Stormwater Management Plan

Thames-Coromandel Urban Areas

November 2013

Prepared for

Thames-Coromandel District Council

THAMES COROMANDEL DISTRICT COUNCIL

KTB PLANNING

RESOURCE MANAGEMENT & PLANNING PROFESSIONALS

Prepared by:

Karl Baldwin
KTB Planning Consultants Ltd

P O Box 641
Cambridge
New Zealand
www.ktbplanning.co.nz
(07) 8233584

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1.0 Introduction

The Thames-Coromandel District Council (TCDC) owns and maintains stormwater networks within each urban area within the District. The Council networks consist of approximately 231km of stormwater pipes, almost 8,300 manholes, four pump stations and assorted minor drainage structures such as soakage pits, detention ponds and stormwater inlet and outlet structures. Some infrastructure dates back as far as the 1920's, however, condition assessments have shown infrastructure to be in good condition despite its age.

The Waikato Regional Council has issued Comprehensive Stormwater Discharge Consents (CSDC) for eight urban areas in the Thames-Coromandel District as shown in figure 1 below:

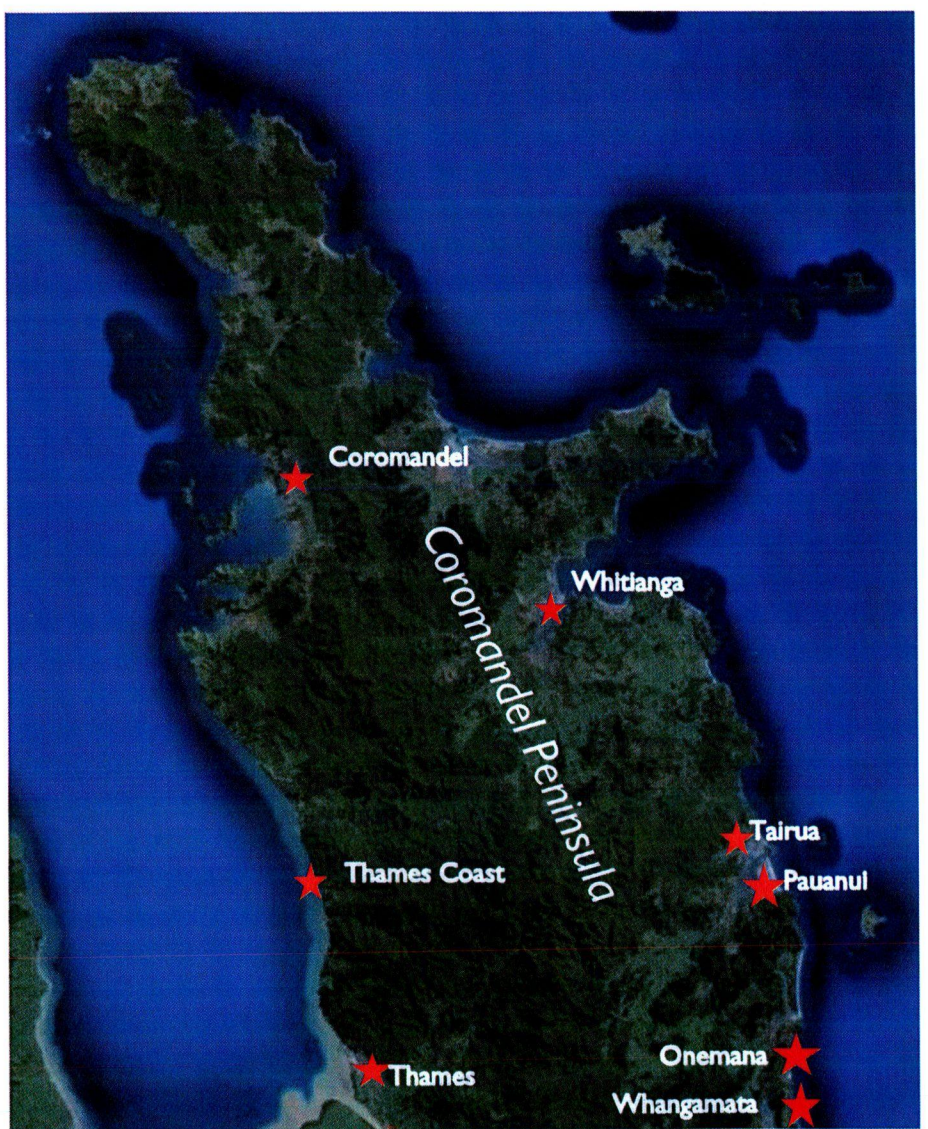

Figure 1 - Urban areas within the Thames-Coromandel District subject to Comprehensive Stormwater Discharge Consents (CSDC's).

The CSDC's are referenced as follows:

WRC reference number	Urban Area
122521	Thames
105661	Pauanui
105663	Coromandel
105664	Tairua
105665	Whitianga
105666	Onemana
105667	Whangamata
105668	Thames Coast

1.1 The Stormwater Management Plan (SMP)

The Stormwater Management Plan (SMP) has been developed in accordance with Condition 30 (Schedule A) of the CSDC's. Condition 30 sets out an extensive list of matters that are to be addressed.

The relevant parts of condition 30 is highlighted under each section subheading.

Condition 30 requires the Consent Holder to prepare a Stormwater Management Plan for its stormwater network and the existing stormwater diversion and discharge activities that are authorised by this consent.

30) The Consent Holder shall prepare a Stormwater Management Plan for its stormwater network and the existing stormwater diversion and discharge activities that are authorised by this consent. The Stormwater Management Plan shall record the way in which the stormwater network is operated, and shall include best practicable stormwater measures to avoid, remedy or mitigate adverse effects on the environment.

1.2 Objectives of the SMP

The objectives of the SMP are to:

- To provide an ongoing management framework that assists the consent holder to avoid, remedy, or mitigate any adverse effect on the environment arising from the operation of the stormwater network.
- To provide an ongoing management framework that assists the consent holder to comply with the conditions of the stormwater discharge consents for each urban area.

