or more recent additions or supplements to that document as become available.

- (H11) The measurement and reporting of noise levels must be undertaken by a person or body possessing appropriate experience and qualifications to perform the required measurements.

Reporting of Total Volatile Organic Compounds (VOC) Release to Air

- (H12) The registered operator of this development approval must determine by measurement or estimation the total mass of VOC released from the approved place to the atmosphere each year.
- (H13) The determination of the total mass of VOC released to the atmosphere annually must include all point source and non-point fugitive source releases.
- (H14) The registered operator of this development approval must submit a report detailing the methods to be used to determine the total mass quantity of VOC released to the atmosphere.
- (H15) A report on the total mass of VOC released to the atmosphere as required by condition H12 for the preceding twelve (12) month period must be submitted to the administering authority with each annual return and include, but not be limited to:
- (i) total mass of VOC released;
 - (ii) the percentage increase or decrease in the VOC releases;
 - (iii) the ratio of the total mass quantity of point source releases to non-point source releases;
 - (iv) the impact of any waste minimisation initiatives adopted on the total mass of VOC released; and
 - (v) the ratio of total mass of VOC released to mass of product which includes such VOC.

Oil/Water Interceptor Maintenance Recording

- (H16) A record must be maintained of the time and date of the desludging and maintenance of the oil/water interceptor.
- (H17) The record required by the above condition H20 must be maintained for a period of not less than five (5) years.

Report Submission

- (H18) The registered operator of this development approval must ensure that the results of all monitoring performed in accordance with this development approval for the period covered by the return are submitted with the Annual Return.

Environmental Impact Analysis Reporting

- (H19) The registered operator of this development approval must arrange for the data gathered in accordance with this development approval to be analysed and interpreted to assess the nature and extent of any environmental impact of the environmentally relevant activity. The data, analysis and assessment must be submitted to the administering authority with the Annual Return every three years.

End of Conditions for Schedule H

SCHEDULE I - DEFINITIONS

For the purposes of this development approval the following definitions apply:

Act means the *Environmental Protection Act 1994*.

administering authority means the Department of Environment and Resource Management or its successor.

land in the land application schedule means land excluding waters and the atmosphere.

Air Definitions

cubic metre ("m³") means the volume of dry gaseous contaminant which occupies 1 cubic metre at a temperature of zero degrees Celsius and at an absolute pressure of 101.3 kilopascals.

Volatile organic compounds (VOC) means any chemical compound based on carbon chains or rings with a vapour pressure greater than 2mm of mercury (0.27 kPa) at 25°C), that participate in atmospheric photochemical reactions. The substances that are specifically excluded are: methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonate salts. This is according to the definition of VOC outlined in the Australian Government's National Pollutant Inventory.

g/min means grams per minute.

g/s means grams per second.

Noise Definitions

L_{Amax adj, T} means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over a time period of not less than 15 minutes, using Fast response.

background noise level means either:

L_{A90, T} being the A-weighted sound pressure level exceeded for ninety percent (90%) of the time period of not less than 15 minutes, using Fast response, or

L_{avg, T} being the arithmetic average of the minimum readings measured in the absence of the noise under investigation during a representative time period of not less than 15 minutes, using Fast response.

Max L_{pA, T} means the maximum A-weighted sound pressure level measured over a time period of not less than 15 minutes, using Fast response.

noise sensitive place means -

- (a) a dwelling, mobile home or caravan park, residential marina or other residential premises; or
- (b) a motel, hotel or hostel; or
- (c) a kindergarten, school, university or other educational institution; or
- (d) a medical centre or hospital; or
- (e) a protected area; or
- (f) a park or gardens.

commercial place means a place used as an office or for business or commercial purposes.

annoyance In determining what constitutes "annoyance" regard must be had to *Australian Standard 1055.2 - 1997 Acoustics - Description and Measurement of Environmental Noise Part 2 Application to specific situations*.

protected area means:

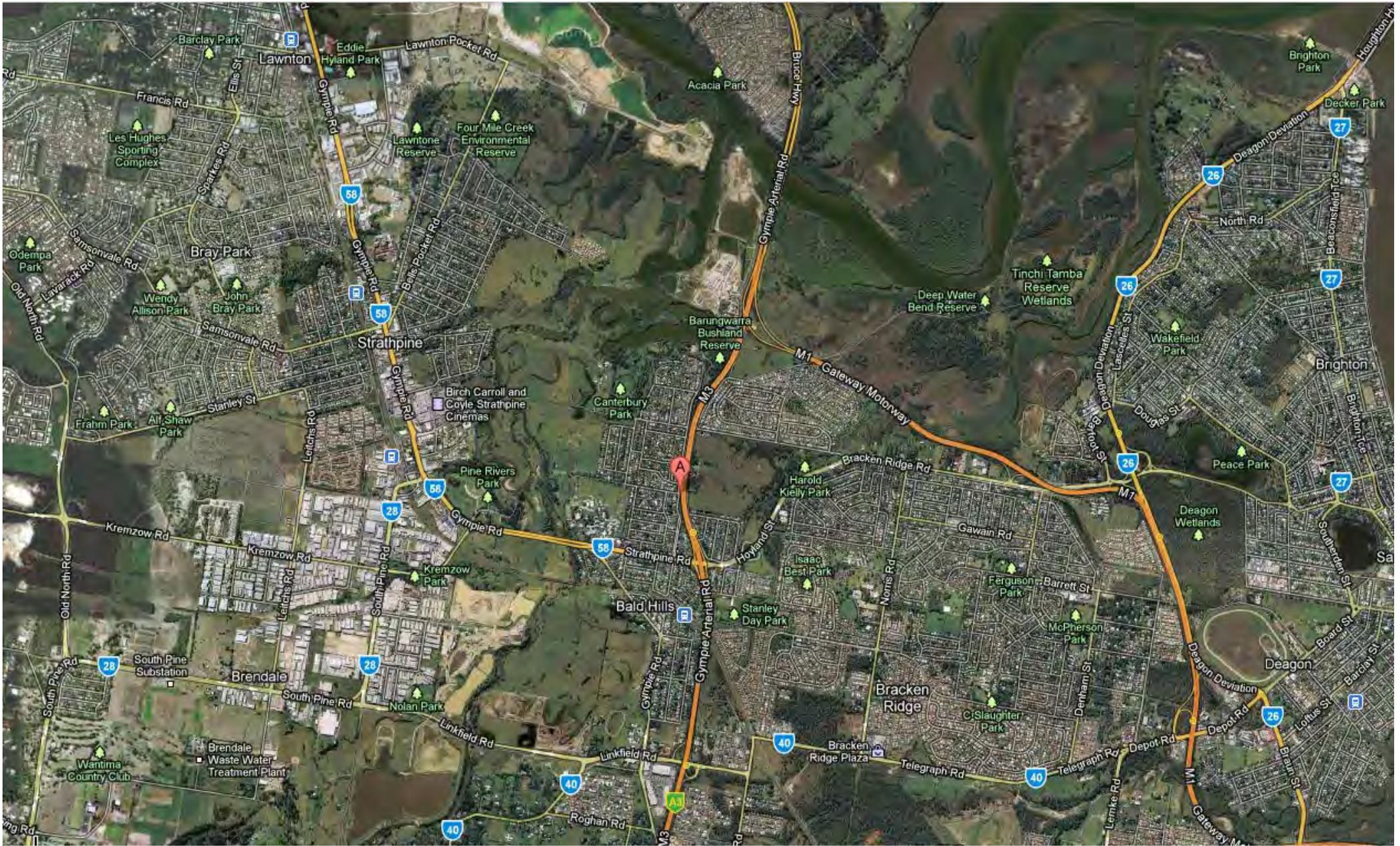
- a protected area under the *Nature Conservation Act 1992*; or
- a marine park under the *Marine Parks Act 2004*; or
- a World Heritage Area.

a park or gardens is defined as " a park or garden open to the public as of right whether by the payment of a fee or otherwise".

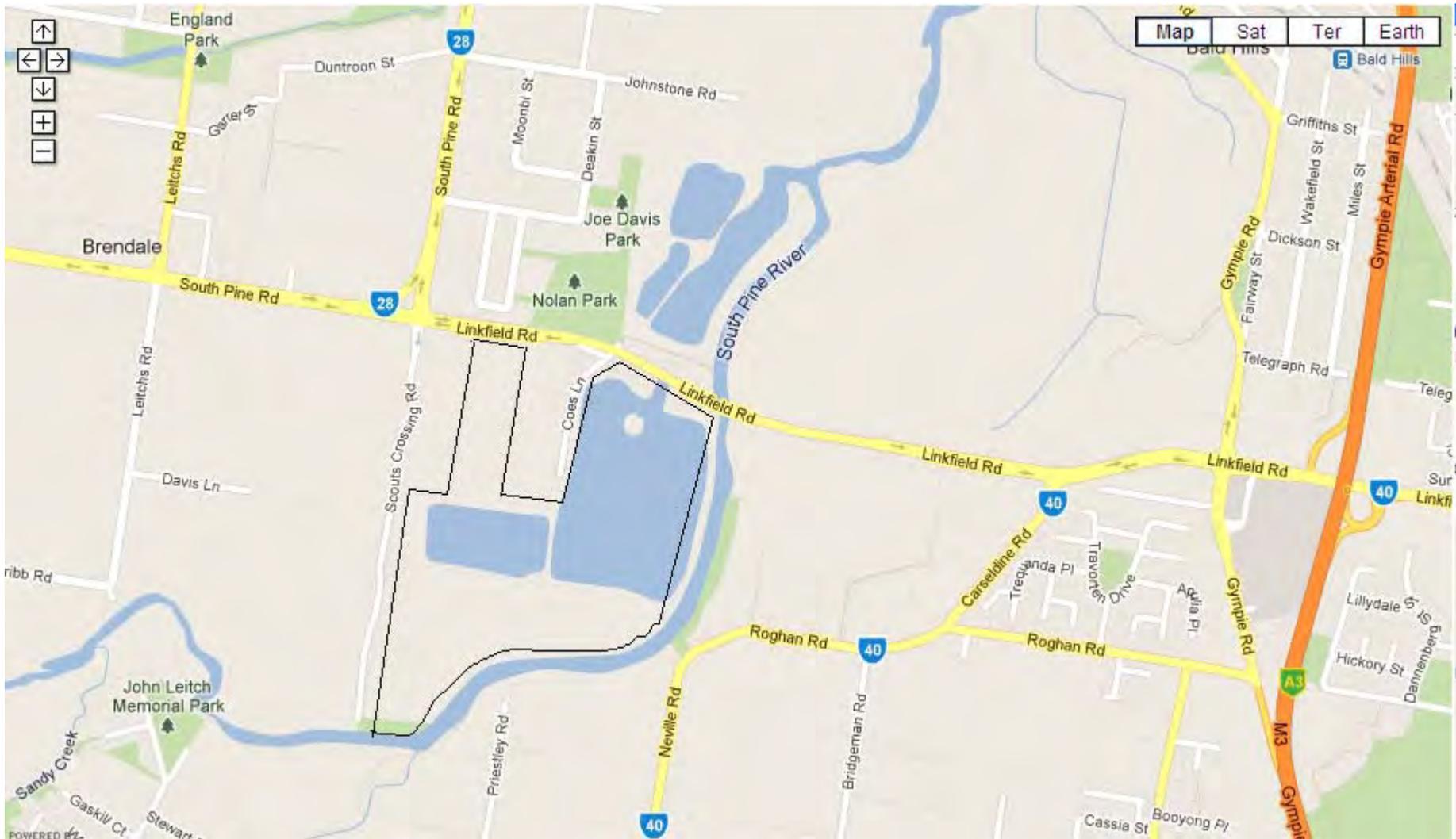
End of Conditions for Schedule I

END OF CONDITIONS





Neilsens Quality Gravels P/L, BRENDALE





SmartMap Information Services

Version 2.8

Environment and Resource Management

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- Define Area
- Build Map
- Refresh Map
- Export SmartMap

[+] Other Services

[+] Admin

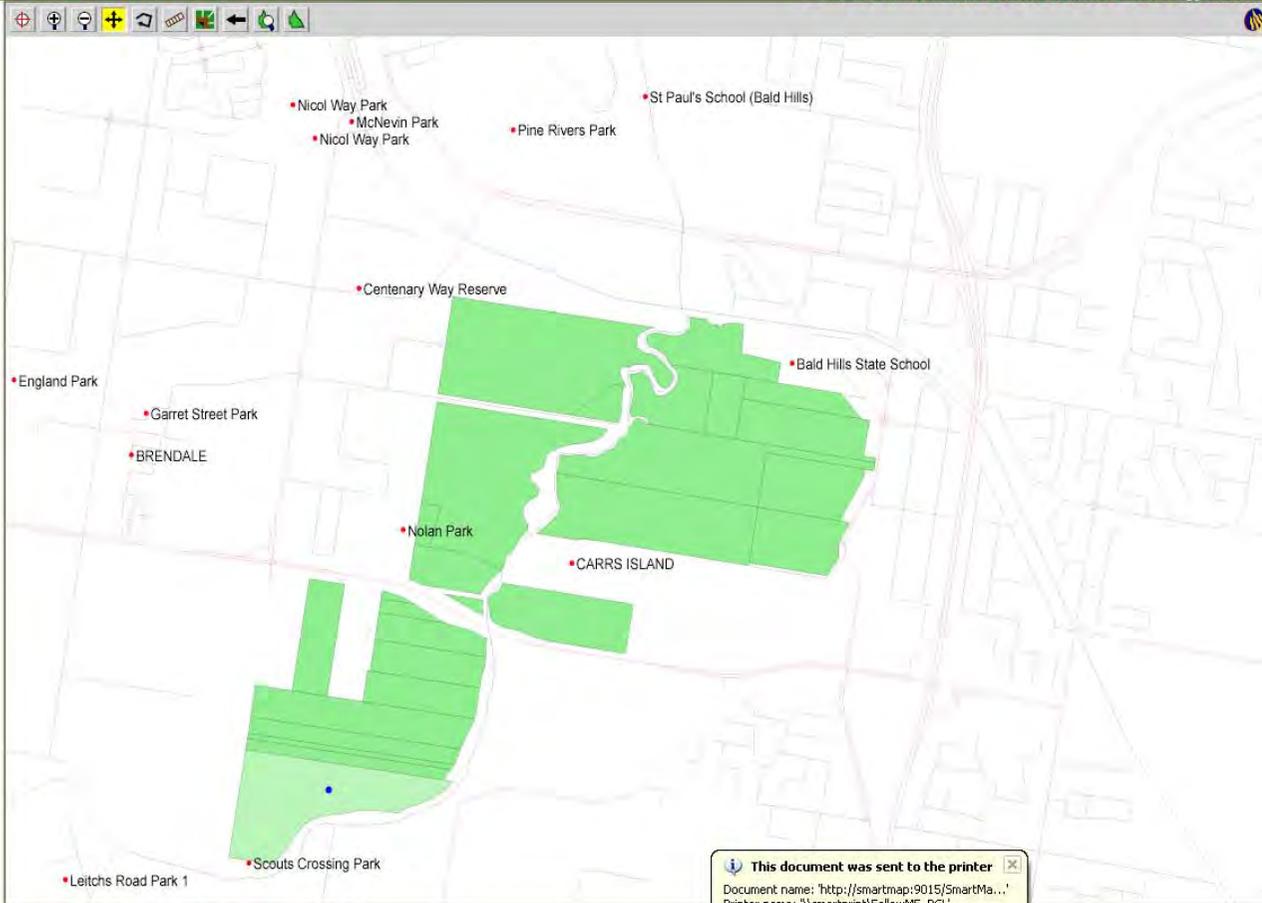
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Spatial Search Results for Lot 96 on Plan SL7138

[Search Imagery at Point](#)
[Survey Search on selected plan\(s\)](#)

Lot/Plan: 96/SL7138
Segment/Parcel: 32440/13
Tenure: FH - FREEHOLD
Area: 17,3000 ha
Excluded Area: 0.00 m²
Surveyed: Yes
Coverage: Base
Accuracy: B&D ENTRY CONTROLLED - 0.1M
Locality: BRENDALE
Local Government: MORETON BAY REGIONAL
Address: SCOUTS CROSSING ROAD, BRENDALE

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27° 18' 45" S, 152° 58' 43" E Map Number: 9443-21214

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Assessment report

Environmental Protection Act 1994 – Chapter 4 activities

Use this assessment report for the assessment of applications for Environmentally Relevant Activities pursuant to Chapter 4 of the Environmental Protection Act 1994. Preparation of this assessment report is evidence that the criteria to be evaluated by the administering authority have been taken into consideration when making a decision. This assessment report may be used to assist in structuring requested information and clarification from applicants.

