

THE "JOURNEY" FOR CONSENT COMPLIANCE AND URBAN CATCHMENT MANAGEMENT

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ABSTRACT

In 2010 Hastings District Council obtained comprehensive discharge consents for the several hundred individual urban stormwater catchments that discharge to eighteen surface water receiving environments. Since that time Council has been on a journey of improving stormwater management, involving significant expenditure. This is continuing with initial catchment management plans due to be completed in 2015 for the Hastings urban area discharges.

Some key areas of this journey include:

- Collaborative relationship building between the District and Regional Council technical and compliance staff.
- Resolving the responsibility for investigations and improvements within the "grey area" between the important receiving environments and constructed or highly modified open drainage channels or streams.
- Investment in investigations through monitoring of watercourses (sediment, water quality, macro-invertebrates).
- Determining the value of this data for understanding issues, environment, improvement needs and making decisions for a management approach.
- Working through an adaptive consent process to make consent conditions more workable and allow compliance to be demonstrated.
- Determining appropriate development controls and mitigation measures in provincial urban areas with smaller scale developments.
- Developing a plan for the following years and expected outcomes.

This paper provides details of the journey so far that Hastings District Council has been undertaking, including lessons learnt along the way.

KEYWORDS

Network Consent, Catchment Management Plan, SMARTER consent conditions, monitoring, relationships.

PRESENTER PROFILE

Matthew Kneebone is a Chartered Professional Civil Engineer and is currently employed as the Stormwater Asset Manager for the Hastings District Council. Matthew has over fifteen years of experience in civil engineering related projects and has worked both in New Zealand and overseas. Matthew has worked in the construction industry, as a consultant for MWH and in the Local Government sector.

1 WHERE ARE WE GOING?

Hastings District Council is on a journey of discovery to improve the understanding of the stormwater runoff from the urban areas in and around Hastings. The purpose of this journey is to develop sustainable and long-term solutions that are targeted to areas of specific concern. One major challenge will be in providing these solutions and avoiding any unnecessary and significant expenditure.

1.1 HASTINGS DISTRICT COUNCIL STORMWATER NETWORK

The Hastings District Council (Hastings DC) stormwater network is made up of over 260km of pipeline and 12 pump stations with over 21,000 connections across the urban area. There are over 200 individual outlets around the urban boundaries, discharging into a variety of open drains, minor tributaries and streams.

The construction of an urban piped stormwater network began in the 1950's; prior to this the drainage system was a rural network of large, deep open drains. The main focus was on draining the stormwater as quickly as possible. There was no consideration of the quality of the stormwater runoff.

Fifteen separate catchments have now been identified across the main urban areas of Hastings, Flaxmere, Havelock North and Clive. Various land use activities occur within these urban areas, with the main land use being general residential; however there are significant areas of industrial and commercial businesses contributing to the stormwater runoff. The industrial activities include a number of food processing companies such as Heinz-Watties, McCains and ENZA Foods. A large number of associated agricultural/pastoral businesses provide produce to these and other companies.

The Hastings urban zones are located within the Heretaunga Plains. The topography is typically flat, with a slight fall towards the coastal areas to the east of Hastings. This means the stormwater runoff from the urban areas has to be conveyed through a series of open drains and waterways before being discharged into the wider receiving environment.