1.3 Legislative and Planning Framework

b) A description of the relationship and integration of the Stormwater Management Plan with other key planning instruments and regulatory/non-regulatory processes, including all those utilised in the management of the stormwater network;

1.3.1 National Legislation

For the sake of brevity, a summary of the relevant national legislation and policy that influences stormwater in the District is provided in appendix E.

1.3.2 Local Policy

The local planning policy (district) that influences stormwater management includes:

a) The District Plan

At the time of writing this SMP the Council is undertaking a review of the District Plan as required under the RMA. It is anticipated that notification of the Proposed District Plan (2013) will occur in late 2013.

The Operative District Plan April 2010 sets out a number of objectives, policies, rules and development standards in relation to stormwater. The Plan guides how new land use and subdivision developments should occur to promote the effective and efficient management of the stormwater network into the future. The District Plan currently refers to the TCDC Code of Practice for Subdivision and Development and in some cases the Auckland Regional Council Technical Publication 10 (TP10) Guidelines.

b) Engineering Code of Practice for Subdivision and Development

At the time of writing this SMP the Council is undertaking a review of the District Plan. It is anticipated that notification of the Code of Practice will occur in late 2013.

The Code of Practice provides a guide to subdivision and development within the Thames-Coromandel District. It sets the design standards that infrastructure must meet particularly where that infrastructure it is to be acquired by Council. The Code of Practice is currently being reviewed and is proposed to be developed in accordance with NZS4404:2010 Land development and subdivision infrastructure and includes provisions in accordance with Auckland Council TP10 Guidelines.

Subdivision or land use consents issued by Council typically require compliance with the standards of the Code of Practice. A copy of the new Code of Practice – Section 6 Stormwater and Land Drainage is provided in appendix C.

c) Liquid Trade Waste Bylaw

Council have recently adopted a Liquid Trade Waste Bylaw which also has some positive implications for stormwater discharges. Liquid trade waste is defined as follows:

> *TRADE WASTE is any liquid, with or without matter in suspension or solution, that is or may be discharged from a Trade Premises to the Council's Sewerage System in the course of any trade or industrial process or operation, or in the course of any activity or operation of a like nature; and may include Condensing or Cooling waters; Stormwater which cannot be practically separated, or Domestic Sewage. The definition of liquid trade waste includes stormwater which cannot be practically separated.*

The bylaw regulates the discharge of trade waste to the sewerage system operated by Council. While not specifically targeting stormwater discharges, the bylaw makes it clear that condensing and cooling water

or disinfected/super chlorinated water cannot be discharged as of right to a stormwater drain or natural waterway, without the consent of the appropriate authority. Penalties apply for breaches of the bylaw.

d) Long Term Council Community Plan (LTCCP or Ten Year Plan)

In relation to stormwater, the aim of Thames-Coromandel 2009-2019 Ten Year Plan is to ensure that stormwater is controlled and, if necessary, treated and then disposed of, in order to protect the health and safety of people, land and property. The level of stormwater service that the LTCCP intends to provide is stated as follows:

- In light to moderate rainfall, stormwater is diverted from properties.
- In heavier rainfall, habitable flood areas are not flooded.
- Stormwater systems will be well operated and maintained by the Council.

e) The Thames-Coromandel Annual Plan

The Local Government Act 2002 also requires Council to prepare an Annual Plan. The annual plan sets out Council priorities and budgets for services and infrastructure provision and supports the aims of the Ten Year Plan.

Public consultation occurs on both the Annual Plan and Ten Year Plan and these public processes provide the community with the opportunity to have input into Council's provision of stormwater services, funding and priorities.

1.4 Key Stakeholders

e) A list of the key stakeholders who have an interest in the stormwater diversion and discharge activities authorised by this consent, and their respective views on managing these activities;

This SMP recognises the valuable input to stormwater management provided by the following key stakeholders.

- The community, including citizens, ratepayers and Iwi
- Fish and Game Council
- Waikato Regional Council
- Government Agencies, including the Department of Health, Ministry for the Environment and the Department of Conservation.

All key stakeholders generally share the view that the stormwater networks within the District shall be designed and implemented to protect the relevant communities from flooding and also avoid, as far as practicable, the adverse effects on receiving waters and habitats.

2.0 Urban Area Stormwater Catchments

a) *A plan or drawing or series thereof which shows the Thames Coromandel District Council administrative areas, main hydrological catchments, main stormwater network (including sites of key stormwater management devices), major secondary overland flow-paths and stormwater receiving water bodies;*

c) *A description of the stormwater network in relation to the contributing catchments, existing land uses within these catchments, Low Impact Urban Design measures, stormwater management devices and main pipe reticulation;*

d) *A description of all stormwater receiving water bodies, including their locations, key characteristics (for example water quality, ecological and hydrological characteristics), existing uses and values;*

2.1 Urban Area Stormwater Catchments

Descriptions and plans of the eight urban area stormwater networks, catchments and receiving water bodies are provided in appendix A. The descriptions have been prepared using the template provided as part of the resource consent applications for CSDC's prepared by TCDC in 2001. The descriptions identify stormwater catchments that are considered to be high risk in terms of the potential environment effects of stormwater discharge activities.

As all settlements within the district have been developed on the coast, a majority of the stormwater catchments discharge directly into the marine environment. Stormwater is therefore diluted relatively quickly within the marine environment. The stormwater catchments are, however, typically short which means that stormwater will enter into the marine environment within a short space of time. This leads to a relatively high risk of adverse environmental effects when a non-routine contaminant discharge incident occurs such as an oil spill on a road.

There are a relatively small number of stormwater discharges into streams/rivers within the urban areas. These receiving environments are typically tidal streams or rivers which again result in rapid dilution and flushing of stormwater. Generally it is considered that the impacts of routine stormwater discharge within these streams/rivers are insignificant in terms of fish habitat and fish migration.

2.2 High Risk Catchments

High risk catchments are defined as urbanised catchments which are exposed to high concentrations of routine contaminants, and/or which are deemed to be more at risk to non-routine contaminant discharge incidents.

