Queensland Government

Department of Infrastructure,
Local Government and Planning

Our reference: SPD-0716-029370
Your reference:

25 August 2016

The Chief Executive Officer
Rockhampton Regional Council
PO Box 1860
Rockhampton QLD 4700

Dear Sir/Madam

Notice about request for permissible change—relevant entity
27-35 Chappell Street, Kawana, QLD 4701 (Lots 1-5 on RP601860)
(Given under section 373(1) of the *Sustainable Planning Act 2009*)

The Department of Infrastructure, Local Government and Planning received a copy of the request for a permissible change under section 372(1) of the *Sustainable Planning Act 2009* on 28 July 2016 advising the department, as a relevant entity, of the request for a permissible change made to the responsible entity under section 369 of the *Sustainable Planning Act 2009*.

The department understands that the proposed changes are as follows:

- Amend the Stormwater Management Strategy to the revised Stormwater Management Plan Proposed Chappell Street Industrial Complex (Rev D).

The department has considered the proposed changes to the development approval and advises that it has no objection to the change being made.

Advice regarding concurrence agency conditions

If the proposed changes to the decision notice are approved by the assessment manager, the applicant should make a permissible change request to the department as a responsible entity under section 369 of the *Sustainable Planning Act 2009*. This is to ensure no conflict with the development approval conditions as a result of the proposed changes. Specifically conditions 1 and 2 of the concurrence agency response issued by the then Department of State Development, Infrastructure and Planning require amendment.

A fee of $1511 is applicable for such a request.

Fitzroy/Central Regional Office
Level 2, 209 Bolsover Street
PO Box 113
Rockhampton QLD 4700

If you require any further information, please contact Glenn Druery, A/Senior Planning Officer, on 4924 2907, or via email RockhamptonSARA@dilgp.qld.gov.au who will be able to assist.

Yours sincerely

Anthony Walsh
A/Manager (Planning)

Cc: Opus International Consultants; glenn.brown@opus.com.au

Fitzroy/Central Regional Office
Level 2, 209 Bolsover Street
PO Box 113
Rockhampton QLD 4700

Queensland Government

Department of
State Development, Infrastructure and Planning

Our reference: SDA-0914-013894
Your reference: D/212-2014

27 November 2014

Chief Executive Officer
Rockhampton Regional Council
PO Box 1860
Rockhampton QLD 4700

Dear Sir/Madam

Concurrence agency response—with conditions
27-35 Chappell Street, Kawana (Lots 1-5 on RP601860)
(Given under section 285 of the *Sustainable Planning Act 2009*)

The referral agency material for the development application described below was received by the Department of State Development, Infrastructure and Planning under section 272 of the *Sustainable Planning Act 2009* on 16 October 2014.

Applicant details

Applicant name:	GT Jeffreys Pty Ltd C/- Rufus Design Group Pty Ltd
Applicant contact details:	PO Box 5134 Red Hill Norman Gardens Qld 4701 mailbox@rufusdesigngroup.com

Site details

Street address:	27-35 Chappell Street, Kawana
Lot on plan:	Lots 1-5 on RP601860
Local government area:	Rockhampton Region

Fitzroy/Central Regional Office
Level 3, 130 Victoria Parade
PO Box 113
Rockhampton QLD 4700

Application details

Proposed development:	Material Change of Use for Low Impact Industry (3 low impact industrial use sheds)

Referral triggers

The development application was referred to the department under the following provisions of the *Sustainable Planning Regulation 2009*:

Referral trigger	Schedule 7, Table 3, Item 15A—Railways

Conditions

Under section 287(1)(a) of the *Sustainable Planning Act 2009*, the conditions set out in Attachment 1 must be attached to any development approval.

Reasons for decision to impose conditions

Under section 289(1) of the *Sustainable Planning Act 2009*, the department must set out the reasons for the decision to impose conditions. These reasons are set out in Attachment 2.

Further advice

Under section 287(6) of the *Sustainable Planning Act 2009*, the department offers advice about the application to the assessment manager—see Attachment 3.

Approved plans and specifications

The department requires that the following plans and specifications set out below and in Attachment 4 must be attached to any development approval.

Drawing/Report Title	Prepared by	Date	Reference no.	Version/Issue
Aspect of development: Development Permit for Material Change of Use for Low Impact Industry				
Site Plans	Rufus Design Group	14/08/2014	140304-01	
Landscaping Plans (Lots 3-5)	Rufus Design Group	14/08/2014	140304-02	
Landscaping Plans (Lots 1 & 2)	Rufus Design Group	14/08/2014	140304-03	

A copy of this response has been sent to the applicant for their information.

For further information, please contact Kate Lipke, Principal Planning Officer, SARA Fitzroy & Central on 4924 2916, or email RockhamptonSARA@dsdip.qld.gov.au who will be pleased to assist.

Yours sincerely

Don Cook

Don Cook
Manager (Planning)
Fitzroy & Central

cc: GT Jeffreys Pty Ltd C/- Rufus Design Group Pty Ltd, mailbox@rufusdesigngroup.com
enc: Attachment 1—Conditions to be imposed
Attachment 2—Reasons for decision to impose conditions
Attachment 3—Further advice
Attachment 4—Approved Plans and Specifications

Our reference: SDA-0914-013894
Your reference: D/212-2014

Attachment 1—Conditions to be imposed

No.	Conditions	Condition timing
Development Permit for Material Change of Use (Construction of 3 sheds for Low Impact Industry use)		
7.3.15A Railways—Pursuant to section 255D of the *Sustainable Planning Act 2009*, the chief executive administering the Act nominates the Director-General of Department of Transport and Main Roads to be the assessing authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):		
1	The development must be carried out generally in accordance with the following plans: • Site Plans, Rufus Design Group, 14/08/2014 and project number 140304-01; • Landscaping Plans (Lots 3-5), Rufus Design Group, 14/08/2014 and project number 140304-02; • Landscaping Plans (Lots 1-2), Rufus Design Group, 14/08/2014 and project number 140304-03.	Prior to the commencement of use and to be maintained
2	(a) The development must be in accordance with the Stormwater Management Plan entitled Proposed Chappell Street Industrial Complex Revision B, prepared by Opus International Consultants (Australia) Pty Ltd dated 24 July 2014, and given reference/revision number Q-C3239/B, in particular: • Section 4 Stormwater Quantity; • Section 5 Proposed Management System; and • Appendix E Output from DRAINS Analysis. (b) Any works on the land must not: i. create any new discharge points for stormwater runoff onto the railway; ii. interfere with and/or cause damage to the existing stormwater drainage on the railway; iii. surcharge any existing culvert or drain on the railway; iv. reduce the quality of stormwater discharge onto the railway. AND (c) RPEQ certification must be provided to the Program Delivery and Operations Unit, Department of Transport and Main Roads, Central Region (Central.Queensland.IDAS@tmr.qld.gov.au) confirming that the development has been designed and constructed in accordance with parts (a) and (b) of this condition.	(a) Prior to the commencement of use and to be maintained (b) At all times (c) Prior to obtaining a final inspection certificate or certificate of classification, whichever is applicable, or prior to the commencement of use, whichever occurs first

No.	Conditions	Condition timing
3	Fencing sufficient to prevent unauthorised access by people, vehicles and projectiles to the North Coast Line railway is to be located along the entire site boundary with the railway in accordance with Queensland rail Standard Drawing 2542 – High Security Fence.	Prior to the commencement of use

Our reference: SDA-0914-013894
Your reference: D/212-2014

Attachment 2—Reasons for decision to impose conditions

The reasons for this decision are:

- To ensure the development is carried out generally in accordance with the plans of development submitted with the application
- To ensure that the impacts of stormwater events associated with development are minimised and managed to avoid creating any adverse impacts on the state transport corridor.
- To prevent unauthorised access to the identified railway corridor.

Our reference: SDA-0914-013894
Your reference: D/212-2014

Attachment 3—Further advice

General advice	
1.	**Works on a Railway** Pursuant to section 255 of the *Transport Infrastructure Act 1994*, the railway manager's written approval is required to carry out works in or on a railway or otherwise interfere with the railway or its operations. The construction and/removal of fencing on the railway boundary may require entry to the railway and the railway manager's (Queensland Rail's) approval. Please contact Kate Rylands of Queensland Rail on telephone number 3072 1229 or at kate.rylands@qr.com.au in relation to these requirements.

Our reference: SDA-0914-013894
Your reference: D/212-2014

Attachment 4—Approved plans and specifications

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Site Analysis

Proposed Floor Area	= 720 sqm
Total Building Footprint Area	= 600 sqm
Total Site Coverage	= 620.6 sqm, 18%
Total Landscaped Area Required	= 343.5 sqm 10%
Total Landscaped Area Provided	= 526.0 sqm 15.3%
Total Site Area	= 3435.4 sqm
Car Parking	
Car parking spaces required	= 11
Total car spaces provided	= 11
Driveways	
Existing concrete driveway area	= NIL
New concrete driveway area	= 1987.6 sqm
Total driveway area	= 1987.6 sqm

R.P.D.
Lot Number : 3 - 5
Reg./Survey Plan Number : 601860
Parish : MURCHISON
County : LIVINGSTONE
Area : 3435.4 sqm

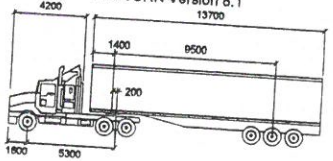
Site Analysis

Proposed Floor Area	= 500 sqm
Total Building Footprint Area	= 420 sqm
Total Site Coverage	= 420 sqm, 21.7%
Total Landscaped Area Required	= 193.8 sqm 10%
Total Landscaped Area Provided	= 293.8 sqm 15.1%
Total Site Area	= 1938.3 sqm
Car Parking	
Car parking spaces required	= 8
Total car spaces provided	= 8
Driveways	
Existing concrete driveway area	= NIL
New concrete driveway area	= 1027.5 sqm
Total driveway area	= 1027.5 sqm