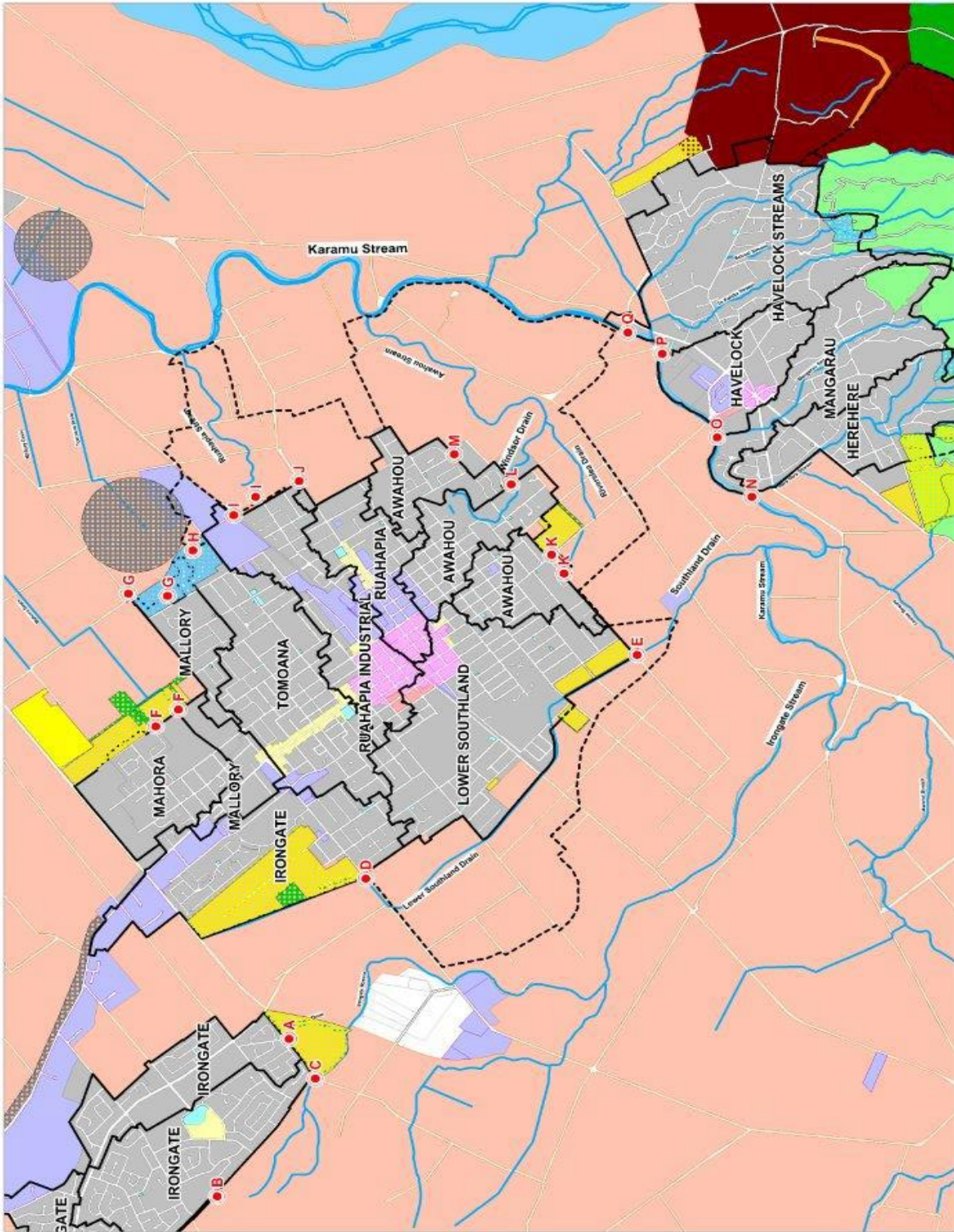


Figure 1: Land use map showing urban, rural and future growth areas.

1.2 HAWKES BAY REGIONAL COUNCIL STORMWATER NETWORK

The main receiving waterways for Hastings, Flaxmere and Havelock North are the Irongate Stream, Ruahapia Stream, Awahou Stream and various other open drains and minor tributaries. The waterways are a mixture of highly modified natural streams, man made channels and natural waterways. The receiving water body for these streams and tributaries is the Karamu Stream.

Due to the low lying nature of the land there are capacity limitations along many of these waterways, including the Karamu Stream. The direct urban runoff rate has increased over time as a result of infill housing, greenfield subdivisions and this is compounded by the loss of greenspace and the associated increase in impervious areas. The historical way of dealing with stormwater runoff in Hastings has been to convey it to the urban edge as efficiently as possible, usually via large diameter pipelines. This has created additional problems in the rural drainage network which is managed by the Hawkes Bay Regional Council (HBRC).

In addition to these capacity limitations there is a perception, which is not limited to Hastings, that water quality in these receiving environments has declined over time. Urban stormwater runoff is often seen as a significant contributor to the decrease in water quality, the loss of habitat and the reduction in recreational water use.