Settlements within the Thames-Coromandel District are not exposed to high concentrations of routine contaminants compared to larger metropolitan areas within the Waikato Region or greater New Zealand. However, the coastal environments of the Districts urban areas are considered to be sensitive to the effects of a non-routine contaminant discharge and are therefore considered to have a relatively high level of risk. For the purpose of compliance with the discharge consent conditions, some of these stormwater catchments have been identified as high risk catchments.

2.3 High Risk Facilities

Section 5.3.12 of the Waikato Regional Plan contains a list of those activities considered to be high risk facilities. These include activities such as mechanical workshops, service stations, spray painting facilities, food processing industries, waste management sites (transfer stations, compost sites, landfills etc.) and truck wash facilities.

In significant flooding events, hazardous substances associated with high risk facilities may find their way into the floodwaters and pose a significant hazard to public health. Industrial Zones are typically the primary location for high risk facilities. However, individual activities located in other zones may also use, store or generate hazardous substances. Catchments with high-risk facilities will be given higher priority for stormwater monitoring and education compared to catchments with little or no high-risk facilities.

3.0 Operation and Maintenance Procedures

f) A description of all stormwater network operation and maintenance procedures, including those associated with land use (for example street and catchpit cleaning), stormwater management devices, pipe reticulation and stormwater receiving water bodies;

The operation and maintenance of the TCDC stormwater network is contracted to third parties by way of a Utilities Operations and Maintenance Agreement and a Roading Maintenance Agreement. These agreements (or contracts) share the responsibility for the effective management of a majority of the stormwater networks within the District. Parts of the stormwater network that are not managed under these contracts include those devices within parks and reserves which are the responsibility of the TCDC Parks and Reserves department. Private lateral connections from private properties to the boundary remain the responsibility of individual landowners.

Figure 1 below depicts the various responsibilities (Roading or Utilities) for the operation and maintenance of the stormwater network. Although there are a number of overlaps in terms of management responsibility, it can be generally said that the Roading Contractor is responsible for the maintenance and repair of catchpits, open drain and pipe laterals that are found within the road reserve. The Utilities Contractor then becomes responsible for the stormwater reticulation, manholes, flood gates and outlets.

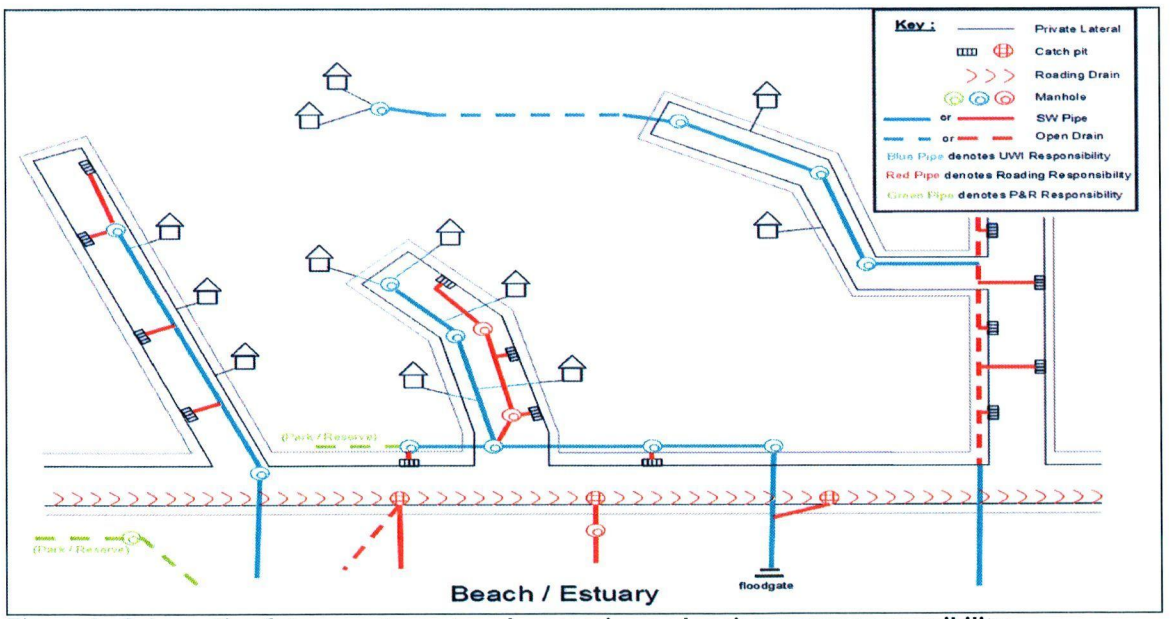

Figure 1 –Schematic of stormwater network operation and maintenance responsibility.

3.1 Utilities Operations and Maintenance Service Agreement

TCDC has an Operations and Maintenance Services Agreement (utilities contract) for water, wastewater and stormwater services within the District. This agreement is contracted to third parties and at the time of writing this Management Plan the contractor is Veolia Water. The agreement sets out the various operations and maintenance services provided to Council.

In terms of stormwater, the agreement clearly defines the operations, preventative maintenance and breakdown maintenance expectations of TCDC. This includes visual and physical inspections of the network throughout the life of the agreement to identify necessary maintenance and/or replacement of devices within the system. This contract is the primary method that TCDC uses to identify and repair erosion caused as a result of the stormwater network, identification and clearance of blockages within the system, protecting property from the adverse effects of flooding as a result of the stormwater system and responding to all requests for service (RFS) from the community.

By way of summary, the agreement includes, but is not limited to, the following operation and maintenance procedures:

- Preventative maintenance: Periodic inspections, condition monitoring, critical component replacement, restoration or renewal of components, work to maintain and protect asset condition and other servicing requirements.
- Breakdown maintenance and third party damage to assets.
- Regular servicing and maintenance of all pumps, motors, values etc associated with pump stations.
- Preventative maintenance program to clean stormwater mains, catchpits, channels and outfalls to minimise the number of chokes resulting in flooding and/or disruption of stormwater service to individual consumers.
- Clearance of blockages in main channels and drains which are part of the stormwater network (e.g. spraying vegetation with glyphosate and carrying our drain clearing works), where necessary to maintain the required level of service.
- Identify and repair areas of erosion.
- Repair of pipes, manholes, catchpits and castings to maintain functionality.
- Response to, and investigation of, all 'Requests for Service' (RFS) whereby public concerns or complaints are responded to within a set timeframe.

