Before the Freshwater Hearing Panel

Under	the Resource Management Act 1991 (**RMA**)
In the matter of	The Otago Regional Council Proposed Otago Regional Policy Statement 2021

Submission by Dunedin City Council

Evidence of James Taylor for Dunedin City Council

28 June 2023

Dunedin City Council solicitors:
Michael Garbett
Anderson Lloyd
Level 12, Otago House, 477 Moray Place, Dunedin 9016
Private Bag 1959, Dunedin 9054
DX Box YX10107 Dunedin
p + 64 3 477 3973
michael.garbett@al.nz

anderson lloyd.

Qualifications and experience

1 My name is **James Douglas Taylor**.

2 I hold the qualification of a Bachelor of Planning with first class honours from the University of Auckland. I am a Full Member of the New Zealand Planning Institute. I have practised in the field of town planning/resource management planning since 2004, primarily working for planning consultants and construction contractors on infrastructure projects in Auckland, Brisbane and Dunedin. Currently I am a Senior Planner (Senior Associate) in the Dunedin office of Beca Ltd.

3 I have over 19 years' experience in consenting infrastructure projects that have relevance to the freshwater sections of the proposed Otago Regional Policy Statement (pORPS). For the last 7 years I have been practising in Otago where I have been part of infrastructure delivery teams that have consented a wide variety of projects locally that involve watercourse modification, stormwater and wastewater discharges and water takes for infrastructure operating clients including local government three waters departments, KiwiRail, Waka Kotahi and Dunedin International Airport Ltd.

Code of conduct

4 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023. This evidence has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

Scope of evidence

5 In this evidence I address aspects of the freshwater sections of the pORPS that in my experience would otherwise impact on Dunedin City Council's (DCC) three waters Regionally Significant Infrastructure as defined by the pORPS, and provide suggested amendments to resolve these identified impacts including:

(a) Appropriate prioritisation of water allocation for Community Water Supply;
(b) The need for a coordinated three waters Regionally Significant Infrastructure strategy to enable the DCC three waters system to achieve the relevant objectives and policies of this regional policy statement; and
(c) Specific wording changes to make the pORPS workable for operators of existing three waters Regionally Significant Infrastructure.

LF-WAI-P1 – Prioritisation

6 DCC submitted on LF-WAI-P1 – Prioritisation (reference FPI001.007) seeking additional policy on priorities when there is a conflict between them.

7 The s42a author recommended changes to the prioritisation clause based on submissions, however also requested additional evidence from submitters in the absence of specific wording. I provide this below.

8 DCC's submission on the definition of community drinking water supply (ref: FPI001.030) is also relevant to this Policy. The s42A author disagreed this definition was necessary and at paragraph 431 suggested that:

providing for community drinking water supplies in environmental flow and level regimes is a question of detail and is better addressed in the LWRP where it can be considered alongside the management of water takes more generally and the relevant environmental flow and level regimes.

9 However, I disagree with this assessment given the critical nature of water allocation within the Taiari Freshwater Management Unit (FMU) and the dependence on it by Otago's largest urban centre - Dunedin. It is also a requirement for the pORPS to address both the National Policy Statement on Urban Development 2020 (NPS-UD) and National Policy Statement for Freshwater Management 2020 (NPS-FM) which interact on this issue.

10 93% of DCC's existing water take consents in active use are from fresh water within the Taiari FMU. DCC's consented water takes from the Taiari FMU provide for 118,784m^3 of fresh water per day, being approximately 6% of the total consented allocation currently within the catchment.

11 The challenge, however, is further compounded because, according to data from ORC's GIS mapping tool (refer table at paragraph 12 below), the Taiari FMU catchment is over-allocated by a magnitude of 6 times its modelled limit. ORC modelling indicates a catchment allocation limit of 3,812L/s, which can be extrapolated to an average of 329,357m^3/d. This means that DCC's water take is approximately 36% of the Taiari FMU modelled allocation limit. Ms Moffat in her evidence has outlined the increasing difficulty of providing sufficient drinking water to support the social, economic and cultural well being of people and communities.

12 Taiari Catchment Allocation Data (ORC)

Attribute	**L/s**	**M^3/d**
DCC Taiari Catchment consents		118,784

ORC REC Modelled allocation limit	3,812	329,357
Regional Water Plan Schedule 2a Allocation	4,860	419,904
Consented allocated	22,592	1,951,949
Over Allocation	17,732	1,532,045

13 All of DCC's Community Water Supply is classified as potable water and required to be treated to the required drinking water standard under the *Water Services Act 2021*. DCC's Community Water Supply provides for the health of people by provision of drinking water, water for cleaning, heating and cooling households, institutions and workplaces. It also provides for people's health through the firefighting water network which maintains sufficient storage, pressure, and transmission of essential firefighting water – and which is a key driver of the entire water system capacity requirement.