1.3 STORMWATER NETWORK CONSENT

In consideration of the quantity constraints and quality issues HBRC made a decision to consent the Hastings DC stormwater discharge via a global or network consent. The consent came with a suite of conditions that HBRC believed would deliver improvements in both quantity management and stormwater quality. The upshot of these conditions has resulted in significant expenditure but may not have necessarily delivered the expected outcomes.

Hastings DC held the view that there were no real issues with the way Hastings DC managed the stormwater network. There was also a belief that the impact of the urban runoff was minor, especially when compared with the entire catchment of the Karamu Stream.

This stance was unsupported by any real data and was not overly constructive. After 10 years of constant debate, HBRC issued the network consent which made Hastings DC front up to the issues surrounding overall stormwater management.

A more constructive approach, and acknowledgement that Hastings DC needed to be more proactive and take ownership, has led to better understanding and an improvement in the relationship between the two councils. The network consent will provide a framework for building this relationship and a collaborative understanding of what the real issues are and potential solutions.

A submission was received from Te Taiwhenua O Heretaunga on behalf of the Heretaunga marae/hapu. This submission laid out the aspiration of Maori for co-management of stormwater systems that affect local hapu and the ability to influence the impact of stormwater on the receiving environment and other natural assets.

Provision has been made in the consent for Hastings DC to better understand areas of cultural or historic significance and how Maori can have a voice in the overall management of stormwater and the impact of urban runoff.

Hastings DC has had success with the establishment of a Tangata Whenua Wastewater Committee for the management of wastewater discharges to the environment. Hastings DC is exploring ways to establish a similar group to extend across the water, stormwater and wastewater networks.

2 HOW ARE WE GOING TO GET THERE?

Hastings DC began this consenting journey from a position that the Hastings urban runoff was no different to any other provincial areas in New Zealand. From this starting position there was reluctance from Hastings DC to accept that the urban stormwater was a major contributor of contaminants (sediments included) entering the receiving environment, especially where the amount of urban runoff was considered minor in comparison to the wider contributing catchment to the Karamu Stream.

This proved to be a point of contention between the two councils and when HBRC requested information in support of that stance, Hastings DC did not have a monitoring regime in place to collect water quality data and was unable to demonstrate that contaminant levels in urban runoff were not contributing to the decline in the water quality of local streams.

What followed were a lengthy debate and a consent hearing, which led to a suite of consent conditions being developed to form the current network consent. These conditions require Hastings DC to carry out monitoring of specific discharge points to ascertain water quality, the sampling of stream sediments and macroinvertebrate/ecology surveys. The purpose being to gather data on the discharge quality, long term contaminant accumulation in sediments and an understanding of the aquatic life present in these waterways.

One aim of this consent was for Hastings DC to be responsible for the monitoring and management of the individual catchments to understand and if necessary reduce contaminant discharge and the impact of contaminants on the receiving environment. However there was a feeling that these conditions had been imposed on Hastings DC and were unnecessary/heavy handed. This is a direct result of not having data to support our proposition – something Hastings DC acknowledged at the hearing.

As part of a collaborative approach, a Project Steering Group was established to work through some of the concerns of both parties. This allowed a regular face-to-face forum for discussions around the interpretation and implementation of the consent conditions.