There are a number aspects of this contract that, when implemented by the contractor, will be used to identify compliance with the requirements (conditions) of the CSDC's. These primarily relate to the easily observed environmental effects of the system such as flooding and erosion effects.

The contractor is also responsible for the requests for service which provides Council with an informal indication of effectiveness of the system in terms of the community's expectations.

The Stormwater Monitoring Programme (refer s3.3 below) has been developed in conjunction with this SMP. At the time of writing this report it is anticipated that the Monitoring Programme will be incorporated into the Operations and Maintenance Services Agreement and the expectations will be for the contractor to undertake both the monitoring and to complete the reporting procedures.

3.2 Roading - Operations and Maintenance Service Agreement

TCDC has an Operations and Maintenance Services Agreement (roading contract) for the Districts roading network. This roading contract includes a number of vital components of the stormwater networks including all stormwater infrastructure within the road reserve. This includes the road side drains, grass swales, kerbs, channels and catchpits. This agreement is also contracted to third parties. The agreement clearly sets out the operations and maintenance services that relate to stormwater. It clearly defines the expectations of the contractors for sump and catchpit cleaning, detritus and slip removal, drainage maintenance, street cleaning and reporting.

By way of summary, the agreement includes, but is not limited to, the following operation and maintenance procedures that are directly relevant to stormwater generated within urban areas of the District:

- Detritus and slip removal – any materials that impedes effective and efficient operation of the drainage system
- Intervention criteria where detritus shall be removed e.g. drainage grates cleaned once more than 10% of the effective grate area is covered.
- Grassing and hydroseeding of exposed soils.
- Maintaining all drainage structures such as culverts, including accessway culverts, sumps, catchpits and associated leads.
- Sump and catchpit cleaning.
- Drain and surface water channel maintenance
- Network inspections, defects recorded and remedial work programmed.
- Annual cleaning of sumps and catchpits.
- Annual provision of a Drainage Inspection Report which includes location, inspection date, condition and programmed completion date.
- Annual sump and catchpit cleaning completed during May.
- Monthly reports on stormwater maintenance procedures.
- Street cleaning - Intervention criteria where detritus shall be removed e.g. drainage grates cleaned once more than 10% of the effective grate area is covered.
- CBD street and footpath sweeping every 3 months.
- Emptying and cleaning all rubbish bins.

There are a number aspects of this contract that, when implemented by the contractor, will be used to identify compliance with the requirements (conditions) of the CSDC's. These primarily relate to the maintenance of the stormwater system to ensure the ongoing effectiveness of the stormwater network in so far as it relates to roading. The Monthly and Annual Reports will also be used within the Annual Report requirements of this CSDC.

3.3 Stormwater Monitoring Programme

A Stormwater Monitoring Programme has been developed in conjunction with this SMP. The programme provides a framework for the targeted monitoring of selected stormwater outlets where the stormwater catchment has been identified as being a high risk catchment for stormwater pollution. The targeted monitoring involves a combination of monitoring methods including visual inspections of stormwater outlets, the analysis of sediments for contaminants and an assessment of ecological health at those sites. It is envisaged that this targeting monitoring will be carried out on a regular basis to gain an understanding of the potential risk of pollution within the receiving environment. The programme will also play a vital role in helping the consent holder to identify possible changes within the receiving waters of the

Coromandel Peninsula that may be as a result of Councils urban stormwater networks. The results of the Monitoring Programme will help to identify if there are improvements that can be made to the stormwater network.

As stated above it is anticipated that the Monitoring Programme will be incorporated into the Operations and Maintenance Services Agreement, however, this will be determined after acceptance of the SMP and Monitoring Programme by the Waikato Regional Council. The Monitoring Programme is attached in appendix I.

3.4 Other procedures

Roadside rubbish collection and recycling activities are implemented in the District under separate contracts. These activities contribute to maintenance of the stormwater system by reducing litter entering the system.

4.0 Ownership and Management of the Stormwater Network

4.1 Activity Management Plan – 2012-2022 (Ten Year Plan)

g) A description of other Consent Holder asset management activity initiatives that will assist the Consent Holder in meeting the conditions of this consent, or are otherwise complimentary to stormwater management;

Asset/Activity Management Plans (AMPs) are developed for each Council asset and activity. These plans in turn inform and assist with the development of the Long Term Council Community Plan (LTCCP) and the Annual Plan. Activity summaries are included in the LTCCP which describe the activity, highlight key issues, activities and programmes, budgets and performance targets.

The Stormwater AMP details the Councils approach to the provision and management of the public stormwater network and, as regulator, to ensure that property development minimises the amount of stormwater runoff and that new buildings are not constructed in flood prone areas.

The current activity objective of the 2021-2022 SAP is:

To ensure that stormwater is controlled, disposed of and when required treated, in order to protect the health and safety of people and property.

The results of Councils 2010 'communitrak' survey it was found that 72% of residents and non-resident ratepayers are satisfied with stormwater services. 20% of those surveyed are not very satisfied and 8% are unable to comment.

The level of service for stormwater services as detailed in the AMP is detailed below:

Customer level of service	Customer Performance Measure(s)	Baseline	2012/13	2013/14	2014/15	2015/16 - 2021/22
The Council's stormwater services protect habitable areas from flooding	Number of dwellings inundated with stormwater during a storm event with a 10% estimated return period[1]	<20	<20	<22	<25	<15
	% of operational resource consent conditions complied with throughout the year	100%	100%	100%	100%	100%
The Council provides a responsive stormwater complaint service	% of routine requests for service responded to within one day[2]	90%	90%	90%	90%	90%
	% of residents and non-resident ratepayers satisfied with the stormwater systems	70%	70%	70%	70%	75%

The long term view (over the 10 year period) is that there are no changes anticipated for the current level of service. It is, however, recognised that the possibility and severity of changing weather patterns, may bring a range of implications such as the need for upgrades and improvement programmes.