14 In my opinion, the water treated to a drinking water standard in Dunedin City is entirely for the purpose of supporting the health needs of the people and therefore a tier two priority under Te Mana o te Wai hierarchy of obligations, being the health needs of people. And once treated and distributed to the network it is not possible to further divide the water without an entirely separate network. Urban commercial and industrial and construction water use requires treated water to a potable standard as it can be unsafe from a human health perspective to work with untreated water.. In this sense, I disagree with the MfE Guidance note quoted in the s42a author report where it states:

"Municipal takes include multiple uses, among them drinking water, but Councils also routinely take water for commercial use or irrigation. Priority 2 does not apply to these takes as a whole, although parts, eg, those that relate to drinking water, will apply." (p.19)

15 In 2021, the DCC issued a 'do not drink' notice (DNDN) for Waikouaiti, Karitane and Hawksbury Village after intermittent elevated lead levels were detected during water sampling. After it issued the DNDN, the DCC supplied fresh vegetables to residents who had been using the Community Water Supply to irrigate their gardens. DCC made this decision due to health concerns about the consumption of garden produce that had been irrigated by potentially contaminated water. This demonstrates how the provision of potable water for urban irrigation via Community Water Supply, supports a human health objective, contrary to the quoted statement from the MfE guidance note.

16 The s42A author rightly points out that this matter has not yet been tested, therefore I will provide suggested amendments for both the acceptance of a full tier two priority status for Community Water Supply as well as if a Community Water Supply is partly accepted as a tier two priority. However, it is my opinion that a primarily urban Community Water Supply supports the health of the community in its entirety and should have tier two status.

17 Another important consideration for a Community Water Supply is how it is necessary to enable the provision for future growth as required by the NPS-UD. Policy 6 of the NPS-UD states:

When making planning decisions that affect urban environments, decision-makers have particular regard to the following matters:

a) the planned urban built form anticipated by those RMA planning documents that have given effect to this National Policy Statement

18 The provisions regarding water allocation that impact an urban environment clearly affect planned urban built form and are therefore subject to this policy. This includes, for example, industrial zoned urban land. Most industrial activity in the city uses water for firefighting systems, drinking, food preparation, cleaning, sanitation and for multiple processes that involve contact of water with the workforce, all of which either impact or are necessary for, the health of the workforce. Water allocation decisions will impact these activities (and others) within urban areas, and will affect the planned urban built form as a consequence.

19 Historically, Community Water Supplies provide for both urban environments and often the surrounding rural area. As outlined in Ms Moffat's evidence, approximately 95% of DCC water take is used for customers in urban zoned land. Based on my experience in working on Community Water Supply projects, disconnecting adjoining rural areas from an urban scheme is neither efficient nor practicable, and therefore allowance for a minor portion of development that sits outside that provided for in the NPS-UD is the pragmatic and necessary response when applying the provisions of NPS-UD to Community Water Supply.

20 Under the current Regional Plan: Water for Otago, under rule 12.1.3 reconsenting water surface takes for Community Water Supplies established prior to 1998 is a Controlled Activity. This Rule gives effect to a policy of Community Water Supply prioritisation which, in my opinion still aligns with the NPS-FM and NPS-UD allocation prioritisation.

21 Upon considering the s42A author's opinion on the DCC submission requesting a definition of Community Drinking Water Supply, I propose an

adjustment in wording, definition and approach. In my opinion a definition for Community Water Supply can provide the links to the provisions of the NPS-UD and be broader in scope than the original definition offered. I propose this definition at paragraph 39 below.

22 However, given the historic connection between urban areas and their periphery, my opinion is that this new definition should also recognise that a minority portion of a connected potable water network can be for non-urban land. Particularly where the water authority can implement demand management measures that can target non-urban zoned and/or non-health-of-people related activity when required.

23 Notwithstanding the portion of DCC's water take that provides for non-urban zoned land; the water allocation necessary to underpin mandatory growth planning functions, under the NPS-UD, needs to be provided for within the environmental limits established by the NPS-FM. Therefore, in my opinion the ORPS needs to expressly address this.

24 Protection of Community Water Supply into the future and to accommodate planned growth is necessary. However, the protection of Community Water Supplies is still subject to the environmental outcomes of the first-tier priority under Te Mana o te Wai, being the health and well being of the water itself. Accordingly, it will be necessary to identify opportunities to increase the efficiency of the existing takes, by completing measures such as surrender of take allocations not in use, leakage removal, installation of water meters and other water demand measures. Implementation of water meters alone has shown improvements in some parts of the country, and has resulted in reductions of water use in Community Water Supplies of up to 30%.

25 Ultimately, my opinion is that the ORPS should acknowledge the hierarchy of water allocations implicit in the concept of *Te Mana o te Wai* as defined within the NPS-FM. As outlined above, my opinion is that DCC's Community Water Supply underpins the health of the people, including residents, workers and manuhiri/visitors to Dunedin City. However, should the hearing panel decide that the entirety of the Community Water Supply is not tier two priority, then the third tier uses under the NPS-FM should be further ordered to prioritise allocations necessary to underpin growth planned under the NPS-UD. Failure to do so in the context of the over allocations in the Taiari FMU is likely to be in direct conflict with obligations under the NPS-UD. Therefore, due to the overlapping scope of National Policy Statements, it is appropriate that this is addressed in the ORPS. I provide my recommended wording below for LF-WAI-P1(3):

third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future ***including enabling urban settlements to grow and develop as required by the NPS-UD****.*

LF-FW-O1A – Region-wide objective for freshwater

26 DCC submitted on the Freshwater Management Unit (FMU) vision (reference FPI001.010-14) on matters that are now addressed in the new Objective LF-FW-01A including the wording addressing modification of natural water bodies and discharges of wastewater to water bodies.