R.P.D.
Lot Number : 1 & 2
Reg./Survey Plan Number : 601860
Parish : MURCHISON
County : LIVINGSTONE
Area : 1938.3 sqm

VEHICLE SWEPT PATH'S

Swept Path's Generated by AutoTURN Version 8.1

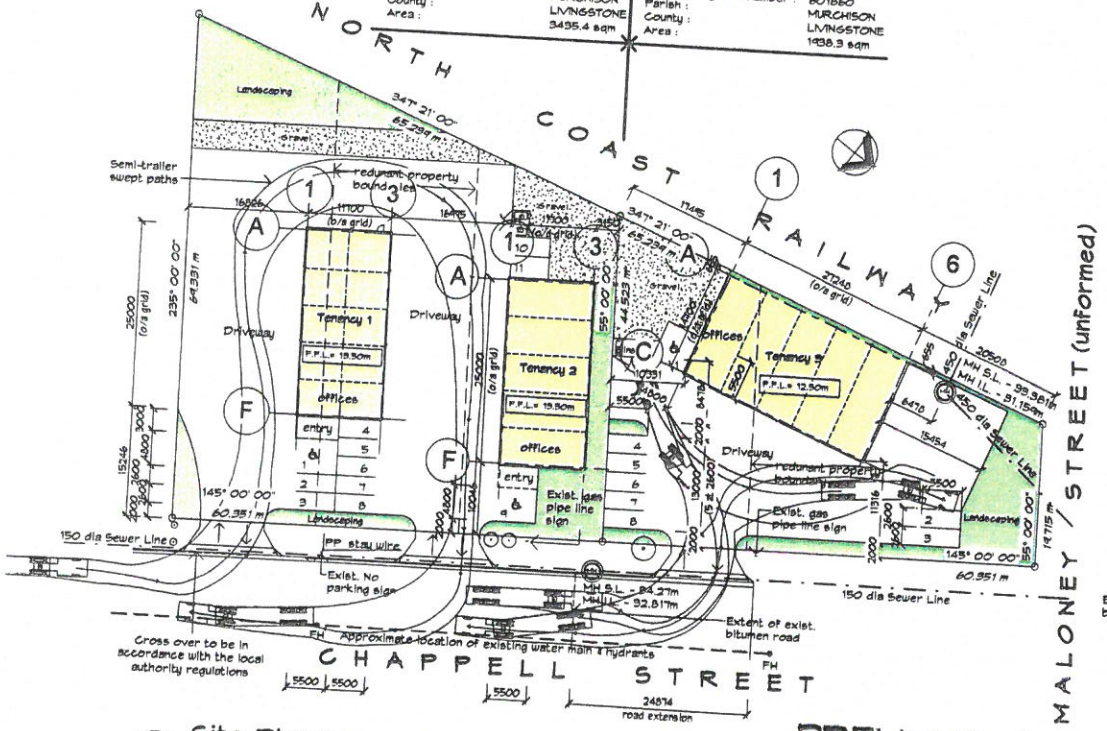


S ARTICULATED 19M

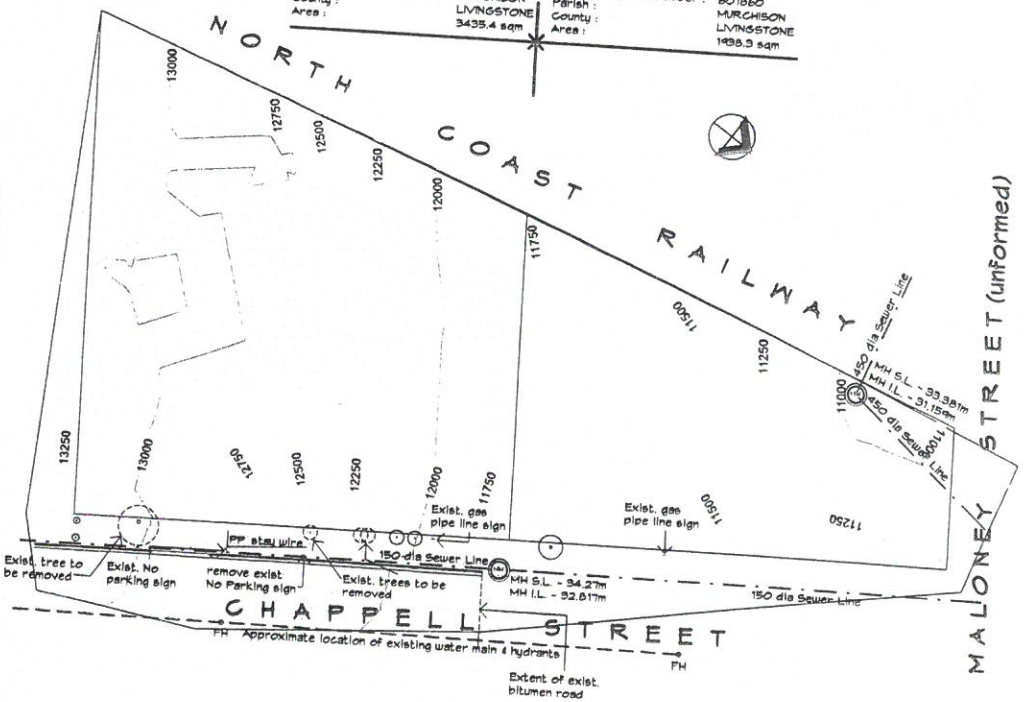
	mm		
Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 27.7
Tractor Track	: 2500	Articulating Angle	: 70.0
Trailer Track	: 2500		

R.P.D.
Lot Number : 3 - 5
Reg./Survey Plan Number : 601860
Parish : MURCHISON
County : LIVINGSTONE
Area : 3435.4 sqm

R.P.D.
Lot Number : 1 & 2
Reg./Survey Plan Number : 601860
Parish : MURCHISON
County : LIVINGSTONE
Area : 1938.3 sqm



1 Site Plan Proposed
1 : 500



2 Site Plan Existing
1 : 500

PRELIM 04
DATE: 14/08/14

NOT FOR CONSTRUCTION

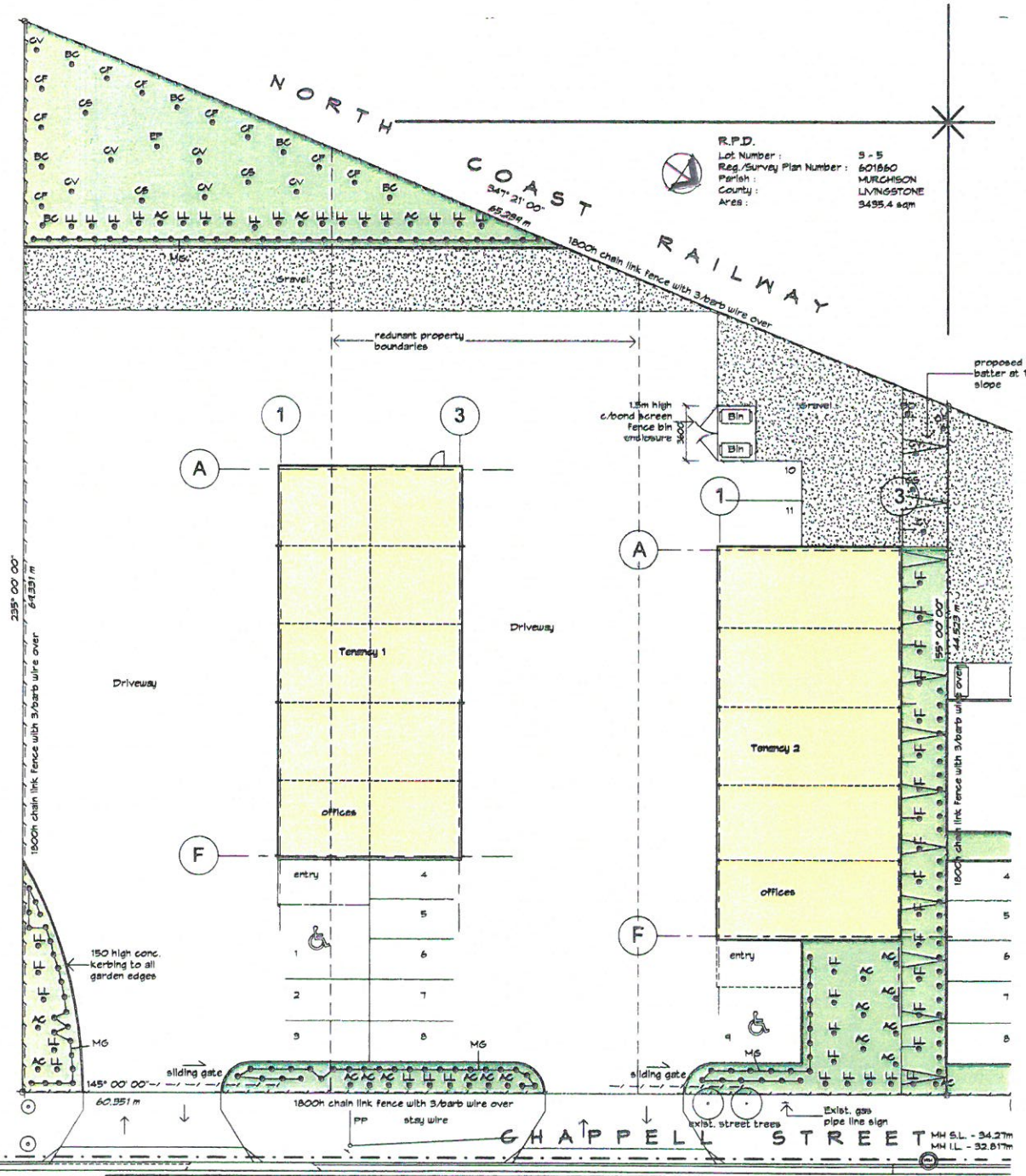
REVISIONS			
No.	DESCRIPTION	DATE	

PROPOSED INDUSTRIAL DEVELOPMENT FOR
GT JEFFREYS AT
27 CHAPPELL STREET, KAWANA

This drawing: Site Plans

Rufus Design Group
MEMBER BUILDING DESIGNERS ASSOC. OF QLD INC.
Licenced under the QBSA Act Lic No. 1180286
Telephone 61 7 49288011
Facsimile 61 7 49266570

PROJECT MANAGER : DJW
DRAWN : DJW
WIND SPEED C2
PROJECT NUMBER 140304 - 01



Landscaping

Species:

Planting to landscaped areas is to be selected from the following species. Other species may be used subject to availability.