DERM PROJECT NO: 241644	DERM FILE NUMBER: STH2288
NAME OF APPLICANT:	NEILSENS QUALITY GRAVELS PTY LTD
DEVELOPMENT TYPE:	- ERA 16 Extractive and screening activities Thresholds 2 (c) extracting in a year, more than 100000t to 1000000t of material and 3(b) - screening, in a year, more than 100000t to 1000000t of material
REFERAL AGENCIES:	N/A
SITE LOT & PLAN NUMBER:	Lot 1 Plan AP2980, Lot 1 Plan RP138382, Lot 1 Plan RP205189, Lot 1 Plan RP227370, Lot 1 Plan RP36097, Lot 101 Plan SP122597, Lot 103 Plan SP122598, Lot 108 Plan SP122599, Lot 109 Plan S312513, Lot 109 Plan SP122599, Lot 11 Plan SP122601, Lot 111 Plan SP122599, Lot 114 Plan S3119, Lot 2 Plan RP138382, Lot 2 Plan RP164157, Lot 2 Plan RP227370, Lot 2 Plan RP36094, Lot 2 Plan RP36097, Lot 26 Plan SP167768, Lot 264 Plan SL676, Lot 3 Plan RP214357, Lot 3 Plan RP36094, Lot 350 Plan SL10856, Lot 4 Plan RP36133, Lot 8 Plan RP96061, Lot 88 Plan M31114, Lot 96 Plan SL7138
SITE ADDRESS:	Johnstone Rd, Brendale

CRITICAL DATES (as set by the Process Manager)	DUE DATE	ACTUAL DATE
PRELIMINARY ADVICE		
INFORMATION REQUEST		
DRAFT CONDITIONS		
ASSESSMENT REPORT		

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PART A: GENERAL

1. Description of proposed activity

The proposed access to the new extraction area will be via the existing site entrance on Johnstone Road, Brendale. All mobile plant and vehicles will travel to the new extraction site via a purpose built river crossing located in the southeast sector of the existing site. The existing processing plant at Brendale comprises a receiving hopper, crushers, screening plant, wash plant, hydrocyclones with interconnecting conveyors and piping. The processing plant operates largely as a wet process. The products are held in enclosed stockpiles. It is not proposed to change the processing plant as a consequence of sourcing materials from the new extraction area of Bald Hills.

Stage 1B of the quarry extension is the first area to be excavated within the staged plan of the new extraction area of Bald Hills. The total area of proposed extraction for Stage 1B is approximately 6.0 ha and it is estimated that it will take 3 years to excavate the area of Stage 1B. The topsoil and overburden material removed from the area of Stage 1B will be stockpiled on site and used to backfill prior to revegetation.

2. Site description

The entirety of the operational area for extraction lies within the South Pine Key Resource Area (KRA). Similarly, the processing and stockpile area is also within the area of the KRA, as is the full extent of the buffer areas. Neilsens control the majority of the KRA area. The existing processing plant and administrative facilities located on Johnstone Road on the western side of the South Pine River form part of the application.

This existing processing plant includes an area where the stockpiles of processed and unprocessed material are stored prior to processing and haulage off site. The stockpile areas will be used for the storage, preparation and handling of fill materials prior to the filling of completed extraction pits.

These existing arrangements are not intended to be changed in any significant manner with only minor adaptations envisaged to be needed to suit the new access arrangements from the eastern extraction areas. Due to the separation of the proposed extraction area and the processing plant by the South Pine River, it is necessary to establish a river crossing that will be located at the south-western corner of the extraction area.

This river crossing will consist of a low level bridge which will be adequate to manage the river crossing needs of the extraction material transport vehicles. This low level bridge is a revised proposal in place of the culvert based option that was contained in the Development Application as submitted.

The proposed bridge design allows for low and high water flows and supports the movement of fish and animals up and downstream. This design is considered to have minimal impact on the river, and will maintain the natural base of the river.

3. Mapping assessment

Detail the mapping documents considered in completing this report:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Proponent maps supplied | <input checked="" type="checkbox"/> Property map of assessment |
| <input checked="" type="checkbox"/> Proponent drawings supplied | <input checked="" type="checkbox"/> Local government maps |
| <input checked="" type="checkbox"/> Ecomaps with relevant layers | |

4. Documents/plans submitted

Detail the documents provided by the applicant in respect to this assessment:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Site management plan | <input checked="" type="checkbox"/> Monitoring programs |
| <input checked="" type="checkbox"/> Environmental management plan | <input type="checkbox"/> Environmental Impact Statement |
| <input checked="" type="checkbox"/> Stormwater management plan | <input type="checkbox"/> Other |

5. History of Relevant Activities/Applicant (if relevant)

Neilsens Quality (Neilsens) Gravels Pty. Ltd. extracts and processes sand and gravel from the South Pine River flood plain at Brendale. The operations were established 1976. It is proposed to extend sand and gravel extraction to include that part of the deposits identified by the applicant at Bald Hills to the south of the existing extraction areas. The extraction methodology to be employed at Bald Hills is essentially the same as that employed in the current extraction area.

6. Site inspections, consultations, pre-design conference

- 2 pre-design meetings 2009,
- 1 information request meeting 2010.
- Two site inspections 2009/2010.

7. Information Request

Identify whether an information request is required through Process Manager.

PART B: ASSESSMENT CONSIDERATIONS

Instructions:

All legislative considerations within each table must be assessed for relevance and marked as appropriate. An explanatory statement for the basis for the recommendation must be given in the row below.

- **Y** is marked when the criterion is **relevant** and **has been satisfied**.
- **N** is marked when the criterion is **relevant** but **has not been satisfied**.
- **NK** is marked when the criterion is relevant but when there is **not enough information known** to make an adequate assessment.
- **NA** is marked for a criterion when it is **not applicable**.

When considering the assessment criteria, comments should be given in sufficient detail for the delegate to be informed as to why they are relevant and how they impact on a decision. Information provided should reflect the complexity of issues.

Under each legislative criteria (marked in shaded box), there are often some prompt questions. These are merely used to provide some guide to assessing officers, and should not be the only matters taken into consideration.

1. Objective of the Environmental Protection Act 1994

<i>Section 3 of the Environmental Protection Act 1994 states: The object of this Act is to protect Queensland’s environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).</i>	Y, N, NK, NA
	Y
An Ecological Impact Assessment (EIA) has been prepared as a supplement to the EIA that accompanied the Development Application. The supplementary EIA has addressed the above points. In summary, the EIA noted that the site is highly disturbed, with the following specific outcomes of note.	

2. Scale or intensity

If the application is for an increase in the scale or intensity of a chapter 4 activity the administering authority must assess the application having regard to the following, as set out in sch73A of the *Environmental Protection Act 1994*:

<i>3 (a) the proposed activity; and (b) the existing activity; and (c) the total likely or potential environmental harm the proposed activity and the existing activity, may cause.</i>	Y, N, NK, NA
<ul style="list-style-type: none"> • Take into consideration the whole activity rather than just the part that is the increase, where there is an increase in the scale or intensity. 	Y

3. Environmental Management Decision

The administering authority must, for making an environmental management decision relating to an activity, consider the following matters, as set out in Section 51, Ch 4, Part 2 of the *Environmental Protection Regulation 2008 (EP Reg)*.

AIR

(a) each of the following under any relevant environmental protection policies— (i) the management hierarchy;	Y, N, NK, NA
•	Y
<p>Activities that are associated with this project that are expected to be the most significant sources of dust emissions are the truck movements and wheel generated dust on haul roads. Wind-blown dust will also occur due to wind erosion of stockpiles, the exposed pit, and handling of material. Dust emission rates have been calculated using emission factors and detailed information on quarry activities for each of these scenarios. Quarry characteristics, such as peak and average extraction rates, location of crushing and screening equipment and stockpiles were based on information supplied by Neilsens.</p> <p>Dust emission rates from the quarry have been calculated using emission factors published by the USEPA and the NPI (USEPA, 1998; USEPA, 2004; USEPA, 2006a; USEPA, 2006b; NPI, 2001). For the majority of dust-producing activities, the dust emission rate is dependent upon the wind speed with little or no dust emissions occurring for some activities below a threshold wind speed. Factors that determine the dust emission rate are the properties of the sand and gravel including;</p> <ul style="list-style-type: none"> • moisture content • particle size distribution • rainfall • mitigation measures that may be employed <p>These key factors have been accounted for in estimating the dust emissions for the project. The following mitigation measures are implemented by Neilsens in the existing extraction area and will also be implemented in the new extraction area and have been included within the modelling approach;</p> <ul style="list-style-type: none"> • The daily watering of haul routes • The storage of product in semi-enclosed areas • The processing of sand and gravel using a wet process <p>The mitigation of dust from the haul roads and product stockpiles has been incorporated into the modelling via a quantitative emissions reduction of 50% compared to no mitigation. The processing plant has negligible emissions because it is a wet process. Therefore, the crushers, conveyors and screens at the existing plant have been represented accordingly.</p>	

(a) each of the following under any relevant environmental protection policies— (ii) environmental values;	Y, N, NK, NA																								
The environmental values are listed under section 7 and schedule 1 of the <i>Environmental Protection (Air) Policy 2008</i> .																									
<p>The Project area has residential properties to the north and to the east. There is a school located to the north of the expansion area at R4. There are several isolated residential properties to the south of Stage 1B. The nearest property (owned by Neilsens) is located 160 metres to the south of Stage 1B at R1. The location of the sensitive receptors is shown in Table 3.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Residence</th> <th style="text-align: left;">Distance to project area</th> <th style="text-align: left;">X1</th> <th style="text-align: left;">Y1</th> </tr> </thead> <tbody> <tr> <td>R1</td> <td>160 m</td> <td>499917</td> <td>6976773</td> </tr> <tr> <td>R2</td> <td>800 m</td> <td>500813</td> <td>6977462</td> </tr> <tr> <td>R3</td> <td>1000 m</td> <td>500966</td> <td>6977548</td> </tr> <tr> <td>R4</td> <td>1000 m</td> <td>500667</td> <td>6978075</td> </tr> <tr> <td>R5</td> <td>1100 m</td> <td>500366</td> <td>6978228</td> </tr> </tbody> </table> <p>1 Australian Map Grid coordinates – MGA94 1994 AMG Zone 56</p>		Residence	Distance to project area	X1	Y1	R1	160 m	499917	6976773	R2	800 m	500813	6977462	R3	1000 m	500966	6977548	R4	1000 m	500667	6978075	R5	1100 m	500366	6978228
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The local school has expressed a concern regarding respirable crystalline silica. The EPP(Air) does not specify an objective for respirable crystalline silica. The Victorian EPA recommends an assessment criterion for extractive industries of 3 µg/m³ (annual average as PM_{2.5}). If a worst-case assumption was made that all of the PM_{2.5} that is emitted from the quarry is respirable crystalline silica, the peak contribution of the quarry to the annual average would be 0.2 µg/m³. This is less than 7% of the Victorian EPA's recommended assessment criterion of 3 µg/m³.

<i>(a) each of the following under any relevant environmental protection policies— (iii) quality objectives;</i>	Y, N, NK, NA
The quality objectives listed under section 8 and schedule 1 of the <i>Environmental Protection (Air) Policy 2008</i> .	Y
<p>An Air Quality Assessment has been prepared by Katestone, and was submitted separately to the main Development Application report under Conics' letterhead on 8 December 2009.</p> <p>The Air Quality Assessment has been prepared in line with the Environmental Protection Policy (Air). The Air Quality Assessment and demonstrates:</p> <p>The maximum 24-hour average ground-level concentrations of PM₁₀ are below the EPP(Air) objective of 50 g/m³, at all receptors. The maximum 24-hour average ground-level concentration of PM₁₀ at R1 is 42.5 g/m³ including a background value;</p> <p>The maximum 24-hour average ground-level concentrations of PM_{2.5} are below the EPP(Air) objective of 25g/m³. The highest 24-hour average ground-level concentration of PM_{2.5} of 8.2g/m³ including a background value is predicted to occur at R1;</p> <p>The annual average ground-level concentrations of PM_{2.5} are below the EPP(Air) objective of 8g/m³;</p> <p>Compliance with the annual average EPP(Air) objective of 90 g/m³ for TSP. The highest annual average ground-level concentration of TSP predicted to occur at a residence is 35.8 g/m³ including a background value; and</p> <p>Compliance with the guideline of 120mg/m²/day (annual average), at all receptors with the inclusion of a background value.</p>	

<i>(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes;</i>					Y, N, NK, NA
					Y
Estimated total TSP, PM₁₀, PM_{2.5} for quarry operations Summary emissions					Emission Rate (g/s)
Location	Activity	TSP	PM₁₀	PM_{2.5}	
Processing plant	Wind erosion	0.06	0.03	0.004	
	Material handling				
Product stockpile areas	Wind erosion	0.03	0.02	0.002	
	Material handling				
Exposed areas	Wind erosion	0.36	0.18	0.03	
Pit activities	Material handling	0.5	0.1	0.04	
	Topsoil removal				
	Overburden removal				
Haul routes	Haulage (unpaved)	6.7	1.8	0.18	
Maximum 24-hour average PM₁₀ g/m³)			Maximum 24-hour average PM_{2.5} g/m³)		
Quarry	Quarry + background		Quarry	Quarry + background	
R1	26.6	42.5	3.1	8.2	
R2	7.3	23.2	0.9	6.0	
R3	7.9	23.8	0.9	6.0	
R4	10.3	26.2	1.3	6.4	
R5	5.8	21.7	0.7	5.8	
Objective	50	50	25	25	

NOISE

<i>(a) each of the following under any relevant environmental protection policies— (i) the management hierarchy;</i>	Y, N, NK, NA
The management hierarchy is listed under section 9 of the <i>Environmental Protection (Noise) Policy 2008</i> . Work progressively through each step as illustrated below:	Y
<p>The noise report includes a number of management measures that have been incorporated into the EMP to ensure that there is no adverse effect from the proposed activities on the amenities of nearby occupiers.</p> <p>Noise Criteria Compliance for stage 1B is predicted for the day and evening without any requirement for further acoustic treatments. In regards to the night time period, compliance will be dependent on the phase of extraction with time restrictions to be utilised for any phase not complying.</p> <p>The only phase predicted to exceed the night time period is the top soil removal.</p> <p>Unfortunately, due to the grounds topography to the east of the site, barriers for the topsoil removal would not be practical. In regards to the other phases which include overburden and sand/gravel removal, the quarrying process will be sufficient to provide the required screening to sensitive receivers.</p>	

<i>(a) each of the following under any relevant environmental protection policies— (ii) environmental values;</i>	Y, N, NK, NA
The environmental values listed under section 7 and schedule 1 of the <i>Environmental Protection (Noise) Policy 2008</i> .	Y
<p>A comprehensive site survey was conducted for the proposed continuation of the extraction activities. The following were identified during the survey:</p> <ul style="list-style-type: none"> • Railway lines are located to the north, northwest and east of the site. The northern aspect of the railway line separates the site from Gympie Road and residential dwellings. • St Pauls Anglican School is located adjacent to the northeast property boundary. • Single and two storey residential dwellings are situated along the eastern property boundary, separating the site from Gympie Road. • A Guide Dog Breeding and Training Centre and rural residential properties are located to the southeast, and separate the site from Gympie Road and Bunnings hardware. • Linkfield Road bounds the site to the south, and separates the proposal from residential dwellings located to the southeast. • South Pine River bounds the site to the west and separates the site from the existing extraction site currently in operation. To the west of the existing site is the Brendale industrial area. 	