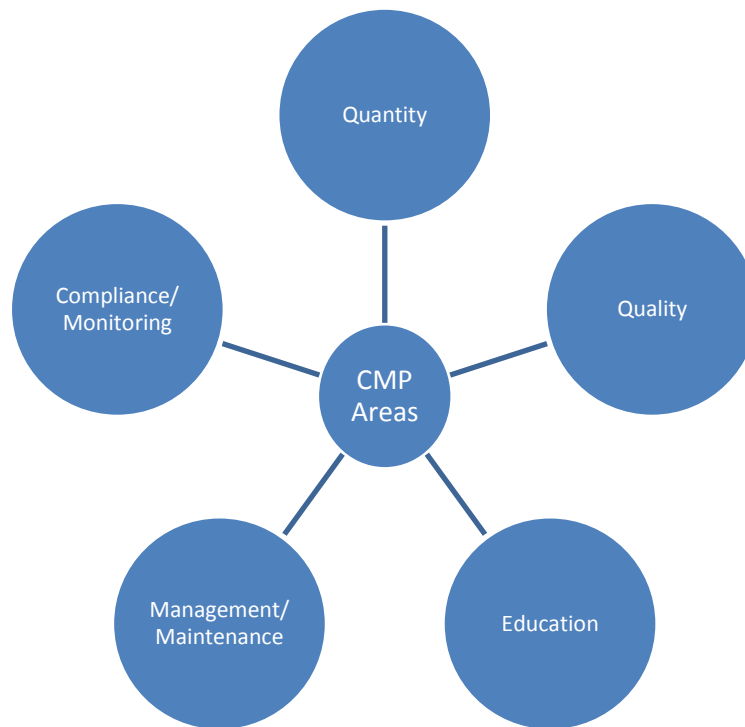
This process highlighted the importance of developing a trust relationship between the two councils, to understand what the intention was behind some of the conditions of the network consent, what Hastings DC were directly responsible for and how emotive some issues can become.

It has been almost four years since the consent was issued and a number of staffing changes have occurred within both organisations.

2.1 CATCHMENT MANAGEMENT STUDY

More recently there has been a shift in focus from interpreting and debating the consent conditions to a more holistic approach, to better understand the impact various land use activities have on the quality of the urban discharge, what needs to be and can be done to improve the overall quality of discharge at source and ultimately how to minimise the impact of urban stormwater runoff on the downstream environment.

Through a collaborative approach to define the initial intention of the network consent, the current consent can be considered in terms of the following themes and intents.



Quality – to manage contamination at source and improve the quality of discharge.

Quantity – to manage discharge quantities from source through to the receiving environment.

Education – to raise awareness within the community and to provide guidance to developers and industry users.

Management and maintenance – to operate and maintain an efficient stormwater system to manage flows, minimise the risk of flooding and provide appropriate treatment.

Compliance and monitoring – to provide a robust link between data gathering, monitoring and the provision of targeted solutions.

This shift in focus has seen a significant improvement in the relationship between the Hastings DC and HBRC as well as a real drive to use the consent conditions to improve the overall quality of urban runoff and manage stormwater runoff from the urban areas.

Hastings DC is currently developing a catchment management study, to work through the various technical work packages and investigations to support the development of a Catchment Management Plan (CMP).

Collectively the five themes stated above will inform and provide direction for future developments within the Hastings urban areas. As more information and understanding of individual catchments is obtained, the CMP will be updated to ensure compliance is maintained and to monitor any improvements made within the Hastings urban area.

The CMP will in turn inform and provide further information to the stormwater asset management plan (AMP), Engineering Code of Practice, District Plan, Bylaws and Policy documents. This will allow for the inclusion of the five themes in providing for sustainable urban and industrial developments.

2.2 SEDIMENT AND QUALITY MONITORING

Significant monitoring work has been undertaken to better understand the characteristics and effects of urban stormwater runoff via the following:

1. Sediment samples from various urban outlet points and waterways between the urban edge and the Karamu Stream.
2. Water quality sampling from the Hastings DC pipe outlets during rain events.
3. Ecology/macroinvertebrate surveys in various waterways in both rural and urban areas.

This will form the basis of the development of CMP to identify catchments with contamination issues and will lead onto more detailed catchment investigations to trace the source or to provide treatment solutions.

2.3 IMPORTANCE OF PEOPLE AND THE COMMUNITY

People have played a major role in this consenting journey, however at times the state of the relationship may have taken the focus away from the consent objectives. Conversely it is people who will ultimately provide the solutions to improving the quality of stormwater runoff. Not only will it be the people managing the stormwater network on behalf of the community, but it will be the community itself, whether via their actions or their desire for an improved environment.

There is currently a lack of stormwater awareness and understanding at a community level with respect to stormwater effects, management and control. Community understanding varies from assuming stormwater and wastewater are the same to 'not my problem' whatever the context. There is also some belief in the community that stormwater is treated at the same plant as domestic wastewater. These examples highlight the need to provide information to the community to assist in making future improvements.