Code	Botanical/Common Names	Native/Exotic	Mature Ht	Qty.
	Groundcovers and Creepers (200Ø min pot size)			
BB	Bracteantha Bracteata/Everlasting Daisy	Native	600mm	86
	Clumping and Tussock plants (200Ø min pot size)			
AC	Alpinia Caerulea/Native or Wild Ginger	Native	2000mm	49
LL	Lomandra Longifolia/Spinyhead Mat rush	Native	1000mm	65
	Shrubs (200Ø min pot size)			
CV	Callistemon Viminalis / Endeavour	Native	2000mm	11
MG	Melaleuca / Golden Gem	Native	400mm	214
	Screening plants (200Ø min pot size)			
BC	Backhousia Citriodora/Lemon Scented Myrtle	Native	3000mm	8
CF	Callistemon Formosus/Kingaroy Bottle Brush	Native	3000mm	17
	Trees (45 L min pot size)			
CS	Callistemon Salignus / Willow Bottlebrush	Native	7000mm	7
EP	Eucalyptus Ptychocarpa/Swamp Bloodwood	Native	6000mm	1

Details:

Top Soil _____ 100mm organic loam
Mounding (Clean topsoil)_____ 100mm min
Existing Trees_____ NIL
Mulch beds with wood chips, wood chip depth_____ 100mm
Maintence program
- Watering_____ Automatic Sprinkler system with timer or Manually operated drip system
  Hedging/shrubs_____ drippers
  Lawn/trees___ underturf drip system
- Maintence_____ Local Lawn Care Business employed or By proprietor and / or staff permanently for fortnightly visits

Planting
- Garden Beds_____ Cultivate exist soil to 300mm min depth. If clay is encountered break up & mix with gypsum 1kg/sqm. Import clean topsoil over. Fertilize with 'Agriform' plant pills as directed
- Lawn _____ Cultivate area to 150mm min depth. Spread 50mm min clean topsoil over. Fertilize prior to laying turf with N.P.K. 14:15:10 40g/sqm. Fertilize after turf laid with sulphate of ammonia 10g/sqm
- Shade/Street Trees. New trees to be double stacked, mulched & watered in. Use of water crystals is recommended. New trees to be watered with automatic sprinkler system

PRELIM 04
DATE: 14/08/14

NOT FOR CONSTRUCTION

1 Landscaping Plan (Lots 3-5)
1 : 200

REVISIONS

No.	DESCRIPTION	DATE

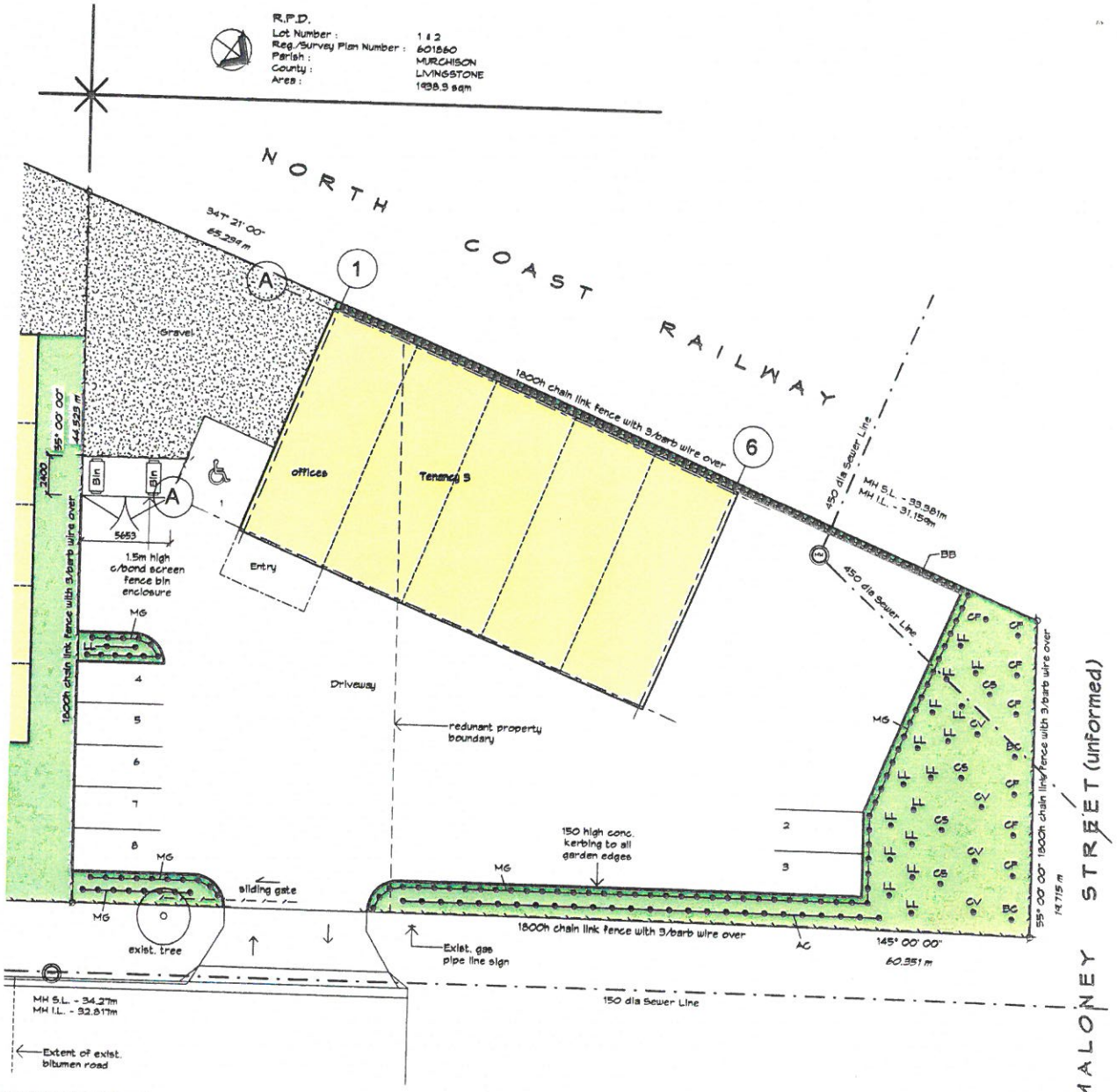
PROPOSED INDUSTRIAL DEVELOPMENT FOR
GT ." "REYS AT
27 C. PELL STREET, KAWANA

this drawing: Landscaping Plan (Lots 3-5)

Rufus Design Group
QUALITY · INNOVATION
MEMBER BUILDING DESIGNERS ASSOC. OF QLD INC.
Licensed under the QBSA Act Lic No. 1180286
Telephone 61 7 49288011
Facsimile 61 7 49266579
E-mail mailbox@rufusdesigngroup.com

PROJECT MANAGER : DJW
DRAWN : DJW
CHKD :
WIND SPEED C2
PLAN SIZE: A2
PROJECT NUMBER 140304 - 02
SHEET 02 OF 04 SHEETS
REV.

PRINT DATE : 14/08/2014 3:06:13 PM



PRELIM 04
DATE: 14/08/14

NOT FOR CONSTRUCTION

1 Landscaping Plan (Lots 1-2)
1 : 200

REVISIONS			
No.	DESCRIPTION	DATE	

PROPOSED INDUSTRIAL DEVELOPMENT FOR
GT JEFFREYS AT
27 CHAPPELL STREET, KAWANA

this drawing: Landscaping Plan (Lots 1&2)

Rufus Design Group
STYLE • QUALITY • INNOVATION
MEMBER BUILDING DESIGNERS ASSOC. OF QLD INC. Licensed under the QBSA Act Lic No. 1180288
Telephone 61 7 49288011
Facsimile 61 7 49266579
E-mail mailbox@rufusdesigngroup.com

PROJECT MANAGER : DJW
DRAWN : DJW
CHKD :