27 In my opinion, the concerns regarding natural water bodies and nature of three waters network wastewater overflows relevant to this new Objective have been partially addressed. In particular, LF-FW-O1A(4) and (8) now include the wording "*to the greatest extent practicable*". I support this new wording as it recognises there are limitations on how three waters asset owners can upgrade and operate their assets, some of which have been outlined in the evidence of Ms Moffat.

28 However, LF-FW-01A(3) requires indigenous species migrate "*as naturally as possible"*. In my opinion this should align with the language of the NPS-FM and be adjusted to *as "naturally as practicable"*. DCC's urban stormwater network includes many piped watercourses, which in some cases are divided by sections of open watercourses. In the hill areas surrounding the city there are many drop structures providing energy dissipation but also acting as fish passage barriers. Despite downstream piped sections of the network comprising sometimes many kilometres of piped network these piped watercourses are classified as rivers under the RMA. In resolving some of these challenges what is theoretically possible through the removal of housing to provide more land or removing energy dissipation structures to reduce fish barrier is often not practicable due to the associated instability of urban land that may result. In the context of urban watercourses, my opinion is that the word "*possible"* should be changed to "*practicable"* in LF-FW-01A(3).

LF-VM-O4 –Taiari FMU vision

29 DCC submitted on the Taiari FMU Objective (Reference FPI001.010) and on the integrated and efficient management of three waters networks and water allocations throughout its submission. However, due to the substantial redrafting, submissions on topics in other sections are now also relevant to this Objective.

30 I do not agree with the redrafting provided by the s42A author as it does not fully address the new water allocation topic nor the complexity in removing wastewater overflows from the DCC three waters network. I address these two matters below.

Three Waters Regionally Significant Infrastructure Strategy

31 As outlined in Ms Moffat's evidence, the DCC three waters network is a complex and highly interrelated system that has been developed over the last 150 years. It includes a significant portion of the system within the Taiari FMU. As an example of its interrelated nature, stormwater inflow and infiltration to the wastewater network in one catchment can influence wastewater overflow in other connected catchments and wastewater treatment plant discharges via a pumped network.

32 DCC have an ambitious programme to improve the asset. The 2021 DCC Long Term Plan prepared under the Local Government Act 2002 provided $561 million for capital expenditure over a ten-year period to improve the asset.

33 As outlined by Ms Moffat, in a constrained regulatory funding environment expenditure in one area can be at the expense of another. Therefore, in my opinion establishing a policy framework that requires a focus from one consent to the next will not necessarily result in the best overall capital improvement plan to address the overall Objectives of the NPS-FM or of Objective LF-FW-O1A.

34 In my experience, the consideration of an individual discharge or water take consent application, when it is connected to an interrelated network, risks having a narrow focus. This approach can result in actions that may improve the particular matter under consideration in the consent but at the expense of an improvement elsewhere that could result in superior outcomes for the wider network. For example, if DCC elected to not invest in the potable water system until the Deep Creek water take expires in approximately 2041, this would hinder achievement of the relevant water use objectives in the pORPS.

35 As the largest and most complex three waters system in Otago, I consider that specific mention of this system in the FMU vision is appropriate.

36 To address this issue for DCC's three waters network I recommend an additional objective that requires coordination of the upgrade of three waters Regionally Significant Infrastructure so that it supports the optimal pathway to achieving the Objectives of the pORPS. A strategy for the upgrade of three waters Regionally Significant Infrastructure could then be

referred to during consent applications and capital funding decisions to justify timeframes relating to the prioritisation of actions to achieve the overall vision of the relevant FMU. It could also be used as a mechanism to identify what is practical in line with Objective LF-FW-O1A.

37 Specifically, I recommend the inclusion of the following subsection at LF-VM-O4(1A) together with the associated definition:

three waters Regionally Significant Infrastructure within Dunedin City has been progressively upgraded as part of a coordinated strategy to align with the Objectives of the Taiari FMU.

Water Allocations in the Taiari FMU

38 Objective LF-VM-O4(5A) does not take account of the NPS-UD for the management of fresh water as it bundles Community Water Supplies together with other categories of water take.