In response Hastings DC has developed a webpage to provide general stormwater information for the public and also provides some self-help tools for stormwater users to better understand their impacts on the receiving environment. Work is ongoing to develop education programs in schools and involves collaboration with other local and regional councils.

The wider community will be key to any solution process as they have a dual role as recreation water users and people whose actions contribute to the make-up of all urban stormwater runoff.

The network consent includes conditions related to ensuring that cultural values are recognised and understood by HDC when considering the impact not only on the receiving waterways, but also the land the stormwater passes through. Local iwi representatives have carried out the first Cultural Health Impact assessment across the catchment. This information will continue to be gathered and included within the catchment management studies and plans.

Social change can be a slow process with only incremental gains at the beginning. As awareness is increased and improvements are seen in local waterways, social change will

provide further momentum towards more positive outcomes for the entire community and the receiving environment.

3 WHERE TO FROM HERE

3.1 ADAPTIVE CONSENT APPROACH

The current network consents have provisions for the review and change of consent conditions over time. The initial consent period is for twelve years and the intention is to demonstrate compliance with current conditions and to identify conditions that could be adapted as more information is gathered.

There is a significant cost and time investment related to the monitoring provisions of the consent. Once a baseline can be established, it is hoped the monitoring regime can be adapted to focus on targeted solutions.

Hastings DC would like to be in a position where, with the collaboration of the councils and community, a long term consent can be put in place with realistic and achievable goals.

Any changes to the consent conditions will need to compare the environmental outcomes, the cost to the community and ensuring SMARTER conditions that can also clearly demonstrate compliance.

3.2 OUTSIDE THE URBAN AREA – THE GREY ZONE

The current sampling and monitoring regime provides a suite of results showing the level of contamination within the receiving water sediments and from direct stormwater runoff grab samples. These results highlight contamination issues that can be common to individual and/or all catchments.

The current focus is on developing a CMP that will use this information to provide guidance for each stormwater catchment in terms of future development and implementation of treatment or flooding solutions.

There will be a need to expand the focus area to include the tributaries that convey urban stormwater to the Karamu Stream. This area could be referred to as the 'Grey Zone.' Discharges from other sources between the urban boundary and the Karamu Stream come from rural properties, agricultural/pastoral activities and small businesses, all of which are outside of the current Hastings DC network consent boundary.

Sampling is undertaken along numerous tributaries leading to the Karamu Stream in order to establish some comparison data to understand the condition of these streams and what impact urban runoff may have between the urban edge and the Karamu Stream.

HBRC have been involved in Stream Ecological Valuation (SEV) surveys in a number of grey zone tributaries and streams. There is also some expectation that this area will become an important aspect for managing stormwater flows from both urban and rural sources. These SEV surveys and the information gathered as part of the Hastings DC network consent compliance can be used to investigate where real improvement opportunities may exist, and to increase the use and amenity of these waterways.

HBRC and various community groups are working together to improve the quality and visual aspects of the Karamu and Ruahapia Streams, which has already resulted in the creation of walk and cycleways along the streams and the return of aquatic and bird life.