4.2 Other process, procedures and systems

Other asset management activity programmes are implemented as part of the management of the stormwater system as follows:

- NAMS Asset Management Guidelines – guides the day to day management activities
- Track 24 – Computer software for project and budget tracking
- SCVue – Computer software used for consent compliance monitoring and management
- NZS 3910 and New Engineering Contracts 3 – guidelines for contracts
- TCDC Project Management Manual
- TCDC Procurement Policy
- LoftusIT Asset Data Management System
- JD Edwards – financial management system

4.3 Other management methods and implementation strategies

h) A description of the management initiatives and implementation methods to avoid as far as practicable and otherwise minimise:

- *Adverse scour, erosion and sedimentation deposition on land, property and the beds of stormwater receiving water bodies*
- *Adverse flooding of land, property and stormwater receiving water bodies,*
- *Adverse effects on aquatic ecosystems;*

There are a variety of management initiatives and implementation methods that the consent holder currently uses to avoid, remedy and mitigate adverse environmental effects as set out above. These include, but are not limited to the following:

4.3.1 Maintenance and Operation

As described in section 3 above, suitably qualified professional companies are contracted to carry out day to day maintenance and management of the existing stormwater networks (Stormwater and Roading Contracts). Council also has a number of staff that oversees the maintenance and operations contracts, provides field engineering support, monitors the effectiveness of the contractor's activities and provides community liaison.

4.3.2 Renewals and Replacement

Where the stormwater network is to be upgraded (e.g. Whitianga CBD 2013/14 – 2015/16), TCDC engages the services of suitably qualified engineering firms to design the upgraded system to ensure the continued effective operation of the network in terms of stormwater quality and quantity.

At present, renewals and replacements are planned based primarily on information received from the operation team and contractors and, to a lesser extent, requests from the community. Asset condition assessments and modelling programmes are also used, where funding allows, to plan the renewals and replacement programme. The triggers for potential upgrades to existing stormwater systems include flooding, degradation of overland flowpaths, effects on receiving environments and public safety.

Where it is identified that renewals or replacement of stormwater network devices are required, TCDC encourages the use of low impact engineering techniques, such as those promoted in the NZS4404:2010 and the TP10 Guidelines, where these options are considered to be the best practicable option. This is obviously subject to the financial constraints and budgets as identified in the Annual Plan and LTCCP.

Stormwater systems that include the latest industry best practices are most easily developed in greenfield situations where they can be fully integrated into the development. Opportunities to incorporate 'best practice techniques' into existing urban areas are often limited, particularly where the existing infrastructure is old. Often these replacements entail high financial costs.

4.3.3 New assets/development

Increased impermeable surfaces resulting from more intensive development and subdivision in urban areas can have a significant impact on the capacity and effectiveness of the stormwater network, which in turn can adversely impact on receiving environments. Managing new development is therefore vital when managing stormwater quality and quantity and also when considering the future provision of stormwater services within the District.

As part of both resource consent and building consent application processes, Council aims to ensure that applications contain sufficient detail to enable informed and accurate decisions to be made on a particular application. Through these processes, all stormwater disposal associated with new development is required to be carried out in accordance with the TCDC Code of Practice for Subdivision and Development, the District Plan and the Building Act 2004.

As part of the subdivision consent application process, Council also ensures all new stormwater networks and devices, that are to be vested in TCDC, are designed, constructed and certified by Chartered Professional Engineers in accordance with NZS 4404:2010.

Council engineers and planners promote low impact urban design as set out in NZS:4404:2010 and the '*Sustainable Subdivision Development – An Environment Waikato Perspective*' report.

Stormwater retention and treatment on site in the form of soakage pits or detention tanks are also promoted and often required to help to reduce surface flooding. Many of the Coromandel urban areas have excellent soakage capacity and therefore on-site disposal is highly cost effective and accordingly is often promoted by Council.

TCDC has recently approved a private plan change and subdivision for the development of Coromandel Business Park. This is a service industrial development in Coromandel Town. Council encouraged the development of stormwater treatment wetlands in line with TP10 Guidelines. This is considered to be an appropriate stormwater treatment device to ensure that stormwater quality and quality can be managed into the future while avoiding adverse effects on the receiving environment (Coromandel Harbour).

4.3.4 Incorporating New Stormwater Activities into the CSDCs

As stated in the WRC staff report on the CSDC's there are typically two ways in which new urban stormwater diversion and discharge activities come about. The first way is through TCDC directly establishing these activities, and the second way is through land developers who independently establish private stormwater networks and then seek to vest these networks with TCDC (generally on completion of all associated development). In both circumstances the relevant infrastructural information is recorded in TCDC asset management systems, and the new infrastructure forms part of the municipal stormwater network.

The methodology for incorporating this new infrastructure and stormwater discharge activities is provided in appendix G.

4.3.5 Public Education Programme

Subject to the identification of funding in the Annual Plan, education programmes will be carried out as detailed in section 5.3.2 and 5.3.3 below.

4.3.6 On-going staff training

Asset management staff who are responsible for managing the stormwater network are continually improving their skill and knowledge base through continuing professional development and further education programmes.

Practical operational knowledge and experience of the stormwater assets are highly valued in both staff and contractors.

4.3.7 Removal of Illicit Connections

Appropriate action is taken to ensure illicit connections are removed when found. There is currently no pro-active monitoring for illicit connections, however, field reps and building inspectors are required to identify illicit connections and take appropriate steps to ensure their removal, once found.

4.3.8 Complaints Procedure

Council has a Request for Service (RFS) procedure whereby public concerns or complaints are recorded in a system and responded to within a set timeframe. It is considered that the current RFS process is sufficient to address complaints in relation to the stormwater system.

4.4 Effects of existing structures on fish movement

i) A list of the municipal stormwater management structures that require reasonably practicable measures to be undertaken to remedy or mitigate the effects of these structures on fish movement, in accordance with Condition 8. Also a description of the specific measures to be undertaken and a programme of works to implement these measures.

