Coffs Harbour City Council

06 November 2013

ORDINARY MEETING

The above meeting will be held in the Council Chamber, Administration Building, corner Coff and Castle Streets, Coffs Harbour, on:

THURSDAY 14 NOVEMBER 2013

The meeting commences at **5.00pm** and your attendance is requested.

AGENDA

1. Opening of Ordinary Meeting
2. Acknowledgment of Country
3. Disclosure of Interest
4. Apologies
5. Public Addresses / Public Forum
6. Mayoral Minute
7. Mayoral Actions under Delegated Authority
8. Confirmation of Minutes of Ordinary Meeting – 24 October 2013
9. Notices of Motion
10. General Manager's Reports
11. Consideration of Officers' Reports
12. Requests for Leave of Absence
13. Matters of an Urgent Nature
14. Questions On Notice
15. Consideration of Confidential Items (if any)
16. Close of Ordinary Meeting.

Steve McGrath
General Manager

COFFS HARBOUR CITY COUNCIL

ORDINARY MEETING

COUNCIL CHAMBERS
COUNCIL ADMINISTRATION BUILDING
COFF AND CASTLE STREETS, COFFS HARBOUR

14 NOVEMBER 2013

Contents

ITEM DESCRIPTION

The following item either in whole or in part may be considered in Closed Meeting for the reasons stated:

CB13/73 TENDER RFT 602-TO: PROVISION OF AVIATION SECURITY SCREENING SERVICES AT COFFS HARBOUR AIRPORT

A portion of this report is confidential for the reason of Section 10A (2):

(d) commercial information of a confidential nature that would, if disclosed:

(i) prejudice the commercial position of the person who supplied it, or

(ii) confer a commercial advantage on a competitor of the council, or

(iii) reveal a trade secret.

and in accordance with Section 10A (1) the meeting may be closed to the public.

COMMUNITY DEVELOPMENT DEPARTMENT REPORTS

CD13/5 TOURISM MARKETING MODELS CONSULTATION

CITY INFRASTRUCTURE SERVICES DEPARTMENT REPORTS

CIS13/54 TRAFFIC COMMITTEE REPORT NO. 4/2013

CIS13/55 COFFS HARBOUR CITY COUNCIL DRINKING WATER POLICY & DRINKING WATER QUALITY MANAGEMENT SYSTEM

CIS13/56 FLOODPLAIN MANAGEMENT PROGRAM

The following item either in whole or in part may be considered in Closed Meeting for the reasons stated:

CIS13/57 TENDER: CONTRACT NO. RFT-608-TO TIMBER SUPPLY - DAVIES BRIDGE BROOKLANA AND SECOMBS BRIDGE DAIRYVILLE

A portion of this report is confidential for the reason of Section 10A (2):

(d) commercial information of a confidential nature that would, if disclosed:

(i) prejudice the commercial position of the person who supplied it, or

(ii) confer a commercial advantage on a competitor of the council, or

(iii) reveal a trade secret.

and in accordance with Section 10A (1) the meeting may be closed to the public.

COFFS HARBOUR CITY COUNCIL

ORDINARY MEETING

24 OCTOBER 2013

Present: Councillors D Knight (Mayor), J Arkan, N Cowling, R Degens, G Innes, B Palmer, K Rhoades and S Townley.

Staff: General Manager, Acting Director Corporate Business, Director City Infrastructure Services, Director Planning, Acting Director Community Development, Jetty4Shores Project Manager and Executive Assistant.

Leave of Absence: Councillor M Sultana.

The meeting commenced at 5.00pm with the Mayor, Cr D Knight in the chair.

We respectfully acknowledge the Gumbayngirr Country and the Gumbayngirr Aboriginal peoples who are traditional custodians of the land on which we meet and their Elders both past and present.

The Mayor reminded the Chamber that the meeting was to be recorded, and that no other recordings of the meeting would be permitted.

DISCLOSURE OF INTEREST

The General Manager/Mayor read the following disclosures of interest to inform the meeting:

Councillor	Item	Type of Interest
Cr Palmer	CP13/36 -Jetty4shores Project Concept Plan	Non-Pecuniary - Less Than Significant Conflict.
Cr Degens	CP13/37 - DM13/14 - Application to Modify Development Consent 1180/09 - Bonville International Golf Resort Subdivision, Bonville	Pecuniary interest.

PUBLIC ADDRESS

Councillor Degens left the Chamber prior to Mr Montgomery's address, the time being 5.02pm and returned at the conclusion of his address, the time being 5.07pm.

Time	Speaker	Item
5.00pm	Peter Montgomery	CP13/37 - DM13/14 - Application to Modify Development Consent 1180/09 - Bonville International Golf Resort Subdivision, Bonville.
5.05pm	Stephen Pratt on behalf of Jetty Action Group	CP13/36 - Jetty4shores Project Concept Plan.
5.10pm	Gai Anderson	CP13/36 - Jetty4shores Project Concept Plan.
5.15pm	George Cecato on behalf of FLOT and Rotary Club Coffs Harbour City	CP13/36 - Jetty4shores Project Concept Plan.
5.20pm	Leonie Kennedy on behalf of Coffs Harbour Chamber of Commerce	CP13/36 - Jetty4shores Project Concept Plan.

CONFIRMATION OF MINUTES

264 **RESOLVED** (Arkan/Degens) that the minutes of the Ordinary meeting held on 10 October 2013 be confirmed as a true and correct record of proceedings.

CITY PLANNING DEPARTMENT REPORTS

Councillor Degens declared an interest in the following item, vacated the Chamber and took no part in the discussion or voting, the time being 5.32pm.

CP13/37 DM 13/14 - APPLICATION TO MODIFY DEVELOPMENT CONSENT 1180/09 BONVILLE INTERNATIONAL GOLF RESORT SUBDIVISION - LOT 212 DP 597308, 124-124A NORTH BONVILLE ROAD, LOT 3 DP 532900, 212 PINE CREEK WAY AND LOT 101 & LOT 102 DP 881242, CASSIDYS ROAD, BONVILLE

This report considers an application under the provisions of Section 96 (1A) of the Environmental Planning and Assessment (EP&A) Act 1979, to modify the subdivision approval for the Bonville International Golf Resort.

The modification is seeking to substitute a condition which requires the banning of dogs and cats with alternative conditions, intended to minimise the potential for harmful interactions between domestic pets and native fauna.

265 RESOLVED (Arkan/Innes):

1. That the application to modify Development Consent 1180/09 under the provisions of Section 96(1A) of the Environmental Planning and Assessment Act 1979 be approved by substituting Condition 45A with the following condition:

   45A The Community Management Statement is to incorporate the following conditions on the keeping of dogs and cats, noting that the conditions apply for the life of the development and the Community Association is responsible for any compliance and enforcement action resulting from the conditions:

   a) To ensure *the protection of native fauna in the locality, cats must be kept completely within the dwelling or in an enclosure within the curtilage of the dwelling at all times (day and night).*

   b) To ensure the protection of native fauna in the locality, the keeping of dogs on the property shall be subject to the following conditions:

      i. A maximum of 2 dogs shall be permitted on any dwelling site at any time.

      ii. Within the dwelling curtilage dogs shall be restrained at all times by secure perimeter fencing, caging enclosures, leashing or physical restraint.

      iii. Dogs shall not be permitted to leave any dwelling site or enter areas of indigenous vegetation on the property unless adequately restrained.

FOR	AGAINST
Cr Rhoades	Cr Townley
Cr Innes	Cr Palmer
Cr Arkan	Cr Cowling
Cr Knight	

Cr Degens returned to the Chamber, the time being 5.45pm.

CP13/36 JETTY4SHORES PROJECT CONCEPT PLAN

To present Council with the Jetty4Shores Project Concept Plan for adoption and to make recommendations in relation to its implementation.

266 **MOVED** (Rhoades/Arkan) that the Motion be put to the meeting.

267 **RESOLVED** (Arkan/Palmer):

1. That Council adopt the Jetty4Shores Concept Plan, implementation plan and preliminary budget estimates (Attachment 5).
2. That Council make application for an interest subsidy under Round 3 of the Local Infrastructure Renewal Scheme (LIRS).
3. That Council use the initial allocation of $300,000 in its 2013/2014 Operational Plan to commence detailed design and environmental assessments, with the balance, and the corresponding annual allocation in the Long Term Financial Plan for the Jetty4Shores Project, to secure loan funds, repayable over 10 years.
4. That Council progress the Jetty4Shores Project Concept Plan by undertaking a detailed design of Stage 1 - Jetty Walkway (including environmental assessment) and proceeding to construction, subject to the granting of a lease across the ARTC land and securing loan funds.
5. That Council undertake detailed design and all necessary environmental assessments of Stage 2 - Kiosk Area (steps and paving), Stage 3 - Market/Picnic Area and Stage 4 – Boardwalk (north of jetty pier), including the engagement of a coastal engineering consultant.
6. That a report be brought back to Council on completion of the detailed design and environmental assessments of Stages 2-4, which also includes options for further funding of the Jetty4Shores Concept Plan.
7. That Council continue to consult with relevant stakeholders during the detailed design phase of each stage of the Jetty4Shores Project.
8. That Council continue to analyse community feedback at the detailed design phase of the Jetty4Shores Project, for opportunities to include appropriate design elements into the design.
9. That Council commence a Planning Proposal to amend Coffs Harbour LEP 2013, to address the inconsistency between the Jetty4Shores Concept Plan (which provides for public domain improvements) and the existing LEP provisions (which provides for residential built form) for the RE1 Public Recreation Zone within the study area.
10. That a Project Plan for a Precinct Planning exercise (incorporating a community participation plan) for the wider Jetty and Foreshores area be brought back to Council in 2014, aimed at developing a long term community vision for future landuses and associated planning provisions in the locality.
11. That Council thank the Jetty4Shores Community Reference Group for their involvement in the project.

CP13/36 - Jetty4Shores Project Concept Plan (Cont'd)

AMENDMENT

MOVED (Cowling/Townley):

1. That Council adopt in principle the Jetty4Shores Concept Plan, implementation plan and preliminary budget estimates (Attachment 5).
2. That Council make application for an interest subsidy under Round 3 of the Local Infrastructure Renewal Scheme (LIRS).
3. That Council use the initial allocation of $300,000 in its 2013/2014 Operational Plan to commence detailed design and environmental assessments, with the balance, and the corresponding annual allocation in the Long Term Financial Plan for the Jetty4Shores Project, to secure loan funds, repayable over 10 years.
4. That Council progress the Jetty4Shores Project Concept Plan by undertaking a detailed design of Stage 1 - Jetty Walkway (including environmental assessment) and proceeding to construction, subject to the granting of a lease across the ARTC land and securing loan funds.
5. That Council undertake detailed design and all necessary environmental assessments of Stage 2 - Kiosk Area (steps and paving), Stage 3 - Market/Picnic Area and Stage 4 – Boardwalk (north of jetty pier), including the engagement of a coastal engineering consultant.
6. That a report be brought back to Council on completion of the detailed design and environmental assessments of Stages 2-4, which also includes options for further funding of the Jetty4Shores Concept Plan.
7. That Council continue to consult with relevant stakeholders during the detailed design phase of each stage of the Jetty4Shores Project.
8. That Council continue to analyse community feedback at the detailed design phase of the Jetty4Shores Project, for opportunities to include appropriate design elements into the design.
9. That Council commence a Planning Proposal to amend Coffs Harbour LEP 2013, to address the inconsistency between the Jetty4Shores Concept Plan (which provides for public domain improvements) and the existing LEP provisions (which provides for residential built form) for the RE1 Public Recreation Zone within the study area.
10. That a Project Plan for a Precinct Planning exercise (incorporating a community participation plan) for the wider Jetty and Foreshores area be brought back to Council in 2014, aimed at developing a long term community vision for future landuses and associated planning provisions in the locality.
11. That Council thank the Jetty4Shores Community Reference Group for their involvement in the project.

CP13/36 - Jetty4Shores Project Concept Plan (Cont'd)

The **AMENDMENT** on being put to the meeting was **LOST**

FOR	**AGAINST**
Cr Cowling	Cr Rhoades
Cr Townley	Cr Innes
	Cr Degens
	Cr Knight
	Cr Palmer
	Cr Arkan

The **MOTION** on being put to the meeting was **CARRIED** unanimously.

The General Manager left the meeting, the time being 6.16pm. The Director, City Planning assumed the role of General Manager.

CORPORATE BUSINESS DEPARTMENT REPORTS

CB13/65 BANK BALANCES AND INVESTMENT FOR AUGUST 2013

To list Council's Bank Balances and Investments as at 31 August 2013.

268 **RESOLVED** (Palmer/Innes):

1. That the bank balances and investments totalling (from loans, Section 94 and other avenues that form the restricted accounts and are committed for future works) one hundred and sixty two million, eight hundred and forty one thousand, six hundred and three dollars ($162,841,603) as at 31 August 2013 be noted.
2. That the general fund unrestricted cash and investments totalling two hundred and forty two thousand, nine hundred and thirty one dollars ($242,931) as at 31 August 2013 be noted.

The General Manager returned to the meeting, the time being 6.17pm.

CB13/66 MANAGEMENT OF COFFS HARBOUR REGIONAL AIRPORT

To obtain approval to call for tenders for the management of the Coffs Harbour Regional Airport as a Council Business Unit.

269 **RESOLVED** (Arkan/Palmer):

1. That Council continues to operate the Coffs Harbour Regional Airport as a Council Business Unit.

2. That tenders be called for the management of the Coffs Harbour Regional Airport as a Council Business Unit for a period of five years, on a contract that allows for the immediate provision of management services, and the future provision of other Airport administration staff at the discretion of the Council.

3. Following the appointment of a Manager the staff structure be reviewed.

COMMUNITY DEVELOPMENT DEPARTMENT REPORTS

CD13/4 EASTERN DORRIGO SHOWGROUND AND COMMUNITY HALL MANAGEMENT COMMITTEE MEMBERSHIP

To recommend to Council appointment of a community member to the Eastern Dorrigo Showground and Community Hall Management Committee.

270 **RESOLVED** (Arkan/Cowling) that Ms Angie Hunter be appointed to the Eastern Dorrigo Showground and Community Hall Management Committee.

CITY PLANNING DEPARTMENT REPORTS

CP13/38 DEVELOPMENT APPLICATION NO. 47/14 LOT 41, DP851022, NO. 75 MIDDLE BOAMBEE ROAD, BOAMBEE PROPOSED TWO LOT SUBDIVISION

The purpose of this report is to present Development Application No. 47/14 for Council's consideration. The proposed development involves the two lot subdivision of an existing lot at 75 Middle Boambee Road, Boambee.

At its meeting of 15 December 2005, Council resolved:

1. *That development applications for approval involving substantial aspects of the following elements be referred to Council for determination:*

   - *Significant public interest and community input;*
   - *Substantial non-compliance with relevant strategic controls;*
   - *Significant land use;*
   - *Major environmental issue(s)*

In accordance with this resolution, the application is reported to Council for determination, given that the proposed development involves a substantial departure from the relevant strategic controls, being the minimum lot sizes required for both proposed lots.

The Development Application is recommended for conditional approval.

271 **RESOLVED** (Arkan/Innes):

1. That the written objection made pursuant to Clause 6 *State Environmental Planning Policy No. 1 - Development Standards* for the variation to the minimum allotment size under Clause 18(2) and 18(4) of Coffs Harbour Local Environment Plan 2000 be supported in this particular case.
2. That Development Application No. 47/14 for the Two Lot Subdivision and Landform Modification at Lot 41, DP 851022, No. 75 Middle Boambee Road, Boambee be approved subject to conditions appended to this report (Attachment 3).

The **MOTION** on being put to the meeting was **CARRIED** unanimously.

REQUESTS FOR LEAVE OF ABSENCE

No requests for leave of absence.

MATTERS OF AN URGENT NATURE

No matters of an urgent nature.

QUESTIONS ON NOTICE

No questions on notice.

This concluded the business and the meeting closed at 6.22 pm.

Confirmed: 14 November 2013.

…….
Denise Knight
Mayor

UPTOWN MARKETS

Purpose:

Councillor Nan Cowling has given notice of her intention to move:

That the Uptown Markets be given a 3 x 3 year lease of the ground floor area known as the Castle Street Car Park that is to include only the undercover area and including the parking spaces along the eastern side of the car park.

Rationale:

This market has operated on this site since the Castle Street Car Park opened and previously operated under the Park Avenue Car Park. This is a period exceeding 25 years. It has been run in an efficient business-like manner and deserves to have a permanency of tenure.

Without this market the CBD would be a dead centre on a Sunday. The markets draw the crowds and then they enter Coffs Central not the other way round. The Coffs Central tenants have signed a petition to keep the markets in-situ as they know that they bring customers into their stores.

Staff comment:

A lease is inappropriate for this site. A lease effectively converts a carpark exclusively into a market space.

Exclusive use under a lease arrangement would be contrary to Coffs Central DA conditions and their Airbridge lease; and subject to legal challenge.

A lease would also contravene the licence Council currently has with Coffs Central to manage the car park.

The current license arrangement (which does generate revenue for Council) gives the market operator permission to utilise the site but – and this is the critical difference – Council is able to ensure that the site is available for its primary purpose, being a carpark, when necessary.

For example: when there is a major event, Council has the ability to amend, revoke or suspend license rights for the period of the event so that adequate carparking is available for the event to operate successfully.

The Parking Strategy within the CBD Masterplan is underpinned by the principle of “a mix of limited and unlimited, paid and unpaid car parking that is appropriately located, accessible, safe and ample” being “the basis for ensuring retail success”.

The Sunday Markets occupy the best carparking available in the precinct – not only on the ground floor of the Castle Street carpark, but also the adjacent on-street parking (which is often occupied by stallholders, being unlimited on a Sunday). Because of this, the CBD Masterplan Committee initiated discussions with the market operator with a view to exploring ways in which this carparking could be freed up whilst retaining the value of the Uptown Markets.

To this end, the Committee has facilitated a short term option that appears to satisfy the needs of the market operator, although no final agreement has been reached. The Committee is also facilitating a long term option that, again, appears to satisfy the needs of the market operator whilst also achieving the objectives of the CBD Masterplan Parking Strategy.

At this stage there is no intention to force the market operator to move. Discussion to date has been on the basis that the operator would move if an agreed strategy is determined.

Once a strategy has been agreed to a report will be brought back to Council.

MEMBERSHIP TO THE UNITED NATIONS INTERNATIONAL COUNCIL FOR LOCAL ENVIRONMENTAL INITIATIVES (ICLEI)

Purpose:

Councillor Nan Cowling has given notice of her intention to move:

That a report be brought back to the Council Meeting on 12 December 2013 detailing what is the cost to Coffs Harbour Council for their membership to the United Nations ICLEI? Please include Annual Membership; Cost of implementation of the policies that are required under this organisation; When is this annual fee due; What requirements are needed to withdraw from this organisation, the ramifications and benefits. Was it a resolution of Council to join this organisation and the year joined?

Rationale:

There is considerable and growing interest in the community. Request a report so that the community and the councillors can be informed about the costs, benefits and principles of this organisation.

TRANSFORMATION TO SUSTAINABILITY

Purpose:

To propose a Council wide project that will establish a framework critical for Council's Transformation to Sustainability (T2S) – a framework to identify opportunities to improve Council operations (productivity and efficiency, increase external revenues), to evaluate these opportunities (including presenting them for Council's consideration where required) and to ensure they are implemented effectively. Together with the current discussion around levels of service and the costs of providing these, the T2S project is an essential component of Council's efforts to achieve a financially sustainable position.

Description of Item:

In October 2012, Council approved the Business Development and Study Tour to Singapore and the United Kingdom. This was undertaken during November and December 2012 and involved discussions with library organisations in Singapore and local governments in the UK including Gloucester, Luton, Woking, Peterborough, Bournemouth and Slough.

Many local governments in the UK undertake services that, in Australia, are delivered by State Government, these include education and public housing. This has vastly increased the size of many councils and as austerity measures have been introduced, councils have been faced with massive expenditure cuts. Some have introduced programs to deal with these expenditure cuts including innovative outsourcing arrangements, Centres of Excellence and embedding consultants into business process to propagate efficiencies.

Whilst Coffs Harbour City Council is not facing the same degree of budget pressure as those visited in the UK, many of the efficiency programs observed have principles that could be explored to deliver cost savings and efficiencies in our own organisation. These key learnings can be summarised as:

Open and transparent communication and consultation processes to:

- Identify opportunities and barriers to delivering value based community and organisational outcomes
- Provide a seamless external service delivery to the community
- Map processes prior to making changes
- Clearly define objectives
- Determine specific time frames for objectives and decision gateways
- Identify the true cost of change.

Opportunities for centralised service arrangements through economies of scale

Self-funded project consultancy investment (where implementation of changes are funded via the savings generated)

At the Ordinary Meeting of 26 September 2013, Council considered Report CIS13/53 Community Engagement Regarding Sustainable Service Delivery.

At that meeting Council made the following resolutions:

That Council:

1. Note the information in the report including the identification of Council's annual financial gap.
2. Endorse in principle the Level of Service Community Engagement project.
3. Adopt the Community Engagement Strategy for Levels of Service.
4. Note that a further report will be presented regarding a Continuous Improvement Program.

This report serves to address the undertaking in item 4 of that resolution.

Sustainability Assessment:

The T2S project establishes the framework and resourcing required to identify, evaluate and implement improvements to Council's operations (ie Gate 1) that will be critical to achieve service and financial sustainability.

- **Environment**

  There are no inherent environmental issues with this project.

- **Social**

  There are no direct social issues with this project.

- **Civic Leadership**

  Council has acknowledged the need to move to a position of financial sustainability and is undertaking a range of activities aimed at improving operational efficiency and effectiveness as well as increasing revenues from sources other than rates. The T2S project will help bring many of the current initiatives together in a focused business plan and consider the investment required if Council is to realise the benefits identified.

- **Economic**

  Broader Economic Implications

  The identification of opportunities to generate savings and/or increase revenues is the primary outcome of this phase of the T2S project (to gate 1). Whilst it is not possible to estimate the quantum of these, the principle is that any expenditure is not a cost, but rather an investment that will be returned many times over.

  Delivery Program/Operational Plan Implications

  There is no budget allocation for this project in the Operational Plan. It is recommended that $90,000 be allocated from the Business Development Reserve.

Risk Analysis:

A risk assessment will form part of the deliverables of the T2S project.

Consultation:

As noted below, the T2S project is effectively a continuation of one stream of the Service Review project – the pursuit of opportunities for improvement. Thus, the preliminary part of the consultative processes for this project have effectively been undertaken across Council.

The key learnings arising from the *"Business Development and Study Tour"* and the principles underpinning this T2S proposal were the subject of a briefing with Councillors in October of this year.

Further consultation will be undertaken with Council and the Leadership Team in the development of a *"Target Operating Model"*. This model will seek to address the current gaps in our services to meet the future challenges, whether they be issues of delivery or financial sustainability.

As stated earlier, a key learning from the Business Development and Study Tour was the *"Open and Transparent Communication and Consultation Processes".* Should Council approve the T2S project, the engagement of all stakeholders including employees to ensure input and subsequent ownership of the project outcomes will be critical to success.

Related Policy and / or Precedents:

There are no related policies or precedents.

Statutory Requirements:

There are no statutory requirements.

Issues:

At its meeting of 15 December 2011, Council received a report GM11/34 Outcomes of the Service Review for Coffs Harbour City Council.

As noted in the report, the Service Review was comprehensive, defining 25 external services (delivered to the community) and 16 internal services (supporting the external service delivery) that together represent Council's entire operations. Council's Delivery Program and Operational Plan have been restructured based on these service definitions.

Stage 1 of the Service Review defined each service in terms of the "3Rs": "reason" (how it helps Council achieve the objectives of Coffs Harbour 2030), "resources" (financial, human, assets and systems) and "results" it is delivering. This information will be of considerable value in undertaking the proposed *"Organisational Diagnostic"* which forms the first stage of the T2S project.

Stage 2 of the Review examined:

- levels of service options (the costs associated with higher or lower LoS),
- opportunities for improvement (efficiency, effectiveness, revenue generation).

The levels of service options for each of the 25 external services formed the basis of the Level of Service engagement project currently underway.

Whilst the Service Review identified around 120 opportunities for improvement, some of which have been implemented, the need for an ongoing, Council-wide continuous improvement program was noted in the report, as was the need to "drill down" into the finer detail.

Meanwhile, Council has pursued a range of initiatives in pursuit of improvement opportunities. Many have focused on some of the 16 internal services which are outside the scope of the Levels of Service engagement project. But with minimal resources to implement and capitalise on the benefits of these, opportunities are being lost.

The Levels of Service engagement process is an essential part of Council's efforts to adopt a financially sustainable position. Yet the outcomes of this process have significant impacts on the community. Even if all of the levels of service reductions offered as options in the “Budget Allocator” were implemented (and feedback from the community indicates this is unacceptable) the total savings would only bridge around $6 million of the $8 million annual financial sustainability “gap” Council has acknowledged exists in its Delivery Program and Resourcing Strategy.

The T2S project will not bridge this entire gap, but is recommended as an investment opportunity; an opportunity to help Council to achieve a financially sustainable position whilst avoiding the impacts that arise from reducing Levels of Service and/or a Special Rate Variation.

How would this occur? It is recommended that Council undertake an Organisational Diagnostic which will produce a Business Case and Project Plan for Council's consideration.

Organisational Diagnostic

Typically, an organisational diagnostic process culminates in three outputs or products:

A *“Diagnostic Report”* setting out the following:

1. The context, challenges and issues facing Council
2. An assessment of the organisation and recommendations for improvement. The assessment is to determine if Council is best positioned to deliver on its Community Outcomes, both in terms of efficiency and effectiveness.
3. Strategic direction, leadership management capability, organisation culture, structure, process and performance.
4. Governance and Partnership workings and whether or not they are impacting on Council’s performance.

A *“High Level Target Operating Model”*

1. This sets out what the future model of the Council could/should be. The Target Operating Model would be developed through a facilitated process with the Leadership Team.
2. The target operating model would flow from the diagnostic, addressing the current gaps, meeting the future challenges whether they be issues of service delivery or financial sustainability.

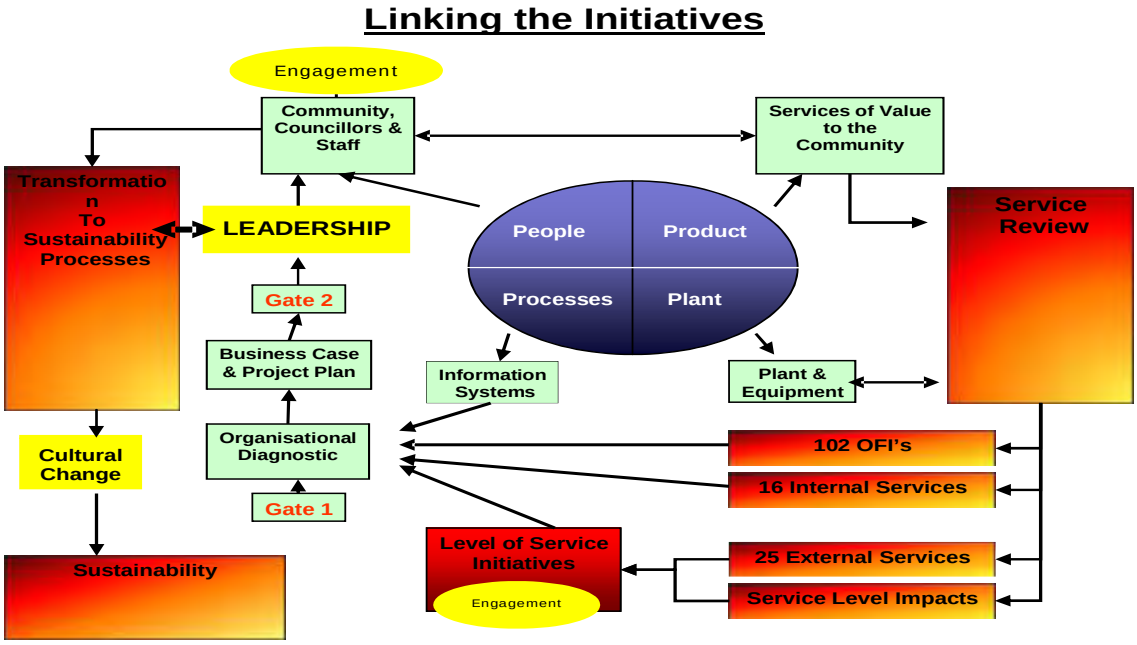
A *“Business Case and Program Plan”*

1. Setting out the actions Council could take to address the issues that have been identified.
2. Detailed rationale on any identified benefits including financial savings and improvements to the value of services delivered.
3. Identifying the timeframes involved and the resources required to be invested to realise the benefits identified.

The below graphic outlines the processes leading to this proposal, detailing both the processes that have taken place thus far, and the process that is proposed, should Council accept the recommendation of this report.

At this stage approval is sought from Council to enable the "Organisational Diagnostic" to be undertaken, which would produce a detailed Business Case and Project Plan (Gate 1).

A report would then be presented to Council detailing the opportunities identified and the investment required to realise the benefits and make recommendations necessary to enable Council to capitalise on the initiatives identified within the plan.



The above process flow chart identifies the relationships between the Level of Service Project, the opportunities identified as an outcome of that project and the proposed T2S project.

"Gate 1" is the approval process from Council for undertaking the Organisational Diagnostic and subsequent production of the Business Case and Project Plan.

"Gate 2" will be a secondary approval process from Council after consideration of the Business Case and Project Plan. It does not form part of this report at this time. The report recommending Council proceed to Gate 2 will identify the outcomes to be achieved, the resources necessary to deliver on those outcomes and the timelines involved.

Implementation Date / Priority:

Terms of Reference for the project will be developed over the next month. Expressions of Interest will be sought for the services of an external consulting firm, with suitable experience, to conduct an organisational diagnostic and develop a report that includes a detailed business case and proposed implementation plan. It is anticipated that this phase of the T2S project should be complete by March 2014.

Recommendation:

That Council:

1. **Endorse the T2S project and proceed with the development of Terms of Reference for the engagement of a suitable consulting firm to conduct an organisational diagnostic and prepare a detailed business case and proposed implementation plan.**
2. **Approve a budget of $90,000 for this project and that it be funded from the Business Development Fund**

COFFS JALIIGIRR PROJECT UPDATE

Purpose:

To inform Council of the progress being made in the delivery of the Coffs Jaliigirr Project.

Description of Item:

Council at its meeting of 23 May 2013 considered a report in relation to 'Guidelines for the Coffs Jaliigirr Project: Project Background, Site Selection and Monitoring' and resolved as follows:

> *That Council note the Guidelines for the Coffs Jaliigirr Project: Project Background, Site Selection and Monitoring.*

This report provides Council with an update on the delivery of the project and outlines some issues with project implementation.

Project Background:

In November 2012, Coffs Harbour City Council received $465,000 in funding from the Northern Rivers Catchment Management Authority (NRCMA) to undertake a number of on-ground and capacity building activities as part of the Coffs Jaliigirr Project.

This initial funding of $465,000 is being managed through a partnership with Coffs Harbour City Council (CHCC), Coffs Harbour Regional Landcare (CHRL) and the Coffs Harbour and District Local Aboriginal Land Council (LALC) under the following contracts:

- NR-BFD-12-14-03E Jaliigirr Project - Connecting communities & cultures through corridors – Part E Coffs Harbour City Council & Coffs LALC Project ($100,000).
- NR-BFD-12-14-03D Coffs Jaliigirr Project - Connecting communities & cultures and corridors through Regeneration and Research – Part D Coffs Harbour City Council ($235,000).
- NR-BFD-12-14-03H Coffs Jaliigirr Project – Connecting communities & cultures through corridors – Part H CHCC & CHRL Revegetating Project ($130,000).

Substantial progress has been made on the delivery of this project with interim reports having recently been submitted to the NRCMA for the three contracts. Final project reports and acquittals are anticipated to be submitted by 30 May 2014.

Project Implementation:

On-ground works - The first year of the Coffs Jaliigirr Project has focused on the planning and implementation of extensive bush regeneration and revegetation works. Site plans and NRCMA approved landholder agreements have been developed for 22 properties.

These plans include 15ha of revegetation and more than 200ha of bush regeneration and weed control works. Works have targeted four important landscape connections at Moonee, Coramba, Lowanna and Brooklana. These locations were chosen on the basis of their biodiversity values and high level of community interest (as per the project Guidelines).

Community capacity building and awareness raising activities - Project activities have also focused on raising awareness of the biodiversity values of the region, and informing the community of the actions they can take to improve these values on the properties. A workshop on Riparian Plant Identification was held in May this year and a spotlighting tour of Bruxner Park was held as part of the recent Sustainable Living Festival. In addition, the Coffs Jaliigirr Project has partnered with Griffith University to develop a landholder factsheet on the role of weeds in ecological restoration, and has recently completed a promotional film on landholder involvement in the project.

Sustainability Assessment:

- **Environment**

  Landscape connections in the Moonee, Coramba, Lowanna and Brooklana areas have been targeted in the first stage of the project. Works, including weed control, bush regeneration and revegetation, are currently being completed on more than 22 properties over an area covering several hundred hectares. Project activities have also rehabilitated sites containing the endangered Moonee Quassia (*Quassia sp*. Moonee Creek) and the Endangered Ecological Community, Littoral Rainforest.

- **Social**

  The Coffs Jaliigirr Project will help build community capacity in biodiversity management through:

  - increased local and regional knowledge of, and participation in, habitat restoration;
  - improved community understanding of how Aboriginal interests in biodiversity can be integrated over the landscape.

  Large Natural Resource Management (NRM) projects, such as the Coffs Jaliigirr Project, have significant employment and social benefits for the community. The Coffs Jaliigirr Project has provided substantial bush regeneration and tube-stock supply contracts to eight local contractors. Targeted contracts have also been delivered through the Coffs Harbour and District Local Aboriginal Land Council's Durrunda Wajaarr Aboriginal Green Team. This team currently employs seven Aboriginal men and women.

  The Jaliigirr Project also assists in meeting the following two objectives of the Coffs Harbour 2030 Plan:

  - LP3.2.2 Facilitate shared learning and skill sharing opportunities across generational and cultural groups.
  - LC 3.3.2 Create opportunities for enhancement of the community's sense of well-being.

- **Civic Leadership**

  The Coffs Jaliigirr Project closely aligns with the following Coffs Harbour 2030 Plan objectives:

  - LP1.1 Our businesses and industries are future – driven, smart, innovative and green.
  - LP1.2 Our economy is strong and diverse providing a wide range of rewarding employment opportunities which are available to all.
  - PL3.2 Our hinterland villages support a strong tourism base around local produce, arts, culture and nature experiences.

- LE1.1 We are active ambassadors for our environment and we share our skills and knowledge.
- LE2.2 We have active programs to restore and improve our environment.

- **Economic**

  Broader Economic Implications

  The participation of Coffs Harbour landholders in the Coffs Jaliigirr Project will provide economic benefits to the community including:

  - Private landholder provision of ecosystems services which are essential services necessary to support the general community as a whole;
  - Ongoing employment of local Bush Regeneration Contractors, enhancing the local economy; and
  - Continued improvement of the aesthetic amenity within the Coffs Harbour Local Government Area (LGA), enhancing the local tourism economy.

  Delivery Program/Operational Plan Implications

  There will be no financial impacts on Council's Budget associated with this report.

Risk Analysis:

This Coffs Jaliigirr Project is a previously endorsed and fully externally funded project, and consequently this update presents no new risks to Coffs Harbour City Council.

Consultation:

The Coffs Jaliigirr Project has been widely advertised through a range of media outlets including brochures, festivals, videos and print media.

The project has been developed through the Jaliigirr Biodiversity Alliance Inc. which has representatives from 19 Natural Resource Management groups of the Coffs Harbour region.

Related Policy and / or Precedents:

The project activities mentioned in this report have been delivered in accordance with the previously noted project guidelines:

- *Guidelines for the Coffs Jaliigirr Project: Project Background, Site Selection and Monitoring*

The Jaliigirr project aligns with several themes in Council's Biodiversity Action Strategy 2012 – 2030.

Statutory Requirements:

There are no statutory requirements applicable to this report.

Issues:

Project Implementation:
Delays in contracting and staff recruitment have impacted project delivery over the first year of the project. In particular, revegetation activities have been significantly delayed. This has been due to the long lead times involved with growing tube-stock, and the lack of appropriate conditions for planting during the latter part of 2013.

Of the current 15ha targeted for revegetation, only 3ha has been completed. The remaining 12ha will be completed during the March planting period in 2014. This delay in planting does not affect our contractual obligations with the NRCMA.

Future Project Funding:
Current project works have been fully externally funded through the three contracts listed above and the majority of these funds have now been committed through the 22 landholder agreements already completed.

The funding of future project works requires additional contracts and work-plans to be negotiated with the NRCMA. CHCC is still waiting for the 2013-14 contracts to be negotiated and forwarded from the NRCMA for signing. These contracts were anticipated to be finalised in June 2013, but contracting delays between the Australian Government and the NRCMA have resulted in an extended delay in the receipt of these contracts by CHCC.

Further uncertainty has resulted from the recent change of government and the impending transfer of duties currently tasked to the Catchment Management Authorities to the new Local Land Services (LLS).

On the basis of recent discussions with the NRCMA it is expected that these contractual issues should be resolved by the end of this year and contracts should be finalised by early 2014.

Implementation Date / Priority:

This report aims to provide Council with an update on the project.

Recommendation:

That Council note the report regarding the delivery of the Coffs Jaliigirr Project.

HOLIDAY PARKS TOURIST ACCOMMODATION TARIFFS 2014/15

Purpose:

To recommend the tourist accommodation tariffs to be charged during the 2014/2015 period for Park Beach Holiday Park, Sawtell Beach Holiday Park, Woolgoolga Beach Holiday Park and Woolgoolga Lakeside Holiday Park.

Description of Item:

Council, as Corporate Manager of the Coffs Coast State Park Trust and Woolgoolga Beach Reserve Trust, has continued to invest funds towards improving facilities and services at Park Beach Holiday Park and Sawtell Beach Holiday Park. Recent improvements included environmentally and economically beneficial projects to upgrade all amenity blocks with new energy efficient hot water systems, bush regeneration works and beach access upgrades at Sawtell. There have also been refurbishments to existing premium villas including new furniture and fitting upgrades, park improvements such as installation of new dump point at Park Beach and new cement slab sites at Sawtell. Park Beach is now AAA rated 4.5 star with cabins up to 4 star and Sawtell 3.5 star with cabins up to 4 star.

The parks ongoing marketing strategy has been established to continually maintain a high standard of product that meets consumer demand and expectation. This strategy was designed to ensure parks are competitive whilst offering products to suit all customer demographics. A key element of the strategy focuses on the continual maintenance of park facilities and products to ensure repeat visitation, increased visitor nights and 'word of mouth' bookings.

Woolgoolga Beach and Lakeside Holiday Parks have undergone various improvements and maintenance with major works completed on a new amenity building, sites and associated infrastructure at Lakeside. The new amenity building includes sustainable features to reduce energy usage and water consumption including solar water heating and lighting. Recent upgrades at Woolgoolga Beach Holiday Park include new camp kitchen, solar hot water installation and cabin refurbishments. Increased spending on park facilities and amenity replacement warrants the proposed tariff increases.

The proposed tariffs (see table) focuses on increased tariffs across most products with emphasis on powered sites for short stays to offset utility service expenses (especially electricity costs) generated from powered sites. Overall this tariff percentage increase is designed to ensure the businesses remain self-funding whilst being competitive in comparison to similar parks in the local area and the wider industry. The increased tariffs are also designed to cover ongoing sustainable projects, cabin upgrades and refurbishments that will ensure our product meets consumer expectations and remains competitive against other local holiday parks.

Sustainability Assessment:

- **Environment**

  The parks at Park Beach and Sawtell operate under Plans of Management and Sustainable Improvement Strategies which provide a balance between recreational use and environmental issues. Lakeside operates under a Draft Plan of Management that is awaiting adoption from the Minister responsible for administering the Crown Lands Act and Woolgoolga Beach has a Draft Plan of Management awaiting approval for public exhibition. These draft plans also provide a balance between recreational use and environmental issues. Whilst tourists increase environmental pressure on the locations visited, the impact is offset by a reduction in environmental pressures at their place of origin. All parks generate funds that contribute to the environmental maintenance of the adjoining reserve system.

- **Social**

  The parks are part of the local tourism infrastructure and provide a major recreational resource. Funds generated through the holiday parks are used to maintain the greater reserve system and provide locations for social and recreational use by tourists and local residents.

- **Civic Leadership**

  The two Trusts work towards achieving the outcomes set down in the Coffs Harbour 2030 Community Strategic Plan, and are consistent with the following strategies:

  - LP1.1.1 - Develop markets around renewable energy, sustainable tourism, sustainable agriculture and fisheries, local produce, creative and clean industries.
  - PL2.1.2 - Protect and expand public spaces and facilities and ensure they are accessible and safe for all.

- **Economic**

  Broader Economic Implications

  Through profitable trading the parks provide a direct economic benefit to the community and through guest spending provide a stimulus to the localities in which they operate.

  Delivery Program/Operational Plan Implications

  The tariffs proposed will assist in achieving the desired financial outcomes for the business unit and all profits will be directed back into the reserve system in which the parks operate.

Risk Analysis:

Increasing tariffs can have a negative impact upon customer perceptions, especially when they no longer represent value for money or there is an absence of reinvestment into the facilities. The parks have all had varying levels of reinvestment and received improvements to products and services. In the case of the four holiday parks, the tariff increases are commensurate with the improvements already made and those proposed for the near future.

Tariff Review October 2013							
		Current 13/14		Proposed 14/15		% From	% To
		Off Peak	Peak	Off Peak	Peak	Off Peak	Peak
Park Beach	Unpowered Site	31.00	49.00	32.00	51.00	3.23%	4.95%
	Powered Site	36.00	60.00	38.00	63.00	5.56%	4.35%
	Drive Thru	45.00	70.00	47.00	74.00	4.44%	4.64%
	Ensuite Site	52.00	75.00	55.00	79.00	5.77%	5.33%
	Ensuite Drive Thru	54.00	77.00	57.00	81.00	5.56%	5.19%
	Extra Person	8.00	10.00	8.00	10.00	0.00%	0.00%
	Cabin	72.00	138.00	75.00	145.00	4.17%	5.07%
	Beach Cabin	79.00	145.00	82.00	152.00	3.80%	4.36%
	Studio Cabin	83.00	155.00	87.00	162.00	4.82%	5.47%
	Sunset Studio	115.00	233.00	120.00	244.00	4.35%	4.72%
	Hibiscus Villa	125.00	243.00	130.00	255.00	4.00%	4.94%
	Holiday Villa	130.00	260.00	137.00	273.00	5.38%	4.61%
	Sea Breeze	135.00	265.00	142.00	279.00	5.19%	5.28%
	Beach Villa	140.00	287.00	147.00	300.00	5.00%	5.28%
	Ocean Villa	175.00	372.00	180.00	372.00	2.86%	0.00%
	Extra Person	9.00	12.00	9.00	12.00	0.00%	0.00%

Tariff Review October 2013							
		Current 13/14		Proposed 14/15		% From	% To
		Off Peak	Peak	Off Peak	Peak	Off Peak	Peak
Sawtell	Unpowered Site	31.00	49.00	31.00	49.00	0.00%	0.00%
	Powered Site	36.00	60.00	36.00	62.00	0.00%	3.33%
	Ensuite Site	52.00	75.00	52.00	77.00	0.00%	2.67%
	Extra Person	8.00	10.00	8.00	10.00	0.00%	0.00%
	Cabin	72.00	138.00	75.00	142.00	4.17%	2.90%
	Studio Cabin	83.00	155.00	86.00	160.00	3.61%	3.23%
	Ensuite Cabin	90.00	183.00	93.00	190.00	3.33%	3.83%
	Family Cabin	98.00	204.00	100.00	212.00	2.04%	3.92%
	Hibiscus Villa	125.00	243.00	130.00	255.00	4.00%	4.94%
	Sea Breeze	135.00	265.00	142.00	279.00	5.19%	5.28%
	Beach Villa	140.00	287.00	147.00	300.00	5.00%	4.53%
	Ocean Villa	175.00	372.00	180.00	372.00	2.86%	0.00%
	Extra Person	9.00	12.00	9.00	12.00	0.00%	0.00%

Tariff Review October 2013							
Woolgoolga Beach		Current 13/14		Proposed 14/15		% From	% To
		Off Peak	Peak	Off Peak	Peak	Off Peak	Peak
	Powered Site	32.00	52.00	34.00	55.00	6.25%	5.77%
	Drive Thru	38.00	56.00	40.00	59.00	5.26%	5.36%
	Extra Person	8.00	10.00	8.00	10.00	0.00%	0.00%
	Studio/Van	71.00	155.00	75.00	162.00	5.63%	4.52%
	Cabin	90.00	190.00	95.00	198.00	5.56%	4.21%
	Deluxe Studio	101.00	215.00	106.00	226.00	4.95%	5.12%
	Surfside Cabin	114.00	235.00	119.00	246.00	4.39%	4.68%
	Beach View	123.00	242.00	129.00	254.00	4.88%	4.96%
	Ocean View Villa	141.00	286.00	148.00	300.00	4.96%	4.90%
	Extra Person	8.00	10.00	8.00	10.00	0.00%	0.00%

Tariff Review October 2013							
Lakeside		Current 13/14		Proposed 14/15		% From	% To
		Off Peak	Peak	Off Peak	Peak	Off Peak	Peak
	Unpowered Site	27.00	44.00	28.00	46.00	3.70%	4.55%
	Powered Site	32.00	52.00	34.00	55.00	6.25%	5.77%
	Extra Person	8.00	10.00	8.00	10.00	0.00%	0.00%
	Lakeside/Palm	96.00	154.00	98.00	161.00	2.08%	4.55%
	Waterview	102.00	167.00	105.00	175.00	2.94%	4.79%
	Banksia	104.00	170.00	108.00	178.00	3.85%	4.71%
	Extra Person	8.00	10.00	8.00	10.00	0.00%	0.00%

Consultation:

A review of competitor pricing was undertaken and discussions were held with Board members and park members of the NSW Caravan and Camping Industry Association.

Related Policy and / or Precedents:

Council reviews its fees and charges annually.

Statutory Requirements:

Council, as Corporate Manager of the Coffs Coast State Park Trust and Woolgoolga Beach Reserve Trust, is required to set fees and charges for the facilities within the Reserves.

Issues:

Any increase in fees creates some reaction from patrons however the increases proposed are readily substantiated by comparison with other coastal parks in similar locations. Improvements to all parks products and facilities also justify increased tariffs.

Implementation Date / Priority:

2 March 2014 for a 12 month period ending 1 March 2015.

Recommendation:

That Council, as Corporate Manager of the Coffs Coast State Park Trust and Woolgoolga Beach Reserve Trust, approve the Tariffs within the report for:

1. **Park Beach Holiday Park**
2. **Sawtell Beach Holiday Park**
3. **Woolgoolga Beach Holiday Park**
4. **Woolgoolga Lakeside Holiday Park**

to be adopted effective 2 March 2014.

COFFS COAST STATE PARK TRUST AND WOOLGOOLGA BEACH RESERVE TRUST ANNUAL TRADING REPORT 2012-2013 AND ANNUAL AUDIT 2013

Purpose:

To report on the trading performance and Annual Audit of the Coffs Coast State Park Trust and Woolgoolga Beach Reserve Trust operations for the period 1 July 2012 to 30 June 2013.

Description of Item:

Overnight domestic visitation to the Coffs Coast grew by 5% in the last financial year (Coffs Coast Marketing) however the key growth area was in visiting friends and relatives (VFR). The growth did not translate to increased visitation within the Holiday Parks with room nights sold remaining relatively stagnant and in some cases dropping significantly. Traditional caravanning and camping showed slight increases on the previous year with Park Beach growing by 2.0%, Sawtell growing by 1.6% and Woolgoolga Lakeside growing by 0.6%. Caravanning room nights declined at Woolgoolga Beach by 0.2%. Cabin and Villa accommodation experienced a decline across all locations with Park Beach (-1.0%), Sawtell (-4.2%), Woolgoolga Beach (-5.5%) and Woolgoolga Lakeside (-16.2%). These declines are in keeping with broader industry trends with a shift towards more traditional camping experiences. Lakeside's decline is also attributed to a reduction in available cabin stock during and after the redevelopment works.

Despite only minor overall growth in room nights sold across all business operations, the businesses performed reasonably well. Park Beach and Sawtell showed a 5.4% increase in Trading Profits. Woolgoolga Beach and Lakeside did not fare as well with Trading Profit down 6.1%. This decline can be directly attributed to the redevelopment works being undertaken at Lakeside and current YTD figures show the business has responded well to the improvements undertaken.

A review of unadjusted pre audit trading performances for the Trusts is as follows:

COFFS COAST STATE PARK TRUST

	Actual 12/13	Actual 11/12	Change
Operating Surplus			
Trading Result			
Trading Income Park Beach	3,912,612.00	3,630,920.00	7.8%
Trading Income Sawtell	2,311,121.00	2,139,558.00	8.0%
Trading Income Total	**$6,223,733.00**	**$5,770,478.00**	**7.9%**
Trading Expenses Park Beach	2,847,043.00	2,621,483.00	8.6%
Trading Expenses Sawtell	1,628,424.00	1,490,288.00	9.3%
Trading Expenses Total	**$4,475,467.00**	**$4,111,771.00**	**8.8%**
Trading Profit Total	**$1,748,266.00**	**$1,658,707.00**	**5.4%**
Other Income (Interest, Loans)			
Park Beach	-26,648.00	18,023.00	(247%)
Sawtell	68,148.00	101,469.00	(32.8%)
Total Other Income	**$41,500.00**	**$119,492.00**	**(65.2%)**

Other Expenditure (administration, levies etc)			
Park Beach	394,546.00	430,361.00	(8.3%)
Sawtell	255,978.00	258,849.00	(1.1%)
Total Other Expenditure	**$650,524.00**	**$689,210.00**	**(5.6%)**
Net Operational Surplus	**$1,139,242.00**	**$1,088,989.00**	**4.6%**
Capital Expenditure			
Park Beach	653,737.00	493,439.00	32.5%
Sawtell	345,500.00	305,545.00	13.1%
Total Capital Expenditure	**$999,237.00**	**$798,984.00**	**25.1%**

WOOLGOOLGA BEACH RESERVE TRUST

	Actual 12/13	**Actual 11/12**	**Change**
Operating Surplus			
Trading Result			
Trading Income Woolgoolga Beach	1,039,697.00	986,206.00	5.4%
Trading Income Lakeside	433,522.00	430,905.00	0.6%
Trading Income Total	**$1,473,219.00**	**$1,417,111.00**	**4.0%**
Trading Expenses Woolgoolga Beach	726,869.00	677,721.00	7.3%
Trading Expenses Lakeside	392,867.00	362,790.00	8.3%
Trading Expenses Total	**$1,119,736.00**	**$1,040,511.00**	**7.6%**
Trading Profit Total	**$353,483.00**	**$376,600.00**	**(6.1%)**
Other Income (interest, loans)			
Woolgoolga Beach	13,381.00	15,646.00	(13.6%)
Lakeside	-581.00	6,269.00	(109.0%)
Total Other Income	**$12,800.00**	**$21,915.00**	**(41.6%)**
Other Expenditure (administration, levies etc)			
Woolgoolga Beach	48,114.00	65,850.00	(26.9%)
Lakeside	7,383.00	6,692.00	10.3%
Total Other Expenditure	**$55,497.00**	**$72,542.00**	**(23.4%)**
Net Operational Surplus	**$310,786.00**	**$322,973.00**	**(3.8%)**
Capital Expenditure			
Woolgoolga Beach	67,623.00	54,776.00	23.5%
Lakeside	748,867.00	85,115.00	780.0%
Total Capital Expenditure	$**816,490.00**	**$139,891.00**	**484.0%**

2012/13 Capital Investments:

Park Beach Holiday Park

- Loan repayments
- Laundry machines
- Amenities Electrical Upgrade
- Camp Kitchen Furniture & Refurbishment
- Villa Refurbishments
- Roadworks
- Park Vehicle
- Arboreal works.

Sawtell Beach Caravan Park

- Loan repayments
- Cabin/Villa refurbishments
- Amenities Refurbishment
- New villa
- BBQ infrastructure.

Woolgoolga Beach & Lakeside Caravan Parks

- Cabin/Villa refurbishments
- LT Dwelling Purchases
- Safety and lighting upgrades
- Strategic Planning Documents
- Lakeside Site Reconstructions and Landscaping
- New Lakeside Amenities
- Lakeside Electrical and Gas Infrastructure Upgrades
- Lakeside Water & Sewer Upgrades
- Lakeside Roadworks
- Lakeside Maintenance Shed.

Sustainability Assessment:

- **Environment**

  Park guests consume resources whilst in the Coffs Harbour LGA however this is offset by the fact that they are not consuming resources at their place of residence. Revenue generated within the State Park and Woolgoolga Beach Reserve is put back into the reserve system including the environmental management of the locations. All parks are committed to environmental initiatives aimed at reducing their impact upon the environment.

- **Social**

  Holiday Parks and Caravan Parks are an important resource in meeting the recreational needs of the greater community. Funds generated through the parks contribute to the development of social and recreational facilities within the reserve system.

- **Civic Leadership**

  The trading performances of the two Trusts achieved the outcomes set down in the Coffs Harbour 2030 Community Strategic Plan, and were consistent with the following strategies:

  – LP1.1.1 - Develop markets around renewable energy, sustainable tourism, sustainable agriculture and fisheries, local produce, creative and clean industries
  – PL2.1.2 - Protect and expand public spaces and facilities and ensure they are accessible and safe for all.

- **Economic**

  Broader Economic Implications

  The holiday parks and caravan parks are important tourist facilities drawing visitors to the region. Flow on effect of visitation is deemed to have a generally positive impact upon the economic performance of the region.

  Delivery Program/Operational Plan Implications

  The State Park and Woolgoolga Beach Reserve generate funds that are used within the reserves and contribute to the management and upkeep of the locations, reducing the demand on alternate fund sources.

Risk Analysis:

Under current operating conditions the Holiday Parks remain a sustainable business model that is well equipped to provide ongoing financial contributions to the wider reserve system.

Increasing utility and wage costs do pose a risk to the level of profitability but strategies are already in place to ameliorate these impacts. Strategies such as solar power generation, solar water, green product design and customer education are all being employed to reduce utility costs and wage costs continue to be monitored closely to ensure an attainable wage cost percentage is maintained.

External pressures such as a high Australian dollar, which makes overseas travel a viable alternative, also pose a current threat to the business. This is being addressed through an ongoing value proposition to guests and the provision of high quality products and services.

Consultation:

The operation of the Parks is a team effort with the enthusiastic support of all Council Departments being pivotal in their success. Regular consultation is also undertaken with the Department of Lands.

Related Policy and / or Precedents:

Council is Corporate Manager of the Coffs Coast State Park Trust and the Woolgoolga Beach Reserve Trust under the provisions of the Crown Lands Act.

Statutory Requirements:

Council is Corporate Manager of the Coffs Coast State Park Trust and the Woolgoolga Beach Reserve Trust under the provisions of the Crown Lands Act.

Issues:

The Coffs Coast State Park Trust showed reasonable growth in business with a 7.9% increase in Revenue and a 5.4% increase in Trading Profits. These results were achieved despite continuing pressure from rising electricity and water & sewer costs. Wage cost percentages remain high due to award changes but did show a decline on the previous two financial years.

The Woolgoolga Beach Reserve Trust did not perform as strongly with a 4.0% increase in Revenue and a 6.1% drop in Trading Profits. The decline in Trading Profits can be directly attributed to major construction works being undertaken at Lakeside Holiday Park. Revenue growth was held back to 0.6% due to the majority of the park being closed for 4 months during the substantial construction phase of the parks redevelopment. There was also an increase in staff wages during the construction period.

The financial audits for the two Trusts, conducted by DKM, revealed no concerns within the scope of the audit and the financial reports were free of material misstatement. There was only one auditor's recommendation for each Trust regarding the benefit of using a formalised asset management system. The Trust will shortly be switching to the Council asset system for this purpose. A copy of the Coffs Coast State Park and Woolgoolga Beach Reserve Trust audits are included in Attachment 1.

Recommendation:

1. **That Council, as Corporate Manager of the Coffs Coast State Park Trust, note the unadjusted 2012/13 Annual Trading Report for the Coffs Coast State Park Trust and;**
2. **That Council, as Corporate Manager of the Coffs Coast State Park Trust note the Annual Audit for year ended 30 June 2013**
3. **That Council, as Corporate Manager of the Woolgoolga Beach Reserve Trust, note the unadjusted 2012/13 Annual Trading Report for the Woolgoolga Beach Reserve Trust.**
4. **That Council, as Corporate Manager of the Woolgoolga Beach Reserve Trust, note the Annual Audit for year ended 30 June 2013**

Attachment

Coffs Coast State Park Trust

Special Purpose Financial Reports
for the year ended 30th June 2013

TABLE OF CONTENTS

Attachment

Coffs Coast State Park Trust

INCOME STATEMENT
for the year ended 30th June 2013

	Notes	Actual 2013	Actual 2012
INCOME			
Revenue:			
User Charges & Fees	2	**6,290,310**	5,838,052
Investment Revenues	2	**47,970**	74,976
Other Revenues	2	**1,089,606**	709,308
Other Income:			
Profit from Disposal of Assets	4	**-**	(34,050)
Revenues from Continuing Operations		**7,427,886**	6,588,285
EXPENSES			
Employee Costs	3	**2,534,967**	2,368,620
Materials & Contracts		**1,037,082**	1,001,288
Depreciation, Amortisation & Impairment	3	**1,226,023**	1,241,351
Other Expenses	3	**2,787,681**	2,447,602
Loss from Disposal of Assets	4	**2,708**	
Expenses from Continuing Operations		**7,588,460**	7,058,861
NET OPERATING RESULT FOR YEAR		**(160,575)**	(470,576)
Attributable to:			
Coffs Coast State Park Trust		**(160,575)**	(470,576)
		$ (160,575)	$ (470,576)

This Statement is to be read in conjunction with the attached Notes.

Attachment

Coffs Coast State Park Trust

BALANCE SHEET
as at 30 June 2013

	Notes	Actual 2013	Actual 2012
CURRENT ASSETS			
Cash and cash equivalents	5	**1,631,717**	1,784,062
Receivables	6	**123,841**	144,714
Inventories - realisable < 12 months	7	**49,570**	56,345
Other	7	**27,448**	30,579
TOTAL CURRENT ASSETS		**1,832,577**	2,015,700
NON-CURRENT ASSETS			
Receivables	6	**-**	-
Infrastructure, Property, Plant & Equipment	8	**28,405,436**	29,021,175
Other	7		-
TOTAL NON-CURRENT ASSETS		**28,405,436**	29,021,175
TOTAL ASSETS		**30,238,012**	31,036,876
CURRENT LIABILITIES			
Payables	9	**1,389,462**	1,555,600
Borrowings	9	**-**	440,679
Provisions - payable < 12 months	9	**374,445**	346,265
Provisions - payable > 12 months			
TOTAL CURRENT LIABILITIES		**1,763,908**	2,342,544
NON-CURRENT LIABILITIES			
Payables	9	**-**	-
Borrowings	9	**-**	213
Provisions	9	**11,216**	70,653
TOTAL NON CURRENT LIABILITIES		**11,216**	70,867
TOTAL LIABILITIES		**1,775,123**	2,413,411
NET ASSETS	**$**	**28,462,889**	28,623,465
EQUITY			
Accumulated Surplus		**18,170,178**	18,330,754
Asset Revaluation Reserve		**10,292,711**	10,292,711
Council Equity Interest		**28,462,889**	28,623,465
TOTAL EQUITY	**$**	**28,462,889**	28,623,465

This Statement is to be read in conjunction with the attached Notes

Coffs Coast State Park Trust

STATEMENT OF CHANGES IN EQUITY
for the year ended 30th June 2013

	Note	2013 Accum Surplus	Asset Reval	Other Reserves	Council Equity	Outside Equity	Total	2012 Accum Surplus	Asset Reval	Other Reserves	Council Equity	Outside Equity	Total
Balance at beginning of the reporting period		18,330,753	10,292,711	-	28,623,464	-	28,623,464	18,801,330	10,292,711		29,094,041		29,094,041
Change in Net Assets recognised in the Statement of Financial		(160,575)			(160,575)	-	(160,575)	(470,576)			(470,576)	-	(470,576)
Balance at end of the reporting period		18,170,178	10,292,711	-	28,462,889	-	28,462,889	18,330,754	10,292,711	-	28,623,465	-	28,623,465

This Statement is to be read in conjunction with the attached Notes

Attachment

COFFS COAST STATE PARK TRUST

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30 June 2013

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2013

NOTE 1: STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

The trust management have prepared the financial statements on the basis that the trust is a non-reporting entity because there are no users dependent on general purpose financial reports. This financial report is therefore a special purpose financial report that has been prepared in order to meet the needs of the Department of Lands.

The financial report has been prepared on an accruals basis and is based on historic costs and does not take into account changing money values or, except where specifically stated, current valuations of non-current assets.

The following significant accounting policies, which are consistent with the previous period unless otherwise stated, have been adopted in the preparation of this financial report.

a. **Income Tax**

The trust is not subject to income tax under the Crown Lands Act 1989.

b. **Property, Plant and Equipment**

Leasehold improvements and office equipment are carried at cost less, where applicable, any accumulated depreciation.

The depreciable amount of all PPE is depreciated over the useful lives of the assets to the trust commencing from the time the asset is held ready for use.

Leasehold improvements are amortised over the shorter of either the unexpired period of the lease or the estimated useful lives of the improvements.

c. **Impairment of Assets**

At the end of each reporting period, the entity reviews the carrying values of its tangible and intangible assets to determine whether there is any indication that those assets have been impaired. If such an indication exists, the recoverable amount of the asset, being the higher of the asset's fair value less costs to sell and value in use, is compared to the asset's carrying value. Any excess of the asset's carrying value over its recoverable amount is recognised in the income and expenditure statement.

d. **Employee Benefits**

Provision is made for the trust's liability for employee benefits arising from services rendered by employees to the end of the reporting period. Employee benefits have been measured at the amounts expected to be paid when the liability is settled.

e. **Provisions**

Provisions are recognised when the trust has a legal or constructive obligation, as a result of past events, for which it is probable that an outflow of economic benefits will result and that outflow can be reliably measured.

Provisions are measured at the best estimate of the amounts required to settle the obligation at the end of the reporting period.

f. **Cash and Cash Equivalents**

Cash and cash equivalents includes cash on hand, deposits held at call with banks, and other short-term highly liquid investments with original maturities of three months or less.

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS
for the year ended 30 June 2013

Note 1 - Significant Accounting Policies (cont)

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2013

NOTE 1: STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

g. **Revenue and Other Income**

Revenue is measured at the value of the consideration received or receivable after taking into account any trade discounts and volume rebates allowed. For this purpose, deferred consideration is not discounted to present values when recognising revenue.

Interest revenue is recognised using the effective interest rate method, which, for floating rate financial assets, is the rate inherent in the instrument. Dividend revenue is recognised when the right to receive a dividend has been established.

Grant and donation income is recognised when the entity obtains control over the funds, which is generally at the time of receipt.

All revenue is stated net of the amount of goods and services tax (GST).

h. **Goods and Services Tax (GST)**

Revenues, expenses and assets are recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Australian Taxation Office (ATO). Receivables and payables are stated inclusive of the amount of GST receivable or payable. The net amount of GST recoverable from, or payable to, the ATO is included with other receivables or payables in the statement of financial position.

l. **Accounts Payable and Other Payables**

Accounts payable and other payables represent the liability outstanding at the end of the reporting period for goods and services received by the association during the reporting period that remain unpaid. The balance is recognised as a current liability with the amounts normally paid within 30 days of recognition of the liability.

Attachment

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 2 - REVENUES FROM ORDINARY ACTIVITIES

	2013	2012
USER CHARGES & FEES		
User Charges		
Short Term Accomodation	5,193,127.22	4,724,944.68
Long Term Accomodation	657,580.86	626,150.04
Electricity Receipts	59,443.20	52,100.13
Shop & Residence Receipts		
Shop Takings	205,682.62	233,366.44
Laundry Receipts	77,599.04	
Sundry Receipts	96,876.77	201,490.32
Other Income		
	6,290,309.71	5,838,051.61
INVESTMENT REVENUES		
Interest	47,969.97	74,975.55
Total Investment Revenues	47,969.97	74,975.55
OTHER REVENUES		
Grants and Contributions	50,000.00	-
Council Contribution	1,039,605.95	709,308.22
Total Other Revenues	1,089,605.95	709,308.22

Attachment

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 3 - EXPENSES FROM ORDINARY ACTIVITIES

	2013 $	2012 $
EMPLOYEE COSTS		
Salaries and Wages	**2,210,569.95**	2,060,881.69
Employee Leave Entitlements	**162,974.97**	154,532.91
Superannuation - defined contribution plan contributions	**90,888.91**	100,506.19
Workers' Compensation Insurance	**50,007.43**	49,696.62
Fringe Benefits Tax	**(16.51)**	12.39
Training Costs (excluding Salaries)	**11,215.72**	2,990.69
Uniforms & PPE	**9,326.08**	
Total Operating Employee Costs	**2,534,966.55**	2,368,620.49
Total Number of Employees *(Full time equivalent at end of reporting period)*	***27***	*25*
DEPRECIATION, AMORTISATION & IMPAIRMENT		
Plant and Equipment	**32,620.57**	31,045.87
Office Equipment	**15,266.62**	17,489.33
Buildings	**722,167.18**	745,108.48
Other Structures	**12,679.60**	12,783.13
Infrastructure		
- roads, bridges & footpaths	**47,416.94**	46,787.34
- stormwater drainage	**26,031.57**	26,067.67
- water supply network not elsewhere included		
- sewerage network not elsewhere included		
Other assets		
- Jetty	**345,511.09**	346,300.89
- Botanical Gardens	**24,329.51**	15,767.90
Total Depreciation, Amortisation & Impairment	**1,226,023.08**	1,241,350.61

	2013 $	2012 $
OTHER EXPENSES		
Advertising	**123395.76**	181695.49
Auditor's renumeration		
- Audit Services	**11990.64**	10613
Bad and Doubtful Debts	**23.32**	
Bank Fees & Interest Charges	**32,391.76**	31,770.51
Botanical Gardens	**372,500.00**	361,800.00
Crown Land Reserve Maintenance	**982,155.58**	618,604.42
Dept of Lands	**279,693.78**	277,150.22
Discounts		-
Foreshores Maintenance	**100,000.00**	50,000.00
Garbage	**98,224.02**	104,768.17
Insurances	**45,667.56**	46,632.05
Interest Expense	**19,338.09**	39,598.54
Electricity	**359,332.03**	305,091.83
Other		42,879.50
Payments to other levels of Government	**48,699.83**	36,400.48
Refunds	**565.39**	476.84
Stationery	**13,316.97**	14,236.21
Swimming Pool Access/Tennis Access	**12,943.88**	2,382.30
Telephone and Communications	**55,119.81**	42,332.00
Top Tourist Membership Cards	**10,354.55**	11,532.37
Water & Sewerage	**221,967.72**	269,638.26
Total Other Expenses	**2,787,680.69**	2,447,602.19

Attachment

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 4 - GAIN OR LOSS ON DISPOSAL OF ASSETS

	2013	2012
DISPOSAL OF PLANT & EQUIPMENT		
Proceeds from disposal	**135.00**	
Less: Carrying amount of assets sold	**2,842.99**	34,050.47
Gain (Loss) on disposal	**(2,707.99)**	(34,050.47)
TOTAL GAIN (LOSS) ON DISPOSAL OF ASSETS	**(2,707.99)**	(34,050.47)

Attachment

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 5 - CASH & INVESTMENTS

	2013		2012	
	Current	Non-Current	Current	Non-Current
CASH & CASH EQUIVALENTS				
Cash on Hand and at Bank	**1,631,717.37**		1,784,062.20	
Total Cash & Equivalents	**1,631,717.37**		1,784,062.20	

Attachment

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 6 - RECEIVABLES

	2013		2012	
	Current	Non-Current	Current	Non-Current
Trade Debtors	**40,461.00**		55,729.61	
GST Paid	**79,655.64**		85,778.33	
Other Debtors	**3,814.55**		3,296.17	
Total	**123,931.19**	-	144,804.11	-
Less: Allowance for Doubtful Debts				
User Charges & Fees	**90.55**		90.55	
Other				
Total Receivables	**123,840.64**	-	144,713.56	-

Attachment

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 7 - INVENTORIES & OTHER ASSETS

	2013		2012	
	Current	Non-Current	Current	Non-Current
INVENTORIES				
Stores & Materials	**28,770.81**		31,327.67	
Trading Stock	**20,799.63**		25,017.52	
Total Inventories	**49,570.44**	-	56,345.19	-
OTHER ASSETS				
Prepayments	**27,448.21**	-	30,579.31	
Total Other Assets	**27,448.21**	-	30,579.31	-

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS
for the year ended 30th June 2013

Note 8 - PROPERTY, PLANT & EQUIPMENT

	2012				CARRYING AMOUNT MOVEMENTS DURING YEAR							2013			
	AT COST	AT FAIR VALUE	ACCUM DEPN	CARRYING AMOUNT	Asset Purchases	Council Restructure	Asset Disposals	Depreciation	Impairment	Blank	Rounding	AT COST	AT FAIR VALUE	ACCUM DEPN	CARRYING AMOUNT
Plant & Equipment	432,962.25	-	(258,679.61)	174,282.64	18,053.82	-	-	(32,620.57)	-	-	1.48	**445,848.59**	-	**(286,131.22)**	**159,717.37**
Office Equipment	162,200.37	-	(86,840.27)	75,360.10	-	-	-	(15,266.62)	-	-	-	**162,200.38**	-	**(102,106.90)**	**60,093.48**
Buildings	13,592,158.44	9,578,600.00	(9,669,309.43)	13,501,449.01	432,229.43	-	(2,842.99)	(722,167.18)	-	-	(1.21)	**14,009,693.87**	**9,578,600.00**	**(10,379,626.81)**	**13,208,667.06**
Other Structures	409,772.57	-	(189,369.25)	220,403.32	-	-	-	(12,679.60)	-	-	0.01	**409,772.57**	-	**(202,048.84)**	**207,723.73**
Infrastructure															
- Roads, bridges, footpaths	1,863,456.38		(810,161.45)	1,253,294.93	105,338.34	-	-	(47,416.94)	-	-	0.02	**1,968,794.72**	-	**(657,578.37)**	**1,311,216.35**
- Bulk earthworks (non-deprec	-		-	-	-	-	-	-	-	-	-	**-**	-	**-**	**-**
- Stormwater drainage	1,678,314.55		(715,824.44)	962,490.11	-	-	-	(26,031.57)	-	-	(0.01)	**1,678,314.55**	-	**(741,856.02)**	**936,458.53**
- Water Supply Network	-		-	-	-	-	-	-	-	-	-	**-**	-	**-**	**-**
- Sewerage Network	-		-	-	-	-	-	-	-	-	-	**-**	-	**-**	**-**
Other Assets															
- Jetty	13,670,866.32		(1,068,129.50)	12,602,736.82	-	-	-	(345,511.09)	-	-	0.01	**13,670,866.32**	-	**(1,413,640.58)**	**12,257,225.74**
- Botanical Gardens	263,860.15		(56,147.67)	207,712.48	57,450.37	-	-	(24,329.51)	-	-	(0.01)	**321,310.52**	-	**(80,477.19)**	**240,833.33**
Capital works in progress	23,500.00		-	23,500.00	-	-	-	-	-	-	-	**23,500.00**	-	**-**	**23,500.00**
Totals	32,097,091.03	9,578,600.00	(12,654,461.62)	29,021,229.41	613,071.96	-	(2,842.99)	(1,226,023.08)	-	-	0.29	**32,690,301.52**	**9,578,600.00**	**(13,863,465.93)**	**28,405,435.59**
Asset acquisitions were apportioned between:					613,071.96										

Attachment

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 9 - LIABILITIES

	2013		2012	
	Current	Non-Current	Current	Non-Current
PAYABLES				
Goods & Services	**937,851.66**		1,202,197.85	
Payments received in advance	**451,610.48**		353,402.60	
Accrued Expenses				
Total Payables	**1,389,462.14**	-	1,555,600.45	-
BORROWINGS				
Loans	-		440,678.57	213.47
Total Borrowings	-	-	440,678.57	213.47
PROVISIONS				
Annual Leave	**119,909.93**		125,401.68	
Sick Leave	**5,912.81**		5,726.69	
Long Service Leave	**247,116.25**	**11,215.68**	212,814.83	70,653.03
Other	**1,506.46**		2,321.86	
Total Provisions	**374,445.45**	**11,215.68**	346,265.06	70,653.03

Attachment

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 10 - STATEMENT OF PERFORMANCE MEASUREMENT

	Amounts	2013 Indicators	2012
Current Ratio			
Current Assets	1,832,576.66	1.04	0.86
Current Liabilities	1,763,907.59		

Attachment

Coffs Coast State Park Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 11 - LEASES OR LICENCES GRANTED OR IN FORCE

1. Leases

Lease Agreements currently entered into by the Trust

- Caretakers residential leases for Park Beach Holiday Park
- Lease of various premises along Jetty Foreshores
- Leases for various Long Term Residents at Sawtell Beach Caravan Park & Park Beach Holiday Park

2. Licences

Licences are provided to various community groups and for other events.
The following list contains a few examples;

- Coffs Harbour Yacht Club. Use of reserve for Sailing regattas
- Coffs Harbour Triathlon Club. Use of reserve for Training and Events
- Streets Ahead. Use of reserve for International Buskers Festival and Food & Wine Festival
- Coffs Harbour Surf Lifesaving. Use of Reserve for Surf and Craft Events
- March's Amusements. Use of Reserve for Carnival
- Coffs Harbour Jet Ski and Leisure Hire
- Harbourside Markets in Jetty Foreshores
- Rotary Club. Use of Reserve for Coffs Coast Ocean Swim
- Mary help of Christians, Sawtell Primary, Bayldon Public and St Augustine's Primary Schools. Use of Reserve for Cross Country Events
- Surf Schools - Lee Winkler/East Coast/Sawtell
- Liquid Assets Adventure tours
- Commercial Fitness

Note 12- DISCLOSURE OF PECUNIARY INTERESTS

There are no pecuniary interests held within the Coffs Coast State Park Trust.

Attachment

Davies Knox Maynards

"Helping you create and manage your wealth"

INDEPENDENT AUDITOR'S REPORT TO THE MANAGEMENT OF COFFS COAST STATE PARK TRUST

We have audited the accompanying financial report, being a special purpose financial report, of Coffs Coast State Park Trust, which comprises , the assets and liabilities statement as at 30 June 2012, the income and expenditure statement for the year then ended, notes comprising a summary of significant accounting policies and other explanatory information, and the statement by members of the committee.

The Responsibility of the Management of the Trust

The management of the Trust are responsible for the preparation of the financial report and have determined that the accounting policies described in Note 1 to the financial statements, which form part of the financial report are consistent with the financial reporting requirements of Section 32 (4) of the Crown Lands Regulation 2006. As such it is intended for the following users:

- Department of Lands
- Coffs Harbour City Council as Corporate Manager of the Trust

The management of the trusts' responsibilities also includes such internal control as the management of the trust determines is necessary to enable the preparation of a financial report that is free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on the financial report based on our audit. No opinion is expressed as to whether the accounting policies used, as described in Note 1, are appropriate to meet the needs of the members. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial report.

The financial report has been prepared for distribution to management of the Trust, Department of Lands and Coffs Harbour City Council as Corporate Manager of the trust. We disclaim any assumption of responsibility for any reliance on this report or on the financial report to which it relates to any person other than the members, or for any purpose other than that for which it was prepared.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

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Davies Knox Maynards

"Helping you create and manage your wealth"

INDEPENDENT AUDITOR'S REPORT TO THE MANAGEMENT OF COFFS COAST STATE PARK TRUST

Independence

In conducting our audit, we have complied with the independence requirements of the Australian professional ethical pronouncements.

Auditor's Opinion

In our opinion, the financial report presents fairly, in all material respects the financial position of Coffs Coast State Park Trust as at 30 June 2013 and of its financial performance for the year then ended in accordance with the accounting policies described in Note 1 to the financial statements and the financial reporting requirements of Section 32 (4) of the Crown Lands Regulation 2006.

Basis of Accounting and Restriction on Distribution

Without modifying our opinion, we draw attention to Note 1 to the financial report, which describes the basis of accounting. The financial report has been prepared to assist Coffs Coast State Park Reserve Trust to meet the requirements of the Department of Lands and Coffs Harbour City Council as Corporate Manager of the trust. As a result, the financial report may not be suitable for another purpose

Davies Knox Maynards

Mark Davies

Coffs Harbour

4 October 2013

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Attachment

Woolgoolga Beach Reserve Trust

Special Purpose Financial Reports
for the year ended 30th June 2013

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Attachment

Woolgoolga Beach Reserve Trust

INCOME STATEMENT
for the year ended 30th June 2013

	Notes	Actual 2013	Actual 2012
INCOME			
Revenue:			
User Charges & Fees	2	**1,483,075**	1,411,555
Investment Revenues	2	**8,004**	21,915
Other Revenues	2	**4,028**	(70)
Other Income:			
Profit from Disposal of Assets	4	**-**	-
Revenues from Continuing Operations		**1,495,107**	1,433,400
EXPENSES			
Employee Costs	3	**598,127**	621,286
Materials & Contracts		**232,550**	220,925
Depreciation, Amortisation & Impairment	3	**190,387**	151,194
Other Expenses	3	**353,978**	319,357
Loss from Disposal of Assets	4	**520**	551
Expenses from Continuing Operations		**1,375,562**	1,313,313
NET OPERATING RESULT FOR YEAR		**119,545**	120,087
Attributable to:			
Woolgoolga Beach Reserve Trust		**119,545**	120,087
		$ 119,545	$ 120,087

This Statement is to be read in conjunction with the attached Notes.

Attachment

Woolgoolga Beach Reserve Trust

BALANCE SHEET
as at 30 June 2013

	Notes		Actual 2013	Actual 2012
CURRENT ASSETS				
Cash and cash equivalents	5		**350,589**	870,787
Receivables	6		**5,758**	12,762
Inventories - realisable < 12 months	7		**9,630**	18,208
Other	7		**4,990**	6,298
TOTAL CURRENT ASSETS			**370,967**	908,056
NON-CURRENT ASSETS				
Receivables	6		**-**	-
Infrastructure, Property, Plant & Equipment	8		**3,213,901**	2,592,999
Other	7			-
TOTAL NON-CURRENT ASSETS			**3,213,901**	2,592,999
TOTAL ASSETS			**3,584,868**	3,501,055
CURRENT LIABILITIES				
Payables	9		**249,917**	277,600
Provisions	9		**52,864**	40,307
TOTAL CURRENT LIABILITIES			**302,781**	317,907
NON-CURRENT LIABILITIES				
Payables	9		**-**	-
Provisions	9		**-**	20,605
TOTAL NON CURRENT LIABILITIES			**-**	20,605
TOTAL LIABILITIES			**302,781**	338,512
NET ASSETS		$	**3,282,088**	3,162,543
EQUITY				
Accumulated Surplus			**1,850,088**	1,730,543
Asset Revaluation Reserve			**1,432,000**	1,432,000
Council Equity Interest			**3,282,088**	3,162,543
TOTAL EQUITY		$	**3,282,088**	3,162,543

This Statement is to be read in conjunction with the attached Notes

Woolgoolga Beach Reserve Trust

STATEMENT OF CHANGES IN EQUITY
for the year ended 30th June 2013

	Note	2013 Accum Surplus	Asset Reval Reserve	Other Reserves	Council Equity Interest	Outside Equity Interest	Total	2012 Accum Surplus	Asset Reval Reserve	Other Reserves	Council Equity Interest	Outside Equity Interest	Total
Balance at beginning of the reporting period		1,730,544	1,432,000	-	3,162,544	-	3,162,544	1,610,456	1,432,000		3,042,456		3,042,456
Change in Net Assets recognised in the Statement of Financial performance		119,545			119,545	-	119,545	120,087			120,087	-	120,087
Balance at end of the reporting period		1,850,088	1,432,000	-	3,282,088	-	3,282,088	1,730,543	1,432,000	-	3,162,543	-	3,162,543

This Statement is to be read in conjunction with the attached Notes

Attachment

WOOLGOOLGA BEACH RESERVE TRUST

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30 June 2013

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2013

NOTE 1: STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

The trust management have prepared the financial statements on the basis that the trust is a non-reporting entity because there are no users dependent on general purpose financial reports. This financial report is therefore a special purpose financial report that has been prepared in order to meet the needs of the Department of Lands.

