THREE WATERS MANAGEMENT PRACTICE NOTE

HCC 09: Water Impact Assessments

1. INTRODUCTION

If you need to prepare a Water Impact Assessment ("WIA"), then you will need to discuss this in detail with Hamilton City Council ("Council") staff. In the first instance, please contact Council's Duty Planner (phone (07) 838 6699) who will connect you with the relevant technical staff in Council who can help you.

This practice note[1] provides general guidance on WIAs required in Hamilton City. It identifies:

- The purposes of WIAs;
- When a WIA is required;
- The two types of WIA;
- The information required to be included in each type of WIA;
- Sources of information to inform the assessment;
- How to prepare a WIA;
- Criteria to apply when carrying out the assessment;
- Measures that can be used to manage effects on the three waters;
- Possible outcomes of a WIA;
- The costs and benefits of preparing a WIA; and
- References.

2. THE PURPOSES OF A WIA

The purposes of a WIA are to:

- Assess and manage the effects of an individual subdivision or development on three waters infrastructure and the environment;
- Manage the effects in a way consistent with any relevant Integrated Catchment Management Plan ("ICMP"); and
- Minimise for the subdivision or development the:
  - Volume of water used;
  - Volume of wastewater discharged; and
  - Volume and/or rate of stormwater discharged to stormwater infrastructure or a waterway.

3. WHEN A WIA IS REQUIRED

Table 1: Development or subdivision requiring a WIA

A WIA is required[2] for any development or subdivision:

i. Creating four or more additional units on any site.

ii. Creating four or more additional allotments (excluding lots for the purposes of reserves, network utilities or transport corridors).

iii. Involving more than 1 hectare of land.

iv. Creating a new building for industrial activities with a gross floor area greater than 1000m^2.

v. Involving any new activity which will have a water requirement greater than 15m^3 per day.

vi. Creating a new building for non-residential activities (other than industrial activities or as provided for in VII below) with a gross floor area greater than 300m^2.

vii. Within the Major Facilities Zone:

1. Creating a new building for non-residential activities (other than industrial activities) with a gross floor area greater than 3,000m^2; or
2. Providing residential accommodation for more than 13 additional people, not being accommodation for hospital patients.

Exception: The above requirements do not apply in areas where an ICMP exists and satisfies the information requirements for WIA in accordance with Table 1.2.2.5b of Volume 2, Appendix 1.2.2.5, or where all the information that a WIA would otherwise include, or the matters it would otherwise address, are incorporated in a Water Supply Agreement with Council or other documents assessed and approved under the District Plan or the Waikato Regional Plan[3].

If your proposal triggers the need for a WIA, then it requires resource consent as a Restricted Discretionary Activity[4].

4. TYPES OF WIA

There are two types of WIA[5]:

- Type 1 for residential activities; and
- Type 2 for other activities.

5. INFORMATION REQUIREMENTS

Table 2 (below) outlines the information required to be included in WIAs[6]. The information required in a WIA shall be in such detail as appropriate to the scale and significance of the potential effects of the proposed activity on the environment, and only if relevant to the proposal.

Table 2: Information required in WIA [7]

Information to be provided		Types of Water Impact Assessment (✓ = information required)	
		Type 1 (residential)	Type 2 (other)
i.	How the proposal is consistent with, or otherwise complies with, the recommendations, measures and targets of any relevant Integrated Catchment Management Plan	✓	✓
ii.	An assessment of any potential effects (including cumulative effects) of the development in relation to its catchment (in terms of quality and quantity effects for Stormwater, and quantity effects for Water Supply and Wastewater)	✓	✓
iii.	Details of the proposed water sensitive techniques[8]	✓	✓
iv.	Details of the expected water efficiency benefits arising from the proposed water sensitive techniques compared with the same development without using those water sensitive techniques	✓	✓
v.	Details of how the water sensitive techniques will be operated and maintained to ensure ongoing water efficiency benefits[9]	✓	✓
vi.	Where no water sensitive techniques are proposed, an assessment containing reasons and justification for not incorporating them, having particular regard to the objectives and policies of Volume 1, Chapter 25.13: City Wide – Three Waters	✓	✓
vii.	Confirmation of available Three Waters infrastructure and capacity to appropriately service the proposal	✓	✓
viii.	Details of the water demand (flow and pressure) and water sources.	✓	✓
ix.	Where the water demand of the proposal is greater than 15m^3 of water per day, details of a programme explaining how the proposal intends to reduce its water consumption to achieve that level ***Note:*** *Consent from the Regional Council for an increased water take may be required where a proposal is to take in excess of 15m^3 of water per day.*		✓
x.	Information on how wastewater (including trade waste) will be managed to minimise any impacts on the reticulated network		✓
xi.	A list of measurable targets and performance indicators to allow the efficient and effective monitoring of the proposal's compliance with any conditions arising from the Water Impact Assessment		✓

[1] Three Waters Management Practice Notes are Hamilton City Council controlled documents and will be subject to ongoing review. The latest version can be downloaded from the Hamilton City Council Website. See References below.