No stormwater management structures have been identified as a priority in terms of mitigating the effects of structures on fish movement. However, if stormwater network structures are identified in the future as having a significant impact on fish passage, this will be required to be repaired at part of the Operations and Maintenance Contract.

As part of the Ecological Assessment[1] a number of ford structures (vehicle crossings) have been identified as impeding fish passage. These structures are not part of the stormwater network.

4.5 Guidelines for stream channel works

j) A set of guidelines for undertaking stream channel works in stormwater receiving water bodies;

No stream channel works have been identified as being required in relation to the operation and management of any stormwater network within the District. No significant areas of erosion or sedimentation within streams have been identified at the time of preparing this SMP.

Having said this, however, ephemeral streams, overland flow paths and drains will be managed under the Maintenance and Operation Services agreements. This includes regular weed control (spraying) and drain cleaning during dry periods. Excavated materials will be disposed in suitable locations away from the stormwater network. These maintenance operations are considered to pose a low level of risk to the receiving environment, however, they provide significant benefit to mitigate the potential effects associated with flooding.

Where stream channel works are identified in the future as being required, TCDC will undertake works in accordance with the best practice recommendations contained within the Waikato Regional Council document *'Best Practice Guidelines for Vegetation Management and In Stream Works Technical Report2007/41'.*

[1] Kessels & Associates – Various Ecological Assessments (part of AEE and RC applications ©2001)

5.0 Management of Stormwater Quality

5.1 Potential sources of stormwater contamination

k) A description of all potential sources of stormwater contaminants within reticulated catchments (including all potential sources of routine and non-routine contaminant discharges to the stormwater network);

Stormwater networks within the District's urban areas typically include a reticulated stormwater collection and disposal system to manage stormwater runoff from impervious surfaces. These drainage systems convey the runoff to the nearest water body, or in some instances, to constructed wetlands and/or retention ponds. In addition, many overland flow paths within District have been modified, by piping or by the construction of drains, to improve drainage.

Adverse effects associated with stormwater management include the generation of contaminants that enter the stormwater system. Some of these contaminants are continually being generated and released to the environment, but are concentrated by a piped collection system and therefore the effects of these contaminants can be amplified at outlet locations within the receiving environment.

5.1.1 Non-routine contaminants

Non-routine contaminants are defined as an unauthorised discharge (accidental or deliberate) of contaminants directly to the stormwater network or to land where it may then enter the municipal stormwater network.[2]

Non-routine contamination is likely to be the most significant issue in terms of stormwater management within urban catchments in the District and it is considered to present the most significant threat to the health of stormwater receiving water bodies. Typically this can occur as a result of accidental spills on roads, at commercial or industrial sites, or the deliberate discharge of contaminants directly into stormwater drains.

This SMP provides a description of the various stormwater catchments within each urban area (refer to appendix A). These urban area descriptions highlight the risk of non-routine contaminant discharge within the various catchments. Areas which are considered to pose a relatively high risk of a non-routine contaminant discharge event are identified as areas including industrial zoned land, high traffic volume (e.g. SH25A) commercial sites and/or high risk facilities (e.g. petrol stations). The stormwater network and outlets from these 'high risk' catchments will be the focus of the stormwater monitoring programme (appendix B).

As described above, a non-routine discharge event is considered to pose the highest level of risk to the environment. Section 5.2 and appendix D of this SMP set out a standard operating procedure for managing non-routine contaminant discharge into the stormwater network.

5.1.2 Routine (typical) contaminants of urban stormwater

Routine contaminants are defined as those contaminants that run off impervious surfaces and enter the stormwater network during rain events, where the types and concentrations of the contaminants are

[2] Schedule A - General Conditions of Comprehensive Stormwater Discharge Consents

consistent with the contributing catchment.[3] The build-up of hydrocarbons and other contaminants found on roads within urban environments are routinely associated with urban stormwater runoff.

If kerbs, channels and catchpits within public roads are not cleaned regularly, the build-up of contaminants at discharge locations can occur. The Council, as part of its District Roading Maintenance Contract, has implemented measures to ensure regular removal of surface detritus and the regular maintenance of stormwater structures; in particular the regular cleaning of catchpits has been provided for. These existing maintenance mechanisms will be incorporated into the Monitoring programme and form part of the annual reporting procedures required under the CSDC's.

5.2 Standard Operating Procedures for managing non-routine contaminant discharge events

l) Standard Operating Procedures for managing non-routine contaminant discharge events;

Standard Operating Procedures (SOP's) have been developed after a review of a number of oil spill response procedures that various local authorities and private companies have implemented within New Zealand. The procedures are provided in appendix D. They provide relatively uncomplicated and easy to understand guidelines to promote effective management of a discharge incident by front line Council staff or members of the public. It is envisioned that the first line of defence will typically be Council's customer service staff by way of a phone call to Councils 24hour hotline.

The SOP's are to be updated where it is identified that improvements can be made to the procedures to promote effective management of the discharge incident.

5.2.1 TCDC Staff Training

The consent holder will ensure that these SOP's are readily available to all customer service staff and that an appropriate level of in-house training has been provided to all new staff to ensure that the procedures are understood.

TCDC response staff, such as the Area Managers and Monitoring and Enforcement Officers, will be given an appropriate level of training on the SOP's. Availability of spill response kits will be identified to ensure that the kits are available as soon as possible.

5.2.2 Other key parties

The consent holder will also undertake consultation with the NZ Fire Service (NZFS) to ensure that the SOP's are in line with NZFS procedures. At this stage it is proposed to implement a Memorandum of Understanding with the NZFS with regard to accepted responsibilities and response procedures. Each fire brigade in each urban area will be visited by Council staff and training on the SOP's will be provided.

The consent holder will also liaise with the Waikato Regional Council (WRC) to ensure effective management of discharge incidents. It is recognised that the WRC has significant skills and resource in this area and clear communication and responsibilities need to be clarified and understood.

[3] Schedule A - General Conditions of Comprehensive Stormwater Discharge Consents

5.2.3 Reporting

The annual reporting procedures required under the CSDC's will provide commentary on the ongoing implementation of the SOPs and identify where updates have been carried out.