39 For reasons outlined in paragraphs 6-25, I propose two possible adjustments of Objective LF-VM-O4(5A) below and the insertion of a new definition for Community Water Supply. The first wording suggested is on the basis of my evidence that Community Water Supplies are a tier two priority under Te Mana o te Wai, is accepted. The second wording offered assumes that Community Water Supplies are primarily a tier two priority, with some aspects of Community Water Supplies falling into the tier three priority status:

5A) the allocation of fresh water maintains the hierarchy of obligations in Te Mana o te Wai by prioritising:

(a) ***The health and wellbeing of water bodies and freshwater ecosystems***

(b) ***The health needs of people including the provision of drinking water including, but not necessarily limited to, through the establishment and operation of Community Water Supply Schemes that provide for current and future populations, and***

(c) ***The ability of people and communities to provide for their social, economic and cultural well-being, now and in the future.***

OR – when Community Water Supply is primarily a Tier two priority:

5A) within limits, the allocation of fresh water ***maintains existing allocations that are in use for Community Water Supply including for future growth as required by the NPS-UD, unless efficiencies in***

existing networks can be identified to enable practical reductions. After these essential allocation requirements are satisfied, the allocation of fresh water also *provides for land-based primary production that supports the social, economic, and cultural well-being of communities in this FMU.*

Community Water Supply means:

Regionally Significant Infrastructure that incorporates a reticulated water supply scheme that provides water treated to a potable standard that meets the health needs of the population being served and provides for their social, economic and cultural well-being, now and in the future including future urban growth provided for in accordance with the NPS-UD. For clarity this excludes a supply that provides for the commercial scale irrigation of rural land.

LF-VM-O5 – Dunedin & Coast FMU vision

Three Waters Regionally Significant Infrastructure Strategy

40 DCC submitted on this topic (reference FPI001.012), requesting adjustments to the vision timeframe and addressing the particular needs of urban waterways (in particular Kaikarae/Kaikorai, Ōwheo/Leith, Tomohaka/ Tomahawk Lagoon and Whakaehu/Silverstream).

41 The s42A report writer agreed that LF-VM-O5 as notified did not address urban waterways and invited DCC to provide specific suggestions in evidence. Based on my experience in working with three waters urban networks I provide my proposed solutions below.

42 A number of urban waterways within Dunedin City are subject to wastewater overflow from DCC three waters network and based on my experience working with DCC on their network, removing these overflows is an extremely difficult process. However, the new drafting of LF-FM-O1A, introduces the wording *"direct discharges of wastewater to water bodies are phased out to the greatest extent practicable."* This wording introduces the necessary pragmatism required for improving a complex three waters network.

43 However, in addition to this new wording, the objective would benefit considerably with the introduction of a requirement for the delivery of a three waters Regionally Significant Infrastructure strategy identifying the pathway and timeframe for improvements to the three waters system in a holistic manner. I have previously addressed the reasons why I support this

approach for the Dunedin City network in paragraphs 31-37 above, and this analysis is relevant to my opinion here.

44 Specifically, I suggest the inclusion of the following subsection at LF-VM-O5(1A):

three waters Regionally Significant Infrastructure within Dunedin City has been progressively upgraded as part of a coordinated strategy to align with the Objectives of the Dunedin and Coast FMU.

Dunedin & Coast FMU Timeframe

45 In terms of timeframes, upgrades and improvements to the Dunedin City network will take considerable time. The 17 years provided for with the 2040 vision is not a very long time when considering the scale of the challenge. Additionally, in terms of DCC's existing freshwater water take consents, the majority of these expire by 2042, which is after the FMU Vision timeframe. Furthermore, I note that other submitters on timeframes have suggested FMU visions should be achieved within 20 years, and I agree that a 20-year timeframe is more realistic. Therefore, I recommend the following change to the opening sentence of LF-VM-O5:

By ~~2040~~ 2043 in the Dunedin & Coast FMU:

LF-VM-P5 – Freshwater Management Units (FMUs) and rohe

46 DCC submitted on this topic requesting the catchment of the East Otago Taipure Area be included within the Dunedin and Coast FMU (reference FPI001.015).

47 The s42a author has accepted DCC's submission on this topic but has requested additional evidence.

48 Based on my interaction with the East Otago Taiāpure Committee in the course of delivering DCC infrastructure projects, my opinion is that they play a very important role in the management of their rohe. Having an FMU that divided this area would be counterproductive to effective water quality management within the East Otago Taiāpure area catchment and the ability for infrastructure and development entities to engage with the local community on important catchment management matters.

49 DCC have prepared the **attached** drawing that proposes the new Dunedin and Coast FMU boundary line. The boundary runs along the watershed of the Waikouaiti River catchment, the catchment of Matainaka/ Hawksbury Lagoon and also of Ohinetemoa/Waikouaiti Beach.

LF-FM-P7A – Water allocation and use

50 DCC submitted on this topic (reference FPI001.028-34) requesting a number of changes to the proposed method relating to prioritisation of water allocation for community supply and requesting a definition for a community drinking water supply.

51 The s42A author has now proposed greater specificity regarding the water allocation topic in Objectives and Policies. However, this is provided in a manner that does not provide for appropriate protection for Community Water Supplies. I therefore disagree that the updated wording is adequate in the context of both the NPS-FM and the NPS-UD and I provide two suggestions to amend the wording that would address issues relating to water allocation and water use for DCC's three waters network below.