[2] Proposed District Plan (Appeals and Ruakura Variation October 2015), Rule 25.13.4.6 a

[3] Ibid, Rule 25.13.4.6 b

[4] Ibid, Rule 25.13.3 a

[5] Ibid, Volume 2, Appendix 1.2.2.5a

[6] Ibid, Volume 2, Appendix 1.2.2.5 b

[7] Ibid, Volume 2, Appendix 1.2.2.5b

[8] A WIA should confirm the water sensitive techniques most appropriate to the specific site and development.

[9] The site owner is responsible for the operation and maintenance of all on-site three waters management devices. A device-specific operation and maintenance plan must be submitted with the WIA.

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5.1 Modeling wastewater and potable water effects

As part of the pre-application process, Council will confirm whether or not modelling of the effects of the proposed subdivision or development on the wastewater or potable water network is required. Table 3 below indicates the likelihood different types of development will require modelling.

Table 3: Indicative requirements regarding modelling the effects of a subdivision or development on the wastewater and potable water networks

Type of development	Will modelling be required?
Infill of up to 10 additional units or lots	Unlikely
Infill of 11 or more additional units or lots	Likely
Out of zone or unexpected non-complying or wet industry	Yes
Greenfields – see Note 1 below.	Check by emailing icmp@hcc.govt.nz

Note 1: Council has a programme for developing Integrated Catchment Management Plans for greenfield areas. Developers should liaise with Council in order to ensure that WIAs are consistent with any initial ICMP work, if available.

6. INFORMATION SOURCES

As part of the pre-application process, developers can obtain from Council any available information that could help with the development of a WIA. This could include, for example, aerial photographs and LIDAR data, catchment mapping information, details about existing and planned three waters infrastructure, and three waters modelling and flood hazard data. If Council would incur substantive costs in supplying this information, Council may charge the developer for this service.

If Council doesn't hold the required information, it may be necessary for further hydraulic modelling to be undertaken at the developer's expense to inform the WIA. The following process will be followed:

1. As part of the consent pre-application meeting, work with Council's Duty Engineer or Duty Planner to ascertain what information is available and whether any additional information is required.
2. Confirm with Council the scope of any additional information required and the required modelling methodology.
3. Council approves the brief of work.
4. Developer engages an approved consultant to undertake the modelling.
5. The approved consultant provides the developer and Council the model outputs.

Information developers provide Council will inform Council's Three Waters model.

7. HOW TO PREPARE A WIA

A general methodology is as follows:

1. Quantify the proposal's water consumption and wastewater and stormwater discharges and identify their locations.
2. Assess the effects of these on waterways and Council's three waters infrastructure. This may require modeling for larger developments – see Table 3 above. Basic water sensitive techniques[10] may be deemed sufficient to mitigate effects of smaller developments, without the need for modeling.
3. If the assessment indicates the proposal will affect adversely any three waters infrastructure, then you will need to mitigate these predicted effects with appropriate water sensitive techniques, at an on-site or development level, or a combination of both.
4. You will then need to re-calculate the proposal's water consumption and wastewater and stormwater discharges assuming the proposed water sensitive techniques were in place and demonstrate the adverse effects are appropriately mitigated.

8. ASSESSMENT CRITERIA

When assessing the potential effects of your proposed development on Three Waters infrastructure you will need to consider the following criteria.

8.1 Levels of service

A WIA will need to demonstrate the proposed development will provide or exceed the minimum levels of service for three waters infrastructure specified in Council's Infrastructure Technical Specifications ("ITS").

8.2 Stormwater design criteria

Council's ITS[11] states that stormwater systems shall be considered as the total system protecting people, land, infrastructure and the receiving environment. A stormwater system consists of:

1. A primary system designed to accommodate a specified design rainfall event appropriate for the zone; and
2. A secondary system to ensure that the effects of stormwater runoff from events that exceed the capacity of the primary system are managed, including on occasions when there are blockages in the primary system.

The design shall be in accordance with Table 4 below unless a relevant ICMP or District Plan specifies different values.