The financial report has been prepared on an accruals basis and is based on historic costs and does not take into account changing money values or, except where specifically stated, current valuations of non-current assets.

The following significant accounting policies, which are consistent with the previous period unless otherwise stated, have been adopted in the preparation of this financial report.

a. **Income Tax**

The trust is not subject to income tax under the Crown Lands Act 1989.

b. **Property, Plant and Equipment**

Leasehold improvements and office equipment are carried at cost less, where applicable, any accumulated depreciation.

The depreciable amount of all PPE is depreciated over the useful lives of the assets to the association commencing from the time the asset is held ready for use.

Leasehold improvements are amortised over the shorter of either the unexpired period of the lease or the estimated useful lives of the improvements.

c. **Impairment of Assets**

At the end of each reporting period, the entity reviews the carrying values of its tangible and intangible assets to determine whether there is any indication that those assets have been impaired. If such an indication exists, the recoverable amount of the asset, being the higher of the asset's fair value less costs to sell and value in use, is compared to the asset's carrying value. Any excess of the asset's carrying value over its recoverable amount is recognised in the income and expenditure statement.

d. **Employee Benefits**

Provision is made for the association's liability for employee benefits arising from services rendered by employees to the end of the reporting period. Employee benefits have been measured at the amounts expected to be paid when the liability is settled.

e. **Provisions**

Provisions are recognised when the trust has a legal or constructive obligation, as a result of past events, for which it is probable that an outflow of economic benefits will result and that outflow can be reliably measured.

Provisions are measured at the best estimate of the amounts required to settle the obligation at the end of the reporting period.

f. **Cash and Cash Equivalents**

Cash and cash equivalents includes cash on hand, deposits held at call with banks, and other short-term highly liquid investments with original maturities of three months or less.

Attachment

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS
for the year ended 30 June 2013

Note 1 - Significant Accounting Policies (cont)

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2013

NOTE 1: STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

g. **Revenue and Other Income**

Revenue is measured at the value of the consideration received or receivable after taking into account any trade discounts and volume rebates allowed. For this purpose, deferred consideration is not discounted to present values when recognising revenue.

Interest revenue is recognised using the effective interest rate method, which, for floating rate financial assets, is the rate inherent in the instrument. Dividend revenue is recognised when the right to receive a dividend has been established.

Grant and donation income is recognised when the entity obtains control over the funds, which is generally at the time of receipt.

All revenue is stated net of the amount of goods and services tax (GST).

h. **Goods and Services Tax (GST)**

Revenues, expenses and assets are recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Australian Taxation Office (ATO). Receivables and payables are stated inclusive of the amount of GST receivable or payable. The net amount of GST recoverable from, or payable to, the ATO is included with other receivables or payables in the statement of financial position.

I. **Accounts Payable and Other Payables**

Accounts payable and other payables represent the liability outstanding at the end of the reporting period for goods and services received by the association during the reporting period that remain unpaid. The balance is recognised as a current liability with the amounts normally paid within 30 days of recognition of the liability.

Attachment

Woolgoolga Beach Reserve Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 2 - REVENUES FROM ORDINARY ACTIVITIES

	2013	2012
USER CHARGES & FEES		
User Charges		
Short Term Accomodation	1,369,838.23	1,285,629.36
Long Term Accomodation	46,073.67	56,188.77
Electricity Receipts	8,480.25	8,641.42
Residents Rent	21,957.36	21,750.88
Laundry Receipts	23,085.47	23,396.36
Sundry Receipts	13,639.84	15,948.22
	1,483,074.82	1,411,555.01
INVESTMENT REVENUES		
Interest	8,004.19	21,914.68
Total Investment Revenues	8,004.19	21,914.68
OTHER REVENUES		
Other	4,027.68	(70.18)
Total Other Revenues	4,027.68	(70.18)

Attachment

Woolgoolga Beach Reserve Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 3 - EXPENSES FROM ORDINARY ACTIVITIES

	2013 $	2012 $
EMPLOYEE COSTS		
Salaries, Wages and Management Fees	**573,195.50**	573,639.33
Superannuation - defined contribution plan contributions	**11,460.60**	12,912.24
Workers' Compensation Insurance	**7,641.09**	8,115.08
Protective Clothing/Uniforms	**479.00**	1,130.34
Training Costs	**519.33**	1,984.24
Employee Leave Entitlements	**4,831.17**	23,505.14
Total Operating Employee Costs	**598,126.69**	621,286.37
Total Number of Employees *(Full time equivalent at end of reporting period)*	***6***	***6***
DEPRECIATION, AMORTISATION & IMPAIRMENT		
Plant and Equipment	**6,200.16**	6,704.02
Office Equipment	**1,186.59**	1,639.09
Land and Buildings	**166,803.16**	133,922.29
Other Structures	**8,342.56**	4,357.88
Infrastructure		
- Roads	**1,933.16**	4,570.37
- water supply network not elsewhere included	**5,921.81**	
Total Depreciation, Amortisation & Impairment	**190,387.44**	151,193.65

	2013 $	2012 $
OTHER EXPENSES		
Advertising	**25261.5**	26530.35
Auditor's renumeration		
- Audit Services	**9533.64**	9333.64
Bad and Doubtful Debts	**-**	
Bank Fees & Interest Charges	**8,274.82**	6,624.62
Commission	**46.36**	-
Dept of Lands	**70,578.40**	70,578.40
Garbage	**29,198.14**	33,667.68
Insurances	**9,967.63**	10,178.20
Legal Expenses		
- Other legal expenses/Plan of Management	**2,127.70**	-
Electricity	**94,708.20**	86,983.36
Other	**788.53**	1,056.59
Payments to other levels of Government	**2,677.40**	2,940.29
Refunds	**49.99**	85.65
Stationery	**2,802.17**	2,700.27
Telephone and Communications	**32,532.15**	16,128.35
Water & Sewerage	**65,431.57**	52,549.50
Total Other Expenses	**353,978.20**	319,356.90

Attachment

Woolgoolga Beach Reserve Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 4 - GAIN OR LOSS ON DISPOSAL OF ASSETS

	2013	2012
DISPOSAL OF PLANT & EQUIPMENT		
Proceeds from disposal	**5,560.00**	4,725.00
Less: Carrying amount of assets sold	**6,080.06**	5,276.21
Gain (Loss) on disposal	**(520.06)**	(551.21)
TOTAL GAIN (LOSS) ON DISPOSAL OF ASSETS	**(520.06)**	(551.21)

Attachment

Woolgoolga Beach Reserve Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 5 - CASH & INVESTMENTS

	2013		2012	
	Current	Non-Current	Current	Non-Current
CASH & CASH EQUIVALENTS				
Cash on Hand and at Bank	**350,589.36**		870,787.04	
Total Cash & Equivalents	**350,589.36**		870,787.04	

Attachment

Woolgoolga Beach Reserve Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 6 - RECEIVABLES

	2013		2012	
	Current	Non-Current	Current	Non-Current
Trade Debtors	**2,067.70**		2,326.97	
GSt Paid	**3,690.66**		10,435.48	
Other Debtors	**-**		-	
Total	**5,758.36**	-	12,762.45	-

Attachment

Woolgoolga Beach Reserve Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 7 - INVENTORIES & OTHER ASSETS

	2013		2012	
	Current	Non-Current	Current	Non-Current
INVENTORIES				
Stores & Materials	**9,630.00**		18,208.32	
Total Inventories	**9,630.00**	-	18,208.32	-
OTHER ASSETS				
Prepayments	**4,989.53**		6,298.40	
Total Other Assets	**4,989.53**	-	6,298.40	-

Woolgoolga Beach Reserve Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS
for the year ended 30th June 2013

Note 8 - PROPERTY, PLANT & EQUIPMENT

	2012				CARRYING AMOUNT MOVEMENTS DURING YEAR							2013			
	AT COST	AT FAIR VALUE	ACCUM DEPN	CARRYING AMOUNT	Asset Purchases	Council Restructure	Asset Disposals	Depreciation	Impairment	Blank	Net Revaluation	AT COST	AT FAIR VALUE	ACCUM DEPN	CARRYING AMOUNT
Plant & Equipment	68,998.58	-	(30,220.09)	38,778.49	9,129.09	-	(272.24)	(6,200.16)	-	-	-	**72,476.41**	-	**(31,041.23)**	**41,435.18**
Office Equipment	11,488.19	-	(6,758.57)	4,729.62	-	-	-	(1,186.59)	-	-	-	**11,488.19**	-	**(7,945.16)**	**3,543.03**
Buildings	1,765,549.95	1,432,000.00	(687,758.82)	2,509,791.13	675,588.43	-	(4,927.82)	(166,803.16)	-	-	0.01	**2,402,489.24**	**1,432,000.00**	**(820,840.65)**	**3,013,648.59**
Other Structures	83,343.20	-	(46,154.91)	37,188.29	-	-	-	(8,342.56)	-	-	-	**82,123.20**	-	**(53,277.47)**	**28,845.73**
Infrastructure									-						
- Roads, bridges, footpaths	722.20	-	(637.15)	85.05	34,132.90	-	-	(1,933.16)	-	-	-	**34,855.10**	-	**(2,570.31)**	**32,284.79**
- Water/Sewerage Supply Net	4,639.78	-	(2,213.19)	2,426.59	97,638.92	-	-	(5,921.81)	-	-	-	**102,278.70**	-	**(8,135.00)**	**94,143.70**
Other Assets									-						
- Jetty	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Botanical Gardens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital Work In Progress	-	-		-	-							-			-
Totals	1,934,741.90	1,432,000.00	(773,742.73)	2,592,999.17	816,489.34	-	(5,200.06)	(190,387.44)	-	-	0.01	**2,705,710.84**	**1,432,000.00**	**(923,809.82)**	**3,213,901.02**

Asset acquisitions were apportioned between: Renewals 816,489.34

Attachment

Woolgoolga Beach Reserve Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 10 - STATEMENT OF PERFORMANCE MEASUREMENT

	Amounts	2013 Indicators
Current Ratio		
Current Assets	370,967.25	1.23
Current Liabilities	302,780.55	

Attachment

Woolgoolga Beach Reserve Trust

NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS for the year ended 30th June 2013

Note 11 - LEASE OR LICENCE GRANTED OR IN FORCE

1 Leases
Lease Agreements currently entered into by the Trust
- Caretakers residential leases for Woolgoolga Beach and Lakeside Caravan Parks
- Leases for various Long Term residents at Woolgoolga Beach and Lakeside Caravan Parks

2 Licences
Licence agreements for use of Woolgoolga Beach Reserve
- Bollywood Beach Markets
- Bananacoast Credit Union use of reserve for Woolgoolga Triathlon
- Woolgoolga Volunteer Sea Rescue use of reserve for markets
- Use of reserve for Weddings
- Woolgoolga Curry Festival
- SLSC Championships use of reserve
- Aust. Blue Water Free Diving Classic
- Woolgoolga High School P&C Markets
- Commercial fitness, Girlfit Pty Ltd

Note 12 - DISCLOSURE OF PECUNIARY INTEREST

There are no pecuniary interests held within Woolgoolga Beach Reserve Trust.

Attachment

Davies Knox Maynards

"Helping you create and manage your wealth"

INDEPENDENT AUDITOR'S REPORT TO THE MANAGEMENT OF WOOLGOOLGA BEACH RESERVE TRUST

We have audited the accompanying financial report, being a special purpose financial report, of Woolgoolga Beach reserve Trust, which comprises , the assets and liabilities statement as at 30 June 2013, the income and expenditure statement for the year then ended, notes comprising a summary of significant accounting policies and other explanatory information, and the statement by members of the committee.

The Responsibility of the Management of the Trust

The management of the Trust are responsible for the preparation of the financial report and have determined that the accounting policies described in Note 1 to the financial statements, which form part of the financial report are consistent with the financial reporting requirements of Section 32 (4) of the Crown Lands Regulation 2006. As such it is intended for the following users:

- Department of Lands
- Coffs Harbour City Council as Corporate Manager of the Trust

The management of the trusts' responsibilities also includes such internal control as the management of the trust determines is necessary to enable the preparation of a financial report that is free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on the financial report based on our audit. No opinion is expressed as to whether the accounting policies used, as described in Note 1, are appropriate to meet the needs of the members. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial report.

The financial report has been prepared for distribution to management of the Trust, Department of Lands and Coffs Harbour City Council as Corporate Manager of the trust. We disclaim any assumption of responsibility for any reliance on this report or on the financial report to which it relates to any person other than the members, or for any purpose other than that for which it was prepared.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

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Attachment

Davies Knox Maynards

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INDEPENDENT AUDITOR'S REPORT TO THE MANAGEMENT OF WOOLGOOLGA BEACH RESERVE TRUST

In conducting our audit, we have complied with the independence requirements of the Australian professional ethical pronouncements.

Auditor's Opinion

In our opinion, the financial report presents fairly, in all material respects the financial position of Woolgoolga Beach Reserve Trust as at 30 June 2013 and of its financial performance for the year then ended in accordance with the accounting policies described in Note 1 to the financial statements and the financial reporting requirements of Section 32 (4) of the Crown Lands Regulation 2006.

Basis of Accounting and Restriction on Distribution

Without modifying our opinion, we draw attention to Note 1 to the financial report, which describes the basis of accounting. The financial report has been prepared to assist Woolgoolga Beach Reserve Trust to meet the requirements of the Department of Lands and Coffs Harbour City Council as Corporate Manager of the trust. As a result, the financial report may not be suitable for another purpose

Davies Knox Maynards

Mark Davies

Coffs Harbour

10 October 2013

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CAMPING AT THE JETTY FORESHORES

Purpose:

To provide Council with advice in relation to its resolution of 14 February 2013 and options to address the issue of unregulated camping on foreshore reserves under the control of, or managed by, Council.

Description of Item:

Council Resolution

At its meeting held on 14 February 2013, Council resolved that:

> *"Coffs Harbour City Council allow self sufficient motor homes and vans to park on Council owned land, east of railway at the jetty or the area of land known as the south wall, for a limit of 48 hours.*
>
> *A permit be purchased from the Visitors Information Centre and be displayed on the vehicles."*

Status of Land at the Jetty Foreshores

The only land that Council owns east of the railway line at the Jetty is public road reserve (Jordan Esplanade). All other lands are owned by the Crown. A majority of these lands are part of the Coffs Coast State Park (CCSP). Under the Crown Lands Act (CLA) Council has been appointed as Corporate Manager of the CCSP Trust, which has responsibility for the care, control and management of the land in accordance with the CLA and the adopted Coffs Harbour Jetty Foreshores Plan of Management (POM).

Difference between the Council and the Council as CCSP Trust Manager (TM)

The Council is elected, appointed under, and bound by the provisions of the Local Government Act (LGA).

The TM is appointed under the CLA by the relevant Minister and is bound by the provisions of the CLA in that capacity.

The best way to describe the difference is that Council has two different hats to wear, and needs to be conscious of which hat it is wearing when deciding on certain issues.

Council may recall that resolutions dealing with matters on Crown land that it administers as TM always state the Council is making the resolution as TM.

Some Councils actually convene separate meetings when they are considering Trust matters. It has been the practice of this Council for over 20 years that Trust matters are included in the Ordinary Meeting Agenda for consideration and resolution as TM.

The administration of Crown lands as TM can be complex, and the Department has developed a detailed publication known as the Trust Handbook to assist TM's in carrying out their duties.

Interpretation of Council's Resolution

Firstly, this is a resolution of the Council, not of Council as the TM.

Secondly, there is no land owned by Council east of the railway suitable for the intended use.

Thirdly, the land known as the 'south wall' is not specific as to location, but is Crown land and part of the CCSP over which the Council (not acting as TM) has no control. It should be noted that a vast majority of the land that could be caught by the 'south wall' description is now fenced off and will be for another two years during the breakwater refurbishment works.

Fourthly, there is presently no adopted fee or charge for a permit to camp at the Jetty.

In summary, the Council has no authority to resolve to allow camping on land it does not own (be it Crown or private land).

Therefore, the resolution in its present form cannot be implemented.

Information Subsequent to Council's Resolution

1. On 19 February 2013, five days after Council's resolution, the Department of Premier and Cabinet (Division of Local Government) issued a Circular titled "Council management of Camping in Public Places" (copy attached).

   This Circular sets out the Government's position on this issue and requests councils to ensure there is compliance with the appropriate legislative requirements, particularly in relation to approvals.

2. Our local MP, Andrew Fraser took an interest in the matter and sought advice from the responsible Minister (the Deputy Premier). A copy of the response to Andrew Fraser from the Parliamentary Secretary (Mr Paul Toole) to the Deputy Premier is also attached.

   This response confirms that the current resolution cannot be implemented and that approvals are required.

Regulatory Requirements

The regulation around camping and caravaning is complex and overlapping and the following are matters to be considered in the current situation:

1. Acts

1.1. Local Government Act – Particularly Sections 68 and 78.
1.2. Crown Lands Act – Particularly in relation to Trust Managers' responsibilities, Plans of Management and Section 155.
1.3. Environmental Planning & Assessment Act – Coffs Harbour LEP 2013 and SEPP 21 Caravan Parks.

2. Regulations

2.1. Local Government (Manufactured Homes Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005.
2.2. Crown Lands (General Reserves) By-law 2006.
2.3. Crown Lands Regulation 2006.

3. *Plan of Management*

3.1. Coffs Harbour Jetty Foreshores Plan of Management 2008.

4. *Government Policy*

3.2. Crown Lands Policy 2010: The Use of Crown Reserves for Operating Caravan Parks and Camping Grounds.
3.3. Department of Planning Circular PS10 – D19.
3.4. Department of Premier and Cabinet Circular 13-05 (discussed above).

5. *Other*

5.1. Waste Service Requirements.
5.2. Fire Fighting Requirements.

Way Forward

Council acknowledge that in its current form the resolution of 14 February 2013 cannot be implemented and no further action be taken in relation to it.

Five options as detailed in the Issues section of this report have been prepared for Council's consideration with a recommendation to adopt Option 5.

Sustainability Assessment:

- **Environment**

  The effect of unregulated camping on foreshore reserves can have adverse environmental impacts. The degree of impact will depend on the type of camping (eg tent, van or fully self-contained recreational vehicle) and the number of campers. The rules and regulations are designed to minimise such impacts.

- **Social**

  The foreshores are there for all to enjoy. The community appears to be divided on whether unregulated camping is a positive or negative social outcome.

- **Civic Leadership**

  Council represents the community and needs to demonstrate appropriate leadership on this difficult issue.

- **Economic**

  Broader Economic Implications

  Tourists are obviously very important to our local economy. Each option, or variations of them, will have an economic impact, the amount of which is difficult to quantify.

  Delivery Program/Operational Plan Implications

  Two of the options (2 and 3) would impact on Council's budget and require revenue funding. If either of these options is chosen, a further report will be brought back to Council which would deal with this and other matters associated with them.

Risk Analysis:

Each option brings with it its own risks and these have been identified as pros and cons in the Issues section of the report.

Lack of enforcement will see a continuation of unregulated camping. Council risks criticism from competing community interest groups and businesses.

Consultation:

The Councillors and senior Council staff have discussed issues surrounding the 14 February 2013 resolution. The State Government has been consulted via the local member, Andrew Fraser.

Related Policy and / or Precedents:

The current policy in relation to camping at the Jetty is contained in the Coffs Harbour Jetty Foreshores Plan of Management 2008. The three relevant Government policies are listed earlier in the report. The State Government's position is quite clear, they do not support camping on unserviced public land at the expense of private operators of caravan and camping facilities.

Statutory Requirements:

Relevant statutes and regulations are listed earlier in the report.

Issues:

Introduction

Council's resolution of 14 February 2013 and discussions since have been in relation to accommodating recreational vehicles that are self-sufficient. The options below have been prepared on this basis and therefore tent campers and non self-sufficient camper vans are excluded from consideration.

No matter which option is chosen, the question arises as to what constitutes a self-sufficient recreational vehicle, and an easy method of identification without the need for an internal inspection. The Campervan and Motor Home Club of Australia (CMCA) has a scheme that identifies self-contained recreational vehicles that have toilets, showers, water and rubbish capacity and the number of days the vehicle is suitable to camp free. These recreational vehicles have a yellow and green triangle sticker on their window and can be easily identified. Therefore, a reference to a self-sufficient recreational vehicle is taken to be a reference to a recreational vehicle that has the appropriate identification sticker issued by the CMCA.

A suitable location must be one that will be acceptable to the target market, which rules out western sites and even the Stadium precinct.

The site needs to be either owned by Council, or under its control. Sites such as the Showground or Racecourse have not been considered.

There needs to be recognition that this is a state wide problem, particularly on the coast, and the Government should be showing leadership in its resolution. The number of self-contained recreational vehicles on the road has increased substantially since the relevant legislation and regulations were enacted.

Option 1 – Do Nothing

This option means exactly that. Council would not enforce camping restrictions on coastal reserves under its control and thus allow the continuation of the present free ad hoc and unregulated camping to all and sundry.

Pros:
- May entice travellers to stop over in Coffs Harbour and spend in the local economy
- May assist in putting pressure on the State Government to deal with the issue on a state-wide basis

Cons:
- Strongly against current State Government policy
- In relation to camping at the Foreshore, not in accordance with Jetty Foreshores Plan of Management 2008
- May put at risk Council's appointment as Corporate Manager of the Coffs Coast State Park and the revenue streams from the Park Beach and Sawtell Beach Holiday Parks.
- Does not comply with Competition Policy Guidelines
- Random overnight parking at coastal locations reflects poorly on the overall look and feel of the Coffs Coast as a tourist destination
- Difficult to enforce other rules and regulations on reserves if no camping is not enforced.
- Shows lack of leadership

Overall Comment: Unlikely to be an acceptable option especially at State Government level.

Option 2 – Provision of Ten Sites on Crown Land under Council's Control

Under this option the concept would be to set aside and develop an area of Crown land that is under Council's control in a location that would be desirable to travellers for short term stays.

Besides the Jetty Foreshore itself, the following sites have been identified as possible locations:

(a) Saltwater Park,
(b) North east corner of Englands Park,
(c) Car park on the southern boundary of the Park Beach Holiday Park adjacent to the railway line,
(d) Surf Club car park.

All of these sites are in the State Park (same as the Jetty).

Besides the individual characteristics of each site and cost of development, which would vary considerably, the following are pros and cons that apply to all of the sites.

Pros:
- Satisfy a demand from travellers wishing to stop over in Coffs Harbour in a desirable location.
- Assist in stopping ad hoc random overnight parking in various coastal locations.
- Provides income to the local economy.

Cons:
- Amendment of the applicable Plan of Management to allow camping following community consultation and the Minister's approval.
- Subject to the amendment of the Plan of Management other approvals under the Local Government Act, applicable regulations and the Environment Planning and Assessment Act would need to be obtained requiring the land owner's (the Crown) consent.
- Provision of infrastructure in accordance with approvals.
- Funding for infrastructure and ongoing management/maintenance.
- Very long lead time estimated at a minimum of 12 months.
- No guarantee of obtaining approvals (rated as unlikely).
- Industry perception as to a level playing field.

Overall Comment: A high risk option due to approval path and lead time. If selected as the preferred option, a further report would need to be brought back to Council on its implementation and funding options.

Option 3 – Provision of Ten Subsidised Sites on Council Owned Land

The only Council owned site that was identified as a possibility is the north-west corner of York Street Oval. Discussions with the Sports Unit reveal that it is not used for active recreation being outside the current soccer and softball playing surfaces.

The Sports Facility Plan (2010) noted that in the medium term (8-12 years) there would most likely be an increased demand for off-street parking and that it would most likely be located in this corner.

The land is classified as Community land under the Local Government Act and is covered by the Sportsground Plan of Management.

The Plan of Management would be required to be amended to allow the use of part of the site for camping.

As a primitive camping site it could accommodate ten sites. The cost to establish is estimated at $80,000 (only a preliminary estimate with no design or specification) and annual cost to administer and maintain $60,000. If the sites were charged out at $10 per night, maximum two night stay and assuming a 75% occupancy, then gross income would be $27,375.

Administration could be through the Visitor Information Centre, Park Beach Holiday Park, the Rangers, or a combination of all three. Obviously there would need to be a lot more internal discussion in this regard. The initial capital cost and annual costs would have to be funded from General Revenue.

Pros:
- Satisfy a demand from travellers wishing to stop over in Coffs Harbour in a desirable location.
- Assist in stopping ad hoc random overnight parking in various coastal locations.
- Provides income to the local economy.
- Good chance of obtaining necessary approvals.
- Will not affect sporting uses in the short term.

Cons:
- Amendment of the Sportsground Plan of Management.
- Approvals under the Local Government Act, applicable regulations and the Environmental Planning and Assessment Act would need to be obtained.
- Provision of infrastructure in accordance with approvals.
- Funding for infrastructure and ongoing management/maintenance from general revenue.
- Long lead time estimated at a minimum of 12 months.
- May affect sporting uses in the long term.
- Industry perception as to a level playing field.
- Income will not cover all costs and therefore sites are being subsidised.

Overall Comment: Being on a Council owned site this option is not as risky as Option 2, but has a similar lead time and cost implications. If selected as the preferred option, a further report would need to be brought back to Council on its implementation and funding options.

Option 4 – Provision of Ten Subsidised Sites at Park Beach Holiday Park

That ten unpowered camp sites be offered at Park Beach Holiday Park at a subsidised rate of $10.00 per night for use by fully self-contained recreational vehicles (RVs) on a 12 month trial basis.

Rationale

The option provides an already established location, with current Section 68 approvals in place, which meets some of the criteria for the RV's and self-contained motor homes seeking 'free' camping (eg close to local facilities, shops, beach and public services). A $10.00 fee would be charged to recoup some of the costs associated with the stay and anecdotal information indicates that self-contained travellers would be willing to pay a small fee for the use of an area.

Once the option is in place, signage could be erected at strategic sites advising of camping prohibitions but also directing 'free' campers to the approved location at Park Beach Holiday Park. This would provide the users with a viable alternative to 'free' camping and add voracity to the enforcement of 'free' camping at non-approved locations within the Local Government Area.

Issues of this Option

Site Availability

The allocation of ten unpowered sites will have an impact of a 20% loss in available unpowered sites for full paying guests. Current occupancy levels for unpowered sites means the park can cater for the loss of these sites on all but 22 days of the year (2013 usage) with all unavailable days falling within the Easter and Christmas holiday period.

Cost Implications

The subsidised sites will operate at a loss under a $10.00 per night scenario. Direct costs associated with the booking will include staff labour for booking in and checking out, accounting costs, electronic payment fees, administration costs and onsite management costs. Based upon a standard booking, these direct costs will not be covered by the subsidised tariff. Once indirect costs are applied to the booking, the site sold will operate at a loss and no profits will be derived from the business. The losses may be ameliorated somewhat if the subsidised sites sale is converted to ongoing patronage at a full tariff rate.

If, in future, the 22 days over Christmas and Easter are let out at the subsidised rate of $10 per night, the loss of income to the park would be approximately $10,000. Of course, even if Council chose this option, it could decide not to make the subsidised sites available over Christmas and Easter.

Industry Perceptions

The issue of Council providing subsidised RV sites will raise some concerns within the Caravan and Camping Industry and may raise questions from local competitors. The industry has had a long held desire to see all businesses within the industry maintain tariffs at sustainable levels. The provision of 'cheap' sites underscores the potential of the industry and creates a negative competitive environment that will stagnate growth and limit the quality of products and services available to the general public. Generally, Council managed holiday parks have had a stigma attached to them as historically, they have been responsible for the provision of lower quality products and services within the industry. Park Beach has operated counter to this trend resulting in the park being the recipient of many major awards including Best Holiday Park Resort in NSW 2013.

If Option 4 is pursued, the Caravan and Camping Industry Association of NSW should be consulted and informed of the rationale behind Council's decision to provide subsidised self-contained RV sites.

Crown Lands Implications

Without consultation, it is not clear what position Crown Lands will have on the matter. On one hand, the implementation of Option 4 assists Council in complying with Crown concerns over the provision of 'free' camping on Crown Land without the proper approvals in place. On the other hand, questions may be raised by the Crown regarding the unsustainable business practices involved in the provision of subsidised camping.

Customer and Public Perceptions

The provision of subsidised camping at Park Beach Holiday Park may have a negative impact upon some users of the park. There may be a perception that a full paying guest is themselves subsidising a traveller staying on a discounted site.

Alternately, whilst no rate payer's money is spent within the Holiday Parks, there may be a perception within the community that the rate payers' funds are subsidising holidays within Coffs Harbour. In any event, any loss of profits from the holiday park operations are funds that cannot be used for improvements within the wider State Park, and Council funds will be required to make up any shortfall.

Internal enforcement

Once inside the park it will be difficult to identify which guests have full access to all facilities and which guests are ostensibly paying a 'site only' fee. This may create some operational issues, particularly if a full paying guest takes exception to subsidised guests accessing park facilities.

Operational Criteria

The following items would be included as operational criteria and rules for the 10 unpowered sites set aside for subsidised camping:

- Maximum of ten unpowered sites offered per night;
- Offered at a subsidised rate of $10.00 per night (standard rates vary between $30.00 per night to $47.00 per night dependent upon tariff period);
- Maximum two night stay with a maximum of four nights in any 12 month period;
- Security gate and dump point access provided but no access given to any other park facility or service;
- Vehicle must be 'fully self-contained';
- Once 100% occupancy is achieved on the subsidised sites no further sites will be offered to the market;
- No pre-booking of subsidised sites. Sites will be allocated on a first come first served basis;
- Sites are not available in conjunction with any other discount or offer (includes Top Tourist Card holder discounts);
- Guests choosing to extend their stay must relocate to another site within the park so the subsidised site is available for resale;
- Guest choosing to extend their stay are not eligible for any future 'long stay' rates until they have met the criteria for a full paying guest (eg weekly discount rate commences seven days after moving to a full paying sites);
- Current guests cannot shift to subsidised sites;
- Subsidised guests have no access to internal park promotions such as 'free' Friday BBQ breakfast, kids club or park functions;
- No refunds for early departure;
- Strict 2.00 pm check-in and 10.00 am check-out;
- All standard bonds for items such as boom gate access fobs will be charged as per a standard booking;
- Current 'full price' bookings for subsidised sites, and any future bookings, will be honoured and given priority

Pros:

- Able to be implemented quickly
- No additional approvals required
- No additional infrastructure required
- Allows time for Council to lobby the State Government to deal with the matter on a State-wide basis
- Uses an area of the park that is vacant for a majority of the year
- Satisfy a demand from travellers wishing to stop over in Coffs Harbour in a desirable location
- Assist in stopping ad hoc random overnight parking in various coastal locations
- Provides income to the local economy

Cons:

- Sites are currently not available in peak holiday periods (Easter and Christmas)
- Industry perception as to a level playing field
- Suggested tariff will not cover all costs and therefore sites are being subsidised
- Operational issues for staff in treatment of patrons with different entitlements

Overall Comment: This option can be implemented quickly with the opportunity for Council to lobby the State Government to deal with the issue on a State-wide basis over the suggested 12 months trial period.

If selected as the preferred option, then the motion will need to include the following:

That Council approves the adoption and implementation of Option 4, including a $10.00 tariff, in its capacity as Corporate Manager of the Coffs Coast State Park Trust and a report be brought back to Council three months before the end of the 12 months trial period.

Option 5 – Enforce the Current Statutory Position

This option is the hard line approach and would require Council's rangers to enforce camping restrictions on reserves under the control of, or managed by Council, that are appropriately sign-posted, and either move people on or fine them.

Pros:
- Would over a period of time remove illegal campers from coastal reserves under Council's control
- Comply with State Government Policy
- Comply with Competition Policy Guidelines
- Provide a level playing field for those engaged in the accommodation industry
- Shows strong leadership

Cons:
- Adverse publicity, attacking Council (and Coffs Harbour in general) as not being tourist/traveller friendly.
- Possible loss of income to local economy if less travellers stay overnight
- As Council runs four coastal caravan parks, could be seen as a way of increasing revenue in these parks by forcing travellers to pay to stay.

Overall Comment: Maintains the 'status quo' allowing Council to lobby the State Government for a State-wide resolution of the issue.

Summary

This is a difficult and complex issue. Staff have tried to assist Council by providing the pros and cons of the various options put forward. Although Option 4 has some good points, particularly in relation to timing, Option 5 is recommended as the best way of dealing with the issue at present.

Implementation Date / Priority:

Council's decision will be implemented as soon practical.

Recommendation:

1. **That Council note, for the reasons stated in this report, that it is not possible to implement its resolution of 14 February 2013 that:**

   "Coffs Harbour City Council allow self-sufficient motor homes and vans to park on Council owned land, east of railway at the jetty or the area of land known as the south wall, for a limit of 48 hours.

   A permit be purchased from the Visitors Information Centre and be displayed on the vehicles."

   and that no further action is to be taken in that regard.

2. **That Council, to address the issue of illegal camping on reserves under its control, including the Jetty Foreshores, adopt and implement Option 5 as outlined in the report.**

3. **That Council write to the State Government, and lobby Local Government NSW to do the same, requesting that the State Government show leadership on this issue and put in place clear legislation/regulations that will resolve this issue State-wide.**

4. **That the appropriate industry associations and the media be advised of Council's decision.**

Attachment 1

Premier & Cabinet
Division of Local Government

Circular to Councils

Circular No. 13-05
Date 19 February 2013
Doc ID. A309917

Contact Innovation Team
02 4428 4172
dlg@dlg.nsw.gov.au

COUNCIL MANAGEMENT OF CAMPING IN PUBLIC PLACES

Purpose

The purpose of this Circular is to remind councils of the legislative obligations and options available to manage illegal camping in public places.

Issue

From time to time, the issue of illegal camping arises. It can cause health and safety issues, disturbance to adjoining land users, environmental damage and unfair competition to commercial businesses. There are a range of options available to councils to manage this issue. These include:

- Ensuring camping on council-managed land meets approval requirements.
  - Approval may only be granted when relevant health, safety and amenity requirements are met under the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005* (see the Regulation and Department of Planning and Infrastructure Circulars PS 06-001 and PS 10-019 at www.planning.nsw.gov.au for further information).
  - Communicating that camping in roadside rest areas is not permitted. This may be reinforced by signs erected by Roads and Maritime Services.
  - Consulting the relevant legislation and/or administering agency to ensure compliance with legislative obligations particularly where approval exemptions may apply such as under Local Approvals Policies, the Regulation for very low levels of very infrequent camping and other legislation for camping on Crown reserves, in State forests or in National Parks.
- Preventing unfair competition between illegal camping operations and legitimate, approved caravan and camping businesses. The *Pricing and Costing for Council Businesses – A Guide to Competitive Neutrality* available on the Division's website provides additional guidance.
- Utilising management and enforcement options including:
  - Erecting signs prohibiting camping in unsafe locations, such as local road sides.
  - Issuing Penalty Infringement Notices for unauthorised operation or use of a camping ground under the 2005 Regulation, acting contrary to a sign under the *Local Government Act 1993*, or acting contrary to

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Attachment 1

other laws such as the *Protection of the Environment Operations Act 1997.*

- Prosecuting for operating a camping ground without required prior approval under the *Local Government Act 1993.*
- Issuing an Order to cease use of a camping ground for which development consent has not been sought under the *Environmental Planning and Assessment Act 1979.*

Action

Councils are encouraged to monitor illegal camping in their areas and to use the range of options available to ensure that health, safety, environmental and other associated risks are well managed.

Ross Woodward
Chief Executive, Local Government
A Division of the Department of Premier and Cabinet

Attachment 2

Mr Paul Toole MP
Parliamentary Secretary to the Deputy Premier
and for Asia-Pacific Trade

IM13/7939

05 APR 2013

Mr Andrew Fraser MP
Member for Coffs Harbour
1/9 Park Avenue
COFFS HARBOUR NSW 2450

Dear Mr Fraser

I refer to your recent email to the Deputy Premier concerning the decision by Coffs Harbour City Council to permit parking of self-contained motor homes at the Coffs Harbour Jetty. The Deputy Premier has asked me to respond on his behalf.

The subject land is Crown land which is managed by Council in its capacity as the appointed Trust Manager of the Coffs Coast State Park Trust. The Trust has the responsibility for the care, control and management of the land in accordance with the adopted Coffs Harbour Jetty Foreshores Plan of Management.

I confirm that Council does not own any of the land subject to the resolution and accordingly neither the Trust nor NSW Trade & Investment, Crown Lands Division, have any obligation to accede to this motion. I am advised that the proposal is not consistent with the adopted plan of management for the reserve and that any camping will require an approval from Council in accordance with section 68 of the *Local Government Act 1993*.

Any decision with respect to this matter is therefore the responsibility of Council in its capacity as Trust Manager and is subject to an appropriate Trust resolution.

Thank you for your interest in this issue. If you have any further enquiries please contact Mr Tony Broderick by email at tony.broderick@lands.nsw.gov.au or on 02 6640 3437.

Yours sincerely

Paul Toole

Mr Paul Toole MP
Parliamentary Secretary to the Deputy Premier
and for Asia-Pacific Trade

RECEIVED
09 APR 2013
BY:.....

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ENVIRONMENTAL LEVY PROJECTS QUARTERLY REPORT TO 30 SEPTEMBER 2013

Purpose:

To provide Council with a quarterly status report to 30 September 2013 on the projects funded under the Environmental Levy (EL) Program.

Description of Item:

A description of the status of the EL Program as at 30 September 2013, including total funding against actual expenditure is included as an attachment to this report.

Sustainability Assessment:

- **Environment**

  The entire EL Program is designed to ensure that environmental strategies (as outlined within the Coffs Harbour 2030 Plan) are addressed. All projects recommended for funding will result in beneficial outcomes for the environment of the Coffs Harbour Local Government Area (LGA).

- **Social**

  The criteria used in assessing EL submissions include:

  - generating a community benefit;
  - meeting a critical environmental need; and
  - being community-based.

  Many projects included in the program are undertaken by community groups.

- **Civic Leadership**

  Councils EL Program seeks to promote sound environmental practices and promotes leadership and involvement in key environmental issues which accords with Council's strategic theme of 'Looking after our Environment'.

- **Economic**

  Broader Economic Implications

  The EL Program funds environmental projects that would not otherwise be undertaken with revenue funding.

  Delivery Program/Operational Plan Implications

  The EL Program is funded through a special rate and is accounted for separately, therefore there is no impact on Council's Delivery Program.

Risk Analysis:

Each individual project will have individual risk profiles which will be considered by the Project owners.

Consultation:

Council staff and relevant community groups have contributed individual reports which have been collated to prepare this report.

Related Policy and / or Precedents:

Submissions are assessed in accordance with Council's *Environmental Services – Associated Policies*, which was adopted on 12 June 1997 and readopted on 23 May 2013. Council's Executive Leadership Team receives quarterly reports on the status of EL Projects throughout the year.

Statutory Requirements:

The Ministerial approval for a special rate variation was obtained in June 1997 in accordance with the provisions of Section 508 (2) of the *Local Government Act 1993*.

Projects worthy of particular comment are:

Coffs Ambassadors Interpretive Tours

This quarter 244 local residents and tourists attended one of the 18 Coffs Ambassadors Tours on offer, including new school holiday walks specifically designed for school aged children. A training and debrief session was held for the tour guides. Tour information and bookings were moved from Council's website to the Our Living Coast website, which has allowed for more engaging promotional information to be on the web. Marketing of the tours was undertaken through the media (The Coffs Coast Advocate newspaper and on their website, Coffs Focus magazine), social media (the Our Living Coast website, e-newsletters and Facebook site), posters at community venues and flyers to targeted schools and households.

Our Living Coast Sustainable Living Festival

The planning for this year's Sustainable Living Festival is well under way. This year Council has partnered with community groups to support them in holding 'green' activities across the region. This approach enables the Festival to continue to grow across the region within the limited resources available. The Festival is running from 3 to 10 November and Costa Georgiadis (Gardening Australia host) is hosting the Botanica Spring Fair again and facilitating a schools' day on 4 November. We also have a significant number of fantastic workshops running on Super Saturday 9 November. Expenditure has been mainly 'in kind' staff time in the last quarter but expenditure will increase significantly over the next quarter. Challenges faced include the loss of the section's administration assistant which has meant design/marketing work has been required to be undertaken out of house. This, in addition to significant annual increases in advertising costs, has required an increase to the marketing budget. This has been offset by undertaking the majority of the festival coordination in-house, with some costs being allocated to the program.

Coffs Bike Plan (from 2010-11 matching grant funds)

A project officer has been appointed and a bike plan management team formed. Three meetings have been held with the team as well as the establishment of an online forum for discussion. A literature review has been conducted, cycleway maps collated and a vision and objectives set for the plan. A works plan is now being developed as well as actions and strategies. Some consultation was conducted at the 'On Ya Bike' community breakfast on 'hotspots' and 'missing links'. The next stage is to collate more data to make informed decisions about the works plan and priorities. Concept designs are to be developed in-house - a variation on the budget below to be approved.

Project Status Report as at 30 September 2013:

Funding available from the EL Program to 30 September 2013 is summarised as follows:

Details	**Year of Allocation of Funds**					
	2009-10 $	**2010-11 $**	**2011-12 $**	**2012-13 $**	**2013-14 $**	**Total $**
Environmental Levy funds available	73,081	33,255	27,217	135,997	1,343,847	1,613,397
Expenditure to 30 September 2013	**6,190**	**4,932**	**8,026**	**6,396**	**426,336**	**451,880**
Remaining EL funds	66,891	28,323	19,191	129,601	917,511	1,161,517

Issues:

- **2009-10 Funding**

  West Coffs to CBD Cycleway (Stage 1)

  Shephards Lane concrete work is complete. Bridge design is being finalised.

- **2010-11 Funding**

  Biodiversity Action Strategy Implementation 2009/2010

  As part of Wildlife Matters, initial engagement for a survey design and methodology report were drafted and are currently being reviewed by Coffs Harbour City Council (CHCC) and Office of Environment & Heritage (OEH). The report details the field work priorities for the target species, areas of data deficiency and project targets in regards to taxonomic issues targeted in Stage 1 of the project's implementation. The majority of work has been 'in kind' with OEH conducting the literature reviews, mapping of current records and known occurrence of target species. The weather and lack of rain has resulted in limited field works to date. The main target under Stage 1 has been taxonomic issues associated with Crinia 'Coffs Creek'. The genetic works have been complete and conducted 'in kind' (at no charge to the project) as part of a larger targeted Crinia project. The final reports have been submitted to CHCC, Crinia 'Coffs Creek' is genetically different from other Crinia species. Steps have now been undertaken by the Australian Museum to address the taxonomic decryption and naming of the new species. A scientific panel is due to meet in December 2013 to address the Stage 2 component of the Amphibian Census Project Plan.

Matching Grant Funding Pool

$20,275 of the 2010-11 funds have been transferred to the Coffs Bike Plan project which commenced this year, and the balance of $3,725 will be used as a funding source for future requests.

- **2011-12 Funding**

The Koala Plan of Management 2011 – Revision of Mapping

The Northern Area Koala population and habitat field work has been completed and the reviewed draft reports are currently being revised by the consultant. Council has currently placed a hold on the delivery of the final documents due to pending legislative changes in regards to the NSW Planning framework and the implementation of State Environmental Planning Policy 44 - Koala Habitat. The current koala health program is currently under review. The new target date for completion of the Northern Area is January 2014.

- **2012/13 Funding**

The Koala Plan of Management – Revision of Koala Populations in the Southern & Western Precincts

The consultant's brief for the Southern and Western Area review of koalas and their habitat has been withheld by Council until completion of the Northern Area review. The changes to the NSW Planning legislative framework have delayed the completion of the Northern Area reports. Release of the consultant's brief will occur in November 2013 to commence recruitment for commencement of the field work in early February 2014.

Vertebrate Pests Management Strategy Implementation (VPMS)

The Little Tern project commitment to the contractor could not be made until after the revote of the project, this delay unfortunately led to the contractor accepting another project under the timeframe allotted. Therefore the project has been delayed until June 2014. The training package is still under draft and is with Council to review and includes staffing costs.

Green School Sustainability Fund

Two of the 16 schools successful in receiving funding have completed their projects to date. Another two schools are currently completing their final reports. Of the two completed schools, one has installed water saving taps and the other has installed and is running a successful worm farm which the children love. The remaining schools have been contacted and feedback received to date is that the majority of schools are nearing completion.

Coffs Ambassadors Interpretive Tours

Uniforms have been paid for and the advertisement in *Coffs Coast Explorer* magazine is being finalised.

Building an Information Base at Multiple Scales of the Eucalypts of the Coffs Harbour Region

Following extensive peer review a final report has been submitted to Council titled Diversity and Values of Eucalypt Forests of the Coffs Harbour Region, Northeast New South Wales. The project has been coordinated by the National Parks Association and developed by EcoLogical Australia as part of an Environmental Levy funded project. The final report is currently held on CHCC records and will be published on Council's website in the near future.

Aquatic Biodiversity Survey & Baseline Mapping of Freshwater Crayfish & Aquatic Species of the MNC

The project received some additional 'in kind' support from the Catchment Management Authority and the field work has been extended. The additional field work proposed have been subsequently delayed due to the lack of suitable weather conditions to survey the additional streams. The completion of the project and the reports are due December 2013.

Moonee Reserve Amenity Improvement Project

No on-grounds work was carried out this quarter due to the contractor waiting to be advised the revoted funds were approved; notification received in late September. Most of the work should be finalised in the December quarter.

Buluunggal (Coffs Creek) Interpretive Bush Tucker Trail

We have been waiting on Council to assist with signage but have employed an artist to do some work, Gujaagay As One (Shaa Smith) has been paid $1,350 for her input.

Blueberries don't have to make the catchment Blue - Hearnes Lake

At this stage the project is establishing landholders to commit to work. Letters have been sent to nine landholders that have creek / drainage line in the catchment on 17 September 2013.

Korora Lagoons Aquatic Weed Control Program

Council is continuing to monitor the lagoons which, as a result of last year's program, are presently in a fairly clean condition in relation to both Cabamba and Salvinia. It is anticipated that the follow up spraying will occur in early 2014, when the anticipated hot summer will produce conditions conducive for Cabamba regrowth. This will maximise the effectiveness of the follow-up treatment.

- **2013/14 Funding**

Koala Plan of Management 2014 – Implementation

The review of the Koala Plan of Management was delayed by eight months as a result of Fine-Scale Vegetation Mapping for the Coffs Harbour Local Government Area project delays. Due to the flow on effect of this delay the review and therefore the subsequent implementation of the new Koala Plan of Management (2014) has been placed on hold.

Orara River Restoration Project

The Orara Valley RiverCare Groups Management Committee has met monthly to oversee the project. Bush regeneration work including Camphor Laurel and Privet control has occurred on 30 sites so far for 1,060 hours. Around the beginning of spring there has been a particular effort targeting Cats Claw Creeper while it is flowering as this highlights its location. This particularly invasive creeper is listed as a weed on National Significance. 368 local provenance plant stocks have been planted on 13 sites which have not shown significant natural regeneration or where landholders have fenced off larger areas of riparian zone for rehabilitation. This assists the long term management of sites as growth of the new native vegetation suppresses further weed invasion. The project officer sent out the winter 13 project update in hard copy to 350 landholders and to 150 e-mail recipients, and also completed grant applications to the Northern Rivers Catchment Management Authority and to the NSW Department of Primary Industries Fish Habitat Action Grant program. Ten Individual Site Action Plans have been updated as part of the grant application process.

Coffs Harbour Vertebrate Pests Management Strategy Implementation (VPMS)

Biodiversity Officer resources and availability to implement Vertebrate Pest Management Strategy actions has been placed on hold until December 2013 due to other priority projects and strategic document review.

Conservation & Sustainable Management of Biodiversity

In accordance with Council's Biodiversity Action Strategy 2012 - 2030 the Biodiversity Section has completed the following tasks in accordance with the project's objectives; Placed on public exhibition the mapping and report for Endangered Ecological Communities and Over-cleared Vegetation Types; received the mapping and draft report from OEH for Old-growth in the Coffs Harbour LGA; Entered in to the final contracts to derive areas of 'core koala habitat' in the western and southern precincts and sought Council approval to develop a new Koala Plan of Management. The contract to identify Significant Trees in the Coffs Harbour landscape is ready to be advertised. These environmental attribute layers will go towards the development of a final Biodiversity Assets Layer which will inform the new PHACS (Priority Habitats & Corridors) and environmental zones in the LGA.

Green School Sustainability Fund

The application process has been reviewed and slightly amended to make it easier for schools to apply. Documents have been amended to reflect these minor changes. Mail lists have been updated in readiness to invite schools to apply. Letters inviting schools, preschools and childcare centres to apply for funding will be sent in the first week of November.

Impacts on Fresh Water Systems

Sampling and processing of samples continues. Monthly sampling of Coffs Creek following Cyclone Oswald and now a long dry period will provide some interesting data. This area is being sampled on a monthly basis. Two years' use of a very good GIS program has been supplied by a software company which will provide a good coverage of the results. Discussions have been held with Nigel Cotsell from Council regarding the best ways of presenting the results to obtain the maximum benefit across the board.

Shorebirds of the Coffs Coast - Signage & Brochures

The re-design of both the brochure and sign has been completed and was paid for in the first instance by BirdLife Northern NSW. A first run of 5,000 brochures was also produced and paid for by BirdLife Northern NSW. The signs and second run of brochures can be undertaken immediately.

Strategic Planning – Biodiversity

These funds are primarily targeted towards the back-end of biodiversity strategic planning following completion of the science layers (Endangered Ecological Community (EEC), over-cleared vegetation types; old-growth; corridors; koala habitat) which is currently being funded under Waste and Sustainability Funds). However, some funds are now being diverted to wages to continue with development of the corridors layer. In 2014 it is expected a greater emphasis will be placed on building the High Value Habitats and Biodiversity Assets layers which will draw on this pool of funds. There will also be a stronger emphasis on community engagement and consultation associated with each of the various reports as they come on line.

Woody Weed Control at Lowanna

Work has commenced in the area immediately to the north of Lowanna village with some control by machine only and the balance by machine and chemical treatment. No significant problems have been encountered to date. We have been sourcing a suitable camera for the project and expect to have this shortly; once this is available, we will be providing photographic evidence of our progress which will be included in our next report.

Environmental Levy Coordination

Coordination of the EL Program for this quarter has met all required time frames. These include finalising 30 June 2013 EL reports to Council including revotes and notifying applicants of approval for these revotes. Letters notifying the successful and unsuccessful applicants regarding 2013/14 EL funding were sent. A new spreadsheet was created for 2013/14 requirements. Letters were sent to working group members advising them that their positions were to be declared vacant. Advertisements were placed in the local paper for members for the working group committee. A report was completed to Council recommending new members. New quarterly report forms have been created for successful applicants to complete. Corresponded with Council staff re working of EL Program.

Matching Grant Funding Pool

Matching Grant Funds Allowance - per EL Policy up to $50,000 per annum is to be held to match grant applications during the year after the EL projects have been approved by Council. All applications need to meet the EL criteria and are sent to the EL working group to decide by simple majority whether to approve the funds from the EL matching grant funds.

Boambee Beach Bush Regeneration - North of Deep Sea Release Pipeline

Bush regeneration of 476 hours was completed at the end of September 2013, completing the project from 2012-13. The contractor worked most Tuesdays and Saturdays to work with volunteers and involve them in the project. The project area was nominated as a site for National Tree Planting Day and 500 native plants were planted. The contractor has carried out maintenance of planting involving carrying water, mulching, fertilising, weeding and installing tree guards to prevent wallaby

predation. In some areas of low resilience natural regeneration also had to be protected against wallaby predation. Jetty Dunecare has supplied plants, tree guards, fertiliser and mulch. Council's Bush Regeneration Officer supplied some plants and mulch and watered once. Jetty Dunecare has assisted with tree maintenance. At the end of September only five plants had died but extremely dry conditions may result in the loss of more plants if rain doesn't fall soon. Contractor concentrated on manual removal of weeds, mainly lantana, Bitou Bush, Corkie Passionfruit, Glory Lily and Rhodes Grass. Jetty Dunecare volunteers have also spent 500 hours weeding the northern section of the project area and all large Bitou Bush and lantana have been controlled. One active fox den was fumigated by contractor in association with Coffs Harbour NPWS (National Parks & Wildlife Service). Den fumigation appears successful as den has not been reopened. The contractor was concerned over the loss of so much of the fore dune to coastal erosion. The number of unauthorised four-wheel drives entering the area appears to be significantly reduced, however some unauthorised vehicles are still breaking into the area and causing problems. The c contractor was almost assaulted on 27 September 2013 when she photographed a vehicle exiting the project area, driving over the rock barrier and established trees at the cutting area at the Jetty Foreshores Reserve. This was reported to Council and Jetty Dunecare Group. Only one unauthorised camp was found but camper left without causing any damage.

No work using funds from 2013-14 were undertaken in the first quarter of this project as the contractor was working in the project area to complete last financial year's carry over funding per above. Work will commence in October 2013 for current year funds.

Koala / Wildlife Corridor Bakker Drive Reserve Bonville Stage 1

To date no work has been completed. FoP (Friends of Parks) has liaised with Council in regard to the timing of the Camphor Laurel removal and mulching which is due to commence the first week of October. With a dry spring, planting will be programmed for February - April 2014.

Supporting Community Action in the Coffs Harbour LGA

The project is proceeding well, despite a slow start to the quarter. Some delays in on-ground works due to contractors awaiting rain before commencing some targeted spraying. Some delay also in provision of insect shield jumpsuits due to manufacturer's delays and slow uptake by volunteers.

Yarrawarra Giriin Team - Bush Regeneration

Currently environmental levy works undertaken with Envite has consisted of a holistic approach. The team has been introduced to a broad range of bush regeneration elements and considerations including; native seed collection, storage, and propagation, protocols and elements of botanical cataloguing and herbarium operations. The importance of organisations such as the Coffs Harbour Botanical Gardens as storehouses and resources for cultural, ecological and conservation based knowledge for native plants has also been included. Introducing and establishing broader working networks with other indigenous teams such as The Dorrigo Green Team, and the Darrunda Wajaar Indigenous Team has also continued to be a focus this quarter.

Currently additional projects through sources such as the NSW Environmental Trust have provided the team with ongoing additional work which has been complementary to goals and objectives identified in the CHCC Environmental Levy project. These works include cultural burning and fire management activities in association with NPWS and Rural Fire Service (RFS) on culturally significant land at Red Rock and throughout the Northern Beaches areas, in addition to undertaking bush regeneration works in the Sherwood Nature Reserve near Woolgoolga.

Coffs Harbour Community Seedbank Network

Seed collection commenced in July 2013. Twenty-three batches of seed have been collected and stored of 21 species from the Coffs Harbour and surrounding areas. The Coffs Harbour Community Seedbank Network has been helping the North Coast Regional Botanic Gardens Seedbank in collection of hard to source seeds and in turn have been helping with plant identification of difficult species. The Coffs Harbour Community Seedbank has consulted with CHCC Jaliigirr Project Officer regarding the provision of seed to local propagators. Seed has been requested by various registered Jaliigirr project propagators. Currently we have 82 batches of 46 species stored in airtight dry and refrigerated storage as required for specific species.

Bushland Regeneration

Priority weed control and revegetation works undertaken across 14 reserves with 1,261 trees planted.

Darrunda Wajaar repairs to Country High Priority Sites

The team has been working on two major sites being Arrawarra Fish Traps and Sandy Beach. New areas have been opened in both cases with the fish traps now almost complete. Sandy Beach is a large area and we have mostly cleared near houses and working back towards the south. We have also done follow-up on older areas at Sandy and Brodie Drive. In total the team have covered an area of 13,745 m^2 of mostly new work. In addition the team has had training with the RFS & NPWS relating to Bush Fire Awareness that can lead to employment opportunities with these organisations once they have completed their traineeships.

Coffs Jetty Foreshore Reserve Follow-up Chemical Weeding

Appropriate follow-up spraying has been undertaken in areas where primary work has already been done. Volunteers have been supervised to hand weed vine weeds and mother of millions, as well as around native seedlings where spraying is inappropriate. A major outbreak of morning glory was controlled before it was able to set seed on the ‘Ferguson Cottage’ bank using a brush cutter and volunteer assistance. Rhodes grass along the roadside between the railway bridge and the Ferguson bank has been treated chemically and mechanically with pleasing results. Turkey rhubarb seed was harvested in areas of heavy infestation using a motorised vacuum purchased for this purpose. It is envisaged that this will reduce the weed seed burden to facilitate more effective control of this prolific pest in the future. Most of the remaining areas that had not previously been managed in recent years have now had primary work done.

A lack of rain has compromised the effectiveness of some of the spraying as chemical uptake is reduced when plants are under stress. Turkey Rhubarb continues to prove a challenge to manage as the only effective way to stop anything but the smallest seedlings is to dig up each tuber by hand. This is very labour intensive and current contract hours do not allow time to do this comprehensively over large areas. For this reason, under the current regime, only basic control of already infested areas is hopeful of being achieved with special attention being paid to outbreaks in previously un-infested areas.

It is pleasing to be able to report that the use of 'insect shield' shirts has been taken up willingly by volunteers and the contractor, and is proving most effective in protecting against tick bites.

Environmental Weed Control

Bitou Bush control works were undertaken at Park Beach, Coffs Creek and Boambee Headland. Camphor control works and revegetation was undertaken across 12 reserves. Privet control and Pinus removal works are programmed for the second quarter. Glory Lily control was undertaken at Sawtell and Park Beach. Vine weed control was undertaken across 13 reserves.

Botanic Gardens Education Officer

Two workshops for 8-10 year old children were held during the holiday program. Children from Boambee Public School attended a Year 1-2 science and environment program and 18 students from St Augustine's Catholic School attended a Coffs High School presentation on plant diseases. We have started to research and develop an 'Early Settler Walk'. This will be a signposted walk through the natural areas of the garden where we will explore the uses of native plant by the early settlers, such as using Casuarina to make shingle roofs. Children from St Mary's Primary School in Armidale visited for a school excursion which included a Friends Guide talk. Liaising with Taronga Zoo commenced regarding the Au biota in 2014. Plans for Children's Festival Day have also commenced. Total school children visiting this quarter was 565.

Darkum Headland Access Rehabilitation

Works planning and Review of Environmental Factors (REF) approval through NSW National Parks & Wildlife Service is in progress. We were able to acquire pavers upfront for section 2 track works without paying freight costs as the company over supplied a previous job. Coffs Coast Regional Park (CCRP) Trust Board funds are expected November 2013.

Supporting Voluntary FoP Undertake Environmental Works in Eight Parks & Reserves

Discussions have been held with two Friends of Park Groups and one site plan has been prepared. Areas of reduced mowing have been mapped and revegetation plans have been prepared. Costs for this work have been absorbed as part of Council's contribution to the project. Further works have been delayed due to the departure of the Council staff member tasked with delivering the project.

Restoration of Grey-headed Flying Fox Maternity Camps

Weed removal and revegetation works have commenced at both the Woolgoolga and Coffs Creek Flying Fox camps. Three hundred plants have been planted at Coffs Creek and 150 at Woolgoolga. Plantings have established well despite the ongoing dry conditions. Council is aiming to remove no more than 10% of the understory weeds

each year to decrease disturbance within the camps. Areas of weed control and planting have been mapped using GPS and recorded in Council's GIS database.

Implementation Date / Priority:

The recommendations of this report will be implemented immediately upon Council adoption.

Recommendation:

1. **That Council notes the status of the Environmental Levy Projects as at 30 September 2013 as outlined in the report.**
2. **That Council continues to monitor the Environmental Levy Program to ensure earliest completion of projects.**

Attachment

ENVIRONMENTAL LEVY SUMMARY AS AT 30/09/13

Description	EL Funding 2009/10 Revote	EL Funding 2010/11 Revote	EL Funding 2011/12 Revote	EL Funding 2012/13 Revote	EL Funding 2013/14 Original	Grants Revote	Revenue Revote	Contributions Orig/Revise	Contributions Revote	TOTAL FUNDING	Actual Expenditure at 30/09/2013	Remaining Funding
Projects												
Koala Plan of Management 2014 - Implementation			27,217.05	75,000.00	20,000.00					122,217.05	8,026.41	114,190.64
Biodiversity Action Strategy Implementation 2009/2010		9,255.38			0.00					9,255.38	0.00	9,255.38
Orara River Restoration Project												
Erosion Control / Fencing					10,000.00					10,000.00	0.00	10,000.00
Project Officer					40,000.00					40,000.00	8,359.12	31,640.88
Cats Claw Eradication					10,000.00					10,000.00	327.09	9,672.91
Propagation Nursery at Nana Lane					20,000.00					20,000.00	3,507.50	16,492.50
Camphor/Privot Control & Regen					30,000.00			50,000.00		80,000.00	24,586.27	55,413.73
Reveg / Tree Planter					55,500.00					55,500.00	0.00	55,500.00
Vertebrate Pests Management Strategy Implementation				5,112.22	14,000.00					19,112.22	749.19	18,363.03
Conservation & Sustainable Management of Biodiversity					209,000.00					209,000.00	60,112.78	148,887.22
Green School Sustainability Fund				14,248.82	29,500.00					43,748.82	0.00	43,748.82
Impacts on Fresh Water Systems					2,000.00					2,000.00	0.00	2,000.00
Coffs Ambassadors Interpretive Tours				1,918.56	43,509.00					45,427.56	747.22	44,680.34
Building an Information Base at Multiple Scales of the Eucalypts of the Coffs Harbour Region				11,200.00	0.00					11,200.00	0.00	11,200.00
Aquatic Biodiversity Survey & Baseline Mapping of Freshwater Crayfish & Aquatic Species of the MNC				2,000.00	0.00					2,000.00	0.00	2,000.00
Our Living Coast Sustainable Living Festival					29,000.00					29,000.00	0.00	29,000.00
Shorebirds of the Coffs Coast - Signage & Brochures					4,391.00					4,391.00	0.00	4,391.00
Strategic Planning - Biodiversity					40,000.00					40,000.00	0.00	40,000.00
Woody Weed Control at Lowanna					6,370.00					6,370.00	0.00	6,370.00
Hogbin Drive Koala Fencing									368.41	368.41	0.00	368.41
Environmental Levy Coordination					64,247.00					64,247.00	17,246.88	47,000.12
Matching Grant Funding Pool		3,725.00			23,121.00					26,846.00	0.00	26,846.00
Boambee Beach Bush Regeneration - North of Deep Sea Release Pipeline					19,992.00					19,992.00	19,992.00	0.00
Koala / Wildlife Corridor Bakker Dr Res Bonville Stage 1					5,260.00					5,260.00	0.00	5,260.00
Supporting Community Action in the Coffs Harbour LGA					164,848.00					164,848.00	164,848.00	0.00
Yarrawarra Giriin Team - Bush Regeneration					19,664.00					19,664.00	0.00	19,664.00
Coffs Harbour Community Seedbank Network					9,982.00					9,982.00	0.00	9,982.00
Moonee Reserve Amenity Improvement Project				605.36	0.00					605.36	0.00	605.36
Bushland Regeneration					201,571.00					201,571.00	60,394.60	141,176.40
Darrunda Wajaar Repair to Country High Priority Sites					19,900.00					19,900.00	0.00	19,900.00
Coffs Jetty Foreshore Reserve Followup Chemical Weeding					19,992.00					19,992.00	19,992.00	0.00
Environmental Weed Control												
Bitou Bush					10,000.00					10,000.00	1,595.73	8,404.27
Camphor Laurel Removal					30,000.00					30,000.00	9,074.66	20,925.34
Privet					5,000.00					5,000.00	0.00	5,000.00
Glory Lily					18,000.00					18,000.00	1,473.49	16,526.51
Pine/Celtis/Pepper Tree					20,000.00					20,000.00	0.00	20,000.00
Vine Weeds					20,000.00					20,000.00	6,658.16	13,341.84
Buluunggal (Coffs Creek) Interpretive Bush Tucker Trail				9,900.00	0.00					9,900.00	0.00	9,900.00
Botanic Gardens Education Officer					16,000.00					16,000.00	1,827.55	14,172.45
Darkum Headland Access Rehabilitation					50,000.00					50,000.00	8,672.63	41,327.37
West Coffs to CBD Cycleway (Stage 1)	73,081.46				0.00					73,081.46	6,189.92	66,891.54
Coffs Bike Plan		20,275.00			0	20,275.00				40,550.00	4,932.47	35,617.53
Blueberries don't have to make the catchment Blue - Hearnes Lake				11,000.00	0.00	14,327.00	3,327.00			28,654.00	4,900.00	23,754.00
Korora Lagoons Aquatic Weed Control Program				5,012.39	0.00					5,012.39	0.00	5,012.39
Supporting Voluntary FOP Undertake Environmental Works in 8 Parks & Reserves					39,000.00					39,000.00	0.00	39,000.00
Restoration of Grey-headed Flying Fox Maternity Camps					24,000.00					24,000.00	17,665.95	6,334.05
TOTAL	73,081.46	33,255.38	27,217.05	135,997.35	1,343,847.00	34,602.00	3,327.00	50,000.00	368.41	1,701,695.65	451,879.62	1,249,816.03

QUARTERLY BUDGET REVIEW STATEMENT FOR SEPTEMBER 2013

Purpose:

To provide the quarterly budget review statement and report on the estimated budget position as at 30 September 2013.

The following attachments are included with this report:

Attachment 1 – General Budget Review Income and Expenses Statement by Program
Attachment 2 – Sewer Budget Review Income and Expenses Statement by Program
Attachment 3 – Water Budget Review Income and Expenses Statement by Program
Attachment 4 – Budget Review Capital Budget
Attachment 5 – Budget Review Cash and Investments position
Attachment 6 – Budget Review Key Performance Indicators
Attachment 7 – Part A Budget Review - Contracts
Attachment 8 – Part B Budget Review - Consultancy and Legal Expenses.

Description of Item:

As part of the new Integrated Planning and Reporting (IP & R) framework for local government, the Division of Local Government has developed a minimum set of budget reports to assist Council in meeting their legislative requirements. These documents are collectively known as the Quarterly Budget Review Statement (QBRS) and form part of the framework of Clause 203 of the Regulation. This regulation requires a council's Responsible Accounting Officer to submit quarterly budget review statements to the governing body of council. These minimum statements are contained within Attachment 1 through 8 of this report. The table below summarises this month's budget variations.

Estimated Budget Position as at 30 September 2013:

	General Account $	Water Account $	Sewer Account $
Original Budget adopted 13 June 2013	426,307 (D)	4,553,442 (D)	3,165,226 (D)
Recommended variations for September 2013	(335,000) (S)	Nil	Nil
Estimated result 2013/14 as at 30 September 2013	91,307 (D)	4,553,442 (D)	3,165,226 (D)

General Account	**Deficit/(Surplus)**
Allocation for Northern Beaches Nightrider service per Council resolution CS13/20 from Ordinary Meeting 11/4/13	10,000 (D)
Surplus funds from 12/13 used to reduce 13/14 deficit, per Resolution 4 of CB13/58 from Ordinary Meeting 26/9/13	(150,000) (S)

Allocation of $1.25m from funds held in reserve from sale of 218 Harbour Drive to Castle St Car park lift and shade structures	1,250,000 (D)
Transfer of funds from Land Sale reserve	(1,250,000) (S)
Budget allocation of $50,000 for internal loan repayments of administration building photocopiers. These copiers are now being purchased outright from the capital allocation for computer hardware within the Corporate Information Services program	(50,000) (S)
Waste Transfer Bins - delivery and emptying net cost to Council. Domestic waste tonnages have fallen by 5% whilst prime mover costs have increased $22/hr.	20,000 (D)
Saving in survey and design staff costs as staff were able to charge their time to project work which was grant funded whilst maintaining their regular workload	(35,000) (S)
Jetty Memorial Theatre projected net operating costs reduced in line with the Business Plan report to Council 11/7/13 – CS13/33)	(130,000) (S)
Replacement of heat pumps at Sawtell swimming pool, replacement of heat coils at Coffs swimming pool and leak repairs to Woolgoolga pool totalling $27,500 funded from Unexpended loans	27,500 (D)
Unexpended loans reserve funding for pool improvements	(27,500) (S)
Anticipated reduction in Rigby House rental income due to vacancy of tenant	129,017 (D)
In 12/13 Council transferred some surplus funds into the asset replacement and maintenance reserve in anticipation of this shortfall, now used offset the loss of rental income	(129,017) (S)
Total	**(335,000) (S)**

Water Account

Total	**Nil**

Sewer Account

Total	**Nil**

Sustainability Assessment:

- **Environment**

  There are no perceived short or long-term environmental impacts.

- **Social**

  There are no perceived short or long term social impacts.

- **Civic Leadership**

  Council strives to reach a balanced budget position by June 30 each year in conjunction with meeting its short term priorities.

- **Economic**

  Delivery Program/Operational Plan Implications

  The Original budget for the General Account adopted on the 13 June 2013 provided for a deficit of $426,307.

  For substantial budget adjustments the associated council reports have addressed the triple bottom line factors independently in 2013/14.

Risk Analysis:

Not applicable to this report.

Consultation:

Managers and their relevant staff have been provided with electronic budget reports for each program on a monthly basis. Requested variations and variations adopted by Council have been included in the report.

Related Policy and / or Precedents:

Not applicable to this report.

Statutory Requirements:

As discussed above, under local government regulations the Responsible Accounting Officer is required to submit a quarterly budget review to Council. There is no obligation to provide monthly reviews but as part of prudent financial management we have opted to do so, commencing October.

Responsible Accounting Officers Statement

The Responsible Accounting Officer believes the Quarterly Budget Review Statement indicates the financial position of the Council is satisfactory, having regard to the projected estimates of income and expenditure and the original budgeted income and expenditure.

Issues:

Not applicable to this report.

Implementation Date / Priority:

Not applicable to this report.