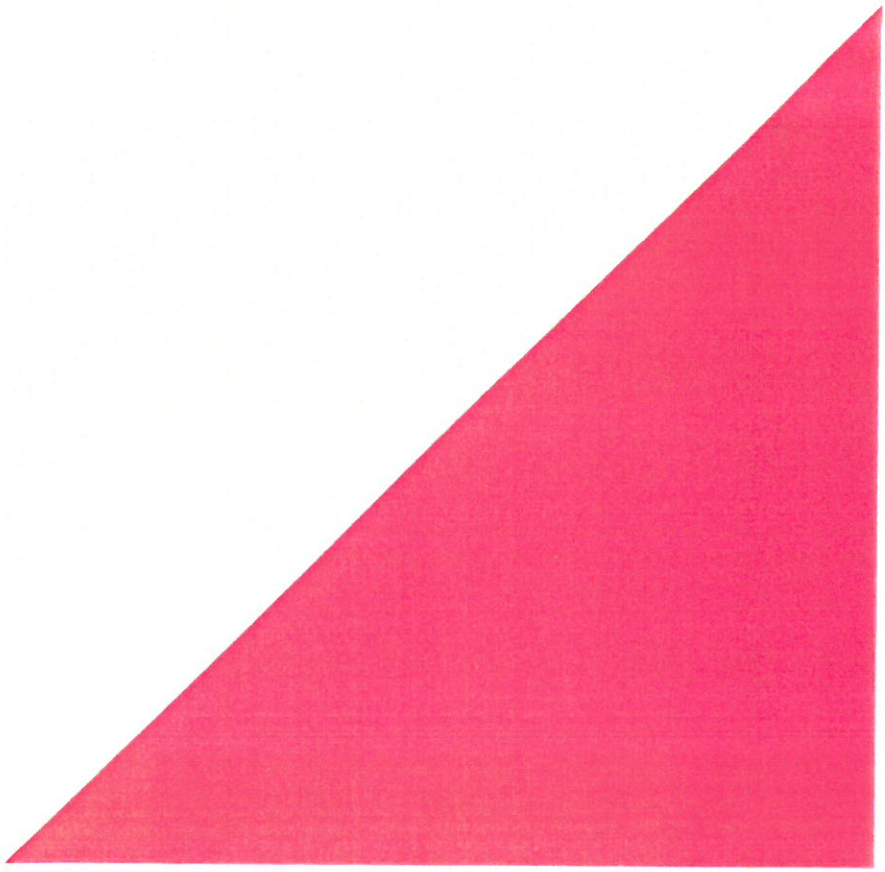
WIND SPEED C2
PLAN SIZE A2

PROJECT NUMBER 140304 - 03
SHEET 03 OF 04 SHEETS

OPUS

Stormwater Management Plan Proposed Chappell Street Industrial Complex

Revision B



Stormwater Management Plan

Proposed Chappell Street Industrial Complex

Revision B

Prepared By .....

Reviewed By .....

Opus International Consultants (Australia) Pty Ltd
Rockhampton Office
Level 1, 220 Quay Street
PO Box 724, Rockhampton QLD 4700
Australia

Telephone: +61 7 4972 6511
Facsimile: +61 7 4922 2896

Date: 24 July 2014
Reference: Q-C3239
Status: Revision B

Contents

1 INTRODUCTION

This report identifies the stormwater quantity and quality management measures required for the proposed Industrial Complex, located at Chappell Street North Rockhampton. This report will demonstrate the development can be undertaken in accordance with the current Rockhampton Regional Council guidelines, QUDM and best management practices.

The study team for this development has involved Glenn Brown and John Condon of our Rockhampton Office.

The proposed development will consist of two new industrial allotments with the development of new industrial buildings on each lot with car parking area, hardstand storage areas and landscaping to the perimeter. The Proposed Layout is attached in Appendix A.

2 SITE CHARACTERISTICS

2.1 LOCATION

The site address is 27 Chappell Street, North Rockhampton and has a legal description of Lot 1 to 5 on RP601860. The site is currently vacant. With the area of the site being 5,374.7m^2

The site is bounded by Chappell Street to the East, Maloney Street (unformed) to the North and the North Coast Railway Line to the West and an existing allotment to the South. A locality plan and aerial photograph of the site is attached in Appendix B.

2.2 EXISTING TOPOGRAPHY AND DRAINAGE

The site is currently vacant and is vegetated with grass and several large trees. A survey of the site was undertaken by Finch Surveying and is attached in Appendix C.

The highest RL of the site is recorded as 13.471m at the middle of the southern boundary with the lowest RL being 10.980m near the North West corner. Please note the level stated are based on PM134687 and are AHD. Sewerage levels shown in the sketch plans (approx. 33m) are to Rockhampton Datum.

The site currently falls to the north and north west from the southern boundary with the watershed running up the middle of the allotment.

The southern site will be accessed from Chappell Street with two entrances and the northern site will be accessed from Chappell Street with a single crossover.

For the proposed development, it has been proposed progressively cut and fill to provide three terraces for the new buildings. The hardstand area to the north will be filled and batters placed to fall back to natural surface levels.

2.3 LEGAL POINT OF DISCHARGE

The legal points of discharge for the site are Chappell Street and Maloney Streets.

Discharge will be to Chappell Street with flows via a piped system into a grassed line open swale drain along the unformed section of Chappell Street prior to discharging naturally towards Splitters Creek through low lying wet areas to the North

3 DESIGN ISSUES

The proposed development is subject to the following issues which will constrain the development:

- The proposed development will increase the amount of impervious area on-site; therefore attenuation of stormwater runoff may be required to maintain flows to the pre-developed scenario. Stormwater basins have been investigated;
- The earthworks levels may ultimately be designed to provide a free-draining stormwater system;
- Best Management Practices have been incorporated into the site in order adequately treat runoff from the site. Refer to Section 6 for further details of the proposed treatment train and stormwater quality improvement devices;
- The eastern portions of the site drain via sheet flow to the adjacent rail reserve and then ultimately enter Splitters Creek. This flow has been incorporated into the drainage system and directed towards Chappell Street and Maloney Street in order to formalise the drainage arrangement into single points of discharge to road reserve.

4 STORMWATER QUANTITY

4.1 METHODOLOGY

In order to assess the impact of the site on surrounding properties and to ensure that these properties are not adversely affected, pre-development and post-development case hydraulic models have been developed.

4.2 RATIONAL METHOD CALCULATIONS

Rational method calculations (as per section 4.03 of the QUDM guidelines) were undertaken to approximate the peak discharges from the pre-development and post-development sites. Fraction impervious and runoff coefficient values were determined from QUDM guidelines (Tables 5.04.1 and 5.04.3 respectively), the existing site survey and proposed layout.

Pre-development & post-development catchments A and B match lots 3-5 and lots 1-2.

The time of concentration for the pre-development catchments has been calculated according to QUDM. The longest permissible length of sheet flow according to QUDM was adopted with remaining flows being channelized.

The rational flows for a selection of relevant flow rates are summarised in the table below:

Table 4-1Calculation Results Summary (litres per second)

ARI	Pre-developed		Post-Developed	
	Catchment A	Catchment B	Catchment A	Catchment B
Q1	44	25	64	36
Q20	128	72	189	107
Q100	197	111	270	152

The above table shows the rational method flows for the total contributing catchments to their points of discharge. The increase in flows and their effects on the current situation will be discussed later in this report.

5 PROPOSED MANAGEMENT SYSTEM

In order to effectively manage stormwater flows from the site and surrounding catchments due to the increase in flows from the pre developed scenario it is proposed to attenuate flows from catchment A. The effects of the increase in flows from Catchment B can be easily incorporated into the basin provided for Catchment A and so no basin is propose for Catchment B

Flows within this catchment will be directed via overland flow to a series of field gully pits located in the car parking areas. These pits will discharge through the detention basin in Catchment A and then to a swale drain in the footpath area of the unformed section of Chappell Street. The swale drain will discharge into the low lying wet areas adjacent Splitters Creek.

Flows from catchment B will be directed also to the Maloney Street reserve.

5.1 ATTENUATION REQUIREMENTS

Sizing of the required detention system to attenuate stormwater runoff from catchment A for the developed site to a pre developed condition was undertaken by analysing the full site in the DRAINS analysis package. DRAINS is an Ilsax based hydrograph routing programme which analyses the effectiveness of detention storage in an urban scale.

Results of our analysis indicate that to achieve the required attenuation, average total detention storage of 90m^3 is required. Refer Appendix E for output information.

The following table summarises the DRAINS output:

ARI	Pre-developed - overall	Post-Developed - overall
Q1	75	82
Q20	261	180
Q100	335	296

The above shows that the proposed detention basin provides adequate reduction of flows for the Q20 and Q100 events. The Q1 flow rate is only marginally below the pre-developed situation. It is expected that this can be achieved by minor alteration of the basin discharge conditions during detailed design of the stormwater drainage system.

5.2 FLOOD IMMUNITY

Council records indicate that the proposed development is not located within the Fitzroy River flood plain. The image below illustrates the site's flood amenity.

Image 5.1 – Extract from Parkhurst Industrial Area Planning Map Overlays (site added by Opus)

6 STORMWATER QUALITY

6.1 GENERAL

The development is considered to be high risk with regards to potential pollution of receiving waters due to its proximity to Splitters Creek and having a significant impermeable area as well as a large number of uncovered car parking spaces. Therefore, stormwater quality improvement devices have been incorporated into the design of the developed site in accordance with current best management practices.

6.2 CONCLUSION

With the majority of developed site stormwater runoff being directed through an appropriate treatment device, it is believed that the development will accomplish a high level of pollutant reduction, in accordance with the Healthy Waterways guidelines. Given the provision of bioretention and sediment pond, together with enforced maintenance plans, the site would achieve a significant level of treatment.

It is believed these proposed measures to be implemented on-site are in accordance with Council guidelines, Healthy Waterway's "Water Sensitive Urban Design Guidelines for South East Queensland and current best management practices.

7 EARTHWORKS

7.1 GENERAL

As stated previously, the site is currently vacant and vegetated with grass and several large trees.

A geotechnical investigation of the site was undertaken by a geotechnical consultant to determine the general subsurface profile. Refer geotechnical consultant's report for results. These results will be used at the detailed design stage

7.2 SITE EARTHWORKS

Site earthworks may consist of the following components:

- Strip surface and the areas around trees typically to a depth of 75mm
- Proof roll with 5t wheel vehicle
- Remove and replace areas of deformation within the subgrade
- Box, trim and compact surface to min 98% standard
- Excavation for service trenches
- Piling works for deep footings, if required

7.3 DUST SUPPRESSION

Measures to minimise airborne pollutants during construction in the form of dust during dry and/or windy weather shall include the following:

- Exposed soils shall be kept damp to prevent particulates becoming airborne.
- Stockpiles exposed for more than two weeks shall be covered to prevent wind erosion.

7.4 ACID SULFATE SOILS

Acid Sulfate Soils (ASS), are not anticipated to be present on-site. Acid Sulfate Soils are usually encountered in coastal regions with RL 5.0m (AHD) and below. The vast majority of the site is above RL 5.0m (AHD); refer Survey Plan prepared by Finch Surveying Appendix C. This is to be confirmed with a geotechnical investigation during the detailed design phase.