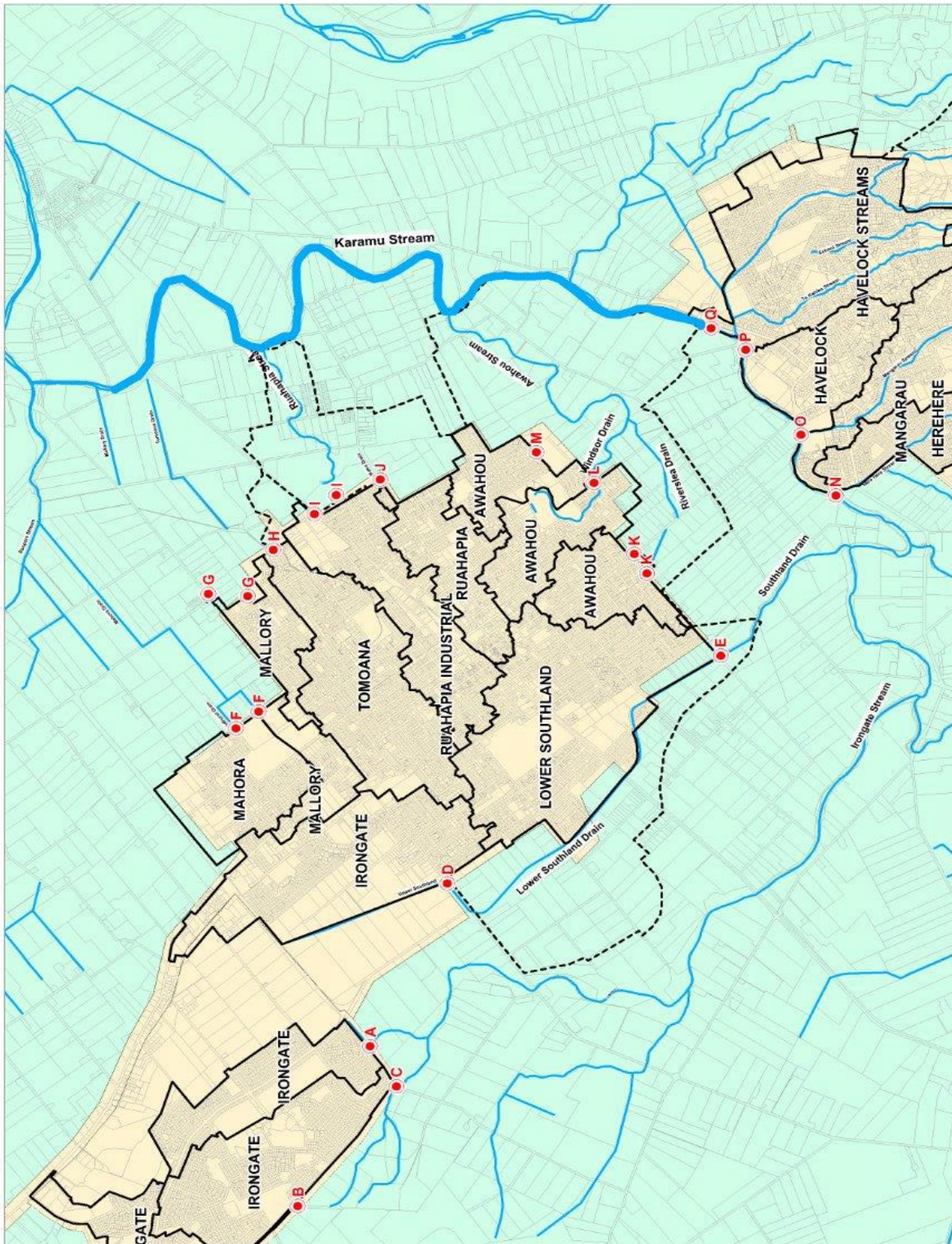


Figure 2: Plan of Hastings urban catchments and the location of receiving environment.

3.3 FIRST GENERATION CATCHMENT MANAGEMENT PLAN

The network consent requires that Hastings DC produce a Catchment Management Plan by May 2015. The consent has been structured such that the first three years of the consent relate to gathering information on the quality of the urban discharge.

In addition to the monitoring requirements, the consent requires a number of work streams to be progressed that relate to better understanding the performance of the stormwater network, identification of overland flowpaths, impacts on the downstream receiving waters and recognizing areas of cultural interest.

The diagram below shows the process of integrating the various technical works streams into a comprehensive catchment management plan.

Hastings DC Catchment Management Plan Development Draft Document Structure

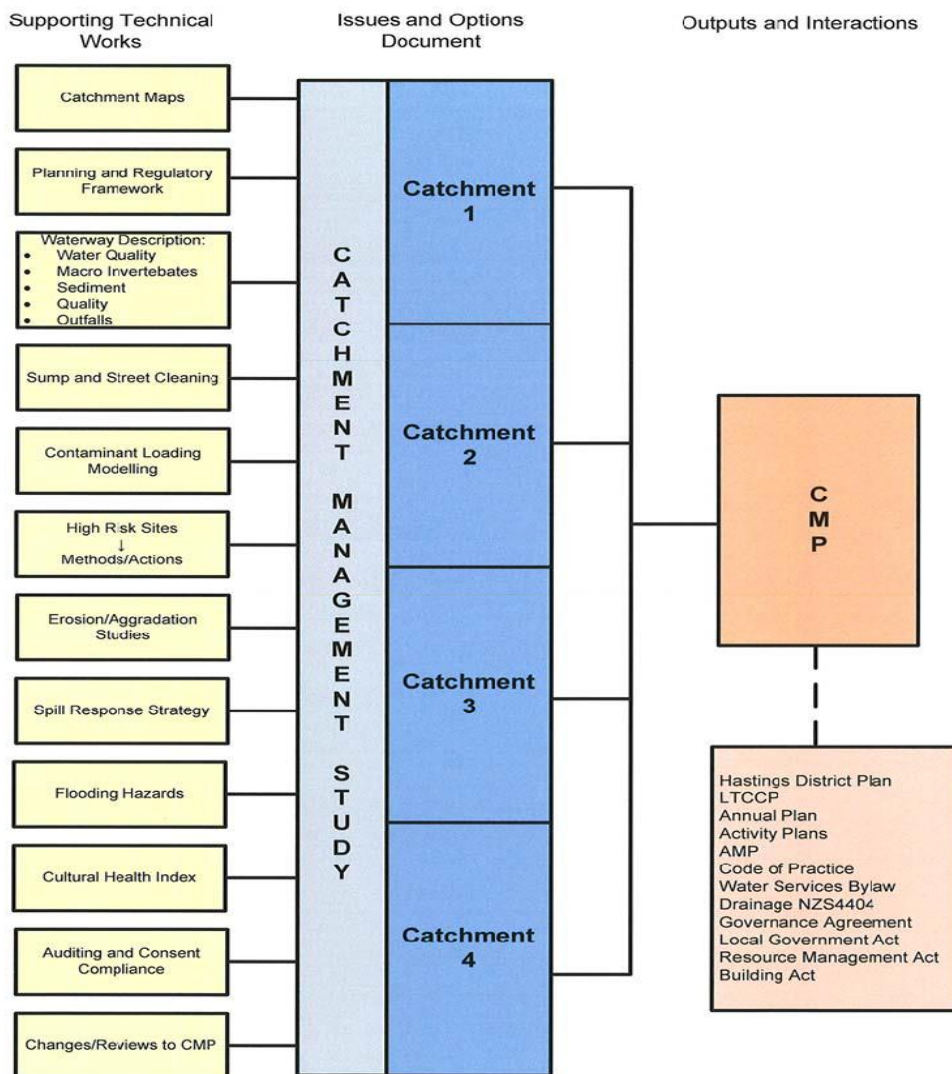


Figure 3: Structure of Catchment Management Plan.

The format and content of the first generation catchment management plan is underway, with an ongoing parallel process to complete and collate the various technical support works. It has been identified early on this process that the improvements will occur overtime as there is no silver bullet that can provide instant results.

Therefore this first catchment management plan will include a comprehensive improvement action list to provide a way forward to ensure that any proposed mitigation

strategies are monitored and checked against the original objectives of the consent and catchment management plan.

4 CONCLUSIONS

The journey council is on is about moving from a position of ignorance to one of practical and sustainable stormwater management. The beginning of the journey could be considered as a somewhat rocky start, however the establishment of the Project Steering Group has proven to be invaluable in providing a vehicle to help us to get over any perceived obstacles and has ensured that the journey would continue along a much smoother pathway.

Some important lessons were learnt early on, with the creation of a trust relationship being the most important. Matters critical to building up this trust relationship included:

- Demonstrating compliance with the current conditions of consent.
- Open reporting and discussion of monitoring results.
- Implementation of specific catchment investigations related to catchments that exceeded consent quality limits.

Given the current economic climate and the drive for local authorities to focus on core council business, there may be other monitoring options that will still deliver the intended outcomes.

Further investigation work is needed to assess the streams and tributaries downstream of the urban boundary to determine if there are potential solutions to mitigate the impacts of flooding and treat urban runoff prior to entering the Karamu Stream.

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