<i>(a) each of the following under any relevant environmental protection policies— (iii) quality objectives;</i>	Y, N, NK, NA
The quality objectives listed under section 8 and schedule 1 of the <i>Environmental Protection (Noise) Policy 2008</i> .	
<p>An Environmental Noise Impact Report was prepared by TTM Consulting Pty Ltd and accompanied the Development Application as submitted to BCC and referred to DERM.</p> <p>TTM's noise report considered existing ambient noise and the present operations of Neilsens against AS1055 assessment methodologies. The site characteristics, background environment and typical noise levels of current activities were considered against the criteria contained in the EP Regs 08 and Nielsen's present ERA licence.</p>	

<i>(c) the nature and management of, including the use and availability of technology relating to, the processes being, or to be, used in carrying out the activity;</i>	Y, N, NK, NA
	Y
<p>The existing noise levels for plant and equipment and the relative operations currently used for the extraction within the existing site. Average maximum noise levels were measured at a specific distance from the source with the measured levels presented in Table 5 below. All relevant plant located on the site was assessed, but depending on the needs of the site works, not all equipment will be required.</p> <p><i>Table 5: Measured Average Maximum Noise Levels from Typical Activity.</i></p> <p>Noise Source & Distance Measured Level</p> <p>SPL (L_{Amax} dB(A)) Correction</p> <p>SPL dB(A) Corrected Level</p> <p>SPL (L_{Amax} dB(A))</p> <p>Excavator PC 400 – Normal Operation @ 12m 83 + 5 (tonal) 88</p> <p>AH400 Dump Truck - Full Load Passby @ 9.4m 80 0 80</p> <p>AH400 Dump Truck - Empty Load Passby @ 5m 85 0 85</p> <p>AH400 Dump Truck Reversing Alarm @ 3m 85 + 5 (tonal) 90</p> <p>Cat 345B Excavator – Normal Operation @ 15m 78 + 5 (tonal) 83</p> <p>6 inch pump – Peak Operation @ 7m 71 + 5 (tonal) 76</p> <p>Cat 130G Grader Reversing @ 10m 82 + 5 (tonal) 87</p> <p>Cat 130G Grader–Grading soil @ 7m 81 0 81</p> <p>Cat 972G Front End Loader @ 8m 84 0 84</p> <p>Volvo A25c Water Truck Watering Soil @10m 79 0 79</p> <p>In regards to new equipment being used onsite in the future, it is noted that later model equipment usually results in a decrease in noise emission.</p>	

<i>(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes;</i>	Y, N, NK, NA
	Y
<ul style="list-style-type: none"> • The sequence of extraction shall be designed to minimise the line of sight between the cut face and the nearest residences to the extent practicable. • Hours of operation and contact phone numbers shall be sign posted at the main entrance. • The following noise control measures shall be implemented: <ul style="list-style-type: none"> - lining impact areas around the processing plants with resilient material such as heavy rubber where required; - ensuring processing plant is electrically driven; - enclosing fixed engines, pumps and compressors; - operating and maintaining modern, well maintained road worthy product delivery trucks fitted with high efficiency mufflers; - avoiding unnecessary revving of engines; - undertaking habitat enhancement in the Site buffer lands; - Implementing a site code outlining requirements for operators and drivers, including the movement of road trucks on public roads; - maintaining haul road and hardstand surfaces in good condition (free of potholes, rills and product spillages) and with suitable grades; - shutting down equipment when not in use; - fitting of warning lights or broadband reversing alarms, rather than audible sirens or beepers, on mobile equipment wherever possible; - avoiding the use of engine (compression) braking on product delivery trucks in built up areas; - conducting training programs on noise minimisation practices, and - maintaining an up to date data base of cadastral information. 	

WASTE MANAGEMENT

(a) each of the following under any relevant environmental protection policies— (i) the management hierarchy;	Y, N, NK, NA
The management hierarchy is listed under section 10 and Schedule 1 of the <i>Environmental Protection (Waste Management) Policy 2000</i> . Work progressively through each step as illustrated below:	Y
<p>Waste Avoidance Reasonable and practicable measures for achieving waste avoidance may include, but are not necessarily limited to:</p> <ul style="list-style-type: none"> • input substitution (using recyclable materials instead of disposable materials, for example using oil delivered in recyclable steel drums instead of non-recyclable plastic containers) • increased efficiency in the use of raw materials, energy, water or land (purchasing consumables in bulk (viz. large containers) rather than in small quantities) • improved maintenance and operation of equipment (keep equipment in good working order to reduce wear and overhaul) • undertaking an assessment of waste minimisation opportunities from time to time. <p>Waste Reuse Reusing waste may include, but are not necessarily limited to:</p> <ul style="list-style-type: none"> • recovering and separating solvents, metals, oil, or components or contaminants and reusing separated solvents for degreasing plant and equipment; • applying waste processing fines to land in a way that gives agricultural and ecological benefits (using fine sediments in rehabilitation activities); • using water collected in sediment traps for irrigation of buffer land or rehabilitated areas and dust control; • using overburden for constructing bunds and land forming; and • using silt/sediment in rehabilitation. <p>Waste Recycling Reasonable and practicable measures may include, but are not necessarily limited to:</p> <ul style="list-style-type: none"> • recovering oils, greases and lubricants for collection by a licensed oil recycling contractor, recovering, separating and recycling packaging (including paper, cardboard, steel and recyclable plastics); • recycling used plant and equipment to the maximum practicable extent; • finding alternatives to disposal of non-recyclable materials (using conveyor belts for noise attenuation, mudflaps, ute tray liners); • providing suitable receptacles and storage areas for collection of materials for recycling. <p>Energy Recovery from Waste Reasonable and practicable measures may include, but are not necessarily limited to;</p> <ul style="list-style-type: none"> • separating wastes and out-loading to a licensed waste disposal facility which can burn the waste to generate heat for industrial processes or electricity (such as tyres for cement manufacture or vegetation for electricity generation). <p>Waste Disposal Reasonable and practicable measures may include, but are not necessarily limited to;</p> <ul style="list-style-type: none"> • regulated wastes must be transported and disposed of in accordance with the Environmental Protection (Waste) Policy • disposal to a licensed waste disposal facility (viz. landfill or transfer station) • disposal of effluent from on site sewage treatment plants in accordance with AS1547 or licensed waste disposal. 	

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<i>(a) each of the following under any relevant environmental protection policies— (iii) quality objectives;</i>	Y, N, NK, NA
	Y
Unmanaged wastes can detract from the amenity of the site and the locality and increase operational costs.	

<i>(b) the characteristics of the contaminants or materials released from carrying out the activity;</i>	Y, N, NK, NA
	Y
<ul style="list-style-type: none"> • The principal wastes at an extractive industry site may include, but not necessary limited to; • paper and general wastes from the office, workshop and amenities • scrap metals from fabricating, maintenance and construction activities • conveyor belts, crushing cones/plates and screens from processing plants • overburden and stone mixed with overburden • water from truck wash down facilities, washing plants and cleanups • chemicals, solvents and paints • oils and grease from plant, equipment and vehicle servicing • used machinery and equipment • consumables such as batteries, tyres, oil filters and grease cartridges • silt and fines from sediment basins • used containers, drums, bags and packaging • water from sediment basins and sewage treatment systems • general rubbish, litter and miscellaneous items. 	

<i>(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes;</i>	Y, N, NK, NA
	NA
Covered in part a	

WATER

<i>(a) each of the following under any relevant environmental protection policies— (i) the management hierarchy;</i>	Y, N, NK, NA
	Y
<p>Development Work</p> <p>Initial and ongoing sand and gravel operations will require specific works to control and treat groundwater seepage and stormwater runoff and prevent erosion. The major aspects of this work are incorporated into staged extraction designs. Management measures for this work include:</p> <ul style="list-style-type: none"> • diversion structures, pipes, culverts and bunding to convey water from clean catchment areas around disturbed areas to be constructed prior to extraction activities commencing, where necessary; • installing and maintaining temporary erosion and sediment controls during construction or development; • directing runoff from disturbed areas to sediment traps or extraction pit sump; • carrying out progressive rehabilitation; • stabilising and grading road embankments and batters, temporary overburden and topsoil stockpiles and amenity bunds; • rip-rapping and grassing any permanent table and catch drains to prevent scouring; • restricting mobile equipment and vehicles to defined road ways and hardstands; • installing rock filters and other erosion protection devices in water conveyancing structures; • reviewing stormwater management requirements prior to each extraction phase; • inducting and training staff on the prevention and control of erosion; • designing erosion controls and devices in accordance with nominated referenced methodology², and • ensuring all excess water pumped from the excavation pit sump is decanted to the water treatment settling pond system. 	

<i>(a) each of the following under any relevant environmental protection policies— (ii) environmental values;</i>	Y, N, NK, NA
<p><i>Will be protected by onsite stormwater management plan.</i></p>	

<i>(a) each of the following under any relevant environmental protection policies— (iii) quality objectives;</i>	Y, N, NK, NA
	Y
<p>To ensure no public complaints.</p> <ul style="list-style-type: none"> • To prevent stormwater from contacting contaminants on the site by segregating clean water from operational and storage areas. • To ensure adequate control measures are implemented to manage runoff from disturbed areas of the Site. • To reduce the potential for soil erosion on Site. • The quality of discharge from the Site to satisfy the following Water Quality Objectives (WQO's) and current Development Approval: <p>Release Criteria</p> <ul style="list-style-type: none"> - pH value must not be less than 6.5 and not more than 9.0; - the concentration of Dissolved Oxygen must not be less than 6 mg/L; and - the concentration of suspended solids must not exceed 50 mg/L. 	

<i>(a) each of the following under any relevant environmental protection policies— (iv) the management intent.</i>	Y, N, NK, NA
	Y
<p>To ensure stormwater are managed to protect downstream water quality and that adequate control measures are implemented to manage runoff from the Site.</p>	

<i>(b) the characteristics of the contaminants or materials released from carrying out the activity;</i>	Y, N, NK, NA
	Y
<ul style="list-style-type: none"> • Discharge of treated waters shall only be released to South Pine River at release points WR1, WR2 and WR3. • Discharge into South Pine River at WR1 and WR2 shall only occur by the overflowing of the interconnected settlement pond system by rain water / flood water inflows at WR1 or pumped out at WR2, while at WR3 discharge shall only occur due to rainfall runoff. • Stormwater runoff from clean catchments shall be diverted around and away from disturbed areas to the extent practicable and allowed to drain naturally to South Pine River. • Extraction operations at Bald Hills (South) will result in no impediment to localised overland flow paths through the Site, from the road culvert system of the adjacent Linkfield Road. • Releases to the river from the Bald Hills (South) river crossing (i.e. WR3) shall be directed via check dam drain to a sediment trap and/or established grass buffer strip to the river. • Stormwater from disturbed areas shall be collected in the excavation pit's sump, along with groundwater seepage and shall be recycled to the maximum practicable extent, i.e. for dust suppression. • Excavation works will commence closest to the river and gradually work away with overburden extracted being used to line the western excavation batter to retard groundwater seepage. • The volume of stormwater for a Q1 120-hour rainfall event is calculated to be 6 ML ("IECA BPESC 2008"1). For an operational pit area of 2.61 ha (i.e. total area of Bald Hills –South extraction stages 1 to 3), this is equivalent to 240mm of additional water in the pit which will take 4 days to pump out at a velocity of 20 L/second. This quantity of water is less significant than the quantity of water received by the pit due to the predicted annual inundation. Disposal of a full pit of water will require a combination of pumping and groundwater seepage. • During and/or following excessive wet periods, excess groundwater and surface water inflows that affect operations shall be pumped (note: pump rate is variable however current operation has capacity to pump at 20 L/sec) via a 100-200 mm lay-flat hose/agricultural pipe from the active pit Bald Hills (south) workings to the existing 	

interconnected ponds (i.e. series of Type D basins¹) at the adjacent Brendale extractive site, where water treatment will be a continuation of the current arrangements that allow suspended solids to settle out and nutrients to attenuate. The alignment of the lay-flat hose/temporary agricultural pipe will be along the northern side of the internal haul road (i.e. up-gradient road side) and within a cavity on the inner northern side of the river crossing to the settling pond system on the western side of the South Pine River. This alignment will result in minimal to no impact on site drainage and in the event of any leaks, water lost will be captured by the installed sediment control devices, excavation pit or sediment ponds themselves. In trafficable areas/crossings, the pipe will be buried or encased to minimise the potential for damage.

- Only waste water from the sand and gravel processing plant and proposed wash water treatment plant, stormwater from disturbed areas of the operations that are likely to cause stormwater to be contaminated only by sediment, and clean uncontaminated stormwater, groundwater and floodwater that collects in dry excavation areas or extraction pits shall be allowed to discharge from site operations via any of the licensed discharge points once treated by passing through the onsite sediment pond system and/or proposed water treatment plant (i.e. mud plant).
- Water discharged to South Pine River will be visually monitored to ensure it is free from floating scum, litter or other objectionable matter, significant quantities of sediment, slicks or other visible evidence of oil or grease and other visual contaminants capable of causing environmental harm.

<i>(c) the nature and management of, including the use and availability of technology relating to, the processes being, or to be, used in carrying out the activity;</i>	Y, N, NK, NA
--	---------------------

Y

- Erosion and sediment control measures to be inspected daily by the Site Manager or delegate during periods of stormwater, and de-silt, repair and amend as appropriate to maintain the WQO's.
- Daily site inspections, during periods of stormwater will include:
 - all drainage, erosion and sediment control measures;
 - occurrences of excessive sediment deposition; and all site discharge points.
- Weekly site inspections will include:
 - daily site inspection items;
 - occurrence of litter or sediment placed, deposited, washed or blown from the site, including deposition by vehicle movements;
 - surface condition of haul road approaches;
 - litter and waste receptors; and
 - oil, fuel and chemical storage facilities.
- Site inspections immediately prior to anticipated stormwater will include:
 - all drainage, erosion and sediment control measures; and all temporary flow diversion and drainage works.
- Site inspections immediately following stormwater will include:
 - treatment and de-watering requirements of sediment basins;
 - all drainage, erosion and sediment control measures;
 - occurrences of excessive sediment deposition
 - all drainage, erosion and sediment control measures;
 - occurrence of litter or sediment placed, deposited, washed or blown from the site, including deposition by vehicle movements; and occurrence of excessive erosion, sedimentation, or mud generation around the site office, car park and material storage areas.
- In addition to the above, monthly site inspections will include:
 - surface coverage of finished surfaces (both area and percentage cover);
 - health of recently established vegetation; and
 - proposed staging of future site clearing, earthworks and site/soil stabilisation.
- Water quality monitoring will be implemented. This program will involve:
 - water quality monitored in the vicinity of the licensed release points WR1, WR3 and WR2 prior to and during discharge for pH, dissolved oxygen and total suspended solids;
 - water quality sampling shall be conducted in accordance with Environmental

<i>(d) the impact of the release of contaminants or materials from carrying out the activity on the receiving environment, including the cumulative impact of the release with other known releases of contaminants, materials or wastes;</i>	Y, N, NK, NA
---	---------------------

Y

The proposal will utilise the existing water treatment system, and therefore will achieve all current standards required by the present ERA licence over the site. The approved treatment regime on the site is effective at removing contaminants, and will be applied to the proposed activities. Contaminated material is confined to the processing site and is managed separately to the water treatment cycle for the extraction areas.