8 STORMWATER AND EROSION MANAGEMENT ACTIONS

The following is a procedure of water quality controls to be implemented for the construction stage of the development.

8.1 PHASE 1 – STRIPPING & BULK EARTHWORKS

- Prior to any demolition, stripping or bulk earthworks on site, sediment fences, inlet traps, gully protection and entry/exit pad shall be put in place at an appropriate location.
- A wash-down area and entry/exit pad will be provided at the construction site entrance to minimise the amount of sediment being tracked off the site.
- The wash down area will be drained to a suitable sediment capture device installed downstream of the construction entry.

Sediment fences are to be installed along the downstream property boundaries prior to stripping and earthworks commencing

- If refueling of machinery is to occur on site, appropriate absorbent products for cleaning oil spills will be provided.
- Providing bins on site for the disposal of waste and building debris.
- All fresh water upstream of disturbed areas and stockpiles is to be diverted around the disturbed area to minimise the amount of sediment mobilisation.
- If it is anticipated that stockpiled material will not be used for a period of two weeks or more, a polythene cover (or equivalent) shall be used to prevent sediment transport by rain during wet periods. Conversely during dry spells a cover shall be used to prevent fine sediments becoming airborne.
- The contractor shall provide on-going maintenance of sediment and erosion control devices around the site.
- Contractor is to stage all works so that disturbed areas remain exposed for a short a period as practicable.

8.2 PHASE 2 – INFRASTRUCTURE, BUILDING AND CAR PARK WORKS

Erosion and sediment control measures shall be carried out generally as follows:

- The site stormwater pipes and pits shall be installed with drop inlets provided to all pits.
- Provide sediment fences, sandbags or fine mesh cover to all gully pits.
- Monitoring of new stormwater pipes and infrastructure (including the storm water quality improvement devices) to ensure they are free of sediment and debris.
- Maintain shake down and wash down area at entry/exit.
- All disturbed areas are to be surfaced or landscaped/grassed (maintained to minimum 70% ground cover) as soon as practicable after completion of localised works.

8.3 PHASE 3 – FINISHING WORKS & DEFECTS LIABILITY PERIOD

All erosion and sediment control measures, including sediment fences and inlet traps shall be maintained until completion of surface finishes including landscaping and turfing;

- Maintain sediment fences
- Tend landscaped areas to maintain ground cover

9 REFERENCES

'Queensland Urban Drainage Manual'.

Rockhampton Regional Council Planning Scheme (Rock-e-Plan)

Policies Queensland Development Code

APPENDIX A

Proposed Site Layout Plan

Site Analysis

Proposed Floor Area	= 720 sqm
Total Building Footprint Area	= 600 sqm
Total Site Coverage	= 620.6 sqm, 18%
Total Landscaped Area Required	= 343.5 sqm 10%
Total Landscaped Area Provided	= 526.0 sqm 15.3%
Total Site Area	= 3435.4 sqm

Car Parking

Car parking spaces required	= 11
Total car spaces provided	= 11

Driveways

Existing concrete driveway area	= NIL
New concrete driveway area	= 1987.6 sqm
Total driveway area	= 1987.6 sqm

R.P.D.
Lot Number : 3 - 5
Reg./Survey Plan Number : 601860
Parish : MURCHISON
County : LIVINGSTONE
Area : 3435.4 sqm

Site Analysis

Proposed Floor Area	= 500 sqm
Total Building Footprint Area	= 420 sqm
Total Site Coverage	= 420 sqm, 21.7%
Total Landscaped Area Required	= 193.8 sqm 10%
Total Landscaped Area Provided	= 293.8 sqm 15.1%
Total Site Area	= 1938.3 sqm

Car Parking

Car parking spaces required	= 8
Total car spaces provided	= 8

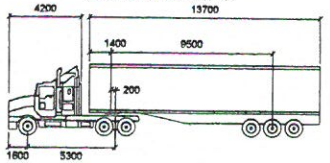
Driveways

Existing concrete driveway area	= NIL
New concrete driveway area	= 1027.5 sqm
Total driveway area	= 1027.5 sqm

R.P.D.
Lot Number : 1 & 2
Reg./Survey Plan Number : 601860
Parish : MURCHISON
County : LIVINGSTONE
Area : 1938.3 sqm

VEHICLE SWEPT PATH'S

Swept Path's Generated by AutoTURN Version 8.1

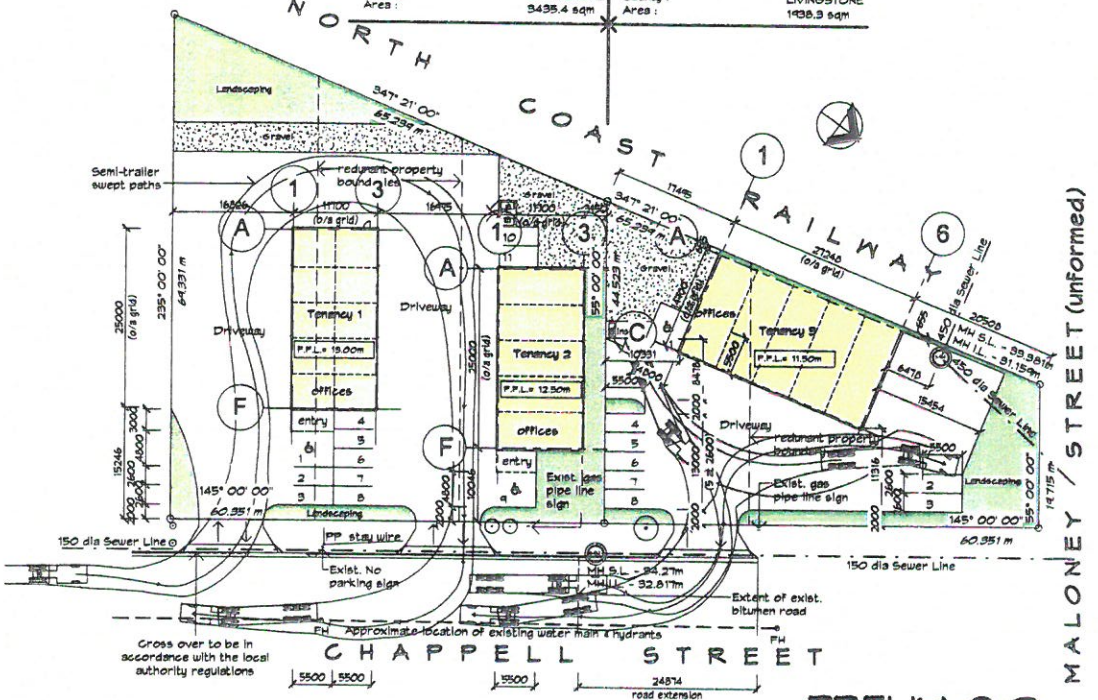


S ARTICULATED 19M mm

Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 27.7
Tractor Track	: 2500	Articulating Angle	: 70.0
Trailer Track	: 2500		

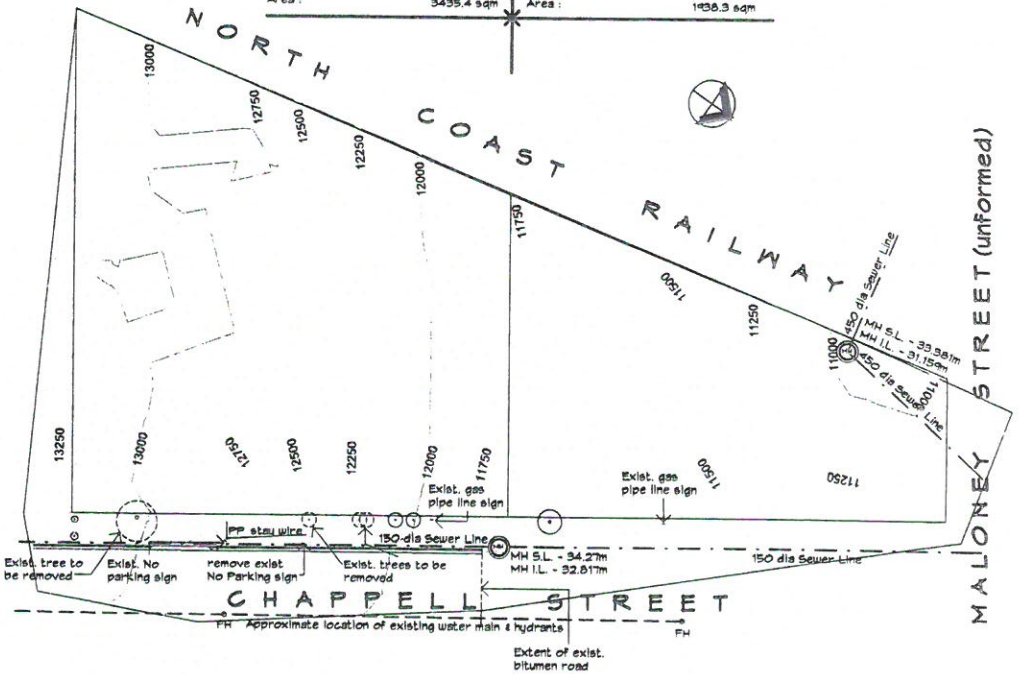
R.P.D.
Lot Number : 3 - 5
Reg./Survey Plan Number : 601860
Parish : MURCHISON
County : LIVINGSTONE
Area : 3435.4 sqm

R.P.D.
Lot Number : 1 & 2
Reg./Survey Plan Number : 601860
Parish : MURCHISON
County : LIVINGSTONE
Area : 1938.3 sqm