Table 4: Summary of Minimum Design Requirements[12]

Criteria	Greenfield development	Infill or re-development
Erosion control	Disposal Hierarchy (4.1.2) and Extended Detention 24mm, discharge limited to 90% of pre-development 2 and 10 year storm runoff	Manage via hierarchy (4.1.2) and discharge excess primary flow to reticulation or open water bodies at 80% of the pre-development rates
Downstream flooding mitigation	Detention required to limit 100 year event flow-rates to 80% of pre-development	Detention encouraged as far as reasonably possible
Flow volume mitigation	Match pre-development volumes up to the 10 year ARI event	Match pre-development to level of service for each zone – refer Table 4-2
Primary system LOS	As per zone - Table 4-2	As per zone - Table 4-2
Secondary flow design	100 year ARI event plus freeboard (Section 4.2.4.10) for catchments greater than 1 hectare	Generally minimum of 50 year ARI event for >1 hectare catchment. Document impact of 100 year ARI event plus freeboard. Refer Table 4-14 for individual residential site
Water quality design	Disposal Hierarchy and Treatment Train approach and Section 4.2.15.1 for wetlands	Disposal Hierarchy and when above 1 hectare: Treatment Train approach and Section 4.2.15
Water quality storm	1/3 of 24-hour 2-year ARI storm	1/3 of 24-hour 2-year ARI storm

Notes:
ARI = Average Return Interval
ITS = Infrastructure Technical Specifications
LOS = Level of Service
Section references in this table are to sections of the ITS

8.3 Selection of water sensitive techniques

All developments are required to incorporate low flow fixtures and at least one other water sensitive technique for stormwater.[13]

Depending on the scale of the proposed development, you may need to manage potential effects on three waters infrastructure and waterways by incorporating additional measures, either:

- On-site three waters management devices, or
- Development-wide three waters management devices, or
- A combination of on-site and development-wide devices.

On-site three waters management devices include, for example:

- To reduce water demand: rainwater reuse tanks; and
- To manage stormwater discharges:
  - Soakage;
  - Bio-retention devices (rain gardens);
  - Rainwater reuse tanks; or
  - Permeable paving;

Development-wide three waters management devices include, for example:

- Swales to manage road runoff;
- Rain gardens to treat road runoff; or
- Wetlands to provide detention and quality treatment for stormwater.

The definition of "water sensitive techniques" provided in the Proposed District Plan[14] provides a more extensive list of potential three waters management devices.

[10] Ibid, Rule 25.13.4.5 a

[11] Section 4.2.3

[12] From Council's ITS, Table 4.1

[13] Proposed District Plan (Appeals and Ruakura Variation October 2015),, Rule 25.13.4.5a

[14] Ibid, Volume 2, Appendix 1.1.2

Some devices achieve multi-benefits. For example, a rain tank and rainwater reuse system will reduce the volume of water drawn from the mains water supply. But, when the rain tank is not full at the beginning of a small rain event, it detains the rainwater discharged from your roof and thereby helps reduce peak stormwater discharges to waterways.

Three Waters Management Practice Note 1 sets out a recommended approach to assessing what on-site three waters management devices can be used, depending on site conditions.

Design information for devices suitable for managing stormwater from a whole development (rather than just individual sites) is available in Auckland Council's Technical Publication 10 - Stormwater Management Devices: Design Guidelines Manual ("TP10").

9. POSSIBLE OUTCOMES OF A WIA

A WIA may result in conditions being applied to the development. These conditions may require[15]:

1. Financial contributions to be provided to Council;
2. Installation of specific water sensitive techniques; or
3. Monitoring and reporting of the effects of the development on three waters infrastructure and waterways.

10. COSTS AND BENEFITS

10.1 Costs

If you are required to prepare a WIA, you will need to undertake this work at your own expense.

10.2 Benefits

WIAs will ensure for the larger proposals, which require a WIA, that:

- Compliance with the relevant ICMP is assessed;
- Adverse effects (including cumulative effects) on water resources and three waters infrastructure are assessed, and site- or proposal-specific measures to minimise these effects are incorporated into each proposal, unless justified otherwise, thereby providing environmental benefits; and
- Measures are incorporated into the proposals that will avoid or postpone the need for upgrading three waters infrastructure capacity – thereby providing economic benefit to the wider community.

11. REFERENCES

Hamilton City Council. (October 2015). *Hamilton City Proposed District Plan: Appeals and Ruakura Variation*. Available at: http://www.hamilton.govt.nz/our-council/council-publications/districtplans/proposeddistrictplan/Documents/Ruakura%20Variation/Ruakura%20Variation%20and%20Appeals%20Oct%20202015%20CONDENSED.pdf

Hamilton City Council. (Updated 10 June 2015). *Infrastructure Technical Specifications.* Available at: http://www.hamilton.govt.nz/our-council/council-publications/manuals/Pages/Proposed-Infrastructure-Technical-Specifications.aspx

Hamilton City Council. *Three Waters Management Practice Notes.* Available at: http://www.hamilton.govt.nz/our-council/council-publications/manuals/Pages/Three-Waters-Management-Practice-Notes.aspx

[15] Ibid, Volume 2, Appendix 1.2.2.5 b), Note 2