Other Regulatory Requirements

Does the activity involve or potentially involve:

- the release of water or waste to land
- the release of water, other than stormwater, to surface water
- the release of water stormwater to the receiving environment
- the release of water or waste to a referable wetland or a significant coastal wetland for treatment
- berthing, docking or mooring a boat
- storing or moving bulk material
- disturbance of acid sulfate soil
- disturbance of acid-producing rock
- the release of waste directly to groundwater (the receiving groundwater)
- the release of contaminants indirectly to groundwater (the receiving groundwater).

For each item that has been ticked, the matching section outlined below will need to be completed. For matters that have not been selected, these sections should be deleted from the report.

For an activity that involves or may involve the **release of water stormwater to the receiving environment**, the administering authority must consider the following matters, as set out in Section 57, Ch 4, Part 3 of the *Environmental Protection Regulation 2008* (EP Reg).

<i>(a) the topography of, and climatic conditions affecting, the receiving environment;</i>	Y, N, NK, NA
<p>The release of water or overland flow from the Site containing suspended solids, low pH or other chemicals has the potential to impact on downstream water quality of South Pine River. Potential water discharged from the sand and gravel operations / activities include:</p> <ul style="list-style-type: none"> • stormwater, groundwater and floodwater that collects in the excavation areas • stormwater, groundwater and floodwater potentially exposed to acid forming materials • stormwater from clean catchment areas on Site via overland flow and drainage • stormwater from disturbed areas, including unsealed haulage roads, on Site via overland flow • stormwater from storage and handling areas of oils, greases, fuels and other chemicals • stormwater from topsoil, sand and gravel stockpile areas • waste water from the sand and gravel processing plant • waste water from vehicle wash-down facilities • overflow of onsite settlement pond system. 	
<i>(b) if the activity involves exposing or disturbing soil—the soil type, its characteristics and the way it is managed;</i>	Y, N, NK, NA
<p>This operation has minimal potential for runoff from disturbed areas except during high rainfall events and periods of inundation associated with heavy rain. This inundation has a predicted frequency of once per year of most of the Bald Hills (South) extraction area.</p>	
<i>(c) if the activity involves the storage of materials or wastes that are exposed to rainfall or stormwater run-off—the characteristics and containment of the material or waste;</i>	Y, N, NK, NA
<p>NA</p>	

Assessment report
Environmental Protection Act 1994 – Chapter 4 activities

For an activity that involves, or may involve, **disturbance of acid sulfate soil**, the administering authority must consider the following matters, as set out in Section 61, Ch 4, Part 3 of the *Environmental Protection Regulation 2008* (EP Reg).

<i>(a) 'State Planning Policy 2/02—Planning and Managing Development Involving Acid Sulfate Soils' (SPP 2/02);</i>	Y, N, NK, NA
Based on the BIMAP 1:50,000, "A Guide to the Likely Location of Acid Sulphate Soils in Brisbane", the Site has a 'Low' acid sulfate soil hazard rating.	

<i>(b) the guideline for SPP 2/02 (the guideline). Note— The guideline states that it may be used as a source of general advice on investigation and management of acid sulfate soils for situations outside the scope of SPP 2/02.</i>	Y, N, NK, NA
<p>General</p> <ul style="list-style-type: none"> - using neutralising agents for dosing water to neutralise acid water pH if required - training site personnel on handling and processing of raw materials sourced from the site <p>Monitoring</p> <p>An overview of the monitoring program is shown on TABLE 3 – MONITORING METHODS AND PROGRAM. The monitoring program to be implemented shall include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> • continuous monitoring of pH in the sediment pond system (facilitated by maintaining the installed automatic pH recorder / data logger in sediment pond system) • monthly pH monitoring of water in the extraction pit using a hand held pH meter • if acid water is identified in the sediment pond system, processing plant area or at the excavation pit area conduct monthly monitoring of sediment pond water for sulfate, soluble iron, chloride, pH and electrical conductivity • calibrating the automated monitoring equipment in accordance with operators manual • carrying out weekly visual surveillance of the integrity of settling system and its free storage capacity <p>Audit and Review</p> <ul style="list-style-type: none"> • An annual environmental review shall be prepared by the Site Manager (or Consultant) at least one month prior to the anniversary of the issue of the environmental licence. • The effectiveness of the Acid Sulfate Management Plan shall be reviewed as necessary and at least once every three (3) years. <p>Reporting and Responsibility</p> <ul style="list-style-type: none"> • The Site Manager shall ensure that processing plant equipment is effective in removing fines from raw materials. • Site Manager shall be responsible for ensuring nominated management measures are implemented and staff are trained in the proper handling of raw materials. • Site Manager shall be responsible for the maintenance of monitoring equipment and ensuring all equipment is in good working order. • Site Manager shall be responsible for recording the development of the extraction pit on the Bald Hills site in order to determine locations where PASS were uncovered. • Site Manager shall commission an independent consultant (PASS/ASS expert) to review site activities, train management and staff on the handling and processing of raw materials and the requirements for the dosing of acid water. The independent consultant shall also audit site operations. • All site personnel shall be responsible for reporting any incidents or discovery of PASS or acid water to the Site Manager. 	

4. The Standard Criteria

The standard criteria are defined under Sch 3 of the *Environmental Protection Act 1994*:

<i>(a) the principles of ecologically sustainable development as set out in the 'National Strategy for Ecologically Sustainable Development'</i>	Y, N, NK, NA
	Y
<p>The Environmental Management Plan (EMP) is a working/management document which links the identified potential environmental impacts with commitments and measures to safeguard the environment. It is the principal management tool for guiding environmental management at the Site.</p> <p>The principal objectives for the EMP are to ensure:</p> <ul style="list-style-type: none"> • environmental values of the Site and surrounds are identified and safeguarded; • environmental objectives and/or standards to be achieved and maintained by the Site are established; • the potential environmental impacts which may occur from routine operations are identified; • procedures and measures to mitigate potential impacts are documented; • extraordinary factors (i.e. abnormal operation or emergencies) that may cause environmental harm are identified and contingency plans to deal with these are established and documented; • the general amenity of the site and surrounding area both during and subsequent to extractive operations are protected; • the acoustic environment at surrounding residences is protected; • air quality of the locality is protected; • visual amenity of the surrounding landholders is protected; • the buffer areas habitat is enhanced and maintained to safeguard biodiversity values on the site; • protection of surrounding surface water quality; • reduction of potential erosion and sedimentation; • appropriate landcare is carried out to prevent the spread of pests, weeds, loss of habitat and uncontrolled fires; • land disturbance is restricted to that which is essential for the extraction and processing of sand and gravel materials; • wastes generated by Site activities are minimised and to control disposal and utilisation of waste; • the prevention of contamination to land or water and that the land is not included on the Contaminated Land Register; • a post extraction landform is prepared that is sustainable, stable and compatible with the site and surrounds and the planning scheme intent; • community concerns are considered in day to day operational decisions to foster good relationships and co-operation; • communication of environmental information is assisted throughout the organisation and to the relevant administering authorities; • employees and contractors are aware of environmental management obligations, risks, and trained in the measures and contingency plans to deal with them; • environmental performance is monitored to assess the effectiveness of the measures and contingency plans; • operations are conducted in accordance with permit, licences and approval conditions and in accordance with statutory requirements; • Non-conformance is identified, recorded and rectified; and continual improvement. <p>The EMP provides the framework for environmental management at the site and is a practical guide at the operational level to contain environmental impacts. It shows how satisfactory outcomes can be achieved.</p>	

<i>(f) all submissions made by the applicant and submitters;</i>	Y, N, NK, NA
	Y

Assessment report
Environmental Protection Act 1994 – Chapter 4 activities

<i>(g) the best practice environmental management for activities under any relevant instrument, or proposed instrument, as follows—</i> <i>(i) an environmental authority;</i> <i>(ii) a transitional environmental program;</i> <i>(iii) an environmental protection order;</i> <i>(iv) a disposal permit;</i> <i>(v) a development approval;</i>	Y, N, NK, NA
	Y
See above part a	
<i>(h) the financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out, under the instrument;</i>	Y, N, NK, NA
	NA
<i>(i) the public interest;</i>	Y, N, NK, NA
	NA
<i>(j) any applicable site management plan;</i>	Y, N, NK, NA
	Y
Made in application	

PART C: CONDITIONS FOR APPROVAL

- No conditions are recommended.
- Ecotrack conditions are recommended.
- Non-Ecotrack conditions are recommended. (see below)

Drafting Guidelines

There are four key principles in drafting conditions:

- **Relevance** - must provide a relevant, and not unreasonable imposition on, the activity or the development or the use of premises:
 - There must be a nexus between the impact or issue being managed and the condition imposed;
 - Is it within our jurisdiction to impose – what action or activity is being regulated?
- **Reasonableness** - must be reasonably required in respect of the activity, development or the use of premises, given the environmental impact or issue that is trying to be managed or minimised
 - Assess the level of the impact or issue being managed compared to how onerous the condition is
- **Certainty** - must be reasonably capable of sensible interpretation.
 - Is it clear, unambiguous and easily interpreted?
- **Finality** - must not make the condition subject to some further act or approval.
 - Is the condition within the control of the recipient?
 - Is there a third party involved that could prevent the recipient from complying?

In addition, considerations should be taken into account in relation to enforcement of the condition:

- Is the condition **easy to audit**?
 - Can you assess compliance by visual observations or easy measurements or samples?
- If breached, it is **easy to prove a breach** of the condition?
 - What evidence would be needed to show the condition has been breached?
 - Have you dealt with only one issue per condition and kept the requirements as short and as simple as possible?

Finally the type of condition should be considered in respect to the outcome required:

- **performance based** - which specifies a result or outcome and allows the person subject to the condition to decide for themselves how they will reach this outcome; or
- **prescriptive conditioning** - which actually tells a person, or prescribes how they must achieve the outcome.

Generally for licensing type conditions, performance-based conditions may be more appropriate. Prescriptive conditions can be inflexible and can stifle innovation. Also, because prescriptive conditions are so specific, they may require more frequent amendment as time goes on. They also require the drafter to consider every possible eventuality.

Timeframes

- The timeframes associated with any condition must be **reasonable**.
- Timeframes cannot be impossible to **comply with**, for example – immediately is generally impossible to comply with.
- Timeframes must also be **easily determined**, for example – as soon as possible or practicable is very difficult to establish.

PART D: RECOMMENDATION

<p>State the significant factors taken into account in making this assessment and state the reasons for the recommendation overall:</p>		
<p>It is recommended that the proposed development should be:</p>	<input checked="" type="checkbox"/> Approved with conditions	
	<input type="checkbox"/> Approved with no conditions	
	<input type="checkbox"/> Refused	
<div style="background-color: black; width: 100px; height: 15px; margin-bottom: 5px;"></div>		<p>9/08/10</p>
Assessing Officer	Signed	Date

Review and Endorsement

<p>Insert any comments relevant for the delegates consideration:</p>		
<p><name></p>		<p><date></p>
Manager/Supervisor	Signed	Date



Decision notice issued on 15/8/11 - Refused by BCC

Notice

Concurrence Agency Response

This notice is issued by the Department of Environment and Resource Management pursuant to Sections 3.3.16 and 3.3.18 of the Integrated Planning Act 1997 to advise of a decision or action.

Brisbane City Council
Development Assessment Branch City Planning and
Sustainability Division
GPO Box 1434
BRISBANE QLD 4001

CC: Neilsens Quality Gravels Pty. Ltd.
Johnstone Road
BRENDALE QLD 4500

Assessment Manager application number:
* AOO2422976

Our reference: 241644

Dear Sir/Madam

Re: Referral for Concurrence Agency Response

The Department of Environment and Resource Management (DERM), wishes to advise that the referral for a concurrence agency response, received on 04-JAN-2010, has been assessed, and on 06-OCT-2010 was approved with conditions.

1. Property/Location:

* Lot/Plan - Lot 1 Plan RP138382, Lot 1 Plan RP205189, Lot 1 Plan RP227370, Lot 1 Plan RP36097, Lot 101 Plan SP122597, Lot 103 Plan SP122598, Lot 108 Plan SP122599, Lot 109 Plan S312513, Lot 109 Plan SP122599, Lot 11 Plan SP122601, Lot 111 Plan SP122599, Lot 114 Plan S3119, Lot 2 Plan RP138382, Lot 2 Plan RP164157, Lot 2 Plan RP227370, Lot 2 Plan RP36094, Lot 2 Plan RP36097, Lot 26 Plan SP167768, Lot 264 Plan SL676, Lot 3 Plan RP214357, Lot 3 Plan RP36094, Lot 350 Plan SL10856, Lot 4 Plan RP36133, Lot 8 Plan RP96061, Lot 88 Plan M31114, Lot 96 Plan SL7138

2. Details of the recommendation

Aspect of Development

- Concurrence Response for a MCU involving an ERA
- ERA 16 Extractive and screening activities Thresholds 2 (c) extracting in a year, more than 100000t to 1000000t of material and 3(b) - screening, in a year, more than 100000t to 1000000t of material

Recommendation

- approve with standard conditions

DERM Ref Number

- IPCE01784110

Currency period

This approval will lapse unless substantially started within the standard currency periods stated in section 3.5.21 of the Integrated Planning Act 1997 applying to each aspect of development in this approval.

3. Codes for self-assessable development

Any self-assessable development for an environmentally relevant activity conducted in conjunction with this approval, must comply with the relevant code of environmental compliance.

4. Assessment Manager Responsibilities

Please note that it is a requirement under Sections 3.5.15 and 3.5.17 of the Integrated Planning Act 1997 that a copy of the final Decision Notice (which includes the DERM's concurrence response) for this application issued by the Brisbane City Council, be forwarded to each referral agency. Therefore could you please send a signed hardcopy to the DERM's Ecoaccess Customer Service Unit, PO Box 15155 CITY EAST 4002 and an electronic copy to palm@derm.qld.gov.au.

In addition, 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. Therefore in this instance, the DERM has not provided a notification to native title parties.

If you require more information, please contact Danial Evans, the Project Manager, on the telephone number listed below.

Yours sincerely


Delegate
Department of Environment and Resource Management
06-OCT-2010

Enquiries:
ES-RSD-SER-Bris Inner North
Cnr Main & Vulture Streets
WOOLLOONGABBA QLD 4102
Phone: 
Fax: 

eco

cess

for the... licences and permits

Section 3.3.16 and 3.3.18 Integrated Planning Act 1997

DERM Permit¹ number: IPCE01784110

EPA Permit¹ number:	IPCE01784110
Assessment Manager reference:	Assessment Manager application number: AOO2422976
Date application received by DERM:	04-JAN-2010
Permit¹ Type:	Concurrence Response for a MCU involving an ERA
Date of Decision:	06-OCT-2010
Decision:	Approved with conditions
Relevant Laws and Policies:	<i>Environmental Protection Act 1994</i> and any subordinate legislation
Jurisdiction:	Item 1 in Table 2 of Schedule 2 of the <i>Integrated Planning Regulation 1998</i>

Development Description

Property	Lot/Plan	Aspect of Development
	Lot 1 Plan RP138382, Lot 1 Plan RP205189, Lot 1 Plan RP227370, Lot 1 Plan RP36097, Lot 101 Plan SP122597, Lot 103 Plan SP122598, Lot 108 Plan SP122599, Lot 109 Plan S312513, Lot 109 Plan SP122599, Lot 11 Plan SP122601, Lot 111 Plan SP122599, Lot 114 Plan S3119, Lot 2 Plan RP138382, Lot 2 Plan RP164157, Lot 2 Plan RP227370, Lot 2 Plan RP36094, Lot 2 Plan RP36097, Lot 26 Plan SP167768, Lot 264 Plan	ERA 16 Extractive and screening activities Thresholds 2 (c) extracting in a year, more than 100000t to 1000000t of material and 3(b) - screening, in a year, more than 100000t to 1000000t of material

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation administered by the Department of Environment and Resource Management and the Queensland Parks and Wildlife Service

	SL676, Lot 3 Plan RP214357, Lot 3 Plan RP36094, Lot 350 Plan SL10856, Lot 4 Plan RP36133, Lot 8 Plan RP96061, Lot 88 Plan M31114, Lot 96 Plan SL7138	
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Reasons for inclusion of development conditions

In accordance with section 3.3.18(8) of the Integrated Planning Act 1997 and section 27B of the Acts Interpretation Act 1954, the reasons for the inclusion of development conditions are:

- 1) The Department of Environment and Resource Management is a concurrence agency under the Integrated Planning Regulation 1998 for the purposes of the Environmental Protection Act 1994.
- 2) Any development conditions placed on this permit for an environmentally relevant activity are in accordance with section 73B of the Environmental Protection Act 1994.