1 Site Plan Proposed
1 : 500

PRELIM 03
DATE: 10/06/14
NOT FOR CONSTRUCTION



2 Site Plan Existing
1 : 500

REVISIONS

No.	DESCRIPTION	DATE

PROPOSED INDUSTRIAL DEVELOPMENT FOR
GT JEFF 'S AT
27 CHAP L STREET, KAWANA

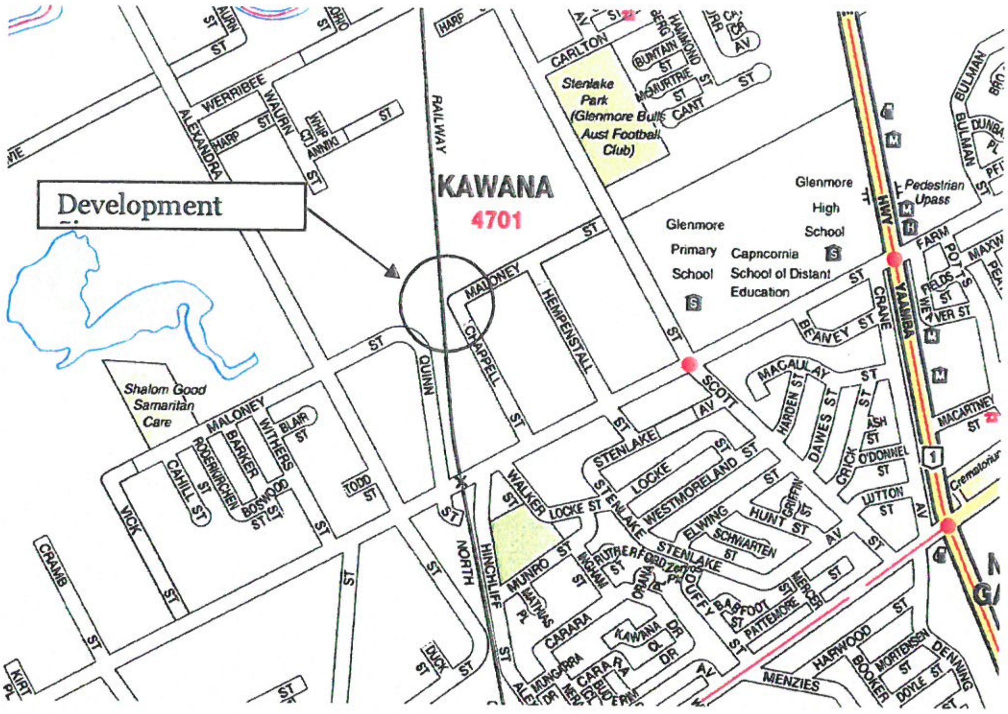
This drawing: Site Plans

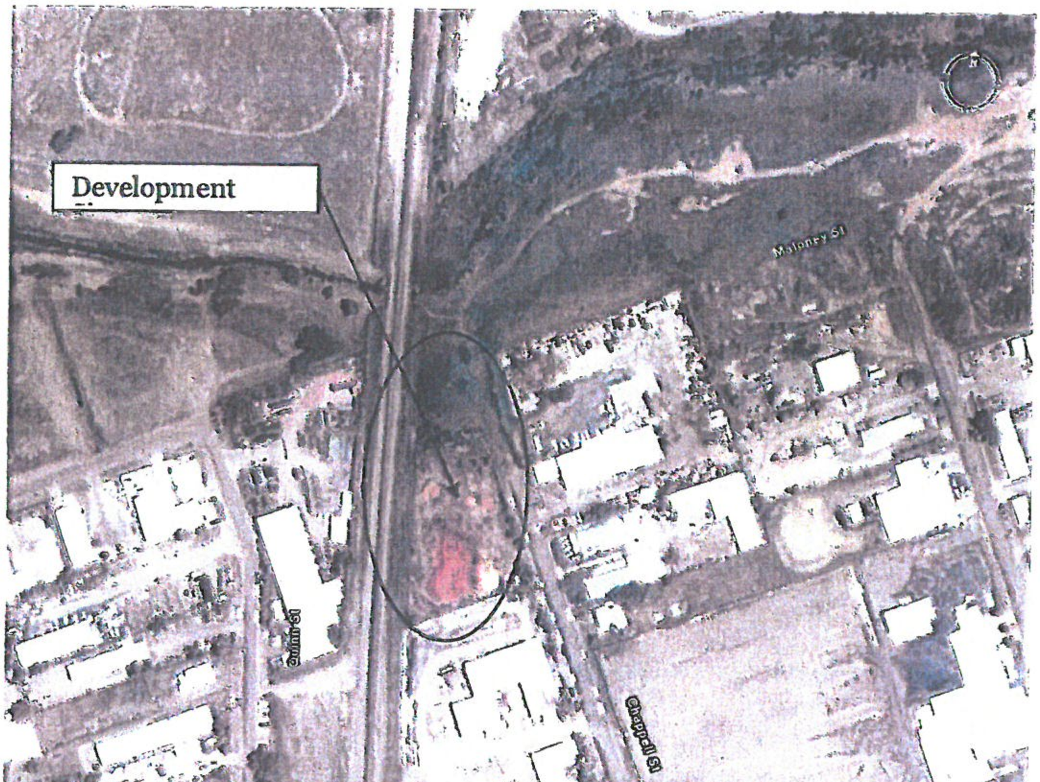
Rufus Design Group
STYLE · QUALITY · INNOVATION
MEMBER BUILDING DESIGNERS ASSOC. OF QLD INC.
Licensed under the QBSA Act Lic No. 1180288
Telephone 61 7 49288011
Facsimile 61 7 49266579
E-mail mailbox@rufusdesigngroup.com

PROJECT MANAGER : DAW
DRAWN : DAW
CHKD :
WIND SPEED C2
PLAN SIZE: A2
PROJECT NUMBER 140304 - 01
SHEET 01 OF 04 SHEETS
REV.

APPENDIX B

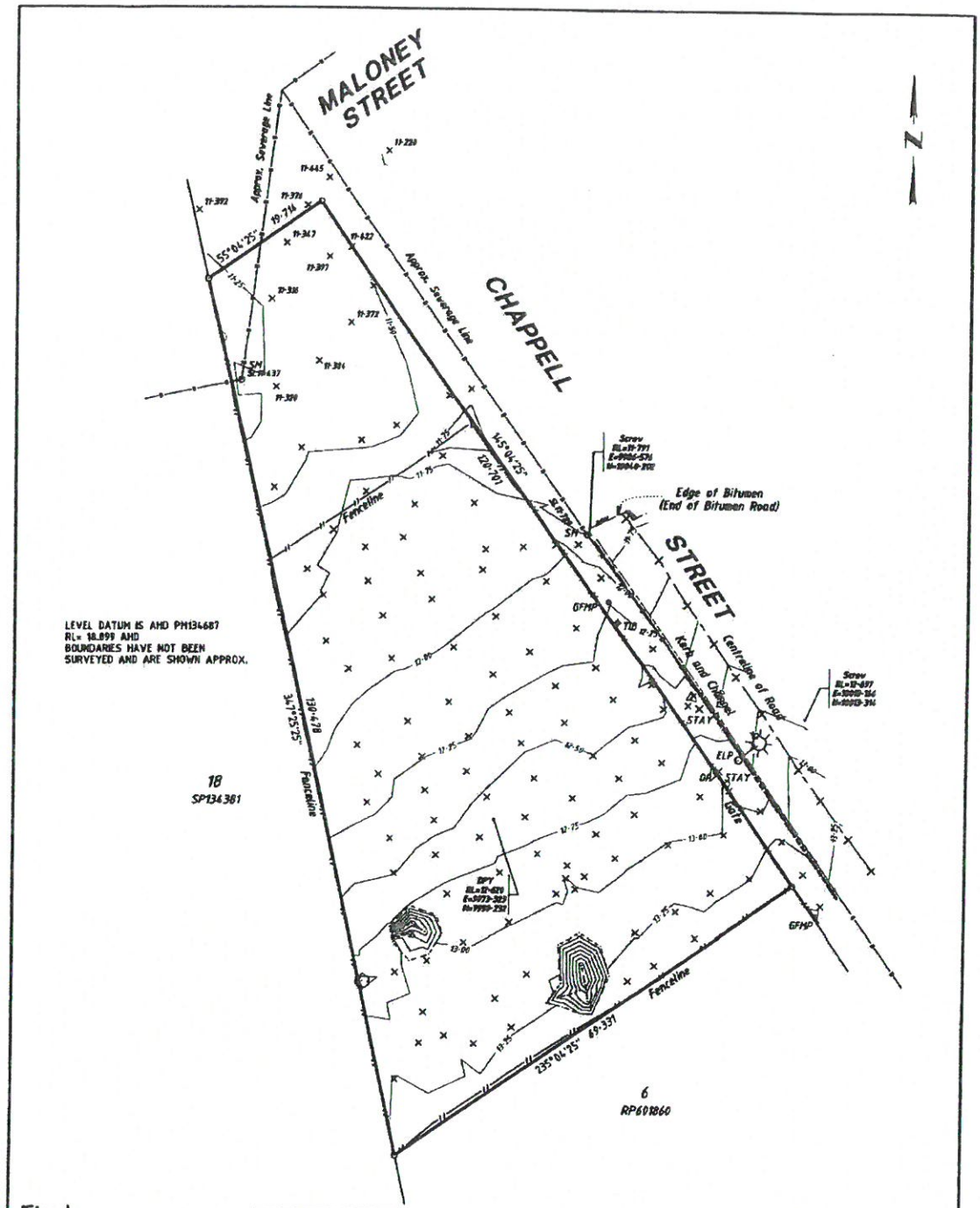
Locality Plan & Aerial Photo


Development
KAWANA
4701
MALONEY
RAILWAY
Stenlake Park (Glenmore Bulls Aust Football Club)
Glenmore Primary School
Glenmore High School
Capricornia School of Distant Education
Shalom Good Samaritan Care


Development
Maloney St
Chappell St
Image © 2009 DigitalGlobe

APPENDIX C

Survey Plan



Finch Surveying Consultants
P.O. Box 807
30 Normanby Street
Yeppoon Qld 4703
Phone (07) 4939 1393
Fax (07) 4939 8945
Email: office@finchsurveying.com.au

PLAN OF CONTOUR SURVEY

Lot 1–5 on RP601860

ORIGINAL

MERIDIAN	MAP REF	SCALE	DATE	ARCHIVED
of 15159508	9051-34343	1:800	Jun 25,2009.	