Water Allocation

52 I have addressed the importance of water allocation for Community Water Supply under both the NPS-FM and the NPS-UD in paragraphs 6-25 of my evidence. This is of critical importance for the Taiari FMU given the substantial overallocation of water in this catchment by a magnitude of 6 times beyond the ORC modelled limit. In the context of Otago's largest urban population being dependant on this catchment for 93% of its water supply, this is a significant issue for the Otago region.

53 Therefore, for the reasons outlined in paragraphs 6-25 of my evidence the proposed solution is to amend **LF-FM-P7A(1)** as follows**:**

Within limits, and in accordance with any relevant environmental flows and levels, the benefits of using fresh water are recognised and over-allocation is either phased out or avoided by:

(1) allocating fresh water efficiently to ***first provide for Community Water Supply, including capacity for growth as provided for in the relevant District Plans and secondly to*** *support the social, economic, and cultural well-being of people and communities to the extent possible within limits, including for:*

~~**a) community drinking water supplies,**~~

b) *renewable electricity generation, and*

c) *land-based primary production,*

Water Use

54 Policy LF-FM-P7A(2) requires that no more fresh water is abstracted than is necessary for its intended use. While I agree that this will contribute to the reduction of over allocation it is not practical for a complex and aged water supply urban network. Based on experience with DCC's urban water supply network I expect that there are unidentified leaks and that into the future pipe joins or sections may fail resulting in future leaks. These leaks will result in more water being abstracted than intended. DCC does have and will continue to work through network replacement programmes and rectification of leaks as they are identified, with the intent that they are progressively removed over time. Therefore in recognition of this scenario I suggest Policy LF-FM-P7A(2) is adjusted as follows:

*"ensuring that, **as far as is practicable,** no more fresh water is abstracted than is necessary for its intended use…"*

LF-FM-P15 - Stormwater discharges

55 DCC submitted on this topic (reference FPI001.019-24) requesting amendments and/or new objectives and policies that:

(a) Result in a separation of a stormwater policy from a wastewater policy,

(b) Provide flexibility in a requirement for activities to connect to a reticulated network,

(c) Provide for appropriate methods to reduce overflows; and

(d) Provide for water sensitive design where beneficial;

56 In my opinion, the redrafting provided in the s42a report has partially addressed the issues raised in the DCC submission, however overall, there remain unresolved matters that require adjustment including:

(a) Integrated catchment management plans

(b) Stormwater overflows

(c) Use of reticulated stormwater network; and

(d) Promoting source control.

57 I address these in order of their appearance in the updated LF-FM-P15 below.

Integrated catchment management plans

58 The s42a author proposes a requirement for integrated catchment management plans. In my experience, integrated catchment management plans can be an effective tool in providing tangible improvements for water quality outcomes, I therefore support this provision in principle. However, within an aged and connected urban three waters network such as that within Dunedin City, a broader view is required.

59 For example, in Dunedin, the inflow and infiltration rate of stormwater into the wastewater network in both Kōpūtai/Port Chalmers and Kaikarae/Kaikorai Valley catchments (which are located at opposite ends of the city) has a direct impact on water quality around the Otakou/Otago Harbour, in South Dunedin and coastal discharge through the Tahuna Wastewater Treatment plant. Additionally, the amount of potable water discharged into the wastewater network that has been taken from an entirely different FMU also impacts on the overall network performance.

60 Additionally, within a network like Dunedin City the presence of multiple integrated catchment management plans in itself creates a risk that there is a lack of consistency in how the various plans are utilised. A strategy overarching these plans containing relevant and connected network infrastructure outcomes and tied back to capital delivery planning will make this easier to administer and manage.

61 Therefore, due to the interconnected nature of Dunedin City's three waters system, my opinion is that an overarching three waters Regionally Significant Infrastructure strategy is necessary to underpin and organise any individual catchment management plan. Utilisation of this approach would be superior as a tool and mechanism for delivery of the objectives of the pORPS. As this would be able to identify where the optimal interventions should be prioritised to deliver improvements to DCC's system and its associated discharges and therefore ultimate delivery of the Objectives of the pORPS. I therefore recommend the following adjustment to LF-FM-P15(2)(ab):

(2) requiring:

(ab) integrated catchment management plans for management of stormwater in urban areas ***and within Dunedin City the integrated catchment management plans are supported by a coordinated strategy for three waters Regionally Significant Infrastructure.***

Stormwater Overflows

62 I have been involved in a number of recent DCC stormwater upgrade projects. Based on this experience I know that the DCC Stormwater network is reliant on overland flow and overland flow paths to function. During replacement and upgrade of the DCC stormwater network the capacity is being designed to accommodate a 1 in 10-year rainfall event utilising the NIWA 2081-2100 climate change projections as they relate to rainfall utilising the worst-case modelled climate scenario. Any policy to reduce designed overland flow of stormwater frequency would result in a significant cost imposition. Further, depending on specific site context such a policy may not result in any improved environmental outcomes and may negatively impact on the ability of the DCC network to meet the overall water quality objectives of the pORPS.