Recommendation:

1. **The Quarterly Budget Review Statements be noted.**

2. **That the budget adjustments be approved and the current budget position be noted.**

Estimated Budget Position as at 30 September 2013:

	General Account $	Water Account $	Sewer Account $
Original Budget adopted 13 June 2013	**426,307 (D)**	**4,553,442 (D)**	**3,165,226 (D)**
Recommended variations for September 2013	**(335,000) (S)**	**Nil**	**Nil**
Estimated result 2013/14 as at 30 September 2013	**91,307 (D)**	**4,553,442 (D)**	**3,165,226 (D)**

Attachment 1

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

INCOME & EXPENSES BY PROGRAM - GENERAL FUND

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
INCOME							
Community Facilities	2,067,069	1,743,635		3,810,704		3,810,704	499,831
Corporate Planning	4,815	94,193		99,008		99,008	23,952
CBD Masterplan Works	4,723,640			4,723,640		4,723,640	1,000,000
Coffs Coast Tourism & Marketing	726,100	117,319		843,419	-	843,419	211,185
Sustainable & Precinct Planning	8,884	532,538		541,422	-	541,422	120,933
Development Assessment & Building Services	1,846,483	212,771		2,059,254	-	2,059,254	493,421
Environmental Services	324,470	1,054,191		1,378,661	112,875	1,491,536	501,295
Public Health & Safety	281,665	23,874		305,539	-	305,539	192,911
Ranger Services	463,586			463,586	-	463,586	126,436
Domestic Waste Management	16,597,501			16,597,501	-	16,597,501	15,554,693
Non-Domestic Waste Management	5,936,011	627,309		6,563,320	-	6,563,320	2,688,083
Commercial Property	56,432	-		56,432	-	56,432	14,108
Property Assets	1,677,784	337,729		2,015,513	-	2,015,513	632,205
Swimming Pools	90,952	40,000		130,952	27,500	158,452	40,142
Airport	10,026,741	5,586,991		15,613,732	367,972	15,981,704	3,771,685
Sports Unit	741,500	177,827		919,327	-	919,327	215,749
Admin & Corp Governance	5,754,835	496,785		6,251,620	-	6,251,620	1,098,690
Governance & Legal Services	96,500	664,203		760,703	-	760,703	166,051
Rural Fire Service	3,301,272	47,540		3,348,812	-	3,348,812	170,263
Information Services	755,720	1,108,257		1,863,977	-	1,863,977	452,430
Technology Group	1,629,230			1,629,230	-	1,629,230	169,900
Finance	992,401	24,422		1,016,823	-	1,016,823	194,592
Plant	13,924,366	841,085		14,765,451	32,776	14,798,227	3,350,852
Program Support	117,260	3,725		120,985	-	120,985	36,106
HR & Organisational Development	55,298	22,592		77,890	-	77,890	(1,825)
City Services Support	19,491			19,491	-	19,491	4,873
Assets Systems	-	8,313		8,313	-	8,313	2,078
Library Services	259,154	327,824		586,978	-	586,978	100,883
Community Services	595,209	387,496		982,705	71,225	1,053,930	260,117
Economic Development	210,325	187,412		397,737	-	397,737	29,216
Environmental Lab	922,791			922,791	-	922,791	121,723
Operational Administration	126,000	66,384		192,384	-	192,384	14,701
Recreational Services	6,253,515	3,517,175		9,770,690	-	9,770,690	1,854,291
Regional Roads	2,780,152	417,247		3,197,399	67,000	3,264,399	1,065,322
Local Roads	10,641,409	4,265,235		14,906,644	534,000	15,440,644	3,593,717
Bridges	1,507,335	247,477		1,754,812	-	1,754,812	238,983
Footpaths, Cycleways & Bus Shelters	612,623	392,033		1,004,656	39,726	1,044,382	273,486
Parking	1,047,334	542,081		1,589,415	1,250,000	2,839,415	709,854
Quarries	213,900			213,900	-	213,900	-
Street & Toilet Cleaning	-			-	-	-	-
Drainage	5,374,681	8,850,059		14,224,740	-	14,224,740	3,724,936
Harbour & Jetty	26,741			26,741	-	26,741	6,685
CityWorks - Private Works	411,300	75,376		486,676	-	486,676	170,840
Survey & Design	548,610	2,124,366		2,672,976	424,320	3,097,296	708,767
Street Lighting	151,000	27,650		178,650	-	178,650	6,913
Subdivisions & Contracts	107,250	16,100		123,350	-	123,350	10,158
Untied Funding	46,711,583	316,122		47,027,705	(162,122)	46,865,583	38,107,464
TOTAL INCOME	150,720,918	35,525,336	-	186,246,254	2,765,272	189,011,526	82,728,687

This document forms part of Coffs Harbour City Council's Quarterly Budget Review Statement for the quarter ended 30/09/13 and should be read in conjunction with other documents in the QBRS

Attachment 1

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

INCOME & EXPENSES BY PROGRAM - GENERAL FUND

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
EXPENSES							
Community Facilities	2,067,069	1,743,635		3,810,704	-	3,810,704	315,952
Corporate Planning	1,420,026	93,947		1,513,973	-	1,513,973	423,284
CBD Masterplan Works	4,723,640			4,723,640		4,723,640	469,330
Coffs Coast Tourism & Marketing	2,061,318	117,319		2,178,637	(25,000)	2,153,637	279,329
Sustainable & Precinct Planning	1,195,301	532,538		1,727,839	-	1,727,839	303,588
Development Assessment & Building Services	2,869,110	212,771		3,081,881	-	3,081,881	690,894
Environmental Services	1,643,837	1,054,191		2,698,028	116,875	2,814,903	389,004
Public Health & Safety	1,317,696	23,874		1,341,570	246	1,341,816	268,277
Ranger Services	909,136			909,136	-	909,136	206,336
Domestic Waste Management	16,597,501			16,597,501	-	16,597,501	4,430,110
Non-Domestic Waste Management	5,936,011	627,309		6,563,320	-	6,563,320	866,043
Commercial Property	544,344	-		544,344	(7,174)	537,170	116,884
Property Assets	2,563,032	160,314		2,723,346	189,589	2,912,935	658,867
Swimming Pools	688,488	40,000		728,488	27,500	755,988	354,361
Airport	10,026,741	5,586,991		15,613,732	367,972	15,981,704	2,477,764
Sports Unit	2,343,291	74,002		2,417,293	128,825	2,546,118	578,707
Admin & Corp Governance	1,419,514	496,785		1,916,299	-	1,916,299	308,132
Governance & Legal Services	1,929,344	664,203		2,593,547	-	2,593,547	1,364,242
Rural Fire Service	3,634,502	27,540		3,662,042	20,000	3,682,042	384,625
Information Services	4,340,857	1,108,257		5,449,114	(50,000)	5,399,114	1,461,276
Technology Group	1,629,230			1,629,230	-	1,629,230	444,622
Finance	4,400,220	24,422		4,424,642	-	4,424,642	931,672
Plant	13,924,365	841,085		14,765,450	32,777	14,798,227	2,561,758
Program Support	419,584	3,725		423,309	-	423,309	106,354
HR & Organisational Development	1,446,780	22,592		1,469,372	-	1,469,372	398,511
City Services Support	716,144			716,144	-	716,144	163,721
Assets Systems	358,003	8,313		366,316	-	366,316	111,892
Library Services	1,994,975	327,824		2,322,799	-	2,322,799	493,477
Community Services	2,732,720	35,138		2,767,858	303,583	3,071,441	598,193
Economic Development	1,002,340	187,412		1,189,752	-	1,189,752	212,400
Environmental Lab	922,791			922,791	-	922,791	207,047
Operational Administration	1,075,177	66,384		1,141,561	-	1,141,561	282,339
Recreational Services	10,116,834	1,813,823		11,930,657	1,703,352	13,634,009	2,914,093
Regional Roads	2,885,007	417,247		3,302,254	67,000	3,369,254	1,264,656
Local Roads	16,231,709	4,265,235		20,496,944	554,000	21,050,944	3,645,443
Bridges	1,611,935	247,477		1,859,412	-	1,859,412	298,074
Footpaths, Cycleways & Bus Shelters	968,723	392,033		1,360,756	50,726	1,411,482	319,653
Parking	1,626,838	542,081		2,168,919	1,250,001	3,418,920	510,600
Quarries	213,900			213,900	-	213,900	27,389
Street & Toilet Cleaning	840,200			840,200	-	840,200	214,764
Drainage	5,664,481	8,850,059		14,514,540	-	14,514,540	1,380,782
Harbour & Jetty	196,641			196,641	-	196,641	31,537
CityWorks - Private Works	411,300	75,376		486,676	-	486,676	223,212
Survey & Design	2,492,806	2,124,366		4,617,172	378,320	4,995,492	767,866
Street Lighting	913,200	27,650		940,850	-	940,850	162,497
Subdivisions & Contracts	534,741	16,100		550,841	-	550,841	122,943
Untied Funding	7,580,823	316,122		7,896,945	(316,122)	7,580,823	1,895,206
TOTAL EXPENSES	151,142,225	33,168,140	-	184,310,365	4,792,470	189,102,835	36,637,703
NET OPERATING RESULT SURPLUS/(DEFICIT)	(421,307)	2,357,196	-	1,935,889	(2,027,198)	(91,309)	46,090,985

This document forms part of Coffs Harbour City Council's Quarterly Budget Review Statement for the quarter ended 30/09/13 and should be read in conjunction with other documents in the QBRS

Attachment 1

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

INCOME & EXPENSES BY PROGRAM - GENERAL FUND

	ORIGINAL Budget 2013/14	Approved Changes		REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
		Other than by QBRS	Sept Rev				
Add Back:							
Capital Expenses	28,866,206	26,945,327		55,811,533	2,455,524	58,267,057	7,897,685
Less:							
Transfers to & from Reserves	29,198,992	24,326,339		53,525,331	9,513,398	63,038,729	15,759,682
Loan Drawdowns	-	2,500,000		2,500,000		2,500,000	-
Advance Repayments	54,609			54,609	(4,320)	50,289	12,218
Asset Sales	1,707,350	183,100		1,890,450		1,890,450	124,364
NET OPERATING RESULT FROM CONTINUING OPERATIONS	(2,516,052)	2,293,084	-	(222,968)	(9,080,752)	(9,303,720)	38,092,405
Less:							
Capital Grants	3,302,947		-	3,302,947	537,050	3,839,997	412,695
Capital Contributions	4,583,350		-	4,583,350	219,617	4,802,967	4,593,833
NET OPERATING RESULT BEFORE CAPITAL ITEMS	(10,402,349)	2,293,084	-	(8,109,265)	(9,837,419)	(17,946,684)	33,085,877

Note
ORIGINAL BUDGET +/- approved budget changes in previous quarters = REVISED Budget
REVISED BUDGET +/- recommended budget changes this quarter = PROJECTED Budget

Recommended Changes for September
The detail of what recommended changes are requested are included in the Description of Item section in the report

Attachment 2

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

INCOME & EXPENSES BY PROGRAM - SEWER FUND

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
INCOME							
Management Expenses	1,093	94,610	-	95,703	-	95,703	24,975
Maintenance & Operating	7,998,492		-	7,998,492	-	7,998,492	2,016,548
Miscellaneous	-		-	-	-	-	-
Capital Expenses	20,985,443	11,316,825	-	32,302,268	-	32,302,268	6,494,649
Untied Funding	26,308,735		-	26,308,735	-	26,308,735	22,334,528
TOTAL INCOME	55,293,763	11,411,435	-	66,705,198	-	66,705,198	30,870,699

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
EXPENSES							
Management Expenses	4,441,721	94,610	-	4,536,331	-	4,536,331	815,226
Maintenance & Operating	16,543,749		-	16,543,749	-	16,543,749	3,527,175
Miscellaneous	15,678,076		-	15,678,076	-	15,678,076	2,938,695
Capital Expenses	20,985,443	11,316,825	-	32,302,268	-	32,302,268	3,183,027
Untied Funding	810,000		-	810,000	-	810,000	202,500
TOTAL EXPENSES	58,458,989	11,411,435	-	69,870,424	-	69,870,424	10,666,623
NET OPERATING RESULT SURPLUS/(DEFICIT)	(3,165,226)	-	-	(3,165,226)	-	(3,165,226)	20,204,076
Add Back:							
Capital Expenses	26,300,983	11,316,825	-	37,617,808	-	37,617,808	4,426,497
Less:							
Transfers to & from Reserves	19,457,744	10,073,877	-	29,531,621	-	29,531,621	7,382,905
Loan Drawdowns	-	-	-	-	-	-	-
Advance Repayments	-	-	-	-	-	-	-
Asset Sales	-	-	-	-	-	-	13,182
NET OPERATING RESULT FROM CONTINUING OPERATIONS	3,678,013	1,242,948	-	4,920,961	-	4,920,961	17,234,486
Less:							
Capital Grants	1,134,948	1,337,558	-	2,472,506	-	2,472,506	- 22,749
Capital Contributions	3,812,900	-	-	3,812,900	-	3,812,900	953,225
NET OPERATING RESULT BEFORE CAPITAL ITEMS	(1,269,835)	(94,610)	-	(1,364,445)	-	(1,364,445)	16,304,010

Note
ORIGINAL BUDGET +/- approved budget changes in previous quarters = REVISED Budget
REVISED BUDGET +/- recommended budget changes this quarter = PROJECTED Budget

Recommended Changes for September
The detail of what recommended changes are requested are included in the Description of Item section in the report

This document forms part of Coffs Harbour City Council's Quarterly Budget Review Statement for the quarter ended 30/09/13 and should be read in conjunction with other documents in the QBRS

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

Attachment 3

INCOME & EXPENSES BY PROGRAM - WATER FUND

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
INCOME							
Management Expenses	3,000	86,753		89,753		89,753	22,004
Maintenance & Operating	6,168,761	198,981		6,367,742		6,367,742	1,612,756
Miscellaneous	-			-		-	-
Capital Expenses	15,271,100	304,040		15,575,140		15,575,140	3,057,118
Regional Water Supply	-			-		-	-
Untied Funding	18,857,277			18,857,277		18,857,277	5,650,962
TOTAL INCOME	40,300,138	589,774	-	40,889,912	-	40,889,912	10,342,840

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
EXPENSES							
Management Expenses	4,040,852	86,753		4,127,605		4,127,605	650,248
Maintenance & Operating	12,052,561	198,981		12,251,542		12,251,542	2,625,126
Miscellaneous	13,179,067			13,179,067		13,179,067	2,468,758
Capital Expenses	15,271,100	304,040		15,575,140		15,575,140	1,200,761
Regional Water Supply	-			-		-	-
Untied Funding	310,000			310,000		310,000	77,500
TOTAL EXPENSES	44,853,580	589,774	-	45,443,354	-	45,443,354	7,022,393
NET OPERATING RESULT SURPLUS/(DEFICIT)	(4,553,442)	-	-	(4,553,442)	-	(4,553,442)	3,320,447
Add Back:							
Capital Expenses	19,371,168	304,040		19,675,208		19,675,208	2,177,338
Less:							
Transfers to & from Reserves	14,383,961	589,774	-	14,973,735		14,973,735	3,743,434
Loan Drawdowns	-	-	-	-	-	-	-
Advance Repayments	-	-	-	-	-	-	-
Asset Sales	-	-	-	-	-	-	10,909
NET OPERATING RESULT FROM CONTINUING OPERATIONS	433,765	(285,734)	-	148,031	-	148,031	1,743,442
Less:							
Capital Grants	-	-	-	-	-	-	-
Capital Contributions	3,428,000	-	-	3,428,000	-	3,428,000	857,000
NET OPERATING RESULT BEFORE CAPITAL ITEMS	(2,994,235)	(285,734)	-	(3,279,969)	-	(3,279,969)	886,442

Note
ORIGINAL BUDGET +/- approved budget changes in previous quarters = REVISED Budget
REVISED BUDGET +/- recommended budget changes this quarter = PROJECTED Budget

Recommended Changes for September
The detail of what recommended changes are requested are included in the Description of Item section in the report

This document forms part of Coffs Harbour City Council's Quarterly Budget Review Statement for the quarter ended 30/09/13 and should be read in conjunction with other documents in the QBRS

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

Attachment 4

CAPITAL BUDGET - GENERAL FUND

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
CAPITAL FUNDING							
Rates and other Untied Funding	8,230,298	2,393,365		10,623,663	36,000	10,659,663	1,623,457
Internal Restrictions							
- Airport	2,045,000	571,041		2,616,041	142,838	2,758,879	743,299
- Bldg Maint Resv	-	-		-	-	-	-
- Non-Domestic Waste Management	100,000	-		100,000	-	100,000	569
- Community Facilities Reserve	400,000	518,574		918,574	-	918,574	-
- Car Parking Upgrade	-	-		-	1,250,000	1,250,000	101,314
- Environmental Levy	50,000	73,081		123,081	-	123,081	14,863
- Future Fund	-	-		-	-	-	-
- Jetty Maint Reserve	-	-		-	-	-	-
- Pine Creek Reserve	-	-		-	-	-	-
- Environmental Laboratory	50,000	-		50,000	-	50,000	-
- Grant in Advance	-	639,272		639,272	-	639,272	18,950
- Plant	3,468,250	598,900		4,067,150	-	4,067,150	265,795
- Private Works	-	18,574		18,574	-	18,574	-
- Land Sale Reserve	-	134,147		134,147	-	134,147	-
- Open Space Resv	-	265,967		265,967	-	265,967	1,792
- RFS Reserve	-	-		-	-	-	-
- ELE Reserve	2,975,000	-		2,975,000	-	2,975,000	65,302
- EDP Reserve	-	- 1,252,210		- 1,252,210	-	- 1,252,210	74,836
External Restrictions							
- Domestic Waste Management	100,000	-		100,000	-	100,000	4,143
- S94	1,859,361	2,847,165		4,706,526	539,000	5,245,526	218,158
- S94 - Inkind	4,500,000	-		4,500,000	-	4,500,000	4,500,000
- Contribution	78,000	1,508,419		1,586,419	-	1,586,419	96,084
- Grant	3,302,947	518,465		3,821,412	460,186	4,281,598	149,876
- Sales Income	1,707,350	183,100		1,890,450	-	1,890,450	-
- Loan	-	17,927,467		17,927,467	27,500	17,954,967	19,247
New Loans	-	-		-	-	-	-
Income from Sale of Assets	-	-		-	-	-	-
TOTAL CAPITAL FUNDING	28,866,206	26,945,327	-	55,811,533	2,455,524	58,267,057	7,897,685

This document forms part of Coffs Harbour City Council's Quarterly Budget Review Statements for the quarter ended 30/09/13 and should be read in conjunction with other documents in the QBRS

Attachment 4

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

CAPITAL BUDGET - GENERAL FUND

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
CAPITAL EXPENDITURE							
Loan Repayments (Principal)	3,699,068	-		3,699,068	-	3,699,068	723,411
New Assets							
Buildings	-	353,593		353,593	-	353,593	3,109
Furniture & Fittings	13,000	-		13,000	-	13,000	-
Land Improvements	100,000	27,255		127,255	-	127,255	569
Land - Operational	250,000	1,015,326		1,265,326	250,000	1,515,326	28,392
Community Land	-	-		-	-	-	-
Bulk Earthworks (non-depreciable)	-	-		-	-	-	-
Library Books	-	-		-	-	-	-
Office Equipment	7,400	400,887		408,287	-	408,287	40,703
Other Assets	1,189,594	1,102,396		2,291,990	121,663	2,413,653	68,918
Other Structures	2,056,000	1,340,855		3,396,855	32,500	3,429,355	101,353
Plant & Equipment	94,330	36,337		130,667	150,000	280,667	1,516
Water Supply Network	-	-		-	-	-	-
Roads, Bridges & Footpaths	5,947,000	2,900,944		8,847,944	1,584,726	10,432,670	4,741,964
Stormwater Drainage	771,605	9,800,319		10,571,924	-	10,571,924	216,908
Renewals (Replacement)							
Buildings	812,354	135,747		948,101	-	948,101	-
Furniture & Fittings	4,000	3,403		7,403	-	7,403	-
Land Improvements	100,000	843,765		943,765	-	943,765	57,113
Land - Operational	-	-		-	-	-	-
Community Land	-	-		-	-	-	-
Bulk Earthworks (non-depreciable)	-	-		-	-	-	-
Library Books	-	-		-	-	-	-
Office Equipment	550,691	625,469		1,176,160	-	1,176,160	90,500
Other Assets	650,000	777,565		1,427,565	-	1,427,565	5,084
Other Structures	155,000	376,890		531,890	-	531,890	194,516
Plant & Equipment	6,504,928	782,000		7,286,928	45,505	7,332,433	265,917
Water Supply Network	-	-		-	-	-	-
Roads, Bridges & Footpaths	5,961,236	6,422,576		12,383,812	271,130	12,654,942	1,357,712
Stormwater Drainage	-	-		-	-	-	-
TOTAL CAPITAL EXPENDITURE	28,866,206	26,945,327	-	55,811,533	2,455,524	58,267,057	7,897,685

Note
ORIGINAL BUDGET +/- approved budget changes in previous quarters = REVISED Budget
REVISED BUDGET +/- recommended budget changes this quarter = PROJECTED Budget

Recommended Changes for September
The detail of what recommended changes are requested are included in the Description of Item section in the report

This document forms part of Coffs Harbour City Council's Quarterly Budget Review Statements for the quarter ended 30/09/13 and should be read in conjunction with other documents in the QBRS

Attachment 4

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

CAPITAL BUDGET - WATER FUND

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
CAPITAL FUNDING							
Water Fund	7,338,068	-	-	7,338,068	-	7,338,068	1,761,542
External Restrictions							
Unexpended Loan	8,445,600	304,040	-	8,749,640	-	8,749,640	34,275
S64	3,587,500	-	-	3,587,500	-	3,587,500	381,521
TOTAL CAPITAL FUNDING	19,371,168	304,040	-	19,675,208	-	19,675,208	2,177,338

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
CAPITAL EXPENDITURE							
Loan Repayments (Principal)	7,030,201	-	-	7,030,201	-	7,030,201	1,711,035
New Assets							
Office Equipment	-	-	-	-	-	-	-
Water Supply Network	10,843,100	199,923	-	11,043,023	-	11,043,023	152,409
Plant & Equipment	70,000	-	-	70,000	-	70,000	4,208
Other Assets	-	-	-	-	-	-	-
Renewals (Replacement)							
Office Equipment	7,867	-	-	7,867	-	7,867	42
Water Supply Network	1,420,000	104,117	-	1,524,117	-	1,524,117	309,644
Plant & Equipment	-	-	-	-	-	-	-
Other Assets	-	-	-	-	-	-	-
TOTAL CAPITAL EXPENDITURE	19,371,168	304,040	-	19,675,208	-	19,675,208	2,177,338

Note
ORIGINAL BUDGET +/- approved budget changes in previous quarters = REVISED Budget
REVISED BUDGET +/- recommended budget changes this quarter = PROJECTED Budget

Recommended Changes for September
The detail of what recommended changes are requested are included in the Description of Item section in the report

Attachment 4

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

CAPITAL BUDGET - SEWER FUND

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
CAPITAL FUNDING							
Sewer Fund	8,078,440	-	-	8,078,440	-	8,078,440	1,934,195
External Restrictions							
Unexpended Loan	11,441,995	11,316,825	-	22,758,820	-	22,758,820	2,445,314
S64	5,645,600	-	-	5,645,600	-	5,645,600	46,988
Grant	1,134,948	-	-	1,134,948	-	1,134,948	-
TOTAL CAPITAL FUNDING	26,300,983	11,316,825	-	37,617,808	-	37,617,808	4,426,497

	ORIGINAL Budget 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	REVISED Budget	Recommended Changes for September	PROJECTED Budget 2013/14	ACTUAL YTD
CAPITAL EXPENDITURE							
Loan Repayments (Principal)	8,068,440	-	-	8,068,440	-	8,068,440	1,934,153
New Assets							
Office Equipment	20,000	20,000	-	40,000	-	40,000	-
Sewer Network	14,738,543	11,096,825	-	25,835,368	-	25,835,368	2,314,733
Plant & Equipment	110,000	-	-	110,000	-	110,000	3,160
Renewals (Replacement)							
Office Equipment	10,000	-	-	10,000	-	10,000	42
Sewer Network	3,354,000	200,000	-	3,554,000	-	3,554,000	174,409
Plant & Equipment	-	-	-	-	-	-	-
TOTAL CAPITAL EXPENDITURE	26,300,983	11,316,825	-	37,617,808	-	37,617,808	4,426,497

Note
ORIGINAL BUDGET +/- approved budget changes in previous quarters = REVISED Budget
REVISED BUDGET +/- recommended budget changes this quarter = PROJECTED Budget

Recommended Changes for September
The detail of what recommended changes are requested are included in the Description of Item section in the report

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

CASH AND INVESTMENTS

Attachment 5

Reserve Type	Opening Balance 7/1/2013	Add / (Subtract) ORIGINAL Budget Transfers 2013/14	Approved Changes Other than by QBRS	Approved Changes Sept Rev	Add Interest Apportioned	REVISED Balance	Recommended Budget Transfers for Sept	PROJECTED Closing Balance 6/30/2014	YTD Actual
Total Cash and Investments	171,504,000	-	-			171,504,000		171,816,000	175,007,014
attributable to:									
External Restrictions (see below)	110,592,000	(8,669,493)	(30,341,531)	-	337,821	71,918,797	(587,000)	71,331,797	96,192,422
Internal Restrictions (see below)	54,993,000	(3,769,223)	(21,321,052)	-	489,925	30,460,684	(506,215)	29,954,469	44,372,587
Unrestricted	5,919,000	12,438,716	51,662,583	-	(827,746)	69,124,519	1,093,215	70,529,734	34,442,005
	171,504,000	-	-	-	-	171,504,000	-	171,816,000	175,007,014
External Restrictions									
General:									
Developer Contributions	13,757,000	(1,629,721)	(2,734,165)			9,393,114	(587,000)	8,806,114	413,715
Domestic Waste	527,000	371,303	-		2,499	900,802	-	900,802	851,126
Stormwater Management Levy	-					-	-	-	-
Other	32,000					32,000	-	32,000	-
Water:									
Unexpended Loans	23,990,000	(1,771,075)	(3,925,152)			18,293,773	-	18,293,773	23,939,820
Unexpended Grants	-					-	-	-	-
Developer Contributions	67,000					67,000	-	67,000	354,112
Water Supplies (Revenue)	12,164,000		(679,019)		113,368	11,598,349	-	11,598,349	10,072,851
Sewer:									
Unexpended Loans	37,588,000	(5,640,000)	(22,353,195)			9,594,805	-	9,594,805	40,497,620
Unexpended Grants	-	-				-	-	-	-
Developer Contributions	61,000					61,000	-	61,000	346,265
Sewer Services (Revenue)	22,406,000		(650,000)		221,954	21,977,954	-	21,977,954	19,716,913
Total External Restrictions	110,592,000	(8,669,493)	(30,341,531)	-	337,821	71,918,797	(587,000)	71,331,797	96,192,422
Internal Restrictions									
Airport	5,747,000	(266,632)	(652,820)		64,984	4,892,532	357,137	5,249,669	5,511,149
Asset Replacement & Maintenance	400,000	66,274			4,154	470,428	(129,017)	341,411	372,674
CBD Masterplan		1,433,640				1,433,640		1,433,640	
Community Facilities	977,000	(204,301)	(518,574)		11,405	265,530	-	265,530	1,222,508
EDP Equipment	149,000	-	(309,790)		1,531	(159,259)	-	(159,259)	75,432
Technology Group	183,000	333,248			110	516,358	-	516,358	(13,181)
Unexpended Contributions	2,811,000					2,811,000	-	2,811,000	10,818
Historical Jetty R & M	218,000	-			2,485	220,485	-	220,485	220,767
Future Fund	962,000	328,713	-		11,258	1,301,971	-	1,301,971	1,055,170
Business Development	1,212,000	36,000	(80,842)		13,716	1,180,874	-	1,180,874	1,210,240
Project Contingency	1,074,000	-			12,231	1,086,231	-	1,086,231	1,086,761
Private Works - General Fund Reserve	1,077,000	72,000	(18,574)		12,182	1,142,608	-	1,142,608	1,088,212
Non Domestic Waste	1,349,000	(124,560)	(58,151)		17,386	1,183,675	-	1,183,675	1,759,075
Employees Leave Entitlement	3,790,000	(4,260,124)	1,562,000		46,303	1,138,179	(300,000)	838,179	5,162,744
Revenue Revotes	4,489,000		(4,489,185)			(185)	-	(185)	
Unexpended Grants	5,661,000					5,661,000	-	5,661,000	210,745
Open Space Land	460,000	-	(265,967)		5,234	199,267	-	199,267	464,146
Lab Equipment Replacement	643,000	264,526			7,418	914,944	-	914,944	625,372
Rural Fire Service	15,000				178	15,178	-	15,178	15,847
Plant Replacement	6,146,000	(1,172,929)	(657,985)		71,161	4,386,247	843,165	5,229,412	6,719,250
Environmental Levy	380,000	(181,537)	(269,550)		3,053		-	-	266,366
RTA Pine Creek Handover (Capital)	565,000	(33,000)			37,199	569,199	-	569,199	602,132
RTA - SH10 Garden Works	151,000	(60,541)			1,678	92,137	-	92,137	144,205
Moonee Beach Rd Upgrade	177,000		(134,147)		2,014	44,867	-	44,867	178,909
Unexpended Loan Funds	10,584,000	-	(15,427,467)			(4,843,467)	(27,500)	(4,870,967)	10,516,546
Car Parking Upgrade	2,328,000				26,124	2,354,124	(1,250,000)	1,104,124	2,252,810
Future Road Network	1,241,000				14,243	1,255,243	-	1,255,243	1,285,519
Flood Mitigation Works	2,204,000				123,878	2,327,878	-	2,327,878	2,328,371
	54,993,000	(3,769,223)	(21,321,052)	-	489,925	30,460,684	(506,215)	29,954,469	44,372,587

Investments

Per Council's monthly Bank Balances and Investments report the RAO provides a statement that Council's investments have been made in accordance with the Local Government Act 1993, Regulations and Council's investment policy

Reconciliation

Per Council's monthly Bank Balances and Investments report the total Cash and investments have been reconciled with funds invested and cash at bank

Cash

The last bank reconciliation was to the period ended 30/9/13 and was completed 31/10/13

Note

Opening Balances for Unexpended grants, Unexpended loans and unexpended contributions were extracted from Closing Balance at 30/6/13 per Note 6(c) of financial statements

This document forms part of Coffs harbour City Council's Quarterly Budget Review Statements for the quarter ended 30/9/13 and should be read in conjunction with other documents in the QBRS

Attachment 6

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

KEY PERFORMANCE INDICATORS STATEMENT

RATIO	CALCULATION	WHAT IS BEING MEASURED	FIGURE	SUSTAINABLE TARGET
Sources of Revenue Ratio (Consolidated)	Own source revenue (all income excluding grants and contributions) divided by total income from continuing operations	Council's reliance on funding from sources other than grants and contributions. The greater the reliance on own source revenue the more control council has over its income stream	78.47%	> 65%
Rates and Annual Charges Coverage Ratio (Consolidated)	Rates and annual charges outstanding divided by income from continuing operations	The degree of dependence upon revenues from rates and annual charges and to assess the security of Council's income	51.26%	55% to 75%
Asset Sustainability Ratio (Consolidated)	Capital amounts spent on rehabilitation and replacement of existing assets divided by the level proposed in the infrastructure and asset management plan	The extent to which assets are being replaced at the rate they are wearing out	19.40%	90% to 110%
Debt Service Ratio (Consolidated)	Debt service cost divided by income from continuing operations excluding capital items and specific purpose grants and contributions	The impact of loan principal and interst repayments on the discretionary revenue of council	27.90%	< 10% Sustainable 10% to 15% Satisfactory > 15% Unsustainable
Rates and Annual Charges Outstanding (Consolidated)	Rates and annual charges outstanding divided by rates and annual charges collectable	The impact of uncollected rates and annual charges on liquidity and the adequacy of recovery efforts	7.12%	7%

This document forms part of Coffs Harbour City Council's Quarterly Budget Review Statement for the quarter ended 30/9/13 and should be read in conjunction with other documents in the QBRS

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

PART A - CONTRACTS LISTING

Attachment 7

CONTRACTOR	CONTRACT DETAIL & PURPOSE	CONTRACT VALUE (Ex GST)	COMMENCEMENT DATE	COMPLETION DATE	BUDGETED (Y/N)
Lawn Kings Australia	Grass Cutting Western Area Reserves	75,000	8/12/2013	8/11/2016	Y
Water Technology P/L	Design Coffs Harbour Boat Ramp Improvememt	46,780	8/30/2013	12/30/2013	Y
JK Williams Contracting	Stage 1 West Woolgoolga Sports Complex - Bulk Earthworks	545,384	9/27/2013	12/5/2013	Y
Coffs Ex Services Club Ltd	Naming Rights Sponsorship for International Sports Stadium	250,000	8/1/2013	7/31/2018	Y
Coffs Professional Cleaners	Maintenance Street & Facilities Cleaning Coffs Harbour CBD	251,931	8/1/2013	6/30/2015	Y
Kone Elevators Pty Ltd	Castle St Carpark Supply & Installation of lifts	295,584	8/12/2013	3/18/2014	Y

Notes

1. Minimum reporting level is 1% of estimated income from continuing operations or $50,000 whichever is the lesser

2. Contracts to be listed are those entered into during the quarter and have yet to be fully performed, excluding contractors that are on Council's preferred supplier list

3. Contracts for employment are not required to be included

COFFS HARBOUR CITY COUNCIL

BUDGET REVIEW FOR THE QUARTER ENDED 30 SEPTEMBER 2013

Attachment 8

PART B - CONSULTANCY AND LEGAL EXPENSES

EXPENSE	EXPENDITURE YTD	BUDGETED (Y/N)
Consultancies	241,743	Y
Legal Fees	169,814	Y

Definition of Consultant

A consultant is a person or organisation engaged under contract on a temporary basis to provide recommendations or high level specialist or professional advice to assist decision making by managament. Generally it is the advisory nature of the work that differentiates a consultant from other contractors.

BANK BALANCES AND INVESTMENT FOR SEPTEMBER 2013

Purpose:

To list Council's Bank Balances and Investments as at 30 September 2013.

Description of Item:

A copy of the state of Bank Balances and Investments as at 30 September 2013 is attached.

It should be noted that Council is required to account for investments in accordance with the Australian International Financial Reporting Standards. As such the ledger balances at the end of each month reflect market value movements which would be inclusive of accrued interest.

Interest when paid, say quarterly, would result in reductions in the market value of the investments.

The Investment Report reflects the above requirements and reflects the interest earned (or accrued) on each investment, based on the acquisition price.

Reports written by CPG Research & Advisory Pty Ltd (Council's investment portfolio advisors) which examine economic and financial markets data for September 2013, and review the performance of Councils investment portfolio for month ended 30 September 2013 are available in the Councillors' Resource Centre.

Sustainability Assessment:

- **Environment**

  There are no perceived current or future environmental impacts.

- **Social**

  There are no perceived current or future social impacts.

- **Civic Leadership**

  Council invests surplus funds to maximise investment income and preserve capital to assist with funding requirements for projects listed under the Coffs Harbour 2030 Community Strategic Plan.

- **Economic**

  Broader Economic Implications

  Council's investments are held according to the requirements stated within Council's investments policy and the returns are acceptable in relation thereto. In the long term, earnings from investments can vary due to economic conditions and financial markets. Council constructs its investment portfolio with consideration of current conditions and to comply with the DLG investment policy guidelines.

Delivery Program/Operational Plan Implications

For September 2013 it is noted that after deducting from the total bank and investment balances of $164,096,494, the estimated restricted General, Trust, Water and Sewerage cash and investments ($163,853,563) the Unrestricted Cash is $242,931.

Risk Analysis:

The likelihood of risks associated with New South Wales Local Government's investing funds is now remote due to the conservative nature of investments permitted under statutory requirements. The risks of capital not being returned in relation to each individual investment Council owns is indicated in the attachment. The main risks for Council's investment portfolio are liquidity and credit risk, both of which are being managed under the advice of CPG Research & Advisory Pty Ltd.

Consultation:

Council's investment advisors, CPG Research & Advisory Pty Ltd have been consulted in the preparation of this report.

Related Policy and / or Precedents:

Council funds have been invested in accordance with Council's Investment Policy (POL-049), which was adopted on 22 August 2013.

Statutory Requirements:

Local Government Act 1993 – Section 625
Local Government Act 1993 – Investment Order (dated 12 January 2011).
Local Government General Regulation 2005
The Trustee Amendment (Discretionary Investments) Act 1997 – Sections 14A(2), 14C(1) and 14C(2).

Issues:

Nil.

Implementation Date / Priority:

Nil.

Further details are provided as a note on the attachment.

Recommendation:

1. **That the bank balances and investments totaling (from loans, Section 94 and other avenues that form the restricted accounts and are committed for future works) one hundred and sixty four million, ninety six thousand and four hundred and ninety four dollars ($164,096,494) as at 30 September 2013 be noted.**
2. **That the general fund unrestricted cash and investments totaling two hundred and forty two thousand, nine hundred and thirty one dollars ($242,931) as at 30 September 2013 be noted.**

BANK BALANCES AND INVESTMENTS AS AT 30 SEPTEMBER 2013

Attachment

	Credit Rating at 30/9/13	Legal Maturity	Acquisition Price $	Market Value as at 1/9/13 $	Market Value as at 30/9/13 $	Income Earned (net of fees) Financial Yr to Date $	Annualised Monthly Return (Managed Funds) / Current Coupon	Risk of capital not being returned
OVERNIGHT FUNDS:								
Cash - Fair Value movements through profit & loss								
NAB - Bank Accounts	AA-			4,187,173	2,460,349	21,982	**2.31**	Low
UBS Cash Management Trust	AAA			1,069,481	1,389,374	-	**1.77**	Low
Members Equity Bank - Business Investment Account	BBB+			71	71	1	**3.10**	Low
NAB Professional Funds Account	AA-			4,292,752	2,794,910	19,947	**2.90**	Low
Delphi Bank - Cash M'ment Acc't	A-			25,195	32,685	62	**2.50**	Low
Rabo Bank - Premium Cash Managem	AA			6,463	6,463	-	**4.00**	Low
Suncorp Business Saver	A-			189,622	190,050	729	**3.25**	Low
CUA Prime Access	NR			82	82	-	**0.01**	Low
Total				9,770,839	6,873,984	42,721		
BENCHMARK RATE - 11 AM INDICATIVE CASH RATE							**2.50**	
BENCHMARK RATE - UBS BANK BILL INDEX							**2.60**	
Term Deposits - Fair Value movements through profit & loss								
Investec 17/11/14	BBB-	17/11/2014	8,000,000	8,000,000	8,000,000	151,838	**7.53**	Low
Investec 29/6/16	BBB-	29/06/2016	1,000,000	1,000,000	1,000,000	18,828	**7.47**	Low
Investec 8/7/15	BBB-	8/07/2015	1,000,000	1,000,000	1,000,000	18,173	**7.21**	Low
Investec 8/8/16	BBB-	8/08/2016	2,500,000	2,500,000	2,500,000	42,156	**6.69**	Low
Investec 6/6/17	BBB-	6/06/2017	2,000,000	2,000,000	2,000,000	27,424	**5.44**	Low
Investec 14/8/15	BBB-	14/08/2015	1,800,000	1,800,000	1,800,000	29,173	**6.43**	Low
AMP 24/5/16	A	24/05/2016	5,000,000	5,000,000	5,000,000	92,630	**7.35**	Low
AMP 10/3/14	A	10/03/2014	2,000,000	2,000,000	2,000,000	21,929	**4.35**	Low
Arab Bank 7/5/18	A-	7/05/2018	1,500,000	1,500,000	1,500,000	17,770	**4.70**	Low
Arab Bank 2/12/13	A-	2/12/2013	1,000,000	-	1,000,000	9,830	**3.90**	Low
Arab Bank 5/11/13	A-	5/11/2013	2,000,000	-	2,000,000	19,156	**3.80**	Low
Arab Bank 10/9/15	A-	10/09/2015	2,000,000	-	2,000,000	21,425	**4.25**	Low
Westpac 27/6/14	AA-	27/06/2014	1,000,000	1,000,000	1,000,000	16,384	**6.50**	Low
Westpac 6/5/14	AA-	6/05/2014	4,000,000	4,000,000	4,000,000	42,345	**4.20**	Low
NAB 9/3/15	AA-	9/03/2015	2,000,000	2,000,000	2,000,000	22,534	**4.47**	Low
NAB 12/3/15	AA-	12/03/2015	2,500,000	2,500,000	2,500,000	28,419	**4.51**	Low
NAB 2/12/13	AA-	2/12/2013	1,000,000	-	1,000,000	9,578	**3.80**	Low
Delphi Bank 29/1/15*	A-	29/01/2015	2,000,000	2,000,000	2,000,000	22,130	**4.39**	Low
Delphi Bank 14/2/14*	A-	14/02/2014	5,000,000	5,000,000	5,000,000	88,849	**7.05**	Low
Delphi Bank 5/8/15*	A-	5/08/2015	2,000,000	2,000,000	2,000,000	33,775	**6.70**	Low
Delphi Bank 7/3/14*	A-	7/03/2014	1,500,000	1,500,000	1,500,000	26,655	**7.05**	Low

BANK BALANCES AND INVESTMENTS AS AT 30 SEPTEMBER 2013

Attachment

	Credit Rating at 30/9/13	Legal Maturity	Acquisition Price $	Market Value as at 1/9/13 $	Market Value as at 30/9/13 $	Income Earned (net of fees) Financial Yr to Date $	Annualised Monthly Return (Managed Funds) / Current Coupon	Risk of capital not being returned
Credit Union Australia 11/4/14	BBB+	11/04/2014	1,000,000	1,000,000	1,000,000	17,190	**6.82**	Low
Credit Union Australia 12/5/14	BBB+	12/05/2014	2,000,000	2,000,000	2,000,000	34,078	**6.76**	Low
Credit Union Australia 9/5/14	BBB+	9/05/2014	500,000	500,000	500,000	7,499	**5.95**	Low
Suncorp 11/8/14	A-	11/08/2014	3,000,000	3,000,000	3,000,000	47,638	**6.30**	Low
Suncorp 23/12/13	A-	23/12/2013	1,000,000	1,000,000	1,000,000	12,704	**5.04**	Low
Rural Bank	A-	30/10/2013	2,000,000	2,000,000	2,000,000	22,181	**4.40**	Low
Bank of Queensland 4/9/17	BBB	4/09/2017	2,000,000	2,000,000	2,000,000	28,482	**5.65**	Low
Bank of Queensland 5/2/18	BBB	5/02/2018	3,000,000	3,000,000	3,000,000	38,942	**5.15**	Low
Bank of Queensland 5/3/18	BBB	5/03/2018	2,000,000	2,000,000	2,000,000	25,710	**5.10**	Low
Bank of Queensland 17/5/17	BBB	17/05/2017	1,000,000	1,000,000	1,000,000	11,721	**4.65**	Low
Bank of Queensland 5/12/13	BBB	5/12/2013	2,000,000	-	2,000,000	19,408	**3.85**	Low
Rabo Direct 24/3/16	AA	24/03/2016	5,000,000	5,000,000	5,000,000	90,110	**7.15**	Low
Rabo Direct 10/8/15	AA	10/08/2015	1,000,000	1,000,000	1,000,000	16,888	**6.70**	Low
Rabo Direct 13/4/15	AA	13/04/2015	1,000,000	1,000,000	1,000,000	11,342	**4.50**	Low
ING 17/8/17	A	17/08/2017	2,000,000	2,000,000	2,000,000	30,297	**6.01**	Low
ING 6/9/17	A	6/09/2017	2,000,000	2,000,000	2,000,000	28,230	**5.60**	Low
ING 7/5/18	A	7/05/2018	1,500,000	1,500,000	1,500,000	17,619	**4.66**	Low
Wide Bay 29/7/16	BBB	29/07/2016	1,000,000	1,000,000	1,000,000	17,896	**7.10**	Low
Wide Bay 8/8/16	BBB	8/08/2016	1,000,000	1,000,000	1,000,000	17,896	**7.10**	Low
ME Bank 15/5/14	BBB+	15/05/2014	2,000,000	2,000,000	2,000,000	21,425	**4.25**	Low
ME Bank 2/6/14	BBB+	2/06/2014	2,000,000	2,000,000	2,000,000	15,879	**4.20**	Low
ME Bank 15/10/13 (RPT)	BBB+	15/10/2013	1,300,000	1,300,000	1,300,000	11,793	**4.30**	Low
Police Credit Union 26/2/15	NR	26/02/2015	1,000,000	1,000,000	1,000,000	11,670	**4.63**	Low
Police Credit Union 17/5/16	NR	17/05/2016	500,000	500,000	500,000	5,684	**4.51**	Low
Bendigo & Adelaide Bank	A-	16/04/2014	2,800,000	2,800,000	2,800,000	30,347	**4.30**	Low
Bank of Sydney 21/10/13	NR	21/10/2013	1,500,000	1,500,000	1,500,000	15,501	**4.10**	Low
Bank of Sydney 4/11/13	NR	4/11/2013	2,000,000	-	2,000,000	6,137	**4.00**	Low
Bank of Sydney 8/10/13	NR	8/10/2013	1,000,000	-	1,000,000	3,053	**3.98**	Low
CBA 16/5/16	AA-	16/05/2016	1,000,000	1,000,000	1,000,000	11,342	**4.50**	Low
CBA 17/5/16	AA-	17/05/2016	1,000,000	1,000,000	1,000,000	11,342	**4.50**	Low
CBA 23/5/16	AA-	23/05/2016	1,000,000	1,000,000	1,000,000	11,468	**4.55**	Low
CBA 30/5/16	AA-	30/05/2016	1,000,000	1,000,000	1,000,000	11,468	**4.55**	Low
CBA 6/6/16	AA-	6/06/2016	1,000,000	1,000,000	1,000,000	11,468	**4.55**	Low
CBA 29/10/17	AA-	29/10/2017	2,779,070	2,779,070	2,779,070	21,238	**3.03**	Low
Total			106,679,070	95,679,070	106,679,070	1,456,649		

Attachment

BANK BALANCES AND INVESTMENTS AS AT 30 SEPTEMBER 2013

	Credit Rating at 30/9/13	Legal Maturity	Acquisition Price $	Market Value as at 1/9/13 $	Market Value as at 30/9/13 $	Income Earned (net of fees) Financial Yr to Date $	Annualised Monthly Return (Managed Funds) / Current Coupon	Risk of capital not being returned
Floating Rate Notes:								
Fair Value through Profit & Loss Accounting - movements through profits & loss.								
Bank of Queensland 7/12/15	BBB	7/12/2015	5,034,450	5,100,100	5,076,900	86,102	**4.40**	Low
Bank of Queensland 30/5/16	BBB	30/05/2016	3,000,000	3,005,760	3,030,360	52,232	**4.30**	Low
CBA	AA	24/12/2015	15,281,689	15,501,550	15,345,000	428,749	**3.79**	Low
Macquarie Bank 9/3/17	A	9/03/2017	5,000,000	5,268,755	5,262,830	68,623	**5.67**	Low
Macquarie Bank 24/2/14	A	24/02/2014	1,001,180	1,008,090	1,010,760	8,932	**4.86**	Low
Arab	A-	12/12/2014	5,000,000	4,997,295	4,997,250	29,031	**4.28**	Low
Suncorp	A-	11/04/2016	2,250,000	2,270,025	2,277,743	24,631	**3.76**	Low
Total			36,567,319	37,151,575	37,000,843	698,300		
Fair Value through Profit & Loss Accounting - movements through profits & loss.								
Lehman #	D	15/06/2009	300,000	-	-	-	**0.00**	**High**
Lehman #^	D	15/06/2009	500,000	-	-	-	**0.00**	**High**
Sub Total			800,000	-	-	-		
Total			800,000	-	-	-		
Floating Rate Term Deposits:								
Bank of Queensland	BBB	26/02/2016	1,500,000	1,500,000	1,500,000	15,498	**4.10**	Low
ING	A	27/02/2015	2,000,000	2,000,000	2,000,000	20,618	**4.09**	Low
Total			57,372,447	3,500,000	3,500,000	36,116		
Fixed Coupon Bonds								
Heritage Bank	BBB+	20/06/2017	7,675,601	7,725,058	8,010,175	359,044	**7.25**	Low
Total			7,675,601	7,725,058	8,010,175	359,044		
Floating Rate Transferrable Certificate of Deposit								
Greater Building Society	BBB+	15/04/2016	2,000,000	2,015,060	2,032,420	34,774	**4.24**	Low
Total			2,000,000	2,015,060	2,032,420	34,774		
Other:								
Southern Phone Company Shares	N/A	N/A	2	2	2	-	**N/A**	Low
			2	2	2	-		

BANK BALANCES AND INVESTMENTS AS AT 30 SEPTEMBER 2013

Attachment

	Credit Rating at 30/9/13	Legal Maturity	Acquisition Price $	Market Value as at 1/9/13 $	Market Value as at 30/9/13 $	Income Earned (net of fees) Financial Yr to Date $	Annualised Monthly Return (Managed Funds) / Current Coupon	Risk of capital not being returned
Securities No Longer Held (excluding Managed Funds).								
Accumulated at August 2013			-	-	-	(29,408)		
ME Bank 2/9/13	BBB+	2/09/2013	2,000,000	2,000,000	-	15,079	**4.30**	Low
Westpac	AA-	9/09/2013	2,000,000	2,000,000	-	13,853	**3.56**	Low
ING 4/9/13	A	4/09/2013	3,000,000	3,000,000	-	23,272	**4.29**	Low
Total			7,000,000	7,000,000	-	22,796		
GRAND TOTAL (before fees)				**162,841,603**	**164,096,494**	**2,650,401**		
Less Portfolio Fees (Advice & Salary)						(41,532)		
GRAND TOTAL				**162,841,603**	**164,096,494**	**2,608,869**		

Capital Guaranteed at maturity

^ Ex Infrastructure IMP

* Rated by Fitch

The dates quoted alongside the name of the product for FRN's, CDO's and Fixed Bonds are first call dates.

First call dates for FRN's & fixed bonds are the likely date of maturity because the investment issuer is severely penalised if monies are not redeemed by that date, via damage in the market to their reputation, increased coupon rates and additional capital requirements by APRA.

Term deposits of $250,000 or less per financial institution are covered under the Commonwealth Government Deposit Guarantee Scheme & therefore by default have the same credit rating as the Commonwealth Government i.e. AAA.

Less Unrealised Capital Gains/(Loss) for Available For Sale Investments			**$ 4,700**
Income to Profit & Loss			**$ 2,604,169**
TOTAL CASH & INVESTMENTS AS AT 30 SEPTEMBER 2013			**$ 164,096,494**
LESS ESTIMATED RESTRICTED EQUITY FOR WATER & SEWER FUNDS			
Water Fund	$	34,713,800	
Sewer Fund	$	58,731,143	**$ 93,444,943**
GENERAL FUND CASH & INVESTMENTS			**$ 70,651,551**
LESS TRUST FUND BALANCES AS AT 30 SEPTEMBER 2013			**$ 1,446,404**
LESS ESTIMATED RESTRICTED EQUITY FOR GENERAL FUND (developer contributions, grants, reserves etc).			**$ 68,962,217**
ESTIMATED GENERAL FUND UNRESTRICTED CASH & INVESTMENTS AS AT 30 JUNE 2014			**$ 242,931**

I hereby certify that Council's investments have been made in accordance with the Local Government Act 1993, Regulations and Council's Investment Policy.

Responsible Accounting Officer.

TENDER RFT 602-TO: PROVISION OF AVIATION SECURITY SCREENING SERVICES AT COFFS HARBOUR AIRPORT

Purpose:

To report on tenders received for Contract No RFT-602-TO for the Provision of Aviation Security Screening Services at Coffs Harbour Airport and to gain Council approval to accept a tender.

Description of Item:

Aviation Transport Security Regulations 2005 require security screening of all departing passengers at the Coffs Harbour Airport.

This role is currently undertaken by Qantas as the Authorised Screening Authority at this airport, however Qantas has informed Council that it will relinquish its arrangements as the Screening Authority at Coffs Harbour Airport by 30 April 2014.

As a consequence, Council will have to make application to the Office of Transport Security to become the Screening Authority at Coffs Harbour Airport.

A consideration period of up to 60 days may be needed by the Department after submission which must include details of the Security Screening Services provider.

Tenders were called in local and capital city newspapers and in Council's Tenderlink portal. Tenders closed at 3.30pm on Tuesday, 8 October 2013.

Tenders were evaluated on the following criteria:

- Tender Price
- Experience in similar airport security work
- Performance and reliability in airport security screening
- Staffing and equipment
- Safety system.

Seven tenders were received from:

1. Business Security and Management Solutions Pty Ltd
2. MSS Security Pty Ltd
3. Sydney Night Patrol & Inquiry Co Pty Ltd
4. Toll Remote Logistics
5. QAL Services Pty Ltd
6. Allegiance Investigations & Security Services Pty Ltd
7. Aerodrome Management Services Pty Ltd.

Sustainability Assessment:

- **Environment**

  This operation will have no adverse effect on the environment.

- **Social**

  The overall social benefit is the ability for the airport to comply with legislative requirements that enable it to continue to operate in its current form. Without passenger security screening facilities the airport would be restricted to smaller turbo prop aircraft operations with a maximum capacity of around 36 seats. The operation also requires approximately 12 locally based staff.

- **Civic Leadership**

  As the airport owner it is Council's responsibility to ensure its continued safe and efficient operation in accordance with relevant government regulations. In addition to the airports role as a transport hub for the Coffs Coast it is also a significant economic driver for the city and is consistent with the objectives of Council's 2030 Strategic Plan.

- **Economic**

  Broader Economic Implications

  The continued operation and growth of the airport has a significant economic impact on the local economy. The airport provides a vital service to the business and tourism sectors and its level of services puts Coffs Harbour in a strong competitive position in both sectors.

  Delivery Program/Operational Plan Implications

  The security screening process will be self-funding with all costs on-charged to the respective airline operator. There are no negative impacts on the delivery/program/operational plan.

Risk Analysis:

As Passenger Security Screening is a regulatory requirement there may be a risk to large turbo prop and jet aircraft operations if a suitably qualified security screening provider is not appointed to fill this role at the Coffs Harbour Airport.

The proposed provider has extensive experience in aviation security services including passenger, checked baggage and freight security services at 30 airports throughout Australia

There would be no additional risk exposure to Council as this role is already an integral part of the current airport operation.

Consultation:

Robust consultation has occurred with the Office of Transport Security and Qantas on this matter. Coffs Harbour is one of fifteen airports throughout Australia affected by this decision.

Related Policy and / or Precedents:

Tendering procedures were carried out in accordance with Council policy. Council's Tender Value Selection System was applied during the tender review process to determine the most advantageous offer.

Council's policy is that the tender with the highest weighted score becomes the recommended tender.

Statutory Requirements:

The calling, receiving and reviewing of tenders was carried out in accordance with Part 7 Tendering of the Local Government (General) Regulations 2005.

Issues:

There were no issues with the tender process.

Implementation Date / Priority:

If approved the tender will commence by 1 May 2014 for a period of five years.

Recommendation:

That Council considers tenders received for Provision of Aviation Security Screening Services at Coffs Harbour Airport, Contract No RFT-602-TO, and resolve as detailed in the confidential attachment

TOURISM MARKETING MODELS CONSULTATION

Purpose:

To recommend that Council in partnership with Tourism Coffs Coast, examine models for Destination Marketing.

Description of Item:

Coffs Harbour City Council has had a specific functional area, within Council for marketing the region as a destination for many years. This was a function which was performed externally by Council prior to that time. The tourism marketing industry, certainly within Australia has a number of models for effectively marketing destinations. These models are specific to the needs of each area and often move from being run internally by local government to being a private operator and/or operated by a specific industry body such as a tourist association. This is often a cyclical process depending on the time, passion, commitment and capacity of individuals within the industry at any given time. When a willingness to undertake these activities is high within the sector then there is a strong desire to actively run such functions. If and when this willingness, for whatever reason is reduced, then it is often to Councils that the sector turns for support and assistance.

The model which currently operates for the Coffs Coast is that Council undertakes a specific function in collaboration with the local tourism association, Tourism Coffs Coast, Bellingen Council and other stakeholders such as operators and other levels of government.

A formal request has been made from Tourism Coffs Coast to examine models to leverage better outcomes in Destination marketing. This approach, which has been made in writing covers the following:

- Lack of funds available to Coffs Coast Marketing to effectively market the region
- A request for Coffs Harbour City Council to investigate other avenues to increase funds and opportunities which will allow more leveraging of marketing dollars for the Coffs Coast region.
- A need to review services which may detract from the current marketing budget and review crossover to identify opportunities for improved efficiencies and effectiveness.
- A willingness to contribute in participation of the review
- Willingness to contribute financially to this review

This report has been prepared to suggest a specific approach to identify best practice models which will meet stakeholders needs now and into the future.

Sustainability Assessment:

- **Environment**

  There are no environmental issues associated with this report.

- **Social**

  The social capital that is grown via the tourist sector is significant. This is through both opportunities for employment, particularly for young people and also in skills development through transferrable training options.

- **Civic Leadership**

  This is captured in Coffs Harbour 2030 through:

  LP 1.1 Promote opportunities around renewable energy, sustainable tourism, sustainable agriculture and fisheries, local produce, creative and clean industries.

  LP 6.1 Develop strong and effective partnerships between business, the community, educational institutions and Government.

  LE 1.1 Identify and promote the region's unique environmental values

- **Economic**

  Broader Economic Implications

  Research shows that the return on investment achieved through tourism and its related activities is significant. It is important that any opportunities are capitalized on and that the investment by all involved is therefore leveraged to the best advantage. If this is not driven by the best model of marketing there will an impact over time on the broader economy of the city.

  Delivery Program/Operational Plan Implications

  Currently there is no reference in the delivery program or operational plan for this undertaking and therefore there is no specific budget allocation.

  Should Council agree in principle to undertake this examination it is estimated it will cost between $25,000 - $30,000. The funding sources for this are therefore proposed to be

  - $10,000 – Tourism Coffs Coast
  - $15,000 - $20,000 – Coffs Harbour City Council

  Council's contribution could be made as a result of a one off saving as a result of a planned event not progressing in this financial year.

Risk Analysis:

The risk in relation to this proposal is reputational. From a broader economic perspective there is also the risk as a result of the tourist industry being one of the significant industries within the region.

Consultation:

Consultation has been undertaken with Tourism Coffs Coast and staff.

Related Policy and / or Precedents:

This proposal is in line with similar approaches undertaken by Council when examining models for the future of other functional areas. A specific example is that of the Jetty Memorial Theatre. The experience in relation to this facility is that for many years there was concern regarding its role and purpose, the rights and responsibilities of the variety of stakeholder and also the future directions required both by Council and the other stakeholders. An approach which took a holistic and strategic 'look' at the business and made recommendations about the best model for the future was adopted. This has proved to be successful in terms of financial commitment from Council. As importantly it has also resulted in a deeper understanding and agreement of the roles of all parties involved as well as enhancing the effectiveness of co-operation and synergies which are in place with the stakeholders.

It is a similar process which is being proposed in this report.

Statutory Requirements:

There are no specific statutory requirements regarding this issue.

Issues:

The issue of destination marketing and expenditure on that function by Councils is multifaceted. As mentioned earlier in this report there are a number of models.

Coffs Harbour has previously had a model which saw the function provided externally. This was deemed to require change and this resulted in Coffs Harbour City Council assuming a responsibility for some areas of marketing the destination. This experience is not unique to Coffs Harbour, with other areas having an in-house service which moves to be managed externally and vice versa. As mentioned earlier this is often based on individuals with a capacity and enthusiasm to follow a particular path. This often changes as individuals or groups of individuals circumstances change.

One of the issues is that, by its nature many involved in the industry rely on it for their livelihood. This means an examination of options and models is considered in this light.

The matters raised by Tourism Coffs Coast are not unique to the Coffs Coast region. The question of 'Can things be done better to get better outcomes?' is an entirely appropriate one for all areas to be asking. The nature of the question implies that things can be done better. This can be a subjective view based on the interest of those involved. The stakeholders need to have an opportunity to contribute ideas to the answer. There will differences of opinion in relation to the answer and the resulting positive tension from these differing ideas can then be objectively and strategically analysed. If this process is undertaken by a party with no vested interest, an impartial view can be provided to Council for consideration.

It is proposed to engage an external non-tourism related expert to examine the issue. This will be through an extensive consultation process with the relevant stakeholders. This is likely to be along similar lines to previous work which uses a project planning group to guide the project. It would be proposed that this group be made up of representatives of Tourism Coffs Coast and Coffs Harbour City Council.

Tourism Coffs Coast is keen to participate in an examination which will result in the development of a sustainable model to leverage better outcomes as a result of the money spend on destination marketing. This process would also engender ownership by relevant parties with an ongoing commitment to ensure success in the sector.

The outcome of the work would be a comprehensive outline of the issues and a suggested model for Council's consideration.

Implementation Date / Priority:

This will be implemented should Council agree in principle, with an indicative time frame of approximately three (3) months for the work to be completed.

Recommendation:

1. **That Council agrees in principle to engaging an independent consultant to examine models for leveraging better outcomes in destination marketing.**
2. **That Council acknowledges and accepts a contribution of $10,000 from Tourism Coffs Coast for the project.**
3. **That an allocation of no more than $20,000 be made by Council from the 2013/14 Events Marketing budget**
4. **That a report be provided to Council at the conclusion of the work.**

TRAFFIC COMMITTEE REPORT NO. 4/2013

Purpose:

To confirm the Minutes of the Traffic Committee Meeting held on Tuesday, 29 October 2013.

Recommendation:

T.45 - Parking Issues – Marina Drive Coffs Harbour (R.511190[3463468])

That approval be given for the centreline be offset approximately 900mm north near the northern car park in Marina Drive, Coffs Harbour, to allow for 2m wide parking on the south side and two 3.0m wide travel lanes, adjusting the "No Stopping" zone and to investigate the possibility of adding one accessible parking space, as per plan T.45-2013.

T.46 - Coffs Harbour CBD - Additional Disabled Parking Spaces [3416723]

That no action be taken to convert a parking bay at the north-western end of Harbour Drive, Coffs Harbour, to a standard accessible parking bay.

T.47 - North Boambee Road Coffs Harbour - Speed Zone Review (R.500270[3496816/3487417])

1. **That approval for Council to write to RMS to request a speed zone review of North Boambee Road Coffs Harbour.**
2. **Council approve the realignment of traffic lanes to allow a left turn lane east of the Bishop Druitt College entrance, as per plan T.47-2013.**

T.48 - Hogbin Drive Coffs Harbour – Speed Zone Line Marking (R.500390[3496816])

That approval be given for enhanced line marking at the intersection of Hogbin Drive and Hi-Tech Drive Toormina as per plan T.48-2013.

T.49 - Toormina High School, Armstrong Road Toormina – Childrens School Crossing (R502410[3521334])

To review linemarking for children's crossing adjacent Toormina High School in Armstrong Road and upgrade as appropriate.

T.50 - First Avenue Sawtell - Disabled Parking (R.501520[3528835])

That approval be given for a 2 hour timed accessible parking space (8.30am-6.00pm Monday-Friday and 8.30am-12.30pm Saturday) in Second Avenue Sawtell as per plan T.50-2013.

T.51 - Sawtell Road Toormina – Speed and Signage Review (R.502390[3522716])

No action pending further investigation of 60km/h speed zones in the Sawtell Road area.

T.52 - Jetty Area Coffs Harbour – Review of Taxis Zones [3537133]

That approval be given to restrict the Camperdown Street Coffs Harbour taxi zone beside the Pier Hotel, to 6.00am – 8.00pm daily, as per plan T.52-2013.

T.53 - Gale Street Coramba – Parking Issues (R.506160[3534586])

That no action be taken to install a "No Stopping" Zone in Gale Street Coramba opposite Dorrigo Street intersection, as NSW Road Rule 208(6) applies.

T.54 - Coffs Harbour Showground - Annual Coffs Harbour Stadium Motorcross 2014 [3516996]

That the Traffic Management Plan for the Annual Coffs Harbour Stadium Motorcross to be held at the Coffs Harbour Show Ground on Saturday 11 January 2014, be approved subject to Police and RMS approvals.

T.55 - Harbour Drive, Coffs Harbour - Temporary Road Closure - Santa's City Centre Welcome and Lighting of the Christmas Tree [3529805]

That the temporary road closure of Harbour Drive, Coffs Harbour, on Thursday, 5 December 2013, between 4.00pm and 8.30pm for the purpose of Santa's Arrival and the 'Lighting of the Christmas Tree', be advertised and providing no substantive objections are received, the closure be approved, subject to:

(a) the organisers to liaise with affected traders and obtain traders approval.

(b) the organisers submit a traffic control plan for approval by council and be responsible for erection of traffic barriers and control of traffic using accredited traffic controllers.

(c) the organisers be responsible for all costs associated with the temporary closure.

T.56 - Jordan Esplanade, Coffs Harbour - Temporary Road Closure - New Year's Eve (R.506100[3554250])

That the temporary road closure of Jordan Esplanade, Coffs Harbour, between Marina Drive and car park entry to Jetty on Tuesday, 31 December 2013 from 6.00pm and reopen Wednesday 12.30am 1 January 2014 for the purpose of New Year's Eve celebrations, be advertised and providing no substantive objections are received, the closure be approved subject to:

(a) the organisers, March's Amusements, liaise with affected traders and obtain traders approval.

(b) the organisers be responsible for erection of traffic barriers and control of traffic using accredited traffic controllers, in accordance with the submitted Traffic Management and Traffic Control Plans and police approval in writing.

(c) traffic Control be in place at the intersection of Jordan Esplanade and Camperdown Street for exiting traffic at the end of the fireworks display.

(c) the organisers be responsible for all costs associated with the temporary closure and clean up, including advertising.

T.57 - Sawtell New Years Day Fun Day – First Avenue, Sawtell -Temporary Road Closure (R.501520[3539048])

That the temporary road closure of First Avenue, Sawtell, between Boronia Street and Second Avenue, from 7.30am to 11.00am on Wednesday, 1 January 2014, for the purpose of conducting the street parade associated with the Sawtell Super Fun Day, be advertised and providing no substantive objections are received, the closure be approved subject to:

(a) the organisers of the Fun Day liaise with affected traders and obtain traders approval.

(b) the organisers be responsible for erection of traffic barriers and control of traffic using accredited traffic controllers, in accordance with the Traffic Management Plan.

(c) the organisers be responsible for all costs associated with the temporary closure and clean up, including advertising.

(d) a temporary bus zone be established on the east side of First Avenue, Sawtell, north of Second Avenue to enable buses to continue to operate.

T.58 - Hogbin Drive South/Stadium Drive Coffs Harbour [3528835]

That traffic modelling of key Hogbin Drive roundabout intersections be reviewed and a program of works for Hogbin Drive South road widening and lane duplication projects be developed to cater for future traffic flows.

Minutes

Local Traffic Committee Meeting

Tuesday

29 October 2013

VENUE: Rigby House Computer Training Room
First Floor
Cnr Coff & Duke Streets
Coffs Harbour

TIME: **10.35am**

PRESENT:

Cr Nan Cowling, Coffs Harbour City Council
David Vandergriend, Coffs Harbour Police
Daniel Boorman, Roads & Maritime Services
Anne Shearer, Coffs Harbour City Council
Robert Fletcher, Coffs Harbour City Council
Steve Reid, Coffs District Taxi Cab Network

APOLOGIES:

Darren Williams, Sawtell Coaches
Andrew Fraser Member for Coffs Harbour
David Brooks, Coffs Harbour City Council
George Stulle, Coffs Harbour City Council

Minute Taker

Sally Miles

CONFIRMATION OF MINUTES OF PREVIOUS MEETING
10 July 2013

BUSINESS ARISING

A. FORMAL ITEMS SECTION (Items for approval by Council under the delegation)

T.45 - Parking Issues – Marina Drive Coffs Harbour (R.511190[3463468])

Background:
The Coffs Harbour Water Police - NSW Marine Area Command are concerned with the cars that are parking near the Markets on a Sunday in Marina Drive Coffs Harbour at the Jetty are causing safety concerns for the Water Police when towing a boat through that area.

Summary of report:
This issue was raised in a previous Traffic Committee on 7 November 2012 with a request to install a 'No Stopping' zone in Marina Drive Coffs Harbour from the pedestrian crossing to the roundabout on both sides of the road to increase safety.

Council adopted that meeting's recommendation which was:

1. *That no action be taken to create a 'No Stopping' zone on the southern side of Marina Drive, Coffs Harbour, west of the pedestrian crossing.*

2. *That further investigation be carried out with the view to shifting the centre line in Marina Drive, Coffs Harbour, further north to allow adequate room for parking.*

Since then investigations have shown that by moving the existing centreline approximately 900mm north near the northern car park would allow for 2m wide parking and two 3.0m wide travel lanes.

Recommendation to Committee:
That the centreline be moved approximately 900mm north near the northern car park in Marina Drive, Coffs Harbour, to allow for 2m wide parking and two 3.0m wide travel lanes.

RECOMMENDATION TO COUNCIL:
That approval be given for the centreline be offset approximately 900mm north near the northern car park in Marina Drive, Coffs Harbour, to allow for 2m wide parking on the south side and two 3.0m wide travel lanes, adjusting the "No Stopping" zone and to investigate the possibility of adding one accessible parking space, as per plan T.45-2013.

T.46 - Coffs Harbour CBD - Additional Disabled Parking Spaces [3416723]

Background:
Request for 2 additional accessible parking spaces in Coffs Central CBD near the Coffs Central Shopping Centre entrance, for the use of people with severe disabilities.

Summary of report:
The request was referred to Council's Access Advisory Committee. They recommended that one parking bay which is currently 15 minute parking, on the north-western side of Harbour Drive, adjacent the former Westpac bank building be converted to an accessible parking zone. For 15 minute bays will remain. There are two existing accessible parking bays in Harbour Drive at the eastern end of the mall area.

It was also noted that work has begun on a lift for the Castle Street Car park, which will facilitate the use of the 10 accessible parking spaces on the fourth floor in addition to 10 on the ground floor.

Recommendation to Committee:
Convert a parking bay at the north-western end of Harbour Drive, Coffs Harbour, to a standard accessible parking bay with ramp as per plan.

RECOMMENDATION TO COUNCIL:

That no action be taken to convert a parking bay at the north-western end of Harbour Drive, Coffs Harbour, to a standard accessible parking bay.

T.47 - North Boambee Road Coffs Harbour - Speed Zone Review
(R.500270[3496816/3487417])

Background:
Council has been working with Bishop Druitt College in North Boambee Road Coffs Harbour to mitigate the congestion along North Boambee Road at the beginning and end of school times. Issues include inconsistent speed zones, limited opportunities for through traffic to overtake east of the school and line marking. There are frequents truck movements accessing the quarry at the western end of the road. Currently there is a posted sign limit for trucks of 60kph and 100kph for light vehicles west of the school, although the sign posting is 60kph. Traffic travelling west can queue back to the Pacific Highway if the school entrance becomes too congested.

RMS request for the speed zones on North Boambee Road. The traffic has increased over the last ten years with the growth of the school, the Lakes Estate development and truck movements from the Holcim depot. At present the signs are not consistent with a speed zone of 60kph for trucks but no marked speed for other traffic.

Summary of report:
Traffic movements along North Boambee Road Coffs Harbour have increased, due to the growing school population - most of whom travel by bus or private vehicle; and the quarry trucks. There were an average of 73 truck movements in 2011, most of which avoid school zone hours. The school estimates about 350 – 400 private vehicles and 19 buses dropping off students morning and evening.
Council has received complaints about speeding vehicles and the lack of passing opportunities east of the school which leads to some frustration. The posted speed zones are inconsistent and require review.
A realignment of lanes to allow a left turn lane east of the school entrance would allow through traffic to pass queuing school traffic and a request to be sent to the RMS for a speed zone review.

Recommendation to committee:
Council to write to RMS to request a speed zone review of North Boambee Road Coffs Harbour.
Council approve the realignment of traffic lanes to allow a left turn lane east of the Bishop Druitt College entrance.

RECOMMENDATION TO COUNCIL:

1. **That approval for Council to write to RMS to request a speed zone review of North Boambee Road Coffs Harbour.**
2. **Council approve the realignment of traffic lanes to allow a left turn lane east of the Bishop Druitt College entrance, as per plan T.47-2013.**

T.48 - Hogbin Drive Coffs Harbour – Speed Zone Line Marking (R.500390[3496816])

Background:
Request for the extension of the 60kph speed zone to incorporate Rex Hardaker Lane and Hi-Tech Drive Coffs Harbour intersection and line marking to reflect the change. Due to accident history.

Summary of report:
The issue appears to be a lack of gap acceptance and sight distance obstructions due to motorists pulling up too far from the intersection, and not the speed limit. RMS delineation guidelines show give way linemarking at an intersection. The give way line follows the edge line in a broken line form better showing the motorist the distance they can come out to.
In addition the double barrier (BB) line should be extended further out to this give way line.

Recommendation to Committee:
That the line marking at the intersection of Hogbin Drive and Hi-Tech Drive Coffs Harbour be enhanced to meet current standards including the extension of the double barrier (BB) line.

RECOMMENDATION TO COUNCIL:

That approval be given for enhanced line marking at the intersection of Hogbin Drive and Hi-Tech Drive Toormina as per plan T.48-2013.

T.49 - Toormina High School, Armstrong Road Toormina – Childrens School Crossing (R502410[3521334])

Background:
Parent reported near miss on Toormina High School crossing while she was crossing with her child. The bus driver reported that he didn't see the parent and child because the door obscured his line of vision.

Summary of report:
Buses have been asked to ensure a mandatory stop when exiting the bus bay. The children's crossing is approximately 5m west of the bus bay exit. An additional fence panel is to be installed to channel pedestrians to the crossing from the school gate. Council inspected the site with RMS and found that this is the best location for the children's crossing due to its proximity to the school entrance, the pedestrian desire line and sight distance.

Recommendation to Committee:
Council to monitor school traffic and report back to Traffic Committee.

RECOMMENDATION TO COUNCIL:

To review linemarking for children's crossing adjacent Toormina High School in Armstrong Road and upgrade as appropriate.

T.50 - First Avenue Sawtell - Disabled Parking (R.501520[3528835])

Background:
Request for disabled parking in First Avenue, Sawtell, as there is none at present.

Summary of report:
First Avenue Sawtell, between Second Avenue and Boronia Street currently has 49 parallel parking spaces approximately 6.7m long and 1 bus zone; with a central median 6.6m wide, there are no accessible (disabled) parking spaces.

- Southbound lane is 3.6m wide with 3.0m wide parking
- Northbound lane is 3.3m wide with 3.0m wide parking

The current Australian standard requires a minimum of 3.2m wide and 6.7m long for on street parallel parking space for disabled parking.

There are two parking spaces next to the southbound lane which could be converted to disabled parking as they are adjacent to "No Stopping" zones where pedestrian ramp access is available, this however would require widening to meet the standard and reduce the travel lane width, this is not the preferred option for a one way traffic flow.

Recommendation to Committee:
That the access committee be requested to review nearby parking areas in Sawtell CBD to determine accessible parking needs.

RECOMMENDATION TO COUNCIL:

That approval be given for a 2 hour timed accessible parking space (8.30am-6.00pm Monday-Friday and 8.30am-12.30pm Saturday) in Second Avenue Sawtell as per plan T.50-2013.

T.51 - Sawtell Road Toormina – Speed and Signage Review (R.502390[3522716])

Background:
Resident of Sawtell Road east adjacent the Hogbin Drive roundabout Toormina is concerned about the sight distance when accessing her driveway. She requested a speed zone review and review of signage near the roundabout.

Summary of report:
The sight distance from the resident's driveway is 56m which meets the standard for a 60kph speed zone. However, Council would request a speed zone review of Sawtell Road to ensure it meets the NSW speed zone guidelines.

Recommendation to Committee:
Council submit a request for a speed zone review of Sawtell Road Toormina to RMS.

RECOMMENDATION TO COUNCIL:

No action pending further investigation of 60km speed zones in the area.

T.52 - Jetty Area Coffs Harbour – Review of Taxis Zones [3537133]

Background:
MBT Lawyers acting on behalf of the owner and licensee of the Pier Hotel request that the current unrestricted taxi zone in Camperdown Street adjacent the Hotel change to 6.00am – 8.00pm daily. The request is to ensure that patrons from the soon to be opened Element Bar do not cause disturbance waiting for a taxi following the closure of the Hotel at 12.00 midnight.
The Element Bar is due to open in November 2013. MBT report they have a General Bar License extending until 3.00am. There are two alternative late night taxi zones at the eastern end of the Jetty precinct which double as bus zones. The taxi zone on the northern side of Harbour Drive is unrestricted, whilst the southern side is from 8.00pm – 6.00am.

Summary of report:
The licensee of the Element Bar says he will be closing his venue at 2:30am. They will be directing patrons to use the taxi zones on Harbour Drive to ensure surveillance by their CCTV cameras and security guards. The taxi company are happy to use the existing zones in Harbour Drive provided they are able to queue for their clients.
The restriction of the taxi zone in Camperdown Street from 6.00am – 8.00pm daily would mean that patrons of the Pier Hotel would also be using the Harbour Drive Rank until their closure time of midnight. Most of their patrons have left the premises by 8.00pm.

Recommendation to Committee:
That Council approve to restrict the Camperdown Street Coffs Harbour taxi zone to 6.00am – 8.00pm daily.

RECOMMENDATION TO COUNCIL:

That approval be given to restrict the Camperdown Street Coffs Harbour taxi zone beside the Pier Hotel, to 6.00am – 8.00pm daily, as per plan T.52-2013.

T.53 - Gale Street Coramba – Parking Issues (R.506160[3534586])

Background:
A resident has advised that kerb and gutter has recently been extended in Gale Street Coramba opposite Dorrigo Street and residences are parking out the front of their houses near the new kerb preventing enough width to pass in the east bound lane.

Summary of report:
Council recently extended the kerb and gutter in Gale Street Coramba, opposite Dorrigo Street, and just south of a blind bend, the width from the new kerb to the centre line in this section is now 3.5 metres. Since its construction vehicles have been parking adjacent to the kerb leaving approximately 2 metres of east bound lane width.

NSW road rule 208 (6) prohibits parking closer than 3 metres to a continuous dividing line, however motorists unaware of this rule will still tend to park in this location creating a traffic hazard.

Recommendation to Committee:
That a “No Stopping” Zone be installed in Gale Street Coramba opposite Dorrigo Street intersection for approximately 45 metres.

RECOMMENDATION TO COUNCIL:

That no action be taken to install a "No Stopping" Zone in Gale Street Coramba opposite Dorrigo Street intersection, as NSW Road Rule 208(6) applies.

T.54 - Coffs Harbour Showground - Annual Coffs Harbour Stadium Motorcross 2014 [3516996]

Background:
Consideration for the Annual Coffs Harbour Stadium Motorcross to be held at the Coffs Harbour Show Ground Saturday 11th January 2014, with gates opening on the Saturday morning at 7.00 am. Sign on is scheduled to start at 8.00 am, with practice due to start at 10.00am, and racing at the conclusion of practice. Night racing is due to start at 7.30pm and to conclude at 10.00pm.

Recommendation to committee:
That the Traffic Management Plan for the Annual Coffs Harbour Stadium Motorcross to be held at the Coffs Harbour Show Ground on Saturday 11 January 2014, be approved.

RECOMMENDATION TO COUNCIL:

That the Traffic Management Plan for the Annual Coffs Harbour Stadium Motorcross to be held at the Coffs Harbour Show Ground on Saturday 11 January 2014, be approved subject to Police and RMS approvals.

T.55 - Harbour Drive, Coffs Harbour - Temporary Road Closure - Santa's City Centre Welcome and Lighting of the Christmas Tree [3529805]

Background:
Consideration to the temporary road closure of Harbour Drive, Coffs Harbour, between Gordon Street and Pacific Highway on Thursday, 5 December 2013 between 4.00pm and 8.30pm for Santa's City Centre Welcome and the 'Lighting of the Christmas Tree'.

Recommendation to Committee:

(a) that the temporary road closure of Harbour Drive, Coffs Harbour, on Thursday, 5 December 2013, between 4.00pm and 8.30pm for the purpose of Santa's Arrival and the 'Lighting of the Christmas Tree', be advertised and providing no substantive objections are received, the closure be approved.

(b) the organisers to liaise with affected traders and obtain traders approval.

(c) the organisers submit a traffic control plan for approval by council and be responsible for erection of traffic barriers and control of traffic using accredited traffic controllers.

(d) the organisers be responsible for all costs associated with the temporary closure.

RECOMMENDATION TO COUNCIL:

That the temporary road closure of Harbour Drive, Coffs Harbour, on Thursday, 5 December 2013, between 4.00pm and 8.30pm for the purpose of Santa's Arrival and the 'Lighting of the Christmas Tree', be advertised and providing no substantive objections are received, the closure be approved, subject to:

(a) the organisers to liaise with affected traders and obtain traders approval.

(b) the organisers submit a traffic control plan for approval by council and be responsible for erection of traffic barriers and control of traffic using accredited traffic controllers.

(c) the organisers be responsible for all costs associated with the temporary closure.

T.56 - Jordan Esplanade, Coffs Harbour - Temporary Road Closure - New Year's Eve (R.506100[3554250])

Background:

Consideration to the temporary road closure of Jordan Esplanade, Coffs Harbour, between Marina Drive and car park entry to Jetty, on Tuesday, 31 December 2013 from 6.00pm and reopen Wednesday 12.30am 1 January 2014 for the purpose of New Year's Eve celebrations.

Recommendation to Committee:

(a) the temporary road closure of Jordan Esplanade, Coffs Harbour , between Marina Drive and car park entry to Jetty on Tuesday, 31 December 2013 from 6.00pm and reopen Wednesday 12.30am 1 January 2014 for the purpose of New Year's Eve celebrations, be advertised and providing no substantive objections are received, the closure be approved.

(b) the organisers, March's Amusements, liaise with affected traders and obtain traders approval.

(c) the organisers be responsible for erection of traffic barriers and control of traffic using accredited traffic controllers, in accordance with the Traffic Management Plan and police approval in writing.

(d) the organisers be responsible for all costs associated with the temporary closure and clean up, including advertising.

RECOMMENDATION TO COUNCIL:

That the temporary road closure of Jordan Esplanade, Coffs Harbour, between Marina Drive and car park entry to Jetty on Tuesday, 31 December 2013 from 6.00pm and reopen Wednesday 12.30am 1 January 2014 for the purpose of New Year's Eve celebrations, be advertised and providing no substantive objections are received, the closure be approved subject to:

(a) the organisers, March's Amusements, liaise with affected traders and obtain traders approval.

(b) the organisers be responsible for erection of traffic barriers and control of traffic using accredited traffic controllers, in accordance with the submitted Traffic Management and Traffic Control Plans and police approval in writing.

(c) traffic Control be in place at the intersection of Jordan Esplanade and Camperdown Street for exiting traffic at the end of the fireworks display.

(c) the organisers be responsible for all costs associated with the temporary closure and clean up, including advertising.

T.57 - Sawtell New Years Day Fun Day – First Avenue, Sawtell -Temporary Road Closure (R.501520[3539048])

Background:
Consideration to a request for the temporary road closure of First Avenue, Sawtell, between Second Avenue and Boronia Street on Wednesday, 1 January 2014 between the hours of 7.30am and 11.00am for the purpose of holding the Sawtell Super Fun Day.

Recommendation to Committee:

(a) the temporary road closure of First Avenue, Sawtell, between Boronia Street and Second Avenue, from 7.30am to 11.00am on Wednesday, 1 January 2014, for the purpose of conducting the street parade associated with the Sawtell Super Fun Day, be advertised and providing no substantive objections are received, the closure be approved.

(b) the organisers of the Fun Day liaise with affected traders and obtain traders approval.

(c) the organisers be responsible for erection of traffic barriers and control of traffic using accredited traffic controllers, in accordance with the Traffic Management Plan.

(d) the organisers be responsible for all costs associated with the temporary closure and clean up, including advertising.

(e) a temporary bus zone be established on the east side of First Avenue, Sawtell, north of Second Avenue to enable buses to continue to operate.

RECOMMENDATION TO COUNCIL:

That the temporary road closure of First Avenue, Sawtell, between Boronia Street and Second Avenue, from 7.30am to 11.00am on Wednesday, 1 January 2014, for the purpose of conducting the street parade associated with the Sawtell Super Fun Day, be advertised and providing no substantive objections are received, the closure be approved subject to:

(a) the organisers of the Fun Day liaise with affected traders and obtain traders approval.

(b) the organisers be responsible for erection of traffic barriers and control of traffic using accredited traffic controllers, in accordance with the Traffic Management Plan.

(c) the organisers be responsible for all costs associated with the temporary closure and clean up, including advertising.

(d) a temporary bus zone be established on the east side of First Avenue, Sawtell, north of Second Avenue to enable buses to continue to operate.

T.58 - Hogbin Drive South/Stadium Drive Coffs Harbour [3528835]

Background
Request to review north bound lane configuration on Hogbin Drive at the Stadium Drive roundabout.

At its meeting of 1st March 2007 Council approved the Traffic Committee recommendation "that line marking and signposting to re-instate the merge lane for north-bound traffic on Hogbin Drive, north of Stadium Drive be implemented." This was done to alleviate significant traffic congestion for north bound traffic resulting from restriction on through movement from the left lane approach to the roundabout. The work included extension of the northbound merge lane on the departure from the roundabout as shown on the attached plan.

While this work improved through capacity of the roundabout it requires a difficult merge for some traffic during peak hour flows. The short length of merge lane is undesirable; however removal of the left lane through movement would significantly increase traffic queue lengths and delays during peak times.

Council has undertaken traffic modelling of the key Hogbin Drive roundabout intersections and identified road widening and lane duplications which will be required on Hogbin Drive to cater for future traffic flows. This modelling is being developed into a future works program for Hogbin Drive.

Committee advice:
Review traffic study and assess options such as reducing length of left turn lane into Southern Cross University to provide additional pavement width for reconfiguration of north bound lanes at the Hogbin Drive/Stadium Drive roundabout.

RECOMMENDATION TO COUNCIL:

That traffic modelling of key Hogbin Drive roundabout intersections be reviewed and a program of works for Hogbin Drive South road widening and lane duplication projects be developed to cater for future traffic flows.

B. INFORMAL ITEMS SECTION (Traffic Engineering Advice)

B5. - Coffs Harbour – Parking for Caravans Elizabeth Street/Edgar Street Coffs Harbour Signage [3535601/3532568]

Background:
With the change in season several camper vans have been observed camping in the Jetty area and some residents have asked Council to restrict parking in order discourage exploitation of free parking sites. The people with caravans are requesting parking to access the Visitor Information Centre and the CBD.

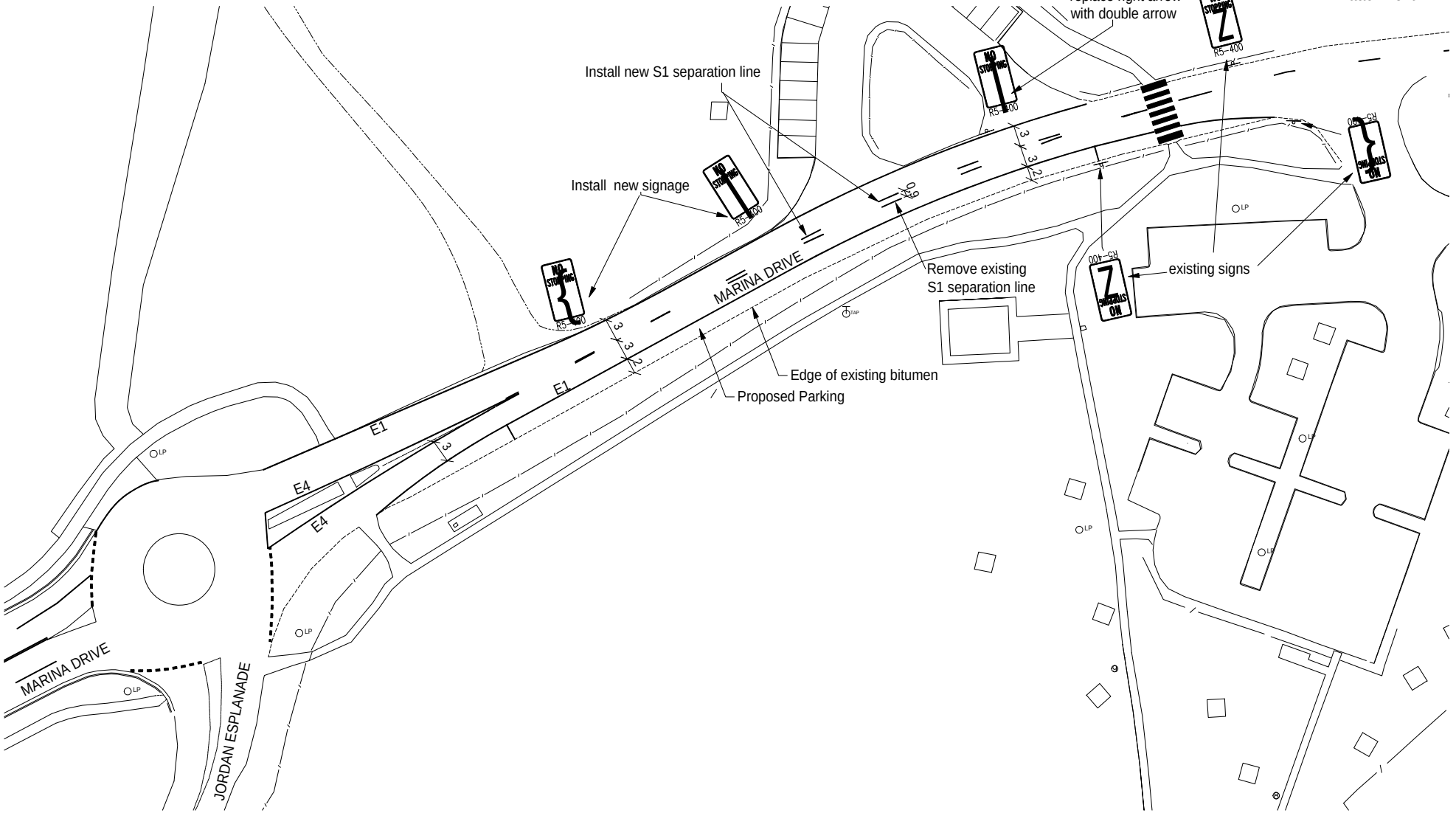
Request for parking for caravans around Visitor Information Centre in Elizabeth Street Coffs Harbour and surrounding shopping centre in CBD and signage in Edgar Street Coffs Harbour to prevent overnight camping in a suburban street.

There is unrestricted parking in Elizabeth Street, and vans are also able to park in the service road used by the buses parallel to Elizabeth Street (adjacent the tourist information centre). There is no signage on the Highway to direct camper vans where to park, although visitors often ring ahead. All day parking is available for vans on Curacoa Street, but again the Visitor Information Centre do not give out this information and there are no signs. The Visitor Information Centre receive many requests for free camping in Coffs Harbour. They tell them there isn't any.

Committee Advice:
Approval for the installation of a 2 hour parking zone 6.00am to 9.00pm in Edgar Street Coffs Harbour adjacent Englands Road playing fields.

Meeting finished at 12.40pm.