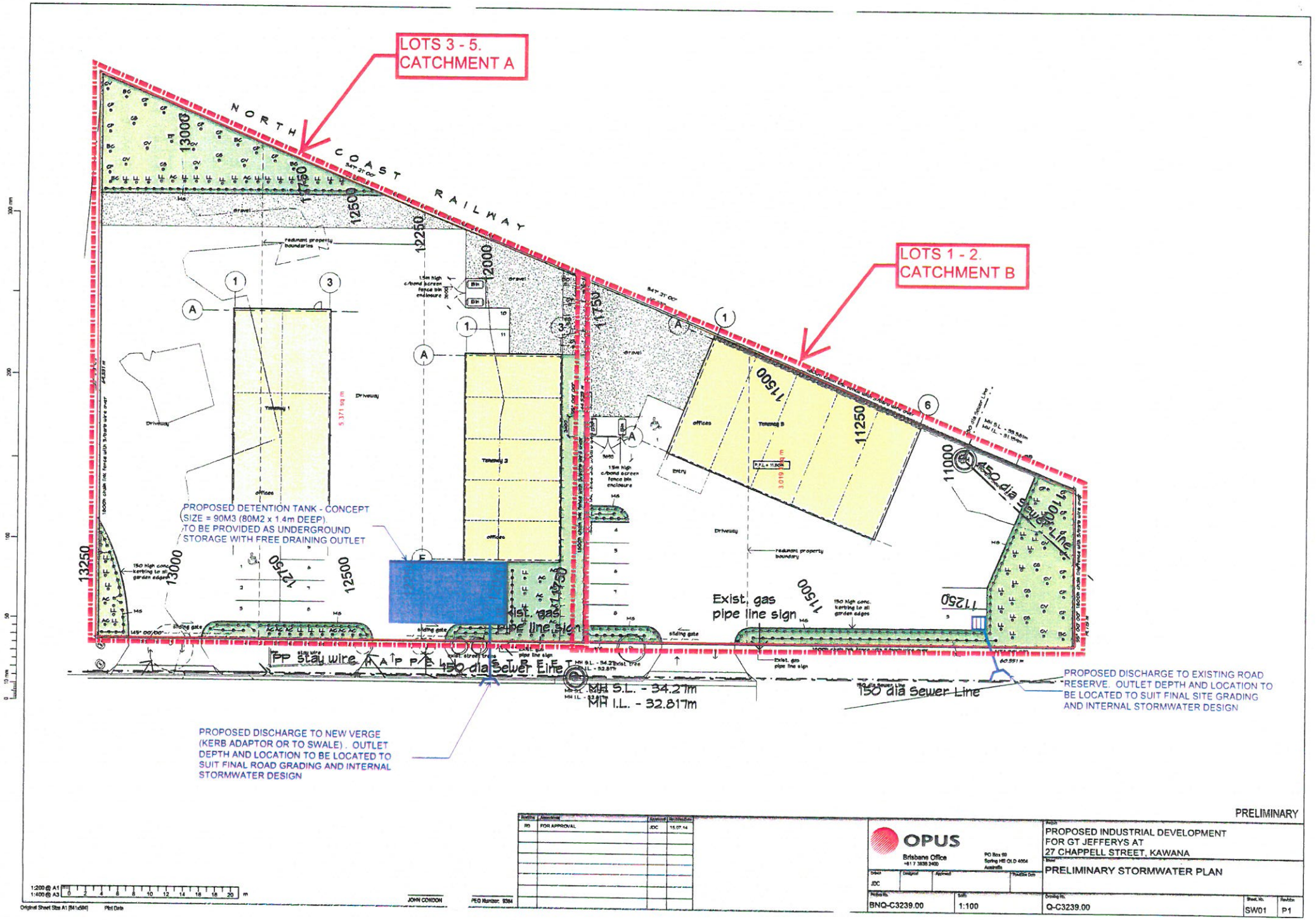
PARISH MURCHISON
COUNTY Livingstone
TOWN/LOCALITY KAWANA
LOCAL GOVERNMENT ROCKHAMPTON R C

3632DTM

File Name \\Server\C\FSC_DATA\TM_DATA\3800\3632dtm.prc

APPENDIX D

Proposed Drainage Plan



PRELIMINARY

Drawing	Description	Approved	Date Effective
R5	FOR APPROVAL	JDC	15.07.14

OPUS
Brisbane Office
+61 7 3839 3400
PO Box 69
Spring Hill QLD 4004
Australia

Drawn	Designed	Approved	Position Date
JDC			

PROPOSED INDUSTRIAL DEVELOPMENT
FOR GT JEFFERYS AT
27 CHAPPELL STREET, KAWANA

PRELIMINARY STORMWATER PLAN

Project No.	Scale	Drawing No.	Sheet No.	Revision
BNQ-C3239.00	1:100	Q-C3239.00	SW01	P1