Additional information for applicants

Contaminated Land

It is a requirement of the *Environmental Protection Act 1994* that if an owner or occupier of land becomes aware a Notifiable Activity (as defined by Schedule 2 of the *Environmental Protection Act 1994*) is being carried out on the land or that the land has been affected by a hazardous contaminant, they must, within 30 days after becoming so aware, give notice to the Department of Environment and Resource Management.

Environmentally Relevant Activities

The aforementioned description of any environmentally relevant activity (ERA) for which this permit is issued is simply a restatement of the ERA as prescribed in the legislation at the time of issuing this permit. Where there is any conflict between the abovementioned description of the ERA for which this permit is issued and the conditions specified herein as to the scale, intensity or manner of carrying out of the ERA, then such conditions prevail to the extent of the inconsistency.

This permit authorises the ERA. It does not authorise environmental harm unless a condition within this permit explicitly authorises that harm. Where there is no such condition, or the permit is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

In addition to this permit, the person to carry out the ERA must be a registered operator under the Environmental Protection Act 1994. For the person to become a registered operator, they must apply for a registration certificate under section 73F of the Environmental Protection Act 1994.


Delegate
Department of Environment and Resource Management
06-OCT-2010

CONDITIONS OF APPROVAL

Condition for: ERA 16 Extractive and screening activities Thresholds 2 (c) extracting in a year, more than 100000t to 1000000t of material and 3(b) - screening, in a year, more than 100000t to 1000000t of material

Agency Interest: General

A1G1 Prevent and/or minimise likelihood of environmental harm.

In carrying out an ERA to which this approval relates, all reasonable and practicable measures must be taken to prevent and / or to minimise the likelihood of environmental harm being caused.

A1G2 Records.

Record, compile and keep all monitoring results required by this approval and present this information to the administering authority when requested.

A1G3 Acid sulfate soils must be managed such that contaminants are not directly or indirectly released to any waters.

Agency Interest: Air

A1A1 Dust and particulate matter must not exceed a dust deposition of 120 milligrams per square metre per day, when monitored in accordance with Australian Standard AS 3580.10.1 of 2003 (or more recent editions), when measured at any nuisance sensitive or commercial place.

A1A2 Nuisance.

The release of noxious or offensive odours or any other noxious or offensive airborne contaminants resulting from the activity must not cause a nuisance at any nuisance sensitive or commercial place.

A1A3 When requested by the administering authority, dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter, and the results notified within 14 days to the administering authority following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites and must include:

- a) for a complaint alleging dust nuisance, dust deposition; and
- b) for a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere over a 24hr averaging time.

A1A4 Dust Nuisance.

The release of dust and/or particulate matter resulting from the ERA must not cause an environmental nuisance at any nuisance sensitive or commercial place.

Agency Interest: Noise

A1N1 Noise Nuisance.

Noise from the ERA must not cause an environmental nuisance at any nuisance sensitive place or commercial place keeping within the noise limits in Table 1.

A1N2 All noise from activities must not exceed the levels specified in Table 1- Noise limits at any nuisance sensitive or commercial place.

Table 1 - Noise limits

Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays		
	7am - 8pm	8pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a Nuisance sensitive place					
LA10, adj, 10 mins	Bkg + 5	Bkg + 5	Bkg + 0	Bkg + 5	Bkg + 5	Bkg + 0
LA1, adj, 10 mins	Bkg + 10	Bkg + 10	Bkg + 5	Bkg + 10	Bkg + 10	Bkg + 5
	Noise measured at a Commercial place					
LA10, adj, 10 mins	Bkg + 10	Bkg + 10	Bkg + 5	Bkg + 10	Bkg + 10	Bkg + 5
LA1, adj, 10 mins	Bkg + 15	Bkg + 15	Bkg + 10	Bkg + 15	Bkg + 15	Bkg + 10

Bkg; Background

A1N3 Noise Monitoring.

When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within 14 days to the administering authority. Monitoring must include:

- LA 10, adj, 10 mins
- LA 1, adj, 10 mins
- the level and frequency of occurrence of impulsive or tonal noise;
- atmospheric conditions including wind speed and direction;
- effects due to extraneous factors such as traffic noise; and
- location, date and time of recording.

A1N4 The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

Agency Interest: Social

A1S1 Complaint Response.

The operator of the ERA must record the following details for all complaints received and provide this information to the administering authority on request:

- a) Time, date, name and contact details of the complainant;
- b) reasons for the complaint;
- c) any investigations undertaken;
- d) conclusions formed; and
- e) any actions taken.

Agency Interest: Water

A1WA1 Monitoring.

Values are to be collected from background and impact monitoring sites within 30 min when conducting monitoring.

Monitoring must be undertaken and records kept of contaminant releases to waters from the discharge location for the quality characteristics and not less frequently than specified in Table 3 - Contaminant release limits to water. All determinations of the quality of contaminants released must be:

- a) made in accordance with methods prescribed in the latest edition of the Environment Protection Agency Water Quality Sampling Manual; and
- b) carried out on samples that are representative of the discharge.

Table 3- Contaminant release limits to water

Monitoring point	Discharge location	Quality characteristics	Release limit			Monitoring frequency
			Minimum	Range	Maximum	
WS1-8	WR1, WR2, WR3.	pH		6.5-8.5		Prior to release
WS1-8	WR1, WR2, WR3.	Dissolved Oxygen (mg/L)	6mg/L			Prior to release
WS1-8	WR1, WR2, WR3.	Suspended Solids (mg/L)			50 mg/L	Prior to release

WS; water sampling point
WR; water release point.

A1WA2 Erosion Protection Measures And Sediment Controls.

Erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment. The size of any sedimentation dam must be sufficient to contain the run-off expected from a 24-hour storm with an average recurrence interval of 1 in 5 years. Sediment released to the bed of the receiving waters, affected by process water and stormwater contaminated by activities, can only be released when in compliance with the limits in Table 4- Sediment release limits to water.

Table 4 - Sediment release limits to water

Monitoring point	Release point	Maximum release limit	Monitoring frequency
WS1-8	WR1, WR2, WR3	50 NTU	Prior to release

A1WA3 Release To Waters.

No unauthorised contaminants to be released from the site to any waters or the bed and banks of any waters.

A1WA4 Authorised contaminants must only be released to surface waters in compliance with the release limits listed in Table 3- Contaminant release limits to water and the following discharge locations.

-WR1, WR2, WR3

A1WA6 There must be no release of stormwater runoff that has been in contact with any contaminants at the site to any waters, roadside gutter or stormwater drain.

DEFINITIONS

Words and phrases used throughout this permit¹ are defined below. Where a definition for a term used in this permit¹ is sought and the term is not defined within this permit¹ the definitions provided in the relevant legislation shall be used.

"administering authority" means the Department of Environment and Resource Management or its successor.

"annual return" means the return required by the annual notice (under section 316 of the *Environment Protection Act 1994*) for the section 73F registration certificate that applies to the development approval.

"approval" means 'notice of development application decision' or 'notice of concurrence agency response' under the *Integrated Planning Act 1997*.

"approved plans" means the plans and documents listed in the approved plans section in the notice attached to this development approval.

"artificial waterway" means an artificial channel, lake or other body of water. Artificial waterway includes –

- an artificial channel that is formed because the land has been reclaimed from tidal water and is intended to allow boating access to allotments on subdivided land;
- other artificial channels subject to the ebb and flow of the tide; and
- any additions or alterations to an artificial waterway.

"authorised place" means the place authorised under this development approval for the carrying out of the specified environmentally relevant activities.

"canal" means an artificial waterway surrendered to the State. A canal is an artificial waterway connected, or intended to be connected, to tidal water; and from which boating access to the tidal water is not hindered by a lock, weir or similar structure.

"clinical waste" means waste that has the potential to cause disease including, for example, the following:

- animal waste;
- discarded sharps;
- human tissue waste;
- laboratory waste.

"coastal dune" means a ridge or hillock of sand or other material on the coast and built up by the wind.

"commercial place" means a place used as an office or for business or commercial purposes.

"dredge spoil" means material taken from the bed or banks of waters by using dredging equipment or other equipment designed for use in extraction of earthen material.

"dwelling" means any of the following structures or vehicles that is principally used as a residence –

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a water craft in a marina.

"Department of Environment and Resource Management" means the department or agency (whatever called) administering the *Coastal Protection and Management Act 1995* or the *Environmental Protection Act 1994*.

"erosion prone area" means an area declared to be an erosion prone area under section 70(1) of the *Coastal Protection and Management Act 1995*.

"high water mark" means the ordinary high water mark at spring tides.

"infectious waste" means waste containing viable micro-organisms or their toxins which are known or suspected to cause disease in animals or humans.

"intrusive noise" means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration –

- is clearly audible to, or can be felt by, an individual; and
- annoys the individual.
- In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 – 1997 Acoustics – Description and Measurement of Environmental Noise Part 2 – Application to Specific Situations.

"**L_{A 10, adj, 10 mins}**" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

"**L_{A 1, adj, 10 mins}**" means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response.

"**L_{A, max adj, T}**" means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

"**land**" in the "land schedule" of this document means land excluding waters and the atmosphere.

"**mg/L**" means milligrams per litre.

"**noxious**" means harmful or injurious to health or physical well being.

"**NTU**" means nephelometric turbidity units.

"**nuisance sensitive place**" includes –

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- a kindergarten, school, university or other educational institution; or
- a medical centre or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- a public thoroughfare, park or gardens; or
- a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

"**offensive**" means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

"**ponded pasture**" means a permanent or periodic pondage of water in which the dominant plant species are pasture species used for grazing or harvesting.

"**protected area**" means –

- a protected area under the *Nature Conservation Act 1992*; or
- a marine park under the *Marine Parks Act 1992*; or
- a World Heritage Area.

"**quarry material**" means material on State coastal land, other than a mineral within the meaning of any Act relating to mining. Material includes for example stone, gravel, sand, rock, clay, mud, silt and soil, unless it is removed from a culvert, stormwater drain or other drainage infrastructure as waste material.

"**regulated waste**" means non-domestic waste mentioned in Schedule 7 of the *Environmental Protection Regulation 1998* (whether or not it has been treated or immobilised), and includes –

- for an element - any chemical compound containing the element; and
- anything that has contained the waste.

"**site**" means land or tidal waters on or in which it is proposed to carry out the development approved under this development approval.

"**tidal water**" means the sea and any part of a harbour or watercourse ordinarily within the ebb and flow of the tide at spring tides.

"**watercourse**" means a river, creek or stream in which water flows permanently or intermittently-

- in a natural channel, whether artificially improved or not; or
- in an artificial channel that has changed the course of the watercourse.

"**waters**" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

"**works**" or "**operation**" means the development approved under this development approval.

"**you**" means the holder of this development approval or owner / occupier of the land which is the subject of this development approval.

Assessment report

Licensing

Environmentally relevant activities

APPLICATION NOTES:

1. Each assessment report prepared to support recommendations made for decision is to be structured in the format shown below.
2. Explanatory notes for completing the report are given under each heading in brackets.
3. The report is to be completed, where indicated, to confirm conclusion of supervisory review/endorsement, and decision stages of the process.

This assessment report is for environmentally relevant activities to be assessed via the Integrated Development Assessment System in the Sustainable Planning Act 2009.

COUNCIL DA NUMBER: <number associated with the application. NIL if DERM is AM>	DERM PROJECT NO:
DERM DA NUMBER: <application or reference number associated with the application>	FILE NO: <file number>
APPLICATION TYPE: <enter either DERM is a concurrence agency or DERM is the assessment manager>	
DEVELOPMENT TRIGGER: <list all ERA's applied for with the primary activity listed first>	
DEVELOPMENT DESCRIPTION: <name of development and general description>	
LOCATION DESCRIPTION: <location in terms of significant town/feature and specific location description e.g. lot on plan>	
APPLICANT: <enter the name of the person who is making the application and to whom all correspondence is mailed>	
TRADING AS: <trading as details>	

1. Issues

- <in dot point form list the main environmental issues at the site or whether there has been community concern with the application>

2. Description of operation

<describe the processes taking place at the site, including controls to minimise harm. A brief comparison to best practice should be made to acquaint the delegate with how this business will compare with others carrying out the same activity>

3. Emissions, discharges and environmental compliance

- <list those of concern with reference to those authorised in development approval>

4. Assessment considerations

Initial overall considerations are presented in the Development Approval Assessment Checklist (attached). Support and substantiation for the identified relevant considerations are given below under the appropriate headings:

i) Standard criteria (as applicable)

NOTE: when considering the standard criteria, comments related only to those considered relevant are required. For criteria considered not relevant to the matter, no notation is made. Information provided should reflect the complexity of issues for the application. Example text is provided for guidance.

Ecological sustainable development

<issues>

The proponent has demonstrated the principles of ecologically sustainable development by proposing cleaner production techniques, waste minimisation and best practice environmental management programs. The decision made to issue the permit has integrated the long and short term economic, environmental, social and equity considerations.

Environmental protection policies (EPPs)

<issues>

The EPPs on water, air, noise and waste have been considered during the assessment of this application. The objectives and standards of EPP — water, air, noise and waste management have been incorporated in preparing the resulting conditions.

Plans, standards and agreements

<issues>

NHMRC and ANZECC guidelines have been used to assist in benchmarking environmental performance. The information provided by the company has been considered in conjunction with the nature of the industry, and the receiving environment.

Environmental impact statement (EIS)

<issues>

An EIS has been conducted and background information reviewed. In order to assess the impact of the proposal, baseline data on ambient air and surface water quality have been reviewed. Ongoing monitoring is recommended to assess ongoing impact of the facility. The environmental assessment report and the information contained in the application were considered while processing this application.

Receiving environment

<issues>

The current zoning of the subject site and surrounding areas and the location of sensitive land uses have been considered.

Best practice environmental management

<issues>

The proposed plant is designed to be an efficient modern facility. The proponents have adopted the principles of waste minimisation and cleaner production in preparing their environmental policy. This policy extends to reduce the amount of waste generated at the site.

Financial implications

<issues>

Monitoring and reporting regimes have been established by adopting specific conditions to enable continued assessments of environmental impacts. The proponents will endeavour to ensure that ample finances are allocated for completion of the monitoring program. Adequate funds, equipment and staff time will be provided to meet the commitments of the conditions.

Public interest

<issues>

No public submissions or enquires have been received for the application. The environmental values of the local community will be protected by the proposed conditions.