5.3 Stormwater Quality Improvement

m) A Stormwater Quality Improvement Programme which, as a minimum includes:
   i) All of the activities listed in the Stormwater Quality Improvement Programme required under Condition 23; and
   ii) A prioritised schedule for implementing the Stormwater Quality Improvement Programme progressively over the duration of this consent;

23) The Consent Holder shall prepare a Stormwater Quality Improvement Programme, designed to improve the quality of stormwater network discharges and assist the Consent Holder in meeting the conditions of this consent. The Stormwater Quality Improvement Programme shall form part of the Stormwater Management Plan required by Condition 30 of this consent, and be implemented by the Consent Holder progressively over the duration of this consent. As a minimum, the Stormwater Quality Improvement Programme shall include the following:

   a) Education programmes which raise the general public's awareness of stormwater quality issues and the ways in which individuals can avoid as far as practicable and otherwise minimise the contamination of stormwater;

5.3.1 Stormwater Education Programmes

The consent holder intends to carry out stormwater quality improvement education programmes in two parts. The programme is described in detail below.

In summary the first part is a programme is a general education programme that builds upon a stormwater education project first carried out by TCDC in the summer of 2000/2001. The programme will also include rates information mail outs in the form of pamphlets or articles in rating information. It is also suggested that stormwater education information could be provided on the TCDC website.

The second part of the education programme is a targeted campaign in high risk areas such as Industrial Zones.

The development and implementation of the education programmes are subject to the approval of funding through the Annual Plan process.

5.3.2 General Community Education Programme

a) The Coromandel Peninsula Stormwater Pollution Awareness and Education Project

TCDC carried out the 'Coromandel Peninsula Stormwater Pollution Awareness and Education Project' in 2000/2001. It is proposed that this Education Project is continued into the future and is implemented by university students employed by Council during summer holiday periods. The Project included the following:

- The painting of 1000 stormwater pollution messages on stormwater grates on roads or concreted areas so as to maximise public exposure. e.g. in residential and commercial areas.
- The application of 250 aluminium signs in strategic, high pedestrian areas so as to maximise public exposure. e.g. near catchpits and other stormwater entry points.
- The application of 10 large billboard signs in strategic locations around the district so as to maximise public exposure. e.g. entrance ways to the district and in towns and communities.
- The application of 175 small plastic signs to fixed objects in strategic locations so as to maximise public exposure. e.g. bridges, reserves, walkways, stormwater outlets, wharves, and boat ramps.
- The distribution of 5000 pamphlets containing information about stormwater pollution to various locations increasing public awareness of the health and environmental risks involved. e.g. give to residents, businesses, council offices and information centres.
- The distribution of 500 posters to strategic locations so as to maximise public exposure. e.g. businesses, information centres, council offices, citizen's advice bureaus, community notice boards.
- Provided details and methods of disposing of wastes in an appropriate way and encouraging the public to actively care for their stormwater.
- Promoted the Environment Waikato Environment free-phone number to increase public awareness of the service.
- Ran a publicity and education campaign. e.g. radio, newspaper ads, mall information stand, industry publications, Envirowise news, pamphlets, posters, signs and website.

b) Rates - educational information and website information

Rates mail outs and/or website updates also provide an opportunity to educate the community about the potential effects of stormwater discharge by detailing best practice stormwater management methods. This may include information on the following:

- Washing vehicles on the grass to allow for ground soakage rather than washing on concrete and having detergent filled run-off directly entering stormwater drains.
- Managing excess stormwater which can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the water bodies we use for swimming and fishing.
- Informing communities that polluted stormwater runoff can have many adverse effects on plants, fish, animals and people. Sediment can cloud the water and make it difficult or impossible for aquatic plants to grown. Sediment also can destroy aquatic habitats.
- Paints, solvents, adhesives, dusts, sediments often associated home renovation activities can make their way into the local storm drain system.
- Clean paint brushes in a sink, not outdoors. Properly dispose of excess paint through a household hazardous waste collection program.

- Common household cleaners, paint products, and wallpaper and tile adhesives contain toxic substances and should not be allowed to enter the stormwater system.
- Construction debris should be kept away from the street. Sweep up and properly dispose of construction debris such as concrete and mortar. Cover excavated material and stockpiles of asphalt, sand, etc. with plastic tarps.
- Prevent erosion by planting fast-growing annual and perennial grasses, which will shield and bind the soil.
- Prevent erosion and sedimentation from activities involving earthworks from clogging streams, stormwater catch basins and stormwater drains by using appropriate sediment control methods.

5.3.3 Targeted Education Programmes of high risk facilities

23(b) To the extent that the Consent Holder is authorised to do so, proposed site inspections and stormwater contamination audits of industrial and commercial properties that connect to the stormwater network in High Risk Catchments, along with education and promotion of at-source stormwater management measures to the owners/operators of these properties;

It is proposed that high risk facilities or activities have a targeted education programme to encourage best practice stormwater management within individual sites. It is anticipated that the programme will include regular site visits by Council staff to educate landowners or business owners about the potential effects of stormwater discharge. An information pamphlet advising owners and operators of their responsibilities and best practice methods is considered to be an appropriate educational tool to improve stormwater quality. The programme will also include information about the Standard Operating Procedures for responding to non-routine discharge incidents.

A description of the various stormwater catchments within each urban area (refer to appendix A) highlights areas where High Risk Facilities and High Risk Catchments are located. Typically these are industrial zoned land or individual commercial sites (e.g. petrol stations). These areas will be the target of this part of the education programme.

The information pamphlet and targeted education programme will be developed in the future subject to funding identified in the Annual Plan.

It is anticipated that the results of the Monitoring Programme will guide the frequency and focus of the targeting education programme.

5.3.4 Town Centre Upgrades

Educational signs in the form of fish on stormwater drains and signs saying *'Rain only'* or *'This drains to the sea'* have been included in recent town centre upgrades (Thames and Whangamata). This will continue to be promoted as part of future town centre upgrades and urban regeneration projects as these occur.