1:200 @ A1
1:400 @ A3
0 2 4 6 8 10 12 14 16 18 20 m

JOHN CONDON

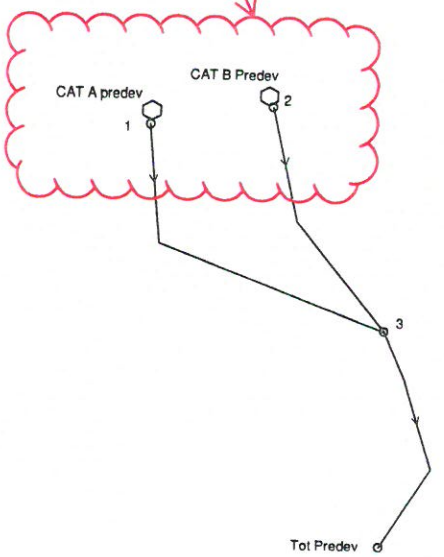
PEQ Number: 9384

Original Sheet Size A1 (841x594) Plot Date

APPENDIX E

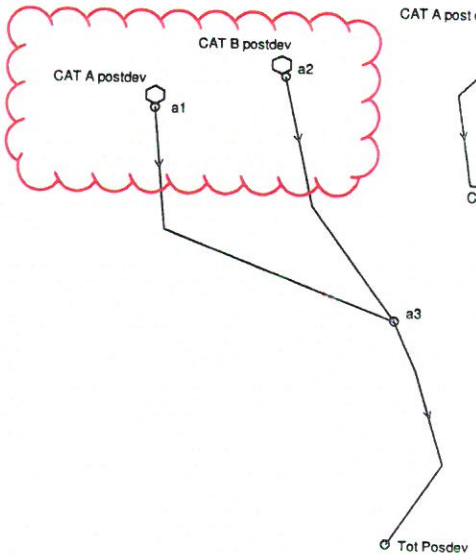
Output from DRAINS Analysis

LOTS 1 AND 2 - SET TO 100% IMPERVIOUS (GRASSED) TO REPLICATE UNDEVELOPED STATE



PRE-DEVELOPED MODEL

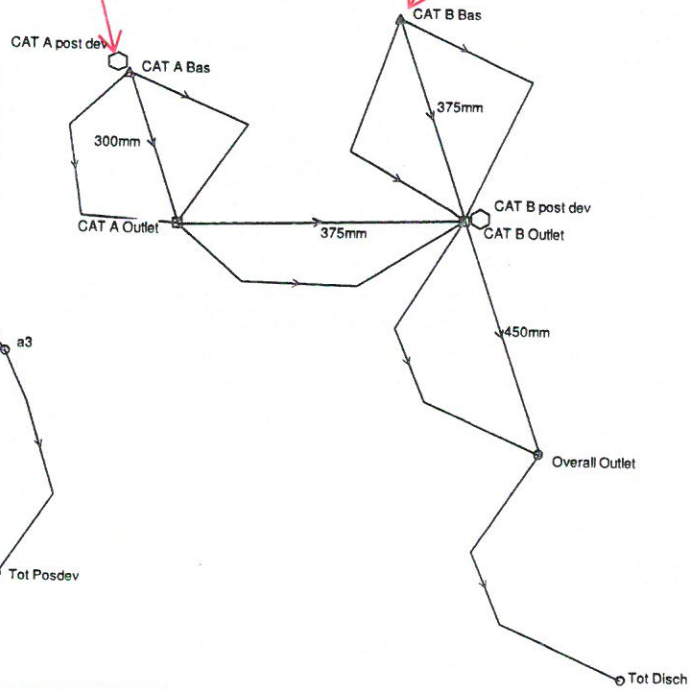
LOTS 1 AND 2 - SET TO 20% IMPERVIOUS (GRASSED) TO REPLICATE DEVELOPED STATE



POST-DEVELOPED MODEL

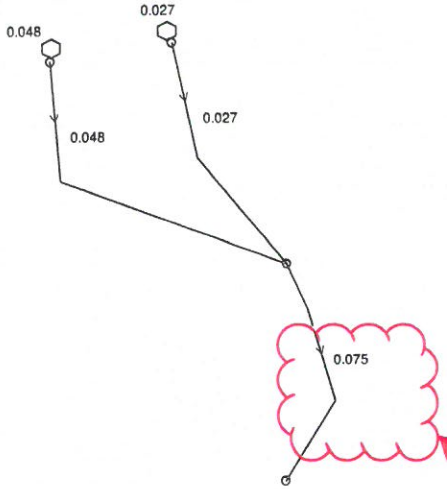
BASIN FOR LOT 1 - SET TO 80M2 PLAN AREA

BASIN FOR LOT 2 - SET TO "EMPTY" TO SIMULATE NO BASIN

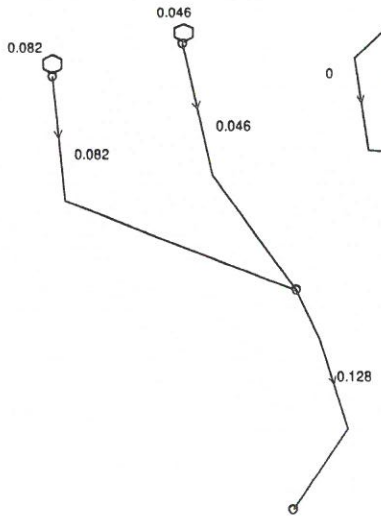


POST-DEVELOPED MODEL WITH DETENTION BASINS ADDED

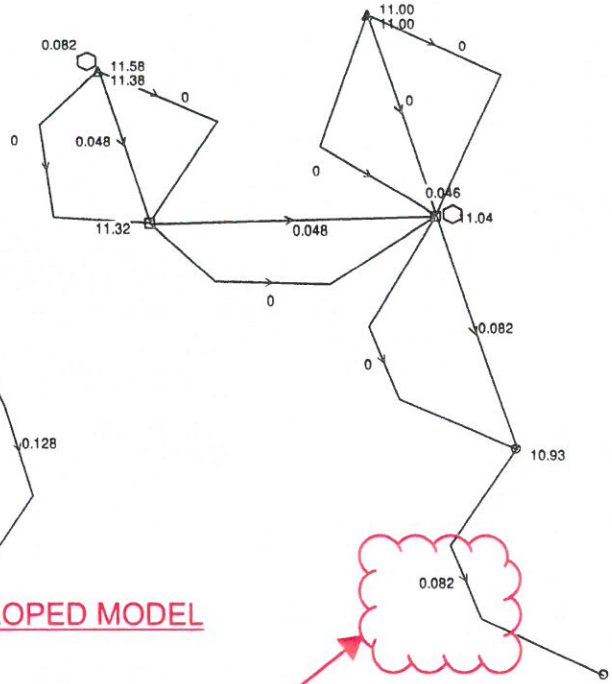
DRAINS - KEY FEATURES AND LAYOUT PLAN



PRE-DEVELOPED MODEL



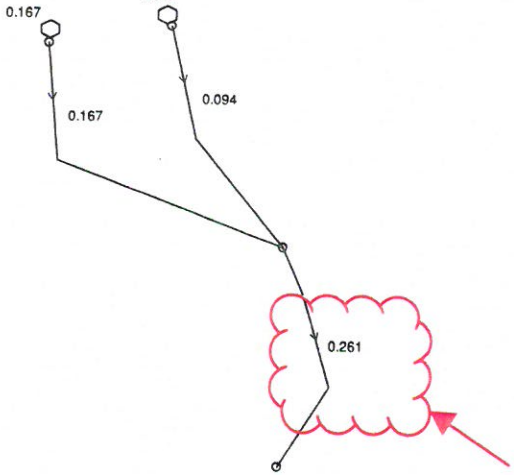
POST-DEVELOPED MODEL



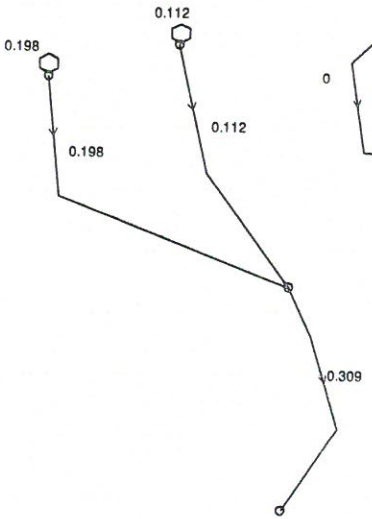
POST-DEVELOPED MODEL WITH DETENTION BASINS ADDED

THIS ANALYSIS SHOWS THAT THERE IS A POST DEVELOPED TOTAL DISCHARGE OF 82 l/s, WHICH IS MORE THAN THE PRE-DEVELOPED DISCHARGE OF 75l/s. AT THIS EVENT THE PROPOSED BASIN IS MARGINALLY INEFFECTIVE AT THE MINOR EVENT (Q1). ON INSPECTION OF THE Q20 AND Q100 ANALYSES IT WOULD APPEAR THAT THERE IS ADDITIONAL SCOPE TO ALTER THE SYSTEM HYDRAULICS TO ACHIEVE COMPLIANCE AT Q1. THIS WOULD BE AN ITERATIVE PROCESS CARRIED OUT DURING DETAILED DESIGN.

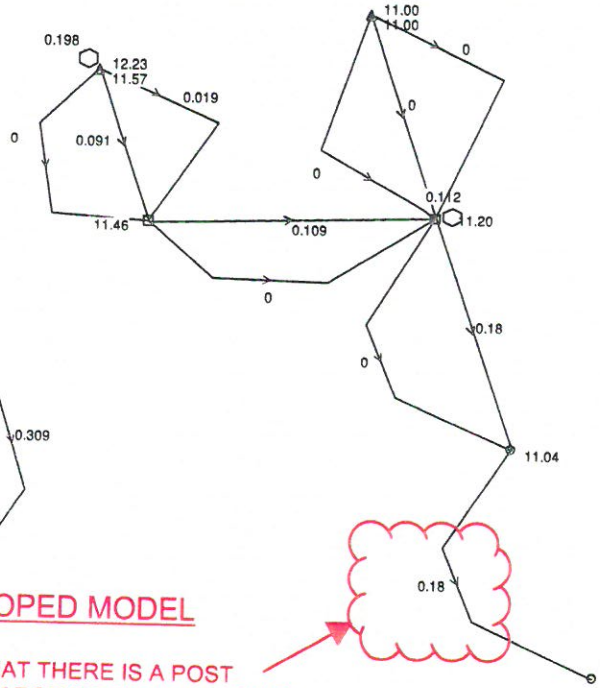
DRAINS - Q1 RESULTS



PRE-DEVELOPED MODEL



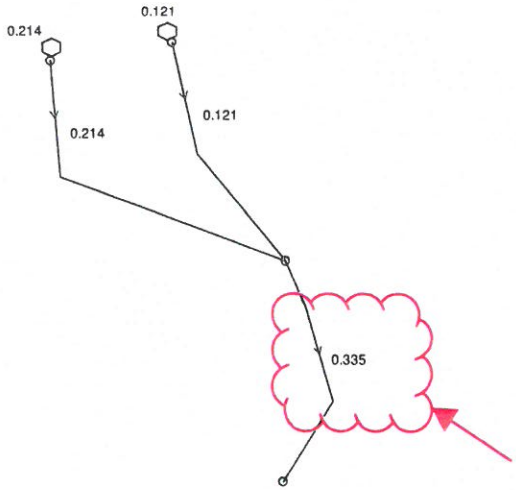
POST-DEVELOPED MODEL



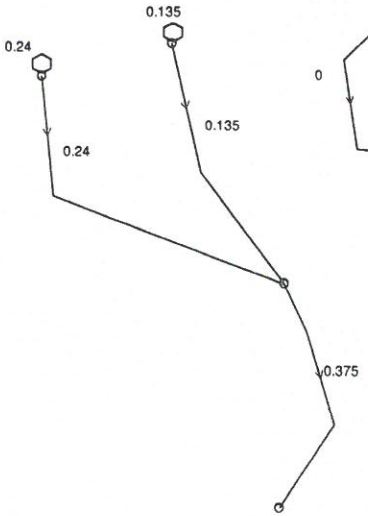
POST-DEVELOPED MODEL WITH DETENTION BASINS ADDED

THIS ANALYSIS SHOWS THAT THERE IS A POST DEVELOPED TOTAL DISCHARGE OF 180 l/s, WHICH IS LESS THAN THE PRE-DEVELOPED DISCHARGE OF 261l/s, THEREFORE THE PROPOSED BASIN IS EFFECTIVE AT THE MINOR EVENT (Q20)

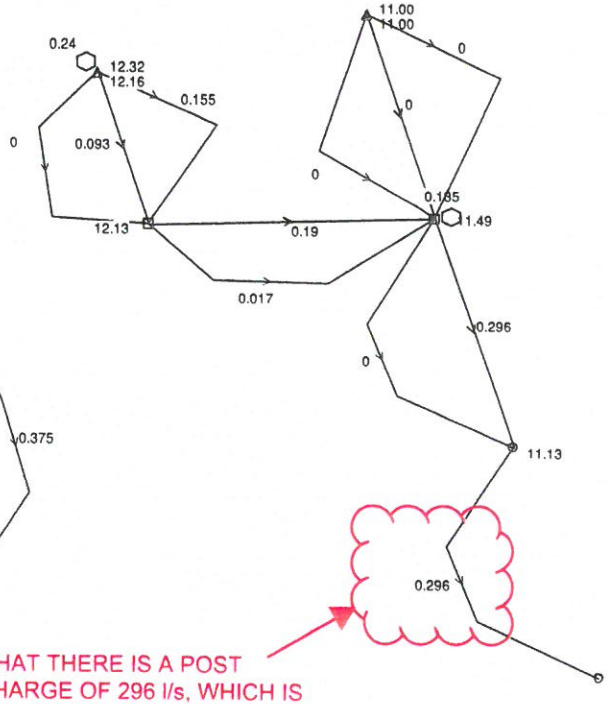
DRAINS - Q20 RESULTS



PRE-DEVELOPED MODEL



POST-DEVELOPED MODEL



POST-DEVELOPED MODEL WITH DETENTION BASINS ADDED

THIS ANALYSIS SHOWS THAT THERE IS A POST DEVELOPED TOTAL DISCHARGE OF 296 l/s, WHICH IS LESS THAN THE PRE-DEVELOPED DISCHARGE OF 335l/s, THEREFORE THE PROPOSED BASIN IS EFFECTIVE AT THE MAJOR EVENT (Q100)

DRAINS - Q100 RESULTS

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