Site management plan

<issues>

The company has demonstrated its commitment to conduct its activities in an environmentally responsible manner by development of its site/activity based management plan. Their environmental monitoring program will commence in accordance with the issued conditions.

ii) Native title comments following notification (if applicable)

<if DERM is assessment manager provide details of any notifications, responses and assessments. Nil if notification not required>

iii) Notifiable activity (if applicable)

<issues>

iv) Wild river area consideration (if applicable)

<issues>

5. Consultations

<include site visit details, meetings with the applicant, and discussions with other DERM officers and acceptance (comments) of final conditions by the applicant>

6. Project killers

<specifically highlight any conditions which have been brought to your attention by the applicant which in their opinion would cause the business operation to be unviable>

7. Point source database

<If this decision includes a monitoring program for a new discharge to waters OR to an amendment of an existing monitoring program of a release to waters (e.g. amended concentration limits, release volumes, monitoring frequency), the administrators of the point source database must be notified>

Copy of development approval or the original development approval and subsequent decision notices has been sent to: [REDACTED] Yes No

8. Streamlined conditions

The following conditions are used:

- Full streamlined conditions
- Some streamlined conditions
- No streamlined conditions

<if non-streamlined conditions are recommended complete the table below. Otherwise delete>

Non-streamlined condition	Reason for recommendation

9. Recommendation

It is recommended that the proposed development should be:

Select:	If approved select:	If approved, also select:
<input type="checkbox"/> Approved or	<input type="checkbox"/> With a development permit or	<input type="checkbox"/> With conditions or
<input type="checkbox"/> Refused	<input type="checkbox"/> With a preliminary approval or	<input type="checkbox"/> No conditions
	<input type="checkbox"/> In part only	

<provide a statement of reasons if you consider the application should be refused>¹

Assessing Officer: <name>

Signed:

Date: <date>

10. Review and endorsement

Manager/Director: <name>

Signed:

Date: <date>

Delegate: <name>

Signed:

Date: <date>

¹ *Acts Interpretation Act 1954*, section 27B Content of statement of reasons for decision.

Part 3 Additional regulatory requirements for particular environmental management decisions

54 Application of pt 3

If an environmental management decision relates to an activity mentioned in a provision in this part, the administering authority making the decision must comply with the provision in addition to part 2.

55 Release of water or waste to land

- (1) This section applies to the administering authority for making an environmental management decision relating to an activity that involves, or may involve, the release of water or waste to land (the *relevant land*).

(2) The administering authority must consider the following matters—

- (a) the topography, including the flooding potential of the relevant land;
- (b) the climatic conditions affecting the relevant land;
- (c) the available land on which the water or waste can be released;
- (d) the storage of the water or waste in wet weather;

Example—

storage of water or waste in ponds or tanks

- (e) the way in which the water or waste will be released to the relevant land;
 - (f) the need to protect soil and plants on the relevant land from damage;
 - (g) the potential for infiltration of the water or waste to groundwater;
 - (h) the potential for generation of aerosols or odours from the water or waste;
 - (i) the impact of any transfer or run-off of contaminants from the relevant land to surface waters;
 - (j) the ongoing availability of the land for the release of the water or waste.
- (3) The administering authority must also consider whether to impose conditions about each of the following matters—
- (a) developing and implementing a land release management plan for the relevant area that protects the environmental values affected, or that may be affected, by the activity;
 - (b) the way in which, or rate at which, the water or waste may be released;
 - (c) releasing the water or waste in a way that minimises infiltration to groundwater;

- (d) if the water or waste is to be transferred to another entity—the circumstances under which the transfer may occur;
 - (e) releasing the water to a bio-retention system, including, for example, a constructed wetland, for the removal of nutrients from the water.
- (4) In this section—
- land release management plan***, for the relevant area, means a plan that achieves the following outcomes for the area—
- (a) the efficient application of water or waste using best practice methods;
 - (b) control of sodicity in the soil;
 - (c) minimal degradation of soil structure;
 - (d) control of the build-up, from water, waste or other sources, of nutrients and contaminants in the soil and subsoil;
 - (e) prevention of subterranean flows of contaminants to waters;
 - (f) prevention of impact of infiltration on groundwater resources;
 - (g) prevention of run-off by controlling the rate of application of water or waste, and by using structures, including, for example, tailwater dams;
 - (h) prevention of surface ponding;
 - (i) prevention of spraydrift or overspray from the relevant area;
 - (j) prevention of damage to native vegetation;
 - (k) reporting the results of monitoring, and an assessment of the impact on the groundwater in the relevant area of the release of the water or waste.

56 Release of water, other than stormwater, to surface water

- (1) This section applies to the administering authority for making an environmental management decision relating to an activity that involves, or may involve, the release of water, other than stormwater, to surface water.
- (2) The administering authority must consider each of the following matters—
 - (a) any available toxicity data relevant to the release and the receiving environment;
 - (b) if there is an initial mixing zone—
 - (i) whether there is any practicable alternative that would reduce or eliminate the initial mixing zone; and
 - (ii) whether the size of the initial mixing zone is likely to adversely affect an environmental value or the ecological condition of the receiving environment, including, for example, a watercourse or wetland; and
 - (iii) whether concentrations of contaminants in the initial mixing zone are acutely toxic to the biota.
- (3) The administering authority must also consider whether to impose conditions about the following matters—
 - (a) releasing the water to tidal waters only during particular tidal conditions, including, for example, phases of the tide;
 - (b) releasing the water to non-tidal waters only if the rate of flow of the surface water is greater than a particular level.

57 Release of stormwater

- (1) This section applies to the administering authority for making an environmental management decision relating to an activity

that involves, or may involve, the release of stormwater to the receiving environment.

- (2) The administering authority must consider the following matters—
- (a) the topography of, and climatic conditions affecting, the receiving environment;
 - (b) if the activity involves exposing or disturbing soil—the soil type, its characteristics and the way it is managed;
 - (c) if the activity involves the storage of materials or wastes that are exposed to rainfall or stormwater run-off—the characteristics and containment of the material or waste;
- (3) The administering authority must also consider whether to impose conditions about the following matters—
- (a) diverting upstream stormwater run-off away from the area contaminated or disturbed by the activity (the *affected area*);
 - (b) minimising the size of the affected area;
 - (c) covering, paving, roofing and cleaning the affected area;
 - (d) cleaning the affected area without using water;
 - (e) analysing and managing soil;
 - (f) installing and maintaining appropriate control measures;

Examples of control measures—

bio-retention system, buffers for improving waste water quality, first flush stormwater diversion systems, oil separators, rubbish traps, sediment fences, sediment traps

- (g) treating the affected area.

Examples—

mulching, revegetating, using surface covers or soil agglomerants

58 Release of water or waste to particular wetlands for treatment

- (1) This section applies to the administering authority for making an environmental management decision relating to an activity that involves, or may involve, the release of water or waste to a referable wetland or a significant coastal wetland for treatment.
- (2) The administering authority must refuse to grant the application if the authority considers that, because of the activity—
 - (a) the wetland will be destroyed or reduced in size; or
 - (b) the biological integrity of the wetland may not be maintained.
- (3) In this section—

referable wetland means an area shown as a wetland on a document called 'Map of referable wetlands' made available by the chief executive.

Editor's note—

On the day this regulation was notified in the gazette, the document was available on the department's website.

significant coastal wetland has the same meaning as in the State coastal management plan.

State coastal management plan means the State coastal management plan prepared under the *Coastal Protection and Management Act 1995*.

Editor's note—

On the day this regulation was notified, the State coastal management plan was published on the department's website.

59 Activity involving berthing, docking or mooring a boat

- (1) This section applies to the administering authority for making an environmental management decision relating to an activity

that involves, or may involve, berthing, docking or mooring a boat.

- (2) The administering authority must consider the following matters—
- (a) the availability of facilities for collecting and disposing of wastes generated from the boat;
 - (b) whether to impose a condition to provide facilities for collecting and disposing of wastes generated from the boat.

Examples of waste generated from a boat—

bilge waste, garbage, sewage

60 Activity involving storing or moving bulk material

- (1) This section applies to the administering authority for making an environmental management decision relating to an activity that involves, or may involve, storing or moving bulk material.

Examples of bulk material—

alumina, cement, coal, grain, metaliferous ores, quarried materials, woodchips

- (2) The administering authority must consider each of the following matters—
- (a) the chemical and physical characteristics of the material;
 - (b) the way in which the material is, or is to be, contained during each stage of the storage or movement of the material;
 - (c) the methods of cleaning up any spillage during movement of the material;
 - (d) if storage or movement of the material is likely to result in the release of part of the material into waters, the impact of the accumulation of the material on the bed of the waters.

- (3) The administering authority must also consider whether to impose conditions about the following matters—
- (a) installing and maintaining appropriate control measures;
- Examples—*
- installing devices for collecting dust at places where bulk material is being moved
 - installing dust collectors at transfer points
 - enclosing, roofing or screening equipment used for storing or moving bulk material
- (b) managing stockpiles of the material in a particular way;
- Example—*
- setting a maximum height for a stockpile
- (c) collecting, removing or disposing of spillage released while moving the material;
- (d) monitoring the impact of releases of contaminants or waste from storing or moving bulk materials on the receiving environment including, for example, the impact of environmental nuisance and impacts on the biota of adjacent waters.

61 Activity involving acid sulfate soil

- (1) This section applies to the administering authority for making an environmental management decision relating to an activity that involves, or may involve, disturbance of acid sulfate soil.
- (2) The administering authority must consider—
- (a) ‘State Planning Policy 2/02—Planning and Managing Development Involving Acid Sulfate Soils’ (*SPP 2/02*); and
- (b) the guideline for SPP 2/02 (the *guideline*).

Note—

The guideline states that it may be used as a source of general advice on investigation and management of acid sulfate soils for situations outside the scope of SPP 2/02.

Editor's note—

On the day this regulation was notified, SPP 2/02 and the guideline were available on the website of the Department of Infrastructure and Planning at <www.dip.qld.gov.au>.

- (3) The administering authority must also consider whether to impose conditions about the following matters—
- (a) minimising the generation of contaminated water;
 - (b) treating acid sulfate soils;
 - (c) treating or disposing of leachate and run-off;
 - (d) managing the fluctuations in the watertable;
 - (e) maintaining minimum levels of cover over any buried acid sulfate soils.
- (4) In this section—

acid sulfate soil means actual acid sulfate soil or potential acid sulfate soil.

actual acid sulfate soil means soil or sediment containing highly acidic soil horizons or layers affected by the oxidation of iron sulfides.

disturbance, of acid sulfate soil, means disturbance of the soil by—

- (a) excavating or removing the soil; or
- (b) exposing the soil to air; or
- (c) changing the level of groundwater.

potential acid sulfate soil means soil or sediment containing iron sulfides or other sulfidic material that has not been exposed to air and oxidised.

62 Activity involving acid-producing rock

- (1) This section applies to the administering authority for making an environmental management decision relating to an activity

that involves, or may involve, disturbance of acid-producing rock.

Example of an activity involving disturbance of acid-producing rock—

tailings from processing acid-producing rock in a mining operation

- (2) The administering authority must consider the following matters—
 - (a) the physical and chemical characteristics of the rock;
 - (b) the potential of the rock to generate or neutralise acidity;
 - (c) the characteristics of the leachate leaching from, or potentially leaching from, the rock including, in particular, contaminants in the leachate that are likely to cause environmental harm if released to the environment.
- (3) The administering authority must also consider whether to impose conditions about the following matters—
 - (a) the ways in which waste may be disposed of or stored, including for example, the location of areas for waste disposal or storage;
 - (b) minimising the ingress of oxygen or water to areas used, or to be used, for waste disposal or storage;
 - (c) inhibiting the generation of acidity from waste rock, including for example, through using particular treatments;
 - (d) processes for collecting, storing and treating any generated leachate;
 - (e) monitoring of the waste disposal and storage areas including, for example, the water balance and oxygen levels;
 - (f) monitoring the potential seepage zone for indications of the formation of acid rock drainage.

(4) In this section—

acid-producing rock means rock containing sulfidic minerals that have the potential to oxidise and generate acidity.

disturbance, of acid-generating rock, means disturbance of the rock by—

- (a) excavating or removing the rock; or
- (b) exposing the rock to air; or
- (c) changing the level of groundwater.

63 Activity involving direct release of waste to groundwater

(1) This section applies to the administering authority for making an environmental management decision relating to an activity that involves, or may involve, the release of waste directly to groundwater (the ***receiving groundwater***).

Example of direct release of waste to groundwater—

an activity involving the release of contaminated water to groundwater through a well, deep-well injection or a bore

(2) The administering authority must refuse to grant the application if the authority considers—

- (a) for an application other than an application relating to an environmental authority for a petroleum activity—the waste is not being, or may not be, released entirely within a confined aquifer; or
- (b) the release of the waste is affecting adversely, or may affect adversely, a surface ecological system; or
- (c) the waste is likely to result in a deterioration in the environmental values of the receiving groundwater.

(3) In this section—

confined aquifer means an aquifer that is contained entirely within impermeable strata.

64 Activity involving indirect release of contaminants to groundwater

- (1) This section applies to the administering authority for making an environmental management decision relating to an activity that involves, or may involve, the release of contaminants indirectly to groundwater (the *receiving groundwater*).

Example of indirect release of waste to groundwater—

storage of contaminated water in a pond allowing infiltration of contaminated water to groundwater

- (2) The administering authority must consider the following matters—
- (a) the geological stability of the relevant site for the activity;
 - (b) the location, quality and use, or potential use, of the receiving groundwater;
 - (c) the permeability of the earth under the place where the activity is carried out;
 - (d) the presence of containment devices at the relevant site for the activity and their effectiveness in preventing or minimising the release of the waste;

Example of a containment device—

a liner for a storage pond

- (e) the distance separating the receiving groundwater from any containment device;
- (f) the potential for fluctuations in the level of the receiving groundwater;
- (g) the way in which materials, including contaminants, will be removed from the containment system;
- (h) whether or not materials, including contaminants, will be removed from the containment devices and if so, the effectiveness of the methods that will be used for the removal.

- (3) The administering authority must also consider whether to impose conditions about the following matters—
- (a) the design, construction, function, protection and maintenance of containment devices;
 - (b) maintaining a particular distance between the receiving groundwater and the point of contact between each containment device and the underlying earth;
 - (c) removing materials from the containment devices.

53 Matters to be considered for decisions imposing monitoring conditions

- (1) The administering authority must, for making an environmental management decision relating to an activity, consider whether to impose monitoring conditions about the release of contaminants from the activity on the receiving environment.
- (2) For considering whether to impose a monitoring condition, the administering authority must consider the following matters—
 - (a) the potential impact on the receiving environment of—
 - (i) the activity to which the decision relates; and
 - (ii) the release of the contaminant;
 - (b) the characteristics of the contaminant;
 - (c) the potential for a control measure to fail and the effect of a failure of a control measure on the receiving environment;
 - (d) the protocols relevant to monitoring the release of the contaminant;
 - (e) whether the monitoring should be continuous or intermittent.
- (3) In this section—

monitoring condition, about the release of contaminants from an activity on the receiving environment, means a condition about any of the following matters—

 - (a) monitoring the quantity, quality, characteristics, timing and variability of the release;
 - (b) monitoring indicators of the effective operation of control measures;

- (c) monitoring the characteristics of the receiving environment;
- (d) assessing the effectiveness of remedial or rehabilitation measures;
- (e) monitoring the impact of the release on the values, objectives and biota in the receiving environment;
- (f) analysing monitoring data against objectives and standards including, for example, by predictive modelling;
- (g) reporting the results of monitoring in a stated form and timeframe;
- (h) reporting on the time and way in which the release is made to the receiving environment.

52 Conditions to be considered for environmental management decisions

- (1) The administering authority must, for making an environmental management decision relating to an activity, consider whether to impose conditions about the following matters—
- (a) implementing a system for managing risks to the environment;
 - (b) implementing measures for avoiding or minimising the release of contaminants or waste;
 - (c) ensuring an adequate distance between any sensitive receptors and the relevant site for the activity to which the decision relates;

Examples of a condition for paragraph (c)—

a condition requiring riparian buffers, noise buffers or buffers for protecting endangered regional ecosystems

-
- (d) limiting or reducing the size of the initial mixing zone or attenuation zone, if any, that may be affected by the release of contaminants;
 - (e) treating contaminants before they are released;
 - (f) restricting the type, quality, quantity, concentration or characteristics of contaminants that can be released;
 - (g) the way in which contaminants may be released;

Examples of a condition for paragraph (g)—

- a condition restricting the release of a contaminant at a particular temperature, velocity or rate or during particular meteorological conditions or water flows
 - a condition restricting the release of a contaminant to a depth below the level of surface waters
- (h) ensuring a minimum degree of dispersion happens when a contaminant is released;

Example of a condition for paragraph (h)—

a condition requiring the use of a diffuser for releasing a contaminant

- (i) protecting environmental values, and meeting quality objectives, under relevant environmental protection policies;
 - (j) recycling, storing, transferring or disposing of waste in a particular way;
 - (k) rehabilitating land to achieve particular outcomes;
 - (l) measures for the ongoing protection of environmental values that are, or may be, adversely affected by the activity.
- (2) In this section—

attenuation zone means the area around a release of contaminants to groundwater in which the concentration of the contaminants in the release is reduced to ambient levels through physico-chemical and microbiological processes.