63 Therefore, in my opinion the proposed LF-FM-P15(2)(c) is not practical and may not be what is intended. In my opinion LF-FM-P15(2)(c) should be deleted.

Use of Reticulated Stormwater Network

64 In my opinion the updated LF-FM-P15(2)(b) addresses the flexibility necessary in managing connections to a reticulated stormwater system while also linking the requirement to freshwater outcomes. However, LF-FM-P15(3), uses less flexible language while appearing to seek the same outcome. I therefore support LF-FM-P15(2)(b) and recommend the deletion of LF-FM-P15(3).

Promoting Source Control

65 Based on my experience in dealing with commercial and industrial development activities, source control can be a highly effective method to reduce contaminants in discharges. I therefore support LF-FM-P15(4) as drafted.

LF-FM-P16 – Discharges containing animal effluent, sewage, and industrial and trade waste

66 DCC submitted on this topic (reference FPI001.019-24) requesting amendments and/or new objectives and policies that:

(a) Result in a separation of a stormwater policy from a wastewater policy,

(b) Provide flexibility in a requirement for activities to connect to a reticulated network, and

(c) Provide for appropriate methods to reduce overflows;

67 In my opinion, the s42A report has partially addressed the issues raised in the DCC submission, however overall, there remain unresolved matters that require adjustment including:

(a) Phasing out Wastewater Discharges to Water

(b) New Wastewater Discharges

(c) Animal Effluent

(d) Discharges that impact on FMU Water Quality Standards

(e) Use of Reticulated Wastewater Network; and

(f) Source Control

68 I address these in order of their appearance in the updated LF-FM-P16 below.

69 Additionally, I note that at LF-FM-P16(2)(d) there appears to be a typo. I expect that the word "*into*" was supposed to be the word "*from".*

Phasing out Wastewater Discharges to Water

70 As outlined in paragraphs 31-37 and 41-44 above, for the DCC three waters network, phasing out these discharges is a very complex task. Achieving this phasing out requires a coordinated three waters Regionally Significant Infrastructure strategy that aligns with the relevant FMU objective timeframe. In my opinion, without a comprehensive strategy the holistic and broad solution required could be missed if the focus was narrowed to one area because that happens to be where the next consent expiry is to occur. Therefore, consistent with other amendments I have proposed throughout the freshwater sections of the pORPS I propose the policy be adjusted to include reference to a broad three waters Regionally Significant Infrastructure strategy as a basis and a tool for making robust investment decisions that would lead to the ability to phase out these discharges in the future, as far as is practical.

71 Additionally, the introduction of the word "*possible*" at the end of LF-FM-P16(1) is at odds with the "*practicable*" wording at LF-FM-O1A and the NPS-FM. For consistency and due to the nature of the DCC three waters networks as outlined above my opinion is that the term "*practicable*" should be used.

72 Therefore, my proposed solution to address this is an amendment to LF-FM-P16(1) that introduces the term practicable and also the following wording:

Minimise the adverse effects of direct and indirect discharges containing animal effluent, sewage, and industrial and trade waste to fresh water by:

(1) phasing out existing discharges containing sewage or industrial and trade waste directly to water to the greatest extent ~~possible~~ ***practicable, and for the Dunedin City three waters Regionally Significant Infrastructure, requiring this be supported by a coordinated strategy to align with the Objectives of the relevant FMU.***

Where Practicable

73 As outlined in Ms Moffat's evidence, the DCC wastewater network is complex and aged. Additionally, it is not all on property controlled by DCC and in many cases difficult to upgrade. In some cases certain upgrades may not be practicable, particularly when there are actions that could achieve much greater improvements elsewhere in the network at a much easier and faster rate. When applying the proposed wastewater policy to the matters addressed in LF-FW-P16(2) to DCC's urban wastewater network, this should be recognised by requiring the policy requirements "*to the greatest extent practicable*". This would also align the policy with the wording in the NPS-FM. Therefore, I suggest the opening wording of LF-FW-P16(2) be adjusted as follows:

(2) requiring ***to the greatest extent practicable:***

New Wastewater Discharges

74 With respect to municipal three waters networks, I agree that a policy requiring discharges from new Wastewater Treatment Plants (WWTP) serving new networks and discharges from new sections of the wastewater network to land as a way to implement the relevant objectives of the pORPS is necessary.

75 However, for existing assets this depends on their context including the age, quality and suitability of the broader network that connects to the WWTP and ultimately the WWTP process itself.

76 In context it may mean that improvements, for example, to the stormwater network, could reduce infiltration to the wastewater network which in turn reduces, or even removes, wastewater overflows back to the stormwater network resulting in a significantly improved outcome overall. This may

also result in a reduction in the volume of wastewater being treated, providing opportunities for superior or alternative treatment solutions. Thus, resulting in superior outcomes to water quality in a catchment than an earlier move of a treated WWTP discharge to land might otherwise provide.