Attachment 2



PLAN VIEW

NOTES:

centreline be offset approximately 900mm north near the northern car park in Marina Drive, Coffs Harbour, to allow for 2m wide parking on the south side and two 3.0m wide travel lanes, adjusting the "No Stopping" zone

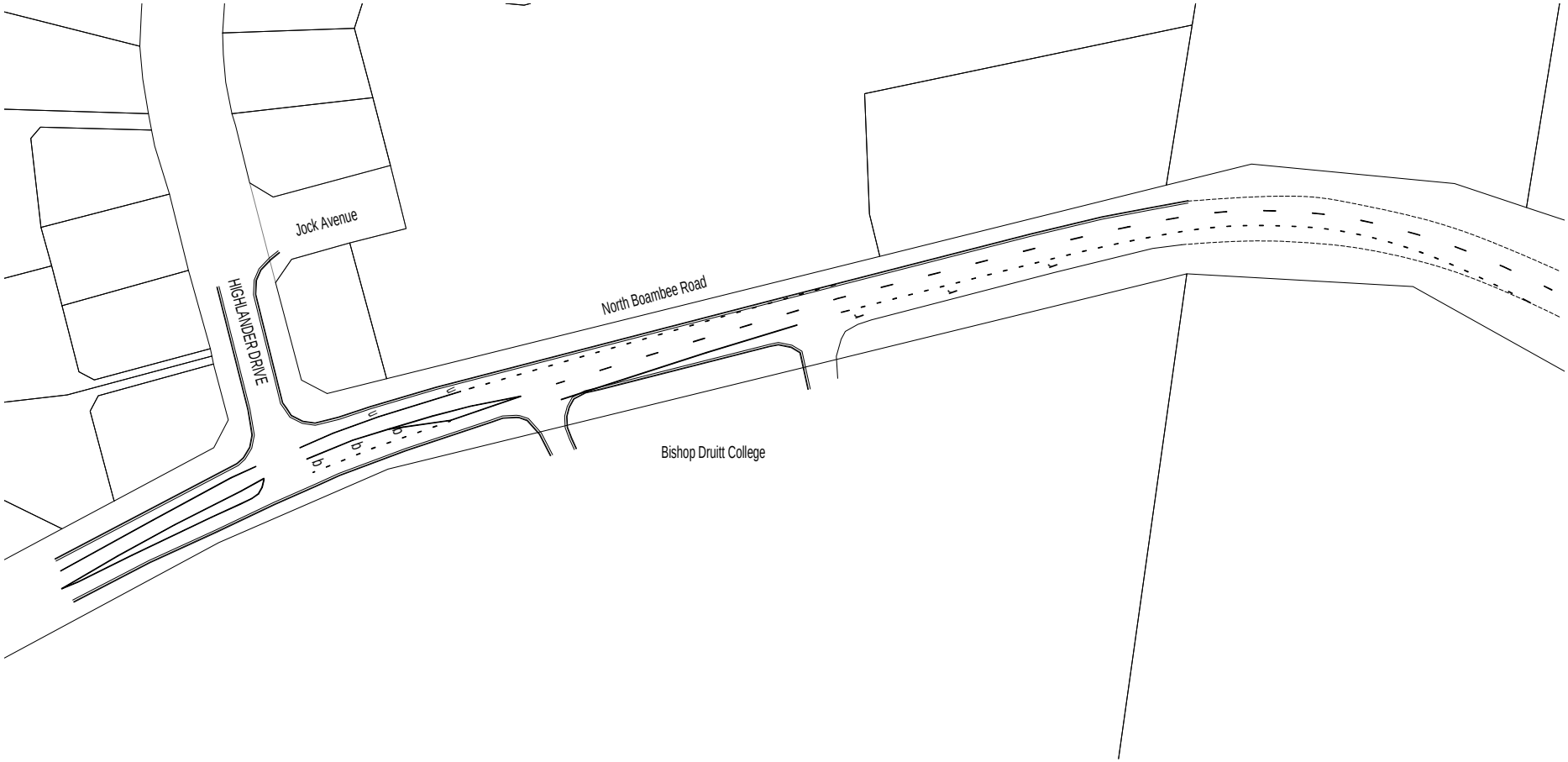
TRAFFIC INSTRUMENT

T.45 -2013

MARINA DRIVE

COFFS HABOUR

Attachment 2



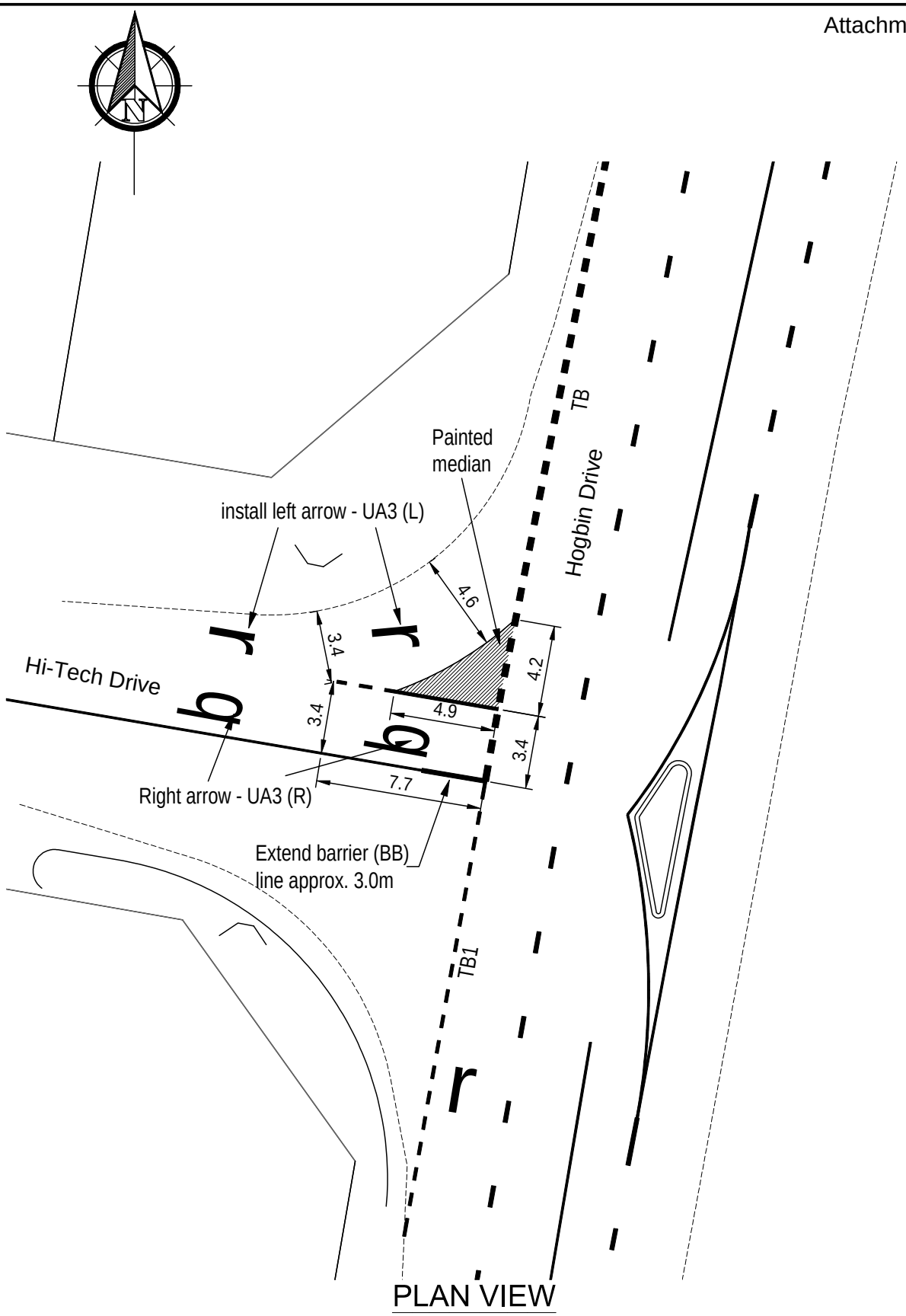
PLAN VIEW

NOTES:
realignment of traffic lanes to allow a left turn lane east of the Bishop Druitt College entrance, as per plan

TRAFFIC INSTRUMENT

T.47 -2013
NORTH BOAMBEE ROAD
NORTH BOAMBEE VALLEY

Attachment 2



PLAN VIEW

NOTES:

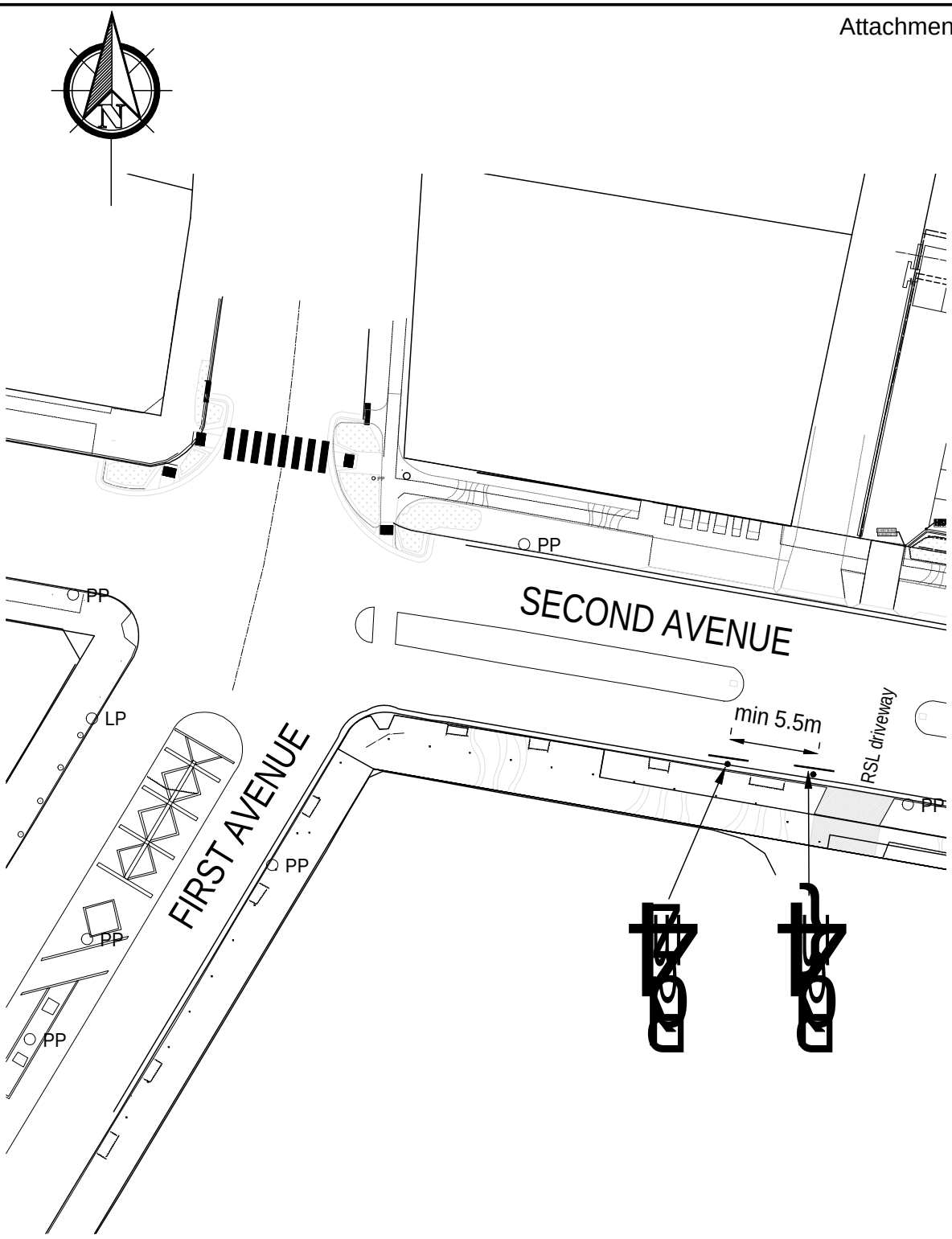
Enhanced line marking at the intersection of Hogbin Drive and Hi-Tech Drive Toormina as per plan

TRAFFIC INSTRUMENT

T.48-2013

HOGBIN DRIVE and HI-TECH DRIVE TOORMINA

Attachment 2



PLAN VIEW

NOTES:

That approval be given for a 2 hour timed accessible parking space (8.30am-6.00pm Monday-Friday and 8.30am-12.30pm Saturday) in Second Avenue Sawtell as per plan

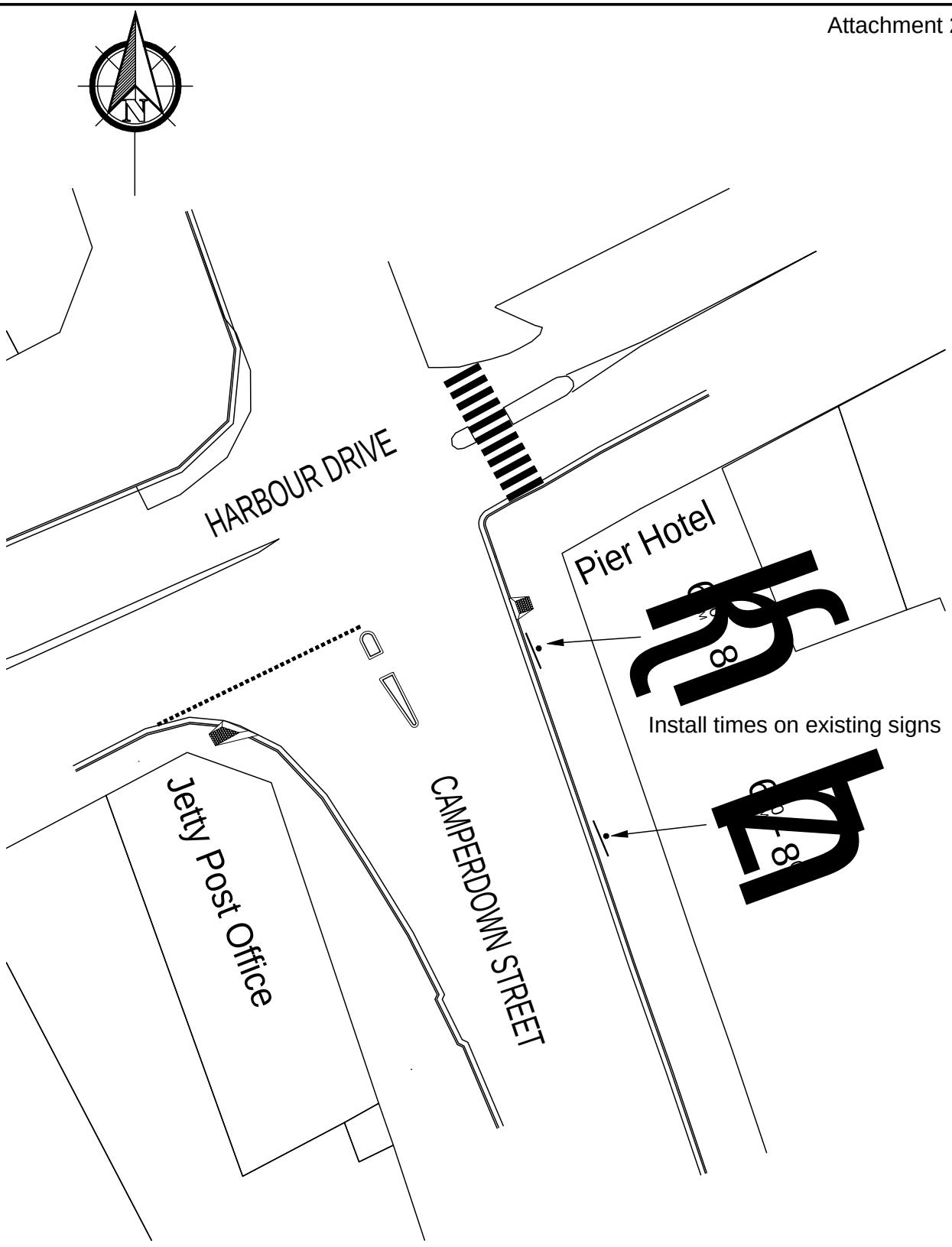
TRAFFIC INSTRUMENT

T.50 - 2013

DISABLED PARKING

SAWTELL

Attachment 2



PLAN VIEW

NOTES:

Restrict the Camperdown Street Coffs Harbour taxi zone beside the Pier Hotel, to 6.00am – 8.00pm daily, as per plan

TRAFFIC INSTRUMENT

T.52-2013

TAXI ZONE TIMES - CAMPERDOWN ST COFFS HARBOUR

COFFS HARBOUR CITY COUNCIL DRINKING WATER POLICY & DRINKING WATER QUALITY MANAGEMENT SYSTEM

Purpose:

To seek adoption of a Drinking Water Quality Policy by Council which is supported by a Drinking Water Quality Management System for Coffs Harbour Water. These documents address legislative requirements as prescribed by the recently enacted NSW Public Health Regulation 2012.

Description of Item:

Coffs Harbour City Council is required to establish and adhere to a risk based drinking water quality assurance program for compliance with The Public Health Regulation 2012 (NSW). Furthermore, the quality assurance program is required to be in accordance with a management framework as set out in the *Australian Drinking Water Guidelines* 2011.

The Australian Drinking Water Guidelines is the authoritive technical and reference document used by water providers and was significantly revised in 2011.

The *Coffs Harbour City Council Drinking Water Quality Management System* (CHCC DWQMS) document has been developed in reference to the Australian Drinking Water Guidelines framework and provides Council with a risk based drinking water management system.

The CHCC DWQMS outlines the range of activities carried out by Council to ensure the provision of safe drinking water to its customers. The document addresses all 12 elements prescribed within the Australian Drinking Water Guideline's generic management system framework and identifies actions needed to be undertaken to achieve full compliance with each element.

In addition, an 'Improvement Plan' contained in the document outlines other actions to further improve Council's drinking water supply systems. The Improvement Plan is to be reviewed regularly as actions are completed and as part of a periodic review process.

The DWQMS also provides water treatment plant (WTP) operators and managers with a user friendly overarching document that supports CHCC in its management of a safe drinking water supply. It provides an overview of the system and a summary of all relevant documentation and supporting requirements.

The DWQMS supports proposed Drinking Water Quality Policy. The ADWG 2011 identifies a Drinking Water Policy as an integral part of an organisation's Water Quality Management System. It is needed to ensure organisation support and long term commitment by senior management, which should ensure the effective management of drinking water quality within the organisation, including staffing, funding and reporting.

The Drinking Water Quality Policy is tabled in this report for Council's consideration. The CHCC DWQMS document is also provided for reference.

Sustainability Assessment:

- **Environment**

  The DWQMS and Drinking Water Quality Policy will assist Council in providing safe drinking water to customers.

- **Social**

  Quality water services are essential for our community.

- **Civic Leadership**

  Best practice quality assurance ensures Council remains at the forefront in the provision water services.

- **Economic**

  Broader Economic Implications

  The subject DWQMS is consistent with Council's long term financial plans.

  Delivery Program/Operational Plan Implications

Risk Analysis:

Development of the DWQMS has assisted in strengthening Council's risk management approach in regard to the harvesting, treatment and supply of drinking water.

There are no foreseeable disadvantages associated with adopting the DWQMS.

Consultation:

Extensive consultation was undertaken with key staff within Coffs Harbour Water. NSW Health, NSW Office of Water, Clarence Valley Council, and Coffs Harbour Water participated in the risk assessment workshop held during the development process for the DWQMS. Both NSW Office of Water and NSW Health have reviewed the DWQMS, and are supportive of its adoption.

Related Policy and / or Precedents:

Council does not currently have a drinking water policy or a documented Drinking Water Quality Management System to demonstrate Council's commitment to drinking water quality management throughout the organisation.

Statutory Requirements:

The Drinking Water Quality Management System (DWQMS) addresses Coffs Harbour City Council's (CHCC) compliance with the *Public Health Act (2010)* (NSW) and the NSW Public Health Regulation 2012.

Implementation Date / Priority:

The CHCC DWQMS document and policy can be introduced immediately following endorsement and adoption by Council.

Recommendation:

1. **That Council adopt the "Coffs Harbour City Council Drinking Water Quality Policy".**
2. **That Council note the "Coffs Harbour City Council Drinking Water Quality Management System October 2013", developed to support implementation of the Policy.**

Attachment 1

Locked Bag 155,
Coffs Harbour, NSW 2450
ABN 79 126 214 487

COFFS HARBOUR CITY COUNCIL

Drinking Water Quality Policy

Policy Statement:

The Drinking Water Quality Policy states Council's commitment to providing safe, high quality water utilising best practice water quality management.

Director or Manager Responsible for Communication, Implementation and Review:

Director of City Infrastructure Services

Related Legislation, Division of Local Government Circulars or Guideline:

Local Government Act 1993
Public Health Act 2010
NSW Public Health Regulation 2012
Fluoridation of Public Water Supplies Act 1957 & associated 2007 Regulations
Water Management Act 2000
Water Act 1912
Catchment Management Authorities Act 2003
Competition and Consumer Act 2010
The Australian Drinking Water Guidelines (ADWG) 2011
NSW Best-Practice Management of Water Supply and Sewerage Guidelines
NSW Health Drinking Water Monitoring Program (2005)
NSW Health Response Protocol for management of microbial quality of drinking water

Does this document replace an existing policy? **No**

Other Related Council Policy or Procedure:

Coffs Harbour City Council Drinking Water Quality Management System 2013

Application:

It is mandatory for all staff, councillors and delegates of council to comply with this policy.

Distribution:

This policy will be provided to all staff, councillors and delegates of council by:

☑ **Internet** ☑ **Intranet** ☐ **Email** ☑ **Noticeboard** ☑ **ECM**

Approved by: **Executive Team [Meeting date]** **Council [Meeting date & Resolution No.]**	**Signature:** _____ ***General Manager***
Council Branch Responsible:	**Date of next Review:**

Attachment 1

Key Responsibilities

Position	***Directorate***	***Responsibility***
Mayor	Council	To lead councillors in their understanding of, and compliance with, this policy and guidelines.
General Manager	Executive	To lead staff (either directly or through delegated authority) in their understanding of, and compliance with, this policy and guidelines.
Directors	All Directorates	To communicate, implement and comply with this policy and related guidelines and to ensure staff have frameworks and strategies necessary to implement and comply with this policy.
Executive and Managers	All Directorates	To ensure policy is integrated into planning and decision making and to implement and comply with this policy and related procedures.
All Council officials	Council	To have an understanding of and comply with this policy and related procedures.

Attachment 1

1. Introduction

The Australian Drinking Water Guidelines (ADWG) 2011 was developed as a framework for good management of drinking water supplies that if implemented, will assure the safety of customers at the point of supply.

Whilst not mandatory standards, they provide an authoritative reference based on the best scientific evidence for determining that safe and good quality water, that is also aesthetically pleasing, is delivered to Council's customers.

The ADWG encourages the endorsement of a Drinking Water Quality Policy to ensure organisation support and long term commitment by senior management. This should ensure the effective management of drinking water quality within the organisation.

2. Definitions

Relevant Legislation: Refer previous policy page

3. Policy content

Coffs Harbour City Council is committed to managing its water supply catchments, treatment and supply assets to provide safe, high quality drinking water, which consistently meets the Australian Drinking Water Guidelines (2011), other regulatory requirements and consumer expectations.

To achieve Council's commitment, and in partnership with the community, other stakeholders and relevant agencies, Coffs Harbour City Council will:

3.1 **Manage water quality from catchment to tap** at all points along the delivery chain, from the source water to the consumer's tap

3.2 **Adopt a risk-based approach** in which potential threats to water quality are identified and managed, in accordance with the Australian Drinking Water Guidelines, to minimise any threat to drinking water quality

3.3 **Integrate the needs and expectations** of our consumers, stakeholders, regulators and employees into our planning

3.4 **Establish effective monitoring programs** to systematically monitor the quality of drinking water and ensure effective reporting mechanisms. Provide relevant and timely information that promotes confidence in the water supply and its management to consumers

3.5 **Develop / Review Contingency and Incident Response Plans** that will be regularly reviewed and updated

3.6 **Participate in research and development** by maintaining awareness of current research and development activities to ensure that Coffs Harbour City Council is up to date with current industry standards

3.7 **Contribute to setting industry regulations and guidelines** through active participation in the development of industry regulation and guidelines relevant to health and the broader water cycle

Attachment 1

3.8 **Adopt best practice water quality management** by aligning our water quality systems and processes with the framework's proactive and multi-barrier approach to best practice water quality management

3.9 **Continually improve our management practices** by assessing performance against industry standards, corporate commitments and stakeholder expectations

3.10 **Continually improve the capability of our staff** by encouraging and supporting participation in training and professional development and ensuring all employees are aware of and actively seek to achieve the aims of this policy

3.11 **Maintain a long term and sustainable water supply** which recognises global and regional priorities in the management of water.

4. Consultation

Key staff members across the organisation have been consulted in the development of this policy.

5. References

Coffs Harbour City Council Drinking Water Quality Management System October 2013.

Australian Drinking Water Guidelines (2011)

6. Appendices

Coffs Harbour City Council Drinking Water Quality Management System October 2013.

Australian Drinking Water Guidelines (2011)

7. Table of Amendments

Amendment	Authorised by	Approval reference	Date

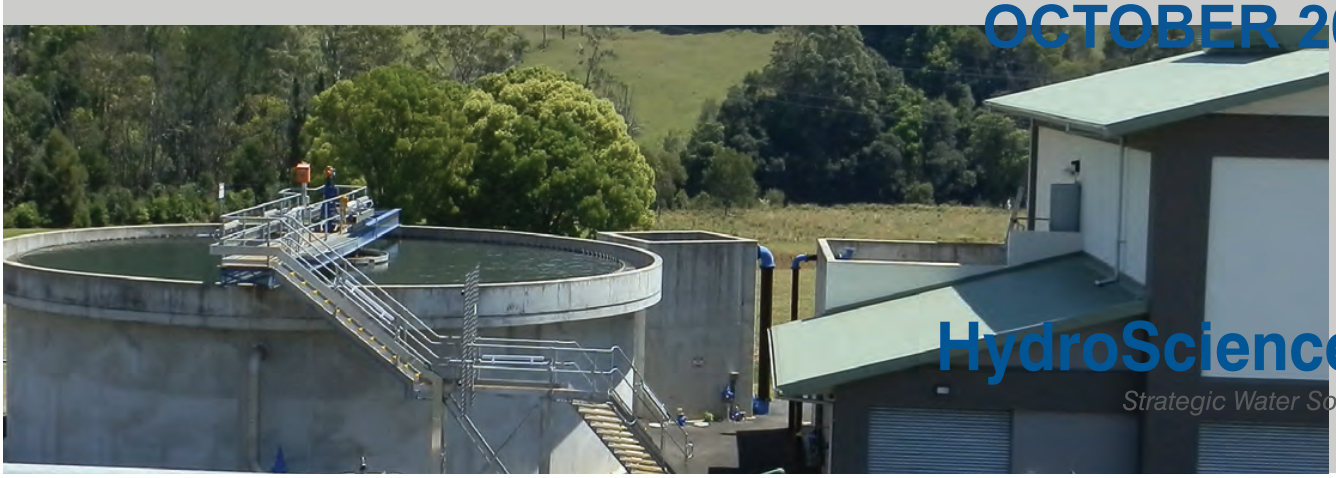
Attachment 2

Coffs Harbour City Council

Drinking Water Management System



OCTOBER 2013



HydroScience
Strategic Water Solutions

Attachment 2

Coffs Harbour City Council

Drinking Water Management System

HydroScience Consulting

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Attachment 2

This document was prepared by HydroScience Consulting on behalf of Coffs Harbour City Council

HydroScience Consulting

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Coffs Harbour City Council

Paul Sparke

Simon Thorn

Document Control					
Approved for Issue					
Issue	**Author**	**Reviewer**	**Name**	**Signature**	**Date**
4	Helen Salvestrin	Jessica Huxley	Jessica Huxley		October 2013

Attachment 2

Executive Summary

This Drinking Water Management System (DWMS) demonstrates Coffs Harbour City Council's (CHCC) compliance with the *Public Health Act (2010)* (NSW) requirement to develop a Quality Assurance Plan in accordance with the Framework for Management of Drinking Water Quality in the Australian Drinking Water Guidelines (ADWG).

This document outlines the range of activities carried out by Council to ensure the provision of safe drinking water to its customers. A number of actions to improve the drinking water supply systems were identified through the risk assessment and system development. The Improvement Plan should be reviewed regularly as actions are completed and as part of the annual review process.

ADWG Framework for the Management of Drinking Water Quality

The ADWG 2011 sets out the "Framework for Management of Drinking Water Quality" which provides a structured risk-based approach to drinking water management. Coffs Harbour City Council's activities relating to each of the 12 Elements of the ADWG, including references to sections of the DWMS are summarised in Table 1.

Table 1 ADWG Framework for the Management of Drinking Water Quality

ADWG Element	Status	DWMS Reference
Element 1: Commitment To Drinking Water Quality Management		
Drinking water quality policy	Draft Drinking Water Policy developed and documented. Council to consider endorsing the Policy. Council will ensure that the policy is visible, communicated, understood and implemented by employees.	Section 2.2, Appendix A
Regulatory and formal requirements	Regulatory and formal requirements identified and documented. Council has relevant approvals from Office of Water.	Section 2.3, Appendix A
Engaging stakeholders	DWMS identifies and documents relevant stakeholders. NSW Health, Office of Water and Clarence Valley Council participated in the development of the DWMS.	Section 2.4
Element 2: Assessment Of The Drinking Water Supply System		
Water supply system analysis	Council supplies drinking water to Coffs Harbour, Nana Glen and Coramba. 1) Karangi WTP provides full treatment for Coffs Harbour drinking water supply system including clarification, filtration, UV and chlorine disinfection. The supply is fluoridated. Sophisticated and dedicated infrastructure is used for each process. 2) Nana Glen WTP provides full treatment including clarification, filtration and disinfection. Infrastructure used provides for basic but adequate processing.	Sections 3.2, 3.3 Appendix B

Attachment 2

ADWG Element	Status	DWMS Reference
	3) Coramba WTP provides disinfected (chlorinated) water. Council anticipate that within two years the Coramba drinking water supply system will be connected to the Coffs Harbour supply. An addendum will be issued to this plan at a later date to incorporate assessment of the Coramba system. The DWMS documents the key characteristics of the Karangi and Nana Glen water supply systems. Flow diagrams have been prepared for each supply system	
Assessment of water quality data	The following data was assessed: ▪ Baseline studies of source waters ▪ Operational data since commissioning of Karangi WTP 2009 ▪ Ten years of verification data at point-of-supply	Sections 3.2.2, 3.3.2, Appendix B
Hazard identification and risk assessment	Risk assessment workshop completed with participation from NSW Health, NSW Office of Water, Clarence Valley Council and CHCC. Coffs Harbour risk assessment identified 62 risks. Nana Glen risk assessment identified 36 risks.	Section 4.1, Appendix C
Element 3: Preventive Measures For Drinking Water Quality Management		
Preventive measures and multiple barriers	Coffs Harbour system provides a multi-barrier approach including; catchment management, managed extraction, aeration of Shannon Creek and Karangi Dams, as well as Dissolved Air Flotation, Filtration, fluoridation and disinfection using UV and chlorination, at the WTP. The Nana Glen system barriers include catchment management, managed extraction, sand filtration and chlorination.	Section 4.1, Appendix C
Critical control points (CCPs)	CCPs for Coffs Harbour are documented and are as follows: ▪ CCP1: Selective extraction ▪ CCP2: Aeration at Karangi Dam ▪ CCP3: Coagulation ▪ CCP4: Filtration ▪ CCP5: UV disinfection ▪ CCP6: Fluoridation ▪ CCP7: Chlorine disinfection ▪ CCP8: Point-of-supply disinfection CCPs for Nana are documented and are as follows: ▪ CCP1: Coagulation/Filtration ▪ CCP2: Disinfection ▪ CCP3: Point-of-supply disinfection	Section 4.2, Appendix C

Attachment 2

ADWG Element	Status	DWMS Reference
Element 4: Operational Procedures And Process Control		
Operational procedures	Key Operational Procedures for each CCP have been documented. Operational Manuals have been developed for Karangi and Nana Glen WTPs and a Functional Specification for Karangi WTP.	Sections 4.2, 6.1, Appendix C
Operational monitoring	CHCC have an 'Operational Water Quality Monitoring Plan' documenting monitoring points, parameters, trigger levels, frequency, and actions.	Section 5.1, Appendix D
Corrective action	Key corrective actions are documented for each CCP.	Section 4.2, Appendix D
Equipment capability and maintenance	Council's "*Asset Systems*" branch maintains an asset register. Major infrastructure renewals have been scheduled in Council's 20-year financial plan. O&M manuals assist in scheduling major asset renewals. Customer complaints and the mains breaks register assist in planning minor asset renewals.	Sections 4.2, 6.2, Appendix C
Materials and chemicals	Standardised procurement processes are documented in DWMS. Materials and chemicals conform to NSW Code of Practice Plumbing and Drainage, AUS-SPEC for Water Supply and WH&S Regulation for Dangerous Goods. Details of chemicals used at both WTPs are documented in the DWMS.	Section 6.3
Element 5: Verification Of Drinking Water Quality		
Drinking water quality monitoring	CHCC verifies drinking water quality by participating in the Drinking Water Monitoring Program. CHCC WTP operators collect samples for the Drinking Water Monitoring Program. Sampling frequency is based on population.	Section 5.2
Consumer satisfaction	A two-yearly customer satisfaction survey is undertaken to rate importance and satisfaction with the water supply. Customer complaints are taken by Coffs Harbour Water (CHW) administration. Standard procedures for recording, response and customer feedback are detailed in the DWMS.	Section 5.3
Short-term evaluation of results	Council evaluates water quality data on receipt of monitoring results. Exceedances of criteria reported and responded as required by NSW Health protocols.	Section 5.4
Corrective action	Corrective Actions have been identified and documented in DWMS. Council follows the NSW Health Response Protocols and Code of Practice for Fluoridation as required.	Section 5.4, Appendix C

Attachment 2

ADWG Element	Status	DWMS Reference
Element 6: Management Of Incidents And Emergencies		
Communication	Council's "*Media*" officer distributes warnings and notifications to the community as required and in accordance with Council's Media Protocol. A draft communication protocol has been developed in conjunction with CHW's response protocol for a microbiological incident.	Section 7.1
Incident and emergency response protocols	CHCC responds according to NSW Health Response Protocols and the Code of Practice for Fluoridation. Emergency response plans have been developed for key infrastructure, including Karangi and Nana Glen WTPs, Red Hill Balance Tank and Dams. CHCC is a member of the Coffs Harbour City Local and North Coast District Emergency Management Committees.	Section 7.2
Element 7: Employee Awareness And Training		
Employee awareness and involvement	Toolbox safety meetings are held at the start of shift every morning. Council participation in the risk assessment workshop included participation from all water staff including senior management to operators. Council will continue to increase staff awareness and involvement in the DWMS.	Section 8.1
Employee training	All operators attend NSW Office of Water "Operator Training" CHW Administration and CHCC's "*Human Resources*" branch maintain an up-to-date register of all inductions, trainings and refresher courses and ensures qualifications are kept up to date.	Section 8.1
Element 8: Community Involvement And Awareness		
Community consultation	CHCC has a Community Strategic Plan, *"Coffs Harbour 2030 Plan"*, updated every 4 years. Community participation is through monthly Council meetings.	Section 8.2
Communication	CHCC has an informative website for community understanding of the drinking water system. This includes monthly reporting of water quality results on the website.	Section 8.2
Element 9: Research And Development		
Investigative studies and research	Council undertakes investigative studies and research monitoring on a project basis as required. This DWMS has identified three research projects associated with catchment protection and potential hazards.	Section 8.3.1

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ADWG Element	Status	DWMS Reference
Validation of processes	DWMS details: Council processes to ensure safe and acceptable drinking water is supplied to the customer; and processes for validation of new or upgraded processes.	Section 8.3.2
Design of equipment	DWMS details the engineering expertise and processes used to validate the selection and design of new equipment required for upgrades and process improvements.	Section 6.2
Element 10: Documentation And Reporting		
Management of documentation and records	DWMS documents all aspects of drinking water quality management. "*Records*" branch of CHCC is committed to documents and records management. All water quality policies, laboratory data and documentation are submitted to the department and managed through the *"TechnologyOne Enterprise Content Management"* database.	Section 8.4.1
Reporting	Council prepares quarterly and annual reports. Water quality reports can be produced from the *NSW Health Drinking Water Monitoring Program* database on the NSW Health website. Fluoridation results are provided monthly to NSW Health. Performance results are also provided to NSW Office of Water for the Water Supply and Sewage NSW Performance Monitoring Report, annually.	Section 8.4.2
Element 11: Evaluation And Audit		
Long-term evaluation of results	Council's Manager Water Treatment reviews and reports on performance data quarterly. NSW Health Drinking Water Monitoring Program data available online via NSW Drinking Water Database. Monitoring data is reviewed regularly by Council, NSW Health and Office of Water. Council undertakes periodic review of CCP exceedances. NSW Office of Water undertakes a regular assessment of the WTPs, using a risk-based approach.	Section 5.2
Audit of drinking water quality management	The DWMS will be internally audited by the Executive Manager Coffs Harbour Water Operations. The audit will include: ❑ CCPs ❑ Improvement Plan ❑ Record keeping ❑ NSW Performance Monitoring ❑ Fluoridation monitoring External audits will be undertaken jointly by NSW Health,	Section 9.1

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ADWG Element	Status	DWMS Reference
	NSW Office of Water and Council: ❑ Improvement plan: annual audit ❑ Entire DWMS: four-yearly	
Element 12: Review And Continual Improvement		
Review by senior executive	The Executive Manager, CHW Operations will review the effectiveness of the DWMS annually, NSW Health and NSW Office of Water. A complete review of the DWMS will be undertaken every four years, in line with the review of the Strategic Business Plan.	Section 9.2
Improvement plan	This DWMS documents an Improvement Plan for the CHCC drinking water supply systems.	Section 10

Critical Control Points

The Critical Control Points (CCP) for the Coffs Harbour City Council drinking water supply systems were identified as part of the development of the DWMS. The CCP's are essentially the heart of the Framework, with good management of the CCP's crucial to the DWMS.

Coffs Harbour CCP are summarised in Table 2 and Nana Glenn CCP in Table 3. Standard operating procedures and corrective actions have been documented for each CCP to guide daily activities and correct responses if the critical limits are reached.

Table 2 Coffs Harbour Critical Control Points

Parameter	Frequency	Target Limit	Alert Limit	Critical Limit
CCP1 Selective extraction				
Turbidity (NTU) COCHRANE'S POOL	Continuous	**< 2**	**2 (> 10 min)**	**> 2 (> 10 min)**
Turbidity (NTU) NYMBOIDA RIVER	Continuous	**< 2**	**2 (> 1 hour)**	**> 2 (> 1 hour)**
CCP 2 Aeration at Karangi Dam				
Aeration	Daily	**Run-time = 6 hrs (DO > 7 mg/L @ 27m)**	**Run time < 6 hrs (DO < 7 mg/L @ 27m)**	**Run time (DO < 5 mg/L @ 27m)**

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Parameter	Frequency	Target Limit	Alert Limit	Critical Limit
CCP 3 Coagulation				
pH after prime CO_2	Continuous	**8**	**< 6.5 or > 9.5 (> 30 mins)**	**< 5.8 or > 9.6 (> 15 min)**
pH after trim CO_2	Continuous	**6.8**	**< 5.8 or > 7.1 (> 30 mins)**	**< 5.5 or > 7.3 (> 5 min)**
CCP 4 Filtration (post filter)				
Turbidity (NTU) (after start up following backwash)	Continuous	**< 0.1 (on individual/ combined filters)**	**> 0.3 (> 30 min)**	**> 0.5 (> 15 min)**
CCP 5 UV Disinfection (limits as per calibrated alarms for UV system)				
UV Transmissivity	Continuous	**98 %**	**95 % < 1.1 x min (> 4 hrs)**	**85 % < 0.8 x min (> 1 hr)**
UV Dose (at design flow rate)	Continuous	**< 48 mJ/cm²**	**< 22 mJ/cm (60 mins)**	**< 20 mJ/cm (60 mins)**
CCP 6 Fluoridation				
Fluoride at treated water storage (mg/L)	Continuous	**1**	**< 0.95 or > 1.05 (1 hour)**	**< 0.9 or > 1.5 (15 min)**
CCP 7 Chlorine Disinfection				
Chlorine residual at treated water storage outlet (mg/L)	Continuous	**1.2 – 2.0 (seasonal)**	**< 1.2 or > 2 (> 30 mins)**	**< 0.9 or > 2.5 (> 5 mins)**
pH at outlet of treated water storage (pH units)	Continuous	**7.7**	**< 7.2 or > 8.3 (> 30 mins)**	**< 7.0 or > 8.5 (> 30 min)**
CCP 8 Point-of-Supply Disinfection				
Free chlorine at point-of-supply (mg/L)	Weekly	**> 0.2**	**< 0.2**	**< 0.1**

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Table 3 Nana Glen Critical Control Points

Parameter	Frequency	Target Limit	Alert Limit	Critical Limit
CCP1 Coagulation/Filtration				
Turbidity after filtration (NTU)	Continuous	**< 0.3**	**> 0.5**	**> 1.0**
CCP 2 Disinfection				
Chlorine residual in reservoir (mg/L)	3-times/week	**0.8 (summer)** **0.5 (winter)**	**< 0.5**	**< 0.3**
CCP 3 Disinfection at point-of-supply				
Free chlorine at point-of-supply (mg/L)	Fortnightly	**> 0.3**	**< 0.2**	**< 0.1**

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1 Introduction

1.1 Overview

Coffs Harbour City Council (CHCC), has developed a risk based Drinking Water Management System (DWMS) consistent with the Australian Drinking Water Guidelines 2011 (ADWG) (NHMRC, NRMMC). This fulfils their obligations under Section 25 of the *Public Health Act 2010* (NSW) and Part 5 Section 34 the Public Health Regulation 2012. The *Public Health Act 2010* sets out the requirement for drinking water suppliers to develop and adhere to a quality assurance program, or Drinking Water Management System.

The ADWG provides the framework for the good management of drinking water supplies that, if implemented, will insure safety at point of use. The framework was developed to guide a structured and systematic approach for the management of drinking water quality from catchment to consumer. It incorporates a quality assurance program developed specifically for the water industry, and includes elements of HACCP, ISO 9000 and AS/NZS ISO31000:2009.

1.2 Objective

This document aims to support both CHCC to provide, and the communities of CHCC to access a safe quality drinking water supply. Access to safe water is a basic need and is one of the most important contributors to public health.

The overall approach is to provide drinking water supply system operators and managers with a user friendly document that supports CHCC in its management of a safe drinking water supply. It provides an overview of the system and a summary of all relevant documentation and supporting requirements.

This DWMS and its supporting documentation are living documents. They should be reviewed and updated in line with CHCC's monitoring and reporting procedures and when new processes or changes are introduced.

1.3 Coffs Harbour City Council Drinking Water Supply Systems

CHCC delivers water supply services as a local water utility under the provisions of the *Local Government Act (1993)* (NSW). Coffs Harbour Water (CHW) is the business unit within CHCC responsible for the provision of drinking water.

CHCC operates three drinking water supply systems: Coffs Harbour, Nana Glen and Coramba. A summary of these system are detailed below.

Coffs Harbour Drinking Water Supply

The Coffs Harbour Drinking Water Supply System draws raw water from the Orara River, Nymboida River, and Shannon Creek Dam and stores it in Karangi Dam. Water is transferred between Nymboida Weir, Shannon Creek Dam and Karangi Dam through the Regional Water Supply System (RWSS). Water is treated at the Karangi Water Treatment Plant (WTP), which is a Dissolved Air Flotation and Filtration (DAFF) plant. The treated water is disinfected by UV and chlorination and is fluoridated.

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Nana Glen Drinking Water Supply

The Nana Glen drinking water supply system draws raw water from the Orara River. The Nana Glen WTP is a conventional WTP with the raw water undergoing clarification, filtration and disinfection via chlorination.

Coramba Drinking Water Supply

The Coramba drinking water supply system draws raw water from the Regional Water Supply Pipeline, which is source from the Nymboida River, and on occasion back-fed from Karangi Dam. The Coramba drinking water supply undergoes disinfection via chlorination prior to reticulation.

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2 Commitment to Drinking Water Quality

2.1 Commitment

CHCC is committed to managing its drinking water supply systems to provide a safe, high quality drinking water that consistently meets the ADWG, consumer expectations and regulatory requirements.

CHCC mission statement for water supply and sewerage services is:

"**To provide long term sustainable and reliable water supply and sewerage services to the community which meets legislative, statutory and best-practice management requirements. These services will protect community, health and the environment**."

The development and implementation of this DWMS formalises and demonstrates Council commitment to drinking water quality management throughout the organisation by:

- Formally adopting drinking water quality as a Council priority
- Defining Council's role and responsibility in regards to providing high quality drinking water
- Identifying and assessing risks associated with the drinking water system and introducing controls, preventative measures, appropriate training, procedures and emergency response plans to protect drinking water quality and public health
- Adopting a measurable Improvement Plan that will increase the integrity of the Drinking Water Management System
- Reinforces the ongoing and active involvement of all staff and supports senior management to ensure actions and policies support the management of drinking water quality

A draft Drinking Water Policy was provided as part of the development of this DWMS for CHCC to review and adopt (Appendix A: Regulatory and Formal Requirements). The policy will demonstrate Council's commitment to supply high quality drinking water and to manage the risks to drinking water quality. Council will ensure that the policy is visible, communicated, understood and implemented by employees.

2.2 Regulatory and Formal Requirements

The regulatory and formal requirements relating to drinking water quality in Coffs Harbour City have been identified and detailed in Appendix A: Regulatory and Formal Requirements.

Table 4 provides a summary of the most relevant legislative and formal requirements for the supply of safe drinking water at CHCC.

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Table 4 Summary of Regulatory and Formal Requirements

Regulatory or Formal Requirement	Relevance to Drinking Water Quality	Agency
Commonwealth Legislation		
Competition and Consumer Act 2010	Replaces the Trade Practices Act 1974 and incorporates Schedule 2 – The Australian Consumer Law. As a "seller" of water, the local council is subject to provisions of Consumer transactions and Consumer guarantees, which guarantees that the goods supplied are reasonably fit for purpose.	Australian Competition and Consumer Commission
Environment Protection and Biodiversity Conservation Act 1999	Provides for the protection of water resources, in relation to coal seam gas and large coal mining developments are considered as a matter of national environmental significance.	Department of Sustainability, Environment, Water, Population and Communities
NSW Legislation		
Catchment Management Authorities Act 2003	Natural resource management, from planning to operations, is to be undertaken at the catchment level. State-wide standards are to be applied. A Catchment Action Plan (CAP) is used to define key themes for each catchment, with specific catchment and management targets. The Northern Rivers CAP identifies a need to improve the efficiency and effectiveness of water supply to urban communities.	Northern Rivers Catchment Management Authority Natural Resources Commission Landholders
Dams Safety Act 1978 No 96	Owners of prescribed dams are required to operate, maintain, extend and report on prescribed dams to the Dams Safety Committee (DSC) to ensure the safety of their dams. Shannon Creek and Karangi Dams are prescribed under the Act.	NSW Government – Dams Safety Committee
Environmental Planning & Assessment Act 1979	Requires that the environmental impacts of projects be studied at all stages on the basis of scale, location and performance. Under Part 3 of the Act, Local Environmental Plans (LEPs) are developed to establish what forms of development and land use are permissible and/or prohibited. LEPs ensure that drinking water quality is considered when assessing development applications. The Coffs Harbour LEP (2000, amended 2010) applies to all lands within Coffs Harbour City.	NSW Department of Planning and Infrastructure

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Regulatory or Formal Requirement	Relevance to Drinking Water Quality	Agency
Fisheries Management Act 1994	The "Eastern (Freshwater) Cod (Maccullochella ikei) Recovery Plan" (NSW Fisheries, 2004) was prepared in accordance with the Act, and sets recovery actions covering, in particular, the Orara River.	NSW Department of Primary Industries
Fluoridation of Public Water Supplies Act 1957, **Regulation and Code of Practice**	Requirements for testing and reporting where water supplies are fluoridated.	NSW Health
Local Government Act 1993	Local councils have the responsibility for the provision of water supply to consumers, in accordance to the NSW Best-Practice Management of Water Supply and Sewerage Guidelines.	NSW Government - Division of Local Government
Protection of the Environment (Operations) Act 1997	Requires licenses for activities with potentially significant environmental impacts. Prosecution may be carried out under this act for any chemical leakage, spill, and disposal of wastes or similar.	NSW EPA
Public Health Act 2010	Requires all water suppliers to develop Drinking Water Management Systems. Bestows certain powers on NSW Health with respect to provision of safe drinking water, including ability to enter treatment facilities, order mandatory testing or obtain information about the drinking water, power to close a water supply. Council is required to issue public advice regarding the water supply when directed by the Director General of NSW Health.	NSW Health
Threatened Species Act 1995	Identification of a range of threatened and significant species and vegetation communities under the act led to the development and implementation of the "Orara River Rehabilitation Strategy".	Office of Environment and Heritage
Water Act 1912	Licences to extract water outside of areas covered by water-sharing plans. Affecting alterations to the quantity or quality of water in certain circumstances is an offence. Water Act 1912 is being progressively phased out and replaced by Water Management Act 2000.	NSW Office of Water
Water Management Act 2000	Provides the basis for water planning, the allocation of water resources and water access entitlements.	NSW Office of Water

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Regulatory or Formal Requirement	Relevance to Drinking Water Quality	Agency
	Environmental flows in the Nymboida River and Orara River are set by the "Water Sharing Plan for the Dorrigo Plateau Surface Water Source and Dorrigo Basalt Groundwater Source 2003".	
Work, Health & Safety Act 2011	Specifies conditions for storage and handling of chemicals on-site at water treatment plants.	Work Cover Authority of NSW
National Guidelines and Programs		
Australian Drinking Water Guidelines 2011	Ensures the accountability of drinking water managers and operators and health authorities/auditors for the supply of safe, good quality drinking water to consumers.	NSW Health
Best-Practice Management of Water Supply and Sewerage Guidelines 2007	Provides for appropriate, affordable and cost-effective services to meet community needs while protecting public health and the environment and making best use of regional resources. Requires a Strategic Business Plan (SBP), including a Financial Plan and associated asset management plans, reviewed and updated every four years; a 30-year Integrated Water Cycle Management (IWCM) plan.	NSW Office of Water
NSW Health Drinking Water Monitoring Program	NSW Health provides for the analysis of drinking water samples for water utilities, providing an independent analysis of water at point of supply.	NSW Health
NSW Health Response Protocol for management of microbial quality of drinking water 2011	Guides Public Health Units and water utilities in their joint response to following rapidly changing source water quality, treatment failure or microbial contamination.	NSW Health
NSW Health Response Protocol for management of physical and chemical quality 2004	Guides Public Health Units and water utilities in their joint response following the detection of physical and chemical water characteristics that exceed the Guidelines. Aesthetic and health related guideline values are considered.	NSW Health
Plumbing Code of Australia 2011	Specifications for plumbing in drinking water systems, to be complied with by administrators, plumbing Licensees, developers and property owners/occupiers.	NSW Office of Water

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2.3 Engaging Stakeholders

The stakeholders involved in the management of drinking water quality in Coffs Harbour are listed in Table 5. NSW Health Water Unit, Local Public Health Unit and NSW Office of Water participated in the development of this DWMS.

Table 5 Stakeholders in Drinking Water Quality Management

Stakeholder	Role in Drinking Water Management	Participation
NSW Health	Provides expert advice and supports Council in achieving their regulatory requirements	Provides for drinking water analysis for NSW Health Drinking Water Monitoring Program. NSW Health sets response protocol to microbial and physical and chemical exceedances. Representatives from the Local Public Health Unit and NSW Health Water Unit participated in the Risk Assessment Workshop as part of the DWMS.
NSW Office of Water	Provides expert advice and support Council in achieving their regulatory requirements	Inspector visits and assesses WTPs' compliance at regular intervals based on a risk management approach. Technical support on investigations, design, construction, operation, maintenance and management. Annual Reporting on Water Supply performance. Participated in Risk Assessment Workshop as part of the Coffs Harbour City DWMS. Northern Rivers Regional Algal Coordinating Committee (RACC) provides algal alerts.
Clarence Valley Council	Bulk water supply	Licence holder for bulk water supply from Nymboida Weir. Holds a service agreement with CHCC for bulk supply, covering monitoring of water quality and provisions to protect low flows. Participated in Risk Assessment Workshop as part of the Coffs Harbour City DWMS.
Essential Energy	Source water extractions	Licence holder for extractions from Nymboida Weir under the *Water Act 1912*. Holds a negotiated Service Agreement with CVC for bulk water supply.
Northern Rivers Catchment Management Authority	Catchment Management	Liaises with CHCC for the management of source water quality in the drinking water catchment. Coordinates action plans and funding in the drinking water catchment

3 Drinking Water Supply Systems

3.1 Overview

Coffs Harbour City Council manages three drinking water supply systems: Coffs Harbour, Nana Glen and Coramba. A summary of these drinking water systems are detailed below.

Table 6 Overview of CHCC Drinking Water Supply Systems

Category	Coffs Harbour	Nana Glen	Coramba
Catchment	Clarence River Catchment Subcatchments: Orara River Nymboida River Shannon Creek	Clarence River Catchment Subcatchment: Orara River	Clarence River Catchment
Source Water	Karangi Dam	Orara River Pool at Nana Glen	Regional Water Supply Pipeline
Treatment	Dissolved Air Flotation and Filtration (DAFF) Alkalinity and pH adjustment Coagulation and Flocculation Dissolved air floatation Filtration – coal, sand, gravel Ultraviolet radiation Fluoridation Chlorination	pH correction Coagulation and Flocculation Sand filtration Chlorination Alkalinity adjustment	Chlorination
Reservoirs	16 Reservoirs - Red Hill Balance Tanks (2) Red Hill Reservoir Roberts Hill Reservoir Macauleys Reservoir Boambee Reservoirs (2) Toormina Reservoirs (2) Sapphire Reservoir Moonee Reservoir Emerald Reservoir Haviland Reservoir Scarborough Reservoir Woolgoolga Headland Res Bark Hut Reservoir Mullaway Reservoir Corindi Reservoir	2 Reservoirs - Nana Glen 1 Reservoir Nana Glen 2 Reservoir	1 Reservoir - Coramba Reservoir
Reticulation	The coastal towns of Sawtell in the South to Corindi in the North, including Coffs Harbour. Population 69,783	Drinking water reticulated to consumers via gravity. Population 300	Drinking water reticulated to consumers via gravity. Population 297

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3.2 Coffs Harbour Drinking Water Supply System Analysis

3.2.1 Description

Coffs Harbour, its suburbs, and coastal towns and villages are serviced by the Karangi WTP. The Karangi WTP is a dissolved air flotation and filtration (DAFF) plant commissioned on 9 June 2009. The Karangi WTP services the majority of Coffs Harbours Water consumers.

A complete description of the Coffs Harbour drinking water supply system is provided in Appendix B: Drinking Water Systems Analysis. Figure 1(a) and (b) provide a process flow diagram of the Coffs Harbour DWSS.

Raw water for the Coffs Harbour drinking water supply system is normally extracted from the Karangi Dam, where it is pumped directly to Karangi WTP for treatment and distribution. The Karangi Dam is topped up by three sources:

- Cochrane's pool, on the Orara River
- Nymboida weir, on the Nymboida River
- Shannon Creek Dam

The transfer of bulk water between Nymboida weir, Shannon Creek Dam and Karangi Dam is through the Regional Water Supply System (RWSS). The RWSS is managed and operated by Clarence Valley Council (CVC).

Regional Water Supply Scheme

The RWSS commenced in 2002 to provide the communities of Grafton, Lower Clarence and Coffs Harbour with a reliable bulk raw water supply. It consists of approximately 90 km of underground pipeline.

The RWSS extracts raw water from the Nymboida weir to fill Karangi Dam, Shannon Creek Dam and provides water to CVC for Grafton Drinking Water Supply at Rushforth Road Reservoirs. An environmental flow of 225 ML is maintained in the Nymboida River.

The RWSS prioritises water supply to the following:

1. Clarence Valley Council drinking water supplies
2. CHCC drinking water supplies
3. Nymboida Hydro Power Station

The RWSS extracts water from the Nymboida weir when quality is optimal and the river flow is above the abstraction licence conditions. Raw water flows under gravity to Karangi Dam at up to 16 ML/d, but if necessary, can be boosted by the pump station near Glenreagh to provide up to 25 ML/d to Karangi Dam.

Raw water is also extracted from the Nymboida weir in times of high flow to fill Shannon Creek Dam. Shannon Creek Dam has an off-stream storage capacity of 30,000 ML. The storage provides for a reliable raw water supply during droughts, periods of low flow and poor quality water in the Nymboida River. In addition to the topping up of the Karangi Dam, this storage also provides areas of Grafton, Coutts Crossing and other small villages with raw water during these periods.

Drinking Water Catchments

The CHCC drinking water is sourced from within the Clarence River Catchment. The Clarence River Catchment is the largest coastal river system in NSW covering approximately 22,716km^2.

The Orara River, Nymbodia River and Shannon Creek Dam are all subcatchments or within subcatchments of the Clarence River catchment.

Orara River Sub-catchment

The Orara sub-catchment is situated within the Coffs Harbour Local Government Area (LGA), west of Coffs Harbour City. The sub-catchment covers an area of 41,200 ha. The Orara River supplies raw water to the Karangi WTP, the Nana Glen WTP and Coramba System at times.

Headwater streams flow from well-vegetated state forests and national parks. Towards the floodplains of the Orara River, vegetation is impacted more progressively by land clearing, grazing and logging. Some regionally and locally important forest remnants are still dispersed within impacted areas.

The Orara River has been rated 'High' under the Stressed River Criteria, due to the habitat for the Eastern Fresh Water Cod. The abstraction licence from the river has environmental flow requirement conditions, to protect low flows (Strategic Business Plan 2012).

CHCC are strategically rehabilitating the Orara River as outlined in the "Orara River Rehabilitation Strategy 2012 – 2022" (Coffs Harbour City Council, 2012) under the Coffs Harbour Biodiversity Action Strategy.

Nymboida Weir Sub-catchment

The Nymboida sub-catchment covers an area approximately 1,700 km2. The catchment is extensively vegetated and contains a number of National Parks. The Dorrigo Plateau is situated in the upper part of the catchment, with agricultural land use including beef grazing and potato growing.

The RWSS extracts from the Nymboida Weir. The Hydro Power Station extracts from below the Nymboida Weir.

An environmental flow of 225ML/day in the Nymboida River is set by the "Water Sharing Plan for the Dorrigo Plateau Surface Water Source and Dorrigo Basalt Groundwater Source 2003".

Shannon Creek Catchment and Dam

The Shannon Creek sub-catchment is approximately 3,535 ha. The catchment is heavily vegetated with some areas of cleared land in the west. Steep forested valleys drain to the Shannon Creek Dam.

There are potential raw water quality issues in the sub-catchment, including increased turbidity due to dispersive soils in the catchment and at present, an inability to draw water off at various levels, from the multiple-level offtake tower. Furthermore, landholders in the Shannon Creek catchment plan to undertake logging activities in the future as a retirement income (Ministry of Energy and Utilities, 2003).

The Shannon Creek Dam is topped up with water from the Nymboida weir.

Source Water: Karangi Dam

The Karangi WTP sources raw water directly from the Karangi Dam. Karangi Dam is topped up with flows from the Cochrane's Pool on the Orara River, the Nymboida Weir or the Shannon Creek Dam via the RWSS. The Karangi WTP has a critical control point (CCP) for the turbidity at raw water extraction from all source waters. The Karangi Dam ceases pumping from the Nymboida River at >2 NTU; and from the Cochrane's Pool at > 2 NTU.

Maximum flows to Karangi Dam are either:

- up to 16 ML/day from Nymboida Weir, under gravity,
- up to 25 ML/day from Nymboida Weir, with pump boosting near Glenreagh, or
- up to 63ML/day from Cochrane's Pool, off-peak pumping

Karangi Dam has a storage capacity of 5,600 ML and under average conditions the dam has a secure yield of 4,000 ML/year.

The Karangi WTP can bypass the Karangi Dam to be supplied with raw water directly from Cochrane's Pool or the RWSS pipeline if necessary.

Water Treatment

The Karangi WTP is a dissolved air flotation and filtration (DAFF) plant commissioned in June 2009. The plant operates automatically via SCADA control and programmable logic controller (PLC) alarms. The treatment process at the Karangi WTP comprises of the following process steps:

- Raw water is aerated at both Shannon Creek and Karangi Dams to maintain appropriate dissolved oxygen levels to maintain water quality
- Raw water is dosed with lime at Karangi Dam for alkalinity and pH adjustment
- Carbon dioxide dosing is undertaken at the contact tank at the WTP for further pH adjustment
- Dosing facilities for Powdered Activated Carbon (PAC) and permanganate are installed for removal of taste and odour and manganese, respectively, at the contact tank, but are not currently required
- Aluminium sulphate and a coagulant aid (Magnafloc or Hengfloc), if required, are dosed at the rapid mix tanks to effect coagulation of pollutants
- Sufficient contact time and mixing occurs in the flocculation tanks to assist pollutants to come together
- A filter aid (Magnafloc), if required, is dosed before the water flows to all three DAFF filters, where flocculated particles are removed by both flotation and filtration through a 3-layer media filter, consisting of coal, fine sand and gravel
- Filtered water from the DAFF is disinfected by ultra-violet (UV) radiation
- Caustic soda is dosed for final pH correction
- The treated water is dosed with fluorosilicic acid to maintain dental hygiene in consumers
- The treated water is disinfected with chlorine
- Chlorine contact time is provided in the onsite treated water storage tank

- Drinking water is pumped to Red Hill Balance Tanks (RHBT) and gravity fed into various reservoirs, then reticulated for use
- Washwater from the DAFF is treated on-site, supernatant returned to the inlet of the WTP or Karangi Dam, and thickened sludge disposed of in landfill
- A chlorine booster plant at the Emerald Reservoir is operated and monitored to maintain chlorine residuals at the end of the northern reticulation system.

Distribution Network

The Coffs Harbour Water Supply system distributes drinking water from Sawtell in the south to Corindi in the north, including the inland villages of Nana Glen and Coramba. Refer to Figure 1 (a) and (b) for the Coffs Harbour drinking water supply system diagram.

Treated water from the Karangi WTP is pumped to the two balance tanks at Red Hill. From the RHBTs, the drinking water is distributed to sixteen reservoirs, as summarised in Appendix B: Drinking Water Systems Analysis and displayed in the process flow diagram in Figure 1.

The distribution network consists of the following (including Nana Glen and Coramba):

- 3 balance tanks
- 19 storage reservoirs
- 641km trunk and reticulation mains
- 22,683 water service connections

All reservoirs have secure access with locked stairwells, access ladders and hatches. CHCC operates a chlorine booster plant at Emerald Reservoir to ensure appropriate chlorine residuals at the end of the northern reticulation system. CHCC monitors the chlorine residuals from this process. Additionally, CHCC is in the process of installing a chlorine booster plant at Boambee Headland Reservoirs in the south, to maintain chlorine residuals from the reservoirs (pers. com. Simon Thorn, CHCC Executive Manger of Operations 16/1/13).

All reservoirs are roofed, and incorporate bird proofing treatments. Bird proofing treatments generally consist of expandable foam or stainless steel mesh, for filling or covering gaps between the tank wall and its roof. Although the bird proofing at most reservoirs is good, some reservoirs require additional modifications to improve the effectiveness of the existing bird proofing.

Table 7 lists the reservoirs in the Coffs Harbour, Nana Glen and Coramba drinking water supply systems. Reservoirs are cleaned every 2 to 3 years by underwater divers and CHCC maintains a register of actions for maintenance and continual improvement.

Table 7 Coffs Harbour City Council Drinking Water Supply Reservoirs

No	Reservoir	Capacity (ML)	Reticulation Network
1	Red Hill Balance Tank 1	1	All drinking water is distributed from the Red Hill Balance Tanks
2	Red Hill Balance Tank 2	17	
3	Red Hill Reservoir	5.7	Coffs Harbour City (West and Central)
4	Toormina Reservoir 1	5	Toormina, Boambee
5	Toormina Reservoir 2	12.5	

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No	Reservoir	Capacity (ML)	Reticulation Network
6	Boambee Reservoir 1	1.36	Sawtell, Boambee
7	Boambee Reservoir 2	1.5	
8	Roberts Hill Reservoir	20	Coffs Harbour City (Central, South, supplies Boambee Reservoirs)
9	Macauley's Reservoir	15	Coffs Harbour City (North, supplies Northern Reservoirs)
10	Sapphire Reservoir	2	Sapphire Beach
11	Moonee Reservoir	5	Moonee Beach
12	Emerald Reservoir	6	Emerald Beach, Sandy Beach
13	Haviland Street Reservoir	0.07	Woolgoolga
14	Scarborough Street Reservoir	4.54	Woolgoolga
15	Woolgoolga Headland Reservoir	0.5	Woolgoolga
16	Bark Hut Reservoir	1.5	Bark Hut area
17	Mullaway Reservoir	7	Safety Beach, Mullaway, Arrawarra, Corindi
18	Corindi Reservoir	3	Corindi (in emergencies)
19	Coramba Reservoir	0.45	Coramba
20	Nana Glen Reservoir 1	0.5	Nana Glen
21	Nana Glen Reservoir 2	0.5	

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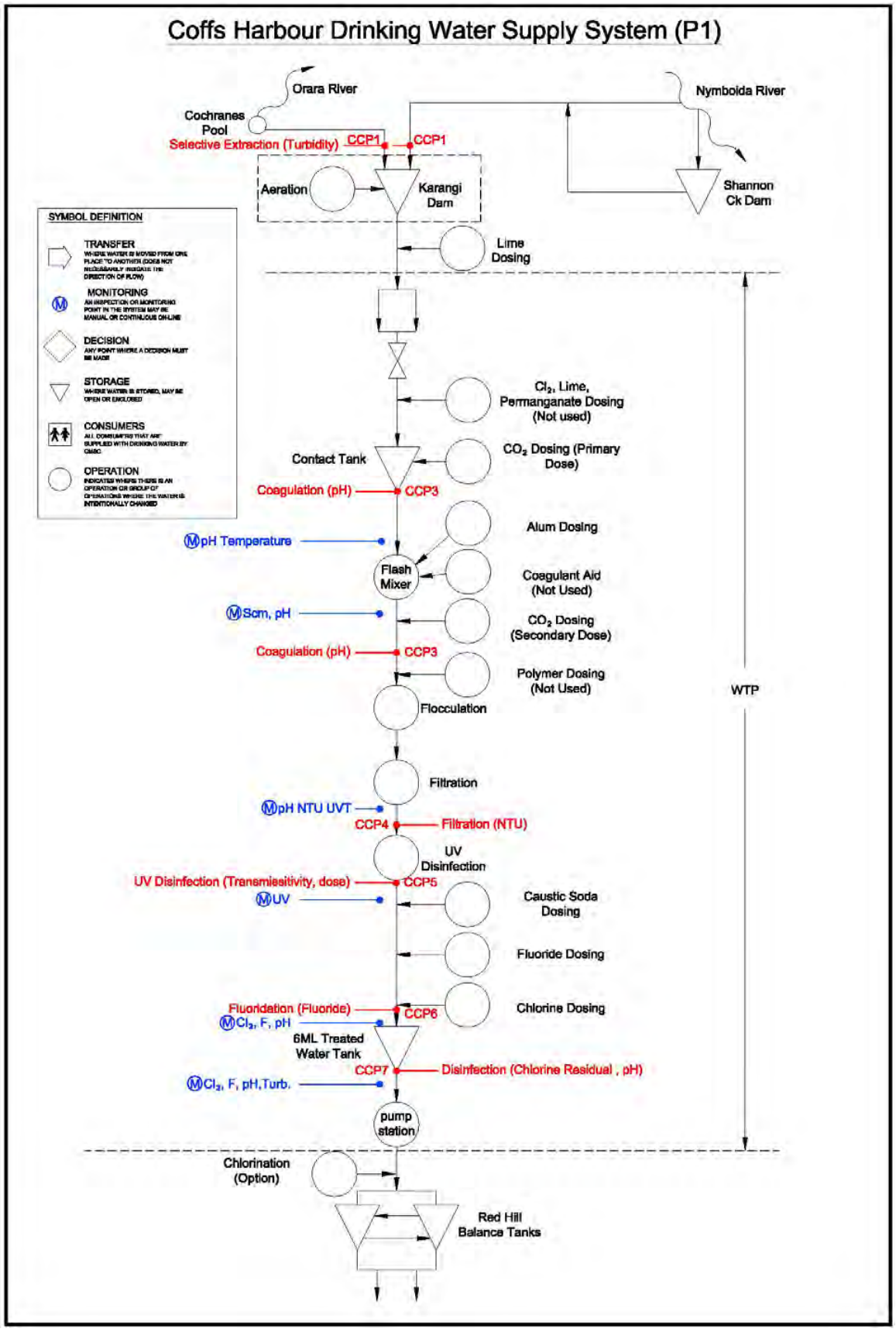

Figure 1: (a) Coffs Harbour Drinking Water Supply System Process Flow Diagram

Attachment 2

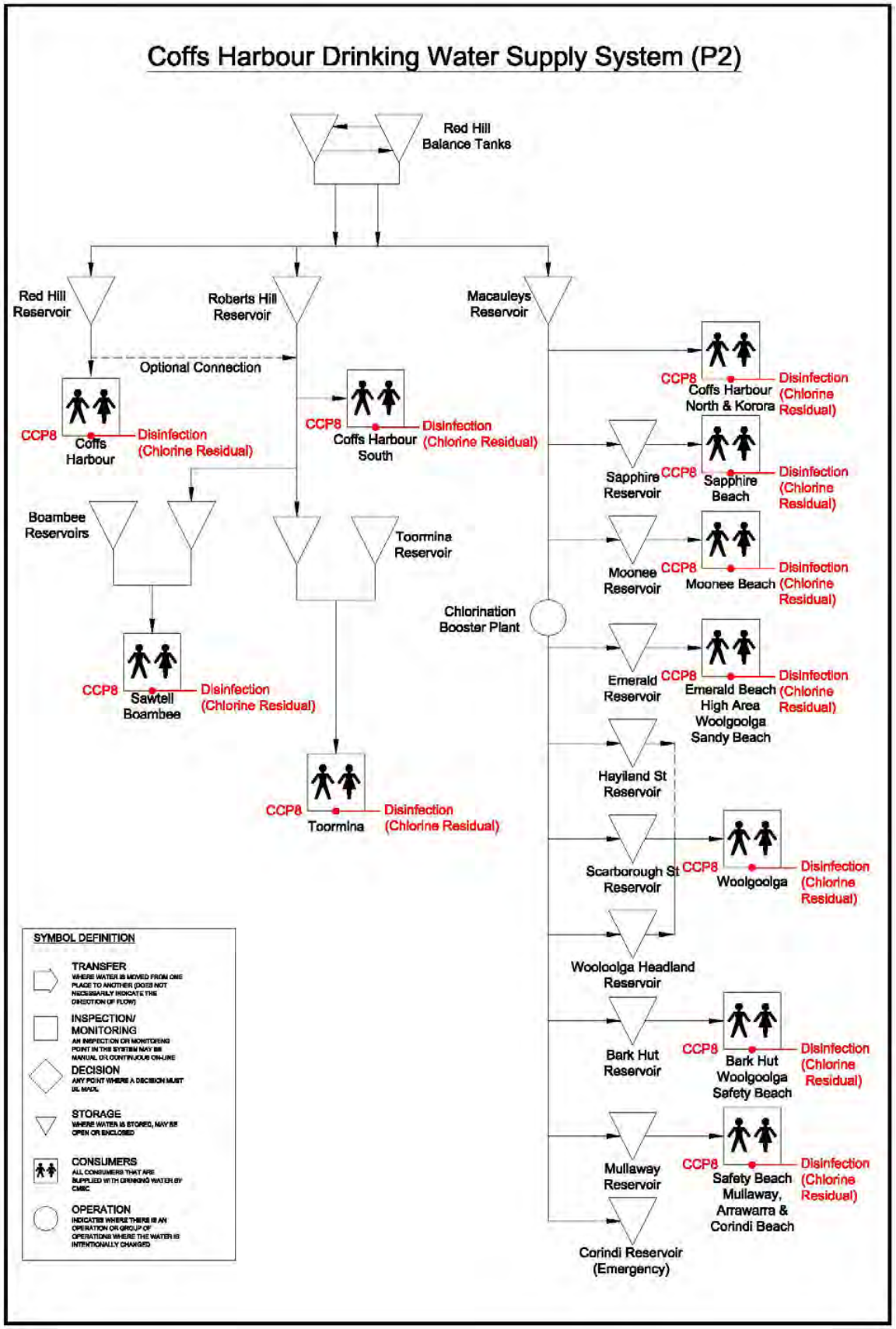

Figure 2: (b) Coffs Harbour Drinking Water Supply System Process Flow Diagram

3.2.2 Assessment of Water Quality

Water quality was assessed to inform the Risk Assessment Workshop process and identify issues within the supply. A detailed assessment of water quality is in Appendix B: Drinking Water System Analysis. A summary is provided below.

Source Water Quality

Baseline characterisation of raw water from Orara River at Cochrane's pool, Nymboida River and Shannon Creek Dam is reported in the Coffs Harbour Water Treatment Plant HACCP Plan (Coffs Infrastructure Alliance, 2009) and summarised in Table 8.

All source waters were characterised as relatively soft with low alkalinity, low in manganese and phosphorous.

E.coli was detected in all raw water sources with the highest detections at Cochrane's Pool.

Turbidity, Colour and Total Organic Carbon are the highest at the Shannon Creek Dam are above the ANZECC Fresh and Marine Guidelines (2000) for South-east flowing rivers indicating slightly disturbed ecosystems.

Table 8 Typical Water Quality of Karangi WTP Raw Water Sources

Parameter	Orara River at Cochrane's Pool	Nymboida River	Shannon Creek Dam
E.coli	10 – 900 orgs/100 ml (median 118)	1 – 200 orgs/100 ml	5 – 300 orgs/100 ml
Total Organic Carbon	1 mg/L	2 mg/L	2 – 3 mg/L
Colour	5 – 15 PCU	5 – 50 PCU	20 – 200 PCU
Turbidity	0.5 – 5 NTU	2 – 140 NTU	4 – 200 NTU
Total Phosphorous	0.01 – 0.03 mg/L	<0.01 – 0.07 mg/L	<0.01 – 0.02 mg/L
Manganese	<0.01 – 0.05 mg/L	<0.02 mg/L	0.05 – 0.5 mg/L
Alkalinity	10 – 18 mg/L	10 – 15 mg/L	17 – 85 mg/L

Baseline pesticide sampling in the source water at Shannon Creek Dam conducted on 24 March 2010 included tests for a range of organochlorine and organophosphate pesticides. Pesticides were found to be non-detected. Further monitoring was undertaken at the Shannon Creek Dam in 2012 for a suite of physical, chemical, pesticide and radiological parameters. In relation to the chemical results, all parameters were within the guideline criteria for drinking water. Pesticides were found to be non-detected in all source water samples.

Two and a half years of baseline sampling data from Karangi Dam (July 1998 to December 2000) indicate that the raw water is of relatively good quality. pH (6.8 – 7.8) was in the optimal range with low turbidity (0.3 – 2.3 NTU) and conductivity (72 – 110 µS/cm) as typical of large lakes and reservoirs. The raw water is very soft (mean total hardness 8 mg/L and alkalinity 14 mg/L) and low in nutrients (mean/max nitrate and nitrite 0.1 mg/L and phosphorous 0.04 mg/L).

Radiological assessments in the form of alpha and beta radiation were undertaken in 2010 at Wongala and Corindi Beach Aboriginal Communities and Shannon Creek Dam. Corindi Aboriginal Community results were under the detection limit for both Alpha and Beta analysis. Wongala Aboriginal Community and Shannon Creek Dam results were under the detection limit for Alpha. However Beta results were above the detection limit at both Wongala Aboriginal Community and Shannon Creek Dam at 22 + 3 mBq/l and 20 mBq/l respectively. The ADWG recommended that if results are exceeded in the retest, it is recommended that specific radionuclides be identified and their activity concentrations determined. As this test is expensive, it is first suggested that Council retest to identify any ongoing issue.

Operational Water Quality

Karangi Water Treatment Plant

The Karangi WTP consistently meets operational water quality targets.

Filtered water turbidity is monitored inline continuously with alarms at each of the individual filters. CCP at each filter is alarm controlled by Alert level: 0.3 NTU and Critical alarm: 0.5 NTU. Operators record turbidity readings daily onsite. These recordings are hand written and were unavailable for statistical analysis. However, the mean turbidity of the treated water (< 0.1 NTU) indicates that filtration is effective and is achieving the desired results.

The water supply treated at the Karangi WTP undergoes disinfection via chlorination and UV. CHCC is achieving the operational target for effective chlorination with turbidity averaging 0.1 NTU in the treated water tank, and an average pH of 7.7 at the time of disinfection. It is considered that the Karangi WTP achieves sufficient contact time for disinfection given the volume of storage at the WTP and the transportation of treated water to the RHBT prior to reticulation. Treated water free chlorine is monitored inline continuously with alarms. CCP is alarm controlled by Alert level: < 0.6 or > 3.0 mg/L and Critical alarm: < 0.4 or > 3.5 mg/L

The water supply treated at the Karangi WTP is fluoridated. The treated water is sampled daily at the Karangi WTP for fluoride with an average concentration of 1 mg/L. Treated water fluoride is monitored inline continuously with Alarms. CCP is alarm controlled at Alert Level: < 0.8 or > 1.1 mg/L and Critical Alarm: > 1.5 mg/L. According to the operational data Coffs Harbour Water is achieving the stipulated fluoride concentration as required by the *"New South Wales Code of Practice for Fluoridation of Public Water Supplies"* (NSW Department of Health, 2011).

Reservoirs

From the operational data, free chlorine residual is maintained throughout the distribution system and reservoirs, although at times less than optimal (< 0.2 mg/L) at the Sawtell, Toormina and Bark Hut reservoirs. The Boambee Headland booster plant aims to address this issue for the Sawtell and Toormina areas. Bark Hut reservoir has a relatively low water usage and it is difficult to maintain the chlorine residual in storage. The chlorine dose is adjusted seasonally and hand dosing is carried out at Bark Hut and Sawtell.

Since the commissioning of the new Karangi DAFF plant, no *E.coli* has been detected in the drinking water supply system. Total coliforms were identified in low numbers at the Sawtell, Toormina and Bark Hut reservoirs. These reservoirs also displayed low chlorine residual at times. Fluoride is maintained at all reservoirs within the NSW Health criteria.

Attachment 2

Supply Water Quality

Verification monitoring is undertaken within the distribution system. *E.coli* detections have occurred within the supply system. All follow-up tests for all but one occasion were within the guideline criteria and subsequently no boil water alerts were issued. E.coli detections may be attributed to poor sampling or low chlorine residuals. Total coliform exceedances have occurred. The presence of these coliforms may represent release from pipe or sediment biofilms, and may be part of the normal flora of the drinking-water distribution system or due to low chlorine residuals.

When the disinfectant in a drinking water supply is chlorine, disinfection by-products may be formed, including Trihalomethanes (THM). Sampling was undertaken monthly by CHCC in all reservoirs over 1999 and 2000 and at RHBT in 2005. Trichloromethane, Bromodichormethane, Dibromochloromethane, and Tribromomethane were monitored at 24 locations across the CHCC drinking water systems.

ADWG 2011 recommends that the concentration of THMs, either individually or in total, in drinking water should not exceed 0.25 mg/L. The results indicated that THMs concentration in the water supply system were below the guideline values on every occasion. Refer to Appendix B: Drinking Water System Analysis for data.

NSW Health Drinking Water Monitoring Program

Water quality results from the NSW Health Drinking Water Monitoring Program were assessed from the commissioning of the DAFF plant in June 2009. Results for July 2009 – November 2012 are summarised in Table 9.

The free chlorine non-compliances, with the exception of one event, were all low residuals. The greatest proportion of non-compliances was at Safety Beach, Toormina and Sawtell, all of which had more than 50% of samples below 0.2 mg/L. Council is currently constructing a chlorine booster for the Toormina and Sawtell supplies and is investigating options for maintaining chlorine residual at Safety Beach.

The fluoride non-compliances were all low values, with five of the eight low values resampled from the one event. From 6th to 10th April 2010 operators had difficulty maintaining the required concentration of fluoride within the drinking water supply. The remaining three events had values above 0.80 mg/L.

Table 9 Coffs Harbour NSW Health Drinking Water Monitoring Program Data

Parameters	ADWG	No. of Samples	Min	Mean	95%ile	Max	Non compliance
E.coli (cfu/100ml)	< 1	1,731	0	0	0	0	0
Total Coliform (cfu/100ml)[1]	< 1	1,726	0	0	0	> 200	7
Free Chlorine (mg/L)	0.2 - 5	1,731	0.05	0.48	1.08	28	500 (Low) 1(exceedance)
Total Chlorine (mg/L)	5	6	0.0	0.21	0.94	1.25	0
pH (pH units)	6.5 – 8.5	94	7.4	7.9	8.4	8.5	0
True Colour (HU)	15	66	< 1	1	1	1	0

Parameters	ADWG	No. of Samples	Min	Mean	95%ile	Max	Non compliance
Turbidity (NTU)	5	70	< 1	0.1	0.3	0.4	0
Iron (mg/L)	0.3	66	0.01	0.01	0.02	0.07	0
Fluoride (daily WU mg/L)	0.9 – 1.5	1200	0.04	0.98	1.02	1.10	8 (Low)
Hardness (as calcium carbonate) (mg/L)	200	66	46.6	57.6	63.90	65.7	0
Aluminium (mg/L)	0.2	66	0.01	0.01	0.02	0.04	0
Manganese (mg/L)	0.5	66	0.01	0.01	0.01	0.01	0

3.3 Nana Glen Drinking Water Supply System Analysis

3.3.1 Description

The Nana Glen Water Treatment Plant (WTP) is a conventional plant that provides filtered and disinfected water to the residents of Nana Glen and Nana Glen Rail. A complete description of the Nana Glen drinking water supply system is provided in Appendix B: Drinking Water Systems Analysis. Figure 3 provides a process flow diagram of the Nana Glen DWSS.

Source Water: Orara River

Water is extracted from a pool on the Orara River via a screened inlet, suction pipe and pump station adjacent to the eastern bank of the river. Water is pumped from the pool to the WTP for treatment.

Access to the extraction point is through a cattle grazing property.

Water Treatment

Raw water from the Orara River is treated at Nana Glen WTP, according to the following process steps (Reed Constructions Services, 1994):

- The raw water mains are injected with aluminium sulphate to effect coagulation
- Lime is also injected for alkalinity and pH adjustment
- Coagulation and flocculation occur in the clarifier, which is an up-flow sludge blanket type
- Clarified water flows to the gravity filter, comprised of sand and gravel
- Carbon dioxide and lime are dosed for pH correction before the service reservoirs
- Chlorine is dosed for disinfection before the service reservoirs, with contact time maintained in one of the two 0.5 ML service reservoirs

Distribution

Two 0.5 ML reservoirs at the WTP store treated water for distribution by gravity to consumers.

Attachment 2

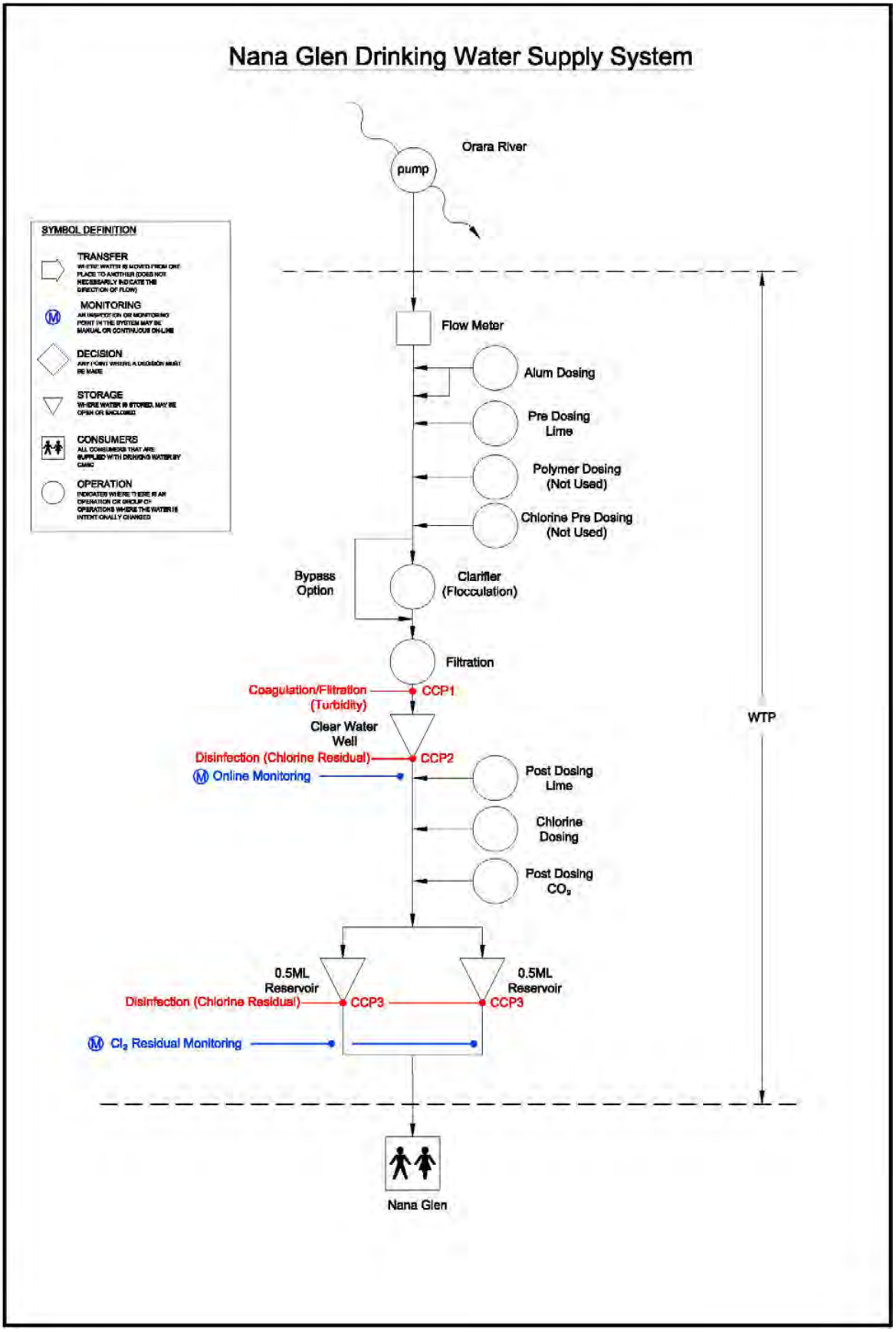

Figure 3: Nana Glen Drinking Water Supply System Process Flow Diagram

3.3.2 Assessment of Water Quality

Water quality was assessed to inform the Risk Assessment Workshop process and identify issues within the supply. A detailed assessment of water quality in the Nana Glen drinking water supply system is in Appendix B: Drinking Water System Analysis. A summary is provided below.

Source Water Quality

Raw water for the Nana Glen drinking water supply is sourced from the Orara River downstream of the Karangi WTP, and off Solomon Close, Nana Glen.

The waters of Orara River are soft, with a neutral pH (slightly acidic at times) and in periods of normal river flow, turbidity is low (averaging 3.7 NTU). Iron is above the ADWG 2011 recommended criteria for aesthetics with an average of 0.4.

Total and faecal coliforms are present in the Orara River with a median of 633 cfu/100ml and 106 cfu/100ml respectively. The intake point on the Orara River is surrounded by a cattle grazing property

WTP Operational Water Quality

Operational data is recorded manually by council staff and was unavailable for analysis. The absence of coliforms within the supply system indicates that treatment has effectively removed the coliforms from the raw water of the Orara River. It is recommended that Council record all water quality and or plant performance monitoring results in electronic format for future analysis.

Reservoir Water Quality

Council undertakes monthly operational water quality monitoring from the two service reservoirs at Nana Glen WTP. Data provided from 2007 to current was assessed with the following issues noted:

- At times, aluminium is elevated above the ADWG criteria of 0.2 mg/L. Although only an aesthetic consideration, the ADWG guideline value is 0.1 mg/L
- Alkalinity at times is less than desirable with mean results slightly below the recommended criteria of 60 mgCaCO3/L
- pH ranges from 6.8 – 8.9, although mean results indicate pH is optimal at 7.7 or 7.8
- Turbidity in the last few years has been above the recommended criteria of < 1 NTU for effective disinfection. Reservoir 1 and Reservoir 2 have average turbidity readings of 1.9 NTU and 2.5 NTU respectively
- At times apparent colour is elevated with maximum readings of 90 and 72 in Reservoir 1 and Reservoir 2 respectively. This could be due to the higher Turbidity readings. 'Apparent Colour' is the colour resulting from the combined effect of true colour and any particulate matter, or turbidity. In turbid waters, the true colour is substantially less than the apparent colour. Guideline value for true colour is < 15HU.
- Manganese and Iron are well within the guidelines values of 0.5 mg/L and 0.3 mg/L respectively

Supply Water Quality

Operational Water Quality Monitoring

As part of the WTP operational monitoring procedures, water quality is sampled fortnightly at a point of supply in Nana Glen. From 2007 all mean parameters, including coliforms, were within the recommended limits with Aluminium (0.2 mg/L), Free Chlorine (0.4 mg/L), *E. coli* (no detections), Total coliforms (1 cfu/100ml detection) and temperature (21 degrees).

NSW Health Drinking Water Monitoring Program

Ten years (2002 – 2012) of NSW Health data was assessed from the NSW Drinking Water Database, as summarised in Table 10. A small number of exceedances for total coliforms, pH and aluminium were noted, most of which occurred up to 8 years previously.

Note: the low chlorine residuals were prior to June 2012, at which time a change in operations was undertaken. No further low residuals have been recording since this time.

Table 10 Nana Glen NSW Health Drinking Water Monitoring Program Data

Parameters	ADWG Value	No. of Samples	Min	Mean	95%ile	Max	Exceedances
E. coli	<1 cfu/100 ml	262	0	0	0	0	0
Total Coliform	<1 cfu/100 ml	263	0	0	0	1	1
Free Chlorine	0.2 - 5 mg/L	261	0.01	0.29	0.74	1.18	114
pH	6.5 – 8.5	20	7.3	8.2	8.7	8.8	3
True Colour	< 15 HU	18	0.05	0.10	0.19	1.00	0
Turbidity	< 5 NTU	20	0.05	0.35	0.74	1.50	0
Total Hardness	200 mg/L $CaCO_3$	19	46.6	72.3	87.0	87.9	0
Aluminium	0.2 mg/L	19	0.02	0.13	0.33	0.46	2
Iron	0.3 mg/L	19	0.01	0.03	0.07	0.08	0
Manganese	0.5 mg/L	20	0	0	0.01	0.02	0

3.4 Coramba Drinking Water Supply

Coramba draws water from the Regional Water Supply System (RWSS) pipeline which is fed from the Nymboida River, or is back-fed from Karangi Dam, when water quality from Nymboida River or Shannon Creek Dam deteriorates after heavy rain or for other reasons (HSc, SBP 2012). Karangi Dam is generally only used when source water quality considerations at Shannon Creek and the Nymboida River deem it preferable, or when the regional water supply is transferring water north to Shannon Creek Dam.

Water is transferred to Coramba via the Regional water supply transfer mains that connect Nymboida Weir, Shannon Creek Dam and Karangi Dam. The Coramba drinking water system services 146 customer connections (as at 2013).

The raw water is disinfected by manually set chlorination dosing (Hypochloride) and pumped to a 0.45 ML reservoir for distribution by gravity within the village. Monitoring programs are in place for water quality, and include regular checking of chlorine levels within the reservoir.

The Coramba drinking water supply has not been assessed as part of the development of this DWMS. Council anticipate that within two years the Coramba drinking water supply system will be connected to the Coffs Harbour supply, and therefore Council decided not to assess the system.

In accordance with NSW Health requirements, Council intends that an addendum will be issued to this plan at a later date to incorporate assessment of the Coramba system. It is required that the addendum will be issued before 1 September 2014 to ensure Coffs Harbour City Council is compliant with Section 25 of the *Public Health Act 2010* (NSW) and the associated Public Health Regulation 2012.

4 Risk Management and Controls

4.1 Risk Assessment and Preventive Measures

The risk assessment and identification of preventive measures were undertaken in the risk assessment workshop on 19 – 20 February 2013, with participation from CHCC, Clarence Valley Council, NSW Health Water Unit and Local Public Health Unit and NSW Office of Water.

A preliminary set of hazardous events was provided for the workshop. Participants deleted or added hazards as required for each specific drinking water supply system. The participants were facilitated through the process to determine likelihood and consequence of each hazardous event in order to rate the risk.

Coffs Harbour City Council used the ADWG (NHMRC, NRMMC, 2011) Risk Assessment Matrix.

Hazardous events were also included that were identified as very high or high risks in the Nymboida catchment and Shannon Creek Dam by the following studies:

- Coffs Infrastructure Alliance (2009) "Coffs Harbour City Council. Coffs Harbour Water Treatment Plant HACCP Plan"
- Water Futures (2008) "Water Quality Risk Assessment Workshop. Workshop Outcomes Paper for Clarence Valley Council"
- Ministry of Energy and Utilities (2003) "Shannon Creek Raw Water Conceptual HACCP Plan"

Residual risks in the Coffs Harbour HACCP plan were based on the events before the commissioning of the Karangi WTP. Residual risks for the two other assessments, undertaken for CVC, were based on treatment at the CVC WTPs. Maximum risks from the assessments were used for the workshop and residual risks subsequently assessed by the workshop based on treatment at Karangi WTP.

Table 11 and Table 12 summarise the residual risks and preventive measures for the Coffs Harbour and Nana Glen systems, respectively. For the full details of the outcomes from the Risk Assessment Workshop refer to Appendix C.

62 risks were identified through the workshop for the Coffs Harbour drinking water supply system:

- Maximum risks: 26 very high, 28 high, 5 moderate and 3 low; and
- Residual risks: NIL very high, 5 high, 28 moderate and 29 low

36 risks were identified through the workshop for the Nana Glen drinking water supply system:

- Maximum risks: 15 very high, 15 high, 3 moderate and 3 low; and
- Residual risks: NIL very high, 4 high, 18 moderate and 14 low

From Table 10, the greatest risks in the Coffs Harbour drinking water supply are associated with pathogens in the reservoirs and distribution systems, highlighting the importance of maintaining effective chlorination and filtration.

Table 11 notes that one of the greatest risks to the Nana Glen drinking water supply system, as for Coffs Harbour, is pathogens in the distribution system, again highlighting the importance of

maintaining effective chlorination and filtration. Damage to the WTP through bushfire, mine sites in the catchment, and, importantly, failure of alarms also show as high risks, supporting a recommendation to install automatic control and alarms at the WTP.

Additionally, there is the potential that antimony mines in the Nymboida catchment pose a high risk to drinking water, particularly if disused or new mining sites are opened for production without stringent control. Council's treated water is periodically tested for antimony as part of its water quality monitoring program. There have been no exceedances of ADWG to date.

Table 11 Coffs Harbour Risk Identification and Preventive Measures

Hazard	Hazardous Event	Preventive Measures
Orara River Catchment		
Pathogens	MODERATE On-site sewage management (OSSM) failure/breach Unrestricted livestock/ stockyards Primary contact by humans Wildlife access Milk (waste) spills/dumping	OSSM policy LEP/planning controls Orara River Rehabilitation Strategy (ORRS) Community education including signs Incident management and communication plans Selective extraction CCP Alternate sources Karangi WTP process control (clarification, DAFF, chlorination, UV disinfection)
Nymboida Catchment		
Pathogens	MODERATE Septic systems Dorrigo STP Saleyards Dairies Cattle/sheep Native animals Primary contact	CVC septic tank program OSSM policy LEP/planning controls ORRS Variable wastewater treatment at farms Dilution and long detention time in river Training of key users (rafting operators) Selective extraction CCP Alternate sources WTP process control
Chemicals	HIGH Mines sites	Environmental assessment Selective extraction CCP Alternate water source WTP process control
Shannon Creek Dam		
Pathogens	MODERATE Native animals	Selective extraction CCP Dilution Detention time Alternate water source WTP process control

Attachment 2

Hazard	Hazardous Event	Preventive Measures
RWSS		
Pathogens	MODERATE Breach of pipelines through breaks/maintenance/new installations Receipt of out-of-spec water (> 2 NTU) from RWSS	Superchlorination of new pipes Standard Operating Procedures (SOP) Visual inspections Programmed maintenance Water-system dedicated maintenance team Online turbidity meters at Nymboida weir Flow meter before Karangi Dam Telemetry WTP process control
Chemicals	MODERATE Stratification leading to algal toxins, or metal dissolution	Communication between CVC and CHCC Aeration Multiple level off-take (currently not functioning) Telemetry Selective extraction CCP Alternate water supply WTP process control
Karangi WTP		
Pathogens	MODERATE pH correction failure (dosing failure of lime, CO2, caustic) DAFF failure Inadequate chlorination	Programmed maintenance Well trained staff Procurement procedures Asset renewal schedule On-site spare parts Secondary CO2 dose Online monitoring and SCADA Option for manual overrides Residual chlorine levels in downstream reservoirs to shandy flows if chlorine is under-dosed
	MODERATE Inadequate UV radiation	Multiple/redundancy of UV channels/bulbs Programmed maintenance/servicing Procurement procedures Asset renewal schedule Online monitoring and SCADA
	MODERATE Loss of trained operators due to sickness, leave etc.	Workforce planning, including succession planning
	MODERATE Cyber security	Firewall PLC locks Specific user accounts

Attachment 2

Hazard	Hazardous Event	Preventive Measures
		Passwords Operational and verification monitoring Daily manual checks of plant "Loss-of-communications" alarm Back-up of PLC code RHBT storage capacity
	MODERATE Plant site security	Fences Security cameras Intruder alarms Entry card access
	MODERATE Failure of alarms (including through lightning strike)	"Loss-of-communications" alarm Earths Reservoir storage Daily manual checks of WTP
Chemicals	MODERATE Power failure	Daily manual checks of WTP Automatic WTP shut down Trained operators "Loss-of-communications" alarm Service Level Agreement (SLA) with IT department Blackberry back-up system Daily manual operations Manual chlorine dosing Options for manual overrides
	MODERATE Infrastructure (pipework, lining of valves, pump, oils) leach components of materials due to chemical reaction	Cathodic protection Visual inspection Programmed maintenance Asset renewal schedule On-site spare parts Procurement procedures Standard materials lists Redundancy WTP process control, including PAC
Reservoirs		
Pathogens	HIGH Breach of reservoir integrity e.g. recontamination by vermin (birds, snakes etc.)	Chlorine residuals Electronic alarms on hatches Visual inspections Bypass capacity on some reservoirs Chlorine residual Alternate supply capacity

Attachment 2

Hazard	Hazardous Event	Preventive Measures
	MODERATE Deliberate contamination	Security fences Chlorine residuals Razor wire Electronic alarms on hatches Bypass capacity on some reservoirs Alternate supply capacity
Distribution		
Pathogens	HIGH Low chlorine residual (due to long lengths of reticulation) Breach of pipelines through breaks, inappropriate maintenance, new or service works etc. Cross-connections and backflows	Online monitoring Superchlorination of new pipes SOPs Mains flushing Water-dedicated maintenance team Mains replacement programs Inspection and flushing of new works by outside contractors Well-trained staff Maintain high operating pressures Backflow prevention devices (RPZ) Backflow prevention policy and audit/inspections Registered users and customer agreement for recycled water Most houses have non-return valves on meters WTP process control

Table 12 Nana Glen Risks and Preventive Measures

Hazard	Hazardous Event	Preventive Measures
Orara River Catchment Nana Glen		
Pathogens	MODERATE On-site Sewage System failure or breach Unrestricted livestock/ stockyards Primary contact by humans	On-site Sewage System Management Policy LEP/planning controls ORRS Community education Nana Glen WTP process control (clarification, filtration, chlorination)
Chemicals	MODERATE Milk (waste) spills/dumping Point sources e.g. dip sites, service station (petrol - BTEX)	Vegetation buffers Incident management and communication plans Dilution River processes (aeration) EPA requirement of individual fuel balance at service station WTP process control

Attachment 2

Hazard	Hazardous Event	Preventive Measures
	HIGH Mines sites in Orara Catchment (e.g. mercury, gold)	WTP process control
Turbidity	MODERATE Stormwater flows Railway crash in catchment	CVC/Bellingen Shire Council LEP (special area) ORRS Visual inspection 5 days storage in reservoir State Emergency Services (SES), emergency services communications Incident management procedures Option to truck water to WTP WTP process control
Nana Glen WTP		
Pathogens	MODERATE Incorrect lime pre-dose Flocculation failure Filter and clarifier failure Inadequate chlorination pH correction failure (post dose lime and CO2)	Programmed maintenance Hand mixing lime slurry Well trained staff Procurement procedures Asset renewal schedule WTP process control 3 days/week operator presence Downstream turbidity alarm Manual jar test Online turbidity monitor after filter Plant shut down if backwash failure Automatic backwash 5 day storage Limited uninstalled back-up supply "Daily" manual dose determination Residual in downstream reservoir pH probe at inlet to reservoir
	MODERATE Loss of trained operators due to sickness, leave etc.	Workforce planning, including succession planning
	MODERATE PLC failure	Code backup
	MODERATE Plant site security	Fences Intruder alarms

Hazard	Hazardous Event	Preventive Measures
	HIGH Failure of alarms/communications	IT alarms 5-day reservoir storage Free chlorine residual in reservoir
	HIGH Damage to WTP (bushfire, tree damage)	Coordination with SES, Rural Fire Services (RFS)
Reservoirs		
Pathogens	MODERATE Breach of reservoir integrity e.g. recontamination by vermin (birds, snakes) Deliberate contamination	Security fences Chlorine residuals Electronic alarms on hatches Bypass capacity on some reservoirs Covered roofed reservoirs Visual inspection Yearly cleans and identification of gaps/holes
Distribution		
Pathogens	HIGH Low chlorine residual	WTP process control Well-trained operators

4.2 Preventive Measure and Multi Barriers

CHCC provides and supports a multi-barrier approach for the protection of the drinking water supply, as promoted by the ADWG (2011). The strength of this approach is that a failure in one barrier may be compensation by effective operation of the remaining barriers, minimising the likelihood of contaminants passing through to consumers.

The key barriers for the Coffs Harbour drinking water supply system include:

- Catchment Management
- Controlled Abstraction
- Aeration of Karangi and Shannon Creek Dams
- pH and Alkalinity adjustment
- Dissolved Air Flotation and Filtration
- Fluoridation
- Disinfection by Chlorination and UV
- Water Quality Monitoring regime

The key barriers for the Nana Glen drinking water supply system include:

- Catchment Management
- pH and Alkalinity adjustment
- Filtration

- Disinfection by Chlorination
- Water Quality Monitoring regime

The Australian Drinking Water Guidelines notes that protection of water sources is of paramount importance in reducing risks. Catchments can be protected by limiting access by humans and animals, limiting land uses to non-polluting types that will not contribute to risk and the use of buffer zones. Development controls can be used to ensure that development is appropriate. Planning Instruments such as Local Environmental Plans (LEPs) may be used to help protect catchment integrity, for example inclusion of local provisions which restrict land use within catchments to types that will not pose a risk to water quality. Water catchment areas can be declared under the Local Government Act 1993 section 128 which may provide a layer of protection against land uses that pose risks to water quality.

4.3 Critical Control Points

Critical Control Points (CCP) are activities, procedures or processes where the operator can apply control, and are essential processes in reducing risks to an acceptable level. In order to distinguish acceptable from unacceptable performance at each point, target levels, alert levels and critical limits have been identified for the CHCC DWSS.

Critical control points were identified in consultation with CHCC, Clarence Valley Council, NSW Health Water Unit and Local Public Health Unit and NSW Office of Water and documented in Appendix D: Operational and Verification Monitoring. Table 2 and Table 3 summarise the CCPs for Coffs Harbour and Nana Glen, respectively. For each CCP level or limit operational procedures and corrective actions have been documented.

It is recommended that the CCP Target Levels, Operational Procedures and Corrective Actions are easily assessable for WTP Operators. This allows WTP Operators to ensure corrective actions are undertaken immediately if there is any deviation from the target level. A sample of draft signs that may be erected at the location of each CCP within the WTP are available in Appendix E.

Three different limits have been set for the CHCC drinking water supply system:

1. **Target level:** Representing day-to-day operational limits and procedures. This is what the WTP aims to achieve
2. **Alert Limit:** Deviation from the Alert Limit indicates a trend towards loss of control and corrective actions should be immediately taken to resolve the problem and restore control to the Drinking Water Supply System
3. **Critical Limit:** Deviation from the Critical Limit indicates loss of control and the potential of unacceptable health risks. If the critical limit is exceeded, incident and emergency plans should be immediately activated

Attachment 2

Table 13: Coffs Harbour CCPs and Limits

Parameter	Frequency	Target	Operational Procedures	Alert Limit	Corrective Action	Critical Limit	Corrective Action
CCP1 Selective extraction							
Turbidity (NTU)	**COCHRANE'S POOL** Continuous	**< 2**	• Visually inspect source water daily • Daily (M-F) manual turbidity reading at laboratory • Inspect sample pump daily • Monitor weather forecast • Monitor rainfall gauges • Calibrate instrumentation: - 3 Monthly by operators - Quarterly by electricians - As required after floods, abnormal readings etc	**2** **(> 10 min)**	• Notify Treatment Manager, Water Coordinator • Ensure automatic shut-down of pump • Visual check at intake, including river level • Manual grab sample, test • Increase monitoring until target is reached • Operator reset of pumps when target is reached	**> 2** **(> 10 min)**	• Notify Treatment Manager, Water Coordinator • Ensure automatic shut-down of pumps • Visual check at intake, including river level • Manual grab sample, test • Increase monitoring until target is reached • Operator reset of pumps when target is reached • Consider alternate source
	NYMBOIDA RIVER Continuous	**< 2**	• Review daily email from CVC, including weather forecast, rainfall, NTU • Monitor daily flows on NSW Office of Water website • Daily manual flow test at RWSS • Visual inspection of source water by CVC • CVC control of manual valve for flows to and from CVC	**2** **(> 1 hour)**	• CVC manually reads meters and notifies CHCC of increased turbidity • CVC closes supply valve to CHCC • Daily sampling until turbidity reaches target • Manually close valve inside RWSS inlet pit • Increase monitoring until target is reached • Manually open inlet pit valve when target is reached	**> 2** **(> 1 hour)**	• Notify Treatment Manager, Water Coordinator • CVC operator notifies CHCC of increased turbidity • Daily sampling until target is reached • Manually close valve inside RWSS inlet pit • Increase monitoring until target is reached • Operator opens inlet pit valve when target is reached • Consider alternate source

Attachment 2

Parameter	Frequency	Target	Operational Procedures	Alert Limit	Corrective Action	Critical Limit	Corrective Action
CCP 2 Aeration at Karangi Dam							
Aeration	Daily	**6 hrs Runtime (DO > 7 mg/L at 27m)**	• Monitor compressor run time (at 27 meters) daily • Monitor DO weekly (TWL, 3,6,9m) • Monitor DO monthly (0, 3, 6, 9 to 27 meters) • Record pump hour readings daily • Programmed maintenance and servicing of compressor • Calibrate instrumentation: 3 monthly	**< 6 hrs Runtime (DO < 7 mg/L at 27m)**	• Increase aeration time until DO increases • Increase DO monitoring • Visual inspection of source water, compressor and bubbles on surface • mechanic/ electrician to repair as required • Check DO probe; maintain as appropriate • Undertake diver inspection on high pressure alarm on compressor	**> 6 hrs Runtime (DO < 5 mg/L at 27m)**	• Notify Treatment Manager, Water Coordinator • Increase aeration time until DO increases as required • Increase DO monitoring until target is reached • Repeat corrective actions • Consider alternate source
CCP 3 Coagulation							
pH after prime CO_2	Continuous	**8**	• Daily visual inspection of flocc and monitoring, dosing systems • Daily clean algae from probe • Weekly clean of pH monitor (lime) • Calibrate online pH monitor (monthly) • Calibrate instrumentation: 3 monthly	**< 6.5 or > 9.5 (> 30 mins)**	• Notify Treatment Manager, Water Coordinator • Visual inspection of source water source • Inspect CO_2, lime plant; clean/maintain as required • Inspect probes, flow meters; clean/maintain as required • Grab sample, manual test • Manually adjust CO_2, lime dose as required • Increase monitoring until target is reached	**< 5.8 or > 9.6 (> 15 min)**	• Notify Treatment Manager, Water Coordinator • Inspect CO_2, lime plant; clean/maintain as required • Inspect probes, flow meters; clean/maintain as required • Grab sample, manual test • Manually adjust CO_2, lime dose as required • Ensure alert to filtration • Consider alternate source • Increase monitoring until target is reached

Attachment 2

Parameter	Frequency	Target	Operational Procedures	Alert Limit	Corrective Action	Critical Limit	Corrective Action
pH after trim CO_2	Continuous	**6.8**	• Daily visual inspection of flocc and monitoring, dosing systems • Daily clean algae from probe • Weekly clean of pH monitor (lime) • Calibrate online pH monitor (monthly) • Calibrate instrumentation: 3 monthly	**< 5.8 or > 7.1 (> 30 mins)**	• Inspect CO_2, lime plant; clean/maintain as required • Inspect probes, flow meters; clean/maintain as required • Take grab sample, test manually • Manually override process to adjust CO_2, lime dose as required • Increase monitoring until target is reached	**< 5.5 or > 7.3 (> 5 min)**	• Notify Treatment Manager, Water Coordinator • Inspect CO_2, lime plant; clean/maintain as required • Inspect probes, flow meters; clean/maintain as required • Grab sample, manual test • Manually adjust CO_2, lime dose as required • Ensure alert to filtration process • Increase monitoring until target is reached
CCP 4 Filtration (post filter)							
Turbidity (NTU) (after start up following backwash)	Continuous	**< 0.1 (on individual/ combined filters)**	• Daily visual inspection of filters • Programmed maintenance/servicing • Manually record NTU daily (individual and combined three filters) • Calibrate instrumentation: 3 monthly	**> 0.3 (> 30 min)**	• Visual inspection of water source • Visual inspection of clarifier • Take grab sample, test manually • Operator-initiated backwash as required • Check coagulation; increase alum dose as required • Increase monitoring until target is reached	**> 0.5 (> 15 min)**	• Notify Treatment Manager, Water Coordinator • Ensure discharge of flow from clarifier (no flow to filter) • Ensure automatic shut-down of filter • Repeat operational and corrective actions • Investigate process controls • Operator re-start of flow to filter when target is reached
Turbidity (maturation spike at start of filter run – filter ripening)	Continuous	**< 0.1 (> 5 mins)**		**> 0.5 NTU (> 30 min)**		**> 1 NTU (> 5 min)**	

Attachment 2

Parameter	Frequency	Target	Operational Procedures	Alert Limit	Corrective Action	Critical Limit	Corrective Action
CCP 5 UV Disinfection (limits as per calibrated alarms for UV system)							
UV Transmissivity	Continuous	**98 %**	• Programmed maintenance/servicing • Calibrate instrumentation: 3 monthly	**95 %** **< 1.1 x min** **(> 4 hours)**	• Check filtration process/ turbidity levels • Repair reactors as required • Increase monitoring until target is reached	**85 %** **< 0.8 x min** **(> 1 hour)**	• Notify Treatment Manager, Water Coordinator • Notify NSW Health • Confirm automatic shut-down of reactors • Repeat operational and corrective actions • Repair reactors as required • Operator re-start of reactors when transmissivity reaches target
UV Dose	Continuous	**< 48 mJ/cm²**		**< 22 mJ/cm** **(60 minutes)**		**< 20 mJ/cm** **(60 minutes)**	
CCP 6 Fluoridation							
Fluoride at treated water storage (mg/L)	Continuous	**1.0**	• Daily drop test (10 mins – instant dose rate) • Daily historical (24hr) balance • Daily manual analysis • Daily manual fill of fluoride day tank • Weekly monitoring of natural fluoride level • Weekly lab monitoring at three points in reticulation • Programmed maintenance • Ensure restricted access to dosing facility • Undertake fluoride training • Calibrate instrumentation	**< 0.95 or > 1.05** **(1 hour)**	• Notify Treatment Manager, Water Coordinator • Respond as Fluoridation Code of Practice and CHCC Emergency Response Plan • Ensure automatic plant shut-down • Resample and test water • Inspect dosing system • Transfer water from treated water storage to emergency storage lagoon; shandy as appropriate • Increase monitoring until target is reached • Operator re-start of plant when target is reached	**< 0.9 or > 1.5** **(15 min)**	• Notify Treatment Manager, Water Coordinator • Notify NSW Health • Respond as Fluoridation Code of Practice and CHCC Emergency Response Plan • Ensure automatic plant shut-down • Resample and test water • Inspect dosing system and Repair • Transfer water from treated water storage to emergency storage lagoon; shandy as appropriate • Increase monitoring until target is reached • Operator re-start of plant when target is reached

Attachment 2

Parameter	Frequency	Target	Operational Procedures	Alert Limit	Corrective Action	Critical Limit	Corrective Action
CCP 7 Chlorine Disinfection							
Chlorine residual at treated water storage outlet (mg/L)	Continuous	**1.2 – 2.0 (seasonally dependent)**	• Daily manual free chlorine test on inlet and outlet of treated water storage and RHBT • Daily free chlorine monitoring (Monday-Friday) at RHR • Programmed maintenance/servicing • Monthly calibration of instrumentation	**< 1.2 or > 2 (> 30 mins)**	• Notify Treatment Manager, Water Coordinator; adjust chlorine dose as required • Visual inspection of dosing point and repair as required • Inspect filter and adjust as required • Inspect flocculation and adjust as required • Inspect pH correction points and adjust as required • Increase monitoring at inlet and outlet until target is reached	**< 0.9 or > 2.5 (> 5 mins)**	• Notify Treatment Manager, Water Coordinator • Notify NSW Health • Shut-down of pump to RHBT • Check online monitor at RHBT • Manual dose at treated water storage as required • Repeat operational and corrective actions • Transfer water from treated water storage to emergency storage lagoon; shandy as appropriate • Operator re-start of RHBT pump when target is reached • Consider boiled water alert
pH at outlet of treated water storage outlet (pH units)	Continuous	**7.7**	• Confirm automatic adjustment of dose • Weekly manual monitoring • Monthly calibration of instrumentation	**< 7.2 > 8.3 (> 30 mins)**	• Notify Treatment Manager • Visual inspection of dosing systems • Adjust lime/acid dose as required • Increase manual monitoring until target is reached	**< 7.0 > 8.5 (> 30 min)**	• Notify Treatment Manager, Water Coordinator • Shut-down of RHBT pump • Adjust lime/acid dose at tank • Transfer water to emergency storage lagoon; shandy as appropriate • Increase manual monitoring until target is reached • Operator re-start of RHBT pump when target is reached

Attachment 2

Parameter	Frequency	Target	Operational Procedures	Alert Limit	Corrective Action	Critical Limit	Corrective Action
CCP 8 Point-of-Supply Disinfection							
Free chlorine at point-of-supply (mg/L)	Weekly	**> 0.2**	• Weekly testing at point-of-supply (E.coli, total coliforms, free chlorine) • Mains flushing • Calibrate instrumentation: 3 monthly	**< 0.2**	• Contact Distribution Manager and Water Coordinator • Check chlorine at appropriate reservoir • Hand dose at appropriate reservoir if chlorine < 0.3 mg/L, according to SOP. • Retest and re-dose as appropriate • Consider increasing chlorine dose at RHBT, WTP, chlorine booster • Increase monitoring until target is reached	**< 0.1**	• Notify Distribution Manager, Water Coordinator • Notify NSW Health • Respond as per NSW Health Drinking Water Quality Protocol (2005) • Repeat corrective actions • Flush mains • Increase monitoring until target is reached • Consider boiled water alerts

Attachment 2

Table 14: Nana Glen CCPs and Limits

Parameter	Frequency	Target	Operational Procedures	Alert Limit	Corrective Actions	Critical Limit	Corrective Actions
CCP1 Coagulation/Filtration							
Turbidity after filtration (NTU)	Continuous	**< 0.3**	• Weekly visual inspection of source water • 3-times/week visual inspection of floc and filters • Manual 3-times/week recording of NTU • 3-times/week pH, alkalinity, colour, turbidity monitored at raw water and treated water reservoir • Calibrate instrumentation: 3 monthly	**> 0.5**	• Notify Treatment Manager, Water Coordinator on repeat occurrences or additional problems • Visual inspection of water source • Visual inspection of floc, dosing systems; adjust dose/repair as appropriate • Manual grab sample and jar test • Initiate manual backwash • Calibrate instrumentation • Increase monitoring until target is reached	**> 1.0**	• Notify Water Treatment Manager, Water Coordinator • Ensure automatic shut-down filter • Repeat corrective actions • Increase monitoring until target is reached • Alert supervisor Water Treatment Manager on repeat occurrences • Cart water if limit exceeded for long time • Manual re-start of filter when target is achieved
CCP 2 Disinfection							
Chlorine residual in reservoir (mg/L)	3-times/ week	**0.8 (summer) 0.5 (winter)**	• 3-times/week manual free chlorine test in reservoir • 3-times/week operational monitoring • Monthly calibration of equipment • Programmed maintenance/ servicing	**< 0.5**	• Consult with Treatment Manager, Water Coordinator; adjust chlorine dose • Visual inspection of dosing point/system; repair as required • Visual inspection of filter; backwash as appropriate • Visual inspection of floc, dosing systems; adjust dose/repair as appropriate • Increase manual testing • Calibrate equipment • Take reservoir off-line, re-fill and add chlorine;	**< 0.3**	• Notify Water Treatment Manager, Water Coordinator • Notify NSW Health • Manual plant shut-down • Manual dose at reservoir as required • Repeat corrective actions • Increase monitoring until target is reached • Manual re-start of plant when target is reached • Consider boiled water alert

Attachment 2

Parameter	Frequency	Target	Operational Procedures	Alert Limit	Corrective Actions	Critical Limit	Corrective Actions
					balance and shandy the two reservoirs together. • Increase monitoring until target is reached		
CCP 3 Disinfection at point-of-supply							
Free chlorine at point-of-supply (mg/L)	Fortnightly	**> 0.3**	• Fortnightly testing at point-of-supply (*E.coli*, total coliforms, free chlorine) • Mains flushing	**< 0.2**	• Notify Water Treatment Manager, Water Coordinator • Check chlorine at appropriate reservoir • Hand dose at appropriate reservoir • Retest and re-dose as appropriate • Consider increasing chlorine dose WTP • Increase monitoring until target is reached	**< 0.1**	• Notify Water Treatment Manager, Water Coordinator • Notify NSW Health • Respond as per NSW Health Drinking Water Quality Protocol (2005) • Repeat corrective actions • Increase monitoring until target is reached • Consider boiled water alert

5 Monitoring of Drinking Water System

5.1 Operational Monitoring

CHCC undertakes monitoring of water quality in the Coffs Harbour and Nana Glen DWSS. Monitoring is undertaken by CHCC in the source water (Orara River and Karangi Dam, treatment plants and distribution systems). Clarence Valley Council undertakes daily monitoring at Nymboida Weir and Shannon Creek Dam with results reported to CHCC.

In the Coffs Harbour drinking water supply system, monitoring is continuous online, with manual checks undertaken regularly for turbidity, chlorine residual, fluoride and pH at the Karangi WTP.

Process water quality monitoring at the Karangi WTP includes the following:

- Raw water at Inlet to the plant- turbidity, pH, and alkalinity;
- Clarified water– turbidity and pH;
- Filtered water–turbidity and pH;
- Treated water at the clearwater well – turbidity, colour, pH, temperature, free chlorine, total chlorine, aluminium, iron and manganese;
- Potable water at treated water reservoir– turbidity, colour, pH, temperature, free chlorine, total chlorine, fluoride, aluminium, iron, magnesium, hardness and salinity.

In the Nana Glen drinking water supply system, monitoring is undertaken manually, with the exception of turbidity after filtration, which is continuously monitored.

The monitoring schedule undertaken by Council is detailed in Appendix D: Operational and Verification Monitoring. Table 15 and Table 16 summarise the operational monitoring schedules for the two DWSS.

Table 15 Coffs Harbour Operational Monitoring Schedule

Site	Sample Point	Sampled By	Frequency	Tests Done
Source and Raw Water				
	Regional Intake	Water S, Lab T	Monthly	pH, Conductivity, Calcium Hardness, Alkalinity, Iron, Manganese, Turbidity, Apparent Colour
	Regional Intake - Coramba	Lab Staff	Monthly	pH, Turbidity, Colour (Apparent, Total), Total Organic Carbon, Coliforms (Faecal, Total)
	Regional Intake - Karangi	Lab Staff	Monthly	pH, Turbidity, Colour (Apparent, Total), Total Organic Carbon, Coliforms (Faecal, Total)

Attachment 2

Site	Sample Point	Sampled By	Frequency	Tests Done
001	Orara River - Cochranes Pool	Lab Staff	Monthly	pH, Turbidity, Colour (Apparent, Total), Total Organic Carbon, Coliforms (Faecal, Total)
	Cochrane's Pool	Water S, Lab T	Monthly	Iron, Manganese
	Karangi Dam 1m	Water S, Lab T	Monthly	pH, Conductivity, Calcium Hardness, Alkalinity, Iron, Manganese, Total Nitrogen, Total Phosphorous
	Karangi Dam (3m, 6m, 9m)	Water S, Lab T	Monthly	Iron, Manganese
	Karangi Dam outlet (TWL, 1m, 3m, 6m, 9m)	Water S, Lab T	Weekly	Dissolved Oxygen, Temperature, Colour, Turbidity
	Karangi Dam (TWL, 1m, 3m, 6m, 9m, 12m, 15m, 18m, 21m, 24m)	Water S, Lab T	Monthly	Dissolved Oxygen, Temperature, Colour, Turbidity
	Karangi Dam (TWL, 1m, 3m, 6m)	Water S, Lab T	Weekly	Freshwater Algae Identification
	Karangi Dam (9m, 12m, 15m, 18m, 21m, 24m, 27m)	Water S, Lab T	Monthly	Freshwater Algae Identification
002	Karangi Dam	Lab Staff	Monthly	pH, Turbidity, Colour (Apparent, Total), Total Organic Carbon, Coliforms (Faecal, Total)
Treated Water				
007	Red Hill Reservoir - Coramba Rd. (East of Res.)	Lab S & T Water S, Lab T	Weekly Monthly	A pH, Conductivity, Calcium Hardness, Alkalinity, Iron, Manganese
Distribution System (Reservoirs)				
010	Macauley's - Mastracolas Rd (North of Res)	Lab S & T	Yearly	A
011	Roberts Hill - Kratz Dr. (North of Res.)	Lab S & T	Twice/Year	A
012	Mullaway - Tramway Dr. (East of Res)	Lab S & T	Yearly	A
013	Bark Hut - Bark Hut Rd. (East of Res.)	Lab S & T	Yearly	A
014	Woolgoolga Headland - Ocean St. (West of Res.)	Lab S & T	Yearly	A

Attachment 2

Site	Sample Point	Sampled By	Frequency	Tests Done
015	Scarborough St - Scarborough St. (East of Res.)	Lab S & T	Yearly	A
016	Emerald - Stefan Cls. (South of Res.)	Lab S & T	Yearly	A
017	Moonee - MacCues Rd. (North of Res.)	Lab S & T	Yearly	A
018	Sapphire - Old Coast Rd. (East of Res.)	Lab S & T	Yearly	A
019	Sawtell Headland - Boambee Headland (South of Eastern Res.)	Lab S & T	Twice/Year	A
020	Toormina - Belbowrie Rd. (South of Eastern Res.)	Lab S & T	Twice/Year	A
Supply to Consumer (Reticulated)				
021	Ulmarra offtake - Eggins Cl. (Next to meter pit)	Lab S & T	Every 4 Weeks 18 month rotation	A B
022	Arrawarra - 2nd Ave.(Toilet Block, in service bay)	Lab S & T	Every 4 Weeks 18 month rotation	A B
023	Safety Beach - Ocean Drive. (SPS)	Lab S & T	Fortnightly 18 month rotation	A B
024	Woolgoolga - N. End Lake Rd.(Toilet Block, in service bay)	Lab S & T	Fortnightly 18 month rotation	A B
025	Sandy Beach - Sandy Beach Dr.(Toilet Block, in service bay)	Lab S & T	Every 4 Weeks 18 month rotation	A B
026	Emerald - Fiddamans Rd.(Reserve Toilet Block, East side)	Lab S & T	Every 4 Weeks 18 month rotation	A B

Attachment 2

Site	Sample Point	Sampled By	Frequency	Tests Done
027	Moonee -Woodhouse Rd (Bushfire Shed, North side)	Lab S & T	Fortnightly 18 month rotation	A B
028	Sapphire - Sapphire Cr.(SPS 69)	Lab S & T	Fortnightly 18 month rotation	A B
029	Korora - Sandy Beach Dr.(Toilet Block, South end)	Lab S & T	Fortnightly 18 month rotation	A B
030	Coffs Harbour Nth - York St (SPS 44)	Lab S & T	Fortnightly 18 month rotation	A B
031	Coffs Harbour Nth - Marcia St Depot (North end Stores Build)	Lab S & T	Fortnightly 18 month rotation	A B
032	Coffs Harbour Sth - Council Chambers (Riding Lane, carpark wall)	Lab S & T	Fortnightly 18 month rotation	A B
033	Coffs Harbour Sth - Jetty Oval (Toilet Block, South side)	Lab S & T	Fortnightly 18 month rotation	A B
034	Sawtell - Boronia Park (West side Lions Shed)	Lab S & T	Fortnightly 18 month rotation	A B
035	Toormina - Sea Breeze Pl. (SPS 21)	Lab S & T	Fortnightly 18 month rotation	A B
036	Toormina - Hamilton Dr. (SPS 17)	Lab S & T	Fortnightly 18 month rotation	A B
041	Corindi Beach Aboriginal Community	Lab S & T	Monthly # Twice Yearly	A B
042	Wongala Estate Aboriginal Community	Lab S & T	Monthly # Twice Yearly	A B
043	Karangi Water Treatment Plant - Treated Water	Lab S & T	Weekly	A

Attachment 2

Site	Sample Point	Sampled By	Frequency	Tests Done
Extra Sampling for Reticulated Supply				
	Reticulation Fluoride Testing	Lab Staff	Weekly	Fluoride (3 samples from 021 - 043: 1 from northern sites; 1 from Coffs sites; 1from Sawtell sites)
007	Redhill Reservoir	Lab Staff	Weekly	pH, Turbidity, Apparent Colour, Alkalinity, Calcium Hardness, Fluoride, Iron, Manganese
043	Karangi Water Treatment Plant (Treated Water)	Lab Staff	Weekly	pH, Turbidity, Apparent Colour, Alkalinity, Calcium Hardness, Fluoride, Iron, Manganese
	Coffs Harbour Tap Water (either 030, 031,032 or 033)	Lab Staff	Weekly	pH, Turbidity, Alkalinity, Apparent Colour
	Woolgoolga Tap Water (tap at Woolgoolga WRP)	Water S, Lab T	Weekly	pH, Turbidity, Alkalinity, Apparent Colour
034	Sawtell Tap Water (034)	Water S, Lab T	Weekly	pH, Turbidity, Alkalinity, Apparent Colour, Chloride(monthly)
041	Corindi Beach Aboriginal Community	Lab Staff	** Twice yearly	pH, Turbidity, Fluoride
042	Wongala Estate Aboriginal Community	Lab Staff	** Twice yearly	pH, Turbidity, Fluoride

Notes:

Lab S & T: Samples collected by lab with analysis (testing) undertaken/arranged by lab.

Water S Lab T: Samples collected and delivered to lab by CHCC Water staff with analysis (testing) undertaken or arranged by CHCC laboratory staff.

 # Twice Yearly: Testing has not been undertaken prior to 2013 but is proposed to be undertaken from 2013 onwards twice yearly, subject to review by Manager Distribution.

**** Twice Yearly:** Testing has been undertaken monthly prior to 2013 but is proposed to be undertaken from 2013 onwards twice yearly subject to review by Manager Distribution.

18 Month Rotation: Testing is undertaken at one different site each month. There are 18 sites in total.

Test A: Total coliforms; *E. coli*; free chlorine and temperature

Test B: Allocated Chemical: pH, turbidity, total dissolved solids, total hardness, true colour, iodide, aluminium, antimony, arsenic, barium, boron, cadmium, calcium, chromium, copper, iron, magnesium, manganese, mercury, molybdenum, nickel, selenium, silver, sodium, zinc, chloride, fluoride, sulphate, nitrate, and nitrite.

Table 16 Nana Glen Operational Monitoring Schedule

Site	Sample Point	Sampled By	Frequency	Tests Done
Source				
	Orara River (Grafton Street Bridge)	Lab S & T	Monthly	Faecal Coliforms, Total Coliforms
Raw Water				
	Intake	Water S & T	Fortnightly	Al
005	Nana Glen Pump Intake	Water S, Lab T	Monthly	pH, Conductivity, Turbidity, Apparent Colour, Calcium Hardness, Alkalinity, Iron, Manganese
Treatment Plant (including Reservoirs)				
	Treated Water	Water S & T	Approx 3 times/week	Flow, Turbidity,pH
	Reservoirs 1 & 2	Water S & T	Approx 3 times/week	Free Cl; Reservoir 2: level
	Reservoirs 1 & 2	Water S, Lab T	Monthly	Turbidity, pH, Al, Alkalinity, Hardness, Colour Apparent, Conductivity, Fe, Mn
Extra Sampling				
	Reservoir 1 & 2 (at WTP)	Water S, Lab T	Monthly	For each reservoir: pH, Conductivity, Turbidity, Apparent Colour, Calcium Hardness, Alkalinity, Iron, Manganese, Aluminium
Supply to Consumer (Reticulated)				
008	Nana Glen - Grafton St (Park by River)	Lab S & T	Fortnightly 18 month rotation	A plus extra sampling of Al B
	Nana Glen – Grafton St (Park by River)		6-monthly	Chemical, Physical

5.2 Verification of Drinking Water Management

The verification of drinking water quality supplied to the consumer assesses the overall performance of the system. Verification provides an important link back to the operation of the water supply system and additional assurance that the preventive measures and treatment barriers have worked and are supplying safe quality water.

Council monitors water quality at the point of supply as part of the NSW Health Drinking Water Monitoring Program. Analysis of these samples provides ongoing independent verification of the treatment process. Minimum frequency of sampling is based on population. The Program assesses 39 parameters for microbial, physical and chemical properties of the water as detailed in Table 17. Table

18 lists the locations for the Program in both Coffs Harbour and Nana Glen DWSS. The results can be accessed by authorised CHCC staff from the Drinking Water Database.
http://www.health.nsw.gov.au/environment/water/Pages/drinking-water-database.aspx

CHCC's water laboratory is responsible for the collection of samples for the NSW Health Drinking Water Monitoring Program. Samples are submitted in accordance with the *"Guide for Submitting Water Samples to FASS for Analysis"* (Sydney West Area Health Service, 2010) and Council procedures for samples. Exceedances are reported to the Manager, Water Treatment, Executive Manager, CHW Operations and the Local Public Health Unit. The CHCC laboratory analyses the microbiological samples and submits results to the NSW Drinking Water Database.

In addition to the NSW Health Drinking Water Monitoring Program, Council undertakes weekly operational monitoring at point of supply as part of the Council's operating procedures.

Table 17 NSW Health Monitoring Program Parameters

Parameters		
Microbial		
E. coli	Total Coliforms	
Disinfection		
Free Chlorine	Total Chlorine	
Fluoridation		
Fluoride (daily WU)[1]	Fluoride (WU result)[1]	
Fluoride (weekly WU)[1]	Fluoride Ratio	
Physical		
pH	Total Dissolved Solids (TDS)	
True Colour	Total Hardness as $CaCO_3$	
Turbidity		
Chemicals		
Aluminium	Copper	Nickel
Antimony	Fluoride	Nitrate
Arsenic	Iodide	Nitrite
Barium	Iron	Selenium
Boron	Lead	Silver
Cadmium	Magnesium	Sodium
Calcium	Manganese	Sulphate
Chloride	Mercury	Zinc
Chromium	Molybdenum	

[1] As fluoride dosing is not undertaken in Nana Glen drinking water supply system, sampling is only undertaken in Coffs Harbour DWSS. Other parameters can be analysed on request or as part of a special project.

Table 18 NSW Health Verification Monitoring Sites

Town	Sampling Site	Location
Arrawarra	21	Eggins Drive
	22	Second Avenue
Coffs Harbour	10	Mastracolas Road
	11	Kratz Drive
	30	York Street
	31	Marcia Street
	32	Coffs St
	33	Orlando St
	40	Ocean Parade
	7	Coramba Road
Coramba	9	Martin Street
Corindi	1	Pacific Street
	2	Coral Street
	3	MacDougall Street
	4	Pacific Street
Corindi Beach aboriginal community	41	Red Rock Road
Emerald Beach	16	Stefan Close
	26	Fiddamans Road
Korora	29	Sandy Beach Road
Moonee Beach	17	MacCues Road
	27	Woodhouse Road
Mullaway	12	Tramway Drive
Safety Beach	23	Ocean Drive
Sandy Beach	25	Beach Drive
Sapphire	18	Old Coast Road
	28	Sapphire Crescent
Sawtell	19	Boambee Headland
	34	Boronia Park
Toormina	20	Belbowrie Rd
	35	Sea Breeze Place

Town	Sampling Site	Location
	36	Hamilton Drive
Wongala Aboriginal community	42	Wongala
Woolgoolga	13	Bark Hut Road
	14	Ocean Street
	15	Scarborough Street Reservoir
	24	Lake Road
Nana Glen	8	Grafton Street
	999	Not Defined, Nana Glen

5.3 Consumer Satisfaction

CHCC undertakes a Customer Satisfaction Survey on a 2-yearly basis. The most recent, "Coffs Harbour City Council Resident Satisfaction Survey" completed in 2012 (Jetty Research, 2012), rates urban and rural customer satisfaction and importance with water supply amongst 25 CHCC-supported facilities and services. The survey is available on the CHCC website and in hardcopy at the Council chambers.

CHCC's *"Complaints and Other Feedback Policy"* (2008) outlines basic procedures and principles for the management of customer complaints. Complaints may be received by telephone, letter or in person. Water complaints are referred to CHW Administration or the Coordinator, Water Supply at the Works Depot, who arrange works crews to investigate and determine the appropriate course of action. Complaints are recorded in CHCC's document management system (Technology One Enterprise Content Management (ECM)) and referred to the appropriate Manager (Water Treatment or Distribution) if required. Follow-up actions, customer response and close-out are detailed in ECM for each complaint.

In the near future, CHW intends to introduce 'SharePoint' software for recording water system customer complaints. This software will provide an additional tool for managing the customer complaints process.

Council reports on the time taken to resolve consumer complaints as a key performance indicator. The Water and Sewerage Strategic Business Plan (HydroScience Consulting, 2012) identifies an average of two hours response time to have staff on-site or answer inquiry.

Breakages and customer complaints are registered and can be mapped for future asset management.

Customer service staff is trained to deal appropriately with customers to ensure good relations are maintained between Council and the community.

5.4 Short Term Evaluation of Results and Corrective Action

Council evaluates water quality data on receipt of operational and point-of-supply monitoring results. Water quality results from NSW Health Monitoring Program are reported to Council's Manager, Water Treatment and Executive Manager, CHW Operations. Compliance is assessed against the

ADWG. Any exceedances are immediately reported to Manager, Water Treatment and the Local Public Health Unit.

Drinking water quality exceedances from NSW Health monitoring triggers a notification by the laboratory to Executive Manager, CHW Operations and subsequently to the appropriate Water Treatment or Distribution Manager. Daily print-outs of laboratory results are distributed to CHW Management.

Attachment 2

6 Operational Procedures and Process Control

6.1 Operational Procedures and Corrective Actions

As part of the development of the DWMS, key operating procedures and corrective actions were established for each critical control point:

- Coffs Harbour drinking water supply – selective extraction, aeration, coagulation, filtration, UV disinfection, fluoridation, chlorination disinfection, point of supply disinfection
- Nana Glen drinking water supply – coagulation/filtration, disinfection, point of supply disinfection

The CCPs have documented operational procedures that support Council to achieve the target criteria and corrective actions when alert levels or critical levels are reached. Refer to the CCP's under Risk Management and Controls. CCP signs have been developed and are attached in Appendix E.

The *"Coffs Harbour WTP: Operations and Maintenance Manual for Karangi WTP"* (Coffs Infrastructure Alliance, 2009) is available in both hard and soft copy from CHCC. The O&M Manual and the full WTP Functional Specification detail WTP operational control, including:

- Automatic Operating Mode, including the PLC control specification and plant start/stop controls triggered primarily by levels at the treated water storage tank
- Manual Operating Mode, including the generic drive operation specification
- Emergency Operating Modes, including 'Filter Bypass' and 'Mains Power Failure' modes
- WTP Flow Rate Adjustment, detailing the required balance between existing demand, historical daily consumption, seasonal conditions, weather, estimated plant losses and operating hours limitations
- Alarms Systems, including the priority of alarms and actions required for each alarm

Regular operational tasks, undertaken on a daily, weekly, monthly and more than monthly basis are documented in Appendix B of the O&M Manual, *"Routine Inspection, Testing, Monitoring and Maintenance"*.

The *"Nana Glen Water Treatment Plant and Raw Water Pumping Station Operating and Maintenance Instruction Manual"* (Reed Constructions Services Pty Ltd, 1994) is available in both hard and soft copy from CHCC. It covers a general description of treatment, plant data, laboratory testing and provides details on the following:

- Plant Operation Activities and Maintenance, including weekly log sheets
- Plant Control, including sequence of operation and levels, flows, pressure limits and timing for plant operation
- Plant Emergency Alarm Shut Downs, Alarm Annunciators and manual by-passes

6.2 Equipment Capability and Maintenance

Details of all water assets, including brand, model, age and type of material, are recorded on "*Asset Master*", an asset database system, managed by the "*Asset Systems*" department of CHCC.

Council's 20-year financial plan has developed a renewal schedule for major water assets. Periods for servicing and replacement of smaller-WTP assets, including pumps and filters, are detailed in the Operations and Maintenance Manual for each WTP. Specific scheduling of renewal/replacement is determined by the Superintendent Headworks.

The customer complaints/mains breaks register and GIS map are reviewed annually by the Manager, Distribution to develop an annual plan for asset replacement.

6.3 Materials and Chemicals

CHCC's objective is to ensure all equipment purchased performs adequately and provides sufficient flexibility and process control. CHCC purchases materials for use in its operations via contracts managed by Council's Purchasing and Supply Manager and Manager, Water Treatment. The supplier is expected to have a consistent level of fitness for the purpose; a high level of assured safety; and the ability to trace materials through the supply chain. The contracts provide guidelines as to the minimum expectations required in order to assure the quality and safety of raw materials and ultimately, the finished product delivered by CHCC (Paul Sparke, Engineer Strategic Infrastructure CHCC, pers. comm., 21/03/2013).

CHCC conforms to the *Plumbing Code of Australia* (ABCB, 2011) and *AUS-SPEC 0071 Water Supply – Reticulation and pump stations (Design)* (NATSPEC, year unknown) in the purchasing of materials.

Preferred suppliers identified through government contracts are used for the supply of some chemicals, including alum and lime. Public tender processes or sole sourced contracts in the case of a limited market are used for the remainder of chemicals, including chlorine.

The use, including transport and storage, of chemicals listed as "Dangerous Goods" under the *Occupational Health and Safety Regulation 2001 (NSW)* (OH&S Regulation), including chlorine and fluoride, is dictated by the provisions of the OH&S Regulation and Work Cover. Storages and trucks are licensed according to the OH&S Regulation. CHCC has five storages for chlorine: Karangi WTP, the old chlorine dosing plant at Red Hill Balance Tank, Nana Glen WTP, Emerald Booster Pump Station and Boambee Headland Reservoir.

The Coffs Harbour WTP Material Safety Data Sheet (MSDS) folder provides information on personal protective equipment (PPE) requirements, safety precautions, first aid treatment for chemical spills (Coffs Infrastructure Alliance, 2009).

Chemicals used by CHCC in the supply of drinking water are listed in Table 19 and Table 20.

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Table 19 List of Chemicals Coffs Harbour drinking water supply system

Chemical	Purpose	Typical Dosing Concentration (mg/L)	Procurement/Storage
Chlorine Gas	Primary disinfectant	2.4	3 x 920 kg
Alum	Coagulation	23	50,000 L
Lime	pH adjustment	31	30 T
Carbon Dioxide	pH adjustment	42	30 T
Sodium Hydroxide	pH adjustment	8	25,000 L
Potassium Permanganate	Removal of manganese [not currently in use]	Note 1	Order in if required
Fluoride	Fluoridation for dental health	1	25,000 L
Powdered Activated Carbon	Removal of pesticides, algae, disinfection by-products, etc. [not currently in use]	Note 1	1 T
Coagulant Aid Polymer	Coagulation aid [not normally required]	Note 1	Order in, if required
Filter Aid Polymer	Filter aid [not normally required]	Note 1	Order in, if required
Centrifuge Polymer (poly LT20)	Centrifuge aid	200	1 T (pallet 25 kg bags)
Sludge Polymer (poly LT20)	Sludge aid	2	1 T (pallet 25 kg bags)

Note 1: If required, as guided by O&M manual and laboratory tests.

Table 20 List of Chemicals Nana Glen DWSS

Chemical	Purpose	Typical Dosing Concentration (mg/L)	Procurement/Storage
Alum	Coagulation	30	2 T
Lime	pH adjustment	Pre-dose: 9 Post-dose: 40	1,000 kg
Chlorine Gas	Primary disinfectant	1.9	2 x 70 kg
Carbon Dioxide	pH adjustment	47.1	1 x 70 kg

Attachment 2

7 Management of Incidents and Emergencies

7.1 Communication

Council relies on the NSW Health Response Protocols for communication strategies to manage water quality incidents. Council has a dedicated full-time Media Officer who is available to assist and provide guidance for effective distribution of warnings and notifications.

A "*Media Protocol*", which outlines a process for Council interaction with the media, has been distributed to appropriate staff by the Media Officer.

A draft *"Coffs Harbour Water response protocol for the management of microbiological quality of drinking water"* has been developed, providing information and guidance on communication methodologies and appropriate contacts.

7.2 Incident and Emergency Response Protocols

Council responds to water quality incidents utilising appropriately qualified and experienced operational staff and managers. Various documents are available to provide guidance and assist staff in responding to water utility incidents including the following NSW Health Drinking Water Monitoring Program protocols and Code of Practice for the Fluoridation of Public Water Supplies:

- NSW Health Response Protocol: for the management of microbiological quality of drinking water (2011)
  http://www.health.nsw.gov.au/environment/water/Pages/nswhrp-microbiological.aspx
- NSW Health Response Protocol: following failure in water treatment or detection of *Giardia* or *Cryptosporidium* in drinking water (2008)
- NSW Health Response Protocol: for the management of physical and chemical quality (2004)
  http://www.health.nsw.gov.au/environment/water/Pages/nswhrp-chemical.aspx
- New South Wales Code of Practice for Fluoridation of Public Water Supplies (2011) http://www.health.nsw.gov.au/environment/water/Documents/code-of-practice.pdf
- CHCC Draft *"Coffs Harbour Water response protocol for the management of microbiological quality of drinking water"*

Council should immediately discuss any *E.coli* notification with NSW Health, to determine appropriate public health responses (including the need for a boiled water alert). *E. coli* detections require immediate re-testing as stipulated in both the draft *"Coffs Harbour Water response protocol for the management of microbiological quality of drinking water"* and NSW Health response protocol: for the management of microbiological quality of drinking water.

For physical and chemical exceedances, Council follows the NSW Health Response Protocol: for the management of physical and chemical quality. The NSW Code of Practice for Fluoridation of Public Water Supplies provides guidance on corrective actions relevant to fluoridation.

The draft Karangi HACCP (Coffs Infrastructure Alliance, 2009) provides emergency response details for the Karangi WTP including:

- Contact list of Council WTP and NSW Department of Health staff
- Steps for communication with the public
- Flow diagram for response to exceeding critical limit and water contamination events

Emergency Plans have also been developed for:

- Nana Glen WTP
- Red Hill Balance Tank
- Dam Safety Emergency Plan

Safe work Method Statements, Chemical Leak Emergency Response Plans and Coffs Harbour WTP Evacuation Plan provide safety information and response as appropriate.

The Coffs Harbour Incident Response and Emergency Management Plan include additional details on:

- Contact list of Customer Service, Public Relations and Executive Staff
- Emergency communications as specified in the Emergency Response Plan or Disaster Response Plan
- Incident Communication Strategy

CHCC has representation on the respective committees, and has participated in the development of both the Coffs Harbour City Local Emergency Disaster Plan (Coffs Harbour LEMC, 2012) and the North Coast Emergency Management District Disaster Plan (North Coast DEMC, 2012). These define the responsibility of CHCC in supporting disaster response and in particular, in mitigation/prevention strategies against contamination of water supply/waterways. The North Coast Plan notes arrangements for the special protection of Shannon Creek, Nymboida and Karangi Dams. These plans make provisions for ongoing testing and review.

An exercise is conducted periodically to test specific assets and procedures of the plans and to ensure all participants are familiar with the content and Standard Operational Procedures.

8 Supporting Requirements

8.1 Employee Awareness and Training

Staff are recruited through the CHCC Human Resources department, according to HR policies and the Equal Employment Opportunity Management Plan 2012-2014 (CHCC, 2012).

The HR department reviews training requirements of CHW staff, including inductions and refresher courses, on a periodic basis and arranges the training as appropriate.

Training includes those legislated by Work Cover and the OH&S Regulation, such as:

- Apply/Senior First Aid
- Manual Handling
- Work Cover General Induction
- Confined Spaces
- 5099 (Work Near Overhead Power lines)

Additional training undertaken by CHW staff includes:

- Asbestos Awareness
- Forklift operations
- RTA traffic control cards
- Mechanical plant licenses, including backhoes, excavators, chain saws etc
- WTP process control courses, including chemical dosing systems
- Dam safety

WTP operators currently undertake NSW Office of Water *"Water Treatment Operator Courses"* and will transfer to the *"National Certification for Operators of Drinking Water Treatment Facilities"* as appropriate.

CHW Administration maintains the *"Coffs Harbour Water Training Matrix"*, a live documentation of all CHW staff, their qualifications and schedule for refresher trainings. This also maintains health records of all staff, including vaccinations. CHW Administration liaises with HR periodically to ensure it is kept fully up-to-date.

Toolbox safety meetings are required to be held prior to the commencement of non-routine tasks on-site at both WTPs, conducted by the WTP Supervisor for all staff.

8.2 Community Involvement and Awareness

The CHCC website has a section for Drinking Water Supply, providing up-to-date monthly water quality statistics and corresponding compliance with ADWG. The website also provides detailed information on the following:

- The Water Cycle
- Water Distribution

- Water Quality
- Water Sources
- Water Treatment
- Water Metering and Bills
- Daily Water Data
- Water Restrictions
- Water and Sewerage Site Visits

CHCC's Community Strategic Plan (CSP) is reviewed every four years, developed in conjunction with a wide variety of public consultation activities. The most recent CSP, *"Coffs Harbour 2030 Plan"* (CHCC, 2009), is available electronically on the CHCC website and in hardcopy at the Council chambers. It has the following strategies for water supply and infrastructure:

- Provide infrastructure that that supports sustainable living and incorporates resilience to climatic events
- Manage our catchments effectively and adaptably
- Implement total water cycle management practices

Community consultation is currently underway for the 2013 update.

Ordinary meetings of Council are normally held on the second and fourth Thursday of the month at the Council Chambers. Agendas and minutes of all CHCC meetings are available in hardcopy at the Council chambers and on CHCC's website. Public submissions to Council meetings are accepted at a Public Forum on the second Thursday of the month. Participation by the community is as per the CHCC "*Public Address/Public Forum Information Sheet*" (2011).

8.3 Research and Development

8.3.1 Investigative Studies and Research Monitoring

The following items have been identified as requiring additional investigative research projects:

- Investigate possible pathways for hazard transmission from mining within the source water catchments, particularly those associated with potential antimony mines. Investigate WTP processes for the removal of chemicals associated with antimony mining
- Investigate the presence of dip-sites in Orara River catchment and the possible pathways for hazard transmission
- Examine mixing effects in Karangi Dam, particularly associated with DO mixing zones and the potential for algal blooms

8.3.2 Validation of Processes and Equipment

Validation requires the evaluation of system processes and equipment to prove the performance under all conditions expected to be encountered during operations.

The Karangi WTP HACCP notes that validation is to be undertaken where there is a:

- "Change in raw water quality
- Modification to the water treatment processes

- Change to the delivery, storage and distribution systems of treated and untreated water
- Change in the use of treated water
- Change in water quality standards
- New research/understanding of water quality issues
- Receipt of information that indicates a health risk associated with the quality of the drinking water"

Validation of new or upgraded processes and equipment is undertaken by qualified, experienced engineers and operators at Coffs Harbour and Nana Glen DWSS:

- System design according to industry guidelines and standards
- Individual process/equipment specification against CCP target limits
- Procurement of equipment/chemicals from approved suppliers
- Market pre-validation by suppliers, particularly associated with water treatment chemicals
- Validation on start-up by monitoring at each process with reference to CCP limits

Ongoing validation processes to ensure safe and acceptable drinking water is supplied to the customer are:

- Review of water quality at the point-of-supply against ADWG
- Review and response to customer water quality complaints register

8.4 Documentation and Reporting

8.4.1 Management of Documentation and Records

The DWMS documents information pertinent to all aspects of drinking water quality management for the CHCC DWSS.

The DWMS is a living document and should be maintained in-line with actual operations and management. Any changes to the drinking water supply system should be updated and documented within this DWMS.

"*Corporate Information"* is a dedicated document and records management department of CHCC. All policies, laboratory data and documentation are submitted to Records. All information is stored on a database known as "*Technology One Enterprise Content Management* (ECM)".

Daily operational water quality data is saved on CHW computers and backed-up regularly.

8.4.2 Reporting

Council undertakes reporting as required by NSW Office of Water. In line with Council's responsibilities the following reports are produced:

- CHCC Strategic Business Plan for Water Supply (HydroScience Consulting, 2012)
- Council Annual Report and Quarterly Performance Reports: available in hardcopy at the Council office and electronically on Council's website
- The drinking water quality is monitored as part of the NSW Drinking Water Monitoring Program and the results are recorded in a database accessible via the NSW Health website

- Water Supply and Sewage NSW Performance Reporting: Council's water supply service performance is detailed in the NSW Water Supply and Sewerage Performance Monitoring Report annually. This report is available for public access in NSW Office of Water
- Fluoridation reporting as required by the Code of Practice (NSW Department of Health, 2011)

Daily water quality monitoring results are logged and are reviewed by operators and exceedances reported to Council supervisors, NSW Health and NSW Office of Water as required.

9 Review and Audit

9.1 Evaluation and Audit

"*Performance Planning*" is CHCC's performance data database. The Manager, Water Treatment reviews and reports on performance data quarterly. *NSW Health Drinking Water Monitoring Program* data is accessed through the NSW Drinking Water database.

An annual internal audit will be undertaken by Executive Manager, CHW Operations of the DWMS:

- CCPs and their exceedances
- Improvement Plan
- Record keeping
- NSW Performance Monitoring
- Levels of Service
- Fluoridation performance

NSW Office of Water Inspector carries out an external assessment of the WTPs on a regular basis. NSW Office of Water and the Public Health Water Unit may check key elements of the DWMS.

An external audit will be undertaken by an independent auditor approved by NSW Health. The audit frequency will be determined by Council in consultation with the local Public Health Unit. The *NSW Public Health Regulation 2012* allows NSW Health the power to commission a comprehensive audit of the DWMS at any time. In addition to this, NSW Office of Water and local Public Health Unit environmental health officers will undertake audits of areas within the DWMS.

A complete review of the DWMS will be undertaken every four years, in line with the review of the Strategic Business Plan.

9.2 Review by Senior Management

As part of the requirements of Council's reporting procedures, as detailed above, CHW Operations' Executive Manager will review the effectiveness of the DWMS and underlying policies.

Attachment 2

10 Improvement Plan

Improvement actions for the CHCC water supplies are listed in Table 21. Priorities have been developed from the risks as identified through the workshop process.

The Executive Manager, CHW Operations is responsible for the Improvement Plan. The Improvement Plan is used by the Council to monitor the implementation of the drinking water management system. The Improvement Plan is subject to an annual review by the Executive Manager of CHW Operations.

Table 21 Improvement Plan

Priority	Objective	No.	Action	Timeframe
HIGH	Maximise efficiency of chlorination for removal of pathogens, Nana Glen drinking water supply system	1.	Install online chlorine analyser	
		2.	Install online turbidity, pH monitoring after post-dosing point	
		3.	Provide scales at Nana Glen WTP to determine quantity of chlorine gas available in supply	
HIGH	Maintenance of water quality in distribution system, Coffs Harbour drinking water supply system	4.	Repair/maintain security cameras at Karangi WTP	
		5.	Install security cameras at high risk service reservoirs	
HIGH	Maintenance of water quality in distribution system, Nana Glen drinking water supply system	6.	Include Nana Glen reservoirs in annual maintenance program	
HIGH	Inclusion of the Coramba drinking water supply system as an addendum to the DWMS	7.	Assessment and documentation of Coramba drinking water supply system: including documentation of system, historic water quality analysis, risk assessment and CCP, and recommendations for Improvement Plan. It is required that the addendum will be issued before 1 September 2014 to be compliant with Section 25 of the NSW *Public Health Act* 2010	
HIGH	Optimise management of employee training and safety	8.	Manager, Water Treatment, to update "*Coffs Harbour Water Training Matrix*" to identify staff with training for handling of fluoride and chlorine gas	

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Priority	Objective	No.	Action	Timeframe
HIGH	Protection of source water quality, Nana Glen	9.	Restrict livestock access to riverbanks adjacent to the Nana Glen WTP river offtake	
HIGH	Optimise Karangi WTP control	10.	Establish internal firewalls; schedule for change of passwords; off-site disaster recovery of servers; develop policy on the use of thumb stick drives	
		11.	Install standby server at Karangi WTP	
		12.	Calculate Chlorine Contact Time at the Treated Water Tank to the Red Hill Balance Tank	
		13.	Review draft Critical Control Point signs with Karangi WTP operators and display when finalised and approved by Manager, Water Treatment.	
HIGH	Optimise Nana Glen WTP control and operations	14.	Install online monitoring of turbidity and automatic shut-down at extraction point in the Orara River	
		15.	Install electronic recording of all monitoring data	
		16.	Install SCADA control/alarms at Nana Glen WTP	
		17.	Install online pH, turbidity monitoring before flocculation and after filtration	
		18.	Calculate Chlorine Contact Time at the Nana Glen Reservoirs	
		19.	Review of Nana Glen WTP O&M manual and update if required	
		20.	Install and maintain fire breaks, clear trees close to WTP	
		21.	Review draft Critical Control Point signs with Nana Glen WTP operators and display when finalised and approved by Manager, Water Treatment.	
HIGH	Optimise management of source waters, Coffs Harbour DWSS	22.	Executive Manager, Operations to review extractions from the multiple-level offtake tower at Shannon Creek Dam and maintain/repair as required	

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Priority	Objective	No.	Action	Timeframe
		23.	Integrate SCADA systems between CVC and CHCC, particularly associated with Nymboida Weir	
HIGH	Optimise management of source water, Nana Glen DWSS	24.	Install turbidity meter on the river	
		25.	Install alarms, automatic shut-down of river pumps based on turbidity	
MEDIUM	Protection of source water quality, Coffs Harbour DWSS	26.	Review land contamination layer on Council's GIS database to confirm the absence or presence of potentially contaminating sites	
		27.	Install electronic recording of dissolved oxygen data at Karangi Dam	
		28.	Consider regular cyanide testing in NSW Health Monitoring Program at point-of-supply, dependent on past and existing mine sites in catchment	
		29.	Review hazards, pathways and treatment options associated with Antimony mining	
MEDIUM	Protection of source water quality, Nana Glen DWSS	30.	Confirm location/management of dip sites within Orara River catchment	
		31.	Liaise with EPA and "Biomass" company to regulate disposal of biosolids in the catchment	
MEDIUM	Considered and controlled responses to incidents and emergencies	32.	Adopt Draft "*Coffs Harbour Water response protocol for the management of microbiological quality of drinking water*"	
		33.	Liaise with CVC to develop water supply/water quality incident plans for Nymboida Weir and Shannon Creek	
		34.	Develop and implement incident and emergency communication protocol with key stakeholders in drinking water catchment	
		35.	Undertake periodic staff training and testing of Emergency Response Plans	
		36.	Update contact list of Council WTP, NSW Health staff and appropriate community contacts	

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Priority	Objective	No.	Action	Timeframe
		37.	Executive Manager, Operations to establish appropriate interval for Contacts list to be updated and resource accordingly	
MEDIUM	Endorse and communicate Drinking Water Quality policy	38.	Council to review and endorse the Draft Drinking Water Quality Policy. Policy to be communicated to staff and the community	
MEDIUM	Improve management of customer complaint process	39.	Executive Manager, Operations to progress the implementation of '*SharePoint*' for the water distribution network	
		40.	Executive Manager, Operations to initiate review and audit the customer complaints process for water quality issues	
MEDIUM	Baseline monitoring of source water in accordance with ADWG	41.	Re-test Alpha and Beta analysis in source waters, and subsequent specific radionuclide testing as appropriate in accordance with ADWG	
MEDIUM	Continually review and audit DWMS	42.	Manager Water Distribution, Manager Water Treatment and Executive Manager Operations to establish internal review procedures for the DWMS	
		43.	Review/audit annually Council compliance with Drinking Water Quality Management System	

Attachment 2

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Glossary

ADWG	Australian Drinking Water Guidelines, published by the National Health and Medical Research Council (NHMRC).
CAP	Catchment Action Plan
CHCC	Coffs Harbour City Council
CHW	Coffs Harbour Water, the business unit of CHCC responsible for supply of water
CMA	Catchment Management Authority
CO_2	Carbon dioxide
CSP	Community Strategic Plan
CVC	Clarence Valley Council
catchment	Area of land that collects rainfall and contributes to surface water (streams, rivers, wetlands) or to groundwater.
chlorination	Use of chlorine as a means of disinfection.
coagulation	Clumping together of very fine particles into larger particles using chemicals (coagulants) that neutralise the electrical charges of the fine particles and destabilise the particles.
consumer	An individual or organisation that uses drinking water.
corrective action	Procedures to be followed when monitoring results indicate a deviation occurs from acceptable criteria.
critical control point (CCP)	A point, step or procedure at which control can be applied and which is essential to prevent or eliminate a hazard or reduce it to an acceptable level.
critical limit	a prescribed tolerance that must be met to ensure that a critical control point effectively controls a potential health hazard; a criterion that separates acceptability from unacceptability
Cryptosporidium	Microorganism that may be present in the catchment and is highly resistant to disinfection.
C.t	The product of residual disinfectant concentration (C) in milligrams per litre determined before or at taps providing water for human consumption, and the corresponding disinfectant contact time (t) in minutes.
cyanobacteria	Bacteria containing chlorophyll and phycobilins, commonly known as 'blue-green algae'.
DAFF	Dissolved Air Flotation and Filtration
DBP	Disinfection By-Product

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DISPLAN	Local Disaster Management Plans, often prepared by Councils in compliance with the State Emergency and Rescue Management Act, 1989.
DWMS	Drinking Water Management System
disinfection	An oxidising agent (eg chlorine, chlorine dioxide, chloramines and ozone) that is added to water in any part of the treatment or distribution process and is intended to kill or inactivate pathogenic (disease-causing) microorganisms.
distribution system	A network of pipes, pumps and reservoirs leading from a treatment plant to customers' plumbing system.
drinking water	Water intended primarily for human consumption.
drinking water quality management audit	The systematic and documented evaluation of activities and processes to confirm that objectives are being met, and which includes an assessment of management system implementation and capability.
drinking water quality monitoring	The wide-ranging assessment of the quality of water in the distribution system and as supplied to the consumer, which includes the regular sampling and testing performed for assessing conformance with guideline values and compliance with regulatory requirements and agreed levels of service.
drinking water supplier	An organisation, agency or company that has responsibility and authority for treating and/or supplying drinking water.
drinking water supply system (water supply system) (DWSS)	All aspects from the point of collection of water to the consumer (can include catchments, groundwater systems, source waters, storage reservoirs and intakes, treatment systems, service reservoirs and distribution systems, and consumers).
EPA	Environment Protection Authority
***Escherichia coli* (*E. coli*)**	Bacterium found in the gut, used as an indicator of faecal contamination of water.
filtration	Process in which particulate matter in water is removed by passage through porous media.
flocculation	Process in which small particles are agglomerated into larger particles (which can settle more easily) through gentle stirring by hydraulic or mechanical means.
GL	Gigalitres
groundwater	Water contained in rocks or subsoil.
guideline value	The concentration or measure of a water quality characteristic that, based on present knowledge, either does not result in any significant risk to the health of the consumer (health-related guideline value), or is associated with good quality of water (aesthetic guideline value).
HU	Hazen Unit (colour)

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hazard	A biological, chemical, physical or radiological agent that has the potential to cause harm.
Hazard Analysis Critical Control Point (HACCP) system	a systematic methodology to control safety hazards in a process by applying a two-part technique: first, an analysis that identifies hazards and their severity and likelihood of occurrence; and second, identification of critical control points and their monitoring criteria to establish controls that will reduce, prevent, or eliminate the identified hazards.
hazard control	The application or implementation of preventive measures that can be used to control identified hazards.
hazard identification	The process of recognising that a hazard exists and defining its characteristic (AS/NZS 3931:1998).
hazardous event	an incident or situation that can lead to the presence of a hazard (what can happen and how)
IWCM	Integrated Water Cycle Management
integrated catchment management	The coordinated planning, use and management of water, land, vegetation and other natural resources on a river or groundwater catchment, based on cooperation between community groups and government agencies to consider all aspects of catchment management.
ISO 9001:2000 (Quality Management)	An international accredited standard that provides a generic framework for quality management systems. Designed to assure conformance to specified requirements by a supplier at all stages during the design, development, production, installation and servicing of a product, it sets out the requirements needed to achieve an organisation's aims with respect to guaranteeing a consistent end product.
jar test	A laboratory procedure used to estimate the minimum or ideal coagulant dose required to achieve certain water quality goals. A jar test simulates a water treatment plant's coagulation and flocculation units with differing chemical doses, and mixing and settling times.
L/s	litres per second
LEP	Local Environmental Plan
mg/L	milligrams per litre
ML	megalitre
ML/d	megalitres per day
maximum risk	A risk in the absence of preventive measures.
microorganism	Organism too small to be visible to the naked eye. Bacteria, viruses, protozoa, and some fungi and algae are microorganisms
multiple barriers	Use of more than one preventive measure as a barrier against hazards.

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NPWS	National Parks and Wildlife Service
NTU	Nephelometric Turbidity Units
O&M	Operation and maintenance
ORRS	Orara River Rehabilitation Strategy
OSSM	On-site sewage management
operational monitoring	The planned sequence of measurements and observations used to assess and confirm that individual barriers and preventive strategies for controlling hazards are functioning properly and effectively.
PAC	Powdered Activated Carbon
pathogen	An organism capable of eliciting disease symptoms in another organism.
pH	Value taken to represent acidity or alkalinity of an aqueous solution; expressed as a logarithm of the reciprocal of the hydrogen ion activity in moles per litre at a given temperature.
point of supply	The physical location of the outlet of the water supply scheme at the consumers' tap.
preventive measure	Any planned action, activity or process that is used to prevent hazards from occurring or reduce them to acceptable levels.
quality assurance	All the planned and systematic activities implemented within the quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for quality (AS/NZS ISO 8402:1994).
quality control	Operational techniques and activities that are used to fulfil requirements for quality (AS/NZS ISO 8402:1994).
quality management	Includes quality control and quality assurance, as well as additional concepts of quality policy, quality planning and quality improvement. Quality management operates throughout the quality system (AS/NZS ISO 8402:1994).
quality system	Organisational structure, procedures, processes and resources needed to implement quality management (AS/NZS ISO 8402:1994).
R&D	Research and development
RACC	Regional Algal Coordinating Committee
RHBT	Red Hill Balance Tank
RWSS	Regional Water Supply Scheme
raw water	The water entering the first treatment process of a water treatment plant; water in its natural state, prior to any treatment.
reservoir	Any natural or artificial holding area used to store, regulate or control water.

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residual risk	The risk remaining after consideration of existing preventive measures.
risk	The likelihood of a hazard causing harm in exposed populations in a specified time frame, including the magnitude of that harm.
risk assessment	The overall process of using available information to predict how often hazards or specified events may occur (likelihood) and the magnitude of their consequence.
risk management	The systematic evaluation of the water supply system, the identification of hazards and hazardous events, the assessment of risks, and the development and implementation of preventive strategies to manage the risks.
SBP	Strategic Business Plan
SCADA	Supervisory Control and Data Acquisition system used to monitor, control and alarm water treatment plants.
STP	Sewage Treatment Plant
SWL	Standing Water Level
service reservoir	Storage for drinking water, generally within the distirbution system, used to meet fluctuating demands, accommodate emergency requirements and/or equalise operating pressures.
source water	Water in its natural state, before any treatment to make it suitable for drinking.
surface water	All water naturally opens to the atmosphere (eg rivers, streatms, lakes and reservoirs).
TBL	Triple Bottom Line
THM	Trihalomethanes
target criteria	Quantitative or qualitative parameters established for preventive measures to indicate performance.
turbidity	The cloudiness of water caused by the presence of fine suspended matter.
validation of processes	The substantiation by scientific evidence (investigative or experimental studies) of existing or new processes and the operational criteria to ensure capability to effectively control hazards.
verification of drinking water quality	an assessment of the overall performance of the water supply system and the ultimate quality of drinking water being supplied to consumers; incorporates both drinking water quality monitoring and monitoring of consumer satisfaction.
UV	ultra-violet radiation
WTP	Water Treatment Plant
WU	Water Utility

Attachment 2

Appendices

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Appendix A

Technical Note 1 – Regulatory and Formal Requirements

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Technical Note 1

Commitment to Drinking Water Quality Management & Regulatory & Formal Requirements

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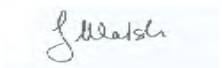
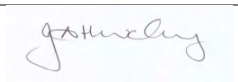
1	Joanne Walsh	Helen Salvestrin	Joanne Walsh		15 November 2012
2	Helen Salvestrin	Jessica Huxley	Joanne Walsh		18 January 2013
3	Helen Salvestrin	Jessica Huxley	Jessica Huxley		21 October 2013

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1 Introduction

Drinking water quality management is subject to a range of regulatory and other formal requirements. These are outlined in this Technical Note.

This Technical Note identifies the current regulatory and other formal requirements that relate to drinking water quality in Coffs Harbour City Council (CHCC).

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2 Coffs Harbour City Council Drinking Water Supplies

Coffs Harbour Water (CHW) operates three drinking water supply systems. The biggest system, Coffs Harbour Water Supply, supplies water to coastal consumers from Sawtell in the South to Corindi Beach in the North. The system draws raw water from Orara River, Nymboida River, and Shannon Creek Dam and stores it in Karangi Dam before treatment.

The Karangi Water Treatment Plant (WTP) services almost all of Coffs Harbour City Council (CHCC) drinking water users. The system provides a multi-barrier approach including; catchment management, managed extraction from the rivers and aeration of Shannon Creek and Karangi Dams, as well as Dissolved Air Flotation, Filtration, fluoridation and disinfection using UV and chlorination, at the WTP.

The reticulation network services 21,838 domestic connections, 1766 commercial connections,13 bulk water connections and 835 miscellaneous connections (as at May 2012) (CHCC Proclaim Business Database, 2012).

2.1 Nana Glen Drinking Water Supply

The Nana Glen drinking water supply system draws raw water from the Orara River near Solomon Close, on the south eastern edge of Nana Glen Rail. It supplies the residents of Nana Glen and Nana Glen Rail. Water is pumped from the Orara River to the Nana Glen WTP, where it is clarified, filtered, disinfected and conditioned. The treated water is stored in two 0.5 ML reservoirs on site. It is then reticulated to approximately 170 connections. As at May 2012 this included 131 domestic (household) connections, 8 commercial connections and 31 miscellaneous connections (CHCC Proclaim Business Database, 2012).

2.2 Coramba Drinking Water Supply

Coramba draws raw water directly from the Regional Water Supply pipeline, which passes through the main street of Coramba. The Coramba water supply is disinfected (chlorinated) before being supplied to about 127 households.

It is noted that Coramba Drinking Water Supply System will not be assessed in the development of the Coffs Harbour Risk Based Drinking Water Management Plan as it is soon to be connected to the main system.

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3 Water Supply Agreements

CHW delivers water supply services as a local water utility (LWU) under the provisions of the Local Government Act 1993. The CHW is a business unit within CHCC.

In regards to the major extractions from the Nymboida River, water sharing is structured along the following arrangements;

Essential Energy holds a water licence under the Water Act 1912, used for extraction of water from the Nymboida Weir. Clarence Valley Council (CVC) obtains a bulk raw water supply from Essential Energy on the basis of a negotiated service agreement with Essential Energy.

In turn, CHCC has a service agreement with CVC for the provision of a bulk raw water supply. Each of the licences and agreements incorporates provisions to protect low flows (CHW IWCM Concept Study, Feb 2010).

CHW staff has advised that the Essential Energy agreement with CVC will be reviewed in 2013. CVC are expected to consult with CHW regarding this agreement as per the conditions in the service agreement (CHCC Draft SBP, Nov 2011).

4 Australian Drinking Water Guidelines

The *Australian Drinking Water Guidelines 2011* (ADWG) are intended to ensure the accountability of drinking water suppliers (managers) and health authorities (auditors) for the supply of safe, good quality drinking water to consumers.

The ADWG sets out a framework for the management of drinking water quality. Risk management and quality management are increasingly industry best practice, 'assuring drinking water quality by strengthening the focus on more preventative approaches'.

The ADWG framework has been developed to 'guide the design of a structured and systematic approach for management of drinking water quality from catchment to consumer'. It incorporates a preventative risk approach and includes elements of HACCP, ISO 9000 and AS/NZS ISO31000:2009 Risk Management.

The framework sets out four general areas as follows:

- Commitment to drinking water management – development of a commitment within the organisation;
- Systems analysis and management - understanding the entire water supply system, the hazards and events that compromise water quality, preventative measures and operational control to ensure safe and reliable drinking water;
- Supporting requirements – including employee training, research and development, validation of process efficacy, systems documentation and reporting; and
- Review – including evaluation and audit.

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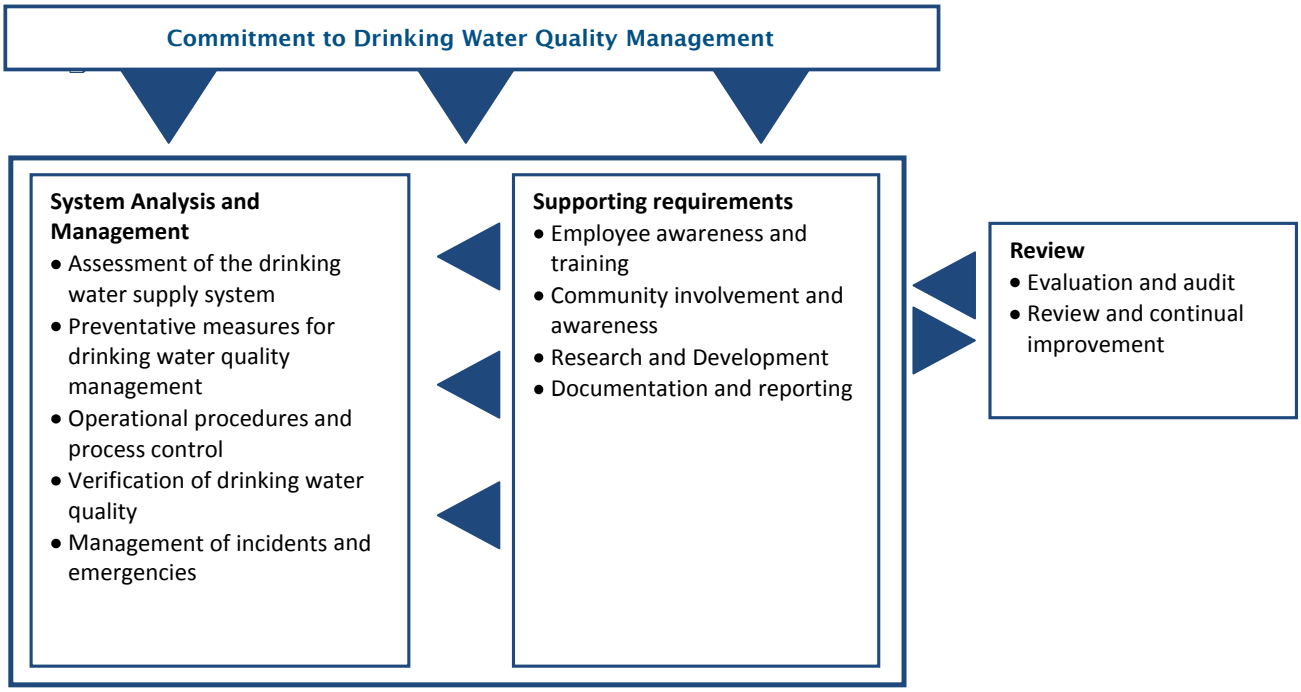

Figure 1 Framework for management of drinking water quality

The ADWG recommends that water utilities adopt this approach. The NSW Public Health Regulation 2012 requires water utilities in NSW to develop a Quality Assurance Program (Drinking Water Management System) that addresses the twelve elements of the Framework.

The values for individual characteristics listed in the ADWG are not mandatory, legally enforceable standards, but instead provide the basis for determining the quality of water to be supplied to consumers. Individual water utilities should develop monitoring programs based on local knowledge and experience of the key characteristics and their variability.

The Guideline values are to be used in two separate but complementary ways: for short-term verification of drinking water quality to allow for immediate corrective action when required; and to assess performance over the longer term. The Guideline values are used to assess overall performance and to determine appropriate management strategies. The assessment will be used to identify emerging problems and to determine priorities for improvement.

The Guiding Principles of the ADWG are:

- The greatest risks to consumers of drinking water are **pathogenic microorganisms**. The protection of water sources and treatment are of paramount importance and must never be compromised.
- The drinking water system must have, and continuously maintain, **robust multiple barriers (more than one)** appropriate to the level of potential contamination facing the raw water supply.
- Any **sudden or extreme change in water quality, flow or environmental conditions** (e.g. extreme rainfall or flooding) should arouse suspicion that drinking water might become contaminated.
- System operators must be able to **respond quickly and effectively** to adverse monitoring signals.
- System operators must maintain a personal sense of **responsibility and dedication** to providing consumers with safe water; and should never ignore a consumer complaint about water quality.
- Ensuring drinking water safety and quality requires the application of a considered **risk management approach.**

The ADWG provide the minimum requirements for two different guidelines values; a *health-related value* and an *aesthetic value*.

As the Guidelines relate to the quality of water at the point of use, (e.g. kitchen or bathroom tap) the drinking water suppliers must ensure that the quality of water in the reticulation system meets the stipulated values.

4.1 ADWG Monitoring Requirements

4.1.1 Microbial monitoring

The ADWG recommends *Escherichia coli (E.coli)* as the most suitable indicator organism for the presence of pathogens arising from faecal contamination. Total coliforms have been used in the past, but are no longer recommended for this purpose. Total coliforms however, can be used as an indicator organism for operational monitoring and maintenance requirements.

Representative samples should be collected and analysed for *E.coli*. Sampling frequency is governed by the size of the population being served, as summarised in Table 1.

Table 1 Australian Drinking Water Guidelines (2011, Table 9.4) for Microbial Quality – Recommended Frequency of E.coli monitoring

Population served	Minimum Number of Samples
5,000 – 100,000	One sample per week plus one additional sample per month for each 5,000 people above 5,000
1,000 – 5,000	One sample per week (52 samples per year)
Less than 1,000	One sample per week

Note: Sampling frequency should be increased at times of flooding or emergency operations and following repair work or interruptions of supply. In small water supply systems, periodic sanitary surveys are likely to yield more information than infrequent sampling.

4.1.2 Physical and Chemical Monitoring

In any monitoring program for physical and chemical characteristics, the minimum requirement is to routinely collect samples **from locations towards the end of a supply system**. This allows meaningful comparisons to be made over time.

The NSW Health Drinking Water Monitoring Program (2005) recommends that for water supplies with a population of less than 5000, two (2) samples per chemical characteristic per year be tested, ie 1 every 6 months.

For water supply systems with a population of greater than 5000, 1 sample per month per characteristic is recommended.

The characteristic to be tested will depend on the quality issues in each system. It is expected that a baseline screening assessment of the source water and drinking water quality has been undertaken and informs the monitoring.

It is noted that ADWG recommends that for small water supply systems, the following should be monitored as a minimum requirement:

- *E.coli*
- Disinfectant residual
- pH
- Turbidity

4.1.3 Radiological Monitoring

The most practical cost effective approach is to use a screening procedure that determines the total radioactivity present in the form of alpha and beta radiation, without regard to specific radionuclides. The guideline value for radiological quality of

drinking water is for the total estimated dose per year from all radionuclides not to exceed 1.0 mSv. If the screening levels are exceeded then further investigation will be necessary.

4.2 Assessing long term performance

For all health related physical and chemical characteristics a confidence of 95% of the results over a 12 month period should be less that the guideline limit.

For aesthetic values, an average of results over a 12 month period should be less than the guideline value.

It is noted that the assessment of microbial quality requires a different approach. For the system performance to be regarded as satisfactory and representative of the quality of water supplied to the consumer, the following monitoring should occur over a 12 month period:

- At least the minimum number of routine samples has been tested for *E.coli;*
- ADWG recommends that sampling frequency should be increased at times of flooding or emergency operations and following repair work or interruptions to supply;
- *E. coli* should not be detected in a minimum 100 mL sample of drinking water.

5 NSW Regulatory Requirements

The NSW Government endorses the ADWG with respect to drinking water quality standards. However, other NSW legislation also impact on the CHCC DWQM plan.

5.1 Local Government Act 1993

The NSW State Government has delegated to Local Councils the responsibility for provision of water supply, wastewater and drainage services to NSW Country Towns. The statutory framework is provided by the *Local Government Act 1993*.

Councils have specific functions imposed or conferred by laws including (s.22) fluoridation of water supply by council (according to the *Fluoridation Act 1957*).

Council is defined under the *Public Health Act 2010* as a supplier of Drinking Water and is required under s.10G to carry out testing on water supplied or similar.

Under Section 60 of the *Local Government Act 1993*, approval is required from the NSW Office of Water for the following:

a. as to works of water supply – construct or extend a dam for the impounding or diversion of water for public use or any associated works;

b. as to water treatment works – construct or extend any such works

Should Council make any changes to treatment processes, treatment chemicals and/or extend or upgrade the WTP a Section 60 approval is required for the works.

5.2 NSW Best-Practice Management of Water Supply and Sewerage Guidelines

The NSW Best-Practice Management of Water Supply Sewerage Guidelines was developed to provide appropriate, affordable and cost-effective services to meet community needs, while protecting public health and the environment and making best use of regional resources. The Guidelines were developed by NSW Department of Water and Energy (now NSW Office of Water) in 2007 and are pursuant to the requirement of *Local Government Act 1993* to prepare Guidelines for the management of the provision of water supply and sewerage services (s. 409(6)). (http://www.water.nsw.gov.au/ArticleDocuments/36/town_planning_water_utilities_best-practice_management_of_water_supply_and_sewerage_guidelines_2007.pdf.aspx. [accessed August 2012]).

Compliance with these Guidelines is a pre-requisite for payment of an efficiency dividend from the surplus of a utility's water supply or sewerage business to the council's general revenue. It also supports eligibility for additional financial assistance towards capital cost of backlog infrastructure through the NSW Office of Water's Country Towns Water Supply and Sewerage Program.

In order to qualify for financial support, the following six criteria must be met:

1. Integrated Water Cycle Management (IWCM)
2. Strategic business planning (SBP)
3. Regulation and pricing of water supply, sewerage and trade waste
4. Water conservation
5. Drought management
6. Performance monitoring

IWCM and SBP plans, in particular, are key planning tools for integrating water quality activities across local government areas, both of which CHCC is implementing.

5.3 Public Health Act 2010

Under the *Public Health Act 2010*, NSW Health has certain powers with respect to the provision of safe drinking water. Part 3 Division 1of the *Public Health Act 2010* deals with the Safety of Drinking Water.

The term "drinking water" under the Act is broader than water for human consumption. It also includes water connected with human consumption, which can include water for such purposes as washing and preparing food and making ice.

Part 3 Division 1 of the Act bestows significant powers on NSW Health Officers, including to order mandatory testing and obtaining information in relation to the drinking water (s.18 &19).

The Minister also has the power to order the closure of a water supply (s.16). In the event that the Chief Health Officer prepares advice on the safety of drinking water (s.22(1)), the Council is required to issue such advice to the public when directed to by the Director General of the Department (s.22(3)).

Penalties may be incurred for failure to comply with the Director-General's direction.

The *Public Health Act 2010* and associated Regulation has been proclaimed and are to be gradually phased in from September 1, 2012.

The Act requires drinking water suppliers to establish, and adhere to a quality assurance program that complies with the Public Health Regulation 2012. The Regulation 2012 requires water suppliers to implement a risk based drinking water management system consistent with the ADWG Framework (2011) by September 2014.

5.4 NSW Health Drinking Water Monitoring Program (2005)

NSW Health provides analysis of drinking water samples for water utilities. Drinking water quality monitoring samples should be taken in the distribution system and are representative of water supplied to the consumer. NSW Health has recommended a minimum number of samples for each water supply to monitor drinking water quality. NSW Health provides a free of charge service for the analysis of the recommended number of samples for indicator bacteria and health related inorganic chemicals.

The number of samples allocated to a water supply is determined by the population served.

Table 2: NSW Health (2005) schedule for Microbial Quality sampling

Population served	Minimum Number of Samples
5,000 – 100,000	One sample per week, plus one per month for each 5,000 people above 5,000
500 – 5,000	One sample per week

5.5 NSW Health Response Protocol for management of microbial quality of drinking water. Version 2: 25 November 2011

This protocol is to guide Public Health Units (PHU) and water utilities in their joint response to the following; rapidly changing source water quality, treatment failure or microbial contamination. A regional water utility may issue a boil water alert of its own accord. However, before issuing a boil water alert, the utility should liaise with their local PHU to discuss the situation.

5.6 Fluoridation of Public Water Supplies Act 1957 & associated 2007 Regulations

Water supplies to which fluoride is added must meet the requirements of the *Fluoridation of Public Water Supplies Act 1957*, the Fluoridation of Public Water Supplies Regulation 2007 and the Code of practice for the Fluoridation of Public Water Supplies 2011. This includes:

- Daily and weekly tests at the treatment plant;
- A monthly test submitted to the Division of Analytical Laboratories;
- Appropriate reporting to local Public Health Units of dosing above 1.5 mg/L and below 0.9 mg/L and interruptions to dosing longer than 24 hours.

5.7 Water Management Act 2000

The *Water Management Act 2000* is the key piece of NSW water legislation that provides the basis for the sustainable management of water. The Act provides a legal basis for water planning, the allocation of water resources and water access entitlements.

The *Water Management Act 2000* is gradually replacing the planning and management frameworks in the *Water Act 1912*. However, many provisions of the *Water Act 1912* are still in force. For example, licences to extract water outside areas covered by a water-sharing plan are administered under the Water Act.

However, as part of the ongoing commitment of the NSW Government to the National Water Reform agenda, all water sources in NSW will be managed according to the *Water Management Act 2000*.

5.8 Water Act 1912

The *Water Act 1912* is being progressively phased out and replaced by the *Water Management Act 2000,* although some provisions are still in force. Licences to extract water outside areas covered by a water-sharing plan are administered under the Water Act.

Section 18 of the *Water Act 1912* makes altering the **quantity or quality** of water in certain circumstances an offence, in the following terms:

- 'alterations have been made in or in connection with the work, which materially and prejudicially affect the quantity or quality of water flowing in, to, or from, or being in any river or lake, the person who has made the alterations shall be liable to a penalty not exceeding 100 penalty units…'
- Any changes to pump sizes and sites and increase in capacity of the weir would trigger an application for a new licence. Any such changes would require the preparation of a REF. Any change in volume would mean a variation to the licence.
- CHCC must ensure compliance with any terms, conditions or limitations relating to water licences or permits issued pursuant to the *Water Act 1912*. The CHCC licence details and extraction volumes are summarised in Table 3. Table 3 CHCC Water Licenses

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Table 3 CHCC Water Licenses

Water Supply	Licence No.	Type	Nominal Volume (Abstraction ML/year Storage ML)	Issue date
Orara River at Cochranes Pool	30SL039904	Abstraction	7,759	16 February 2009 for 10 years
Orara River at Coramba	30SL023858	Abstraction	48	24 September 2004 for 10 years
Orara River at Nana Glen	30SL051964	Abstraction	100	25 March 2011 for 5 years
Karangi Dam	30SL051671	Storage	5,600	12 September 2004 for 10 years
Woolgoolga Creek	30SL028313	Abstraction	10	15 November 2007 for 10 years
Fridays Creek	30SL034526	Abstraction	10	25 May 2012 for 10 years
Shannon Creek Dam	30SL066010	Storage	30,000	17 March 2006 for 10 years
Nymboida River at Nymboida Weir	30SL028758	Abstraction	29,500	27 February 1998

- Orara River water licences and other local licences are owned and operated by CHCC.
- Shannon Creek licence is owned and operated by CVC.
- Nymboida River water licence is owned and operated by Essential Energy (System Operation Plan CV&CHRW, Dec 2010).

5.9 Protection of the Environment (Operations) (POEO) Act 1997

The activities listed in Schedule 1 to the Act (broadly, activities with potentially significant environmental impacts) require a licence.

The POEO Act also has general penalties for air, land and water pollution. Licences can also be issued by the EPA to regulate water pollution from activities that are not in Schedule 1. If the conditions of the licence are complied with, the licence can provide protection against prosecution for water pollution.

No licence is required under Schedule 1 for water supply systems. Nevertheless should any chemical leakage, spill, disposal of wastes or similar impact on the environment occur, prosecution is possible. Council's due diligence in planning and carrying out activities would minimize such action.

5.10 Work, Health & Safety (WH&S) Act 2011

Potential hazards for employees, contractors and visitors should be identified and measures put in place to minimise these hazards. Safety issues should be dealt with in a manner complying with *WH&S Act 2011*.

Compliance with Work, Health & Safety Act is required for storage and handling of chemicals on-site. For instance, chlorine and fluoride storage and handling is subject to the WH&S Act 2011.

All Council operational activities are affected by this Act and the Regulations.

Specifically, most water supplies are disinfected with chlorine. Accordingly, the chlorine storages are required to be licensed. In addition, the requirements of the Act may also affect the storage of sodium hydrochlorite for super chlorination of water mains.

Equally, fluoride storages are required to be licensed.

5.11 Environmental Planning & Assessment (EP&A) Act 1979

The *EP&A Act 1979* requires that the environmental impact of projects be studied at all stages on the basis of scale, location and performance.

Environmental assessment is undertaken under one, or both of parts 4 and 5 of the *EP&A Act 1979*:

- Part 4 – where development consent is required from a consent authority; or
- Part 5 – where development consent is not required and a determination to approve the activity is made by a determining authority.

This Act is applicable to approvals for subdivision and major redevelopments, as well as water supply works amongst others.

The Coffs Harbour Local Environmental Plan 2000 (amended 2010) is the statutory planning instrument that applies within the Coffs Harbour City Council.

The LEP establishes what forms of development and land use are permissible and/or prohibited on lands within the City and is used to ensure that drinking water quality is considered when assessing development applications.

Of particular note is the LEP Controlled Catchments for the Orara River - Cochranes Pool Drinking Water Catchment. The catchment has special provisions that requires development consent for a number of forms of agriculture production, a dam with a surface area of greater than 5000 square meters and recreational areas other than a children's playground.

Consent may be granted where Council is satisfied that the impact of development will not increase any risk of pollution of the public water supply.

5.12 Catchment Management Authorities Act 2003

The *Catchment Management Authorities Act 2003* requires that natural resource management, from planning to operations, is undertaken at the catchment level, according to State-wide standards and collaborating with the Natural Resources Commission and landholders as appropriate.

The Draft Northern Rivers Catchment Action Plan (CAP) (2012), which covers the full extent of the CHCC, identified a need to improve the efficiency and effectiveness of water supply to urban communities.

5.13 Plumbing Code of Australia

The Plumbing Code of Australia (PCA) replaced the NSW Code of Practice Plumbing and Drainage 3rd Edition in 2012 (http://www.abcb.gov.au/en/about-the-national-construction-code/the-plumbing-code-of-australia [accessed August 2012]). It refers to AS/NZS 3500 and is the technical standard for the all plumbing and drainage work in NSW, covering "*design, construction, installation, replacement, repair, alteration and maintenance of plumbing and drainage installations.*"

5.14 AUS SPEC 0071 Water supply – Reticulation and pump stations (Design)

AUS SPEC 0071 details the specifications for the design of drinking water reticulation and pumping stations, for both upgrades and new systems (http://www.natspec.com.au/Products_Services/Public%20utilities.asp [accessed August 2012]).

6 Commonwealth Regulatory Requirements and Programs

6.1 Competition and Consumer Act 2010

The *Trade Practices Act 1974* was renamed as *Competition and Consumer Act 2010* on 1 January 2011.

Under Part 3-2, Division 1 (Consumer transactions and Consumer guarantees), consumers are granted protection through the provision that suppliers guarantee that the goods supplied are reasonably fit for purpose (s. 55).

CHCC is thus required to ensure that the water supplied is fit for purpose.

7 Stakeholders

Key stakeholders involved in the supply and delivery of drinking water in the Coffs Harbour City Council area are:

- Coffs Harbour City Council
- Clarence Valley Council
- Essential Energy
- NSW Health
- NSW Office of Water
- Northern Rivers Catchment Management Authority
- Consumers

Attachment 2

8 Drinking Water Quality Policy (draft)

The Australian Drinking Water Guidelines (ADWG) 2011 were developed as a framework for good management of drinking water supplies, that if implemented, will assure the safety of consumers at the point of supply.

The ADWG are not mandatory standards, but provide an authoritative reference, based on the best scientific evidence, for determining that the supply of safe and good quality water, that is also aesthetically pleasing, is delivered to Council's customers.

The ADWG encourage the endorsement of a Drinking Water Quality Policy by senior management, to ensure organisation support and long term commitment. This should ensure the effective management of drinking water quality within the organisation, including staffing, funding and reporting.

Coffs Harbour City Council has not yet endorsed a Drinking Water Policy.

The following text is provided to Council for discussion as the basis for a draft Drinking Water Quality Policy.

8.1 Our Commitment

Coffs Harbour City Council is committed to managing its water supply catchments, treatment and supply assets to provide; safe, high quality drinking water, which consistently meets the Australian Drinking Water Guidelines (2011), other regulatory requirements and consumer expectations.

To achieve this commitment, and in partnership with the community, other stakeholders and relevant agencies, Coffs Harbour City Council will:

- **Manage water quality from catchment to tap:** at all points along the delivery chain, from the source water to the consumer's tap
- **Adopt a risk-based approach:** in which potential threats to water quality are identified and managed, in accordance with the Australian Drinking Water Guidelines, to minimise any threat to drinking water quality
- **Integrate the needs and expectations:** of our consumers, stakeholders, regulators and employees into our planning
- **Establish effective monitoring programs:** systematically monitor the quality of drinking water and ensure effective reporting mechanisms to provide relevant and timely information that promotes confidence in the water supply and its management to consumers

- **Develop / Review Contingency and Incident Response Plans:** that will be regularly reviewed and updated.
- **Participate in research and development**: maintain awareness of current research and development activities, to ensure that Coffs Harbour City Council is up to date with current industry standards.
- **Contribute to setting industry regulations and guidelines:** be an active participant in the development of industry regulation and guidelines, relevant to health and the broader water cycle.
- **Adopt best practice water quality management:** align our water quality systems and processes with the framework's proactive and *multi-barrier approach* to best practice water quality management
- **Continually improve our management practices**: by assessing performance against industry standards, corporate commitments and stakeholder expectations
- **Continually improve the capability of our staff**: by encouraging and supporting participation in training and professional development and ensure all employees are aware of and actively seek to achieve the aims of this policy
- **Maintain a long term and sustainable water supply**: which recognises global and regional priorities in the management of water

Coffs Harbour City Council will implement and maintain a drinking water quality management system consistent with the Australian Drinking Water Guidelines Framework for Management of Drinking Water Quality, to effectively manage risks to the drinking water quality.

All managers and employees involved in the supply of drinking water are responsible for understanding, implementing, maintaining and continuously improving the drinking water quality management system.

Coffs Harbour City Council will communicate to the public its drinking water quality policy and its implementation.

To be Signed (by senior authorised staff member e.g. General Manager)

Attachment 2

Appendix B

Technical Note 2 – Drinking Water Systems Analysis

Attachment 2

Coffs Harbour CityCouncil

Job Number B573

Technical Note 2

Drinking Water Systems Analysis

Attachment 2

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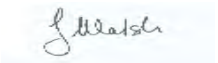
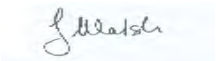
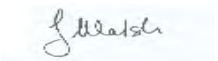
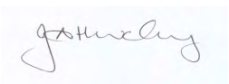
Rev	Author	Reviewer	Name	Signature	Date
1	JHU	JWA	Joanne Walsh		January 2013
2	JHU	JWA	Joanne Walsh		February 2013
3	HSA	JHU	Joanne Walsh		April 2013
4	Helen Salvestrin	Jessica Huxley	Jessica Huxley		21 October 2013

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1 Summary

Below is a summary of Coffs Harbour Drinking Water Supply Systems

Category	Supply System serviced by Karangi WTP	Supply System serviced by Nana Glen WTP
Catchment	Orara River Sub catchment (Cochrane's Pool) Nymboida River Sub catchment (Nymboida Weir) Shannon Creek Sub catchment (Shannon Creek Dam) The above are subcatchments of the Clarence River Catchment	Orara River Sub catchment The above are subcatchments of the Clarence River Catchment
Source Water	Karangi Dam	Orara River - Pool at Nana Glen
Treatment	The Karangi WTP is a Dissolved Air Flotation and Filtration (DAFF) Plant. The treatment processes at Karangi WTP includes: • Alkalinity and pH adjustment • Coagulation and Flocculation • Dissolved air floatation • Filtration– coal, fine sand and gravel • Ultraviolet radiation • Fluoridation • Chlorination	The treatment processes at Nana Glen WTP include: • pH correction • Coagulation and Flocculation • Sand filtration • Chlorination • Alkalinity adjustment It is recommended that operational data is maintained in electronic format for analysis.
Reservoirs	The Coffs Harbour DWSS has sixteen (16) reservoirs located throughout the coastal towns from Sawtell in the South to Corindi in the North. All reservoirs are covered with secure access. Chlorine residual is maintained in all reservoirs except for Sawtell, Toormina and Bark Hut, which are less than ideal at times (< 0.2mg/L). A new re-chlorination system is designed for the Sawtell Reservoir. Total coliforms have been identified in the above mentioned reservoirs. *E.coli* exceedance occurred in the Sawtell reservoir (3 cfu/100ml - 6 April 2009). A zero re-test was achieved.	The Nana Glen DWSS includes two (2) reservoirs situated at the WTP. Both reservoirs are covered with secure access. At times turbidity and Aluminium have been above ADWG criteria.
Reticulation	Coffs Harbour WTP provides drinking water to a population of 69,783. *E.coli* exceedance was recorded at Hamilton Drive Toormina (200 cfu/ 100ml -29 November 2010). No boiled water alerts have been issued.	Drinking water is reticulated to consumers via gravity. Nana Glen WTP provides drinking water to a population of 300. No *E.coli exceedances* have occurred.

Attachment 2

2 Introduction

CHCC are committed to providing a safe and secure drinking water supply. CHCC mission statement for water supply and sewerage services is:

"To provide long term sustainable and reliable water supply and sewerage services to the community which meets legislative, statutory and best-practice management requirements. These services will protect community, health and the environment."

Coffs Harbour City Council (CHCC) commissioned HydroScience Consulting to develop a risk-based Drinking Water Quality Management System for their Drinking Water Supply Systems.

The CHCC Drinking Water Quality Management System (DWQMS) has been developed in accordance with Australian Drinking Water Guidelines (ADWG) 2011, with the aim to support council to 'establish and adhere to, a quality assurance program/risk based drinking water management system'.

The delivery of drinking water supply is the responsibility of the Coffs Harbour Water (CHW), which is the Water Branch of Coffs Harbour City Council. CHW operates three drinking water supply systems: Karangi WTP is the biggest DWSS, supplying water to the coastal areas from Sawtell in the South to Corindi in the North and including the Coffs Harbour City area; Nana Glen WTP supplies water to the village of Nana Glen; and the Coramba WTP supplies water to the village of Coramba.

The purpose of this technical note is to provide an overview of the water supply systems managed by CHCC and review the historic water quality data available for:

- Karangi Water Treatment Plant
- Nana Glen Water Treatment Plant

It is noted that Coramba system will be decommissioned in the near future with the township due to connect to the Karangi WTP.

Where the data is available, water quality will be assessed for the following points along the water supply process

- Catchment
- Source water
- Treatment processes
- Reservoirs
- Reticulation

The historical analysis of water quality will assist in understanding the drinking water systems characteristics and the identification of hazards.

Attachment 2

3 Water Supply Catchment

Water for the Coffs Harbour drinking water supply is extracted from the upper regions of the Orara River and/or Nymboida River. Both rivers are situated in the Clarence River Catchment.

3.1 Clarence River Catchment

The Clarence River Catchment is within the Northern Rivers Catchment Management Area (CMA) and covers approximately 22,716km2. The Clarence River Catchment is the largest coastal river system in NSW. Refer to Figure 1.

The Orara River, Nymbodia River and Shannon Creek are subcatchments of the Clarence River System.

3.1.1 Orara River Subcatchment

The Orara sub-catchment is situated within the Coffs Harbour Local Government Area (LGA), west of Coffs Harbour city. The sub-catchment covers an area of 41,200 ha. Figure 2 below shows the Orara River drinking water catchment. The Orara River supplies raw water to the Karangi WTP, the Nana Glen WTP and Coramba System at times.

Headwater streams flow from well vegetated state forests and national parks. Towards the floodplains of the Orara River, vegetation is impacted more progressively. Impacts include land clearing, grazing and logging. Some regionally and locally important remnants are still dispersed within impacted areas.

The Orara River has been rated high under the Stressed River Criteria, due to the habitat for the Eastern Fresh Water Cod. The abstraction licence from the river has environmental flow requirement conditions, to protect low flows.

CHCC are strategically rehabilitating the Orara River as outlined in the Orara River Rehabilitation Strategy 2002 – 2012 under the Coffs Harbour Biodiversity Action Strategy.

Raw water is pumped form the Orara River at Cochrane's Pool to fill the Karangi Dam. Raw water is also extracted from the Orara River at Nana Glen. At Nana Glen, raw water is pumped directly to the Nana Glen Water Treatment Plant. At Cochranes pool, raw water is pumped into Karangi Dam.

Attachment 2

Figure 1 Clarence River Catchment

Attachment 2

Figure 2 Orara River – Cochrane's Pool Drinking Water Catchment

3.1.2 Nymbodia River Weir Subcatchment

The Nymbodia River Weir sub-catchment is situated within the Clarence River Catchment. The sub-catchment covers an area approximately 1,700 km2. Figure 3 shows the Nymboida River drinking water catchment. The Nymbodia River supplies raw water via various pipelines to Karangi Dam, Shannon Creek Dam and also to Clarence Valley Council (CVC) at Rushforth Road. This is all part of the Regional Water Supply System.

Raw water from the Nymbodia River flows via gravity from the Nymboida River Weir to the Karangi Dam. This can also be boosted to supply additional water through a pump station near Glenreagh. The Regional Water Supply Scheme pipeline linking the Nymboida River to Karangi Dam was constructed in 2002.

The Nymboida sub-catchment is extensively vegetated and contains a number of National Parks. The Dorrigo Plateau is situated in the upper part of the catchment, with beef grazing and potato growing the main agricultural industries, which have impacts on the raw water quality.

3.1.3 Shannon Creek Catchment and Dam

The Shannon Creek sub-catchment is approximately 3,535 ha. The catchment is heavily vegetated with some areas of cleared land in the west. Steep forested valleys drain to the Shannon Creek Dam.

The Shannon Creek Dam was constructed as part of the regional water supply system. Raw water is extracted from the Nymboida River in times of high flow to fill the Shannon Creek Dam. All water flowing from the catchment is released downstream and only water from the Nymboida River is stored.

The Shannon Creek Dam has an off-stream storage capacity of 30,000 ML. The storage provides for a reliable raw water supply during droughts, periods of low flow and poor quality water in the Nymboida River. In addition to the topping up of the Karangi Dam, this storage also provides areas of Grafton, Coutts Crossing and other small villages with raw water during these periods.

There are potential raw water quality issues, i.e.; increase turbidity, due to dispersive soils in the catchment and at present an inability to draw water off at various levels. Furthermore, landholders in the Shannon Creek catchment, plan to undertake logging activities in the future as a retirement income. (Shannon Creek Raw Water Conceptual HACCP Plan (2003).

Attachment 2

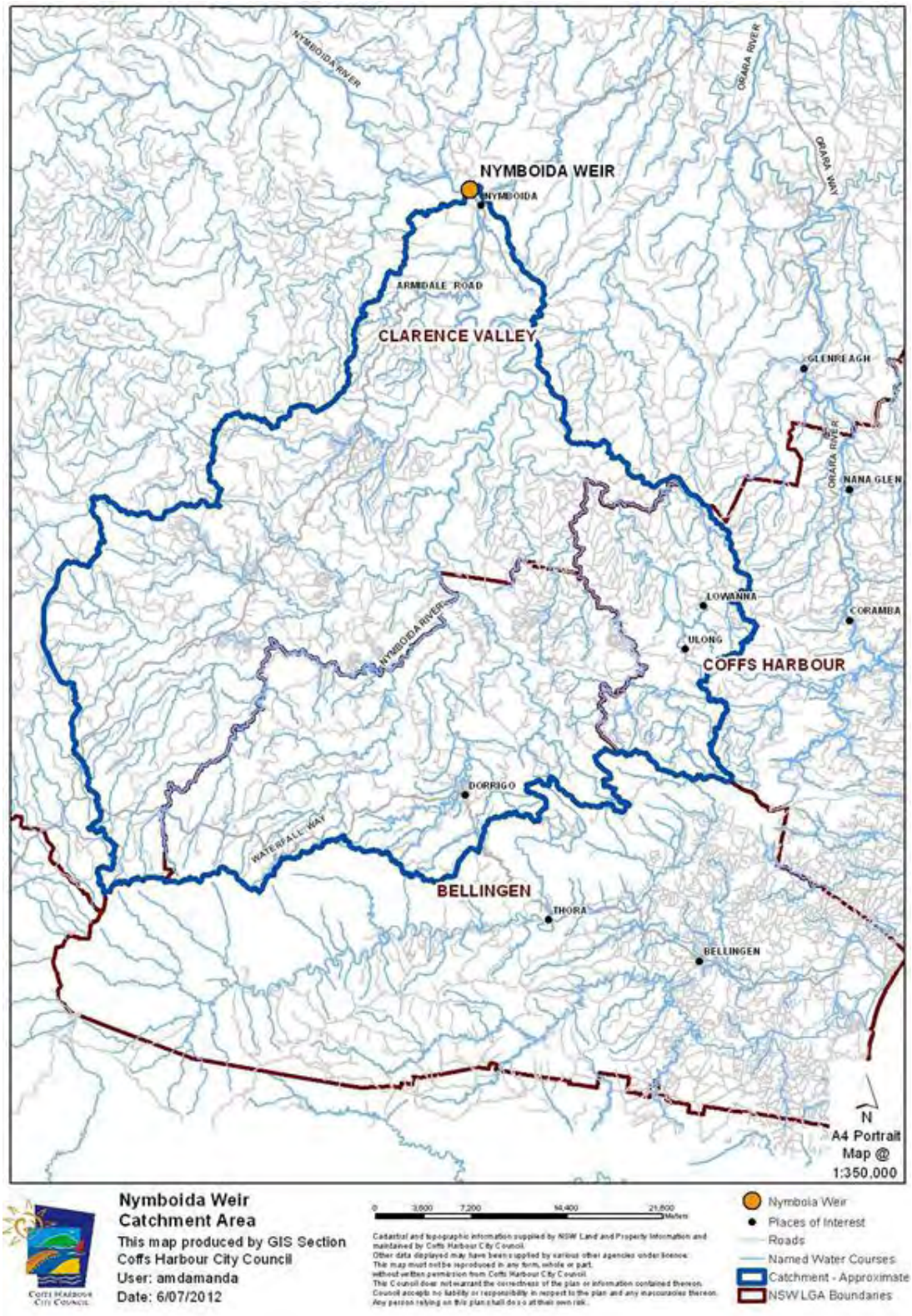


Figure 3 Nymboida Drinking Water Catchment

Attachment 2

3.2 Bulk Regional Water Supply Scheme

The Bulk Regional Water Supply Scheme (RWSS) commenced in 2002 to provide the communities of Grafton, Lower Clarence and Coffs Harbour with a reliable bulk raw water supply.

The bulk water supply scheme extracts raw water from the Nymboida River to fill the Karangi Dam, Shannon Creek Dam and provide water to CVC at Rushforth Road Reservoirs. Raw water is diverted from the Nymboida River when water quality is optimal and the river flow is above the abstraction licence conditions. Raw water flows under gravity to Karangi Dam with a capacity of 16 ML/d and can be boasted by the pump station near Glenreagh to provide 25 ML/d to Karangi Dam.

Figure 4 and Figure 5 show the schematics for the Regional Water Supply Scheme.

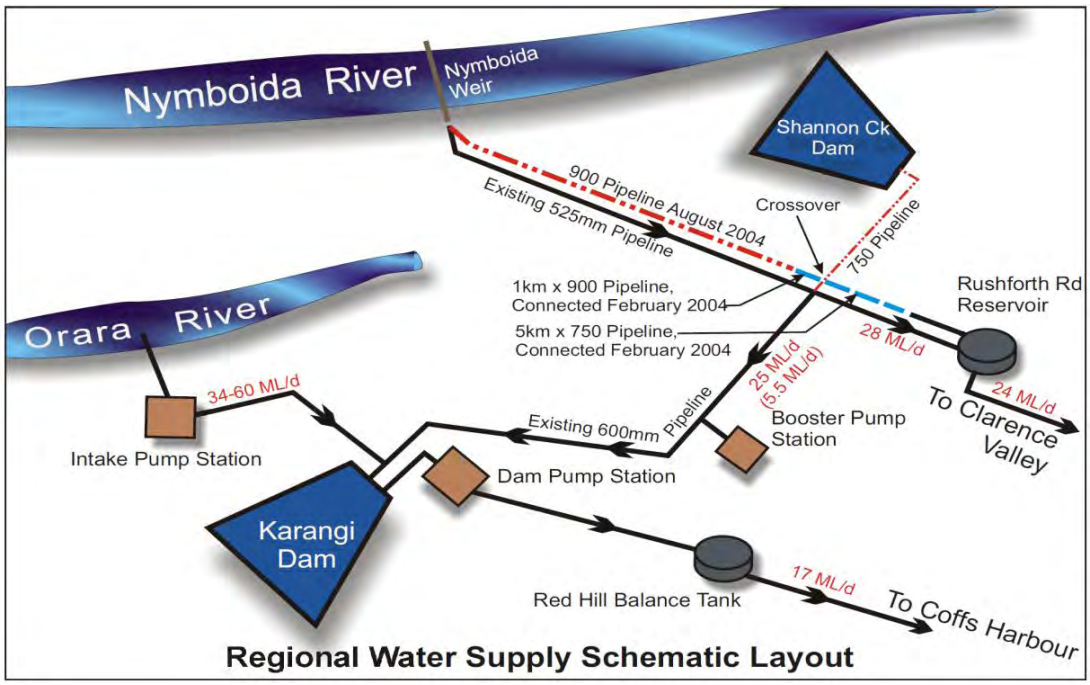


Figure 4 Regional Water Supply Scheme Layout

Attachment 2

Figure 5 Regional Water Supply Scheme Schematic
(Source CCHCC)

4 Coffs Harbour Drinking Water Supply System

4.1 Overview of System

Coffs Harbour is provided with filtered and disinfected drinking water from the Karangi WTP. The Karangi WTP is located on Upper Orara Road; Karangi.

The system sources raw water from Orara River and Nymboida River and stores it in the Shannon Creek Dam and Karangi Dam. Raw water is abstracted from Karangi Dam and treated at the Karangi WTP then is distributed to the coastal populations from Sawtell in the South to Corindi Beach in the North.

The CHCC provides a multi - barrier approach in the provision of safe drinking water including:

- Catchment Management
- Controlled Abstraction
- Aeration of Karangi and Shannon Creek Dams
- pH and Alkalinity adjustment
- Dissolved Air Flotation and Filtration
- Fluoridation
- Chlorine and UV disinfection
- Water Quality Monitoring regime

4.1.1 Source Water: Karangi Dam

The Karangi WTP sources raw water directly from the Karangi Dam, but is able to be supplied with raw water directly from Cochrane's Pool or the RWS pipeline if necessary.

The Karangi Dam is topped up with flows from the Cochrane's Pool on the Orara River, the Nymboida River Weir or the Shannon Creek Dam via the RWS pipeline. Raw water is only abstracted if the turbidity is below 2 NTU, in order to maintain the quality in Karangi Dam.

Karangi Dam has a storage capacity of 5,600 ML and under average conditions; the dam has a secure yield of 4,000 ML/year.

4.1.2 Treatment Processes: Karangi WTP

The Karangi WTP is a dissolved air flotation and filtration (DAFF) plant. The Karangi WTP was officially opened on 9 June 2009. The Karangi WTP services the majority of Coffs Harbours Water consumers.

The treatment process at the Karangi WTP comprises of the following process steps:

- Alkalinity and pH adjustment - lime dosing at Karangi Dam
- pH correction - CO_2 dosing at WTP
- Powdered Activated Carbon (PAC) dosing (optional – taste & odour removal),
- Aluminium sulphate dosing (Coagulant aid – optional)
- Dissolved air flotation and filtration
    - Coagulation and flocculation
    - Skimmer removes scum
        - Scum sent to wash water tank
        - Dirty water sent to sludge thickener
        - Supernatant sent to inlet of WTP or Karangi Dam
        - Thickened sludge is dewatered in centrifuge
        - Sludge solids disposed of in landfill
        - The liquids (centrate) returned to wash water tank for reprocessing
    - Water is filtered through a 3 layer media filter–coal, fine sand and gravel
- Disinfection by ultra-violet (UV) radiation
- Fluoridation
- pH correction – caustic soda (sodium hydroxide)
- Disinfection by chlorination

Drinking water is sent to onsite treated water storage tank (reservoir)

Drinking water is pumped to Red Hill Balance Tanks and gravity fed into various reservoirs and reticulated for use.

A process diagram of the Karangi WTP is given in Figure 6 below. Figure 7 (a) and (b) show the process flow diagram of the Coffs Harbour Water Supply.

Attachment 2

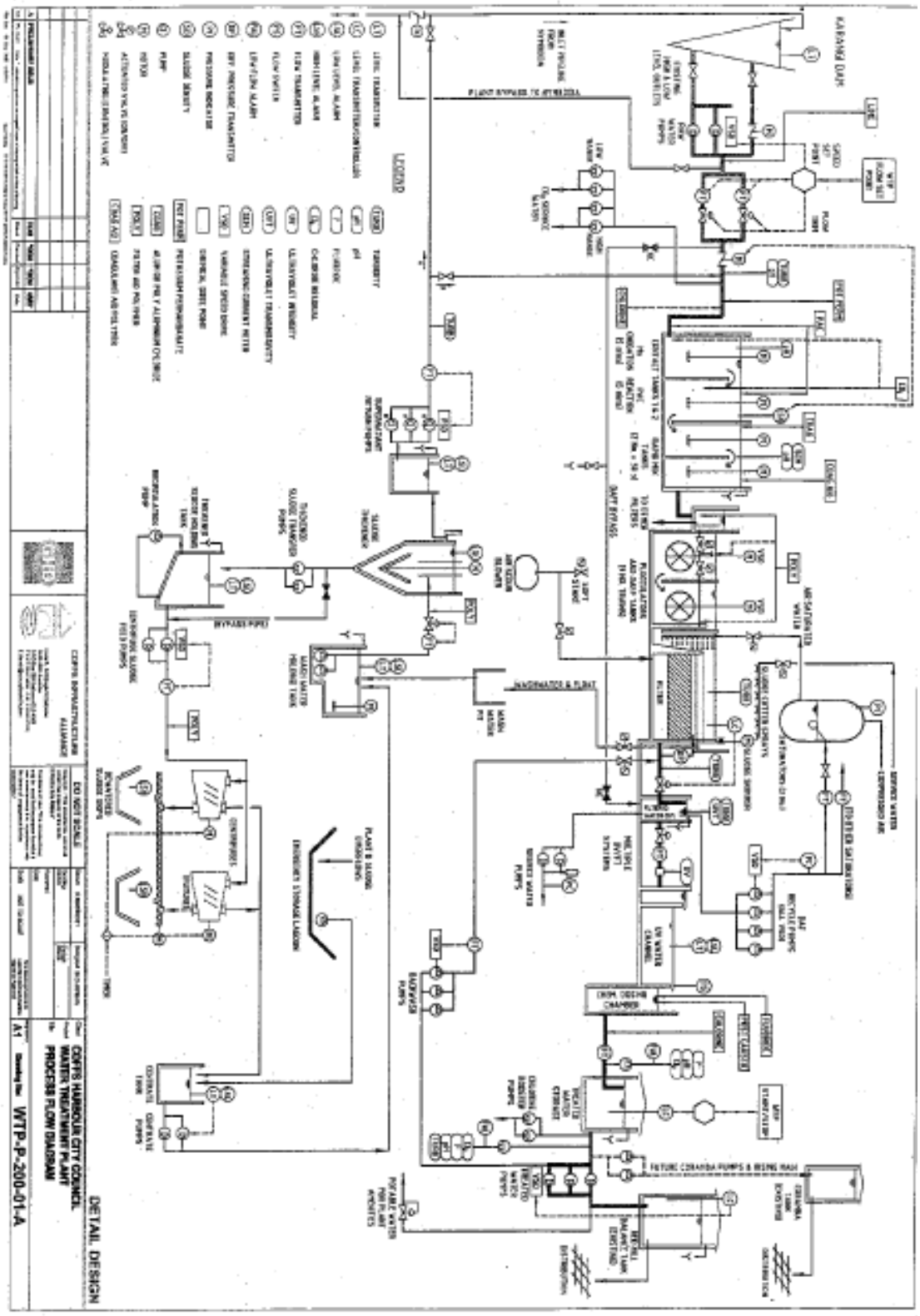


Figure 6 Karangi WTP Process Flow Diagram (Source: CHCC)

Attachment 2

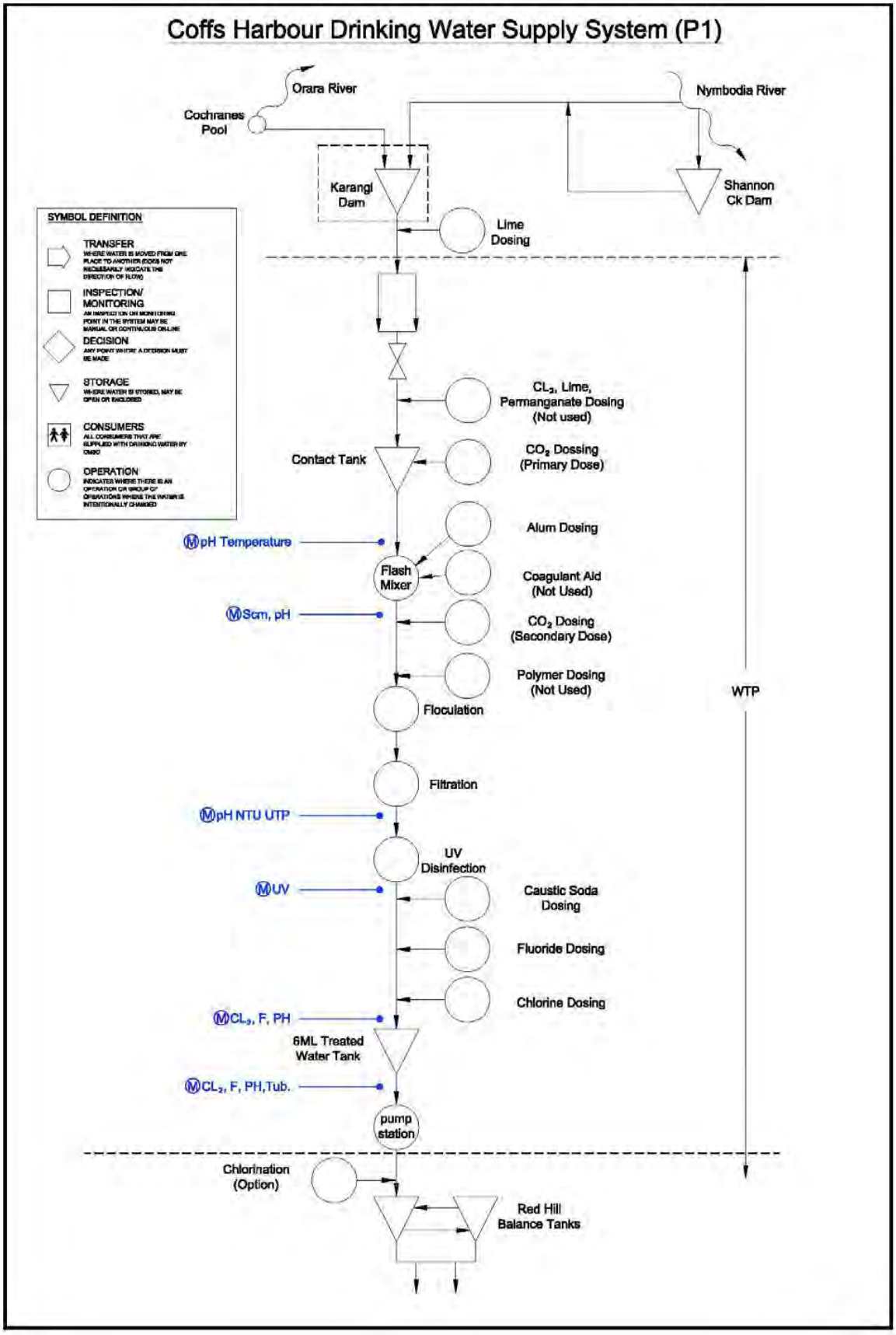


Figure 7 Process Flow Diagram of Coffs Harbour Water Supply

Attachment 2

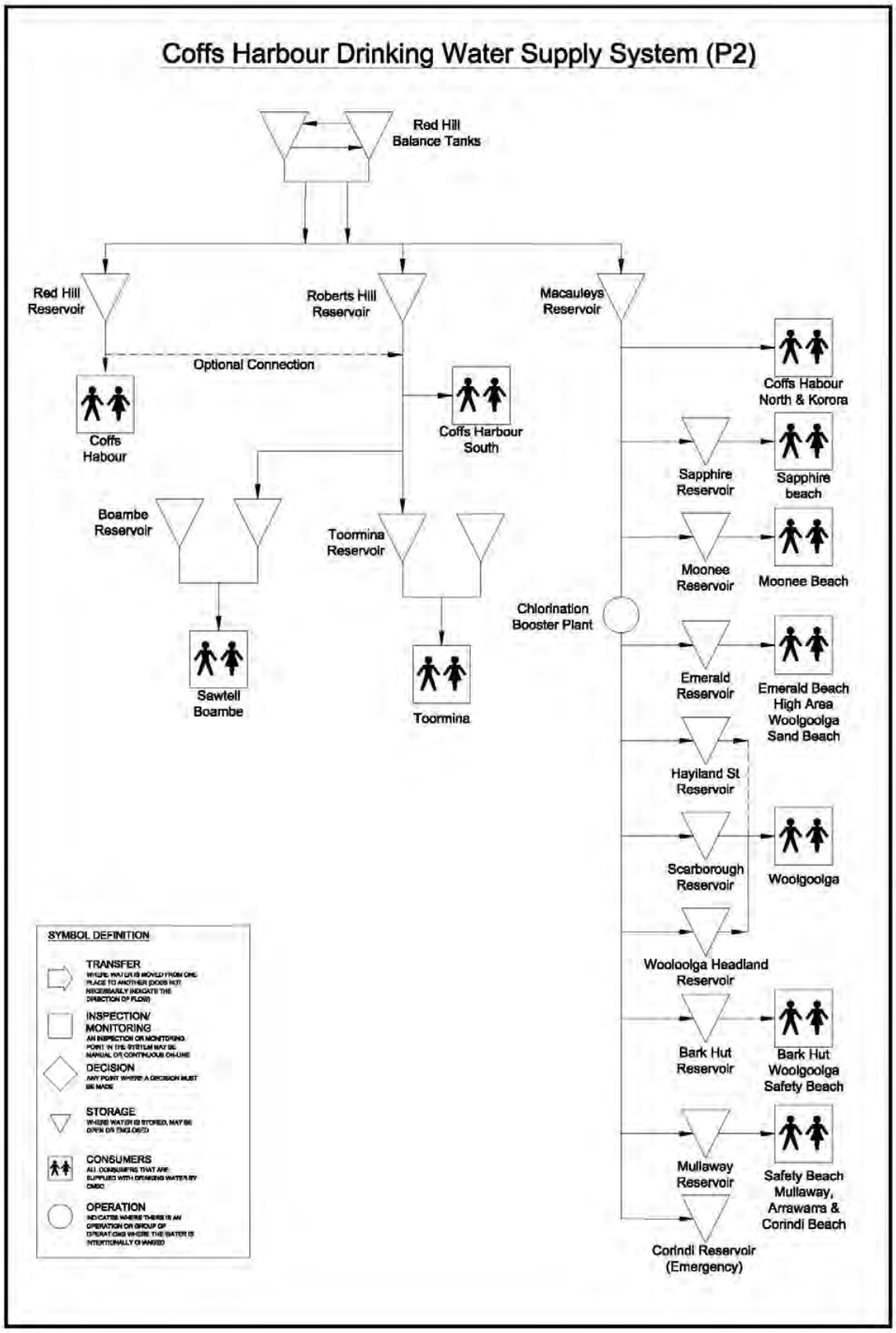


Figure 7 Process Flow Diagram of Coffs Harbour Water Supply (continued)

Attachment 2

4.1.3 Distribution Network

The Coffs Harbour Water Supply system distributes drinking water from Sawtell in the South to Corindi in the North, including the inland villages of Nana Glen and Coramba. Refer to Figure 8 for the Coffs Harbour DWSS diagram.

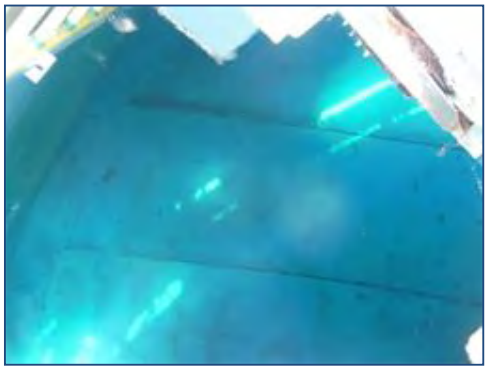
The distribution network consists of the following (Note: Nana Glenn and Coramba distribution network included):

- 3 balance tanks
- 19 storage reservoirs
- 641km trunk & reticulation mains
- 22,683 water service connections

All reservoirs and balance tanks are roofed, and incorporate bird proofing treatments. Bird proofing treatments generally consist of expandable foam or stainless steel mesh, for filling or covering gaps between the tank wall and its roof.

Although the bird proofing at most reservoirs is good, some reservoirs require additional modifications to improve the effectiveness of the existing bird proofing.

The reservoirs have secure access with locked stairwells and hatches. Fences have been placed around most reservoirs. Reservoirs are cleaned every 2 – 3 years and CHCC maintain a register of actions for continual improvement.



Attachment 2

Table 1 CHCC Balance Tanks

No	Balance Tanks	Capacity (ML)	Reticulation Network
1	Karangi WTP	5.80	All drinking water from the WTP to Red Hill Balance Tank
2	Red Hill Balance Tank 1	1.00	All drinking water is distributed from the Red Hill Balance Tanks
3	Red Hill Balance Tank 2	17.00	

Table 2 CHCC Reservoirs

No	Reservoir	Capacity (ML)	Reticulation Network
1	Red Hill Reservoir	5.70	Coffs Harbour City (West and Central)
2	Toormina Reservoir 1	5.00	Toormina, Boambee
3	Toormina Reservoir 2	12.50	
4	Boambee Reservoir 1	1.36	Sawtell, Boambee
5	Boambee Reservoir 2	1.50	
6	Roberts Hill Reservoir	20.00	Coffs Harbour City (Central, South, Feeds Boambee Reservoirs)
7	Macauley's Reservoir	15.00	Coffs Harbour City (North, Feeds Northern Reservoirs)
8	Sapphire Reservoir	2.00	Sapphire Beach
9	Moonee Reservoir	5.00	Moonee Beach
10	Emerald Reservoir	6.00	Emerald Beach Sandy Beach
11	Haviland Street Reservoir	0.07	Woolgoolga
12	Scarborough Street Reservoir	4.54	Woolgoolga
13	Woolgoolga Headland Reservoir	0.50	Woolgoolga
14	Bark Hut Reservoir	1.50	Bark Hut area
15	Mullaway Reservoir	7.00	Safety Beach, Mullaway, Arrawarra, Corindi
16	Corindi Reservoir	3.00	Corindi (in emergencies)
17	Coramba Reservoir	0.45	Coramba
18	Nana Glen Reservoir 1	0.50	Nana Glen
19	Nana Glen Reservoir 2	0.50	Nana Glen

Attachment 2

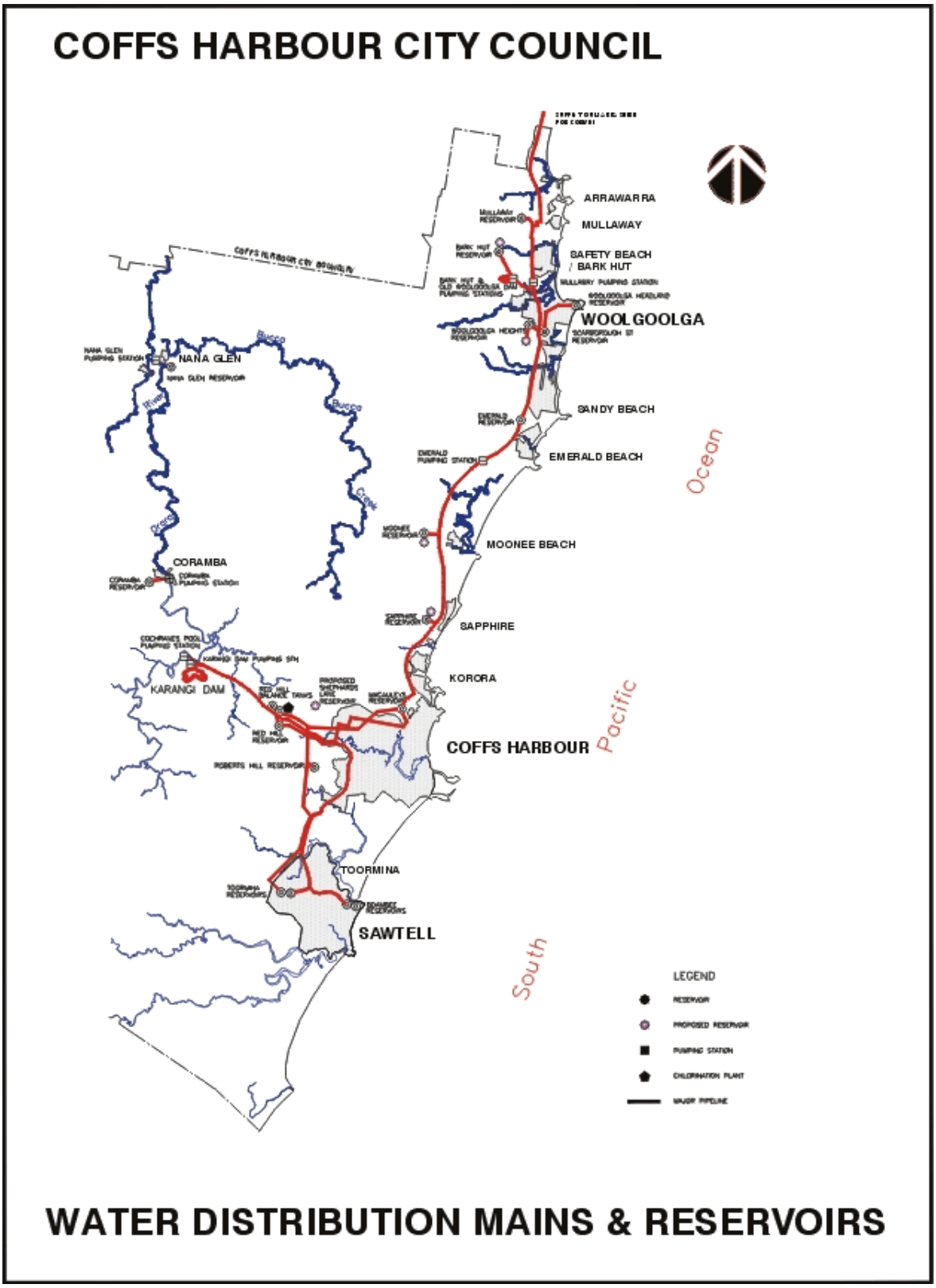


Figure 8 Coffs Harbour Distribution Network (Source: CHCC)

Attachment 2

4.2 Drinking Water Quality Monitoring Regime

Table 3 summarises the water quality monitoring undertaken for the Coffs Harbour Drinking Water Supply. Sampling is either undertaken by CHCC Lab staff and / or Water Staff. Refer to Appendix 1 for further details.

Table 3 Coffs Harbour Quality Monitoring

Raw Water Source Monitoring			Operational Monitoring			Water Supply System Monitoring		
			Treated Water	Treated water	Red Hill Balance Tank	Red Hill Reservoir	All Reservoirs	Reticulation
Online and Daily	Weekly	Monthly	Online and Daily	Weekly	Weekly	Weekly	Yearly	Fortnightly/ Monthly
Turbidity	pH Alkalinity Algae	pH Conductivity Calcium Hardness Alkalinity Iron Manganese Total Nitrogen Total Phosphorous Algae Apparent colour Total colour Total organic carbon Faecal coliforms Total coliforms	Turbidity at Filtration Plant Fluoride Free Chlorine pH UVT UV	Total Coliforms *E.coli* Free Chlorine Temp pH Alkalinity	Total Coliforms *E.coli* Free Chlorine Temp pH Conductivity Calcium Hardness Alkalinity Iron Manganese	Total Coliforms *E.coli* Free Chlorine Temp	Total Coliforms *E.coli* Free Chlorine Temp Fluoride	Total Coliforms *E.coli* Free Chlorine Temp Fluoride NSW Health Program: Microbial Physical Chemical

Notes: Of these reservoir / reticulation water sampling points 12 are selected per year for comprehensive chemical analysis - with those missing out done the following year. Refer to Appendix 1 for a list of CHCC monitoring points and parameters, including the comprehensive chemical analysis.

WQ monitoring is undertaken by Coffs Water at various depths in the Karangi Dam including: surface level, 1m, 3m, 6m, 9m, 12m, 15m, 18m, 21m, 24m, 27m.

4.3 Water Quality Assessment

4.3.1 Source Water

According to ADWG, baseline assessment of the source water quality is recommended. ADWG recommends the following be assessed and, where detected

above the guideline limit, monitored at a relevant frequency depending on the parameter.

- Microbial
- Physical and chemical
- Radiological
- Pesticides

Microbial and Physical /Chemical

The table below provides a baseline characterisation of the raw water extracted from the HACCP workshop in 2010. Typical raw water quality is summarised for the three raw water sources.

Table 4 Typical Water Quality of Raw Water Sources

Parameter	Orara River at Cochrane's Pool	Nymboida River	Shannon Creek Dam
E.coli	10 – 900 orgs/100 ml (median 118)	1 – 200 orgs/100 ml	5 – 300 orgs/100 ml
Total Organic Carbon	1 mg/L	2 mg/L	2 – 3 mg/L
Colour	5 – 15 PCU	5 – 50 PCU	20 – 200 PCU
Turbidity	0.5 – 5 NTU	2 – 140 NTU	4 – 200 NTU
Total Phosphorous	0.01 – 0.03 mg/L	<0.01 – 0.07 mg/L	<0.01 – 0.02 mg/L
Manganese	<0.01 – 0.05 mg/L	<0.02 mg/L	0.05 – 0.5 mg/L
Alkalinity	10 – 18 mg/L	10 – 15 mg/L	17 – 85 mg/L

Source: CHW HACCP 2010

The results above indicate relatively soft source waters, low in manganese and phosphorous. The water quality in the Orara River at Cochrane's Pool is within the ADWG criteria. *E.coli* was found to be highest at Crochane's Pool, indicating faecal contamination.

Turbidity, Colour and Total Organic Carbon are the highest at the Shannon Creek Dam are above the ANZECC Fresh and Marine Guidelines (2000) for South-east flowing rivers indicating slightly disturbed ecosystems.

Baseline sampling was undertaken at Karangi Dam over a two and a half year period from July 1998 to December 2000. Table 5 provides an analysis of the physical water quality parameters. The results indicate that the raw water is of relatively good quality. pH is in the optimal range with low turbidity and conductivity as typical of large lakes and reservoirs. The raw water is very soft and low in nutrients.

Attachment 2

Table 5 Karangi Dam Raw Water Quality: Physical

	True Colour	Turbidity	Specific Conductance	pH	Alkalinity as $CaCO_3$	Nitrite as N	Nitrate as N	Phosphorus	Ca Hardness as $CaCO_3$	Total Hardness as$CaCO_3$
	TCU	NTU	µS/cm		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Min	1	0.3	72	6.8	10	0.1	0.1	0.01	4	5
Mean	4	1.0	79	7.5	14	0.1	0.1	0.02	7	8
Max	18	2.3	110	7.8	19	0.1	0.1	0.04	11	11

Source: Water Sampling: Chemical THMs

Baseline sampling was undertaken at the Shannon Creek Dam on 24 March 2012 including physical, chemical, pesticide and radiological analysis. In relation to the physical and chemical results, all parameters were within the guideline criteria for drinking water. Pesticide and radiological results are discussed below. Refer to Appendix 2 for full results.

Pesticides

Baseline pesticide sampling in the source water at Shannon Creek Dam was conducted on 24 March 2010 for a range of:

- Organochlorine Pesticides
- Organophosphate Pesticides

Further to the above CHCC sampled pesticides in reservoirs over a 2 year period from September 1998 to October 2000. Refer to Appendix 3 for full results. Samples were analysed for the following pesticides.

- Organochlorine Insecticides
- Organophosphorus Insecticides
- Acidic Herbicides
- Synthetic Pyrethoids
- Glyphosate.

According to the information provided by CHCC, pesticides were found to be non-detectable in all source water samples.

Radiological analysis

Radiological baseline assessments in the form of alpha and beta radiation were undertaken on 20 September 2010 at Wongala Aboriginal Community and Corindi Beach Aboriginal Community and on 24 March 2010 at Shannon Creek Dam. Refer to Appendix 4 for Lab results. Results are summarised as follows:

- Corindi results were under the detection limit for both Alpha and Beta analysis.

- Wongala results were under the detection limit for Alpha. However Beta results were above the detection limit at 22 ± 3 mBq/l.
- Shannon Creek Dam results were under the detection limit for Alpha. However Beta results were above the detection limit at 20 mBq/l.

It is recommended that Council retest Alpha and Beta. If results are exceeded in the retest, it is recommended that specific radionuclides be identified and their activity concentrations determined.

Data Gap
Please provide Council response to the beta exceedance.

4.3.2 Operational Water Quality

Process water quality monitoring at the Karangi WTP includes the following:

- Raw water at Inlet to the plant- turbidity, pH, and alkalinity;
- Clarified water– turbidity and pH;
- Filtered water–turbidity and pH;
- Treated water at the clearwater well – turbidity, colour, pH, temperature, free chlorine, total chlorine, aluminium, iron and manganese;
- Potable water at treated water reservoir– turbidity, colour, pH, temperature, free chlorine, total chlorine, fluoride, aluminium, iron, magnesium, hardness and salinity.

For comparison purposes Table 6 sets out the mean monitoring results for pH, turbidity and alkalinity in the source waters and the treated /potable water. Points of note:

- pH adjustment achieves the desired results with an average pH of 7.7 in the treated water.
- Turbidity at 0.1NTU is reduced to the ADWG recommended criteria (<0.2 NTU) indicating effective filtration.
- Alkalinity is effectively increased to reduce problems associated with corrosion.

Table 6 Mean pH, Turbidity and Alkalinity: Operational

Parameter	Regional	Cochrane's Pool	Karangi Dam	Raw Water at inlet	Treated Water	Red Hill Balance Tank
pH	7.2	-	7.2	7.2	-	7.7
Turbidity	1.5	3.0	1.1	-	0.1	-
Alkalinity	13.0	-	13.0	-	47.3	47.4

Source: Karangi Dam WTP data Spread sheet (2010 – 2012)

In relation to health considerations, turbidity can have a significant effect on microbial quality of drinking water. Elevated turbidity can interfere with the detection and treatment of bacteria and viruses.

The Karangi WTP has a critical control point (CCP) for the turbidity at raw water extraction from all source waters. The Karangi Dam ceases pumping from the Nymboida River at >2 NTU; and from the Cochrane's Pool at > 2 NTU.

The ADWG 2011 recommends that in order to remove waterborne pathogens where filtration is used as part of the water treatment process, the turbidity leaving individual filters should be less than 0.2 NTU and should not exceed 0.5 NTU at any time. It is essential that filtration is optimised.

Filtered water turbidity is monitored inline continuously with alarms at each of the individual filters. CCP at each filter is alarm controlled at:

- Alert level: 0.3 NTU
- Critical alarm: 0.5 NTU

Operators record turbidity readings daily onsite. These recordings are hand written and were unavailable for statistical analysis. However, the mean turbidity of the treated water (<0.1 NTU) indicates that filtration is effective and is achieving the desired results.

The water supply treated at the Karangi WTP undergoes disinfection via chlorination. The ADWG recommend the following limits in order to achieve effective disinfection:

- Turbidity <1 NTU
- pH 7 - 8

According to the data provided by Coffs Water, CHCC is achieving the operational target with turbidity averaging less than 1 mg/L in the reticulation, and pH 7 – 8 at the time of disinfection.

According to ADWG, in clean water, a combined residual chlorine level of 0.5 mg/L after contact time of 30 minutes should ensure microbial control given a clean distribution system and no significant recontamination.

It is considered that Karangi WTP has sufficient contact time for disinfection given the volume of storage at the WTP and the distribution of drinking water to the Red Hill Balance Tanks.

Treated water free chlorine is monitored inline continuously with alarms. CCP is alarm controlled at:

- Alert level: <0.6 or >3.0 mg/L

- Critical alarm: <0.4 or >3.5 mg/L

The water supply treated at the Karangi WTP is fluoridated. The ADWG 2011 stipulates that Fluoride in the Drinking Water Supply should be 1mg/L, but should not exceed 1.5 mg/L due to health concerns.

The treated water is sampled daily at the Karangi WTP for fluoride with an average concentration of 1 mg/L. Coffs Harbour Water is achieving the stipulated fluoride concentration as required by the NSW code of practice for fluoridation of public water supplies.

Treated water fluoride is monitored inline continuously with Alarms. CCP is alarm controlled at:

- Alert Level: <0.8 or >1.1 mg/L

- Critical Alarm: >1.5 mg/L

4.3.3 Reservoir Water Quality

Potable water from the Karangi WTP flows is pumped to the two Red Hill Balance Tanks. From the balance tanks the drinking water is distributed to fifteen reservoirs.

CHW operate a chlorine booster plant at Emerald Reservoir to ensure chlorine residuals at the end of the northern reticulation system. CHW are in the process of installing a chlorine booster plant at Sawtell Reservoirs in the south, to maintain chlorine residuals from the reservoirs. CHW monitor the chlorine residuals from this process.

CHW monitors and records weekly water quality from alternating reservoirs and reticulation points throughout the water supply system. Table 7 tabulates and compares mean results for free chlorine, E. coli, total coliforms and fluoride. Refer to the Coffs Harbour Water Sampling table in Appendix 1 for sample points and frequency.
Points of note from the operational data in Table 6:

- Free chlorine residual is maintained throughout the distribution system and reservoirs, although at times less than optimal at Sawtell, Toormina and Bark Hut with a low mean free chlorine. CHCC has difficulty maintaining a residual in the southern reservoirs and are considering a chlorine booster pump for the Sawtell reservoirs (pers. com. Simon Thorn, CHCC Executive Manger of Operations 16/1/13). Bark Hut reservoir has a relatively low water usage and it is difficult to maintain the chlorine residual in storage – hand dosing is carried out.

- All reservoirs conformed to ADWG 2011, with a mean *E.coli* of <1 cfu/100ml. On one occasion 3 *E.coli* were detected in the Sawtell Reservoir (6 April 2009). Resampling was undertaken on the 8 April 2009 in accordance with the NSW Health Microbial Response Protocol. *No E.coli* was identified in the resample.

- Total coliforms were identified in low numbers at the Sawtell, Toormina and Bark Hut Reservoirs. These reservoirs also displayed low chlorine residual at times.
- Fluoride is maintained within the NSW Health criteria.

Attachment 2

Table 7 Mean Free Chlorine, *E.coli* and Total coliforms in Reservoirs

Parameter	Red Hill	Sawtell	Toormina	Roberts Hill	McCauleys	Sapphire	Moonee	Emerald	Scarborough St	Woolgoolga	Bark Hut	Mullaway	Corindi PS
Free Chlorine mg/L		0.18	0.16	0.77	0.77	0.31	0.45	0.46	0.34	0.33	0.16	0.48	1) 0.24 2) 0.3
E.coli cfu/100ml		0 (max 3)	0	0	0	0	0	0	0	0	0	0	1) 0 2) 0
T. Coliforms cfu/100ml		4	0 (max 8)	0	0	0	0	0	0	0	1	0	1) 0 2) 0
Fluoride mg/L	0.97											-	1) 0.97 2) 0.97

Data obtained from CHW 'Coffs Water Lab Results 2007 to present'; Note the majority of reservoirs were tested annually – at times only 4 sample results

No results were provided for Hayiland Street Reservoir

Attachment 2

4.3.4 Supply Water Quality Monitoring: WTP Operational

As part of the WTP Operational monitoring procedures, water quality is sampled weekly at a point of supply in Coffs Harbour. Table 8 below provides a snapshot of the operational data from the commencement of the upgrade of the Karangi WTP in 2007.

Table 8 Mean Water Quality at Points of Supply

Parameter	ADWG	Red Hill	Sawtell	Toormina	Coffs Harbour	Sapphire	Moonee	Emerald	Woolgoolga	Safety beach	Mullaway Arrawarra
Free Chlorine	0.2	-	0.19	0.19	0.4	-	0.21	0.36	0.36	0.22	0.31
E.coli	0	-	0	0 (max 200)	0	-	0	0	0	0	0
T.coliforms	-	-	5	1 (max 200)	7	-	1	0	0	0	4
Fluoride	0.9 – 1.1	0.97	0.98	0.97	0.99	1.1	0.95	-	0.96	-	0.97
Alkalinity	-	-	53.3	-	52.1	48.9	-	-	53.4	-	-
pH	7 - 8	-	8.3	-	7.6	7.6	-	-	8.0	-	-
Turbidity	<5	-	0.28	-	0.2	-	-	-	0.23	-	-
Colour	15	-	3.0	-	1.1	-	-	-	2.3	-	-

Data assessed from Coffs Water Lab Results 2007 to Present (December 2012) Spread sheet.

E.coli exceedances have occurred within the supply system. The maximum *E.coli* exceedance of 200 cfu/100ml occurred at Hamilton Drive Toormina on 29 November 2010. On this occasion it is unclear if retesting was undertaken.

For all other *E.coli* exceedances, CHW repeated tests in line with the NSW Health monitoring protocol. All follow-up tests were within the guideline criteria and subsequently no boiled water alerts were issued.

Total coliform exceedances have occurred. The highest total coliform reading of 200 cfu/100ml occurred at Hamilton Drive Toormina on 1 December 2008. The presence of these coliforms may represent release from pipe or sediment biofilms, and may be part of the normal flora of the drinking-water distribution system.

Data Gap

Please provide response to the *E.coli* exceedances on 29/11/10 at Hamilton Drive Toormina

Disinfection By – products

When the disinfectant in a drinking water supply is chlorine, the main by-product produced is normally Trihalomethanes (THMs). ADWG recommends that the concentration of THMs, either individually or in total, in drinking water should not exceed 0.25 mg/L. It is considered that THMs concentrations fluctuating occasionally up to 1 mg/L are unlikely to pose a significant health risk.

THM monitoring is carried out routinely and when required by CHCC (Pers Com Simon Thorn). THM monitoring results were provided for:

- CHCC Reservoirs – monthly sampling over 1999 and 2000
- Shannon Creek Dam – baseline assessment (the sampling results provided indicate that the THM assessment was done in the source water – not the supply water. Please explain).
- Redhill Balance Tank – 21 March 2005

The results indicated that THMs concentration in the water supply system is within the ADWG 2011 criteria. Refer to Appendix 5 for full results

4.3.5 Supply Water Quality Monitoring: NSW Health

Further to operational monitoring, the NSW Health Water Quality Monitoring Program requires Council to submit water quality sampling results at the point of supply. The samples are monitored for their physical, chemical and microbial parameters. Refer to Appendix 6 for the full list of parameters tested under the NSW Health monitoring protocols.

A total of 422 microbiological samples are tested per year for the Coffs Harbour drinking water supply - approximately 8 samples per week. Samples are collected and analysed by CHCC Laboratory Staff.

Table 9 lists the 36 sites that are monitored in Coffs Harbour, including 14 areas and two aboriginal communities. Table 10 summarises relevant statistics based on the water quality monitoring data submitted to NSW Health, The analysis of the data shows high compliance with the ADWG for all parameters, excluding chlorine residuals.

Attachment 2

Table 9 NSW Health monitoring locations, Coffs Harbour

Town	Sampling Site	Location
Arrawarra	21	Eggins Drive
	22	Second Avenue
Coffs Harbour	10	Mastracolas Road
	11	Kratz Drive
	30	York Street
	31	Marcia Street
	32	Coffs St
	33	Orlando St
	40	Ocean Parade
	7	Coramba Road
Coramba	9	Martin Street
Corindi	1	Pacific Street
	2	Coral Street
	3	MacDougall Street
	4	Pacific Street
Corindi Beach Aboriginal community	41	Red Rock Road
Emerald Beach	16	Stefan Close
	26	Fiddamans Road
Korora	29	Sandy Beach Road
Moonee Beach	17	MacCues Road
	27	Woodhouse Road
Mullaway	12	Tramway Drive
Safety Beach	23	Ocean Drive
Sandy Beach	25	Beach Drive
Sapphire	18	Old Coast Road
	28	Sapphire Crescent
Sawtell	19	Boambee Headland
	34	Boronia Park

Attachment 2

Town	Sampling Site	Location
Toormina	20	Belbowrie Rd
	35	Sea Breeze Place
	36	Hamilton Drive
Wongala Aboriginal community	42	Wongala
Woolgoolga	13	Bark Hut Road
	14	Ocean Street
	15	Scarborough Street Reservoir
	24	Lake Road

Table 10 Summary of NSW Drinking Water Monitoring Program Data Water Quality: Coffs Harbour

Parameters	ADWG Value	Number of Samples	Min	Mean	95%ile	Max	Exceedances
E.*coli* (cfu/100ml)	<1	1,726	0	0	0	0	0
Total Coliform (cfu/100ml)	<1	1,721	0	0.13	0	200	7
Free Chlorine (mg/L)	0.2 - 5	1,726	< 0.01	0.48	1.08	28	500 (Low residual)
Total Chlorine (mg/L)	5	6	0	0.21	0.94	1.25	0
pH (pH units)	6.5 – 8.5	94	7.4	7.94	8.4	8.5	0
True Colour (HU)	15	66	<1	1	1	1	0
Turbidity (NTU)	5	94	<1	0.1	0.3	0.4	0
Iron (mg/L)	0.3	66	0.01	0.01	0.02	0.07	0
Fluoride (mg/L)	0.9 – 1.5	985	0.04	0.98	1.02	1.10	8 (Low fluoride)
Hardness (as calcium carbonate) (mg/L)	200	66	46.6	57.6	63.90	65.7	0
Aluminium (mg/L)	0.2	66	0.01	0.01	0.02	0.04	0
Manganese (mg/L)	0.5	66	0.01	0.01	0.01	0.01	0

Note: Treated water data from 2009 to 2012

The free chlorine non-compliances, with the exception of one event, were all low residuals. The greatest proportion of non-compliances was at Safety Beach, Toormina and Sawtell, all of which had more than 50% of samples below 0.2 mg/L. Coffs Harbour, Wongala, Sapphire and Arrawarra had the lowest non-compliance, with less than 25%.

The fluoride non-compliances were all low values at the random site, with five of the eight values re-sampling around one event (6/04/2010). The remaining three events had values above 0.80 mg/L, and as such, were not re-tested.

Table 11 provides a summary of total coliform exceedances in at the point of supply, illustrating individual exceedances at a small number of different sites over the period of sampling. The presence of these coliforms may represent release from pipe or sediment biofilms, and may be part of the normal flora of the drinking-water distribution system.

Table 11 Summary of Total Coliform Exceedances at Point Of Supply: NSW Health database

Town	Unit	Total Samples	Exceedance			ADWG
			Site Number	Value	Date	
Arrawarra	cfu/100ml	44	21	10	16/04/2012	< 1
Coffs Harbour		86 85	32 31	5 1	21/12/2009 28/03/2011	
Corindi		82	2	2	19/03/2012	
Toormina		87	36	1 200	21/12/2009 8/03/2010	

Source NSW DOH Drinking Water Database. Data has been assessed: 2009 – 2012

Attachment 2

5 Nana Glen Water Supply

5.1 Overview of System

The Nana Glen Water Treatment Plant (WTP) provides filtered, disinfected water to the residents of Nana Glen and Nana Glen Rail. CHCC draws raw water from the Orara River near the village.

5.1.1 Source Water: Orara River

Water is extracted from a pool on the Orara River via a screened inlet, suction pipe and pump station adjacent to the eastern bank of the river. Water is pumped from the pool to the WTP for treatment.

5.1.2 Treatment Processes: Nana Glen WTP

The treatment process for water extracted from the Orara River comprises of the following:

- Chemical dosing – alum and lime
- Uplift Clarifier - Coagulation and Flocculation
- Sand filtration
- pH correction
- Disinfection with chlorine

A flow diagram of the plant is given in Figure 9.

5.1.3 Distribution network

Refer to Section 4.1.3 for full details of the CHCC distribution network. Table 12 below provides a list of the storage reservoirs in the Nana Glen DWSS. The reservoirs in the Nana Glen distribution system are located at the WTP. Drinking water is reticulated via gravity to consumers.

Table 12 Nana Glen Reservoirs

No	Reservoir	Capacity (ML)	Reticulation Network
1	Nana Glen Reservoir 1	0.5	Nana Glen
2	Nana Glen Reservoir 2	0.5	Nana Glen

Attachment 2

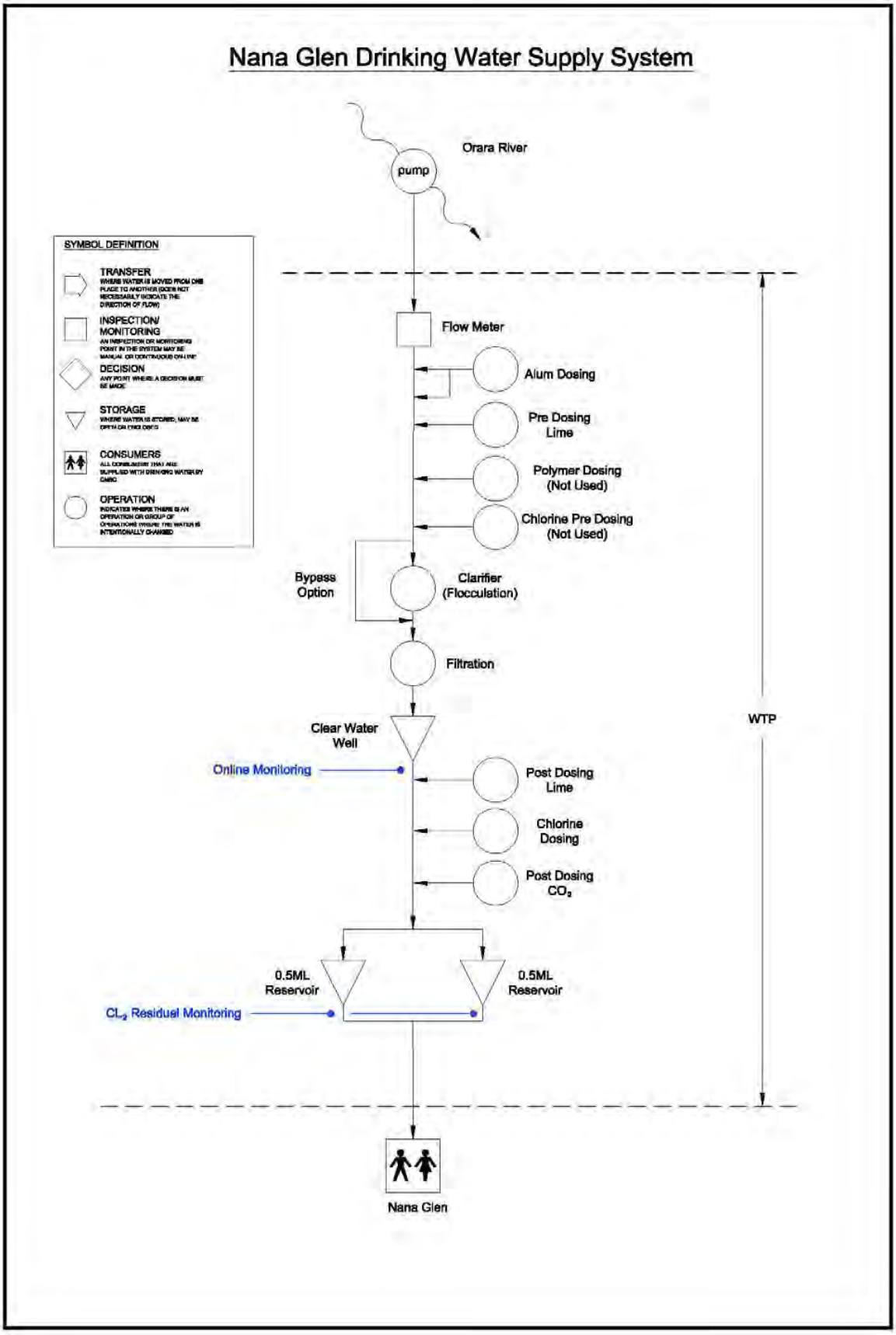


Figure 9 Process Flow Diagram of Nana Glen Drinking Water Supply

Attachment 2

5.2 Drinking Water Quality Monitoring Regime

Set out below in Table 13 is the monitoring regime for the Nana Glen Water Supply.

Table 13 Nana Glen Water Quality Monitoring Regime

Source		Operational				Supply	
Orara River	Intake	Raw water	Treated Water	Reservoirs 1 & 2	Reservoirs 1 & 2	Grafton St (Park)	
Monthly	Monthly	Weekly	approx. 3 x per Week		Monthly	Fortnightly	6 monthly
Faecal coliforms Total coliforms	Turbidity pH Aluminium Alkalinity Hardness Colour Apparent Conductivity Iron Manganese	Inflow Turbidity	Flow Turbidity pH	Free Chlorine Reservoir 2 - level	Turbidity pH Aluminium Alkalinity Hardness Colour Apparent Conductivity Iron Manganese	Free Chlorine E.coli Total coliforms Temperature Aluminium	Chemical Physical

5.3 Water Quality Assessment

5.3.1 Source Water Quality

Water is sourced from the Orara River for the Nana Glen drinking water supply. Refer to Section 3.1.1 for information on the Orara River sub-catchment. CHCC water sampling sites for source water monitoring include:

- Orara River
- Nana Glen Pump Intake

Table 14 and Table 15; summarise the water quality data provided by CHCC. Data from 2008 – 2012 has been assessed.

Table 14 Microbial quality in Orara River at Nana Glen

Analyte	Min	Mean	Median	95%ile	Max
Faecal Coliforms	0	378	106	106	2,320
Total Coliforms	0	1907	633	633	25,400

Table 15 Water Quality Nana Glen Pump Intake

Analyte	Units	ADWG	Min	Mean	Max
Alkalinity CaCO3	mg/L		5	15	21
Hardness CaCO3	mgCaCO3/L	60 - 200	4	6	12
Colour Apparent	Pt Co		13	42	153
Conductivity	µS/cm		86	103	129
Iron	mg/L	0.3	0.12	0.42	0.87
Manganese	mg/L	0.5	0.004	0.028	0.099
pH	pH units	6.5 – 8.5	5.6	6.9	7.7
Turbidity	NTU		1.1	3.7	16

The waters of Orara River are soft, with a neutral pH (slightly acidic at times) and in periods of normal river flow, turbidity is low (averaging 3.7 NTU). Iron is above the recommended criteria for aesthetics with an average of 0.4.

5.3.2 Operational Water Quality

Process water quality monitoring includes the following:

- Turbidity in raw water
- Free chlorine in storage reservoirs

Operational data is recorded manually by council staff and was unavailable for analysis.

Nevertheless, the absence of coliforms within the supply system as noted in Table 17 and Table 18 indicates that treatment has effectively removed the coliforms as noted in Table 14 above.

Recommendation

Document all water quality data in electronic form in order to observe trends and issues over time

5.3.3 Reservoir Water Quality

Treated water from Nana Glen WTP flows to two storage reservoirs:

- Reservoir 1
- Reservoir 2

Both reservoirs are situated at the Nana Glen WTP. Nana Glen WTP operators monitor and record water quality from the reservoirs including:

- Free chlorine approximately three times per week (data not available in electronic format for analysis)
- Monthly: pH, conductivity, turbidity, apparent colour, calcium, hardness, iron, manganese, aluminium, free chlorine

Table 16 summarises the water quality results from the Nana Glen reservoirs.

Table 16 Water Quality Nana Glen Reservoirs

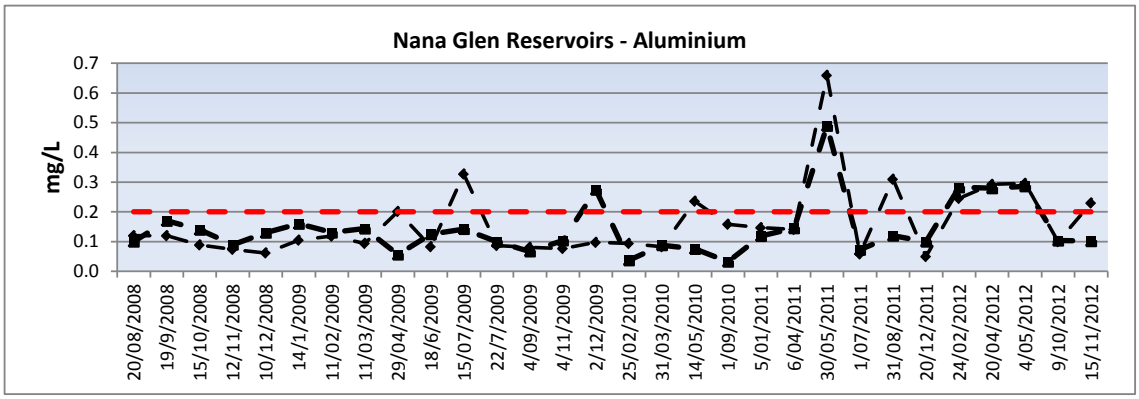
Analyte	Units	ADWG	Reservoir 1			Reservoir 2		
			Min	Mean	Max	Min	Mean	Max
Alkalinity CaCO3	mg/L	60 - 200	30	54	78	37	56	76
Aluminium	mg/L	0.2	0.05	0.16	0.66	0.03	0.14	0.5
Hardness CaCO3	mgCaCO3/L	200	38.8	67.3	96.2	43.7	69.9	108.5
Colour Apparent	Pt Co	-	0	11.4	90	0	15	72
Conductivity	µS/cm	-	169	222	283	184	224	292
Iron	mg/L	0.3	0	0.03	0.18	0	0.02	0.06
Manganese	mg/L	0.5	0	0.008	0.28	0	0.01	0.03
pH	pH units	7 – 8	6.8	7.7	8.9	6.8	7.8	8.6
Turbidity	NTU	< 5	0.2	1.9	13.0	0.1	2.5	14.0

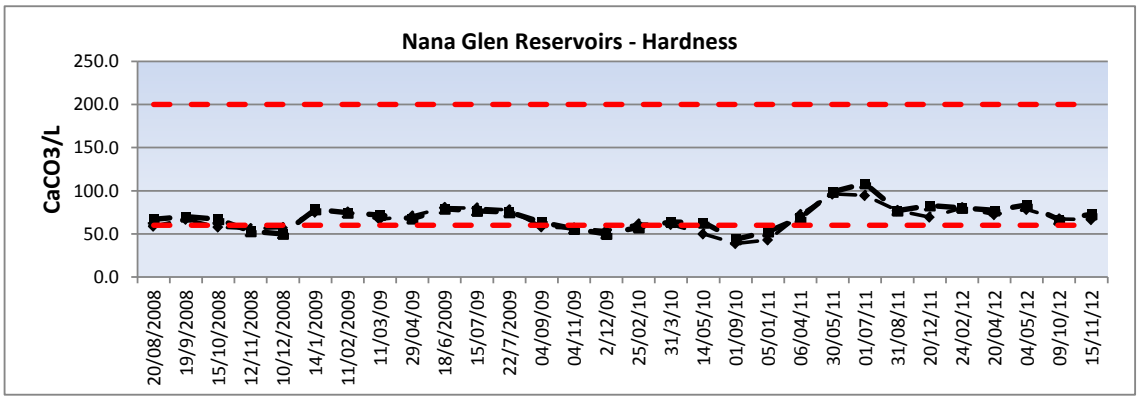
Source: Coffs Water Lab results 2007 to present

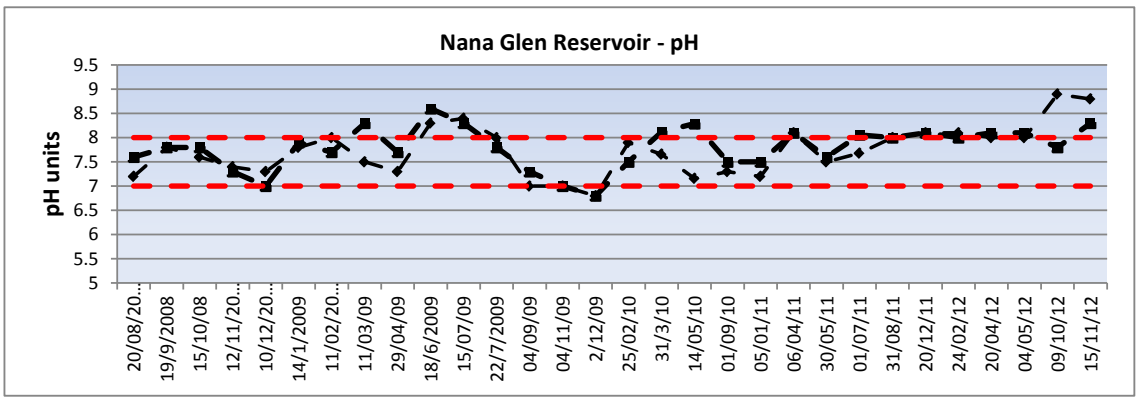
The figures below display water quality over time for the Nana Glen reservoirs. Points to note include:

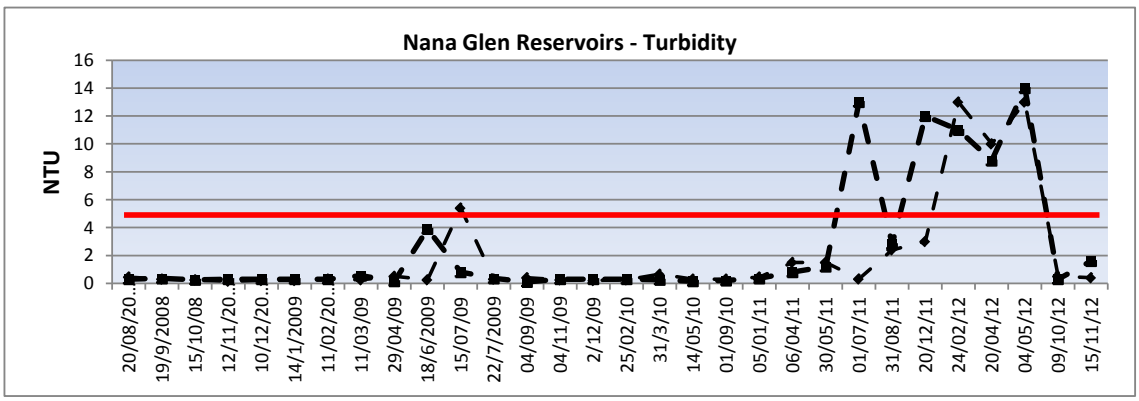
- At times Aluminium is elevated above the ADWG criteria. Although only an aesthetic consideration, the ADWG strongly encourage that aluminium is kept as low as possible – preferably below 0.1mg/L.
- Hardness is within or slightly under the recommended criteria.
- pH at times is slightly alkaline
- Turbidity in the last few years has been above the recommended criteria of 5 NTU and potentially indicates possible contamination. It is recommended CHCC review the cleaning schedule of these Reservoirs.
- At times Apparent Colour is elevated. This could be due to the higher Turbidity readings. 'Apparent Colour' is the colour resulting from the combined effect of true colour and any particulate matter, or turbidity. In turbid waters, the true colour is substantially less than the apparent colour. Guideline value for true colour is < 15HU.

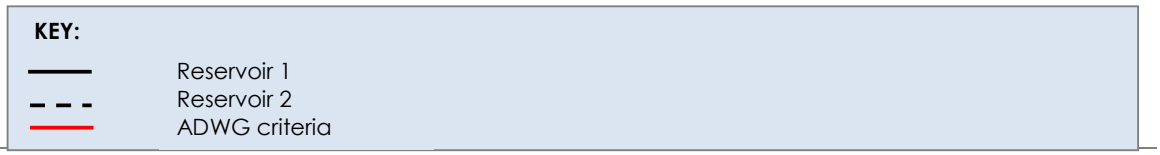
Attachment 2











Attachment 2

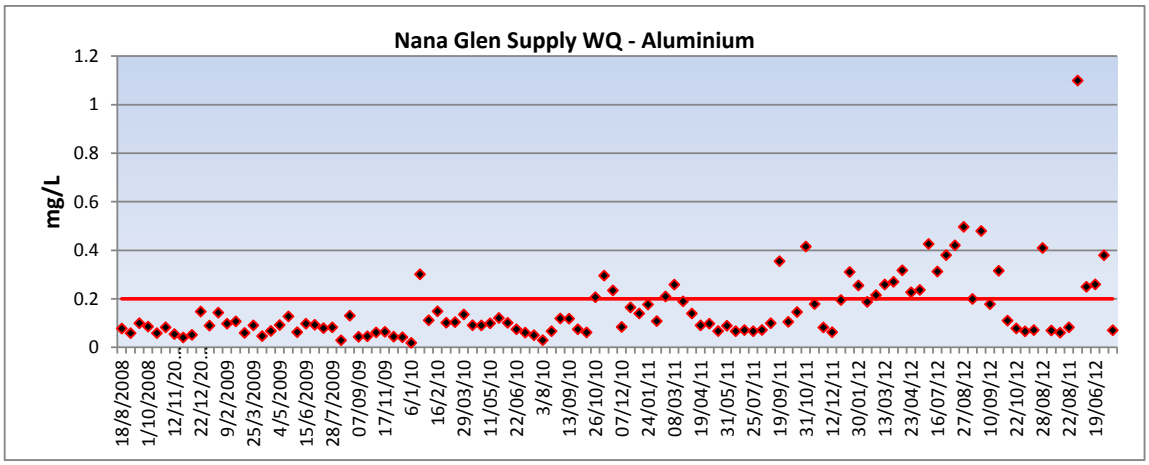
5.3.4 Supply Water Quality Monitoring: WTP Operational

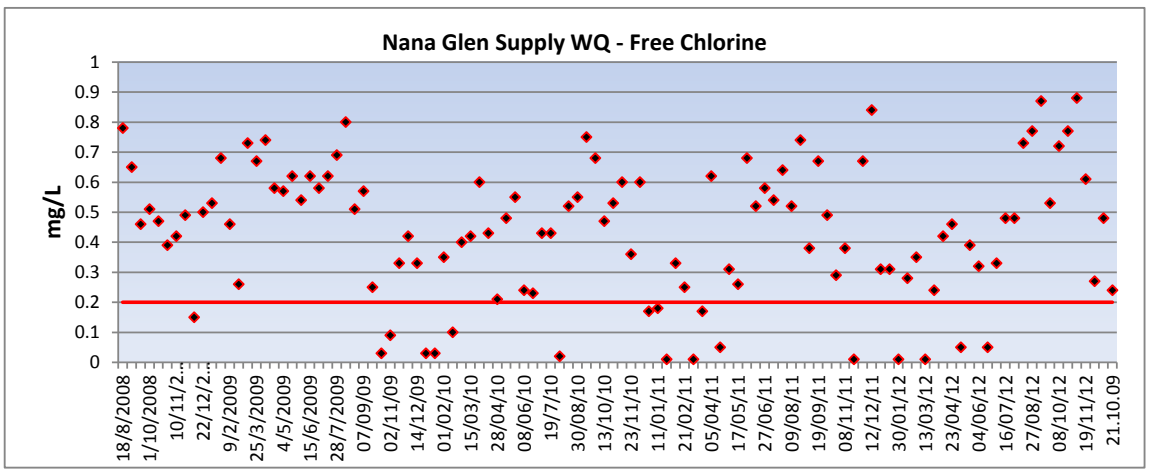
As part of the WTP operational monitoring procedures, water quality is sampled fortnightly at a point of supply in Nana Glen. Table 17 provides the mean results. All mean parameters are within the recommended limits.

Table 17 Nana Glen Customer End Point Water Quality Sampling

Analyte	Units	ADWG	Min	Mean	Max
Aluminium	mg/L	0.2	0.02	0.2	1.1
Free Chlorine	mg/L	0.2 – 5	0.01	0.4	0.88
E. coli	cfu/100ml	< 1	0	0	0
Total coliforms	cfu/100ml	< 1	0	0	1
Temperature	Celcius	-	13	21	30

Source: Coffs Water Lab Results 2007 to Present





Attachment 2

5.3.5 Supply Water Quality Monitoring: NSW Health

Further to the operational monitoring, NSW Department of Health (NSW Health) monitors water quality at the point of supply. The samples are monitored for their physical, chemical and microbial parameters.

A total of 26 microbiological samples are tested per year in the Nana Glen drinking water supply.

The following two sites are monitored in Nana Glen:

- 8. Grafton Street
- 999. Not Defined, Nana Glen

Table 18 summarises the water quality data for Nana Glen, illustrating nearly 100% compliance with all key indicators, with the exception of a small number of exceedances for total coliforms, pH and aluminium, most of which occurred up to eight years previously. Non-compliances for free chlorine were all low-residuals, with 11% non-compliance in 2009; and 21% non-compliance in each of 2009, 2010 and 2011. All exceedances were at Grafton Street monitoring site, except for a free chlorine reading on March, 2004.

Table 18 Summary of NSW Drinking Water Monitoring Program Data Water Quality: Nana Glen

Parameters	ADWG Value	Number of Samples	Min	Mean	95%ile	Max	Exceedances
E.coli	<1 cfu/100ml	262	0	0	0	0	0
Total Coliform	<1 cfu/100ml	263	0	0	0	1	5/09/2006: 2 cfu/100ml
Free Chlorine	0.2 - 5 mg/L	261	0.01	0.29	0.74	1.18	114 (Low residual)
pH	6.5 – 8.5	20	7.3	8.2	8.7	8.8	1/04/2004: 8.7 9/09/2004: 8.6 6/05/2010: 8.8
True Colour	<15HU	18	0.05	0.10	0.19	1.00	0
Turbidity	<5NTU	20	0.05	0.35	0.74	1.50	0
Total Hardness	200mg/L CaCo3	19	46.6	72.3	87.0	87.9	0
Aluminium mg/L	0.2mg/L	19	0.02	0.13	0.33	0.46	9/09/2004: 0.46 2/06/2005: 0.31
Iron	0.3mg/L	19	0.01	0.03	0.07	0.08	0
Manganese	0.5mg/L	20	0	0	0.01	0.02	0

Note: Treated water data from 2002 to 2012

Attachment 2

Appendices

Attachment 2

1.1. Frequency of Water Quality Monitoring

Site No	Sample Point	Sampled By	Frequency	Tests Done
TREATED WATER				
007	Red Hill Reservoir - Coramba Rd. (East of Res.)	Lab Staff	Weekly	A
008	Nana Glen - Grafton St (Park by River)	Lab Staff	Fortnightly	A, B
009	Coramba - Martin St. (Toilet Block)	Lab Staff	Fortnightly	A, B
DISTRIBUTION SYSTEM – (RESERVOIRS)				
010	Macauley's - Mastracolas Rd (North of Res)	Lab Staff	Yearly	A
011	Roberts Hill - Kratz Dr. (North of Res.)	Lab Staff	Twice / Year	A
012	Mullaway - Tramway Dr. (East of Res)	Lab Staff	Yearly	A
013	Bark Hut - Bark Hut Rd. (East of Res.)	Lab Staff	Yearly	A
014	Woolgoolga Headland - Ocean St. (West of Res.)	Lab Staff	Yearly	A
015	Scarborough St - Scarborough St. (East of Res.)	Lab Staff	Yearly	A
016	Emerald - Stefan Cls.(South of Res.)	Lab Staff	Yearly	A
017	Moonee - MacCues Rd. (North of Res.)	Lab Staff	Yearly	A
018	Sapphire - Old Coast Rd. (East of Res.)	Lab Staff	Yearly	A
019	Sawtell Headland - Boambee Headland (South of Eastern Res.)	Lab Staff	Twice / Year	A
020	Toormina - Belbowrie Rd. (South of Eastern Res.)	Lab Staff	Twice / Year	A
SUPPLY TO CONSUMER (RETICULATED)				
021	Ulmarra offtake - Eggins Cl. (Next to meter pit)	Lab Staff	Every 4 Weeks	A, B
022	Arrawarra - 2nd Ave.(Toilet Block, in service bay)	Lab Staff	Every 4 Weeks	A, B
023	Safety Beach - Ocean Drive. (SPS)	Lab Staff	Fortnightly	A, B
024	Woolgoolga - N. End Lake Rd.(Toilet Block, in service bay)	Lab Staff	Fortnightly	A, B
025	Sandy Beach - Sandy Beach Dr.(Toilet Block, in service bay)	Lab Staff	Every 4 Weeks	A, B
026	Emerald - Fiddamans Rd.(Reserve Toilet Block, East side)	Lab Staff	Every 4 Weeks	A, B
027	Moonee -Woodhouse Rd (Bushfire	Lab Staff	Fortnightly	A, B

Attachment 2

Site No	Sample Point	Sampled By	Frequency	Tests Done
	Shed, North side)			
028	Sapphire - Sapphire Cr.(SPS 69)	Lab Staff	Fortnightly	A, B
029	Korora - Sandy Beach Dr.(Toilet Block, South end)	Lab Staff	Fortnightly	A, B
030	Coffs Harbour Nth - York St (SPS 44)	Lab Staff	Fortnightly	A, B
031	Coffs Harbour Nth - Marcia St Depot (North end Stores Build)	Lab Staff	Fortnightly	A, B
032	Coffs Harbour Sth - Council Chambers (Riding Lane, carpark wall)	Lab Staff	Fortnightly	A, B
033	Coffs Harbour Sth - Jetty Oval (Toilet Block, South side)	Lab Staff	Fortnightly	A, B
034	Sawtell - Boronia Park (West side Lions Shed)	Lab Staff	Fortnightly	A, B
035	Toormina - Sea Breeze Pl. (SPS 21)	Lab Staff	Fortnightly	A, B
036	Toormina - Hamilton Dr. (SPS 17)	Lab Staff	Fortnightly	A, B
041	Corindi Beach Aboriginal Community	Lab Staff	Monthly	A, B
042	Wongala Estate Aboriginal Community	Lab Staff	Monthly	A, B
043	Karangi Dam Water Treatment Plant - Treated Water	Lab Staff	Weekly	A, B
RAW WATER SAMPLES				
	Karangi Dam 1m	CHCC Water Staff	Monthly	pH, Conductivity, Calcium Hardness, Alkalinity, Iron, Manganese, Total Nitrogen, Total Phosphorous
	Karangi Dam 3m	CHCC Water Staff	Monthly	Iron, Manganese
	Karangi Dam 6m	CHCC Water Staff	Monthly	Iron, Manganese
	Karangi Dam 9m	CHCC Water Staff	Monthly	Iron, Manganese
	Cochranes Pool	CHCC Water Staff	Monthly	Iron, Manganese
007	Redhill Reservoir	CHCC Water Staff	Monthly	pH, Conductivity, Calcium Hardness, Alkalinity, Iron, Manganese
	Regional Intake	CHCC Water	Monthly	pH, Conductivity, Calcium Hardness, Alkalinity, Iron, Manganese

Attachment 2

Site No	Sample Point	Sampled By	Frequency	Tests Done
	Karangi Dam 1m	CHCC Water	Weekly	Freshwater Algae Identification
	Karangi Dam 3m	CHCC Water	Weekly	Freshwater Algae Identification
	Karangi Dam 6m	CHCC Water	Weekly	Freshwater Algae Identification
	Karangi Dam 9m	CHCC Water	Monthly	Freshwater Algae Identification
	Karangi Dam 12m	CHCC Water	Monthly	Freshwater Algae Identification
	Karangi Dam 15m	CHCC Water	Monthly	Freshwater Algae Identification
	Karangi Dam 18m	CHCC Water	Monthly	Freshwater Algae Identification
	Karangi Dam 21m	CHCC Water	Monthly	Freshwater Algae Identification
	Karangi Dam 24m	CHCC Water	Monthly	Freshwater Algae Identification
	Karangi Dam 27m	CHCC Water	Monthly	Freshwater Algae Identification
	Karangi Dam Top Water Level	CHCC Water	Monthly	Freshwater Algae Identification
002	Karangi Dam	Lab Staff	Monthly	pH, Turbidity, Apparent Colour, Total Colour, Total Organic Carbon, Faecal Coliforms, Total Coliforms
001	Orara River - Cochranes Pool	Lab Staff	Monthly	pH, Turbidity, Apparent Colour, Total Colour, Total Organic Carbon, Faecal Coliforms, Total Coliforms
	Regional Intake - Karangi	Lab Staff	Monthly	pH, Turbidity, Apparent Colour, Total Colour, Total Organic Carbon, Faecal Coliforms, Total Coliforms
	Regional Intake - Coramba	Lab Staff	Monthly	pH, Turbidity, Apparent Colour, Total Colour, Total Organic Carbon, Faecal Coliforms, Total Coliforms
	Orara River - Nana Glen	Lab Staff	Monthly	Faecal Coliforms, Total Coliforms
005	Nana Glen Pump Intake	Lab Staff		pH, Conductivity, Turbidity, Apparent Colour, Calcium Hardness, Alkalinity, Iron, Manganese

Attachment 2

Site No	Sample Point	Sampled By	Frequency	Tests Done
Extra Sampling for Reticulated Supply				
	Reticulation Fluoride Testing	Lab Staff	Weekly	Fluoride
				Note: Three samples chosen from sites 021 - 043 to do every week (1 from northern sites, 1 from Coffs sites, 1 from Sawtell sites)
007	Redhill Reservoir	Lab Staff	Weekly	pH, Turbidity, Apparent Colour, Alkalinity, Calcium Hardness, Fluoride, Iron, Manganese
043	Karangi Water Treatment Plant (Treated Water)	Lab Staff	Weekly	pH, Turbidity, Apparent Colour, Alkalinity, Calcium Hardness, Fluoride, Iron, Manganese
	Coffs Harbour Tap Water (either 030, 031,032 or 033)	Lab Staff	Weekly	pH, Turbidity, Alkalinity, Apparent Colour
	Woolgoolga Tap Water (tap at Woolgoolga WRP)	CHCC Water Staff	Weekly	pH, Turbidity, Alkalinity, Apparent Colour
034	Sawtell Tap Water (034)	CHCC Water Staff / Lab Staff	Weekly	pH, Turbidity, Alkalinity, Apparent Colour, Chloride(monthly)
	Nana Glen Reservoir 1	CHCC Water Staff	Monthly	pH, Conductivity, Turbidity, Apparent Colour, Calcium Hardness, Alkalinity, Iron, Manganese, Aluminium
	Nana Glen Reservoir 2	CHCC Water Staff	Monthly	pH, Conductivity, Turbidity, Apparent Colour, Calcium Hardness, Alkalinity, Iron, Manganese, Aluminium
008	Nana Glen Sampling Point	Lab Staff	Fortnightly	Aluminium
041	Corindi Beach Aboriginal Community	Lab Staff	Monthly	pH, Turbidity, Fluoride
042	Wongala Estate Aboriginal Community	Lab Staff	Monthly	pH, Turbidity, Fluoride

Test A–Total coliforms; E. coli; Free chlorine and Temperature

Test B–Chemical Comprehensive: pH, Turbidity, Total Dissolved Solids, Total Hardness, True Colour, Iodine, Aluminium, Antimony, Arsenic, Barium, Boron, Cadmium, Calcium, Chromium, Copper, Iron, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Sodium, Zinc, Chloride, Fluoride, Sulphate, Nitrate, and Nitrite.

Attachment 2

1.2. Pesticides Results

SITE	DATE	Organochlorine Insecticide	Organophosphorous Insecticide	Acidic Herbicides	Synthetic Pyrethoids	Glyphosate	TILT
Sandy Beach Dr	8/09/1998	nd	nd				
Cochranes Pool	20/10/1998	nd	nd				
Karangi Dam	20/10/1998	nd	nd				
Woolgoolga Lake - Retic	8/12/1998	nd	nd				
Cochranes Pool	19/01/1999	nd	nd				
Karangi Dam	9/02/1999	nd	nd				
Nana Glen Intake	16/02/1999	nd	nd				
Ocean Pde	9/03/1999	nd	nd				
Orara River, Coramba	17/03/1999	nd	nd				
Cochranes Pool	30/03/1999	nd	nd				
Karangi Dam	30/03/1999	nd	nd				
Orara River, Nana Glen	11/05/1999	nd	nd				
Orara River, Coramba	26/06/1999	nd	nd				
Moonee Reservoir	26/06/1999	nd	nd				
Cochranes Pool	6/07/1999	nd	nd				
Karangi Dam	6/07/1999	nd	nd				
Orara River, Nana Glen	16/08/1999	nd	nd	nd		nd	nd
Sapphire Cr	10/11/1999	nd	nd				
Orara River, Coramba	14/12/1999	nd	nd	nd	nd	nd	
Cochranes Pool	5/01/2000	nd	nd	nd	nd	nd	
Karangi Dam	5/01/2000	nd	nd	nd	nd	nd	
Orara River, Nana Glen	15/02/2000	nd	nd	nd	nd	nd	
York St Retic	29/02/2000	nd	nd	nd	nd	nd	
Orara River, Coramba	20/03/2000	nd	nd	nd	nd	nd	
Karangi Dam	5/04/2000	nd	nd	nd	nd	nd	
Cochranes Pool	5/04/2000	nd	nd	nd	nd	nd	
Urumbilum River U/S	9/05/2000	nd	nd	nd	nd	nd	
Urumbilum River D/S	9/05/2000	nd	nd	nd	nd	nd	
Orara River, ?	9/05/2000	nd	nd	nd	nd	nd	
Hamilton Dr Retic	10/05/2000	nd	nd	nd	nd	nd	
Orara River, Nana Glen	19/06/2000	nd	nd	nd	nd	nd	
Karangi Dam	4/07/2000	nd	nd	nd	nd	nd	
Cochranes Pool	19/07/2000	nd	nd	nd	nd	nd	
Orara River, Coramba	16/08/2000	nd	nd	nd	nd	nd	
Moonee Retic	23/08/2000	nd	nd	nd	nd	nd	
Orara River Nana Glen	11/10/2000	nd	nd	nd	nd	nd	

Attachment 2

1.3. Disinfection By-products (all units in µg/L)

SITE	DATE	Trichloro methane	Bromodichor methane	Dibromochloro methane	Tribromo methane	THM Total
Reservoirs						
Woolgoolga	22/03/1999	15	6	2.3	1	24.3
Scarborough	6/04/1999	12	7.2	4.4	1	24.6
Mullaway	8/02/1999	18	9.5	3.7	1	32.2
Emerald	10/05/1999	11	7.1	5.7	1	24.8
Moonee	26/06/1999	25	7	5	0	37
Sawtell	5/08/1999	100	9.9	6.1	1	117
Toormina	6/09/1999	18	13	1	1	33
Roberts Hill	13/10/1999	21	16	9.9	1	47.9
Mullaway	13/10/1999	14	8.2	5.2	1	28.4
Bark Hut	16/11/1999	12	19	7.8	1	39.8
Scarborough	12/01/2000	12	15	6.8	1	34.8
Mullaway	1/02/2000	14	8.4	4.5	1	27.9
Bark Hut	28/02/2000	12	6.9	4.6	1	24.5
Woolgoolga H'land	27/03/2000	12	8.7	7.1	1	28.8
Sawtell	5/05/2000	12	8.7	5.6	1	27.3
Toormina	6/06/2000	13	10	6.9	1	30.9
Mullaway	18/07/2000	9.1	7	5.7	1.2	23
Scarborough	19/09/2000	15	14	9.7	1	39.7
Woolgoolga H'land	10/10/2000	14	11	7.6	1	33.6
Emerald	29/11/2000	9.9	6.9	4.3	1	22.1
Red Hill (mean)	21/3/2005			10	9	19
Reticulation						
Sapphire Cr	5/04/2000	11	13	8.2	1	33.2
Nana Glen	29/11/2000	23	1	1	1	26
Shannon Creek Dam						
	25/03/2010	<1	<1	<1	<1	<4

NOTE: Guideline value 0.25mg/L for individual and total THM. Divide all above results by 1000 for comparison purposes.

Attachment 2

1.4. NSW Health Water Quality Monitoring Parameters at Point of Supply

Parameter
Physical
pH
True Colour
Total Dissolved Solids (TDS)
Total Hardness as $CaCO_3$
Turbidity
Microbial Monitoring
E. coli
Total Coliforms
Disinfectant residual
Free Chlorine
Total Chlorine
Nutrients
Nitrate
Nitrite
Metals
Aluminium
Antimony
Arsenic
Barium
Boron
Cadmium
Calcium
Chloride
Chromium
Copper
Cyanide
Fluoride
Iodine
Iron
Lead
Magnesium
Manganese
Mercury
Molybdenum
Nickel
Nitrate
Nitrite
Selenium
Silver
Sodium
Sulfate
Zinc

Attachment 2

Appendix C

Technical Note 3 – Risk Assessment Workshop

Attachment 2

Coffs Harbour City Council

Hazard Identification and Risk Assessment

Technical Note 3

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Attachment 2

Document Control					
			Approved for Issue		
Rev	Author	Reviewer	Name	Signature	Date
2	Helen Salvestrin	Joanne Walsh	Joanne Walsh		6 August 2013

Attachment 2

Hazard Identification and Risk Assessment

Coffs Harbour City Council (CHCC) hosted a two day Risk Assessment workshop. It was undertaken on 19th and 20th February, 2013, with CHCC, Clarence Valley Council (CVC), NSW Health, NSW Office of Water and HydroScience Consulting (HSC) staff.

The purpose of the risk assessment was to identify all hazards inherent in the drinking water supply systems and identify where appropriate controls are required.

Workshop Participants

Participants in the workshop are noted below:

Coffs Harbour City Council

1. Simon Thorn – Executive Manager – CHW Operations
2. Paul Sparke – Engineer Strategic Infrastructure
3. Glen O'Grady – Manager Engineering Projects
4. Adam Wilson – Manager Water Treatment
5. Ty Cook – Manager Distribution
6. Les Potter – Acting Co-ordinator Water Supply
7. Graham Parkin – Acting Headwork's Superintendent
8. Piers Everitt – Manager Mechanical/Electrical
9. Daron Brook – Electronics Coordinator
10. Steve Kermister – Supervisor Water Supply (Northern)
11. Ron Hansford – Testing Officer Water Supply
12. Peter Rice – Leading Hand Water Supply
13. Ross Clarke – Corporate Systems Coordinator
14. Neil Sutton – Coordinator – Senior Technical - Water
15. Sandy Eager – Catchment Management
16. Geraldine McMahon – Technical Officer Quality Control

Clarence Valley Council

17. Kieran McAndrew – Water Cycle Engineer

HydroScience Consulting

18. Jessica Huxley – Senior Environmental Planner
19. Helen Salvestrin – Senior Design Engineer
20. Joanne Walsh – Regional Manager Northern Rivers

NSW Health

21. Dr Katrina Wall – NSW Policy Adviser Water Unit
22. David Basso – North Coast Public Health

NSW Office of Water

23. Glenn George – Regional Manager Urban Water
24. Terry Call – Water Utilities Inspector

Approach and Methodology

A Hazard Identification and Risk Assessment workshop was facilitated by HydroScience to identify key hazardous events and rate the risks associated with Coffs Harbour and Nana Glen drinking water supply systems, from catchment to consumer's tap.

A preliminary set of hazardous events was provided for the workshop. Participants deleted or added hazards as required for each specific drinking water supply system. The participants were facilitated through the process to determine likelihood and consequence of each hazardous event in order to rate the risk.

CHCC used the Australian Drinking Water Guidelines (ADWG) (NHMRC, NRMMC, 2011) Risk Assessment Matrix. The risk rating of an incident was based on the combination of consequence and likelihood. Table 1 sets out the Risk Assessment Matrix and prioritisation of actions.

Hazardous events were also included that were identified as very high or high risks in the Nymboida catchment and Shannon Creek Dam by the following studies:

- Coffs Infrastructure Alliance (2009) Coffs Harbour City Council. Coffs Harbour Water Treatment Plant, HACCP Plan
- Water Futures (2008) Water Quality Risk Assessment Workshop. Workshop Outcomes Paper for Clarence Valley Council
- Ministry of Energy and Utilities (2003) Shannon Creek Raw Water Conceptual HACCP Plan

Residual risks in the Coffs Harbour HACCP plan were based on the events before the commissioning of the Karangi WTP. Residual risks for the two other assessments, undertaken for Clarence Valley Council (CVC), were based on treatment at the CVC WTPs. Maximum risks from the assessments were used for the workshop and residual risks subsequently assessed by the workshop based on treatment at Karangi Dam and WTP. [Note: these events are indicated by an asterix (*) in the risk assessment.]

Table 2 and Table 3 document the Risk Assessment for the two CHCC drinking water supply systems.

The following list identifies the DWSS and their source waters:

1. **Coffs Harbour DWSS**
   - ❒ Orara River
   - ❒ Nymboida River
   - ❒ Shannon Creek Dam
2. **Nana Glen DWSS**
   - ❒ Orara River

The Karangi Water Treatment Plant (WTP), which treats water for the Coffs Harbour DWSS, is a dissolved air flotation and filtration (DAFF) plant and uses both UV disinfection and chlorination. It fluoridates water for distribution to consumers from Sawtell in the south to Corindi in the north.

The Nana Glen WTP filters and chlorinates water for consumers in Nana Glen.

Critical Control Points

Critical Control Points (CCP) are activities, procedures or processes where the operator can apply control, and are essential elements in preventing hazards and reducing risks to an acceptable level.

In order to distinguish acceptable from unacceptable performance at each point, target levels, alert levels and critical limits have been identified. Critical limits indicate that the operative process has lost control and may compromise health and/or environmental consequences. Corrective actions should be instituted immediately.

CCPs for the Karangi WTP were determined prior to the commissioning of the plant and are documented in the Coffs Harbour HACCP Plan (Coffs Infrastructure Alliance, 2009). The workshop reviewed the performance and relevance of the CCPs since the commissioning of the Karangi WTP. The CCPs were updated where appropriate to reflect the ADWG methodology and optimum WTP performance. Operational procedures and corrective actions were also documented for these CCPs.

For the Nana Glenn WTP the CCPs were developed as part of the risk assessment workshop.

CCPs, operational and corrective actions for Coffs Harbour and Nana Glen drinking water supply systems are summarised in Table 4 and Table 5.

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Table 1: CHCC Risk Assessment Matrix

		CONSEQUENCE OR SEVERITY				
		1. Insignificant Insignificant impact, little disruption to normal operation, low increase in normal operation costs	**2. Minor** Minor impact or small population, some manageable operation disruption, some increase in operating costs	**3. Moderate** Minor impact for large population, significant modification to normal operation but manageable, operation costs increased, increased monitoring	**4. Major** Major impact for small population, systems significantly compromised and abnormal operation if at all, high level of monitoring required	**5. Catastrophic** Major impact for large population, complete failure of systems
LIKELIHOOD OR PROBABILITY	**A. Almost Certain** Expected to occur in most circumstances	Moderate	High	Very High	Very High	Very High
	B. Likely Will probably occur in most circumstances	Moderate	High	High	Very High	Very High
	C. Possible Might occur at some time	Low	Moderate	High	Very High	Very High
	D. Unlikely Could occur at some time	Low	Low	Moderate	High	Very High
	E. Rare May occur in exceptional circumstance	Low	Low	Moderate	High	High

Attachment 2

Very High Risk: Senior Management to be advised - Immediate action taken

High Risk: Senior Management attention needed - To be actioned within 1 month

Medium Risk: Management responsibility must be specified - Permanent control required within one - three months

Low Risk: Responsibility to be recorded - To be actioned within 12 months

The risk rating of an incident is based on the combination of Consequence and Likelihood.

Consider the Consequence and Likelihood to determine a Risk Rating

Consequence + Likelihood = Risk Rating

Attachment 2

Table 2: Coffs Harbour DWSS Risk Assessment

Hazardous Event	Preventive Measures	Max Risk with no Preventive Measures			Residual Risk with Preventive Measures			Monitoring and Control	Notes/Improvement Actions
		Likelihood	Conseq'ce	Max Risk	Likelihood	Conseq'ce	Resid Risk		
Orara River Catchment									
Pathogens									
OSSM failure/breach	OSSM policy; LEP/planning controls; selective extraction CCP; alternate sources; Karangi WTP process control (clarification, DAFF, chlorination, UV disinfection).	C	4	V High	E	3	Mod	• OSSM inspections • LEP and compliance • Raw water (monthly: faecal coliform), WTP operational monitoring (weekly: *E.coli*) • NSW Health	Mixture of old and new style septics; Urumbilum River has houses closer to river.
Unrestricted livestock/ stockyards	Orara River Rehabilitation Strategy (ORRS) activities including fencing, vegetation buffers; selective extraction CCP; alternate sources; WTP process control.	A	4	V High	E	3	Mod	• ORRS monitoring • Raw water (monthly: faecal coliform), WTP operational monitoring (*E.coli*) • NSW Health	Two dairies; cattle can walk through Cochrane's Pool.
Primary contact by humans	Community education including signs; selective extraction CCP; alternate sources; WTP process control.	C	4	V High	E	3	Mod	• ORRS monitoring • Raw water (monthly: faecal coliform), WTP operational monitoring (*E.coli*) • NSW Health	In particular, swimming at Cochrane's Pool.
Wildlife access	Selective extraction CCP; alternate sources; WTP process control.	A	4	V High	E	3	Mod	• Raw water (monthly: faecal coliform), WTP operational monitoring (*E.coli*) • NSW Health	
Milk (waste) spills/dumping	Vegetation buffers; incident management and communication plans; selective extraction CCP; alternate sources; WTP process control.	E	4	High	E	3	Mod	• Raw water (online: NTU; monthly: faecal coliform), WTP operational monitoring (turbidity, E.coli, free coliform) • NSW Health	
Chemicals									
Farming/forestry practices	ORRS; LEP/ planning controls; selective extraction CCP; alternate sources; WTP process control, including PAC.	C	2	Mod	E	1	Low	• ORRS monitoring • LEP and compliance • Monthly (Fe, Mn, nutrients) monitoring in raw water; 5-yearly pesticides monitoring • NSW Health	Turf farm; fertilisers; pesticides; chronic health impact; aesthetic impacts.

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Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
Chemical spill e.g. fuel truck spillage/farm drums	Incident management and communication plans; selective extraction CCP; alternate sources; WTP process control, including PAC.	D	4	High	E	2	Low	• ORRS monitoring • LEP and compliance • 5-yearly pesticides monitoring in raw, treated waters • NSW Health	Some bridge crossings of Orara River; fuel is highest hazard with taste and odour issue
Point sources e.g. mine sites	Selective extraction CCP; alternate sources; WTP process control, including PAC.	E	3	Mod	E	2	Low	• ORRS monitoring • LEP compliance • 5-yearly pesticides monitoring in raw, treated waters • NSW Health	Old gold mine sites (possible arsenic, mercury contamination)
Contaminants naturally occurring in the source water	Selective extraction CCP; alternate sources; WTP process control.	E	1	Low	E	1	Low	• Raw water (Fe, Mn), WTP operational monitoring • NSW Health	
Turbidity									
Stormwater flows	ORRS; visual inspection; selective extraction CCP; alternate sources (Shannon Creek, Nymboida); WTP process control.	B	4	V High	E	1	Low	• Weather/rainfall monitoring • ORRS monitoring • Visual inspections for debris • Online NTU monitoring in raw water, WTP • NSW Health	
Controlled and uncontrolled fires	Coordination with NSW Rural Fire Service and other emergency services; incident management procedures; visual inspection; selective extraction CCP; alternate sources; WTP process control.	D	4	High	E	2	Low	• Weather/wind monitoring • Coordination with NSW RFS • Visual inspection • Online NTU monitoring in raw water, WTP • NSW Health	
Poor logging practices	ORRS; LEP (special area); planning controls; CMA activities; vegetation buffers; selective extraction CCP; alternate sources (Shannon Creek, Nymboida); WTP process control.	D	4	High	E	1	Low	• LEP compliance monitoring • ORRS monitoring • Visual inspection • Raw water, WTP operational NTU monitoring • NSW Health	
Nymboida Catchment									
Pathogens									
Storm events*	Selective extraction CCP; detention time; ORRS; visual inspection; alternate sources (Shannon			V High	E	1	Low	• Weather/rainfall monitoring • ORRS monitoring	*(Coffs Harbour WTP HACCP, 2009)*

Attachment 2

Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
	Creek, Orara); WTP process control.							• Visual inspections for debris • Online NTU monitoring in raw water, WTP • NSW Health	
Septic systems*	CVC septic tank program; dilution; long detention time in river for towns in the catchment; OSSM policy; LEP/planning controls; selective extraction CCP; alternate sources; WTP process control.			High	E	3	Mod	• OSSM inspections • LEP and compliance • Raw water (monthly: faecal coliform), WTP operational monitoring (weekly: *E.coli*) • NSW Health	*(Coffs Harbour WTP HACCP, 2009)*
The Coaching Station*	CVC septic tank program; dilution; long detention time in river for towns in the catchment; OSSM policy; LEP/planning controls; selective extraction CCP; alternate sources; WTP process control.			V High	E	3	Mod	• OSSM inspections • LEP and compliance • Raw water (monthly: faecal coliform), WTP operational monitoring (weekly: *E.coli*) • NSW Health	*(Coffs Harbour WTP HACCP, 2009)* Septic tank effluent spray irrigated next to river. Chlorinated effluent. Accommodation (60 people) and restaurant on-site. Effluent disposal being upgraded to subsurface irrigation.
Dorrigo STP*	Dilution; detention time in maturation pond selective extraction CCP; alternate sources; WTP process control.			High	E	3	Mod	• OSSM inspections • LEP and compliance • Raw water (monthly: faecal coliform), WTP operational monitoring (weekly: *E.coli*) • NSW Health	*(Coffs Harbour WTP HACCP, 2009)*
Saleyards*	Fences and vegetation along creeks; cattle yards high in the catchment; dilution and detention in the river; ORRS; selective extraction CCP; alternate sources; WTP process control.			High	E	3	Mod	• ORRS monitoring • Raw water (monthly: faecal coliform), WTP operational monitoring (*E.coli*) • NSW Health	*(Coffs Harbour WTP HACCP, 2009)* Possible downstream treatment or collection ponds
Dairies*	Variable wastewater treatment, including settling ponds; funding for treatment ponds, laneways and crossings; farm dams; ORRS; selective extraction CCP; alternate sources; WTP process control.			High	E	3	Mod	• ORRS monitoring • Raw water (monthly: faecal coliform), WTP operational monitoring (*E.coli*) • NSW Health	*(Coffs Harbour WTP HACCP, 2009)* 10 - 20 dairies in the upper areas of the catchment near Dorrigo. 100 - 300 cows/dairy
Cattle/sheep*	Dilution in river and detention in weir pool; low stocking rates; farm dams; very few permanent creeks; ORRS; selective extraction CCP; alternate sources; WTP process control.			High	E	3	Mod	• ORRS monitoring • Raw water (monthly: faecal coliform), WTP operational monitoring (*E.coli*) • NSW Health	*(Coffs Harbour WTP HACCP, 2009)*
Native animals*	Selective extraction CCP; dilution; detention time.			High	E	3	Mod	• Raw water (monthly: faecal coliform), WTP operational monitoring (*E.coli*) • NSW Health	*(Coffs Harbour WTP HACCP, 2009)*

Attachment 2

Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
Primary contact*	Dilution; training of key users (rafting operators)			High	E	3	Mod	• ORRS monitoring • Raw water (monthly: faecal coliform), WTP operational monitoring (*E.coli*) • NSW Health	*(Coffs Harbour WTP HACCP, 2009)*
Chemicals									
Mines sites	Environmental assessment; selective extraction CCP, alternate water source; WTP process control, including PAC.	D	4	V High	E	4	High	• Environmental assessment and compliance monitoring • Raw water (Fe, Mn, chemicals), WTP operational monitoring • NSW Health	Investigations currently underway for Antimony mine. Potential for CSG in the future. Karangi WTP does not currently remove antimony. RECOMMENDATION: Review hazards and treatment options associated with Antimony.
Spills of chemicals, including milk*	Emergency services (but may not notify CVC); Dangerous Goods regulations; CVC emergency response plan; selective extraction CCP; dilution; incident management and communication plans; alternate sources; WTP process control, including PAC.			High	E	2	Low	• ORRS monitoring • LEP and compliance • 5-yearly pesticides monitoring in raw, treated waters • NSW Health	*(CVC Water Quality Risk Assessment Workshop, 2008)* Review notification channels; development necessary water supply and/or CVC water quality incident plan
Turbidity/colour									
Major bushfire followed by major storm*	Bushfire management plan; fire fighting; selective extraction CCP; coordination with NSW Rural Fire Service and other emergency services; incident management procedures; visual inspection; alternate sources; WTP process control.			High	E	2	Low	• Weather/wind monitoring • Coordination with NSW RFS • Visual inspection • Online NTU monitoring in raw water, WTP • NSW Health	*(CVC Water Quality Risk Assessment Workshop, 2008)* Also colour, iron, manganese. Bushfire management plan has been developed?
Shannon Creek Dam									
Pathogens									
Storm events*	Selective extraction CCP; detention time; ORRS; visual inspection; alternate sources (Nymboida, Orara); WTP process control.			V High	E	1	Low	• Weather/rainfall monitoring • ORRS monitoring • Visual inspections for debris • Online NTU monitoring in raw water, WTP • NSW Health	*(Coffs Harbour WTP HACCP, 2009)*
Native animals*	Selective extraction CCP; dilution; detention time.			High	E	3	Mod	• Raw water (monthly: faecal coliform), WTP operational monitoring (*E.coli*) • NSW Health	*(Coffs Harbour WTP HACCP, 2009)*

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Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
Turbidity									
Bushfire*	Selective extraction CCP; coordination with NSW Rural Fire Service and other emergency services; incident management procedures; visual inspection; alternate sources; WTP process control.			High	E	2	Low	• Weather/wind monitoring • Coordination with NSW RFS • Visual inspection • Online NTU monitoring in raw water, WTP • NSW Health	*(Coffs Harbour WTP HACCP, 2009)* Also iron, manganese.
Logging activities in the top part of the catchment*	ORRS; LEP; planning controls; selection extraction CCP; alternate sources; WTP process control, including PAC.			High	E	1	Low	• LEP and compliance • ORRS monitoring • Visual inspection • Raw water, WTP operational NTU monitoring • NSW Health	*(CVC Water Quality Risk Assessment Workshop, 2008)* Also herbicides.
Toxins									
Algal blooms*	ORRS; CMA activities; vegetation buffers; alternate sources; selective extraction CCP; WTP process control, including PAC.			**High**	E	2	**Low**	• Visual inspections • Raw water, WTP operational monitoring • NSW Health	*(CVC Water Quality Risk Assessment Workshop, 2008)*
RWSS									
Pathogens									
Breach of pipelines through breaks/ maintenance/new installations	Superchlorination of new pipes; Standard Operating Procedures (SOP); visual inspections; programmed maintenance; water-system dedicated maintenance team; WTP process control.	D	4	High	E	3	Mod	• Visual inspections; WTP operational monitoring • NSW Health • Inspection and flushing of new works by outside contractors	
Cross-connections and backflows	Backflow prevention devices on meters (dual checks, air gaps); audit/inspection program; water-system dedicated maintenance team; WTP process control.	C	4	V High	E	2	Low	• WTP operational monitoring • NSW Health	Rural stock, cattle troughs, water tanks (20mm off-take)
Receipt of out-of-spec water (> 2 NTU) from RWSS (Nymboida/SC).	Telemetry; selective extraction CCP; WTP process control.	A	4	V High	C	2	Mod	• WTP operational monitoring • NSW Health	CVC to confirm alarms. RECOMMENDATION: Integration of SCADA systems between CVC and CHCC.
Chemicals									
Stratification	Multiple level off-take; telemetry: communication between CVC and CHCC; selective extraction CCP; alternate water supply; WTP process control.	B	4	V High	E	3	Mod	• Visual inspections • Raw water, WTP operational monitoring • NSW Health	
Deliberate contamination	Selective extraction CCP; alternate water supply; WTP process control, including PAC.	E	4	High	E	2	Low	• Visual inspections • Raw water, WTP operational monitoring • NSW Health	Impact on CHCC reputation.

Attachment 2

Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
Accidental contamination (spraying)	Procurement procedures; MSDS; selective extraction CCP; alternate water supply; WTP process control, including PAC.	C	2	Mod	E	1	Low	• Raw water, WTP operational monitoring • NSW Health	
Inlet screen failure/ blockage (debris)	Multiple level off-take; alternate water supply.	D	2	Low	E	1	Low	• Visual inspections • Raw water, WTP operational monitoring	Operational impact only.
Cyanobacteria									
Failure of aerator	Programmed maintenance; asset renewal schedule; on-site spare parts; WTP process control, including PAC.	D	4	**High**	E	2	**Low**	• Visual inspections • Raw water, WTP operational monitoring	
Algal blooms (toxins, taste and odour)	ORRS; CMA activities; vegetation buffers; alternate sources; selective extraction CCP; WTP process control, including PAC.	C	4	**V High**	E	2	**Low**	• Visual inspections • Raw water, WTP operational monitoring • NSW Health	
Karangi WTP									
Pathogens									
pH correction failure (dosing failure of lime, CO_2, caustic)	Programmed maintenance; well trained staff; procurement procedures; asset renewal schedule; on-site spare parts; secondary CO_2 dose; online monitoring and SCADA; option for manual overrides.	B	3	High	C	2	Mod	• Raw water source monitoring • Online pH, NTU monitoring at WTP • WTP process control	Major threat: poor corrosion control
Flocculation failure	Visual inspection of floc; programmed maintenance; well trained staff; procurement procedures; asset renewal schedule; on-site spare parts; online monitoring and SCADA; bypass mode – operate as direct filtration only; option for manual overrides.	C	4	V High	E	2	Low	• Visual inspections • Online pH, NTU monitoring at WTP • WTP process control	POSSIBLE CAUSES: dosing failure; lack of alum delivery; changes in source water; mechanical failure; power failure.
DAFF failure	Programmed maintenance; well trained staff; procurement procedures; asset renewal schedule; on-site spare parts; online monitoring and SCADA; option for manual overrides.	B	4	V High	D	3	Mod	• Visual inspections • Number of backwashes daily • Online pH, NTU monitoring at WTP • NSW Health • WTP process control	POSSIBLE CAUSES: Aeration failure; short circuiting; algal recycling; turbid water coming through; filter breakthrough; filter clogging; backwash pump failure; power outage; alarm failure; blower failure; diffuser failure; PLC failure; scum skimmer failure; no backup blower available. Impact: significant change in daily operations would be required.
Inadequate UV radiation	Multiple/redundancy of UV channels/bulbs; programmed maintenance/servicing; procurement procedures; asset renewal schedule; online	C	4	V High	E	3	Mod	• Continuous UV transmissivity and dose monitoring • Weekly operational monitoring	POSSIBLE CAUSES: High turbidity water; "wrong" flow; inadequate exposure time; bulb breakage/ failure;

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Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
	monitoring and SCADA.							• NSW Health • WTP process control	power failure; sensor failure; wiper failure; UV reactor failure.
Inadequate chlorination	Programmed maintenance; well trained staff; procurement procedures; asset renewal schedule; on-site spare parts; online monitoring and SCADA; options for manual overrides and hand dosing at reservoirs; residual chlorine levels in downstream reservoirs help to shandy flows if chlorine is under-dosed.	B	5	V High	E	3	Mod	• Continuous monitoring of free chlorine • Weekly operational free chlorine monitoring at WTP, RHBT, RHR • Fortnightly/monthly at reticulation; yearly at reservoirs • NSW Health • WTP process control	POSSIBLE CAUSES: Dosing system failure, lack of chlorine supply, mechanical failure, alarms failure, lack of contact time. Significant impact of overdosing: taste issue.
Loss of trained operators due to sickness, leave etc	Workforce planning, including succession planning. One operator is required to operate the plant, but there are three operators have the skills/experience and three who can assist.	B	4	V High	E	3	Mod	WTP automated process control.	
PLC failure	Trained operators; dual redundancy on PLCs; hot stand-by; daily manual checks of plant; programmed maintenance; spare parts; asset renewal schedule; SCADA system; "loss-of-communications" alarm; options for manual overrides.	D	5	V High	E	2	Low	WTP automated process control.	
Cyber security	Firewall; PLC locks; specific user accounts; passwords; operational and verification monitoring; daily manual checks of plant; RHBT storage capacity; "loss-of-communications" alarm; back up of PLC code.	E	5	High	E	3	Mod	PLC and SCADA locks and alarms.	RECOMMENDATIONS: Establish internal firewalls; schedule for change of passwords; off-site disaster recovery of servers; develop policy on the use of thumb stick drives.
Plant site security	Fences; security cameras; intruder alarms; entry card access.	D	5	V High	E	3	Mod	Security cameras and intruder alarms.	RECOMMENDATION: Repair/ maintain security cameras.
Failure of alarms	"Loss-of-communications" alarm; earths; reservoir storage; daily manual checks of plant.	B	4	V High	C	2	Mod	PLC and SCADA alarms.	RECOMMENDATION: Install standby server
Power failure	Manual checks; automatic plant shut down; trained operators; "loss-of-communications" alarm; Service Level Agreement (SLA) with IT department; blackberry back-up system; daily manual operations; manual chlorine dosing; options for manual overrides.	B	5	V High	D	3	Mod	• Automatic plant shut down • PLC and SCADA alarms	POSSIBLE CAUSES: Phase failure, brown-outs, power spike, surges
Lightning strike at WTP (worst case scenario: chlorine dosing system is hit)	Automatic plant shut down; trained operators; "loss-of-communications" alarm; Service Level Agreement (SLA) with IT department; blackberry back-up system; daily manual operations; manual chlorine dosing; options for manual overrides.	D	4	High	D	2	Low	• Automatic plant shut down • PLC and SCADA alarms	

Attachment 2

Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
Chemicals									
Overdosing due to equipment malfunction	Alarms; back-up systems; fluoride day tank; daily manual checks; well-trained operators; online monitoring and SCADA; redundancy on measuring devices; online monitoring of treated water for fluoride and chlorine; visual inspection of flocculation.	B	2	High	E	2	Low	• Continuous monitoring free chlorine • Weekly operational free chlorine monitoring at WTP, RHBT, RHR • Fortnightly/monthly at reticulation; yearly at reservoirs • WTP process control • Online fluoride monitoring of treated water • Fortnightly/monthly fluoride testing in reticulation • NSW Health	POSSIBLE IMPACTS: taste and odour from chlorine overdose; chronic health impact from fluoride overdose.
Infrastructure (pipework, lining of valves, pump, oils) leach components of materials due to chemical reaction	Cathodic protection; visual inspection; programmed maintenance; asset renewal schedule; on-site spare parts; procurement procedures; standard materials lists; redundancy; WTP process control, including PAC.	B	3	High	C	2	Mod	WTP operational monitoring.	POSSIBLE CAUSES: Inlet control valve failure, meter failure, gasket failure.
Lack of supply (Critically: alum, chlorine; less critically: fluoride, CO_2)	Procurement procedures; back-up supply.	D	4	High	E	2	Low	PLC and SCADA monitoring.	
Supply of poor quality chemicals	Reputable suppliers; MSDS; certificates of analysis; receipt procedures; trained staff; daily manual checks.	C	3	High	E	2	Low	WTP operational monitoring.	
Reservoirs									
Pathogens									
Breach of reservoir integrity e.g. recontamination by vermin (birds, rats, snakes etc.)	Security fences; chlorine residuals; razor wire; electronic alarms on hatches; bypass capacity on some reservoirs; chlorine residual; alternate supply capacity.	A	4	V High	C	3	High	• Visual inspection • Weekly operational monitoring of RHBT, RHR • Yearly monitoring of all reservoirs (*E.coli*) • NSW Health	Works underway for secondary chlorination at Sawtell. Residuals are low at Bark Hut due to low usage. Regular seasonal variation of chlorine dosing related to water and air temperatures.
Deliberate contamination		E	5	High	E	3	Mod	• Visual inspection • Weekly operational monitoring of RHBT, RHR • NSW Health	RECOMMENDATION: Installation of security cameras at high risk reservoirs
Build-up of slime, sediment	WTP process control; regular cleaning process (with divers); asset management; reservoir design (off-takes above bottom of reservoir).	D	3	Mod	E	2	Low	• Weekly operational monitoring of RHBT, RHR • Yearly monitoring of all reservoirs (*E.coli*, total	Sediments coming through only as a result of mains break.

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Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
								coliforms, free chlorine, temp) • NSW Health	
Distribution									
Pathogens									
Low chlorine residual (due to long lengths of reticulation)	WTP process control; option for hand-dosing at reservoirs; online monitoring.	A	4	V High	B	3	High	• Hand dosing of reservoirs • Boiled water alerts • Fortnightly/monthly monitoring at supply (*E.coli*, free chlorine) • NSW Health	Online monitoring is being installed at Sawtell; issue mostly in summer (seasonal changes in dose); opportunity to increase dosing at Bark Hut and Sawtell.
Breach of pipelines through breaks, inappropriate maintenance, new or service works etc.	Superchlorination of new pipes; SOPs; flushing, water-dedicated maintenance team; mains replacement programs; inspection and flushing of new works by outside contractors; trained staff.	A	4	V High	C	2	Mod	• Boiled water alerts • Inspections of new works • Fortnightly/monthly monitoring at supply (*E.coli*, free chlorine, total coliforms) • NSW Health • Hand dosing of reservoirs	
Cross-connections and backflows	Maintain high operating pressures; backflow prevention devices (RPZ); backflow prevention policy and audit/inspection programs; registered users; customer agreement for recycled water users; most houses have non-return valves on meters.	B	5	V High	E	4	High	• Backflow inspection/audit programs • Fortnightly/monthly monitoring at supply (*E.coli*, free chlorine, total coliforms) • NSW Health • Hand dosing of reservoirs	POSSIBLE CAUSES: Rainwater tanks; recycled water doesn't go to individual houses; backflow is possible at golf course, stadium, industrial connections, etc. RECOMMENDATION: Continue backflow prevention program
Dead end in reticulation system leading to stagnation (aesthetic impacts due to overdosing of lime)	Mains extension program; yearly flushing; weekly water sampling; complaints response program; two lime dosing points to reduce overall content.	D	2	Low	E	2	Low	• Fortnightly/monthly monitoring at supply (*E.coli*, free chlorine, total coliforms, temperature) • NSW Health • Hand dosing of reservoirs	
Chemicals									
Overdosing at chlorine booster/hand dosing (chlorine)	Chlorine monitoring; online monitoring and SCADA; alarms; trained operators; SOP.	E	3	Mod	E	2	Low	• Fortnightly/monthly monitoring of free chlorine at reticulation; yearly at reservoirs • NSW Health	

Attachment 2

Table 3 Nana Glen Risk Assessment

Hazardous Event	Preventive Measures	Max Risk no Preventive Measures			Residual Risk with Preventive Measures			Monitoring and Control	Notes/Improvement Actions
		Likelihood	Conseq'ce	Max Risk	Likelihood	Conseq'ce	Reside Risk		
Orara River Catchment Nana Glen									
Pathogens									
OSSM failure/breach	OSSM policy; LEP/planning controls; Nana Glen WTP process control (filtration, chlorination).	C	4	V High	D	3	Mod	• OSSM inspections • LEP and compliance • ORRS monitoring • Raw water (monthly: faecal coliforms) and WTP operational monitoring (weekly: turbidity) • NSW Health	Village sewage trucked to CHCC STP.
Unrestricted livestock/ stockyards	ORRS; WTP process control.	A	4	V High	D	3	Mod	• ORRS monitoring • Raw water (monthly: faecal coliforms) and WTP operational monitoring (weekly: turbidity) • NSW Health	RECOMMENDATION: Fencing, riparian vegetation, CMA activities
Primary contact by humans	Community education; WTP process control.	C	4	V High	E	3	Mod	• ORRS monitoring • Raw water (monthly: faecal coliforms) and WTP operational monitoring (weekly: turbidity) • NSW Health	
Biosolid spreading	EPA license; STP SOPs; WTP process control.	D	4	High	E	2	Low	• EPA monitoring • Raw water (monthly: faecal coliforms) and WTP operational monitoring (weekly: turbidity) • NSW Health	STP process: extended aeration, air-dried. "Biomass" is an independent contractor. RECOMMENDATION: CHCC liaises with Biomass for disposal of biosolids.
Wildlife access	WTP process control.	A	4	V High	E	3	Mod	• Raw water (monthly: faecal coliforms) and WTP operational monitoring (weekly: turbidity) • NSW Health	

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Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
Chemicals									
Poor farming/forestry practices	ORRS; LEP/planning controls; dilution; WTP process control.	C	2	Mod	E	1	Low	• ORRS monitoring • LEP and compliance • 5-yearly pesticide monitoring in raw and treated waters • NSW Health	
Milk (waste) spills/dumping	Vegetation buffers; incident management and communication plans; WTP process control.	E	4	High	E	3	Mod	• Raw water (monthly: NTU, faecal coliforms) and WTP operational monitoring (weekly: turbidity) • NSW Health	
Chemical spill e.g. fuel truck spillage/farm drums/septic truck	Incident management and communication plants; WTP process control.	D	4	High	E	2	Low	• ORRS monitoring • 5-yearly pesticides monitoring in raw and treated waters • Raw water (monthly: NTU, faecal coliforms) and WTP operational monitoring (weekly: turbidity) • NSW Health	
Point sources e.g. dip sites, service station (petrol - BTEX)	Dilution; river processes (aeration); EPA requirement of individual fuel balance at service station; WTP process control.	D	4	High	D	3	Mod	• EPA monitoring • ORRS monitoring • 5-yearly pesticides/hydrocarbon monitoring in raw and treated waters • NSW Health	No detection to date. Tanks are rusty and known to leak. It takes a week to install aeration if required. RECOMMENDATIONS: Consider in-stream monitoring; liaise with remediation program; SCADA control of WTP. Sandy to confirm dip sites. Biodiversity Unit to confirm the presence of dip sites.
Contaminants naturally occurring in the source water	WTP process control.	E	1	Low	E	1	Low	• Raw water (monthly: Fe, Mn) and WTP operational monitoring (weekly: turbidity) • NSW Health	
Mines sites in Orara Catchment (e.g. mercury, gold)	WTP process control.	B	4	V High	D	4	High	• ORRS monitoring • NSW Health	
Turbidity									
Stormwater flows	CVC/BSC LEP (special area); planning controls; ORRS; visual inspection; WTP process control.	B	4	V High	C	2	Mod	• Weather/rainfall monitoring • ORRS monitoring • LEP and compliance • Raw water (monthly: NTU) and WTP operational monitoring (weekly: turbidity) • NSW Health monitoring (turbidity)	RECOMMENDATION: Installation of alarms, automatic shut-down of river pumps, turbidity meter on the river, SCADA control of WTP

Attachment 2

Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
Controlled and uncontrolled fires	5 days effective storage in reservoir; option to truck water to WTP; WTP process control.	D	4	High	D	2	Low	• Weather/wind monitoring • Raw water (monthly: NTU) and WTP operational monitoring (weekly: turbidity) • NSW Health	RECOMMENDATION: Installation of alarms, automatic shut-down of river pumps, turbidity meter on the river, SCADA control of WTP
Poor logging Practices	CVC/BSC LEP (special area); planning controls; ORRS; visual inspection; WTP process control.	D	4	High	D	1	Low	• LEP compliance monitoring • Raw water (monthly: NTU) and WTP operational monitoring (weekly: turbidity) • NSW Health	
Railway crash in catchment	5 days storage in reservoir; SES, emergency services communications; incident management procedures; option to truck water to WTP; WTP process control.	E	4	High	E	3	Mod	• 5-yearly pesticides monitoring in raw and treated waters • NSW Health	
Extraction Point Nana Glen									
Chemicals									
Deliberate contamination	WTP process control.	E	4	High	E	2	Low	• Visual inspections • Raw and operational monitoring • NSW Health	Impact on CHCC reputation.
Accidental contamination (spraying)	Procurement procedures; MSDS; WTP process control.	C	2	Mod	E	1	Low	• Raw and operational monitoring • NSW Health	
Inlet screen failure/blockage (debris)		E	2	Low	E	1	Low	• Visual inspections • Raw and operational monitoring • NSW Health	Operational impact only.
Nana Glen WTP									
Pathogens									
Incorrect lime pre-dose	Programmed maintenance; hand mixing lime slurry; well trained staff; procurement procedures; asset renewal schedule; WTP process control.	B	3	High	C	2	Mod	• Raw water source monitoring (turbidity, pH etc: monthly) • Manual operational monitoring	POSSIBLE CAUSES: mechanical or dosing failure; operator mistake.
Flocculation failure	3 days/week operator presence; downstream turbidity alarm; manual jar test; WTP process control.	B	3	High	C	2	Mod	• Visual inspection • Manual operational monitoring	No online monitoring, dosing. RECOMMENDATION: Install online monitoring and SCADA

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Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
Filter and clarifier failure	Online turbidity monitor after filter; plant shut down if backwash failure: automatic backwash; 5 day storage; WTP process control.	A	4	V High	D	3	Mod	• Visual inspection • Number of backwashes daily • Headloss across filter • Manual operational monitoring	POSSIBLE CAUSES: headloss loss; backwash failure. RECOMMENDATION: Install online monitoring and SCADA
Inadequate chlorination	Limited uninstalled back-up supply; "daily" manual dose determination; residual in downstream reservoir; WTP process control.	B	4	V High	D	3	Mod	• Manual operational monitoring Weekly free chlorine monitoring in reservoirs • NSW Health	POSSIBLE CAUSES: loss of chlorine supply; dosing failure; service water pump failure. RECOMMENDATIONS: Install online chlorine, pH, turbidity monitoring before dosing; provide scales to determine quantity of chlorine remaining.
pH correction failure (post dose lime and CO_2)	Programmed maintenance; hand mixing lime slurry; well trained staff; procurement procedures; asset renewal schedule; pH probe at inlet to reservoir.	B	3	High	C	2	Mod	• Manual operational monitoring • Weekly free chlorine monitoring in reservoirs • NSW Health	POSSIBLE CAUSES: mechanical dosing failure RECOMMENDATION: Install online turbidity, pH monitoring downstream of dosing; clean reservoir yearly.
Loss of trained operators due to sickness, leave etc	Workforce planning, including succession planning.	B	4	V High	E	3	Mod		
PLC failure	Code backup.	E	4	High	E	3	Mod	• Manual operational monitoring • NSW Health	No hot standby; the system may be out of action for a few days. RECOMMENDATION: Install SCADA
Plant site security	Fences; intruder alarms	D	4	High	E	3	Mod	Intruder alarms.	
Failure of alarms/ communications	IT alarms; 5-day reservoir storage; free chlorine residual in reservoir.	C	4	V High	C	3	High	"Loss-of-communications" alarm.	May take 2 days before communications alarm come through. RECOMMENDATIONS: Install SCADA; provide training to on-site security staff in significance of alarms and provide CHCC staff contact details.
Power failure	Manual checks; trained operators; loss of communications alarm; 3-daily manual operations; notification by SNP security: manual re-set.	B	4	V High	D	2	Low	• Automatic plant shut down • "Loss-of-communications" alarm	No backup generator available. RECOMMENDATION: Install SCADA.
Damage to WTP (bushfire, tree damage)	Coordination with SES, RFS.	C	4	V High	D	4	High	• PLC alarms; automatic plant shut down • "Loss-of-communications" alarm	RECOMMENDATION: Install and maintain fire breaks, clear trees close to WTP.

Attachment 2

Hazardous Event	Preventive Measures	Max Risk No Prevention			Resid Risk with Prevention			Monitoring and Control	Notes/Improvement Actions
Reservoirs									
Pathogens									
Breach of reservoir integrity e.g. recontamination by vermin (birds, snakes)	Security fences; chlorine residuals; electronic alarms on hatches; bypass capacity on some reservoirs; covered roofed reservoirs; visual inspection; yearly cleans and identification of gaps.	A	4	V High	D	3	Mod	• Visual inspection • Number of backwashes daily • Headloss across filter • Manual operational monitoring	
Deliberate contamination	Security fences; chlorine residuals; electronic alarms on hatches; bypass capacity on some reservoirs; capacity; covered roofed reservoirs; visual inspection.	E	5	High	D	3	Mod	• 3-times weekly and monthly operational monitoring of reservoirs • NSW Health	
Build-up of slime, sediment	WTP process control; yearly cleaning process with divers; asset management.	D	3	Mod	E	2	Low	• 3-times weekly and monthly operational monitoring of reservoirs • NSW Health	
Distribution									
Pathogens									
Low chlorine residual	WTP process control; well-trained operators; option for hand-dosing at reservoirs.	B	4	V High	C	3	High	• Hand-dosing at reservoirs • Boiled water alerts • Fortnightly monitoring at supply (*E.coli*, free chlorine) • NSW Health	RECOMMENDATION: Install online chlorine analyser, SCADA.
Breach of pipelines through breaks, inappropriate maintenance, new or service works etc	Superchlorination of new pipes: SOPs; flushing; water-dedicated team; mains replacement programs; inspection and flushing of new works by outside contractors; trained staff.	D	4	High	D	2	Low	• Inspections of new works • Fortnightly monitoring at supply (*E.coli,* free chlorine) • NSW Health • Hand-dosing at reservoirs	
Cross-connections and backflows	Backflow prevention devices (RPZ); backflow prevention policy and audit/inspection programs; all houses have non-return valves on meters; pool has backflow prevention; chlorine residual.	B	4	V High	E	2	Low	• Backflow inspection/audit programs • Fortnightly monitoring at supply (*E.coli*, free chlorine) • NSW Health • Hand-dosing at reservoirs	
Dead end in reticulation system leading to stagnation (aesthetic)	Mains extension program, quarterly flushing, weekly water sampling. Complaints response. (Lime has been found)	D	2	Low	E	2	Low	• Fortnightly monitoring at supply (*E.coli*, free chlorine) • NSW Health • Hand-dosing at reservoirs	

Attachment 2

Table 4: Coffs Harbour CCPs and Limits

PARAMETER	FREQUENCY	TARGET	OPERATIONAL PROCEDURES	ALERT LIMIT	CORRECTIVE ACTION	CRITICAL LIMIT	CORRECTIVE ACTION
CCP1 Selective extraction							
Turbidity (NTU)	COCHRANE'S POOL Continuous	< 2	• Visually inspect source water daily • Daily (M-F) manual turbidity reading at laboratory • Inspect sample pump daily • Monitor weather forecast • Monitor rainfall gauges • Calibrate instrumentation: - Monthly by operators - Quarterly by electricians - As required after floods, abnormal readings etc	2 (> 10 min) (CHCC to confirm)	• Notify Treatment Manager, Water Coordinator • Ensure automatic shut-down of pump • Visual check at intake, including river level • Manual grab sample, test • Increase monitoring until target is reached • Operator reset of pumps when target is reached	> 2 (> 10 min) (CHCC to confirm)	• Notify Treatment Manager, Water Coordinator • Ensure automatic shut-down of pumps • Visual check at intake, including river level • Manual grab sample, test • Increase monitoring until target is reached • Operator reset of pumps when target is reached • Consider alternate source
	NYMBOIDA RIVER Continuous	< 2	• Review daily email from CVC, including weather forecast, rainfall, NTU • Monitor daily flows on NSW Office of Water website • Daily manual flow test at RWSS • Visual inspection of source water by CVC • CVC control of manual valve for flows to and from CVC	2 (> 1 hour) (CHCC to confirm)	• CVC notifies CHCC of increased turbidity • CVC closes supply valve to CHCC • Daily sampling until turbidity reaches target • Manually close valve inside RWSS inlet pit • Increase monitoring until target is reached • Manually open inlet pit valve when target is reached	> 2 (> 1 hour) (CHCC to confirm)	• Notify Treatment Manager, Water Coordinator • CVC operator notifies CHCC of increased turbidity • Daily sampling until target is reached • Manually close valve inside RWSS inlet pit • Increase monitoring until target is reached • Operator opens inlet pit valve when target is reached • Consider alternate source
CCP 2 Aeration at Karangi Dam							
Aeration	Daily	Run-time = 6 hrs (DO > 7 mg/L at 27m)	• Monitor compressor run time (at 27 meters) daily • Monitor DO weekly (TWL, 3,6,9m)	Run time < 6 hrs (DO < 7 mg/L at 27m)	• Increase aeration time until DO increases as required • Increase DO monitoring • Visual inspection of source	Run time DO < 5 mg/L at 27m	• Notify Treatment Manager, Water Coordinator • Increase aeration time until DO increases as required

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PARAMETER	FREQUENCY	TARGET	OPERATIONAL PROCEDURES	ALERT LIMIT	CORRECTIVE ACTION	CRITICAL LIMIT	CORRECTIVE ACTION
			• Monitor DO monthly (0, 3, 6, 9 to 27 meters) • Record pump hour readings daily • Programmed maintenance and servicing of compressor • Calibrate instrumentation [CHCC: confirm schedule]		water, compressor and bubbles on surface; mechanic/ electrician to repair as required • Check DO probe; maintain as appropriate • Undertake diver inspection on high pressure alarm on compressor		• Increase DO monitoring until target is reached • Repeat corrective actions • Consider alternate source
CCP 3 Coagulation							
pH after prime CO_2	Continuous	8	• Daily visual inspection of flocc and monitoring, dosing systems • Daily clean algae from probe • Weekly clean of pH monitor (lime) • Calibrate online pH monitor (monthly) • Calibrate instrumentation [CHCC: confirm schedule]	< 6.5 or > 9.5 (> 30 mins)	• Notify Treatment Manager, Water Coordinator • Visual inspection of source water source • Inspect CO_2, lime plant; clean/maintain as required • Inspect probes, flow meters; clean/maintain as required • Grab sample, manual test • Manually adjust CO_2, lime dose as required • Increase monitoring until target is reached	< 5.8 or > 9.6 (> 15 min)	• Notify Treatment Manager, Water Coordinator • Inspect CO_2, lime plant; clean/maintain as required • Inspect probes, flow meters; clean/maintain as required • Grab sample, manual test • Manually adjust CO_2, lime dose as required • Ensure alert to filtration process • Consider alternate source • Increase monitoring until target is reached
pH after trim CO_2	Continuous	6.8	• Daily visual inspection of flocc and monitoring, dosing systems • Daily clean algae from probe • Weekly clean of pH monitor (lime) • Calibrate online pH monitor (monthly) • Calibrate instrumentation	< 5.8 or > 7.1 (> 30 mins)	• Inspect CO_2, lime plant; clean/maintain as required • Inspect probes, flow meters; clean/maintain as required • Take grab sample, test manually • Manually override process to adjust CO_2, lime dose as required	< 5.5 or > 7.3 (> 5 min)	• Notify Treatment Manager, Water Coordinator • Inspect CO_2, lime plant; clean/maintain as required • Inspect probes, flow meters; clean/maintain as required • Grab sample, manual test • Manually adjust CO_2, lime dose as required

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PARAMETER	FREQUENCY	TARGET	OPERATIONAL PROCEDURES	ALERT LIMIT	CORRECTIVE ACTION	CRITICAL LIMIT	CORRECTIVE ACTION
			[CHCC: confirm schedule]		• Increase monitoring until target is reached		• Ensure alert to filtration process • Increase monitoring until target is reached
CCP 4 Filtration (post filter)							
Turbidity (NTU) (after start up following backwash)	Continuous	< 0.1 (on individual/ combined filters)	• Daily visual inspection of filters • Programmed maintenance/servicing • Manually record NTU daily (individual and combined three filters) • Calibrate instrumentation [CHCC: confirm schedule]	> 0.3 (> 30 min)	• Visual inspection of water source • Visual inspection of clarifier • Take grab sample, test manually • Operator-initiated backwash as required • Check coagulation; increase alum dose as required • Increase monitoring until target is reached	> 0.5 (> 15 min)	• Notify Treatment Manager, Water Coordinator • Ensure discharge of flow from clarifier (no flow to filter) • Ensure automatic shut-down of filter • Repeat operational and corrective actions • Investigate process controls • Operator re-start of flow to filter when target is reached
Turbidity (maturation spike at start of filter run – filter ripening)	Continuous	< 0.1 (> 5 mins)	• Daily visual inspection of filters • Programmed maintenance/servicing • Manually record NTU daily (individual and combined three filters) • Calibrate instrumentation [CHCC: confirm schedule]	> 0.5 NTU (> 30 min)	• Visual inspection of water source • Visual inspection of clarifier • Take grab sample, test manually • Operator-initiated backwash as required • Check coagulation; increase alum dose as required • Increase monitoring until target is reached	> 1 NTU (> 5 min)	• Notify Treatment Manager, Water Coordinator • Ensure discharge of flow from clarifier (no flow to filter) • Ensure automatic shut-down of filter • Repeat operational and corrective actions • Investigate process controls • Operator re-start of flow to filter when target is reached
CCP 5 UV Disinfection (limits as per calibrated alarms for UV system)							
UV Transmissivity	Continuous	98%	• Programmed maintenance/servicing • Calibrate instrumentation [CHCC: confirm schedule]	95% < 1.1 x min (> 4 hours)	• Check filtration process/ turbidity levels • Repair reactors as required • Increase monitoring until target is reached	85% < 0.8 x min (> 1 hour)	• Notify Treatment Manager, Water Coordinator • Notify NSW Health • Confirm automatic shut-down of reactors

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PARAMETER	FREQUENCY	TARGET	OPERATIONAL PROCEDURES	ALERT LIMIT	CORRECTIVE ACTION	CRITICAL LIMIT	CORRECTIVE ACTION
							• Repeat operational and corrective actions • Repair reactors as required • Operator re-start of reactors when transmissivity reaches target
UV Dose	Continuous	< 48 mJ/cm^2	• Undertake programmed maintenance/servicing • Calibrate instrumentation [CHCC: confirm schedule]	< 22 mJ/cm (60 minutes)	• Check filtration process/ turbidity levels • Repair reactors as required • Increase monitoring until target is reached	< 20 mJ/cm (60 minutes)	• Notify Treatment Manager, Water Coordinator • Notify NSW Health • Confirm automatic shut-down of reactors • Repeat operational and corrective actions • Repair reactors as required • Operator re-start of reactors when transmissivity reaches target
CCP 6 Fluoridation							
Fluoride at treated water storage (mg/L)	Continuous	1.0	• Daily drop test (10 mins – instant dose rate) • Daily historical (24hr) balance • Daily manual analysis of water • Daily manual fill of day tank with fluoride • Weekly monitoring of natural fluoride level • Weekly laboratory monitoring at three points in reticulation • Programmed maintenance/servicing • Ensure restricted access to	< 0.95 or > 1.05 (1 hour)	• Notify Treatment Manager, Water Coordinator • Respond as Fluoridation Code of Practice and CHCC Emergency response plan • Ensure automatic plant shut-down • Resample and test water • Inspect dosing system • Repair as required • Transfer water from treated water storage to emergency storage lagoon; shandy as appropriate • Increase monitoring until target is reached	< 0.9 or > 1.5 (15 min)	• Notify Treatment Manager, Water Coordinator • Notify NSW Health • Respond as Fluoridation Code of Practice and CHCC Emergency response plan • Ensure automatic plant shut-down • Resample and test water • Inspect dosing system • Repair as required • Transfer water from treated water storage to emergency storage lagoon; shandy as appropriate • Increase monitoring until

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PARAMETER	FREQUENCY	TARGET	OPERATIONAL PROCEDURES	ALERT LIMIT	CORRECTIVE ACTION	CRITICAL LIMIT	CORRECTIVE ACTION
			dosing facility • Undertake fluoride training for operational, maintenance and management staff • Calibrate instrumentation [CHCC: confirm schedule]		• Operator re-start of plant when target is reached		target is reached • Operator re-start of plant when target is reached
CCP 7 Chlorine Disinfection							
Chlorine residual at treated water storage outlet (mg/L)	Continuous	1.2 – 2.0 (seasonally dependent)	• Daily manual free chlorine test on inlet and outlet of treated water storage and RHBT • Daily free chlorine monitoring (Monday-Friday) at RHR • Programmed maintenance/servicing • Monthly calibration of instrumentation	< 1.2 or > 2 (> 30 mins)	• Notify Treatment Manager, Water Coordinator; adjust chlorine dose as required • Visual inspection of dosing point and repair as required • Inspect filter and adjust as required • Inspect flocculation and adjust as required • Inspect pH correction points and adjust as required • Increase monitoring at inlet and outlet until target is reached	< 0.9 or > 2.5 (> 5 mins)	• Notify Treatment Manager, Water Coordinator • Notify NSW Health • Shut-down of pump to RHBT • Check online monitor at RHBT • Manual dose at treated water storage as required • Repeat operational and corrective actions • Transfer water from treated water storage to emergency storage lagoon; shandy as appropriate • Operator re-start of RHBT pump when target is reached • Consider boiled water alert
pH at outlet of treated water storage outlet (pH units)	Continuous	7.7	• Confirm automatic adjustment of dose • Weekly manual monitoring • Monthly calibration of instrumentation	< 7.2 > 8.3 (> 30 mins)	• Notify Treatment Manager • Visual inspection of dosing systems • Adjust lime/acid dose as required • Increase manual monitoring until target is reached	< 7.0 > 8.5 (> 30 min)	• Notify Treatment Manager, Water Coordinator • Shut-down of RHBT pump • Adjust lime/acid dose at tank • Transfer water to emergency storage lagoon; shandy as appropriate • Increase manual monitoring until target is reached • Operator re-start of RHBT

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PARAMETER	FREQUENCY	TARGET	OPERATIONAL PROCEDURES	ALERT LIMIT	CORRECTIVE ACTION	CRITICAL LIMIT	CORRECTIVE ACTION
							pump when target is reached
CCP 8 Point-of-Supply Disinfection							
Free chlorine at point-of-supply (mg/L)	Weekly	> 0.2	• Weekly testing at point-of-supply (E.coli, total coliforms, free chlorine) • Mains flushing • Calibrate instrumentation [CHCC: confirm schedule]	< 0.2	• Contact Distribution Manager and Water Coordinator • Check chlorine at appropriate reservoir • Hand dose at appropriate reservoir if chlorine < 0.3 mg/L, according to SOP. • Retest and re-dose as appropriate • Consider increasing chlorine dose at RHBT, WTP, chlorine booster • Increase monitoring until target is reached	< 0.1	• Notify Distribution Manager, Water Coordinator • Notify NSW Health • Respond as per NSW Health Drinking Water Quality Protocol (2005) • Repeat corrective actions • Flush mains • Increase monitoring until target is reached • Consider boiled water alerts

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Table 5: Nana Glen CCPs and Limits

PARAMETER	FREQUENCY	TARGET	OPERATIONAL PROCEDURES	ALERT LIMIT	CORRECTIVE ACTIONS	CRITICAL LIMIT	CORRECTIVE ACTIONS
CCP1 Coagulation/Filtration							
Turbidity after filtration (NTU)	Continuous	< 0.3	• Weekly visual inspection of source water • 3-times/week visual inspection of floc and filters • Manual 3-times/week recording of NTU • 3-times/week pH, alkalinity, colour, turbidity monitored at raw water and treated water reservoir • Calibrate instrumentation [CHCC: confirm schedule]	> 0.5	• Notify Treatment Manager, Water Coordinator on repeat occurrences or additional problems • Visual inspection of water source • Visual inspection of floc, dosing systems; adjust dose/repair as appropriate • Manual grab sample and jar test • Initiate manual backwash • Calibrate instrumentation • Increase monitoring until target is reached	> 1.0	• Notify Water Treatment Manager, Water Coordinator • Ensure automatic shut-down filter • Repeat corrective actions • Increase monitoring until target is reached • Alert supervisor Water Treatment Manager on repeat occurrences • Cart water if limit exceeded for long time • Manual re-start of filter when target is achieved
CCP 2 Disinfection							
Chlorine residual in reservoir (mg/L)	3-times/ week	0.8 (summer) 0.5 (winter)	• 3-times/week manual free chlorine test in reservoir • 3-times/week operational monitoring • Monthly calibration of equipment • Programmed maintenance/ servicing	< 0.5	• Consult with Treatment Manager, Water Coordinator; adjust chlorine dose • Visual inspection of dosing point/system; repair as required • Visual inspection of filter; backwash as appropriate • Visual inspection of floc, dosing systems; adjust dose/repair as appropriate • Increase manual testing • Calibrate equipment • Take reservoir off-line, re-fill and add chlorine; balance and shandy the two reservoirs	< 0.3	• Notify Water Treatment Manager, Water Coordinator • Notify NSW Health • Manual plant shut-down • Manual dose at reservoir as required • Repeat corrective actions • Increase monitoring until target is reached • Manual re-start of plant when target is reached • Consider boiled water alert

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PARAMETER	FREQUENCY	TARGET	OPERATIONAL PROCEDURES	ALERT LIMIT	CORRECTIVE ACTIONS	CRITICAL LIMIT	CORRECTIVE ACTIONS
					together. • Increase monitoring until target is reached		
CCP 3 Disinfection at point-of-supply							
Free chlorine at point-of-supply (mg/L)	Fortnightly	> 0.3	• Fortnightly testing at point-of-supply (*E.coli*, total coliforms, free chlorine) • Mains flushing	< 0.2	• Notify Water Treatment Manager, Water Coordinator • Check chlorine at appropriate reservoir • Hand dose at appropriate reservoir • Retest and re-dose as appropriate • Consider increasing chlorine dose WTP • Increase monitoring until target is reached	< 0.1	• Notify Water Treatment Manager, Water Coordinator • Notify NSW Health • Respond as per NSW Health Drinking Water Quality Protocol (2005) • Repeat corrective actions • Increase monitoring until target is reached • Consider boiled water alert

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Appendix D

Technical Note 4 – Operational and Verification Monitoring

Attachment 2

Coffs Harbour City Council

Technical Note 4
Operational and Verification Monitoring

Attachment 2

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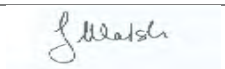
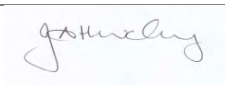
2	Helen Salvestrin	Joanne Walsh	Joanne Walsh		August 2013
3	Helen Salvestrin	Jessica Huxley	Jessica Huxley		21 October 2013

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1 Introduction

This Technical Note outlines the operational and verification monitoring activities in Coffs Harbour City Council's Drinking Water Supply Systems (DWSS).

Operational monitoring provides for the testing and observations to determine whether the process is achieving the limits that are defined in the control point.

Testing of the final water is verification monitoring.

1.1 Operational monitoring

Operational monitoring is a planned sequence of measurements and observations throughout the water supply system to ensure and confirm performance of preventive measures and barriers to contamination. The importance of operational monitoring to the effective maintenance of preventive barriers to contamination cannot be overstated.

The single most significant concern for WTP operators is to ensure effective barriers are in place to protect the drinking water supply from waterborne microbial pathogens. Therefore, the most important monitoring activity is to ensure that microbial contamination does not cross the barriers and enter the drinking water supply.

The operational requirements and frequency of monitoring varies for each water supply system depending on the key characteristics identified through the analysis of the water supply system and risk assessment.

WTP operators and distribution staff must ensure that the drinking water supply remains free from microbial contamination as it moves through the distribution system. In relation to health considerations, the following parameters can have a significant effect on the microbial quality of drinking water:

TURBIDITY - Elevated turbidity can interfere with the detection and treatment of bacteria and viruses, and is known to protect microorganisms from the action of disinfectants.

Turbidity at extraction can provide a useful indicator of changes in the catchment and can alert the operator to the potential contamination of the source water. In turn, this enables WTP operators to trigger appropriate management responses.

The ADWG (NHMRC, NRMMC, 2011) recommends that in order to remove waterborne pathogens in unprotected catchments, where filtration is used as part of the water treatment process, the turbidity leaving the filters, under normal operating conditions should be less than 0.2 NTU and should not exceed 0.5 NTU at any time.

pH - pH is monitored to ensure effective disinfection. Chlorine disinfection is impaired above pH 8.0.

CHLORINE RESIDUAL – The ADWG (2011) states that typically, chlorine residuals at a point of supply in Australia are generally in the range of 0.1 to 4 mg/L with typical concentration at about 0.2 to 0.4 mg/L.

1.2 Verification Monitoring

The verification of the drinking water quality supplied to consumers is an essential element in assessing the overall performance of the system. Verification provides an important link back to the operation of the water supply system and additional assurance that the preventive measures and treatment barriers in the water supply system have worked, and are supplying safe drinking water.

The ADWG 2011 recommends that sampling points within a distribution system are divided into zones that are typically:

- Supplied from a single source, and / or
- Hydraulically separated from other zones

As the priority for drinking water quality is to ensure the absence of pathogenic organisms, locations for verification monitoring should be strategically placed so that representative sites are monitored within each zone.

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2 Operational Monitoring

CHCC undertakes monitoring of water quality in the Coffs Harbour and Nana Glen DWSS. Monitoring is undertaken by CHCC in the source water (Orara River and Karangi Dam), treatment plants and distribution systems. Clarence Valley Council (CVC) undertakes daily monitoring at Nymboida Weir and weekly at Shannon Creek Dam. Results are also reported to CHCC.

In the Coffs Harbour DWSS, monitoring at the Karangi WTP is continuous online, with manual checks undertaken regularly for turbidity, chlorine residual, fluoride and pH at the Karangi WTP, with manual checks undertaken daily.

In the Nana Glen DWSS, monitoring is undertaken manually, with the exception of turbidity after filtration, which is continuously monitored.

The frequency and number of microbiological and chemical samples is based on population size, as summarised in Table 1.

Table 1: Populations for CHCC drinking water supply systems

Analysis	Population
Coffs Harbour	69,800
Nana Glen	300

Table 2 and Table 3 summarise the operational monitoring activities for each of the two CHCC water supply systems, excluding online monitoring within the WTPs.

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Table 2: Operational Monitoring Regime for Coffs Harbour Drinking Water Supply System (excluding WTP)

Site	Sample Point	Sampled By	Frequency	Tests Done
Source and Raw Water				
	Regional Intake	Water S, Lab T	Monthly	pH, Conductivity, Calcium Hardness, Alkalinity, Iron, Manganese, Turbidity, Apparent Colour
	Regional Intake - Coramba	Lab Staff	Monthly	pH, Turbidity, Colour (Apparent, Total), Total Organic Carbon, Coliforms (Faecal, Total)
	Regional Intake - Karangi	Lab Staff	Monthly	pH, Turbidity, Colour (Apparent, Total), Total Organic Carbon, Coliforms (Faecal, Total)
001	Orara River - Cochranes Pool	Lab Staff	Monthly	pH, Turbidity, Colour (Apparent, Total), Total Organic Carbon, Coliforms (Faecal, Total)
	Cochrane's Pool	Water S, Lab T	Monthly	Iron, Manganese
	Karangi Dam 1m	Water S, Lab T	Monthly	pH, Conductivity, Calcium Hardness, Alkalinity, Iron, Manganese, Total Nitrogen, Total Phosphorous
	Karangi Dam (3m, 6m, 9m)	Water S, Lab T	Monthly	Iron, Manganese
	Karangi Dam outlet (TWL, 1m, 3m, 6m, 9m)	Water S, Lab T	Weekly	Dissolved Oxygen, Temperature, Colour, Turbidity
	Karangi Dam (TWL, 1m, 3m, 6m, 9m, 12m, 15m, 18m, 21m, 24m)	Water S, Lab T	Monthly	Dissolved Oxygen, Temperature, Colour, Turbidity
	Karangi Dam (TWL, 1m, 3m, 6m)	Water S, Lab T	Weekly	Freshwater Algae Identification
	Karangi Dam (9m, 12m, 15m, 18m, 21m, 24m, 27m)	Water S, Lab T	Monthly	Freshwater Algae Identification
002	Karangi Dam	Lab Staff	Monthly	pH, Turbidity, Colour (Apparent, Total), Total Organic Carbon, Coliforms (Faecal, Total)
Treated Water				
007	Red Hill Reservoir - Coramba Rd. (East of Res.)	Lab S & T Water S, Lab T	Weekly Monthly	A pH, Conductivity, Calcium Hardness, Alkalinity, Iron, Manganese
Distribution System (Reservoirs)				
010	Macauley's - Mastracolas Rd (North of Res)	Lab S & T	Yearly	A
011	Roberts Hill - Kratz Dr. (North of Res.)	Lab S & T	Twice/Year	A
012	Mullaway - Tramway Dr. (East of Res)	Lab S & T	Yearly	A
013	Bark Hut - Bark Hut Rd. (East of Res.)	Lab S & T	Yearly	A
014	Woolgoolga Headland - Ocean St. (West of Res.)	Lab S & T	Yearly	A
015	Scarborough St - Scarborough St. (East of Res.)	Lab S & T	Yearly	A
016	Emerald - Stefan Cls. (South of Res.)	Lab S & T	Yearly	A
017	Moonee - MacCues Rd. (North of	Lab S & T	Yearly	A

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Site	Sample Point	Sampled By	Frequency	Tests Done
	Res.)			
018	Sapphire - Old Coast Rd. (East of Res.)	Lab S & T	Yearly	A
019	Sawtell Headland - Boambee Headland (South of Eastern Res.)	Lab S & T	Twice/Year	A
020	Toormina - Belbowrie Rd. (South of Eastern Res.)	Lab S & T	Twice/Year	A
Supply to Consumer (Reticulated)				
021	Ulmarra offtake - Eggins Cl. (Next to meter pit)	Lab S & T	Every 4 Weeks 18 month rotation	A B
022	Arrawarra - 2nd Ave.(Toilet Block, in service bay)	Lab S & T	Every 4 Weeks 18 month rotation	A B
023	Safety Beach - Ocean Drive. (SPS)	Lab S & T	Fortnightly 18 month rotation	A B
024	Woolgoolga - N. End Lake Rd.(Toilet Block, in service bay)	Lab S & T	Fortnightly 18 month rotation	A B
025	Sandy Beach - Sandy Beach Dr.(Toilet Block, in service bay)	Lab S & T	Every 4 Weeks 18 month rotation	A B
026	Emerald - Fiddamans Rd.(Reserve Toilet Block, East side)	Lab S & T	Every 4 Weeks 18 month rotation	A B
027	Moonee -Woodhouse Rd (Bushfire Shed, North side)	Lab S & T	Fortnightly 18 month rotation	A B
028	Sapphire - Sapphire Cr.(SPS 69)	Lab S & T	Fortnightly 18 month rotation	A B
029	Korora - Sandy Beach Dr.(Toilet Block, South end)	Lab S & T	Fortnightly 18 month rotation	A B
030	Coffs Harbour Nth - York St (SPS 44)	Lab S & T	Fortnightly 18 month rotation	A B
031	Coffs Harbour Nth - Marcia St Depot (North end Stores Build)	Lab S & T	Fortnightly 18 month rotation	A B
032	Coffs Harbour Sth - Council Chambers (Riding Lane, carpark wall)	Lab S & T	Fortnightly 18 month rotation	A B
033	Coffs Harbour Sth - Jetty Oval (Toilet Block, South side)	Lab S & T	Fortnightly 18 month rotation	A B
034	Sawtell - Boronia Park (West side Lions Shed)	Lab S & T	Fortnightly 18 month rotation	A B
035	Toormina - Sea Breeze Pl. (SPS 21)	Lab S & T	Fortnightly 18 month rotation	A B
036	Toormina - Hamilton Dr. (SPS 17)	Lab S & T	Fortnightly 18 month rotation	A B
041	Corindi Beach Aboriginal Community	Lab S & T	Monthly # Twice Yearly	A B
042	Wongala Estate Aboriginal Community	Lab S & T	Monthly # Twice Yearly	A B

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Site	Sample Point	Sampled By	Frequency	Tests Done
043	Karangi Water Treatment Plant - Treated Water	Lab S & T	Weekly	A
Extra Sampling for Reticulated Supply				
	Reticulation Fluoride Testing	Lab Staff	Weekly	Fluoride (3 samples from 021 - 043: 1 from northern sites; 1 from Coffs sites; 1from Sawtell sites)
007	Redhill Reservoir	Lab Staff	Weekly	pH, Turbidity, Apparent Colour, Alkalinity, Calcium Hardness, Fluoride, Iron, Manganese
043	Karangi Water Treatment Plant (Treated Water)	Lab Staff	Weekly	pH, Turbidity, Apparent Colour, Alkalinity, Calcium Hardness, Fluoride, Iron, Manganese
	Coffs Harbour Tap Water (either 030, 031,032 or 033)	Lab Staff	Weekly	pH, Turbidity, Alkalinity, Apparent Colour
	Woolgoolga Tap Water (tap at Woolgoolga WRP)	Water S, Lab T	Weekly	pH, Turbidity, Alkalinity, Apparent Colour
034	Sawtell Tap Water (034)	Water S, Lab T	Weekly	pH, Turbidity, Alkalinity, Apparent Colour, Chloride(monthly)
041	Corindi Beach Aboriginal Community	Lab Staff	** Twice yearly	pH, Turbidity, Fluoride
042	Wongala Estate Aboriginal Community	Lab Staff	** Twice yearly	pH, Turbidity, Fluoride

Notes:

Lab S & T: Samples collected by lab with analysis (testing) undertaken/arranged by lab.

Water S Lab T: Samples collected and delivered to lab by CHCC Water staff with analysis (testing) undertaken or arranged by CHCC laboratory staff.

 # Twice Yearly: Testing has not been undertaken prior to 2013 but is proposed to be undertaken from 2013 onwards twice yearly, subject to review by Manager Distribution.

**** Twice yearly:** Testing has been undertaken monthly prior to 2013 but is proposed to be undertaken from 2013 onwards twice yearly subject to review by Manager Distribution.

18 month rotation: Testing is undertaken at one different site each month. There are 18 sites in total.

Test A: Total coliforms; *E. coli*; free chlorine and temperature

Test B: Routine Chemical: pH, turbidity, total dissolved solids, total hardness, true colour, iodide, aluminium, antimony, arsenic, barium, boron, cadmium, calcium, chromium, copper, iron, magnesium, manganese, mercury, molybdenum, nickel, selenium, silver, sodium, zinc, chloride, fluoride, sulfate, nitrate, and nitrite.

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RECOMMENDATION:

Cyanide to be included in NSW Health Monitoring Program Test B

Table 3: Operational Monitoring Regime for Nana Glen Drinking Water Supply System

Site	Sample Point	Sampled By	Frequency	Tests Done
Source				
	Orara River (Grafton Street Bridge)	Lab S & T	Monthly	Faecal Coliforms, Total Coliforms
Raw Water				
	Intake	Water S & T	Fortnightly	Al
005	Nana Glen Pump Intake	Water S, Lab T	Monthly	pH, Conductivity, Turbidity, Apparent Colour, Calcium Hardness, Alkalinity, Iron, Manganese
Treatment Plant (including Reservoirs)				
	Treated Water	Water S & T	Approx 3 times/week	Flow, Turbidity,pH
	Reservoirs 1 & 2	Water S & T	Approx 3 times/week	Free Cl; Reservoir 2: level
	Reservoirs 1 & 2	Water S, Lab T	Monthly	Turbidity, pH, Al, Alkalinity, Hardness, Colour Apparent, Conductivity, Fe, Mn
Extra Sampling				
	Reservoir 1 & 2 (at WTP)	Water S, Lab T	Monthly	For each reservoir: pH, Conductivity, Turbidity, Apparent Colour, Calcium Hardness, Alkalinity, Iron, Manganese, Aluminium
Supply to Consumer (Reticulated)				
008	Nana Glen - Grafton St (Park by River)	Lab S & T	Fortnightly 18 month rotation	A plus extra sampling of Al B
	Nana Glen – Grafton St (Park by River)		6-monthly	Chemical, Physical

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3 Verification Monitoring

CHCC water operators monitor water quality at the point-of-supply as part of the NSW Health Monitoring Program. NSW Health analysis of the distribution system provides on-going independent verification of the treatment process. Frequency of sampling is based on population. The Program assesses 39 parameters for microbial, physical and chemical properties of the water as detailed in Table 4. Table 5 lists the locations for the Program in both Coffs Harbour and Nana Glen DWSS. The results can be accessed at: http://www.health.nsw.gov.au/publichealth/environment/water/drinkwater_nsw.asp

Council's Manager, Water Treatment is responsible for the collection of the NSW Health monitoring program. Samples are submitted in accordance with the "*Guide for submitting water samples to DAL for analysis*" and the Council water procedures for samples.

In addition to the NSW Health Monitoring Program, Council undertakes weekly operational monitoring at point of supply as part of the Council's operating procedures.

Table 4: NSW Health Monitoring Program Parameters

Microbial		
E. coli	Total Coliforms	
Disinfection		
Free Chlorine	Total Chlorine	
Fluoridation		
Fluoride (daily WU) [1]	Fluoride (WU result) [1]	
Fluoride (weekly WU)[1]	Fluoride Ratio	
Physical		
pH	Total Dissolved Solids (TDS)	
True Colour	Total Hardness as CaCO3	
Turbidity		
Chemicals		
Aluminium	Copper	Nickel
Antimony	Fluoride	Nitrate
Arsenic	Iodine	Nitrite
Barium	Iron	Selenium
Chemicals		

Boron	Lead	Silver
Cadmium	Magnesium	Sodium
Calcium	Manganese	Sulphate
Chloride	Mercury	Zinc
Chromium	Molybdenum	

[1] As fluoride dosing is not undertaken in Nana Glen DWSS, sampling is only undertaken in Coffs Harbour DWSS.

Table 5: NSW Health Verification Monitoring Sites

Town	Sampling Site	Location
Coffs Harbour		
Arrawarra	21	Eggins Drive
	22	Second Avenue
Coffs Harbour	10	Mastracolas Road
	11	Kratz Drive
	30	York Street
	31	Marcia Street
	32	Coffs St
	33	Orlando St
	40	Ocean Parade
	7	Coramba Road
Coramba	9	Martin Street
Corindi	1	Pacific Street
	2	Coral Street
	3	MacDougall Street
	4	Pacific Street
Corindi Beach aboriginal community	41	Red Rock Road
Emerald Beach	16	Stefan Close
	26	Fiddamans Road
Korora	29	Sandy Beach Road
Moonee Beach	17	MacCues Road
	27	Woodhouse Road
Mullaway	12	Tramway Drive
Safety Beach	23	Ocean Drive

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Town	Sampling Site	Location
Sandy Beach	25	Beach Drive
Sapphire	18	Old Coast Road
	28	Sapphire Crescent
Sawtell	19	Boambee Headland
	34	Boronia Park
Toormina	20	Belbowrie Rd
	35	Sea Breeze Place
	36	Hamilton Drive
Wongala Aboriginal community	42	Wongala
Woolgoolga	13	Bark Hut Road
	14	Ocean Street
	15	Scarborough Street Reservoir
	24	Lake Road
Nana Glen		
	8	Grafton Street
	999	Not Defined, Nana Glen

Attachment 2

4 Recommendations

A number of improvements in the operational and verification monitoring programs in the Coffs Harbour and Nana Glen DWSS have been identified. The following recommendations will be incorporated into the improvement plan for the CHCC DWQMS:

Coffs Harbour

- Integration of SCADA systems between CVC and CHCC for coordinated monitoring
- Consideration of cyanide testing in NSW Health Monitoring Program at point-of-supply, dependant on past and existing mine sites within catchment
- Electronic recording of dissolved oxygen data at Karangi Dam

Nana Glen

- Electronic recording of all data in order to observe trends and issues over time
- Online monitoring of turbidity in the Orara River
- Installation of alarms, automatic shut-down of river pumps based on turbidity
- Installation of SCADA control/alarms at Nana Glen WTP
- Install online pH, turbidity monitoring before flocculation
- Provide scales at Nana Glen WTP to determine quantity of chlorine gas available in supply
- Install online turbidity, pH monitoring after post-dosing point

Attachment 2

Appendix E

Draft Critical Control Point Signs

Attachment 2

Coffs Harbour Drinking Water System

CONTINUOUS

CCP 1 Turbidity

Cochrane's Pool

TARGET	ALERT	CRITICAL
< 2 NTU	**> 2 NTU for > 10 mins**	**> 2 NTU for > 10 mins**
➢ Inspect: raw water and sample pump daily ➢ Daily (Mon-Fri) manual turbidity reading in lab ➢ Monitor: weather forecast and rainfall gauges ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: • 3-monthly by operators • Quarterly by electricians • As required after floods, abnormal readings etc	➢ Notify Treatment Manager, Water Coordinator ➢ Ensure automatic shutdown of pump ➢ Visual check at intake, including river level ➢ Take a manual grab sample and test ➢ Increase monitoring until system reaches target ➢ Operator reset of pumps when target is reached	➢ Notify Treatment Manager, Water Coordinator ➢ Ensure automatic shutdown of pumps ➢ Visually check intake, including river level ➢ Take manual grab sample and test ➢ Increase monitoring until system reaches target ➢ Operator reset of pumps when target is reached ➢ Consider alternate source

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Attachment 2

Coffs Harbour Drinking Water System

CONTINUOUS

CCP 1 Turbidity

Nymboida River

TARGET	ALERT	CRITICAL
< 2 NTU	**2 NTU for > 1 day**	**> 2 NTU for > 1 day**
➢ Review daily email from CVC, including weather forecasts, rainfall, NTU ➢ Monitor daily flows on NSW Office of Water website ➢ Daily manual flow test at RWSS ➢ Visual inspection of source water by CVC ➢ CVC control of manual valve for flows to and from CVC	➢ CVC notifies CHCC of increased turbidity ➢ CVC closes supply valve to CHCC ➢ Daily sampling until turbidity reaches target ➢ Manually close valve inside RWSS inlet pit ➢ Increase monitoring until system target is reached ➢ Manually open inlet pit valve when target is reached	➢ Notify Treatment Manager, Water Coordinator ➢ CVC operator notifies CHCC of increased turbidity ➢ Daily sampling until target is reached ➢ Manually close valve inside RWSS inlet pit ➢ Increase monitoring until system reaches target ➢ Operator opens inlet pit valve when target is reached ➢ Consider alternate source

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Coffs Harbour Drinking Water System

DAILY

CCP 2 Aeration at Karangi Dam

TARGET	ALERT	CRITICAL
Run time = 6 hr OR DO > 7 mg/L at 27 m	**Run time < 6 hr OR DO < 7 mg/L at 27 m**	**> 6 hrs run time OR DO < 5 mg/L at 27 m**
➢ Monitor compressor run time (at 27 m) daily ➢ Monitor DO weekly: TWL, 3 m, 6 m, 9 m) ➢ Monitor DO monthly: 0 m, 3 m, 6 m, 9 – 27 m ➢ Record pump hour readings daily ➢ Programmed maintenance and servicing of compressor ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly	➢ Increase aeration time until DO increases as required ➢ Increase DO monitoring ➢ Visual inspection of source water, compressor and bubbles on surface, mechanic/electrician to repair as required ➢ Check DO probe, maintain as appropriate ➢ Undertake diver inspection on high pressure alarm on compressor	➢ Notify Treatment Manager, Water Coordinator ➢ Increase aeration time until DO increase as required ➢ Increase DO monitoring until system reaches target ➢ Repeat corrective actions ➢ Consider alternate source

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Coffs Harbour Drinking Water System

CONTINUOUS

CCP 3 Coagulation

pH after prime CO_2

TARGET	ALERT	CRITICAL
8	**< 6.5 OR > 9.5 for > 30 min**	**< 5.8 OR > 9.6 for > 15 min**
➢ Daily visual inspection of floc and monitoring, dosing systems ➢ Daily clean algae from probe ➢ Weekly clean of pH monitor (lime) ➢ Monthly calibrate online pH monitor ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly	➢ Notify Treatment Manager, Water Coordinator ➢ Visual inspection of source water ➢ Inspect CO_2, lime plant: clean and maintain as required ➢ Inspect probes, flow meters: clean and maintain as required ➢ Manually test grab sample ➢ Manually adjust CO_2, lime dose, as required ➢ Increase monitoring until system target is reached	➢ Notify Treatment Manager, Water Coordinator ➢ Inspect CO_2, lime plant: clean and maintain as required ➢ Inspect probes, flow meters: clean and maintain as required ➢ Manually test grab sample ➢ Manually adjust CO_2, lime dose as required ➢ Ensure alert to filtration process ➢ Consider alternate source ➢ Increase monitoring until system target is reached

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Coffs Harbour Drinking Water System

CONTINUOUS

CCP 3 Coagulation

pH after trim CO_2

TARGET	ALERT	CRITICAL
6.8	**< 5.8 OR > 7.1 for > 30 min**	**< 5.5 OR > 7.3 for > 5 min**
➢ Daily visual inspection of floc and monitoring dosing systems ➢ Daily clean algae from probe ➢ Weekly clean of pH monitor (lime) ➢ Monthly calibrate online pH monitor ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly	➢ Inspect CO_2, lime plant: clean and maintain as required ➢ Inspect probes, flow meters: clean and maintain as required ➢ Manually test grab sample ➢ Manually override process to adjust CO_2, lime dose as required ➢ Increase monitoring until system target is reached	➢ Notify Treatment Manager, Water Coordinator ➢ Inspect CO_2, lime plant: clean and maintain as required ➢ Inspect probes, flow meters: clean and maintain as required ➢ Manually test grab sample ➢ Manually adjust CO_2, lime dose as required ➢ Ensure alert to filtration process ➢ Increase monitoring until system target is reached

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Attachment 2

Coffs Harbour Drinking Water System

CONTINUOUS

CCP 4 Post-Filtration Turbidity

after start up following backwash

TARGET	ALERT	CRITICAL
< 0.1 NTU on individual and combined filters	**> 0.3 NTU for > 30 min**	**> 0.5 NTU for > 15 min**
➢ Daily visual inspection of filters ➢ Programmed maintenance and servicing ➢ Manually record NTU daily (individual and combined three filters) ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly	➢ Inspect: water source and clarifier ➢ Manually test grab sample ➢ Operator-initiated backwash as required ➢ Check coagulation: increase alum dose as required ➢ Increase monitoring until system reaches target	➢ Notify Treatment Manager, Water Coordinator ➢ Ensure discharge of flow from clarifier (no flow to filter) ➢ Ensure automatic shutdown of filter ➢ Repeat operational and corrective actions ➢ Investigate process controls ➢ Operator restart of flow to filter when target is reached

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Coffs Harbour Drinking Water System

CONTINUOUS

CCP 4 Post-Filtration Turbidity

maturation spike at start of filter run – filter ripening

TARGET	ALERT	CRITICAL
< 0.1 NTU **> 5 min**	**> 0.5 NTU** **> 30 min**	**> 1 NTU** **> 5 min**
➢ Daily visual inspection of filters ➢ Programmed maintenance and servicing ➢ Manually record NTU daily (individual and combined three filters) ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly	➢ Inspect: water source and clarifier ➢ Manually test grab sample ➢ Operator initiated backwash as required ➢ Check coagulation: increase alum dose as required ➢ Increase monitoring until system reaches target	➢ Notify Treatment Manager, Water Coordinator ➢ Ensure discharge of flow from clarifier (no flow to filters) ➢ Ensure automatic shutdown of filter ➢ Repeat operational and corrective actions ➢ Investigate process controls ➢ Operator restart of flow when target is reached

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Coffs Harbour Drinking Water System

CONTINUOUS

CCP 5 Disinfection
UV Transmissivity

CRITICAL	ALERT	TARGET
> 90% **< 0.8 x min for > 1 hr**	**95%** **< 1.1 x min for > 4 hr**	**> 90%**
➢ Notify Treatment Manager, Water Coordinator ➢ Notify NSW Health ➢ Confirm automatic shutdown of reactors ➢ Repeat operational and corrective actions ➢ Repair reactors as required ➢ Operator restart of reactors when transmissivity reaches target	➢ Check filtration process and turbidity levels ➢ Repair reactors as required ➢ Increase monitoring until system reaches target	➢ Programmed maintenance and servicing ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly

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Coffs Harbour Drinking Water System

CONTINUOUS

CCP 5 Disinfection
UV Dose

CRITICAL	ALERT	TARGET
< 18 mJ/cm^2 For > 1 hr	**18 mJ/cm^2 For > 1 hr**	**> 18 mJ/cm^2**
➢ Notify Treatment Manager, Water Coordinator ➢ Notify NSW Health ➢ Confirm automatic shutdown of reactors ➢ Repeat operational and corrective actions ➢ Repair reactors as required ➢ Operator restartof reactors when dose reaches target	➢ Check filtration process and turbidity levels ➢ Repair reactors as required ➢ Increase monitoring until system reaches target	➢ Undertake programmed maintenance and servicing ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly

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Coffs Harbour Drinking Water System

CONTINUOUS

CCP 6 Fluoridation at Treated Water Storage

TARGET	ALERT	CRITICAL
0.95 – 1.05 mg/L	**< 0.95 OR > 1.05 mg/L For > 1 hr**	**< 0.9 OR > 1.5 mg/L For > 15 min**
➢ Daily drop test (10 mins – instant dose rate) ➢ Daily historical (24 hr) balance ➢ Daily manual fill of day tank with fluoride ➢ Weekly monitoring of natural fluoride level ➢ Weekly lab monitoring at three points in reticulation ➢ Programmed maintenance and servicing ➢ Ensure restricted access to dosing facility ➢ Complete Form 4 of *NSW Code of Practice for the Fluoridation of Public Water Supplies* ➢ Undertake fluoride training for operational, maintenance and management staff ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly	➢ Notify Treatment Manager, Water Coordinator ➢ Respond as per *NSW Code of Practice for the Fluoridation of Public Drinking Supplies* and CHCC Emergency Response Plan ➢ Ensure automatic plant shutdown ➢ Resample and test water ➢ Inspect dosing system ➢ Repair as required ➢ Transfer water from treated water storage to emergency storage lagoon; shandy as appropriate ➢ Increase monitoring until system reaches target ➢ Operator restart of plant when target is reached	➢ Notify Treatment Manager, Water Coordinator ➢ Notify NSW Health ➢ Respond as per *NSW Code of Practice for the Fluoridation of Public Drinking Supplies* and CHCC Emergency Response Plan ➢ Ensure automatic plant shutdown ➢ Resample and test water ➢ Inspect dosing system and repair as required ➢ Transfer water from treated water storage to emergency storage lagoon; shandy as appropriate ➢ Complete Form 5 of *NSW Code of Practice for the Fluoridation of Public Water Supplies* ➢ Increase monitoring until system reaches target ➢ Operator restart of plant when target is reached

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Coffs Harbour Drinking Water System

CONTINUOUS

CCP 7 Chlorine Residual at Treated Water Storage

TARGET	ALERT	CRITICAL
1.2 – 2.0 mg/L seasonally dependent	**< 1.2 OR > 2.0 mg/L for > 30 min**	**< 0.9 OR > 2.5 mg/L for > 5 min**
➢ Daily manual free chlorine test on inlet and outlet of treated water storage and RHBT ➢ Daily free chlorine monitoring (Mon – Fri) at RHR ➢ Programmed maintenance and servicing ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate monthly instrumentation	➢ Notify Treatment Manager, Water Coordinator ➢ Adjust chlorine dose as required ➢ Visual inspection of dosing point and repair as required ➢ Inspect filter and adjust as required ➢ Inspect flocculation and adjust as required ➢ Inspect pH correction and adjust as required ➢ Increase monitoring at inlet and outlet until system target is reached	➢ Notify Treatment Manager, Water Coordinator ➢ Notify NSW Health ➢ Shutdown of pump to RHBT ➢ Check online monitor at RHBT ➢ Manual dose at treated water storage as required ➢ Repeat operational and corrective actions ➢ Transfer water from water storage to emergency storage lagoon; shandy as appropriate ➢ Operator restart of RHBT pump when target is reached ➢ Consider boiled water alert

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Coffs Harbour Drinking Water System

CONTINUOUS

CCP 7 pH at Treated Water Storage Outlet

TARGET	ALERT	CRITICAL
7.7	**< 7.2 OR > 8.3 for > 30 min**	**< 7.0 OR > 8.5 for > 30 min**
➢ Confirm automatic adjustment of dose ➢ Weekly manual monitoring ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate monthly instrumentation	➢ Notify Treatment Manager, Water Coordinator ➢ Inspect dosing systems ➢ Adjust lime/ acid dose as required ➢ Increase manual monitoring until target is reached	➢ Notify Treatment manager, Water Coordinator ➢ Shutdown of RHBT pump ➢ Adjust lime/acid dose at tank ➢ Transfer water to emergency storage lagoon; shandy as appropriate ➢ Increase manual monitoring until target is reached ➢ Operator restart of RHBT pump when target is reached

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Coffs Harbour Drinking Water System

WEEKLY

CCP 8 Free Chlorine at Point of Supply

CRITICAL	ALERT	TARGET
< 0.1 mg/L	**< 0.2 mg/L**	**> 0.2 mg/L**
➢ Notify Distributon Manager, Water Coordinator ➢ Notify NSW Health ➢ Respond as per *NSW Health Drinking Water Quality Protocol (2005)* ➢ Repeat corrective actions ➢ Flush mains ➢ Increase monitoring until system target is reached ➢ Consider boiled water alerts	➢ Contact Distribution Manager, Water Coordinator ➢ Check chlorine at appropriate reservoir ➢ Hand dose at appropriate reservoir if chlorine < 0.2 mg/L according to SOP ➢ Retest and redoes as appropriate ➢ Consider increasing chlorine dose at RHBT, WTP, chlorine booster ➢ Increase monitoring until target is reached	➢ Weekly testing at point-of-supply (E. coli, total coliforms, free chlorine) ➢ Mains flushing ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly

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Nana Glen Drinking Water System

CONTINUOUS

CCP 1 Turbidity after Filtration

TARGET	ALERT	CRITICAL
< 0.3 NTU	**> 0.5 NTU**	**> 1.0 NTU**
➢ Weekly visual inspection of source water ➢ 3-times/week visual inspection of flocs and filters ➢ Manual 3-times/week recording of NTU ➢ 3-times/week pH, alkalinity, colour, turbidity monitored at raw water and treated water reservoir ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate instrumentation: 3-monthly	➢ Notify Treatment Manager, Water Coordinator on repeat occurrences or additional problems ➢ Visual inspection of water source ➢ Visual inspection of floc, dosing systems; adjust dose/repair as appropriate ➢ Manual grab sample and jar test ➢ Initiate manual backwash ➢ Calibrate instrumentation ➢ Increase monitoring until target is reached	➢ Notify Water Treatment Manager, Water Coordinator ➢ Ensure automatic shutdown of filter ➢ Repeat corrective actions ➢ Increase monitoring until target is reached ➢ Alert supervisor Water Treatment Manager on repeat occurrences ➢ Cart water if limit exceeded for long time ➢ Manual re-start of filter when target is achieved

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Nana Glen Drinking Water System

3 TIMES PER WEEK

CCP 2 Disinfection at Reservoir

CRITICAL	ALERT	TARGET
< 0.3 mg/L	**< 0.5 mg/L**	**0.8 mg/L (summer)** **0.5 mg/L (winter)**
➢ Notify Water Treatment Manager, Water Coordinator ➢ Notify NSW Health ➢ Manual plant shut-down ➢ Manual dose at reservoir as required ➢ Repeat corrective actions ➢ Increase monitoring until system target is reached ➢ Manual re-start of plant when target is reached ➢ Consider boiled water alert	➢ Consult with Treatment Manager, Water Coordinator; adjust chlorine dose ➢ Inspect dosing point, dosing system and repair as required ➢ Inspect filter and filter backwash as appropriate ➢ Inspect floc and adjust dose or repair as appropriate ➢ Increase manual testing until system reached target ➢ Calibrate equipment ➢ Take reservoir off-line, re-fill and add chlorine; balance and shandy the two reservoirs together ➢ Increase monitoring until target is reached	➢ Manual free chlorine test in reservoir ➢ Operational monitoring ➢ Unless manufacturer instrumentation manuals indicate otherwise, calibrate equipment monthly ➢ Programmed maintenance and servicing

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Nana Glen Drinking Water System

FORTNIGHTLY

CCP 3 Free Chlorine at Point of Supply

CRITICAL	ALERT	TARGET
< 0.1 mg/L	**< 0.2 mg/L**	**> 0.3 mg/L**
➢ Notify Water Treatment Manager, Water Coordinator ➢ Notify NSW Health ➢ Respond as per *NSW Health Drinking Water Quality Protocol (2005)* ➢ Repeat corrective actions ➢ Increase monitoring until system target is reached ➢ Consider boiled water alert	➢ Notify Water Treatment Manager, Water Coordinator ➢ Check chlorine at appropriate reservoir ➢ Hand dose at appropriate reservoir ➢ Retest and re-dose as appropriate ➢ Consider increasing chlorine dose WTP ➢ Increase monitoring until target is reached	➢ Testing at point-of-supply: *E.coli*, total coliforms, free chlorine ➢ Mains flushing

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Based in Sydney and Byron Bay, HydroScience Consulting (HSc) is an Australian consultancy dedicated to serving the water industry in Australia.

HydroScience provides planning and design services to public and private sector clients throughout Australia. We are committed to developing strong client relationships that become the foundation for understanding our clients' needs and exceeding their expectations.

FLOODPLAIN MANAGEMENT PROGRAM

Purpose:

To update Council on the status of the Floodplain Management Program and Flood Mitigation Program.

Description of Item:

This report provides an update on Council's Floodplain Management Program and its position in relation to the NSW Flood Prone Land Policy and Floodplain Development Manual. An update on the progress of the City Wide flood mitigation, storm water and drainage works program is also detailed.

Sustainability Assessment:

- **Environment**

  Flood events, large and small, are natural occurrences. Development of the floodplain can alter flooding behaviour as can flood mitigation measures. Impacts on the environment due to flooding are investigated as part of Floodplain Risk Management Study and as part of the design of individual mitigation measures.

- **Social**

  Large flood events can have a huge impact on the local community and on individuals affected by flooding. The 1996 event in Coffs Harbour was declared a natural disaster and with approximately 260 residential homes and 200 commercial buildings flooded. Events this large and destructive are very disruptive with peoples dwellings and personal belongings destroyed or damaged as well as local businesses suffering direct losses from destruction or damage to work places and stock plus loss of trade. People whose property isn't directly affected can be indirectly affected through loss of power and other services plus closure of schools and commercial areas.

- **Civic Leadership**

  Under the NSW Flood Prone Land policy the management of flood prone land is, primarily, the responsibility of Councils. Under the Coffs Harbour 2030 Plan, Places for Living, strategy PL 1.2. Provide infrastructure that supports sustainable living and is resilient to climatic events. Flood studies and floodplain risk management studies and plans provided technical and strategic information to satisfy the objectives of this strategy.

- **Economic**

  Broader Economic Implications

  Flooding can have a very large impact on the local economy with many varied economic implications. Flood mitigation works aim to reduce the severe negative economic impacts arising from floods on infrastructure (both public and private) and the regional economy.

Funds are allocated annually in Council's Operational Plan for the preparation of flood studies and floodplain risk management studies and plans. Grant funds on a 2:1 (State: Council) basis are available for the preparation of studies and plans.

Grant funding is also available for flood mitigation works either on a 1:1:1 (Federal: State: Council) or 2:1 (State: Council) basis and to be eligible for funding the works must be identified in a floodplain risk management study or plan. Recommended flood mitigation projects from the studies and plans are incorporated into councils 'Flood Mitigation Works Program' and funding is applied for annually.

As floodplain risk management studies and plans are completed new flood mitigation projects are added to the Flood Mitigation Program based on priorities and available resources.

Delivery Program/Operational Plan Implications

Council is currently undertaking Floodplain Risk Management Studies and Plans for the Boambee-Newports Creek and Woolgoolga Creek catchments. Completion and adoption of these studies and plans will potentially identify new flood mitigation works to incorporate into the works program.

Works in the Flood Mitigation Program are funded via loans in accordance with Council resolutions of 26 November 2009 and 11 March 2010.

The Natural Disaster Resilience Scheme grants allow further works to be undertaken over and above the original proposal or may allow early repayment of loans. As the availability of grant funds are confirmed and detailed investigation into the cost benefit of projects are completed, components of the Delivery Program will require modification in order to meet grant funding conditions or ensure Council maximises benefit from available funds.

Risk Analysis:

Flooding is a naturally occurring hazard affecting significant areas of the LGA. Flood studies and plans provide a technical and detailed understanding of the nature and extent of flood events giving Council the tools to determine risks associated with different activities and land use on the floodplain.

Council receives indemnity, in relation to flood advice given and actions done provided it has acted in good faith and followed State government guidelines, see 'Statutory Requirements' for more details.

Consultation:

Council has a "Floodplain Management Advisory Committee" consisting of council staff, councillors, community and state government representatives to advise on floodplain issue and assist in development of Floodplain Management Studies and Plans. Studies and Plans are required to undergo community consultation including public exhibition.

Related Policy and / or Precedents:

Council has a 'Floodplain Development and Management' Policy with the following aims:

- To minimise risk, both physical and economic, due to mainstream flooding;
- To minimise the effects of development on flooding in natural watercourses;
- To give developers clear guidelines for the requirements of particular developments on flood liable land.

Statutory Requirements:

Floodplain Risk Management Studies and Plans are prepared following the guidelines in the State Government's "Floodplain Development Manual". Council receives indemnity, in relation to flood advice given and actions done, under the provisions of Section 733 of the Local Government Act 1993 provided it has followed the guidelines of the State Government's Manual in developing, adopting and implementing the Floodplain Risk Management Plans.

Issues:

Floodplain Management Program

Council is the primary floodplain manager for the Coffs Harbour local government area. To fulfil this roll Council has a 'Floodplain Management Program' that is undertaken in accord with the NSW Governments 'Flood Prone Land Policy' and 'Floodplain Development Manual'. The manual provides Council with a frame work for determining the nature and extent of flood problems using flood modelling and sound methodologies to provide a technical form of flooding. This information is then used to assess and determine mitigation options taking into consideration social, ecological and economic factors relating to flood risk. Figure 1 'Floodplain Risk Management Process' summarises the steps involved.

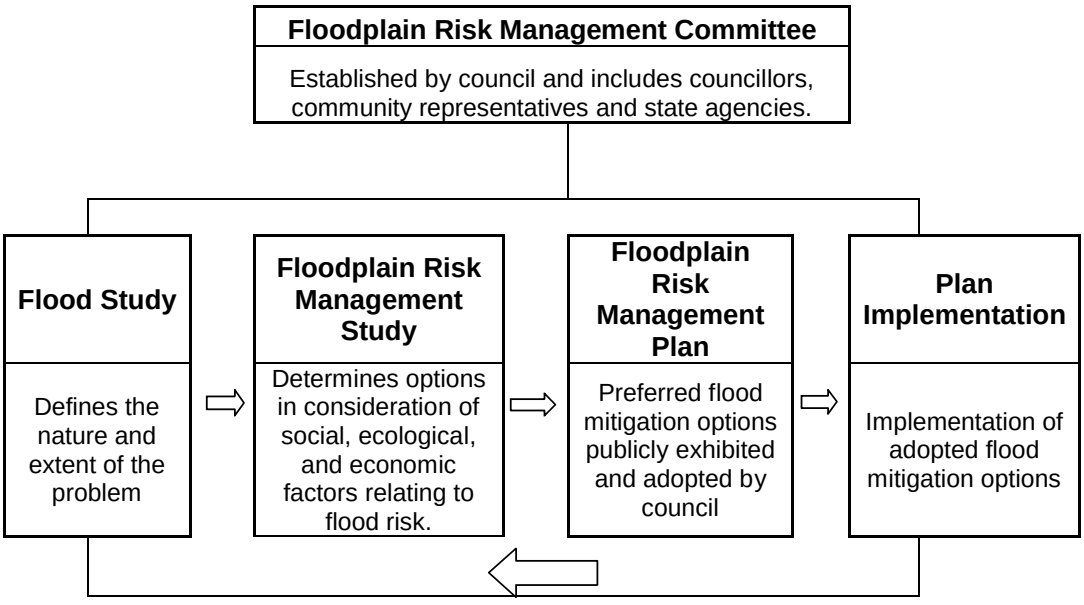

Figure 1. Floodplain Risk Management Process

The information contained in flood studies and floodplain risk management studies and plans provides Council with sound information and data to use in developing strategic documents and planning controls. The advantages to both Council and the community in having the floodplain management studies and plans in place are:

- Having a proper basis for managing and using flood prone land to provide a balance between danger to personal safety and economic losses due to flooding, and social, ecological and cultural interests;
- Optimising community infrastructure;

- Minimising personal danger to residents, visitors and emergency response personnel and community flood damage;
- Strategically assessing catchments so that the impacts of development on flooding and flooding on development can be effectively considered;
- Provides flood mitigation works projects that are technically sound and have been publicly exhibited to be incorporated into Council's 'Flood Mitigation Works Program' based on priorities and available resources;
- Opens up opportunities to receive funding through State and Federal programs, usually on a 2:1 basis (i.e. 1/3 council) for flood mitigation projects.

Attached is a table that details what flood studies and floodplain risk management studies and plans that Council has relating to each of the different catchments. The table also has "Comments" that provide a very brief summary of flood issues for each catchment. In addition to flood studies undertaken by Council following the guidelines, Council also has "Flood Information" from other flood assessments. These include flood studies undertaken by developers, other government departments and various other sources. Note that flooding is different in each catchment and catchment specific studies and plans are required.

The table also has had a priority assigned to each of the catchments. The assigned priorities are Low, Medium or High, determined by using available flood information in studies and plans, if available, and knowledge of the size and number of flood issues and other factors such as development pressures within the relevant catchment.

Based on these priorities and available resources, the following program for undertaking flood studies and floodplain risk management studies and plans has been developed:

2013 Boambee - Newports Creek Floodplain Risk Management Study and Plan
Woolgoolga Creek Floodplain Risk Management Study and Plan
Coffs Creek Flood Study Review
Update Flood study mapping for E Planning

2014 Fiddamans Creek Flood Study

2015 Hearnes Lake - Willis Creek Flood Study
Middle Creek – Review and Investigate flood mitigation options

2016 Corindi River Flood Study
Arrawarra Creek Flood Study

Future Studies

Fiddamans Creek Floodplain Risk Management Study and Plan
Jordan Creek / Pine Brush Creek Misc Small catchments Flood Study
Moonee Creek / Bonville Creek, Climate Change - Sea Level Rise Impacts modelled

Completion of the Boambee - Newports Creek Floodplain Risk Management Study and Plan will certainly identify the need for detention basins, and the priority of these will need to be assessed against other projects in the Flood Mitigation Program

The following is an update on the Flood Mitigation program as it stands.

City Wide flood mitigation, storm water and drainage works program update

Detention Basins:

Bennetts Road Detention Basin

The Bennetts Road basin construction is completed and the basin is fully operational. The easements on affected properties have been transferred to Council, however the final compensation payments have not yet been finalised due to appeals lodged by some owners. A flood warning station and water level recorder has been installed on the basin.

Spagnolos Road Detention Basin

The design has been completed and Dam Safety Committee approval has been granted.

Trunk water mains on the site have been relocated to allow construction of the basin wall. Council has applied for grant funding to assist in the basin construction. A decision on the grant application is immanent and we believe we have a high likelihood of success.

Upper Shephards Lane Basin

The land for this basin has been purchased in accordance with Council's resolution of 11 October 2012. An application for government funding to supplement Council funds for construction of the basin is proposed to be made in the 2014/15 flood mitigation grant program.

Flood Warning System

Rain gauges and water level recorders have been installed and are operational. The additional gauges at Woolgoolga and the Bennetts Road detention basin have been installed. The recording and radio communication systems are fully operational with data being transferred to the Bureau of Meteorology and State Emergency Services, with very positive feedback regarding the assistance this provides emergency services.

Drainage Works

Status report of the 19 stormwater drainage projects identified and reported to Council in November 2009, aimed at alleviating local flooding issues and protecting property against flooding:

Construction complete:

41 King Street	flood surcharge path
36 Links Avenue	piped drainage and bund
Marcia Street/ Ann Street	detention Basin
Betel Palm Close	piped drainage
Norfolk Crescent	overland flow path channel
Merino Drive	piped drainage
44 Coramba Road	additional inlet pits
Masonary Road	surcharge path
Taloumbi Road (west)	piped drainage
Coffs Creek at Orlando Street	Remove old rail bridge piers
Increase waterway area at Coffs Creek Bridge at the Pacific Highway.	
Shellcove Lane	piped drainage
Bellingen Road	piped drainage.
Murphy Crescent	surcharge path

Oxley Place	surcharge path
Wybalena Crescent	piped drainage
Bray Street	surcharge path
Taloumbi Road (east)	surcharge path
Fawcett Street, Woolgoolga	detention basin and piped watercourse.
Gale Street, Coramba	drainage diversion works
Trafalgar Lane, Woolgoolga	diversion drain and pipe works

Survey and investigation underway:

Marcia Street	drainage upgrade
Loaders Lane levy bank	raise levy

Coffs Creek Improvement Works

The following creek cleaning works have been completed:

Bray Street at the end of Grant Close and Hughes Close approximately 115m.

Upstream and downstream of Scarba Street bridge (Gundagai Place).

North Coffs Creek near Pacific Highway and Orlando Street.

Council has also removed creek blockages as well as rubbish such as shopping trolleys and building waste at Roselands Estate, Woolgoolga Creek and Middle Creek, Sawtell.
The urban creeks are being regularly checked and cleared as necessary.

The Orlando Street/GDT Secombe Close drain has been cleared from the railway all the way to the mangroves which will significantly improve drain efficiency. The prospect of pursuing further permits to continue clearing through the mangroves will be assessed following resolution of permits for clearing of the Duke Street drain.

Survey of the Duke Street drain has been completed and negotiations are under way with agencies to seek approvals/ permits for drain clearing/ dredging works.

Overland Flow Paths in the CBD

Investigations are continuing into the feasibility of improving stormwater overland flowpaths in Gordon Street/ Harbour Drive and Park Avenue.

CBD Drainage including:

- Drainage bypass
  The review of the CBD drainage network will be undertaken in conjunction with the investigation into overland flow paths.
- Estuary improvement investigations
  Consultants have been engaged to undertake the Coffs Creek infilling and hydraulic capacity study which will investigate changes in creek morphology and waterway capacity. The study has been completed to Draft stage and is currently being assessed.

Implementation Date / Priority:

Council's preparation of flood studies and floodplain risk management studies and plans is an ongoing process. Studies and plans will be undertaken based on the prioritised list and subject to obtaining grant funding and council resources.

Recommendation:

1. **That Council continue with the Floodplain Management Program in accordance with the priorities and information provided and that the priorities are reviewed regularly by Council's Floodplain Management Advisory Committee.**
2. **That the update on the Flood Mitigation Program be noted**

Attachment

Floodplain Risk Management

Coastal Catchments	Priority	Flood Study	Floodplain Risk Management Studies and Plans	Flood Information	Comments
Station Creek	V Low				Majority of catchment National Park, very little development. Not a priority.
Corindi River	Med			Pacific Highway, Blackadder Safety Work, Flood Impact review, Jul 2012. SMEC, RMS	RMS has consultants undertaking additional flood modelling. Council has agreement to obtain flood model from RMS. Need to model Red Rock village area. Flood problems around highway and Corindi park Dr.
Arrawarra Creek	Med			Various flood studies by developers. RMS undertaking flood study.	ICOLL / CC / SLR Arrawarra Creek has an artificial opening strategy. Tourist Parks in catchment experience flooding. Issues have been raised with highway works.
Darkum Creek	Med			Flood study by developers	ICOLL / CC / SLR Recent floods have gone close to houses (not aware of any above floor inundation). Drainage issues.
Woolgoolga Creek	High	Woolgoolga Flood Study, BMT WBM May 2012	Council has funding and is currently preparing a management study and plan		ICOLL / CC / SLR, Woolgoolga has low lying areas that flood plus some overland flow problems. Lake opening strategy to be reviewed.
Willis Creek	Med			Old flood study	ICOLL / CC / SLR Majority of development in Willis Ck would appear to be above flood level.
Hearnes Lake	High			Flood studies by various developers (recent)	ICOLL / CC / SLR development pressure
Fiddamans Creek	High			Old flood studies	ICOLL / CC / SLR Properties flooding particularly Fishermans Dr, Fiddaman Rd and Graham Dr area issues

Attachment

Moonee Creek	Med	Paterson Consultants Pty Ltd June 1998		Additional flood studies by developers (dam break for part of catchment)	CC / SLR Some issues with properties in Heritage Park and Tiki Row and highway works.
Pine Brush Creek	Med			Old study	CC / SLR
Jordan's Creek	Med			Old studies	ICOLL / CC / SLR Flooding in Langley Pl and Firman Dr
Coffs Creek	High	Coffs Creek Flood Study, WMA May 2001	Coffs Creek Floodplain Risk Management Study and Plan, Bewsher Consulting, Oct 2005	Council has funding and will be updating to 2D modelling of Coffs Creek. 2D modelling will provide better assessment of flooding through the catchment particularly in regard to overland flow. The proposed model will update flood behaviour incorporating constructed detention basin and both Coffs main arm and northern tributaries.	Once the 2D model is completed council will review the floodplain risk management plans and investigate possible new mitigation options.
		Northern Tributaries of Coffs Creek Flood Study, Paterson Consultants Nov 1997	Northern Tributaries of Coffs Creek Floodplain Risk Management Study, Paterson Consultants, Dec 1997		
Boambee - Newport's Creek	High	Boambee Creek and Newport's Ck Flood Study, WMAwater, Jan 2011	Council are currently preparing floodplain risk management study and plan for Boambee - Newport's Ck.		Flooding issues, including the Health Campus and industrial areas, are being investigated in the study and plan. Council is also doing a LES for North Boambee Valley (west) and the proposed works associated with this are being incorporated into the FRMS.
		North Boambee Valley Flood Study, Bewsher Consulting, Nov 1991			
Bonville - Pine Creek	Low	Bonville Creek Flood Study, Slattery de Groot and Partners and Bewsher Consulting, Oct 1995	Floodplain Management Study, Bonville and Middle Cks, RDM and Water Studies, May 1998, Management Plan, Water Studies and RDM, Sep 1998.		According to the management plan there are minimal flood problems in Bonville and Pine Cks. There is waterfront development and thus CC and SLR need to be modelled.
Middle Creek	High	Middle Creek Flood Study, CHCC, Aug 1992			Flood issues particularly in Boronia St. Review of mitigation options and CC and SLR assessment required.

Attachment

Bundagree Creek	V Low				Limited development not aware of any flood issues
Western Catchments					
Orara River	Med	Orara River Flood Study, GHD, May 2012			Some properties do flood Isolation - roads / bridges cut in flood
Bucca Bucca Creek					
Bobo River	Low			Preliminary flood modelling undertaken that indicates possible flood prone areas.	Isolation - roads / bridges cut in flood
Little Nymboida Creek	Low				
Mole Creek	Low				

Note:
ICOLL - Intermittently Closing and Opening Lake or Lagoon
CC - Climate Change
SLR - Sea Level Rise

TENDER: CONTRACT NO. RFT-608-TO TIMBER SUPPLY - DAVIES BRIDGE BROOKLANA AND SECOMBS BRIDGE DAIRYVILLE

Purpose:

To report on tenders received for the supply and delivery of timber components for the construction of Davies Bridge Brooklana and Secombs Bridge Dairyville, NSW, and to gain Council's approval to accept a tender.

Description of Item:

As a result of the regular inspections of Council's bridge assets, Davies Bridge and Secombs Bridge have been identified as being in very poor condition. This contract supplies and delivers the timber required to construct the new bridges called Davies Bridge and Secombs Bridge in a staggered time frame to suit the bridge construction program.

1. Davies Bridge

The existing Davies Bridge is 23.97m long and will be replaced with a new timber bridge of 38.6m in length. The new bridge will comprise of four spans and have 3.8 metres between kerbs. The new bridge will be constructed on the northern side of the existing bridge which will be demolished after the commissioning of the new bridge.

2. Secombs Bridge

The existing Secombs Bridge is 29.05m long and will be replaced with a new timber bridge of 34.6m in length. The new bridge will comprise of three spans and have 3.6 metres between kerbs. The new bridge will be constructed on the west side of the existing bridge which will be demolished after the commissioning of the new bridge.

Bridge construction for both Davies and Secombs Bridges will be carried out by Coffs Harbour City Council day labour staff working as Council's bridge crew. A contractor will be appointed to drive the timber support piles with Council's bridge crew assisting with access preparation for the piling operation.

Open Advertised Tenders

Open tenders were called for the supply and delivery of all the required timber, advertising in local and capital city newspapers and on Council's Tenderlink portal. Tenders closed 3:30pm on Tuesday 22 October 2013. Three tenders were received as follows:

1. Coffs Harbour Hardwoods Pty Ltd (Coffs Harbour)
2. Leonard J Williams Pty Ltd (Coffs Harbour)
3. Wychitella Holdings Pty Ltd (Coffs Harbour)

Sustainability Assessment:

- **Environment**

  During timber bridge replacement works appropriate environmental assessments are undertaken and environmental controls carried out for the duration of the project to ensure that environmental effects are minimal.

  The deck levels of the new bridges match the current bridge deck levels. As the bridges are longer there will be less restriction of flood flow which should minimise flood heights and maintain the abutments with less scour potential.

- **Social**

  The community's expectation is that access for all types of vehicles, heavy loads included, should be available to the front gate. Equity in access is a concern to residents when load limits are placed on deteriorated timber bridges and inconvenience is suffered during repairs.

  Davies Bridge is currently the only access to approximately nine properties. Secombs Bridge is the only access to approximately 20 properties. Access to these properties is cut off during flood events.

  The replacement of these deteriorating timber bridges will increase the kerb to kerb width and will benefit the community through improvements to safety, accessibility and longevity.

  The proposed bridges will be constructed adjacent to each existing bridge, therefore allowing the existing bridge to remain open to traffic throughout the construction phase.

- **Economic**

  Broader Economic Implications

  Davies and Secombs Bridge are in an unserviceable condition to the stage that to make good the bridges is economically unviable. Strengthening works and regular maintenance to extend the life of the bridge would be very costly, with minimal benefit.

  A cost/benefit/risk analysis has been undertaken with regard to the replacement bridge being timber or reinforced concrete. At the present time the preference towards a timber bridge prevailed.

  Current Councils timber bridge assets are such that many of the old bridges timber bridges are coming to their end of their serviceable life. Constructing Davies and Secombs Bridges in timber will allow a significant amount of funding within the bridge program to be spent replacing and repairing other timber bridges also approaching the end of their serviceable life. The savings would allow an estimated 4 or 5 other timber bridges on local roads to be replaced.

  A timber bridge is expected to last 40+ years, as compared to a concrete bridge designed for 100+ years.

Delivery Program/Operational Plan Implications

Funding has already been allocated within the 2013/14 Program, as part of Council's Bridge Program.

Related Policy and / or Precedents:

Tendering procedures were carried out in accordance with Council policy. Council's Tender Value Selection System was applied during the tender review process. Council's policy is that the Tenderer with the highest weighted score becomes the recommended tender.

Statutory Requirements:

The calling, receiving and reviewing of tenders was carried out in accordance with Part 7 Tendering of the Local Government (General) Regulations 2005 (the Regulations).

Implementation Date / Priority:

It is anticipated that the works will commence in January 2014 and be completed by late May 2014 barring unforeseen delays.

Recommendation:

That Council consider tenders received for the supply and delivery of timber for Contract No. RFT-608-TO Timber Supply, Davies Bridge Brooklana and Secombs Bridge Dairyville, and move the motion as detailed in the confidential attachment.