[s 53]

sensitive receptor means a sensitive receptor under any relevant environmental protection policies.

Division 2 Assessment process

313 Code assessment—generally

- (1) This section applies to any part of the application requiring code assessment.
- (2) The assessment manager must assess the part of the application against each of the following matters or things to the extent the matter or thing is relevant to the development—
 - (a) the State planning regulatory provisions;
 - (b) the regional plan for a designated region, to the extent it is not identified in the planning scheme as being appropriately reflected in the planning scheme;
 - (c) any applicable codes, other than concurrence agency codes the assessment manager does not apply, that are identified as a code for IDAS under this or another Act;
 - (d) State planning policies, to the extent the policies are not identified in—

[s 313]

- (i) any relevant regional plan as being appropriately reflected in the regional plan; or
- (ii) the planning scheme as being appropriately reflected in the planning scheme;
- (e) any applicable codes in the following instruments—
 - (i) a structure plan;
 - (ii) a master plan;
 - (iii) a temporary local planning instrument;
 - (iv) a preliminary approval to which section 242 applies;
 - (v) a planning scheme;
- (f) if the assessment manager is an infrastructure provider—an adopted infrastructure charges resolution or the priority infrastructure plan.

Note—

See chapters 2 to 4 for particular provisions about the relationship between the matters or things mentioned in subsection (2).

- (3) In addition to the matters or things against which the assessment manager must assess the application under subsection (2), the assessment manager must assess the part of the application having regard to the following—
 - (a) the common material;
 - (b) any development approval for, and any lawful use of, premises the subject of the application or adjacent premises;
 - (c) any referral agency's response for the application;
 - (d) the purposes of any instrument containing an applicable code.
- (4) If the assessment manager is not a local government, the laws that are administered by, and the policies that are reasonably identifiable as policies applied by, the assessment manager and that are relevant to the application, are taken to be

applicable codes in addition to the applicable codes mentioned in subsection (2)(c) or (e).

- (5) The assessment manager must not assess the application against, or having regard to, anything other than a matter or thing mentioned in this section.
- (6) Subsection (2)(a), (b) and (d) does not apply for the part of an application involving assessment against the Building Act.

Division 4 Referral agency assessment

Subdivision 1 Assessment generally

282 Referral agency assesses application

- (1) Each referral agency must, to the extent relevant to the development and within the limits of its jurisdiction, assess the application against each of the following—
 - (a) the State planning regulatory provisions applied by the referral agency;
 - (b) the regional plan for a designated region, to the extent it is not identified in the planning scheme as being appropriately reflected in the planning scheme;
 - (c) for a concurrence agency—any applicable concurrence agency codes that are identified as a code for IDAS in this or another Act;
 - (d) State planning policies applied by the referral agency, to the extent the policies are not identified in—
 - (i) any relevant regional plan as being appropriately reflected in the regional plan; or
 - (ii) the planning scheme as being appropriately reflected in the planning scheme;
 - (e) the laws that are administered by, and the policies that are reasonably identifiable as policies applied by, the referral agency.

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- (2) Also, each referral agency must, to the extent relevant to the development and within the limits of its jurisdiction, assess the application having regard to each of the following—
- (a) the State planning regulatory provisions not applied by the referral agency;
 - (b) State planning policies not applied by the referral agency, to the extent the policies are not identified in—
 - (i) any relevant regional plan as being appropriately reflected in the regional plan; or
 - (ii) the planning scheme as being appropriately reflected in the planning scheme;
 - (c) the structure plan for any declared master planned area;
 - (d) the master plan for any declared master planned area;
 - (e) a temporary local planning instrument for the planning scheme area;
 - (f) the planning scheme;
 - (g) if the land to which the application relates is designated land—its designation;
 - (h) to the extent the referral agency's jurisdiction involves the assessment of the cost impacts of supplying infrastructure for development under section 655 or 657—any relevant adopted infrastructure charges resolution.
- (3) Despite subsections (1) and (2) a referral agency—
- (a) may give the weight it considers appropriate to any planning instruments, laws, policies, codes and resolutions, of the type mentioned in subsection (1) or (2), coming into effect after the application was made, but before the agency's referral day; but
 - (b) must disregard any planning scheme or temporary local planning instrument for the planning scheme area if the referral agency's jurisdiction is limited to considering

the effect of the building assessment provisions on building work.

Information sheet

Environmental Protection Regulation 2008

Information to be provided with an application for a development approval (DA) for an environmentally relevant activity (ERA)

This information sheet provides general details of the information to be provided with an application for a development approval for Chapter 4 ERAs to enable the application to be assessed under the Sustainable Planning Act 2009.

1.0 Introduction

An activity is made an environmentally relevant activity (ERA) because it has the potential to cause environmental harm. This document addresses information requirements for Chapter 4 ERAs which require development approval under *Sustainable Planning Act 2009* (SPA). The Chapter 4 ERAs are outlined in schedule 2 of the Environmental Protection Regulation 2008.

If there is a code of environmental compliance in place, then a development approval is not needed for that aspect of development. However, a development approval may be required for other aspects of the overall development.

2.0 Properly made application

Section 260 of SPA lists the requirements for a properly made application. To be properly made the application must:

- be made to the assessment manager;
- be in the approved form (integrated development approval system (IDAS) form 1 and 8 and any other relevant IDAS forms) or made electronically using e-IDAS where available;
- include the mandatory supporting information nominated on the form;
- include the prescribed fee;
- where necessary, include the owner's written consent or a declaration by the applicant that the owner has given written consent to the making of the application;
- where the application involves a State resource, one of the following:
 - evidence of an allocation of, or entitlement to, the resource (a resource entitlement);
 - evidence the chief executive of the department administering the resource (the chief executive) is satisfied the development is consistent with a resource entitlement; or
 - evidence the chief executive is satisfied the development application may proceed without a resource entitlement.

Information to be provided with an application for a DA for an ERA

If an application is not properly made, the assessment manager must give the applicant a notice giving the reasons why the application is not properly made and the action to be taken by the applicant for the application to be properly made. The application lapses if the action is not taken within 20 business days of receiving the notice (or a longer period agreed between the applicant and the assessment manager). Processing of the application will not commence until it is properly made.

3.0 Information required to assess an application

A thorough and accurate description of the proposed activity and a description of the proposed management measures for environmental responsibilities will ensure the application can be processed efficiently. The IDAS forms provide details of the information to be supplied with an application, including mandatory information. The application must include the mandatory information listed in the IDAS form and should also include the materials listed below. If the application does not include sufficient information to assess the application an information request will be made under the *Sustainable Planning Act 2009*.

Where the same or similar information is required in several sections, provide the information once and then refer to it in subsequent sections. If the earlier information is not sufficiently clear and detailed, provide separate drawings and details to satisfy the requirements of a subsequent section.

3.1 Description of ERAs

A complete description of each of the ERAs to be conducted on the premises/place must include:

- an outline of proposed operations and ERAs;
- plans of the site and surrounding area and location of all points at which there will be discharges to the environment; and
- details of physical and/or chemical processes to be used.

Details required for each of these items are outlined below:

1. Site, surrounding area and discharge points

Please provide:

- a scaled site plan (at least A3 size) showing:
 - site boundaries;
 - all site improvements including buildings, walls, paving, roads, drains, channels, ponds and dams; and
 - existing and proposed site services including stormwater and sewerage;

Information to be provided with an application for a DA for an ERA

- a drawing which shows the location of all existing and proposed discharge and emission points to the environment, including points at which the following occur (where relevant):
 - air emissions;
 - noise emissions;
 - discharges to water;
 - discharges to land; and
 - discharges of other contaminants (e.g. gas, liquid, solid, odour, organism (alive or dead), virus, or energy — including noise, heat, radioactivity and electromagnetic radiation).
- a drawing which shows:
 - elevations of buildings and associated discharge points to the environment;
 - the name and exact location of equipment giving rise to such discharges; and
 - the name and exact location of equipment used in the processing, reprocessing, treatment, and/or discharge of wastes.

All discharge points are to be numbered sequentially. Discharge points should be labelled according to the substance being discharged. For example, discharges of wastewater could be indicated in red lettering or prefixed with code letters like WW and referenced in the legend to the map, plan or drawing.

All plans and drawings submitted should be drawn to scale with the horizontal and vertical scales and dimensions shown and include a northpoint. All plans must contain at least one survey or geographically referenced point from which the location of features can be determined.

2. Proposed operations/ERAs

Please give a brief description of each of the following:

- operations/ERAs to be carried out on the premises/place;
- processes used (a more detailed description is required below);
- any treatment plant(s); and
- the proposed source, nature, composition, rate and the immediate or ultimate destination of wastes generated.

Note: waste includes gas, liquid, solid or energy that is surplus to or unwanted from the carrying out of the ERA whether or not of value.

Information to be provided with an application for a DA for an ERA

3. Process details

Please provide descriptions of all manufacturing processes used or proposed, including:

- a process flowsheet;
- process and instrumentation diagram(s);
- physical and chemical transformations that occur at different stages in the process;
- material balances;
- material safety data sheets for all chemicals used or manufactured;
- contingency/emergency response procedures to avoid/minimise discharges resulting from process failure and shutdown; and
- chemical storage and handling facility, and evidence of compliance with local government requirements and relevant Australian Standards.

3.2 Description of the environment

A description of the environment in which the ERA is or will be conducted is needed to assess the character of the neighbourhood and the potential impact of the ERA on it. For some ERAs, only the 'next-door' neighbours need be described; for others a wide area might need to be described. Details required are outlined below:

1. Maps and photographs of site and surrounding area

Please supply maps of suitable scales showing the site and surrounding land likely to be affected by the ERA (the area). The following maps are of assistance:

- large-scale (1:2500 where available) orthophotographic map(s) of the area; and
- topographical map(s) (scale 1:10,000 where available) of the area.

Mark the maps clearly with the locations of residential places or areas and any other sensitive areas.

Other sensitive areas include:

- surface waters (including gullies that lead to a watercourse), water bores, wells, water supply catchments;
- conservation areas;
- schools, kindergartens and childcare centres;

Information to be provided with an application for a DA for an ERA

- hospitals and nursing homes; and
- horticulture and other sensitive crop production.

An aerial photograph of the site and surrounding areas should be included if available.

2. Zoning of site and surrounding area

Please provide the current, and where available, proposed land use zones of the area on a map to appropriate scale.

This information is contained in local government development control plans, town planning schemes, and strategic plans. These are available from the local government in whose district the ERA is situated.

3.3 Stormwater management plan

Stormwater must be managed so environmental harm or environmental nuisance is not caused by waste or contaminants washed into surface water or groundwater. If the ERA will not impact on the stormwater system, please state this.

Applicants must establish stormwater management plans using best-practice environmental management to avoid contamination of stormwater by wastes or contaminants.

1. Stormwater generation and disposal

The stormwater management plan should include a plan detailing:

- points of discharge to a stormwater system, including any waterway or drain;
- the catchment area for each stormwater drain, and the use of these areas; and
- any structures and systems used to minimise or prevent the contamination of stormwater.

The stormwater management plan should address:

- diverting upstream runoff away from contaminated areas;
- cleaning contaminated areas without using water;
- installing and maintaining control measures such as oil separators, silt and rubbish traps, gross pollutant traps and stormwater diversion systems;
- paving, roofing and bunding contaminated areas; and
- diversion of "clean" stormwater from roofed areas to the local government stormwater system.

Information to be provided with an application for a DA for an ERA

2. Erosion and sediment control management plans

An applicant proposing to carry out an ERA involving land disturbance must establish erosion and sediment control management plans using best-practice environmental management to avoid contamination of stormwater.

Please supply, where applicable, an erosion management plan as part of the stormwater management plan which considers:

- minimising the amount of topsoil being disturbed at any one time by staging development;
- diverting upstream runoff from disturbed areas;
- re-vegetating or mulching disturbed areas as quickly as possible; and
- installing and maintaining control measures such as silt fences, settling basins, energy dissipaters and vegetated buffers.

3.4 Acid sulfate soils

An applicant proposing to carry out an ERA involving disturbing acid sulfate soils either directly by excavation or indirectly by lowering of the water table must establish a management plan using best-practice environmental management to avoid contamination of stormwater runoff and groundwater by acid-rich water and other contaminants such as aluminium.

Please supply, where applicable, an acid sulfate soil management plan which details:

- identification and description of acid sulfate and potential acid sulfate soils likely to be disturbed by the proposed ERA;
- the likely effects of any such disturbance;
- preventing acid formation such as maintaining watertable levels;
- storage and treatment of any excavated materials;
- management of stormwater runoff and leachate from disturbed areas and storage areas; and
- a program to monitor the effectiveness of any remedial measures adopted.

3.5 Waste management program

In addition to the information required below there are specific requirements for certain ERAs concerning certain wastes under the Environmental Protection (Waste Management) Regulation 2000. For further information please contact the local office of the administering authority.

Information to be provided with an application for a DA for an ERA

The applicant must establish a strategy for minimising the generation of waste. Details required are as follows:

1. Waste management

For each waste declared, detail whether the waste is:

- discharged to the environment;
- stored, treated, recycled or reprocessed either on-site or off-site, (if off-site, identify the location where this is to be carried out);
- subject to emission controls; or
- disposed of on-site or off-site (if off-site, identify the location).

2. Generating waste

If waste is, or may be, generated in carrying out an ERA, provide the following information:

- type of waste;
- quantity of waste generated over a certain period of time;
- general character (solid, liquid, etc, if hazardous other environmentally relevant characteristics); and
- how waste is handled — whether generated, transported, or received by the person carrying out the ERA.

3. Transporting waste

If waste is transported by the applicant, details must be included regarding:

- the vehicles, storage tanks, containers and other equipment used for the transportation;
- sampling of the waste;
- monitoring and reporting of matters concerning the waste;
- emergency response planning; and
- keeping of records about the transportation.

4. Receiving waste

If waste is received by the applicant, the following details must be included:

- the type of waste received;

Information to be provided with an application for a DA for an ERA

- segregation of the waste;
- storage of the waste;
- monitoring and reporting of matters concerning the waste received;
- emergency response planning; and
- keeping of records about the receipt of the waste.

5. Waste minimisation strategy and cleaner production program

Where applicable, provide an outline of the waste minimisation strategy including:

- objectives such as target waste generation, recycling and treatment rates having regard to the Waste Management Hierarchy defined in Schedule 1 of the Environmental Protection (Waste Management) Policy 2000;
- the timetable for achieving objectives; and
- any equipment or modifications proposed for achieving the objectives.

A cleaner production program should identify and implement ways of improving a production process so that the process:

- uses less energy, water or another input; or
- generates less waste; or
- generates waste that is less environmentally harmful.

Note: a cleaner production program may not be applicable to all ERAs.

3.6 Contaminant releases and likely effects

The amount of information required for this section of the application depends on the nature and scale the ERA and the nature of the surrounding area.

For example, a small business or company with a low potential for causing environmental harm would not need to supply as much information as a large business or company conducting a significant operation near a residential or other sensitive area.

Note: For significant discharges, emissions and lighting, the environmental effects need to be identified clearly and detailed information provided. Contact the administering authority to establish the level of detail necessary for the situation.

Information to be provided with an application for a DA for an ERA

Please address the following sections only where they relate to the ERA that will be operated.

1. Discharges to waters

If contaminants are or will be discharged to waters (including groundwater and surface water), please provide the following information:

- a discussion of alternatives to discharge (for example, waste minimisation, effluent reuse, land disposal, discharge to or transportation to a local government sewerage scheme); these must be evaluated and shown to be impractical before any discharge to surface waters will be considered;
- documentation showing that the local government will not accept the waste in its sewerage system;
- the location of each discharge point (refer to drawing(s) provided in Description of ERAs);
- the name, location and description of receiving waters, including groundwater;
- an assessment of the current environmental values of receiving waters;
- identification of any nearby areas of conservation significance;
- details of each discharge point including:
 - description of the source(s) of contaminant(s); and
 - type(s) of contaminant(s) and expected concentrations (include range);
- quantity of each contaminant released each day, including:
 - rate of release of each contaminant;
 - maximum and background concentrations of each contaminant (if available);
 - any variation in quantity or quality of each contaminant released such as peak flows and abnormal events;
 - dimensions and construction materials of discharge structures; and
 - description of pollution control equipment; and
- an assessment of the likely effect of the discharges to water on the environment.

2. Discharges to air

If contaminants are or will be discharged to air, please provide the following information:

- the location of each discharge point (refer to drawing(s) provided for Description of ERAs);
- prevailing atmospheric characteristics;
- details of nearby sensitive areas, such as offices, schools, hospitals, residential areas, other industries;
- details of each discharge point including:

Information to be provided with an application for a DA for an ERA

- description of the source(s) of contaminant(s);
- type(s) of contaminant(s) and expected concentrations (include range);
- quantity of each contaminant released each day;
- rate of release of each contaminant;
- maximum and background concentrations of each contaminant (if available);
- any variation in quantity and quality of each contaminant released such as peak flows and abnormal events;
- description of pollution control equipment;
- height above ground of final discharge; and
- an assessment of the likely effect of the discharges to air on the environment.

3. Discharges to land

If contaminants are or will be discharged to land, please provide the following information:

- location of discharge points (refer to the drawing(s) provided for Description of ERAs);
- description of land which will receive the wastes, including area, slope, flood potential, erosion potential, and vegetation;
- soil characteristics, including results of any soil tests or percolation tests;
- rainfall and evaporation data for the area;
- groundwater level and use, if any;
- proximity of any streams, drains, watercourses, dams, soaks or springs;
- proximity of roads and public access;
- details of each discharge point including:
 - description of the sources of contaminants;
 - type(s) of contaminant(s) and expected concentrations (include range);
- quantity of each contaminant released, including:
 - maximum and background concentrations of each contaminant (if available);
 - any variation in each contaminant released such as peak flows or abnormal events; and
- an assessment of the likely effect of the discharges to land on the environment.

Information to be provided with an application for a DA for an ERA

4. Noise

If the ERA is or will be causing increased noise levels outside the premises on which it occurs, please provide the following information:

- location of all stationary and mobile noise-generating equipment (refer to the drawing(s) provided for Description of ERAs);
- general climate and prevailing wind characteristics;
- details of nearby noise-sensitive areas, such as schools, offices, kindergartens, retirement homes, domestic residences, or some industrial premises;
- general noise climate such as background level in the absence of the noise source(s);
- description of each noise source including:
 - overall sound power level in dB, preferably in octave bands with centre frequencies 31.5Hz to 8kHz; alternatively, the operation sound pressure level in dB(A) and octave bands at a specified distance is acceptable;
 - hours and days of operation; and
 - description of any measures or equipment used to control noise; and
- an assessment of the likely effect of noise from the ERA on nearby noise-sensitive areas.

5. Discharge of other contaminants

Other contaminants can include:

- energy;
- heat;
- electromagnetic radiation; or
- an organism (whether alive or dead), including a virus.

If other contaminants are or will be discharged as a result of the ERA, please provide the following:

- the location of source point(s) for each type of contaminant (refer to the drawing(s) provided for Description of ERAs);
- details of nearby sensitive areas;
- a description of each contaminant including:
 - its source(s);

Information to be provided with an application for a DA for an ERA

- quantity released;
- rate of release;
- maximum and background concentrations (if available);
- any variation in contaminant releases such as peak levels and abnormal events; and
- an assessment of the likely effect of the contaminant(s) on the environment.

Please note that other environmental issues may be relevant to the specific operations. All operators are bound by the general environmental duty to manage all impacts associated with an activity.

4.0 Further information

For more information, please contact Permit and Licence Management on phone number 1300 130 372 or fax number (07) 3896 3342.

Department of Environment and Resource Management

Environmental Protection Act 1994

Environmental Protection (DEEDI - Livestock) Delegation (No. 1) 2011

1 Citation

This delegation may be cited as the *Environmental Protection (DEEDI - Livestock) Delegation (No. 1) 2011*.

2 Definitions

For the purposes of this delegation—

Act means the *Environmental Protection Act 1994* and includes all subordinate legislation made under that Act

administering authority means the administering authority for the purposes of the Act

administering executive means the administering executive for the purposes of the Act

chief executive means the Director-General of the department, unless referring to the Chief Executive of the Department of Employment, Economic Development and Innovation or the Chief Executive of the former Environmental Protection Agency

department means the government entity, as defined under the *Public Service Act 2008*, carrying out the functions of administering the Act.

3 Commencement

This delegation shall commence on the day it is signed.

4 Power to Delegate

This delegation is made under sections 516(1)(a), 517(1) and 518(1)(a)(i) of the Act.

5 Powers Delegated

(1) The powers of the chief executive, administering authority and administering executive referred to in Schedule 1 and embodied in the sections of the Act referred to in Schedule 1 are delegated to the holders of the offices or positions within the Department of Employment, Economic Development and Innovation in the Categories described in Schedule 1.

(2) A reference to a Category in Schedule 1 is a reference to a Category of office or position within the Department of Employment, Economic Development and Innovation referred to in Schedule 2 and includes all of the offices or positions within the Department of Employment, Economic Development and Innovation listed in the Category in Schedule 2.

6 Revocation

This instrument revokes the instrument of delegation made on 23 December 2008, by the Chief Executive of the former Environmental Protection Agency

of specific provisions of the Act and its subordinate legislation to specified offices within the former Department of Primary Industries and Fisheries.

7 Limitation of Powers

The powers of the chief executive, administering executive and administering authority specified in paragraph 5 above are subject always to the following limitations:

The powers must only be exercised in relation to:

- (1) Dairy farming - dairy farming means the farming of dairy cattle for the commercial production of milk; and
- (2) Livestock holding facilities - livestock holding facilities means all livestock yards (including sale yards, trucking yards, livestock export yards, railway stock yards and dip yards) used for the sale, management, transport and husbandry of livestock; and
- (3) Intensive animal feeding – hand or mechanically feeding cattle or sheep in an area in which the existing vegetation would not provide the nutritional requirements of the animals; and
- (4) The following environmentally relevant activities mentioned in Schedule 2 of the Environmental Protection Regulation 2008—
 - i. Environmentally relevant activity - item 2 (intensive animal feedlotting); and
 - ii. Environmentally relevant activity - item 3 (pig keeping).

8 Entire Document

This delegation is comprised of six (6) pages including Schedules 1 and 2.

9 Delegation

This delegation is made by John Bradley, Director-General, Department of Environment and Resource Management.

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Dir	
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	23 / 3 / 2011
 / 2011

Signed: [Redacted]

John Bradley
Director-General, Department of Environment and Resource
Management

Date: 30 / 3 / 2011

Schedule 1

Powers conferred under the *Environmental Protection Act 1994* delegated to the holders of offices within the Department of Employment, Economic Development and Innovation as per the categories indicated¹

Environmental Protection Act 1994 and subordinate legislation

Chief Executive, Administering Executive and Administering Authority powers		
Section Number	SECTION HEADING	Category A
All relevant sections	All sections of the <i>Environmental Protection Act 1994</i> , including all subordinate legislation other than the <i>Environmental Protection (Waste Management) Regulation 2000</i> , conferring powers on the chief executive, administering authority and/or administering executive as in force from time to time. This delegation does not authorise or permit delegates to delegate the powers of the chief executive, administering authority and/or administering executive under the Act.	✓

Environmental Protection Act 1994

Chief Executive powers					
Section Number	SECTION HEADING	Category 1	Category 2	Category 3	Category 4
445	Appointment of authorised persons.	✓			

Administering Executive powers					
Section Number	SECTION HEADING	Category 1	Category 2	Category 3	Category 4
463	Forfeiture of seized thing on conviction	✓	✓	✓	
490	Evidentiary provisions	✓	✓	✓	
544	Approved forms	✓	✓	✓	

Administering Authority powers					
Section Number	SECTION HEADING	Category 1	Category 2	Category 3	Category 4
73A	Assessing development applications	✓	✓		
73B	Conditions of development approval that may and must be imposed	✓	✓		
73C	Adding, changing or cancelling a development condition	✓	✓		
73E	Grounds for refusing application for registration	✓	✓		
73F	Registration certificates	✓	✓		
73FA	Issue of 2 or more registration certificates in place of single certificate	✓	✓		
73H	Amendment to correct error (registration certificate)	✓	✓		
73HA	Amendment by agreement	✓	✓		
73HC	Amendment for registration of new activity	✓	✓		
73HD	Amendment for removing registration of continuing chapter 4 activity	✓	✓		

¹ The persons holding the positions in each category specified in Schedule 2 will have the delegated powers corresponding to the sections listed which have a tick in Schedule 1. The persons holding positions designated by category (see Schedule 2) will have no delegated power for the sections listed which have no tick, unless conferred by another instrument.

Administering Authority powers

Section Number	SECTION HEADING	Category 1	Category 2	Category 3	Category 4
73HE	How a registration certificate is to be amended	✓	✓	✓	✓
73I	Cancelling or suspending a registration certificate	✓	✓		
73J	Notice of proposed action	✓	✓		
73K	Considering representations	✓	✓		
73L	Decision on proposed action	✓	✓		
73M	Notice of proposed action decision	✓	✓		
73N	Steps for cancelling or suspending a registration certificate	✓	✓		
73O	Surrendering a registration certificate	✓	✓		
73P	Steps for surrendering a registration certificate	✓	✓		
316	Annual fee and return	✓	✓	✓	✓
318A	Changing anniversary day	✓	✓		
322	When environmental audit required	✓	✓		
323	When environmental investigation required	✓	✓		
324	Notice to conduct or commission environmental evaluation	✓	✓		
326	Administering authority to consider and act on environmental reports	✓	✓		
328	Extensions of time for decisions on submission of environmental reports	✓	✓		
332	Administering authority may require draft program	✓	✓		
335	Public notice of submission for approval of certain draft programs	✓	✓		
336	Authority may call conference	✓	✓		
337	Administering authority to consider draft programs	✓	✓		
338	Criteria for deciding draft program	✓	✓		
339	Approval of draft program	✓	✓		
340	Notice of refusal or conditions	✓	✓		
342	Substantial compliance with Act may be accepted as compliance	✓	✓		
344	Application	✓	✓		
352	Authority to act on notice	✓	✓		
353	Effect of program notice	✓	✓		
355	Authority may apply to Court for order setting aside immunity from prosecution	✓	✓		
358	When order may be issued	✓	✓		
359	Standard criteria to be considered before issue of order	✓	✓		
363F	Definitions for pt 5B	✓	✓		
363H	Administering authority may issue clean-up notice	✓	✓		
363N	Administering authority may issue cost recovery notice	✓	✓		
364	When financial assurance may be required	✓	✓		
365	Person may show cause why financial assurance should not be required	✓	✓		
366	Application for amendment or discharge of financial assurance	✓	✓		
367	Claims on financial assurances	✓	✓		
451	Administering authority may require relevant information	✓	✓	✓	
454	Entry of land—preliminary investigation	✓	✓		
458	Order to enter land to conduct investigation or conduct work	✓	✓		
488	Administering authority to reimburse costs and expenses incurred	✓	✓		
501	Recovery of costs of rehabilitation or restoration etc.	✓	✓		
503	Recovery of costs of investigation	✓	✓		
505	Restraint of contraventions of Act etc.	✓	✓		
521	Procedure for review	✓	✓		
540	Required registers	✓	✓		
541	Keeping of registers	✓	✓		
542	Inspection of register	✓	✓		✓
543	Appropriate fee for copies	✓	✓		
546	Annual reports	✓	✓		
552	What is the "application date" for application or EMP submission	✓	✓	✓	
555	Extension of decision period	✓	✓	✓	
556	Administering authority may seek advice, comment or information	✓	✓	✓	
558	Publication of decision or document by administering authority	✓	✓		
559	Investigation of applicant suitability or disqualifying events	✓	✓		
560	Use of information in suitability report	✓	✓		

Administering Authority powers					
Section Number	SECTION HEADING	Category 1	Category 2	Category 3	Category 4
561	Notice of use of information in suitability report	✓	✓		
563	Destruction of suitability reports	✓	✓		
566	Deciding application	✓	✓		
567	Criteria for decision	✓	✓		
568	Exemption may be limited	✓	✓		
569	Notice of refusal or decision to limit exemption	✓	✓		
573	Effect on administering authority	✓	✓		

Environmental Protection Regulation 2008

Administering Authority powers					
Section Number	SECTION HEADING	Category 1	Category 2	Category 3	Category 4
51	Matters to be considered for environmental management decisions	✓	✓	✓	
52	Conditions to be considered for environmental management decisions	✓	✓	✓	
53	Matters to be considered for decisions imposing monitoring conditions	✓	✓	✓	
55	Release of water or waste to land	✓	✓	✓	
56	Release of water, other than stormwater, to surface water	✓	✓	✓	
57	Release of stormwater	✓	✓	✓	
58	Release of water or waste to particular wetlands for treatment	✓	✓	✓	
59	Activity involving berthing, docking or mooring a boat	✓	✓	✓	
60	Activity involving storing or moving bulk material	✓	✓	✓	
61	Activity involving acid sulphate soil	✓	✓	✓	
62	Activity involving acid-producing rock	✓	✓	✓	
63	Activity involving direct release of waste to groundwater	✓	✓	✓	
64	Activity involving indirect release of contaminants to groundwater	✓	✓	✓	
111	Register of environmental reports	✓	✓		
112	Register of monitoring program results	✓	✓		
113	Register of transitional environmental programs	✓	✓		
114	Register of environmental protection orders	✓	✓		
115	Register of authorised persons	✓	✓		
133	Refunding differences between annual fee and reduced fee	✓	✓		
136	Refund of annual fee if application refused	✓	✓	✓	✓
139	Fee for late payment of annual fee	✓	✓		
140	Fees for transitional environmental programs	✓	✓		
149	Existing applications	✓	✓	✓	✓
150	Activities that are no longer environmentally relevant activities	✓	✓	✓	✓
151	Changes to environmentally relevant activities — chapter 4 activities	✓	✓	✓	✓

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Administering Authority powers					
Section Number	SECTION HEADING	Category 1	Category 2	Category 3	Category 4
19	Program may be required as a condition of particular authorities	✓	✓		

Schedule 2

List of Offices in each Category

Category of Officer	Holder of Office
Category A	Chief Executive (Department of Employment, Economic Development and Innovation) Associate Director General, Science, Agriculture, Food and Regional Services (Department of Employment, Economic Development and Innovation)
Category 1	Executive Director, Animal Industries and Sustainability (Position Number: 76024488)
Category 2	Manager – Intensive Livestock Environmental Regulation (Position Number: 76007508) Senior Compliance Officer (Position Number: 76018105) Senior Environmental Scientist (Position Number: 76008200) Regional Director, Darling Downs South West (Position Number: 71585750) Environmental Scientist (Position Number: 71039249) Principal Environmental Officer (Position Number: 76019625)
Category 3	Environmental Officer (Position Numbers: 71028678, 71019941, 76008004, 76008003) Senior Environmental Officer (Position Number: 71019431) Environmental Scientist (Position Numbers: 76007958 and 76008600)
Category 4	Environmental Support Officer (Position Number: 76021226)