77 Based on the plain meaning of this policy as drafted, it appears that this could also be relevant to discharges from existing stormwater networks containing wastewater overflows once the existing relevant wastewater overflow consent expires. Additionally, it appears this would also apply to an existing, but yet unidentified, wastewater overflow once a consent for this newly identified overflow was applied for.

78 In my opinion, a policy that may require discharges that result from the overflow of DCC's complex and aged three waters network to be discharged to land is not the best solution. A better solution is for the DCC three waters network to be upgraded in accordance with a three waters Regionally Significant Infrastructure strategy that can optimise water quality improvements by trading off improvements to different sections of the network over the term of the relevant FMU vison timeframe. Policies addressing discharges from three waters utility assets are provided for in Policy P16(1) and P16(2)(d). Therefore, in my opinion this policy should not apply to existing Regionally Significant Infrastructure as the requirement for municipal three waters networks are already adequately addressed at P16(1) and P16(2(d). I therefore suggest the following adjustment to LF-FM-P16(2)(a):

(a) ***With the exception of existing three waters Regionally Significant Infrastructure,*** *new discharges containing sewage or industrial and trade waste to be to land, unless adverse effects associated with a discharge to land are demonstrably greater than a discharge to fresh water,*

Animal Effluent

79 The requirement for discharges containing *animal effluent* to be discharged to land by Policy LF-FM-P16(2)(b) is problematic for owners of urban stormwater networks. Birds, fish and other wild animals produce effluent that gets into urban stormwater systems, which then need to be discharged to freshwater. This is especially common where urban reticulated stormwater systems include sections of open water courses through natural environments. In my opinion, the consequence of this policy would impose an unreasonable and unintended consequence on owners of reticulated stormwater assets.

80 The second issue with the application of the proposed wording is that urban stormwater networks often include piped watercourses that have upstream

rural catchments that contain domesticated animals. As rural catchments contain animal effluent that can indirectly enter watercourses the logical consequence of this policy would be that urban stormwater system discharges that also contain water that has passed through rural catchments used for farming domesticated animals, would need to be discharged to land.

81 These issues would be addressed by limiting the term "animal effluent" to "domesticated animal effluent"; and amending the requirement for discharges to land to apply only to discharges that contain domesticated animal effluent from activities involving domesticated animals. My proposed wording to solve this issue is provided below:

*discharges **from activities that produce domesticated*** ~~*containing*~~ *animal effluent to be to land,*

Discharges that impact on FMU Water Quality Standards

82 Policy LF-FM-P16(2)(f) requires that discharges do not prevent water bodies meeting their applicable water quality standards. While I support this policy for green field development not otherwise connected to an existing reticulated system, discharges from existing complex three waters networks will take time to improve. As outlined by Ms Moffat, in the medium term, complete removal of wastewater discharges to Dunedin's stormwater network and urban waterways during significant rainfall events is not practicable.

83 In this context LF-FM-P16(2)(f) is contrary to LF-FM-O1A(8) and LF-FM-P16(2)(d) which require that within the timeframes specified by the freshwater visions "*direct discharges of wastewater to water bodies are phased out to the greatest extent practicable"*.

84 As outlined in evidence by Ms Moffat, DCC's existing three waters network will take significant capital and time to upgrade to improve water quality outcomes and meet FMU standards. It is impossible for complex municipal three waters networks such as that of DCC to be able to satisfy Policy LF-FM-P16(2)(f) in the near term. Therefore, in order to better align with LF-FM-O1A(8) I propose that for existing three waters infrastructure that is subject to a three waters Regionally Significant Infrastructure strategy, the applicable timeframe should be that which aligns with the objectives set for the relevant FMU. I therefore propose the following amendment to Policy LF-FM-P16(2)(f)

*that **discharges from existing Regionally Significant Infrastructure within Dunedin City are progressively improved through the***

implementation of a coordinated strategy for three waters Regionally Significant Infrastructure and *any* ***other*** *discharges do not prevent water bodies from meeting any applicable water quality standards set for FMUs and/or rohe*,

Use of Reticulated Wastewater Network

85 In my opinion, the updated LF-FM-P16(2)(c) addresses the flexibility necessary in managing connections to a reticulated wastewater system while also linking the requirement to freshwater outcomes. However, LF-FM-P16(3), uses less flexible language while appearing to seek the same outcome. I therefore support LF-FM-P16(2)(c) and request the deletion of LF-FM-P16(3).

Promoting Source Control

86 Based on my experience in dealing with commercial and industrial development activities, source control can be a highly effective method to reduce contaminants in discharges. I therefore support LF-FM-P16(4) as proposed.

Proposed New LF-FM-M11 – Coordinated Three Waters Regionally Significant Infrastructure Strategy

87 DCC submitted broadly on the interconnectedness of the three waters system and generally on how methods for delivering reductions in wastewater discharges to water need to be practical (including reference FPI001.010-14).

