RATIONALE FOR INFRASTRUCTURE "LISTING" REQUEST FOR WAIKATO REGION FLOOD SCHEMES

KEY MESSAGES:

- WRC is an asset manager of flood protection infrastructure that provides the region with an agreed level of service for community protection of towns, community assets such as state highways, telecommunications links, and economic productivity.
- The application for infrastructure listing in Appendix 3 of the National Policy Statement for Freshwater Management allows Waikato Regional Council to continue to deliver its levels of service pending the outcomes of Council's RMA planning processes.
- It is acknowledged that the Vision and Strategy for the Waikato River and the Healthy Rivers Wai Ora plan change will prevail over any exemption to an activity causing water quality degradation in the lower Waikato however it is prudent to apply in the interim, and for schemes across the entirety of the region.
- WRC is focussed on water quality improvements through integrated catchment management processes including policy and implementation interventions. Any exemption, if granted, is not expected to impede that process but rather enable the levels of service currently provided to the community to be taken into account in the regional context.

Overview

The National Policy Statement for Freshwater Management 2014 (NPSFM) allows the opportunity for infrastructure managers to seek exemptions from the NPSFM where existing water quality of a freshwater management unit (FMU) is already below the national bottom line *and* the regional council considers it appropriate to set the freshwater objective below the national bottom line because existing infrastructure either completely or in part contributes to the level of existing water quality (policy CA3). On this basis, the Ministry for the Environment (MfE) invited infrastructure managers to seek an opportunity for consideration of freshwater objective exemptions for such infrastructure by 30 September 2015. Waikato Regional Council (WRC) as manager and custodian of significant regional infrastructure wrote to MfE accordingly, requesting a listing of its flood protection infrastructure for the Lower Waikato, Waihou and Piako flood protection schemes. This application does not automatically confer exemption but rather affords a process by which communities could engage with the Ministry to consider the relative merits of doing so.

There are no formal criteria for inclusion of existing infrastructure into the proposed list, Appendix 3 of the NPSFM. WRC received advice from MfE that its primary consideration would incorporate infrastructure of national significance. Recognising that the flood protection schemes are nationally significant, WRC made a case that the three aforementioned schemes be included in Appendix 3. MfE will consult on the inclusion of existing infrastructural assets that would form the content of Appendix 3 in early 2016 following the process for amendment to a National Policy Statement as outlined in the Resource Management Act 1991 (RMA).

Statutory Context
Presently there are no entries in Appendix 3 of the NPSFM for existing infrastructure and MfE intends to populate the appendix with a list of infrastructure to then allow it to be considered for an exemption. Once infrastructure is listed in Appendix 3, regional councils will need to determine whether the water quality within the FMU is already below national bottom lines *and* demonstrate that the infrastructure is contributing to that level of water quality. It is noteworthy that if an FMU contains infrastructure listed in Appendix 3, this does not automatically guarantee that the freshwater objectives will be set below national bottom lines – that decision sits with the relevant council with input from iwi, water users and the community through an RMA Schedule 1 planning process.

The freshwater objective infrastructure exemption opportunity is an available avenue for WRC as regional infrastructure managers to adopt whilst exploring other management options. As previously mentioned, water quality objectives will need to be applied through an RMA planning process. This is presently under way for the Waikato River catchment in the form of the Healthy Rivers Wai Ora plan change one, which will be notified in June 2016. Plan change two, which will address water quality in the Waihou and Piako Rivers and Coromandel Streams, is set to commence in the latter half of 2016. WRC is aware that the Vision and Strategy for the Waikato River may override any ability to provide an exemption to an activity causing degradation as it goes against the 'restore and protect' ethos of the Vision and Strategy. However, an initial legal opinion provided to WRC was that given the short timeframe, seek the listing in Appendix 3 of the NPSFM on the basis that WRC could withdraw it in the future if required. This discussion is yet to be had.

Central to that discussion will be the rights and interests of iwi, particularly in their policy setting role as co-governance partners. Early indications have been provided to staff that iwi are not supportive of the Appendix 3 opportunity provided by government through the National Policy Statement. A senior Waikato-Tainui staff advisor has asked that this paper record that view.

Councillors have not yet engaged on this matter and staff seek guidance from the Integrated Catchment Committee as to whether this matter should go to Council with a recommendation to discuss further with iwi partners through the co-governance committee agenda, prior to taking any position.

Waikato Infrastructure
WRC currently balances freshwater management interventions while providing an agreed level of service to our communities in terms of flood protection and drainage management. Should RMA processes determine that a reduced level of protection be required to improve water quality, or that different methods of flood protection be should be provided to that already in place, a decision would need to be made about how to reconfigure that balance.

The schemes are essential tools in protecting our communities from inundation during large-scale flood events. The application for listing in Appendix 3 for the schemes aims at continuity of these services, while other methods to improve water quality can be explored and implemented. While methods exist to address water quality, for example treatment at discharge points, such methods involve sophisticated treatment infrastructure at a high capital cost along with significant ongoing maintenance costs. To more effectively improve water quality in the long term, WRC is focussing its efforts on addressing the issue at the source through effective integrated catchment management. This requires centralised planning, funding and implementation over a long period and is a primary focus area for WRC's implementation arm.

For the Waikato River catchment, the Lower Waikato flood protection scheme directly protects approximately 17,200 hectares of productive agricultural and horticultural land. An

additional 16,500 hectares receives benefit from improvements to the waterways and river channels (including the main channel of the Waikato River) and features to control natural ponding areas. In addition, within the Mangawara River Valley approximately 8,300 ha of rural land is protected from flooding. The replacement value of assets within the Lower Waikato scheme as at 31 December 2013 was $146.5 million and includes 253 km of stopbanks, 282 floodgates and 63 pump stations. As at 2009, the value of economic activity that is protected by the Lower Waikato scheme was estimated at $326 million per annum, while the value added was estimated $124 million per annum[1].

The combined Waihou-Piako flood protection schemes protect approximately 250,000 hectares of land from both fluvial and coastal inundation. The replacement value of assets within the Waihou-Piako scheme as at 31 December 2013 is $299.3 million, comprising 348 km of stopbanks, 139 floodgates and 52 pump stations. As at 2009, the value of economic activity that is protected by the Waihou-Piako schemes was estimated at $1.8 billion per annum, while the value added was $672 million per annum[2].

[1] Lower Waikato Zone Management Plan 2014/15 WRC document # 2987786v7.
[2] Waihou Piako Zone Management Plan WRC document 1700536v20.

APPENDIX ONE – Case Study: Lower Waikato Flood Protection Scheme

The scheme consists primarily of stopbanks, pump stations, floodgates, and main river channel improvement works. In addition, there are also some major structures for the control of flood storage in designated ponding areas. The scheme is designed to collectively provide protection to a range of standards for the different areas, on the basis of the economic and technical feasibility of the works. The construction of the scheme was commenced in 1961 and completed in 1982. The scheme is just one component in a fully integrated catchment wide flood protection system that effectively manages the entire reaches and tributaries of Waikato and Waipa rivers from source to sea.

The original area of low lying land in the Lower Waikato, comprising the floodplains of the Waikato River and its tributaries (including substantial areas of wetland) was approximately 36,400 ha. Approximately 17,200 ha of this has now been directly protected by flood protection works and brought in to agricultural or horticultural production. An additional 16,500 ha receives benefit from improvements to the waterways and river channels (including the main channel of the Waikato River) and features to control natural ponding areas. In addition, within the Mangawara River Valley approximately 8,300 ha of rural land is also protected from flooding. Figure 1 depicts an overview of the Lower Waikato flood scheme operation.

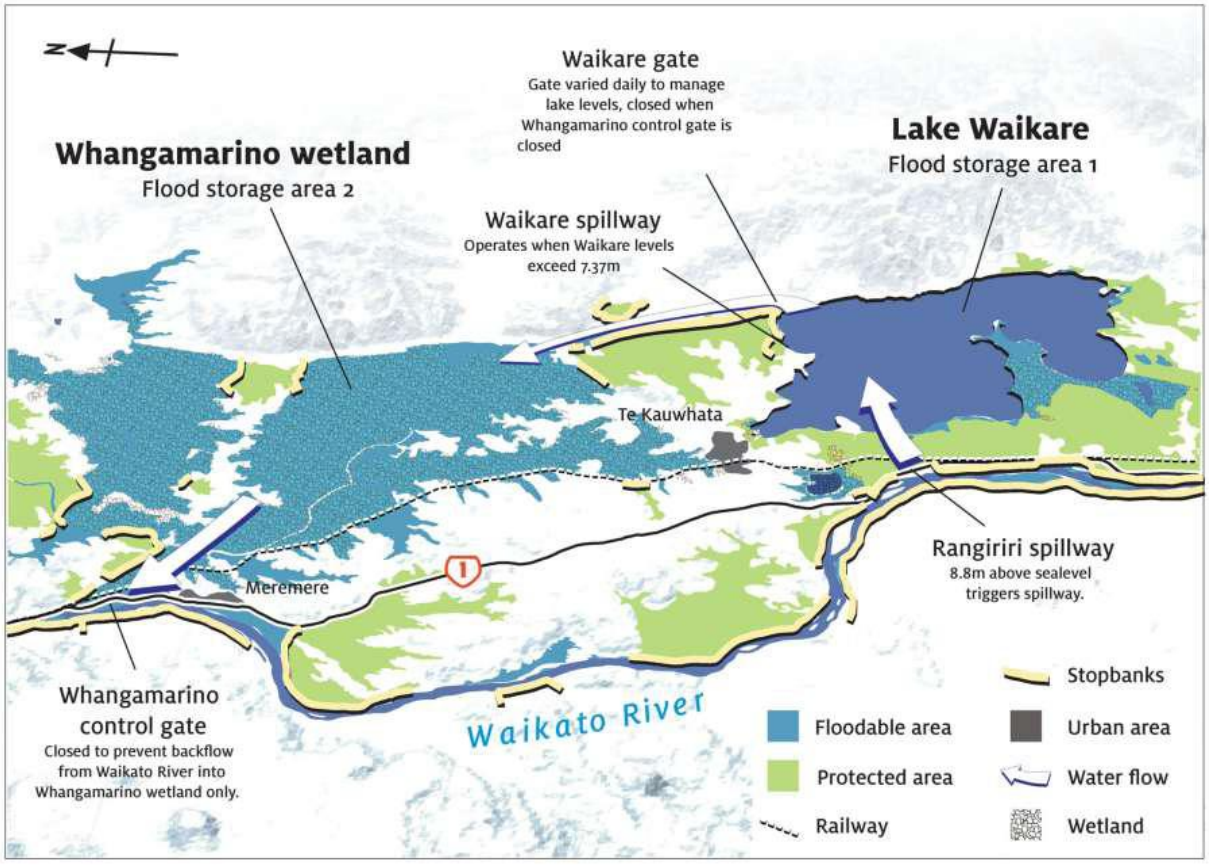

Figure 1: *Lower Waikato flood protection scheme*

The scheme acts a conduit for degraded water flowing from the surrounding catchment, which passes through Council infrastructure thereby impacting the receiving environment. Waikato Regional Council is presently developing a Lake Waikare and Whangamarino

Wetlands Catchment Management Plan to set objectives and programmes for improving water quality in the system in its entirety.

Effects on water quality

The exemption request was on the basis that the quality of the freshwater management unit comprising Lake Waikare is already below the national bottom line. Water quality degradation may be exacerbated through the artificial controlling of the water levels through the scheme. For example, the effects of infrastructure and land use within such schemes are seen in Lake Waikare which is the largest lake in the Waikato River floodplain. It has poor water quality with very high concentrations of nitrogen and phosphorus, supporting high levels of nuisance phytoplankton. Levels of potentially toxic planktonic cyanobacteria routinely exceed the national guidelines. Additionally the water is usually turbid and muddy-looking. The lake water quality breaches the NPS-FM national bottom lines for median and maximum chlorophyll *a*, for median total nitrogen and total phosphorus and for planktonic cyanobacteria. The overall water quality of the lake has been largely stable over the past two decades.

Lake Waikare is used as a ponding area in the Lower Waikato Flood Control Scheme. As part of this, an outlet canal has been constructed which has allowed permanent lowering of the lake to create more flood storage and to improve drainage around the lake fringes.

In 1977, the exotic macrophysics (or lake weeds) that colonised the lake and stabilised its bottom sediments collapsed. This removed the protection carpet of vegetation from the bottom of the lake, meaning that the bottom sediments were prone to regular wave-induced disturbance and resuspension. As a result, nitrogen and phosphorus in the bottom sediments are now more-or-less constantly recycled into the overlying water, exacerbating the lake's poor water quality. The combination of a large wind fetch and an unusually shallow water column means that resuspension and nutrient recycling from the bottom sediments are probably more common that prior to the lowering of the lake level.