5.3.5 Removal of illicit wastewater connections

23(c) Investigative and remedial works programmes to remove illicit wastewater connections to the stormwater network;

There is currently no pro-active monitoring for illicit connections, however, Council staff lookout for illicit connections and take appropriate steps to ensure their removal, once found. Appropriate action shall be taken to ensure illicit connections are removed when found. The requirement for contractors to identify illicit connections are highlighted in the Operations and Maintenance Services agreements.

5.3.6 Stormwater catchpit upgrade programmes

23(d) Stormwater catchpit upgrade programmes which retrofit best practicable outlet devices (for example baffles, siphons, filter bags) to stormwater catchpits in existing urban catchments;

23(e) Stormwater network upgrade programmes which retrofit best practicable stormwater management devices to the stormwater network in High Risk Catchments.

Upgrading of stormwater devices is typically programmed as part of the Ten Year Plan process. Upgrading is subject to funding and priority will be given to the upgrading of assets where it is identified that there is a potential for a significant impact on the environment. These assets not only relate to stormwater network but all Council managed assets.

It is envisaged that the Operations and Maintenance Service Agreement will be the primary management tool used to identify the need for stormwater devices to be upgraded as a result of stormwater quantity. Where this is identified, this work will be prioritised.

It is also envisaged that the Stormwater Monitoring Programme will be the primary management tool used to identify the need for stormwater devices to be upgraded as a result of stormwater quality. Where this is identified, this work will be prioritised.

Best practical outlet devices will be identified by suitably qualified persons, however it is anticipated the any upgrades will be in line with the TP10 Guidelines for Stormwater Management Devices. These include devices such as water quality ponds, wetlands, detention practices, filtration and infiltration, rain gardens, bio-filtration, vegetative filers and other gross pollutant traps.

5.3.7 Other Regulatory Powers and Management initiatives

23(f) How the Consent Holder proposes to use its regulatory powers and exercise its functions through, for example, consent requirements, engineering approvals, design specifications and guidelines and the introduction of a Stormwater Bylaw to avoid, remedy, and mitigate the adverse effects of stormwater discharges.

30(n) A description of the management initiatives to promote developer consideration of the Waikato Regional Council publication titled 'Sustainable Subdivision Development – An Environment Waikato Perspective' (WRC, 2006), or any other technical publication approved in advance by the Waikato Regional Council in a technical certification capacity;

30(o) A description of the management initiatives to promote the implementation of Low Impact Urban Design measures and stormwater management devices in reticulated catchments;

Stormwater Bylaws

TCDC has no stormwater bylaws and none are proposed at this stage.

Consent requirements and engineering approvals

It is standard operating procedure that TCDC Development Engineers review all subdivision and land use consent applications when they are lodged. The development standards of the District Plan and the Code of Practice (see below) provide development controls and standards for stormwater management. Appropriate conditions of consent regarding design of stormwater systems typically require design to be carried out by a chartered professional engineer and for the design to be in accordance with the District Plan, the Code of Practice and relevant New Zealand standard NZS4404:2010. Where appropriate, conditions of consent are recommended for new development to utilise Low Impact Urban Design methods as set out in the Code of Practice, NZS4404:2010 or TP 10 Guidelines.

As part of the approval process for subdivisions (under s224c RMA) TCDC Development Engineers review stormwater network and overland flow path design and provide approvals prior to construction. The construction of these systems is then required to be certified by chartered professional engineers.

District Plan Review/Plan Changes

TCDC asset management staff are regularly involved in providing commentary for the upcoming District Plan Review and other District Plan Changes/Variations. At all times Council engineers promote accepted best practice and current accepted development standards to ensure that all future development is designed in a manner to promote the best practicable stormwater measures to avoid, remedy or mitigate adverse effects on the environment.

Engineering Code of Practice for Subdivision and Development

The Code of Practice provides a guide to subdivision and development within the Thames-Coromandel District. It sets the design standards that infrastructure must meet, particularly where it is to be acquired by Council.

In relation to stormwater the Code of Practice sets out standards for design capacity, reticulation layout, inlets, outlets, flood gates, overland flow paths, open drainage, manholes, catchpits, super modified catchpits, connections, bedding and protection, materials, testing and acceptance. The Code also state the stormwater requirements for specific urban areas. A copy of Section 6: Stormwater and Land Drainage is provided in appendix C.

p) A register of all stormwater management devices associated with the stormwater network, including their location, catchment area, operational procedures and maintenance requirements;

TCDC maintains an Asset Management Data System (ADMS) of all stormwater management devices associated with the stormwater network.

6.0 Works Schedule and Performance Measures for implementation of Operational Procedures

q) A prioritised works schedule for implementing the operational procedures, management initiatives and implementation methods that are adopted by, and implemented through, the Stormwater Management Plan;

r) A list of performance measures by which the implementation of the operational procedures, management initiatives and implementation methods adopted by the Stormwater Management Plan

The operational procedures, management initiatives and implementation methods that adopted and implemented as part of the SMP have been described in various sections above. By way of summary these are as follows:

1. Stormwater Operation and Maintenance Services Contract (Utilities Contract)
2. Roading Contract
3. Stormwater Monitoring Programme
4. Renewals and replacement of stormwater infrastructure
5. New Assets
6. Public Education Programme
7. On-going staff training
8. Removal of illicit connections
9. Complaints Procedure (Request for Service)
10. Standard Operating Procedures for non-routine contaminant discharge incidents

The above procedures and performance measures are outlined in a table format provided in appendix E. This table provides the general summary format that the Annual Report will follow. The performance measures rely on annual reporting to be carried out by both contractors and Council staff to identify whether the procedures are being implemented or not.

7.0 Municipal Stormwater Network Operation Annual Report

6. The Consent Holder shall compile an annual report entitled "Municipal Stormwater Network Operation Annual Report", for the year ending 30th June each year, and shall submit this report to the Waikato Regional Council by 30th September each year or such later date that may be approved in writing by the Waikato Regional Council in a technical certification capacity.

The template for the Annual Report is provided in appendix B of this SMP.

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