88 As previously outlined, the revised drafting provided by the s42a author in relation to these submissions has partially addressed these concerns and I have recommended some amendments that rely on the preparation of a Three Waters Regionally Significant Infrastructure strategy. Therefore, to underpin the achievement of the freshwater objectives and policies and, as a consequential amendment to my suggested additions, a new method is required.

89 For the reasons outlined throughout my evidence and in particular in paragraphs 31-37, 41-44, 70-72 and 82-84 which outline the complexity and interconnectedness of the DCC three waters system, I am of the opinion that the most practical method for delivering the relevant freshwater objectives of the pORPS will be through the delivery of a coordinated three waters Regionally Significant Infrastructure strategy. I therefore propose the below paragraphs as a new method **LF-FM-M11:**

The owner of the Dunedin City three waters Regionally Significant Infrastructure prepares a coordinated strategy that outlines progressive improvements necessary to achieve the objectives of this regional policy statement.

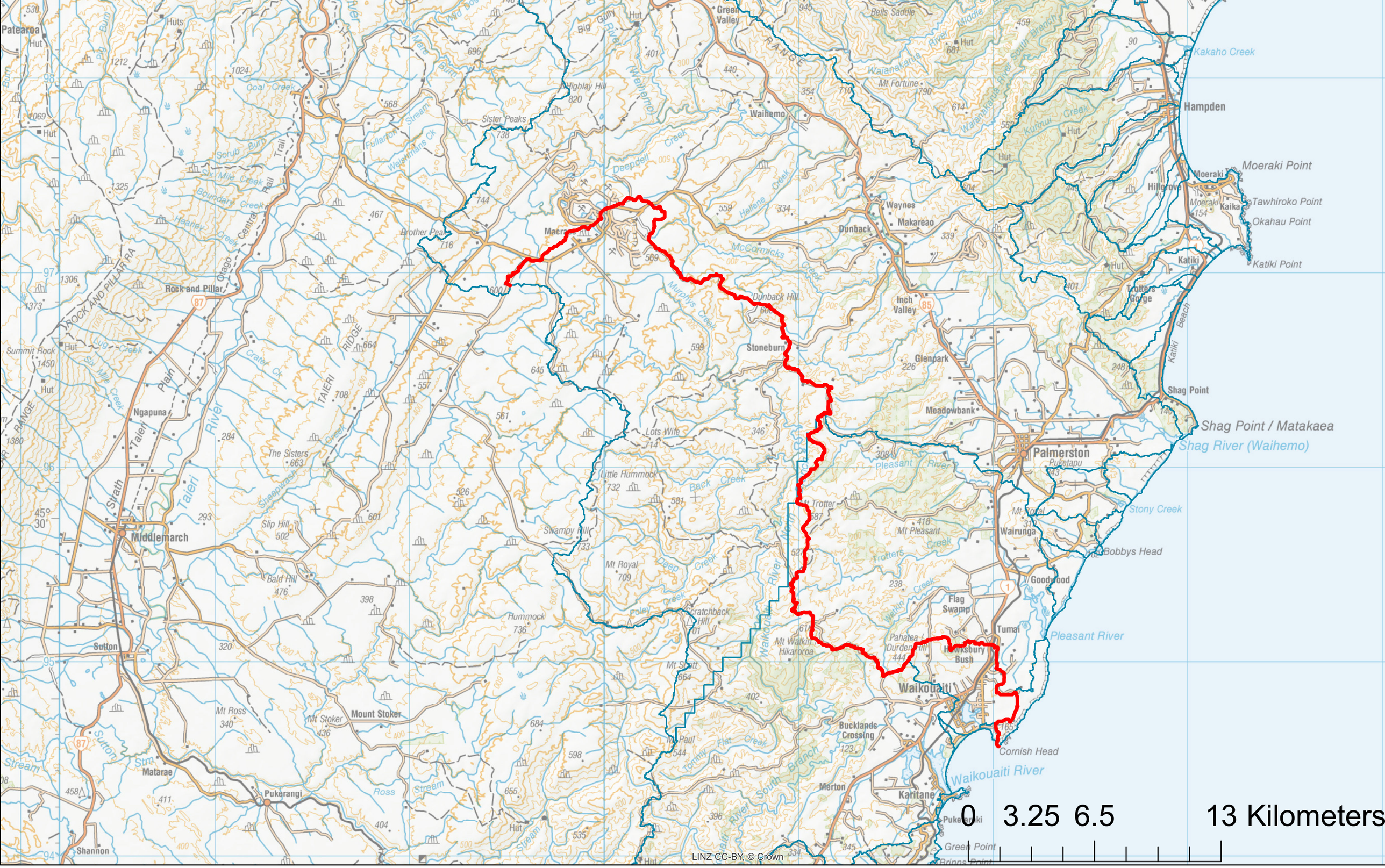
Conclusion

90 My evidence has addressed responses to the DCC submissions addressed in the s42A reports and recommendations as well as some areas where the submissions may have been overlooked.

91 I would be available to discuss these changes further in expert conferencing if that was directed.

James Douglas Taylor

28 June 2023



Proposed boundary between North Otago and Dunedin Coast FMUs

DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti