Water Hearing

Volume 1 - Part 8

Chapters 6, 13, 15 and 16 and Schedules AA, AB, B, C and D

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8.1 Introduction

This decision of the Regional Council is made by the Water Hearing Panel (Water Panel or Panel).

The decision deals with Chapters 6, 13, 15 and 16, relevant terms from the Glossary, and Schedules B, C and D. Schedule D as notified is now Schedule AA (Surface Water Management Zones and Sub-zones), Schedule AB (Surface Water Management Values) and D (Surface Water Quality Targets).

This decision comprises:

- Part 1 (Introduction, Comments Forming Part of All Decisions and Conclusion) of this Volume;
- this Part, where, among other things, we set out our evaluation of the submissions and our reasons for accepting or rejecting them;
- Part 8 of Volume 2, which sets out the summary of submissions and further submissions and our decision in respect of each; and
- Chapters 6, 13, 15 and 16, the relevant Glossary definitions, and Schedules B, C and D (as well as AA and AB) shown in the marked-up version of the POP in Volume 3 (clean version in Volume 4).

The Water Hearing Panel comprised:

- Joan Allin (Chairperson);
- Jill White;
- David Meads; and
- Rob van Voorthuysen.

As noted in Part 2 (Overall Plan Hearing) of this Volume, a minute dated 10 July 2008 was issued by the Overall Plan Hearing Panel about the need for further s 32 analysis to enable Hearing Panels to perform their statutory functions properly. In preparation for the Water hearing, Chairperson's Minute #6 (dated 14 April 2009) addressed questions about the approach to non-point source pollution in relation to water quality and set out a number of questions that the Water Hearing Panel wanted addressed. Those matters were relevant to the s 32 analysis. The Water hearing received economic reports from Messrs Neild and Rhodes and the questions we asked were addressed in a number of reports from Council officers and at the hearing.

The Water hearing was held on 1, 2, 7, 9, 10 and 11 December 2009, 18, 19, 20, 26, 27 and 28 January 2010, 1, 2, 3, 10, 11, 12, 17, 18, 19, 24 and 25 February 2010, 2, 3 and 4 March 2010 and 21, 28, 29 and 30 April 2010. Three submitters[1] were heard on 1 July 2008 at a hearing that provided an opportunity for submitters who wished to present all, or part, of their submission or further submission (which we refer to either as separate terms or as submission) on different topics at one time. The Hearing Panel at that hearing included the members of this Panel.

[1] Environment Network Manawatu, NZ Fire Service Commission and The Aggregate & Quarry Association of NZ.

8.2 Submissions and Further Submissions Received

The submitters and further submitters on Chapters 6, 13, 15 and 16 and Schedules B, C and D are listed below. Further submission numbers are those above number 473.

Submission No.	Submitter
50	Affco New Zealand Ltd - Manawatu (Affco Manawatu)
51	Affco New Zealand Ltd - Wanganui Imlay (Affco Wanganui Imlay)
166 and 486	AgResearch Limited
124	Alan Davison
296	Alan William Cooper
45	Alexander Bryan Wilfried James
350	Almadale Produce Ltd
234	Amberley Farm Trust
421	Andrew Edward Day
411	Andrew Hoggard
4	Andrew Maloney
259	Andrew Todd Blatchford
447	Angus Gordon
297	Anthony David Rogers
3	Anthony John Watson
464	Aohanga Incorporation
449	B S Young Ltd
454	Ballance Agri-Nutrients Ltd
96	Bert Judd
344	Brian Leslie Doughty
237 and 496	Bruce & Marilyn Bulloch
436	Bruce & Pamela Hodges
368	Bruce Noel Rhodes
252	Byford's Quarries Ltd
287	CPG New Zealand (formerly known as Duffill Watts Consulting Group) (CPG)
422	C R Grace, M Hurley, Hinau Station Ltd, Duncan Land Co Ltd, Te Kumu Estates Ltd, Otairi Station Ltd and A Hurley known jointly as "The Hunterville Hill Country Objectors"
126	Cammock Farms Ltd
101	Charlie Pedersen
181	Chris Teo-Sherrell
470	Colin Bond
276	Colin Kay
413	Cuttriss Consultants
378	Daniel Webb
225	David John Greenwood
382	David Leonard Hopkins
114	David Matthew Collis
348	David Young
524	Dean Gregory Sparkes
184	Dean Saddler Gower
20 and 479	Department of Corrections
262	Dermot Miller

443	Diana Baird
337	Donna Mummery
404	Drainaway Ltd
456	Ecologic Foundation
15	Eketahuna Community Board
356	Environment Network Manawatu
385	Environment Waikato
386	Environmental Working Party
501	Ernslaw One Ltd
431	Euan Hodges
426 and 533	Federated Farmers of New Zealand Inc (Federated Farmers)
33	Fish & Game New Zealand - Auckland/Waikato Region (Auckland/Waikato Fish & Game)
417 and 491	Fish & Game New Zealand - Wellington Region (Wellington Fish & Game)
398 and 487	Fonterra Co-operative Group Limited (Fonterra)
202	Forrest Chambers
402	Foundation for Arable Research Inc
290	Friends of the Earth (NZ) Ltd
299	G 4 B Trust
224	G M & S M Deadman Partnership
205	Garry Richard Philpott
268 and 525	Genesis Power Ltd (Genesis)
200	Geoffrey Kane
313	George & Christina Paton
441	George R Ross
300	Gordon George Kuggeleijn
146	Gordon Robert Gower
275	Graham Arthur Sexton
236	Hamlin Family Trust
331	Hancock Forest Management (NZ) Ltd (Hancock Forest Management)
160	Harvey James Falloon
376	Hew Dalrymple
153 and 504	Higgins Group (Higgins)
266 and 505	Himatangi Station Ltd
2	Hoane Titari John Wi
284	Hopkins Farming Group
182	Horizons Regional Council
280 and 515	Horowhenua District Council
381	Horowhenua District Council, Manawatu District Council, Rangitikei District Council, Ruapehu District Council, Tararua District Council and Wanganui District Council jointly
392	Horowhenua District Growers Association
232	Horowhenua Fruitgrowers Association
357 and 531	Horticulture New Zealand (Horticulture NZ)
283	Howard Murray Neil Walsh
367	Ian Grant & Anne Shirley Cumming
59	ICHYTHUS Consulting
277 and 512	Inghams Enterprises (NZ) Pty Limited (Inghams)
371	J M & L C Whitelock & B J & C J Whitelock
52	J N Tripe

298	James Arthur Chesswas
400	James Bull Holdings Limited
203	Jamieson Agriculture Ltd
13	Janita Stuart
125	Jeanette Marjorie Davison
323	Jeffrey Cooley
432	Jennifer Hodges
366	Jill Strugnell
293	Jim Stewart
474	Johannes Altenburg
355	John Batley
164	John Gardner
450	John Milnes on behalf of the Whanganui Branch of the Green Party
211	Julie Campbell
317	Kapiti Green Limited
364	Kelvin Douglas Lane
315	Kim Young and Sons Ltd
338	King Country Energy (KCE)
425	L M Terry
235	Landcorp Farming Ltd
440	Landlink Ltd
55 and 482	Livestock Improvement Corp Ltd (LIC)
77	Lyn Neeson
99	M J Guy
339	Malcolm Barry Scott & Jocelyn May Scott
433 and 506	Manawatu Branch of NZ Green Party
340 and 507	Manawatu District Council
312	Manawatu Estuary Trust
414	Manawatu On-Site Wastewater Users Group
148	Maraekowhai Whenua Trust, Tawata Whanau Trust, Ngati Tama o Ngati Haua Trust and Titi Tihu Farm Trust
281	Mark Thomas Woodruffe
231	Mars Petcare Limited
363 and 522	Meridian Energy Limited (Meridian)
286	Michael Sydney Burmeister
444	Middle Districts Farm Forestry Association
359 and 519	Mighty River Power Limited
412	Mike & Lynette Hoggard
473	Minister for the Environment
372 and 492	Minister of Conservation
43 and 478	Ministry of Education
179	Mountain Carrots NZ Ltd
423	Murray Charles Lowe
240	Murray Holdaway
102	Neil Alan Filer
35	Neville Pearson
458	New Zealand Contractors Federation
330 and 502	New Zealand Defence Force (NZDF)
415 and 499	New Zealand Fertiliser Manufacturers' Research Association Incorporated (Fert Research)
149	New Zealand Fire Service Commission
242	New Zealand Groundspread Fertilisers' Association Inc
353 and 518	New Zealand Historic Places Trust - Central Region

419	New Zealand Institute of Forestry
274	New Zealand Pharmaceuticals Limited
25 and 510	New Zealand Police
409 and 503	New Zealand Pork Industry Board
427	Ngā Pae o Rangitikei
180	Ngati Kahungunu Iwi Incorporated (NKII)
228	Ngāti Pareraukawa
227	Noel Olsson
123	Noel W Johnston
19	NZ Agricultural Aviation Association
319 and 520	NZ Forest Managers Ltd
306	NZ Recreational Canoeing Association
336 and 498	NZ Transport Agency (formerly known as Transit New Zealand)
22	Ohakune Growers Association
161	ONTRACK (New Zealand Railways Corporation) (ONTRACK)
214	Osflo Spreading Industries Ltd
341	Owen Bonnor
24	Pahiatua on Track Inc
241 and 481	Palmerston North City Council (PNCC)
457	Paul Barber
465	Paul James Mackintosh
438	Pescini Brothers
119	Peter & Gail Gower
7	Peter Clayton
250	Peter Graham Jackson
305	PF Olsen Limited
127	Philip James Hartridge
303	Pirie Consultants Ltd, Pacific Farms Ltd, Hoult Contractors Ltd, Keegan Contractors Ltd, Paranui Contractors Ltd, Ryman Healthcare Ltd, M & M Earthmovers Ltd, Titan1 Ltd and O'Hagan Contracting Ltd
408	Pohangina Valley Community Committee
278	Poplar Partnership Ltd
251 and 526	Poultry Industry of NZ; Tegel Foods Ltd; Turks Poultry & Mainland Poultry Group
272 and 528	Powerco Limited
11 and 477	Pritchard Group Limited
174	Public Health Services-MidCentral Health
430	Rachel Cvitanovich
279 and 494	Rangitikei Aggregates Ltd
346 and 517	Rangitikei District Council
379	Ravensdown Fertiliser Co-operative Limited (Ravensdown)
310	Rayonier NZ Ltd
201	Reginald Wilfred James
162	Riverside Agricultural Ltd
117	Robert John Castles
405	Robert Julian McVitty
5	Robyn Woollaston
103	Rod Southgate
23	Ronald John Frew
264	Ross Philip Hocken

460	Royal Forest & Bird Protection Society of New Zealand Inc (Forest & Bird)
104	Ruahine River Care Group
261	Ruahine White Water Club
151 and 495	Ruapehu District Council
246	Ruapehu Federated Farmers of New Zealand Inc (Ruapehu Federated Farmers)
380	Rural Women New Zealand
245	Russell Woodford Tillman
206	Sandra Rogers
254	Scott Gower
116	Sharn Hainsworth
64	Shaun Graham Forlong
267	Shell NZ Ltd, BP Oil NZ Ltd, Mobil NZ Ltd & Chevron NZ (oil companies)
178	Snow Country Gardens Ltd
177	Stephanie Rollinson
53	Stuart Dundonald Reid
176	Sustainable Whanganui
213	Tahamata Incorporation
238	Tanenuiarangi Manawatu Inc (TMI)
374	Taranaki / Whanganui Conservation Board
406 and 488	Taranaki Fish & Game Council (Taranaki Fish & Game)
172 and 500	Tararua District Council
527	Tararua-Aokautere Guardians Inc (TAG)
461	Te Iwi o Ngäti Tükorehe Trust
424	Te Runanga o Raukawa Inc
230	The Aggregate & Quarry Association of New Zealand Ltd (AQA)
307	The Energy Efficiency & Conservation Authority
282	Thomas Ree Woodruffe
265	Transpower New Zealand Ltd (Transpower)
358 and 511	TrustPower Limited
115	Vector Gas Limited
152	Visit Ruapehu
12	Waikato District Health Board - Public Health Unit
260	Walter Edward Blatchford
351 and 509	Wanganui Branch of the National Council of Women of New Zealand
291 and 532	Wanganui District Council
446	Wanganui Province of Federated Farmers Inc (Wanganui Federated Farmers)
469	Warren Davidson
311	Water and Environmental Care Assn Inc
100	Wayne Lawrence Shailer
26	Whiripo Land Co Ltd
61	White Heron (DVKE) Ltd
288 and 480	Winstone Pulp International Limited (WPI)
347	Woodhaven Gardens Ltd.

8.3 Reports, Evidence and Other Material

In terms of the Council, we received reports and evidence and heard in person from:

- Clare Barton, Senior Consultant Planner and Director of Environments by Design Ltd;
- Natasha James, a Policy Analyst with the Council;
- Dr Jon Roygard, the Council's Science Manager;
- Greg Carlyon, the Council's Group Manager - Regional Planning and Regulatory;
- Helen Marr, a planner and the Council's One Plan Manager;
- Jeremy Neild, Consultancy Manager for Agriculture Services Ltd;
- Tony Rhodes, a consultant with PGG Wrightson Consulting;
- Maree Clark, an Environmental Scientist - Water with the Council;
- Kate McArthur, a Senior Environmental Scientist - Water Quality with the Council;
- Barry Gilliland, a Policy Advisor with the Council;
- Dr Barry Biggs, General Manager of Operations with National Institute of Water and Atmospheric Research Ltd (NIWA);
- Max Gibbs, scientist, limnologist and environmental chemist with NIWA;
- Dr John Zeldis, Principal Scientist, Project Leader and Marine Group Manager with NIWA;
- Graham McBride, Principal Scientist with NIWA;
- Dr Robert Wilcock, Principal Scientist and Group Manager, Chemistry and Ecotoxicology with NIWA;
- Dr Roger Young, a freshwater ecologist with the Cawthron Institute;
- Dr Robert Davies-Colley, Principal Scientist - Aquatic Pollution with NIWA;
- Dr John Quinn, Principal Scientist - Aquatic Ecosystems with NIWA;
- Alison Russell, the Council's Environment Protection Manager;
- Logan Bowler, a Senior Environmental Compliance Officer with the Council;
- Hamish Lowe, Principal and Senior Environmental Scientist with CPG New Zealand Ltd;
- Harold Barnett, an Environmental Scientist with the Council;
- Sandy Ormiston, a consulting engineering geologist;
- Dr Brent Clothier, Science Leader of the Sustainable Land Use team of the Crown Research Institute of Plant & Food Research;
- Dr Alec Mackay, Principal Scientist and Programme Leader in the Climate, Land and Environmental Group of AgResearch;
- Dr Andrew Manderson, a Land and Environment Scientist with AgResearch;
- Peter Taylor, the Council's Coordinator - Plan Implementation;
- Bryan Guy, a local farmer and participant in a test FARM Strategy;
- Noel Johnson, a local farmer and participant in a test FARM Strategy;
- Jim Galloway, a local farmer and participant in a test FARM Strategy;
- John Barrow, a local farmer and participant in a test FARM Strategy;
- Lachlan Grant, co-director of LandVision Ltd, a land management consultancy company;
- Dr Mark Shepherd, a Senior Scientist with AgResearch;
- Dr Roger Parfitt, a Senior Scientist with Landcare Research;

- Dr Grant Douglas, Senior Scientist in the Climate, Land and Environment Group of AgResearch;
- Dr David Houlbrooke, a Soil Scientist in the Climate, Land and Environment Group of AgResearch;
- Dr Ross Monaghan, a Senior Scientist in the Climate, Land and Environment Group of AgResearch;
- Dr Stewart Ledgard, a Soil Scientist with AgResearch;
- Raelene Hurndell, an Environmental Scientist - Water Quantity with the Council;
- Dr John Hayes, a Senior Fisheries Scientist with the Cawthron Institute;
- Gordon Stewart, Director of AQUAS Consultants Ltd;
- Joseph Hay, a Freshwater Biologist in the Coastal/Freshwater Group of the Cawthron Institute;
- Brent Watson, a Senior Catchment Data Coordinator with the Council;
- Hisham Zarour, a Senior Scientist - Groundwater with the Council;
- Peter Callander, a Senior Hydrogeologist with Pattle Delamore Partners Ltd;
- James Lambie, an Environmental Scientist - Ecology with the Council;
- Allan Cook, the Council's Group Manager - Operations; and
- Peter Blackwood, the Council's Manager - Investigations and Design.

We received a section 42A report and supplementary reports and heard from John Maassen, resource management lawyer. We received a section 42A report from Fleur Maseyk, a Senior Environmental Scientist - Ecology with the Council in relation to overlap between water and biodiversity matters raised by PNCC. We also received written reports from Richard Thompson, meeting facilitator, on pre-hearing meetings that had taken place.

We received end of hearing reports and evidence including material from Mr Maassen and a number of Council witnesses and we heard from a number of them.

In terms of submitters, we heard in person from:

- Dr Terry Kelly (Chairperson of Environment Network Manawatu) and Sally Pearce for Environment Network Manawatu (1 July 2008);
- Charlotte Crack (Planner with Beca Carter Hollings & Ferner Ltd), Kerry Stewart (Risk Management Coordinator) and Mitchell Brown (Assistant Fire Region Commander) for NZ Fire Service Commission (1 July 2008);
- Amber Brown (Planner with Harrison Grierson Consultants Ltd) and Cobus van Vuuren (member) for AQA (1 July 2008);
- Sir Archie Taiaroa for Maraekowhai Whenua Trust, Tawata Whanau Trust, Ngati Tama o Ngati Haua Trust and Titi Tihu Farm Trust;
- Jackie Egan (Environmental Planner with NZ Forest Managers), Richard Heikell (North Island Environmental Manager with Ernslaw One) for NZ Forest Managers, Hancock Forest Management, Ernslaw One and PF Olsen;
- Paul Horton and Jonathan Procter for TMI;
- Maurice Black (Resource Management Consultant)) for NKII;
- Liz McGruddy (Environmental Officer), Neil Managh (pork producer) and Colin Kay (pork producer) for the New Zealand Pork Board Industry;
- George and Christina Paton for George and Christina Paton, Manawatu Estuary Trust and Water and Environmental Care Association;
- Stuart Reid;

- Marianne Mackintosh (Legal Counsel), Carmen Taylor (Planner with Golder Associates (NZ) Ltd) and Paul Kennedy (Principal Environmental Consultant with Golder Associates (NZ) Ltd) for WPI;
- John Harman (Chair) and Warren Davidson (Tararua District Councillor appointee) for Eketahuna Community Board;
- Dr Richard Garland (Managing Director), Andrew Lewis (General Manager) and David Bridges (Managing Director and Principal Engineer with Good Earth Matters Consulting Ltd) for New Zealand Pharmaceuticals;
- Bert Judd;
- Chris Fincham (Energy Supply Manager), David Schumacher (Environmental Planner with Ryder Consulting Ltd), Bill Armstrong (Environmental Manager with Todd Energy Ltd) and Paul Robinson (with Mangahao Power Station) for KCE;
- Jo Appleyard (Legal Counsel) and Catherine Clarke (Planner and Senior Principal with Boffa Miskell Ltd) for Meridian;
- Terina Warren for Ngā Pae o Rangitikei;
- Janita Stuart;
- Forrest Chambers;
- Mike and Lynette Hoggard;
- John Barrow (Spokesman), Andrew Hardie (Chairman), Kevin Harris and David Last for Ruahine River Care Group;
- Euan Hodges;
- Bruce Hodges for Bruce and Pamela Hodges;
- Geoffrey Kane;
- Noel Johnston;
- Murray Holdaway;
- Kelvin Lane;
- Richard Christie (General Manager of Strategic Development), Chris Hansen (Senior Planning Consultant with Sinclair Knight Merz Ltd) and Dr Antony Roberts (Chief Scientific Officer), as well as Greg Sneath who presented evidence for Fert Research, for Ravensdown;
- Philip Milne (Legal Counsel), Keith Hamill (Principal Environmental Scientist with Opus International Consultants Ltd), Andrew Bashford (Planning Officer), Chris Pepper (Water and Waste Services Manager) and Dr Jack McConchie (Principal Water Resources Scientist with Opus International Consultants Ltd) for PNCC*;*
- Nigel Sadlier (Environmental Manager) and Warwick Catto (Head of Agro-Sciences) for Ballance Agri-Nutrients;
- Greg Sneath (Technical Manager) for Fert Research;
- Richard Gardner (In-house Lawyer and Senior Policy Advisor), Dr Tessa Mills (Regional Policy Advisor), Gordon McKellar (President Manawatu Rangitikei Federated Farmers), Tim Matthews (Vice President Wanganui Federated Farmers), Andrew Hoggard (Vice President Manawatu Rangitikei Federated Farmers and National Dairy Executive of Federated Farmers), Lyn Neeson (President Ruapehu Federated Farmers), John Barrow (Tararua provincial dairy representative of Federated Farmers and Vice President of Tararua Federated Farmers), Hew Dalrymple (Vice Chairman - National Grain and Seed), Daniel Cammock (member), Mary Craw and Bernie Hughes (members), Mike Webster (Executive member - Manawatu Rangitikei Federated Farmers), Grant and Katrina Barber (members), Gerrit Arends (member), Mike and Kathleen Long (members),

Cedric Backhouse (member), Tom Pow (Director of Herd Homes Systems Ltd) for Federated Farmers;

- Lyn Neeson for Ruapehu Federated Farmers;
- Tim Matthews for Wanganui Federated Farmers;
- Paul Majurey (Legal Counsel), Bob Weir (General Manager - Production), Richard Matthews (Resource Management Adviser and partner in Mitchell Partnerships) and Jarrod Bowler (Contracts and Procurement Manager) for Genesis;
- Clare Hadley (Chief Executive Rangitikei District Council), Annette Sweeney (Principal Environmental Engineer with Good Earth Matters Consulting Ltd), David Bridges (Principal Engineer of Good Earth Matters Consulting Ltd), Braden Austin (Manager Community Assets with Horowhenua District Council), Richard Kirby (Assets Group Manager with Manawatu and Rangitikei District Councils), David Forrest (Principal Planner with Good Earth Matters Consulting Ltd) and Paul Kennedy (Principal Environmental Consultant with Golder Associates (NZ) Ltd) for Horowhenua District Council, Wanganui District Council, Rangitikei District Council, Ruapehu District Council, Manawatu District Council and Tararua District Council (TA Collective);
- Lara Burkhardt (Legal Counsel), Laura Peddie (Environmental Officer), Robert Schofield (Environmental Planner and Director of Boffa Miskell Ltd) for TrustPower;
- Nicky McIndoe (Legal Counsel), Sean Newland (Sustainability Strategist), Gerard Willis (planner and resource management specialist and Director of Enfocus Ltd), Dr Terry Parminter (Research Consultant in PACT Consulting Ltd and part-time Environmental Policy Advisor with Wellington Regional Council), Matthew Newman (Economist with DairyNZ), Dr Michael Scarsbrook (Development Team Leader - Sustainability with DairyNZ), Dr John Russell (Environmental Technical Manager) and Duncan Smeaton (Independent Agricultural Consultant and dairy farmer) for Fonterra;
- Ian Cowper and Michael Moodie (Legal Counsel), Joanne Munro (Policy Advisor), Kieran Murray (Economist and Managing Director of LECG Ltd), John Male (International Irrigation Service Line Leader and the NZ Group Manager for Waterways and Water Resources with GHD Ltd), Richard Peterson (Senior Associate and the Wellington Planning Manager of Harrison Grierson Consultants Ltd) and Andrew Collins (Director of Harrison Grierson Consultants Ltd) for Mighty River Power;
- David le Marquand (Director of Burton Planning Consultants Ltd) for Transpower;
- David le Marquand (Director of Burton Planning Consultants Ltd) for the oil companies;
- Nathan Baker (Senior Planner with Beca Carter Hollings & Ferner Ltd), Richard Barton (Group Environmental Manager) and Cobus van Vuuren for Higgins;
- Emily Grace (Resource Management Consultant with Tonkin & Taylor Ltd) and Rob Owen (Environmental Manager - Joint Logistics and Support Organisation) for NZDF;
- Andrew Day;
- Hamish Lowe (Principal and Senior Environmental Scientist), Peter Hill (Senior Environmental Adviser) and Katie Beecroft (Environmental Scientist) for CPG;

- Hamish Lowe (Principal and Senior Environmental Scientist with CPG) who also read a statement by Lloyd Miles, Andrew Wright (Owner and Director of Wright Tanks Ltd), Paul Siggs (member) and Dave Miller (Registered Designer) for Manawatu On-Site Wastewater Users Group;
- Andrew Hoggard;
- Helen Atkins (Legal Counsel), Chris Keenan (Manager for Resource Management and Environment), Dr Sonia Whiteman (Vegetable Research & Innovation Manager), Peter Ensor (Business Manager), Andrew Barber (Agriculture Engineering Consultant and Director of AgriLINK), Lynette Wharfe (Consultant with The Agribusiness Group), Emma du Fresne (Director of Woodhaven Gardens), Ian Corbett (potato grower), Hamish Macdougall (Horowhenua Fruitgrowers Association), Peter Frew (Chair of Ohakune Growers Association) and Stephanie Rollinson (Snow Country Gardens) for Horticulture NZ;
- Phillip Teal (Regional Manager), Neil Deans (Manager Nelson Marlborough Fish and Game Council), Bryce Johnson (Chief Executive of NZ Fish and Game Council), Dr Neels Botha (Social Research Team Leader with the Agriculture and Environment Group at AgResearch), Dr Mike Joy (Senior Lecturer in Ecology and Environmental Science at Massey University), Jim Cook (angler), Peter Coles (angler), Dr Terry Kelly (angler), Gary Williams (Consultant Engineer), Dr Ian Fuller (Senior Lecturer in Physical Geography at Massey University), Dr David Broad (angler), Steve Pilkington (Senior Fish and Game Officer), Associate Professor Russell Death (Associate Professor in Freshwater Ecology at Massey University) and Corina Jordan (Environmental Officer) for Wellington Fish & Game;
- Matt Gardner for Ruahine White Water Club;
- Dr Mike Joy (Senior Lecturer in Ecology and Environmental Science at Massey University), Associate Professor Russell Death (Associate Professor in Freshwater Ecology at Massey University) and Joan Leckie for Forest & Bird; and
- Eleanor Jamieson (Legal Counsel), Julian Watts (Resource Management Planner) and Logan Brown (Freshwater Technical Support Officer) for the Minister of Conservation, who also adopted the evidence of Mr Williams and Dr Fuller who presented evidence on behalf of Wellington Fish & Game.

Some witnesses called by KCE seemed to be dealing with matters beyond those raised in KCE's submission. When we asked about that, we were told that KCE witnesses were speaking on behalf of Meridian as well. However, Ms Appleyard, who appeared for Meridian, denied that. Accordingly, we have considered the matters raised by the KCE witnesses only to the extent that they relate to the issues raised in KCE's submission.

We also received written evidence, legal submissions or material that was not presented orally at the hearing from:

- Brenda O'Shaughnessy (Planner with Opus International Consultants Ltd) for the Ministry of Education;
- Graeme Mathieson (Environmental Planning Consultant with Environmental Management Services Ltd) for AgResearch and LIC;
- Gemma Moleta (Planner with Harrison Grierson Consultants Ltd) for Poultry Industry Association of NZ and others;

- Anne-Marie Westcott (Team Leader Environment with Ruapehu District Council), David Cameron (Environmental Scientist with MWH NZ Ltd) and Brendan Duffy (mayor of the Horowhenua District) for the TA Collective.

In response to matters raised by the Panel, we also received additional evidence or material from a range of people, including Greg Sneath, Richard Heikell, Robert Schofield, Nicky McIndoe, David le Marquand, Julian Watts, Dr Tessa Mills, David Forrest, Richard Matthews, Phillip Teal, Damian Coutts (Conservator) for Minister of Conservation, Richard Gardner, Marianne Mackintosh and Lynette Wharfe.

We also considered relevant material from other hearings.

8.4 Evaluation and Reasons

The following sections of this Part set out our evaluation of the submissions and our reasons for accepting or rejecting them. The evidence and submissions are not summarised in any detail in this decision. However, specific matters are referred to as appropriate.

We deal first with legal matters and then the principal issues of contention. We then deal with remaining issues of contention, generally using the same headings as were used in the respective POP chapters or in Volume 2. Where we have omitted a heading, it was because we concluded that no evaluation under that heading was needed.

Where we have dealt with a topic in principal issues of contention, we do not repeat the reasons in the remaining issues.

In some cases, submitters raised the same matter in their submissions on several different parts of the POP chapters. For the sake of brevity, we do not repeat our evaluation of those matters under multiple POP chapter headings. Instead, we generally address the matter when it is first raised.

In addition:

(a) some submissions may be coded under one heading in Volume 2 (or in some cases in a different Part of Volume 2 eg Part 2 Overall Plan Hearing) but the relevant reasoning may be dealt with here under a different heading; and

(b) some matters dealt with under one heading may be relevant to other provisions or have general applicability across the chapters and so may have resulted in changes shown in Volume 3 in various provisions.

Submitters should therefore carefully read all components of the decision including this Part and Part 1 of this Volume, the relevant Parts of Volume 2 and the relevant POP provisions in Volume 3 (clean version in Volume 4) to see how their concerns have been dealt with.

In relation to Schedule D, considerable material has been moved from it to new schedules (Schedules AA or AB) and the order has also been changed. As noted in Part 1 of this Volume, the base material from the POP has not been shown as deleted in Schedule D. It has been moved to the new schedule and is shown as deleted in that location. The relevant page

reference from the POP as notified has been added to the inserted or deleted pages so people can identify where the provision was in the POP as notified.

General matters that cross all hearing topics, such as the adequacy of consultation in the POP process for all chapters, are dealt with in Part 2 (Overall Plan Hearing) of this Volume. We therefore do not deal with consultation issues, or the adequacy of consultation, in this decision.

8.5 Legal Matters

Chapter 6 forms part of the Regional Policy Statement (RPS) portion of the POP and Chapters 13, 15 and 16 form part of the Regional Plan. Part 1 of this Volume discusses a range of legal matters and refers to provisions relevant to the RPS and the Regional Plan. We do not repeat them here.

The National Policy Statement on Electricity Transmission 2008 is relevant and we have given effect to it. By way of example, there are cross-references to Chapter 3 in relevant decision-making policies. Chapter 3 has a number of relevant provisions, including Policy 3-1(a)(ia) which provides that the Regional Council and territorial authorities must recognise the National Grid, among other things, as being a physical resource of regional or national importance.

We considered the proposed National Policy Statement for Renewable Electricity Generation, which sets out the objectives and policies for managing renewable electricity generation activities under the RMA, but were conscious that it is not operative.

We also considered the proposed National Policy Statement for Freshwater Management, but were conscious that, to date, this has not been progressed.

In terms of Part 2 of the RMA, in addition to s 5, s 6 (a), (c), (d), (e), (f) and (g), s 7(a), (aa), (b), (c), (d), (f), (g), (h), (i) and (j) and s 8 are relevant.

In relation to ss 61(2A)(a) and 66(2A)(a), we are aware of the two documents: "Ngati Rangi Waterways Document" (2002) and "Ngāti Tūwharetoa Environmental Iwi Management Plan" (2003) referred to in the Te Ao Māori hearing. In Appendix 7 of the "End of hearing statement of Helen Marr for the Te Ao Maori hearing", Ms Marr provided a detailed assessment of how the provisions of those two documents linked to the POP provisions. We are satisfied that those two documents have been taken into account in an appropriate manner.

We also note the relevant provisions in ss 66 to 70 in relation to regional plans. In accordance with s 67(4)(a), the provisions of the POP are not inconsistent with the relevant water conservation orders.[2] The rules in the POP as notified did not include any statement under s 68(7) and that remains the case. We deal with s 69 in section 8.6.5 of this Part. We are satisfied that the rules are in accordance with s 70(1). In terms of s 70(2), while there are

[2] The National Water Conservation (Manganui o te Ao River) Order 1988 and Water Conservation (Rangitikei River) Order 1993.

policies that refer to the best practicable option[3], no rule requires the adoption of the best practicable option.

An issue arose in relation to s 67(6) and incorporating material by reference under Part 3 of Schedule 1 to the RMA. The issue was whether material to be incorporated by reference could change during the process. In many cases this would not be an issue as the document being incorporated would be a publication that would not be open to a council to change. However, in this case, the Council sought to incorporate by reference some Council-prepared documents. Submitters had sought changes to those documents and the Council was prepared to make many of those changes. In light of legal advice from Mr Maassen and oral advice from Ms Atkins, we have reached the conclusion that the documents can change during the process. As the documents had identified authors, we decided that it was not appropriate for us to alter them unilaterally. Where we have wanted additional changes to the documents, we have sought those changes and the Council has been prepared to make them. The versions of the documents to be incorporated by reference, which show the changes from the original documents in underline and strikethrough, are in Volume 5.

A number of other legal issues arose in the context of specific issues and we deal with them there.

8.6 Principal Issues of Contention

8.6.1 Placement of policy provisions in Part I or Part II

Chapter 6 of the POP as notified contained a coherent suite of policy provisions relating to water management issues. Chapter 6 forms a component of Part I of the POP which is the Regional Policy Statement. Chapters 13, 15 and 16 of the POP set out the rules for water-related resource management use and development. Those chapters form a component of Part II of the POP which is the Regional Plan.

The Region's territorial authorities were concerned that the Part II chapters were devoid of an appropriate level of policy guidance. In an early memorandum of counsel, received before any of the POP hearings began, Mr Green summarised the territorial authorities' position when he referred to "an absence of guiding policies within the Regional Plan and a 'disconnect' between the RPS and that Plan".[4]

In response to the submissions of the territorial authorities, the officers recommended to us that a large number of the policies in Chapter 6 be relocated to Chapters 13, 15 and 16.[5]

We have considered the submissions of the territorial authorities and we have decided to accept them in part. We note that the Part II chapters of the POP as notified (Chapters 13, 15 and 16 in this case) did contain policies intended to guide decision-makers assessing resource consent applications. We find that to be an appropriate approach and one that is consistent with s 67(1)(b) of the RMA. We also note that under s 104(1)(b) of the RMA decision-makers

[3] Policies 6-8, 6-9, 13-1 and 13-2.
[4] Cameron and Green, Memorandum, undated but accompanied by a letter dated13 May 2008, para 3.
[5] Track Changes - Supplementary Officers' Report for Water - Pink Version - 23 November 2009.

must have regard to any relevant provisions of a regional policy statement or proposed regional policy statement and a plan or proposed plan. In our view, it is not necessary or appropriate for Part II of the POP, the Regional Plan, to contain a full suite of outcome-oriented policies that would do little more than unnecessarily repeat the policy provisions in Part I of the POP, the Regional Policy Statement. This is, after all, supposed to be a One Plan document.

We are also of the view that the officers recommended moving too many of the Chapter 6 policies into Chapters 13, 15 and 16. This disrupted the previously coherent and integrated nature of Chapter 6. We have, however, decided that some Chapter 6 policies should be moved into Chapters 13, 15 and 16. If a Chapter 6 policy was written in such a manner that it sought to provide detailed guidance on consent decision-making then we have relocated it into Part II of the POP.

The policies that we have relocated and their new locations are as follows:
(a) 6-10 now Policy 13-2B;
(b) 6-14 now Policy 15-1A;
(c) 6-22 now Policy 15-2A;
(d) 6-24 now Policy 15-2B;
(e) 6-25 now Policy 15-2C;
(f) 6-26 now Policy 15-2D; and
(g) 6-32 now Policy 16-2A.[6]

8.6.2 Objectives in Chapters 13, 15 and 16

A related issue to that discussed in section 8.6.1 is the lack of objectives in Chapters 13, 15 and 16 in the POP as notified. This matter was also raised by the territorial authorities. We note that s 67(1) of the RMA states that a regional plan must state the objectives for the region. While the POP as notified did have an objective in Chapter 11, we have decided that we should insert an objective into each of Chapters 13, 15 and 16. We used the wording recommended to us by the officers[7] as a starting point, but we amended the wording in each case to achieve consistency.

The inserted objectives state how the regulation of the relevant activities will be undertaken by requiring decision-makers to have regard to a number of outcome-focused provisions of the POP, including the Water Management Zone and Sub-zone Values and management objectives in what is now Schedule AB, the relevant objectives and policies of Chapter 6 and, for Chapter 13, the requirements of s 5(2)(c) of the RMA with regard to the effects of discharges to land.

We find that this level of guidance, coming as it does in addition to the more detailed objectives contained within Chapter 6, is appropriate for a combined regional policy statement and regional plan document such as the POP.

8.6.3 Consent expiry and review (priority or preference)

Chapter 15 as notified contained Policy 15-5 which was titled “Consent review and expiry”. The policy was apparently intended to guide decision-makers in terms of the allocation of water when resource consents to take water were

[6] Note that we have drafted a new Policy 6-32 in response to submissions as discussed in section 8.6.26 of this Part.
[7] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010.

subject to review or were expiring. The policy sought to allow takes according to a priority list which commenced with permitted activity takes and ended with all other new resource consent applications.

There were a large number of submissions on Policy 15-5 seeking a wide range of outcomes. For example, some submitters sought to have particular additional activities included in the policy.[8] Some sought to elevate the status of community water supply takes.[9] Similarly, others sought to elevate the status of hydroelectricity generation takes.[10] Some submitters wished to see particular activities removed from the policy.[11] Others sought that the policy be deleted.[12] Some submitters supported the policy.[13]

The matter of Policy 15-5 was further complicated by the fact that it cross-referenced the common catchment expiry dates included in Table 11.1 (we note that was an incorrect cross-reference and it should have been to Table 11.2). Table 11.2 is now located in Chapter 11A as Table 11A.1 and it is accompanied by Policy 11A-5 (which is a mix of former Policy 2-2 and Policy 11-4).

Meridian was a further submitter on Policy 15-5. Ms Appleyard submitted to us that, through Policy 15-5, the POP attempts to set "a direction to decision makers to set an '*order of priority*' for considering what might otherwise be competing resource consent applications ... it is extremely difficult to see how this would work in practice .... There is not a single policy or objective directed to assisting Council Officers and decision makers make a comparative assessment of any competing application received at the same time - and nor do the proposed rules address how the two or more applications might be assessed."[14]

Ms Appleyard's view was that Policy 15-5 could not overturn the "first in first served" principle for competing applications established by the Courts in the *Fleetwing*[15] and *Central Plains*[16] cases.

Mr Maassen addressed this matter in the officers' End of Hearing report. He distinguished between "priority of hearing" and "priority of merits". He advised "In relation to priority of hearing, priority is to be determined based on the time a complete application is lodged."[17] He was therefore in agreement with Ms Appleyard on that matter. However, he went on to advise that in his view Policy 15-5 was designed to inform decision-making under s 104 regarding the granting or declining of water take applications. In answer to our questions, he seemed to be saying that it would be appropriate for a decision-maker to decline an application for, say an irrigation take, if there was a competing application for, say, a public water supply take, further down the "first in first served" queue of applications and the granting of the public water supply take would better promote sustainable management than the granting of the

8 Hamlin Family Trust and over twenty other submitters who sought to include "food manufacturing" in (b)(iv).
9 Wanganui District Council, Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Ruapehu District Council.
10 TrustPower, Mighty River Power.
11 Fonterra sought to delete "freezing works" from (b)(iv).
12 Winstone.
13 Wellington Fish & Game.
14 Appleyard, Synopsis of Submissions (legal submissions), 10 February 2010, pages 3 and 4 paras 13, 14 and 16.
15 *Fleetwing Farms Limited v. Marlborough District Council* [1997] NZRMA 385.
16 *Central Plains Water Trust v. Synlait Limited* [2009] NZCA 609.
17 Maassen, Final Section 42A Legal Report, 6 April 2010, page 32 para 61.

irrigation take. This would be the "priority of merits" in the context of s104 of the RMA and deciding whether or not granting consent would serve sustainable management.[18] Mr Maassen further advised that any overlapping appeals by either applicant would be considered concurrently by the Environment Court and the Court would then allocate the available water resource as it saw fit.

In terms of these matters, we note that the matter of priority for competing applications is currently before the Supreme Court (commonly referred to as the *Synlait* case). We remain unclear how Policy 15-5 would work in practice and how it could be used to justify declining a water take application that had a higher priority for hearing than a subsequent application for a supposedly more meritorious end use. We are of the view that Policy 15-5 mixes up the concept of priority for a hearing with the concept of preferential end use of water in a somewhat confusing manner. We also note that Policy 15-5 overlaps with Policy 11A-5.

We have therefore decided to accept the submission of WPI and delete Policy 15-5.

If the Council truly desires to establish a water allocation regime and an accompanying policy and rule framework that establishes a hierarchy of preferences for the end use of water, then we suggest it do so through a properly considered and drafted suite of policies and rules by way of Plan variation or change.

8.6.4 Schedule D (AB) Values

The POP as notified took a Values-based approach to setting water quality outcomes. The Region's water bodies were delineated into Water Management Zones and Sub-zones and a series of Values ascribed to each Sub-zone.

Mrs McArthur advised "Four value groups and twenty-two values are proposed for the Region's water bodies. Some values apply to all water bodies within a Water Management Zone or Sub-zone and others apply to identified river reaches or sites. The values, which are applied spatially over the Water Management Zones framework, underpin the objectives, policies, rules and non-regulatory methods for the sustainable management of water resources and land use activities that have the potential to affect water body values."[19]

We find that to be an innovative and beneficial resource management approach. Having said that, we do agree with comments from some submitters that there is little by way of help in the POP to resolve what are, in a number of cases, potentially conflicting Values. However, we decided that there was little that we could do to address that matter. It is more properly addressed by a Plan variation or change or left to be resolved in the particular facts of a case.

The various Values and their locations were included in Schedule D as notified in Tables D.1 and D.2, with additional information on pages D-19 to D-79. For ease of Plan use, we have relocated them to a new Schedule AB (the Water

[18] Ibid, pages 32 - 33 paras 61- 62.
[19] McArthur, Section 42A Report, undated, page 8 para 15.

Management Zones and Sub-zones are delineated in a new Schedule AA). The water quality standards (now called targets) remain in Schedule D.

There were a range of submissions on the Schedule D Values. Some submitters sought specific amendments to various provisions whereas others sought a full review of the Values and management objectives "... on the basis of full cost benefit analysis taking into account site specific scientific consideration, economic considerations for the region and on the basis of clear evidence linking existing water quality and practices, proposed water quality standards ...".[20]

In response to these submissions, the officers undertook a comprehensive review of the Values and management objectives and then caucused with submitters regarding the resultant amendments. We note that to be an appropriate response to the submitters' concerns. The establishment and review of the Values and management objectives is a technically complex process. Therefore, we have confined our evaluation to residual areas of disagreement between the officers and the submitters. If there is no disagreement then we have generally accepted the officers' recommended amendments, although we note some exceptions to that general approach here.

In their End of Hearing Report, the officers advised "Tanenuiarangi Manawatu Inc seeks the addition of Sites of Significance - Cultural (SOS-C) Value for specific sites known to Tanenuiarangi Manawatu Inc for the Middle and Lower Manawatu, Coastal Manawatu and Oroua River, and for coastal lakes. The Track Changes document includes additional provisions within Schedule Ba relating to SOS-C to address sites that have been identified by Tanenuiarangi Manawatu Incorporated (TMI). The changes have been prepared in conjunction with TMI. Submission 238/16 from TMI provides scope for the change."[21]

We accept that submission 238-16 provides scope for the insertion of the Sites of Significance - Cultural sought by TMI for Mana 10, 11, 12 and 13, which were referred to in the submission, so we have inserted those. We do not accept that scope exists for any other area, so have not included any.

The officers further advised "Additional SOS-C sites have been identified by Ngati Kahungunu Iwi Incorporated and have been included in the Track Changes document. The changes have been prepared in conjunction with Ngati Kahungunu Iwi Incorporated. It is considered that submission 180/81 from Ngati Kahungunu Iwi Incorporated provides scope for the inclusion of these sites."[22]

We do not accept that there is scope for the amendments suggested by the officers, despite legal advice to the contrary, and we have not included such sites.

A listing and explanation of the other changes made to Schedule AB (called Schedule Ba by the officers) together with the scope within submissions to make those changes, was included in the officers' End of Hearing

[20] Pedersen and over twenty other submitters.
[21] McArthur and others, End of Hearing Report, undated, page 156.
[22] Ibid.

documentation.[23] We have generally accepted those changes as we understand that they are not opposed by any submitter. We note some of the amendments are required to correct errors.

We have however made some further amendments to Schedule AB as follows. We have amended and clarified the introductory wording to the schedule, reintroduced the legend explaining the various Zone-wide and site or reach-specific Values and renumbered the various tables. We have added "or use, including for hydroelectricity generation" to the management objective for Industrial Abstraction in Part AB.3, as discussed in section 8.6.20.

We have carefully checked the "tick boxes" in Schedule AB to ensure that they faithfully duplicate the "tick boxes" that were included in Schedule D as notified or were referred to in Table D.1 of the POP as notified. We have not made any amendments to those "tick boxes" unless they can be attributed to Table D.1 of the POP as notified, specific submissions, technical amendments referred to in the officers' reports or correcting errors. Where changes are in response to submissions, the relevant submissions are identified in the officers' End of Hearing documentation referenced above. An example would be the amendment to the Trout Fishery class on the Whakapapa and Ongarue sought by Auckland/Waikato Fish and Game.

Some of the figures have been revised (eg Trout Spawning and Trout Fishery) to show more accurately the information that was in the accompanying table in the POP as notified, particularly in relation to tributaries.

We have deleted the Value of Amenity. The POP as notified showed this as a Zone-wide Value but only applied it to certain rivers. Mrs McArthur advised "The Amenity value applies to site or reach specific areas of water bodies. The management objective of this value is 'The amenity values of the water bodies and their margins are maintained or improved'. This value applies to the general recreational use of streams, rivers, lakes and their margins for a number of activities such as walking, fishing, hunting, swimming, or passive use. Table D.2 applies Amenity as a zone-wide value. This should be corrected to reflect the site or reach specific nature of the application of this value in Schedule D of the POP."[24]

We note that Mrs McArthur's description of amenity applies mostly to activities undertaken outside of the river bed. The only instream activities listed relate to fishing or swimming. However, fishing is provided for by the Trout Fishery Value and swimming is provided for by the Contact Recreation Value. The Amenity Value therefore seems somewhat redundant.

We also consider that restricting the Value of Amenity to certain reaches of rivers to be incorrect and misleading given the wide definition of "amenity values" in the RMA. The POP approach indicates that only the identified rivers have "amenity values" in an RMA context. Because the values are already included in Trout Fishery and Contact Recreation, and because of the potentially misleading nature of having a site or reach-specific Value of Amenity, we have deleted it.

[23] Proposed One Plan - Appendix I of the Report on Scope for Water Chapter Recommendations.
[24] McArthur, Section 42A Report, August 2009, page 23 para 68.

We have moved Aesthetics to be a Zone-wide Value. Mrs McArthur advised "Aesthetics is a site and reach specific value that recognises the aesthetic, landscape or natural values associated with particular water bodies .... River reaches that were identified in the operative Regional Policy Statement but not included in Schedule F of the POP have been given this value to allow for continued recognition of the aesthetic qualities of these sites and reaches."[25]

In our view, the officers have confused the aesthetic value of a river's margins and catchment (which could have been addressed in Schedule F of the POP) with the aesthetic value of the river and its bed, which is a proper Schedule AB matter. In our view, all rivers and their beds have aesthetic value to a greater or lesser degree and so we have amended Aesthetics to be a Zone-wide Value and ticked the boxes. Ideally, all water bodies would have been assigned a graded Aesthetics Value (similar to the graded approach taken for Trout Fishery perhaps).

The Council may wish to address the Amenity and Aesthetics Value issues that we have raised by way of Plan variation or change.

We note that we have amended the contents of Table 6.2 titled "Surface *Water*^ Management Values and Management Objectives" so that the description of the Values and management objectives within it are the same as those found in the Surface Water Management Values Key in Part AB.3 of Schedule AB.

In that regard, we also note that the definition of Natural State in the POP as notified (page D-20) referred to "rivers". The amended definition of Natural State as set out above Table AB.2 in Schedule AB refers to "*rivers*^ and their *beds*^". Therefore, for the sake of consistency, we have amended the wording of the Natural State management objective in Table 6.2 and the Surface Water Management Values Key to refer to "*river*^ and its *bed*^" instead of "waterbody".

We have also clarified which Values apply to the water body and which also include the bed.

8.6.5 Schedule D Standards

In the POP as notified, Schedule D contained a suite of water quality standards for rivers and lakes (Tables D.16 to D.20 on pages D-80 to D-92).

Dr Roygard advised us "The water quality standards approach for the Proposed One Plan aims to define the appropriate thresholds for managing water resources in relation to the values of that water body. The development of water quality standards builds on the Water Management Zones and values framework for integrated catchment management. The technical brief for this project from Horizons' policy team was to define the standards specifically and numerically. The aim was to provide in the POP clear thresholds to protect the values of the water body and to provide certainty for all involved in the management of the resource."[26]

[25] Ibid, page 26 paras 77 and 78.
[26] Roygard, Section 42A Report, August 2009, page 109 para 208.

The coding of the submissions could give the impression that there were remarkably few submissions directly on the Schedule D water quality standards given their importance. However, there were submissions about Schedule D that were coded under topics other than the specific water quality provisions that sought that Schedule D be deleted.[27] WPI's submission, coded under the water quality provisions, also sought that Schedule D be deleted.

Some submitters sought that "The Schedule D standards should be used as a guide only not applied disregarding whether environmental benefit is achieved."[28] The territorial authority submitters went on to say that in their view "In this regard, Table 16 of Schedule D ... is unnecessary."[29]

Other submitters supported the water quality standards and wished them to be retained.[30] Only a few submitters sought specific amendments to the actual definitions and numerical values of the standards.[31] WPI requested that if the Schedule D standards were not deleted that they instead "be amended so that they more appropriately reflect existing water quality ...". [32]

However, there were other submissions on Chapter 6 of the POP that raised issues with the Schedule D standards. For example, Mr Bashford advised us "In terms of Chapter 6, PNCC submitted that it has serious reservations to the proposed approach of the One Plan regarding water quality and water quantity and made specific comments as follows: PNCC strongly opposes the water quality standards applying to the Manawatu River, in particular the Lower Manawatu River Management Zone, and policies 6-2, 6-3, 6-4, 6-8 and 6-12 of the One Plan as they are not consistent with the purpose and principles of the RMA 1991 .... PNCC submits that Horizons has not adequately considered whether the proposed water quality standards for the Manawatu River are the most effective and efficient means of achieving the objectives of the One Plan with respect to water quality, as it is required to do under section 32 of the RMA 1991."[33]

In response to submissions, we have discerned two principal issues of contention:

(a) Are the Schedule D "standards" s 69 RMA standards or just guidelines?
(b) What should the numerical values of the standards (targets) and the wording of the definitions be?

We address these matters in turn.

8.6.5.1 Are the Schedule D "standards" s 69 RMA standards or just guidelines?

Apart from some technical concerns addressed in the evidence of Mr Hamill, PNCC was mainly concerned about whether or not the Schedule D standards were intended to be standards under s 69 RMA or not.

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27 See, for example, Ruapehu Federated Farmers submission 246-30; Horticulture NZ submission 357-54; Meridian submission 363-209; Federated Farmers submission 426-235.
28 New Zealand Pharmaceuticals, Wanganui District Council, Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Ruapehu District Council.
29 See, for example, Wanganui District Council, submission 291-58.
30 Taranaki Fish & Game, Wellington Fish & Game.
31 Horizons Regional Council, Manawatu District Council, Mighty River Power, PNCC.
32 WPI, submission 288-44.
33 Bashford, Statement of Evidence, 16 October 2009, pages 7 - 8 para 26 (bullet points and italics removed by us).

Mr Milne summarised PNCC's concerns that "it is unclear whether the water quality standards included in the One Plan are intended to be standards in terms of section 69 of the RMA, or targets, or something else ... The effect of section 69 is that if the Plan states that waters are to be managed for particular purposes as set out in schedule 3 **and** if the Plan includes rules about the quality of water, then the rules must require the observance of the standards in the third schedule or some higher standards. The net result seems to be that in order to comply with section 69 the Plan would need to ... have a rule **prohibiting** all discharges to waters which would trigger a breach of the standards. It is clear that this was not the Regional Council's intention since the rules do not work that way. There are no rules stating the prohibitions that would be required if the rules in the Plan were to be interpreted as triggering section 69 ... We understand that Horizons officers have indicated that the standards imposed in the One Plan are not intended to be section 69 standards, but rather that they are objectives or targets (in the nature of guidelines)."[34]

To address these concerns, Mr Milne suggested that "the policies (in particular policies 6-3 to 6-5 and 13-6) should be amended so that each reference to Schedule Ba [now Schedules AA and AB] and Schedule D *standards* refers instead to "*water quality targets*" .... the introductory wording in Schedule Ba and Schedule D should be amended to clearly label the schedules' contents as being targets".[35]

Mr Maassen addressed this matter in the End of Hearing reports. He advised "In the present case, Schedule D is a quantitative statement of what is required to meet the values applicable to each Water Management [S]ub-zone."[36] Mr Maassen seemed to be telling us that the Schedule D standards were not standards in terms of s 69 RMA as he added "... for section 69 to apply there is a second leg required (section 61(1)(b)) that there are rules in a plan requiring observance of the standards".[37]

In terms of these matters, we note that the background water quality in the Region's rivers exceeds the Schedule D standards in some cases. It is therefore nonsensical to require discharge activities to comply with the Schedule D standards in all cases. This is the same problem that plagued the implementation of the operative Manawatu Catchment Water Quality Plan. We therefore accept the submissions of PNCC and we find that the Schedule D standards are not intended to be standards in terms of s 69 RMA, notwithstanding the fact that several of the Chapter 13 rules require compliance with the Schedule D standards.[38]

We have therefore decided that the Schedule D standards should be renamed as "targets" wherever they are referred to throughout the Plan. While we have amended the Schedule D "standards" to be "targets", we use the word "standards" in this Part as that term was used in the POP as notified.

[34] Milne, Legal Submissions, 12 February 2010, page 2 para 2.1, page 3 paras 2.4 - 2.5, page 4 para 2.8.
[35] Ibid, pages 5 - 6 para 2.15.
[36] Maassen, Final Section 42A Legal Report, 6 April 2010, page 41 para 77.
[37] Ibid, para 78.
[38] Milne, Legal Submissions, 12 February 2010, page 4 para 2.10.

8.6.5.2 What should the numerical values of the standards (targets) and the wording of the definitions be?

Mrs McArthur helpfully explained at some length how the Schedule D water quality standards were derived.[39] We do not intend to repeat any of that detail here as, due to the technical complexity of these matters, we intend only to focus our attention on any remaining areas of dispute. The definitions that relate to the standards are in what the officers developed as a fold-out key at the back of Schedule D.

In response to submissions, particularly those of WPI and PNCC, Mrs McArthur explained how the Council had the Schedule D standards reviewed by a range of experts. We received separate evidence from these experts.[40] The experts' advice led Mrs McArthur to recommend a number of changes to the numerical values and the associated definitions in Schedule D. We note that caucusing then occurred between the Council's experts and those of WPI and PNCC in particular.[41]

In that regard, we received a caucusing report which advised that the remaining areas of technical disagreement related to the standards for temperature change, periphyton, dissolved reactive phosphorus, soluble inorganic nitrogen, QMCI and ammoniacal nitrogen.[42] We understand that, following this November 2009 report, further caucusing was undertaken which resulted in agreement being reached on these matters other than for the wording of the definition for the QMCI standard[43] and residual concerns expressed by Mr Kennedy about the application of the ANZECC Guidelines, which he did not want to pursue. We confirmed that to be the case with the WPI and PNCC representatives when they appeared at the hearing.

There had been disagreement about some matters among the experts appearing on behalf of the Council in relation to standards for water clarity, faecal indicator bacteria and cyanobacterial toxins in lakes. However, as part of the End of Hearing reports, we received a memorandum advising that agreement had been reached."[44]

We understand that all other areas of technical disagreement between the Council and the submitters have been resolved, with the agreed position being as shown in the End of Hearing recommendations regarding Schedule D.[45]

We have reviewed the March 2010 memorandum and note that the only relevant matters for us to consider are those relating to lake water clarity and lake cyanobacterial toxin standards. The other matters relate to water in the coastal marine area and are addressed in Part 6 (Coast Hearing) of this Volume.

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39 McArthur, Section 42A Report, August 2009, pages 64 to 96.
40 Wilcock, Zeldis, Quinn, Young, Biggs, Gibbs, Davies-Colley.
41 Kennedy for WPI and Hamill for PNCC.
42 Thompson, Report of a Meeting Between Experts, 10 November 2009.
43 Hamill, Supplementary Evidence, February 2010, paras 3.4 and 3.9.
44 McArthur, Zeldis, Davies-Colley, Gibbs and McBride, Memo to the Water Hearing Panel Outlining Expert Agreement on Water Quality Standards for Rivers, Estuaries and Lakes, 15 March 2010.
45 Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, pages D-1 to D-16.

In terms of the relevant areas of residual disagreement, we note that the memorandum advised:

> Dr Davies-Colley and Mr Gibbs have agreed that the minimum visual water clarity standard for lakes, measured using a black disc, should be 2.1 metres (c.f. 2.8 m recommended value) in deep lakes and 1.2 metres (c.f. 0.8 m recommended) in shallow lakes. In deep lakes a minimum visibility of 2.1 metres protects the visual environment for fish and birds, as well as for human recreation. In shallow lakes, which are frequently turbid because of wind-wave disturbance of bottom sediments and/or algal growth, a visibility of 1.2 metres is minimal for safe contact recreation;[46]

and

> Mr Gibbs and Mrs McArthur have agreed that it is appropriate for cyanobacterial toxins to remain absent from the lakes water quality standards (as recommended in the pink pages version of Schedule D) because reducing the adverse effect of toxins on lake water body values can only feasibly be achieved by reducing cyanobacterial blooms themselves."[47]

We accept the experts' advice on those matters.

There is, however, one matter where we have departed from the officers' recommendations. The officers recommended to us a suite of water quality standards for lakes that differentiated between shallow lakes and deep lakes. We understand and accept the technical reasons for the distinction. However, the officers recommended that these terms be defined in Schedule D as "A deep lake is defined as a lake that undergoes stable thermal stratification in summer" and "A shallow lake is defined as a lake that does not undergo stable thermal stratification in summer".[48] We find those definitions to be unhelpful. They would not be easily implemented by consent applicants, particularly if it was winter when the consent application was being compiled. It would have been preferable, in our view, if the Council had determined which lakes were shallow lakes and which were deep lakes and recorded that in the Plan.

That has not occurred and we have therefore decided to define shallow lakes as those with a depth of 5 metres or less. Mrs McArthur orally advised us that the 5 metre threshold would be an appropriate one to use if we rejected the thermal stratification definition proposed by the officers.

We note that we have also amended the first part of Schedule D (the table of contents and what the officers called the "user guide") and the last part (what is now the Schedule D Targets Key) to improve the clarity of those provisions and to provide consistency with similar provisions in the POP.

8.6.6 Activities in or affecting Schedule E habitats

In the POP as notified, Rules 12-7 and 12-8 regulated certain land uses and also certain water-related activities undertaken within a Schedule E habitat (now defined as rare habitats, threatened habitats and at-risk habitats). There were also water-related provisions in Chapters 15 and 16.

In relation to Rules 12-7 and 12-8, in contrast to the other notified rules in Chapter 12 that included certain activities (eg discharges of contaminants)

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[46] McArthur, Zeldis, Davies-Colley, Gibbs and McBride, Memo to the Water Hearing Panel Outlining Expert Agreement on Water Quality Standards for Rivers, Estuaries and Lakes, 15 March 2010, page 2.

[47] Ibid.

[48] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page D-16.

ancillary to the land use, the notified rules dealing with Schedule E habitats listed, as activities in their own right:

(a) "discharges of contaminants into water, or into or onto land" (Rules 12-7(c) and 12-8 (c));
(b) "diversions of water" (Rule 12-7(d)); and
(c) "diversions of water, including for the purpose of wetland drainage" (Rule 12-8(d)).

Under Rule 12-7, the activities were discretionary activities within at-risk habitats and, under Rule 12-8, were non-complying activities within rare habitats and threatened habitats.

Submitters identified links, and potential overlaps and inconsistencies, between the biodiversity provisions in Chapter 12 and the water-related provisions addressed in this hearing. By way of example, Mr Moodie told the Biodiversity and Heritage Hearing Panel that "Mighty River Power has a general concern that the control of water takes, discharge and diversions may be dealt with in multiple places in the Plan, and potentially in inconsistent ways."[49]

We asked the officers at the Water hearing what the logic was behind dealing with some Schedule E habitat water-related activities in the Chapter 12 rules (discharge of contaminants, diversion of water) but others in the water-related provisions of the POP (eg take or use of water, damming of water and activities in the beds of rivers or lakes). The response was that it is "difficult to comment on why the split was made in the proposed plan, but provided there are appropriate [cross-references] between the chapters it is appropriate to deal with them either separately (with appropriate [cross-references] between chapters) or to combine all the biodiversity restrictions into one rule".[50]

We note that following the decision of the Biodiversity and Heritage Hearing Panel (Part 5 of this Volume), with the agreement of the Water Hearing Panel in relation to water-related activities dealt with in this hearing, new Rule 12-6 now regulates activities restricted by s 9(2) in relation to the drilling, construction or alteration of any bore, ss 13(1) or 13(2) in the beds of rivers and lakes; the taking, using, damming or diverting of water pursuant to s 14(2); and the discharge of water or contaminants into water or onto or into land pursuant to ss 15 (1) and 15(2A) of the RMA as a discretionary activity within Schedule E habitats, unless those water-related activities are regulated in some other way within the Schedule E habitats by particular rules in Chapters 13, 15 or 16 of the POP.

In our view, this is an important and necessary distinction, as decision-makers considering consent applications for water-related activities captured by Rule 12-6 within Schedule E habitats will need to have regard to Policy 12-5 (consent decision-making for activities in rare habitats, threatened habitats and at-risk habitats) and Policy 12-6 (criteria for assessing the significance of, and the effects of activities on, an area of habitat). If the water-related activities were alternatively considered under the rules of Chapters 13, 15 and 16, those important habitat-related decision-making policies would not be

[49] Moodie, Submissions (legal), 21 November 2008, para 3.17.
[50] Response to Hearing Panel Questions - Water, undated, Q 149, page 23.

relevant unless we made them so by developing some cross-referencing within the Chapter 13, 15 and 16 policies or rules (or both).

We have decided that such cross-referencing would not be conducive to ease of understanding of, or consistent implementation of, the indigenous biological diversity protection provisions of the POP and agree with the Biodiversity and Heritage Hearing Panel that the approach of combining the land and water-related Schedule E provisions into one rule is preferable. It is a more efficient and effective approach.

As a consequence, we have carefully evaluated the rules in Chapters 13, 15 and 16 and have ensured that each one, where appropriate, contains a condition excluding activities either near to (see, for example, Rule 13-3 condition (c)(i)) or in (see, for example, Rule 13-11 condition (i)) the Schedule E habitats.

Where the rules in Chapters 13, 15 and 16 do not contain conditions such as those described above then those particular Chapter 13, 15 and 16 rules apply within the Schedule E habitats. We have generally allowed such rules to apply within the Schedule E habitats because they either relate to existing relatively benign activities (such as Rule 13-10 relating to existing discharges of domestic wastewater), the rules themselves contain conditions that will sufficiently minimise, avoid, remedy or mitigate potential adverse effects on the Schedule E habitats (such as Rule 13-2 relating to the discharge of fertiliser), or the rules deal with activities that do not occur within Schedule E habitats (such as Rule 13-21 relating to closed landfills).

8.6.7 Artificial watercourses

The POP provisions as notified used the terminology “artificial watercourse” and “artificial lake”. Neither of these terms is defined in s 2 of the RMA.

However, we note that the s 2 RMA definition of “bed” refers to “a lake controlled by artificial means” and the term “river” is defined as including a modified watercourse but excluding an “artificial watercourse”. In the definition of “river”, an artificial watercourse is stated to include “an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal.” We note that is not an exhaustive list that might otherwise categorically define an “artificial watercourse” as it follows the word “including”.

The term “bed” is defined in s 2 of the RMA as relating to rivers and lakes, including lakes controlled by artificial means. The definition of “bed” does not, however, include a reference to an artificial watercourse.

The result of these various interrelated RMA definitions is that activities controlled under s 13 of the RMA in the beds of rivers and lakes are not controlled by s 13 in the beds of artificial watercourses. Therefore, where POP rules as notified sought to regulate such activities in artificial watercourses, it has been necessary to correct the rules so that they refer to s 9(2) of the RMA. Further, rather than referring to the bed of an artificial watercourse in the provisions, we have instead referred to either “land in an artificial watercourse” or to activities undertaken “within an artificial watercourse”.

Rule 16-19 as notified specifically regulated activities in the beds of artificial lakes. Under the RMA, there is no such thing as an "artificial lake" as the s 2 RMA definition of "lake" is "a body of fresh water which is entirely or nearly surrounded by land." There is no exclusion of artificial lakes (unlike the definition of river as discussed above which excludes artificial watercourses).

We understand the intent of Rule 16-19 was to refer to non-natural lakes that have been created by resource users or developers, such as would arise if a river or stream were dammed to form a lake. The term used in the RMA (but not defined in s 2 RMA) of "a lake controlled by artificial means" is not suitable for us to use in Rule 16-19 as the matter that is important is the lake rather than any means of control. We also note that a natural lake can be controlled by artificial means, such as occurs with the Lake Taupo control gates under SH1, but this would presumably not make such a lake an "artificial lake" in the context of Rule 16-19.

We have decided to use the term "non-natural lakes" in substitution of the term "artificial lake" in Rule 16-19 and elsewhere where that term was used in the POP provisions. We chose that term rather than "artificial lake" partly to draw a distinction between, and avoid confusion with, the term "artificial watercourse".

Finally, in terms of this issue, given the absence of a definition of "artificial watercourse" in the RMA, the officers helpfully recommended a definition that could be included in the POP Glossary. We have decided that such a definition is beneficial as it will help the consistent interpretation and implementation of the POP provisions. We have therefore inserted a definition of "artificial watercourse" into the Glossary as recommended, but we have amended it to refer to "non-natural lakes" for the reasons set out above. The definition reads:

> **Artificial watercourse** means a continually or intermittently flowing body of fresh *water*^ that does not meet the definition of *river*^ in s2 of the RMA. For the purposes of this Plan, it includes an irrigation canal, *water*^ supply race, canal for the supply of *water*^ for hydroelectricity power generation and farm drainage canal; but excludes a non-natural *lake*^.

8.6.8 Use of the term waterbody

The POP as notified used the terms waterway and waterbody (or water body) in a general sense to describe rivers, lakes, wetlands, groundwater and water within the coastal marine area. The use of this terminology was problematic for a number of reasons.

The term waterway is not defined in the RMA but we understand it to mean a navigable body of water.[51] Obviously not all of the Region's rivers and lakes are navigable and so the general use of the term waterway is not appropriate. We have therefore amended the term waterway to water body.

The term water body is defined in s 2 of the RMA.[52] The definition reads:

> water body means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area.

[51] As defined in The Concise Oxford Dictionary, Tenth Edition, Revised 2001.
[52] Note it is two words and not one as sometimes used in the POP as notified.

The definition of water body does not include water within the coastal marine area, as the Coast Hearing Panel noted.

The definition of water body also does not include the bed of a river or lake or the geological strata of an aquifer. It relates only to the water. This was problematic as the POP as notified often used the term "waterbody" or "water body" or "waterway" to mean both the water in the water column of a river or lake together with the bed of the river or lake. To rectify this problem, the officers recommended to us a definition of water body that would be different from the definition of water body in the RMA. The recommended POP definition of water body would reside in the Glossary of the Plan[53] and would read:

> Water body means a *river*^, *lake*^ or *wetland*^ and includes, unless the context otherwise requires, both the water in the *river*^, *lake*^ or *wetland*^ and *beds*^ of *rivers*^, *lakes*^ or land margins of wetlands.

It was thought by the officers that such a defined term could be used consistently throughout the POP. However, it quickly became apparent to us that such an approach did not work. The newly-defined term had been used when groundwater was being contemplated, but the definition did not include groundwater. We have rejected the officers' recommendation as we consider it fraught to redefine a term such as water body within a Plan where that term is already defined in the governing statute. To do so would create ongoing confusion and uncertainty for Plan users.

Instead, we have decided to use the term water body as it is defined in the RMA. We have, however, amended the provisions where that term is used. Depending on the context, we have sometimes used the term "water body" where we do not intend to include reference to the bed. Where we do intend to refer to the bed as well as the water above it we use the phrase "water body or its bed" or similar wording. In other provisions, we have deleted the term water body and used words such as river, lake, wetland or groundwater instead, as appropriate.

8.6.9 Intensive farming land uses

The POP as notified sought to regulate nitrogen[54] leaching from existing intensive farming[55] in selected catchments (or Water Management Zones or Sub-zones) in the Region through the application of Rule 13-1 which introduced the requirement for a resource consent to farm. Not surprisingly then, Rule 13-1 attracted a large number of submissions, both in support of the approach and in opposition to it.

Given the level of interest in Rule 13-1, and its important economic and environmental implications for the Region, we have asked ourselves a series of questions regarding the rule and the evidential basis for the propositions underpinning it. The questions were:

(a) Are there water quality problems in the identified Water Management Sub-zones that are clearly attributable to intensive farming land uses?

(b) Is it appropriate to target only intensive farming land uses?

[53] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page Glossary-27.

[54] Through the mandatory use of the FARM Strategy (Farmer-Applied Resource Management Strategy), the notified version of Rule 13-1 would also have imposed controls on sediment, faecal coliform and phosphorus run-off.

[55] Dairy farming, cropping, market gardening and intensive sheep and beef farming.

(c) Which types of intensive farming should be included in Rule 13-1?

(d) Is the LUC approach to setting allowable nitrogen leaching levels efficient and effective?

(e) Should Rule 13-1 apply to dairy conversions?

(f) Should Rule 13-1 be a permitted activity rule or a controlled activity rule?

(g) When should the rules commence?

We work through these questions below and state our findings in relation to each of them.

8.6.9.1 Are there water quality problems in the identified Water Management Sub-zones that are clearly attributable to intensive farming land uses?

The issue here is whether or not it is appropriate to retain all of the Sub-zones listed in Table 13.1 as notified. The implication of retaining a Sub-zone in Table 13.1 is that land use rules will apply to existing intensive farming land uses. We are of the view that the introduction of land use rules where none existed before requires a robust evidential basis.

The evidence of Mrs McArthur summarised the water quality issues in the Sub-zones listed in Table 13-1. We note that the officers have recommended deleting the Mowhanau Sub-zone from Table 13-1 and no submitter opposed that recommendation. We have therefore removed the Mowhanau Sub-zone from Table 13.1 and we do not discuss that matter further.

We note that Horticulture NZ and Federated Farmers both asked that Table 13-1 be deleted. In the context of those submissions, we assess each of the remaining Sub-zones below.

Mangapapa catchment

With regard to the Mangapapa Sub-zone, we note that "Soluble inorganic nitrogen, DRP and *E. coli* regularly exceed POP standards and degrade water quality in the Mangapapa, also contributing loads to the Manawatu above the Gorge. Periphyton biomass can be high and the aquatic macroinvertebrate health is low in some areas of the catchment."[56] There is a major water supply abstraction[57] site in the catchment which places "considerable pressure on the water resource and the ecology of the Mangapapa Stream" at low flows.[58] There are no direct discharges to water in the catchment.[59] Intensive farming land uses comprise 20% of the catchment and non-intensive sheep and beef farming comprises 50%.[60]

We were not informed of the relative contributions of the water abstraction and the diffuse run-off to the observed water quality degradation. Nevertheless, due primarily to the lack of point source discharges, we accept that an evidential basis exists for including the Mangapapa Sub-zone in Table 13.1.

[56] McArthur, Section 42A Report, August 2009, page 160 key points ii and iii.
[57] For the Woodville municipal supply.
[58] McArthur, Section 42A Report, August 2009, page 155.
[59] Ibid, page 156.
[60] Ibid, page 159.

Mangatainoka catchment

With regard to the Mangatainoka Sub-zones (Mana_8a to Mana_8d)[61], we note that "Soluble inorganic nitrogen is extremely high (with > 99% from non-point sources), DRP is elevated at high flows and is largely non-point source derived (84%) and *E. coli* is generally within the standards but increases downstream. Periphyton occasionally exceeds the standards, aquatic macroinvertebrate health declines downstream and potentially toxic cyanobacterial blooms can be pervasive at a number of sites in the catchment when flows are low."[62]

Intensive farming land use (all dairy) comprises 28% of the catchment and non-intensive sheep and beef farming comprises 51%.[63] We accept that an evidential basis exists for including the Mangatainoka Sub-zones in Table 13.1.

Upper Manawatu catchment above Hopelands

With regard to the Upper Manawatu above Hopelands Sub-zones, we note "Soluble inorganic nitrogen and DRP significantly exceed the POP standards and are generally non-point sourced (98% and 80% respectively), *E. coli* exceeds safe swimming standards in some tributaries at low flows and in all waterways including the mainstem when flows are elevated. Periphyton proliferation and potentially toxic cyanobacterial blooms are common, the aquatic macroinvertebrate health is low and declines with distance downstream, and migratory native fish are almost absent from the catchment. Non-migratory dwarf *Galaxias* populations are isolated in Ruahine tributaries and are vulnerable to habitat and water quality degradation."[64]

Intensive farming land use (all dairy) comprises 16% of the catchment and non-intensive sheep and beef farming comprises 69%.[65] We accept that an evidential basis exists for including the Upper Manawatu above Hopelands Sub-zones in Table 13.1.

Lake Horowhenua

With regard to Lake Horowhenua, we note "...Lake Horowhenua is subject to extremely elevated total and dissolved nitrogen and phosphorus concentrations. Ammoniacal nitrogen is also occasionally elevated to levels that are toxic to aquatic life. Considering the often high pH in Lake Horowhenua, the risk of toxic effects from unionised ammonia is substantial ... Although faecal contaminants (*E. coli*) do not appear to exceed levels that would reduce the ability for Lake Horowhenua to be utilised for contact recreation, planktonic cyanobacteria cause closure of the lake to recreational users on a regular basis."[66]

However, we also note "Historically sewage from the town of Levin was discharged into the lake until the mid 1980's (see the evidence of Barry

[61] Mangaramarama Creek (Mana_8e) has been removed as it enters the Tiraumea River and is now Mana_7e, part of the Tiraumea Water Management Zone. See section 8.13 of this Part.
[62] McArthur, Section 42A Report, August 2009, page 183 key points ii and iii.
[63] Ibid, page 180.
[64] Ibid, page 197 key points ii to iv.
[65] Ibid, page 194.
[66] Ibid, page 198.

Gilliland). Stormwater from Levin is also discharged to the Lake via the Queen Street Drain .... The elevated nutrients and low faecal contaminants in Lake Horowhenua suggest that either nutrient enrichment is not sourced from animal-based intensive land uses or that faecal contaminants are being removed via attenuation processes or die-off between the land and the lake ..."[67] We take this to mean that if diffuse run-off from land use is a problem in the catchment, then the intensive farming land uses of concern are cropping and horticulture and not dairying. We note there are only ten dairy effluent discharge permits in the catchment.[68]

Intensive farming land uses comprise 24.5% of the catchment and non-intensive sheep and beef farming comprises 51%.[69] Of the intensive farming land uses, cropping accounts for 3% of the catchment and horticulture 3.5%. We accept that an evidential basis exists for including the Lake Horowhenua catchment in Table 13.1 provided cropping and horticulture are retained as intensive land uses to be regulated. We return to that matter latter.

Waikawa catchment

With regard to the Waikawa Sub-zones (West_9 in the POP as notified, now West_9a and West_9b) we note "Aquatic ecosystem health appears to be in reasonable condition in the upper Waikawa catchment .... The large number of fish monitoring survey sites on the mainstem indicate relatively contiguous native fish habitat. Aquatic macroinvertebrates at the Waikawa at Manakau site also show that the stream is only mildly degraded at that site .... However, over the 2008/2009 summer the Waikawa Stream was subject to significant cyanobacterial cover .... The Waikawa Stream at Huritini (in the lower catchment) is somewhat soft-bottomed and less likely to provide ideal substrate for the attachment of benthic periphyton."[70]

Intensive farming land use (all dairy) comprises 24% of the catchment and non-intensive sheep and beef farming comprises 26%.[71] There are only eight dairy effluent discharge permits in the catchment and all are to land.[72]

We note that the median and average SIN and DRP levels in the Waikawa at North Manakau are within the POP target values.[73] At the downstream SH1 site, those levels are only just above the target values. It is this reach (North Manakau to SH1) that poses a potential problem for periphyton growth because at the downstream Huritini site the soft-bottomed nature of the stream does not support periphyton growth. The relevant Schedule D standards are generally achieved in that potential problem reach. We note that the Waikawa estuary is small and transient and we received no evidence of nuisance algae growths within it. We also note that the Ohau catchment was not included in Table 13.1 as notified and it has similar land use patterns to the Waikawa.

However, notwithstanding the above matters, we note that *Escherichia coli* (*E.coli* the freshwater indicator bacteria in terms of contact recreation and

67 Ibid, page 200.
68 Ibid.
69 Ibid, page 202.
70 Ibid, page 206.
71 Ibid, page 211.
72 Ibid, page 207.
73 Ibid, page 208 Figures 35 and 36.

public health) levels increase significantly between the upper and lower catchment State of the Environment sites and they exceed the Schedule D standards.[74] Mrs McArthur advised[75] that this is due to non-point sources. For this reason, we conclude that there is an evidential basis for including the Waikawa catchment in Table 13.1.

Manawatu catchment above Gorge

With regard to the Manawatu catchment above Gorge Sub-zones, we note "The only point source discharge that occurs within the zone is the Woodville STP discharge to the Mangaatua Stream. However, the zone is subject to the cumulative point source and non-point source inputs from the Mangatainoka and upper [Manawatu] Rivers .... Water quality at the [Manawatu] at Upper Gorge site is marginally better than at Hopelands with regard to soluble nitrogen and phosphorus. There are three reasons that may contribute to these reduced concentrations of nutrients: 1) dilution of contaminants from cleaner inflowing tributaries; 2) reduced relative nutrient loads from land use in the catchment area; or 3) a combination of both factors."[76] We were also advised "Without calculation of the cumulative loads and inputs of nitrogen and phosphorus from each contributing catchment the relative contribution of nitrogen and phosphorus from the land use in the [Manawatu] above Gorge target area cannot be clearly quantified."[77]

Intensive farming land use (all dairy) comprises 41% of the catchment and non-intensive sheep and beef farming comprises 48%.[78] There are 24 dairy effluent discharge permits in the catchment, all of which are to land.[79]

We were concerned that the officers were not able to quantify the diffuse run-off contribution of nitrogen and phosphorus from the land use in this catchment. However, we also note that nearly half of the catchment is in dairying. Therefore, on that basis and as a cautionary measure, we accept that an evidential basis exists for including the Manawatu catchment above Gorge Sub-zones in Table 13.1.

Other south-west catchments (Waitarere West_7)

With regard to the Waitarere West_7 Sub-zone, we note "Surface water bodies in the Waitarere zone are largely associated with coastal lagoons and wetlands and their related drainage systems .... Little is known about the water quality of these lagoons and wetlands and there is no monitoring data available for them."[80] We were advised that the Waitarere Beach monitoring site had high nitrogen, phosphorus and coliform levels, but "...it is likely that the predominant source of contaminants in the coastal environment adjacent to the Waitarere zone is the Manawatu River".[81]

74 Ibid, page 209 Figure 37 and page 212 key point ii.
75 Ibid, page 212 key point ii.
76 Ibid, page 213 (references to figures in the quoted text removed by us).
77 Ibid.
78 Ibid, page 218.
79 Ibid, page 219.
80 Ibid, pages 219 and 220.
81 Ibid, page 220.

Intensive farming land use comprises 35% of the catchment and non-intensive sheep and beef farming comprises 14%.[82]

Due to the lack of water quality information for this Sub-zone, we do not accept that an evidential basis exists for including it in Table 13.1. We note that it is inappropriate to introduce land use controls based on the mere suspicion of a problem.

Other south-west catchments (Lake Papaitonga West_8)

With regard to the Lake Papaitonga Water Management Sub-zone we note "Total and soluble nitrogen are the highest of any monitored lake in the Region. The median ammoniacal nitrogen concentration would be above the limit proposed for the protection of aquatic organisms under elevated pH, although pH values were largely inside the ranges proposed as water quality standards in the POP. Phosphorus concentrations (both total and dissolved) were elevated but less so than a number of other lakes in the Region. However, *E. coli* was elevated to levels that would adversely affect Contact Recreation and Stockwater values. Elevated *E. coli* indicates there is contamination from stock, either Sheep & Beef or Dairy, in the vicinity of the lake or inflowing tributaries."[83]

Intensive land use (all dairy) comprises 19% of the catchment and non-intensive sheep and beef farming comprises 54%.[84] We accept that an evidential basis exists for including the Lake Papaitonga Water Management Sub-zone in Table 13.1.

Other coastal lakes (West_4, West_5, West_6)

Kaitoke Lakes (West_4)

This "Other coastal lakes" area includes the catchments of Lakes Kaitoke, Wiritoa, Kohata, Pauri and the Marangai Bush wetland, a series of coastal lakes and wetlands just south of the Whanganui River. We note that "Water quality monitoring data is limited to Lakes Pauri and Wiritoa .... Low concentrations of soluble inorganic nitrogen in both Lakes Pauri and Wiritoa suggest that the majority of nitrogen within the lakes is organic and therefore not immediately bioavailable. Faecal contaminants were often low; however, high nutrient concentrations in these lakes regularly leads to algal and cyanobacterial blooms ..."[85]

We were also advised "Like other coastal lakes in the Region, the hydrological regime and source of contaminant inputs is complex. Until the capture zones of the catchment's lakes and wetlands are better understood, predicted nitrogen losses from implementation of the FARM strategy cannot be compared with a Standard load limit or Measured load."[86]

Intensive land uses comprise only 5% of the catchment and non-intensive sheep and beef farming comprises 65%.[87] There is only one dairy discharge

[82] Ibid, page 221.
[83] Ibid, page 223 (references to figures in the quoted text removed by us).
[84] Ibid, page 224.
[85] Ibid, page 226.
[86] Ibid (reference to a table in the quoted text removed by us).
[87] Ibid, page 227.

in the catchment and it is to land. We do not accept that an evidential basis exists for including the catchments of Lakes Kaitoke, Wiritoa, Kohata, Pauri and the Marangai Bush wetland in Table 13.1.

We note that Wanganui Federated Farmers sought the deletion of the Kaitoke Lakes from Table 13.1 as they considered that "The Kaitoke Lakes have no special characteristics deserving of special attention"[88] other than being widely used for recreation. They noted that adjoining landowners had established extensive buffer vegetation zones with the Regional Council's help and that the most serious threats to the lakes would seem to be from water users and introduced biosecurity organisms such as aquatic weeds, which Rule 13-1 would not control.

Southern Whanganui Lakes (West_5)

The "Other coastal lakes" area also includes the Southern Whanganui Lakes Water Management Zone which comprises the catchments of Lakes Vipan, Bernard, Koitiata, Dudding, Heaton, William, Hickson, Alice, Rhodes and Herbert, a series of coastal lakes and small outflow streams just north of the Rangitikei River. There is no water quality data for these water bodies apart for Lake Dudding. We were advised "Although contact recreation is not compromised by faecal contaminants, the elevated concentrations of nutrients mean Lake Dudding is susceptible to algal and cyanobacterial blooms which affect Amenity, Contact Recreation and Stockwater values."[89]

Intensive land use (all dairy) comprises only 9% of the catchment and non-intensive sheep and beef farming comprises 54%.[90] There are ten dairy discharge permits in the catchment, all to land. We do not accept that an evidential basis exists for including the Southern Whanganui Lakes Water Management Zone in Table 13.1.

Northern Manawatu Lakes (West_6)

The "Other coastal lakes" area also includes the Northern Manawatu Lakes Sub-zone comprising the catchments of Pukepuke and Omanuka Lagoons and Lakes Kaikokopu and Koputara. There is no water quality data for the water bodies in this area apart from the Kaikokopu Stream (the outlet to Lake Kaikokopu). That stream has been monitored for bathing water quality only. We were advised that the "Faecal contaminants in the [Kaikokopu] Stream adversely affect Contact Recreation values in the stream and at Himatangi Beach."[91] However, we were not advised of the relative contribution of the Kaikokopu Stream contamination to the overall bathing water problems at Himatangi Beach or how frequent any problems were.

Intensive land use (all dairy) comprises 50% of the catchment and non-intensive sheep and beef farming comprises 28.[92] There are 29 dairy effluent discharge permits in the catchment, all to land. As with the Manawatu catchment above Gorge, we note that nearly half of the catchment is in dairying. Therefore, on that basis and as a cautionary measure, we accept

88 Matthews, Wanganui Federated Farmers, Evidence, undated.
89 McArthur, Section 42A Report, August 2009, page 228.
90 Ibid, page 229.
91 Ibid, page 230.
92 Ibid, page 231.

that an evidential basis exists for including the Northern Manawatu Lakes Water Management Sub-zone in Table 13.1.

Coastal Rangitikei (Rang_4a, Rang_4b, Rang_4c, Rang_4d)

The Coastal Rangitikei Water Management Zone (Rang_4 in the POP as notified) encompasses the catchment of the Rangitikei mainstem and tributaries from Onepuhi to the mouth of the river at Tangimoana and includes the Sub-zones for the Porewa and Tutaenui Streams. We were advised "Water quality issues in the [Rangitikei] catchment are generally isolated to the lower mainstem and tributaries in the Coastal Rangitikei Water Management Zone".[93]

Importantly, we note "The Coastal [Rangitikei] Water Management Zone is subject to a number of significant point source discharges in the mainstem and tributaries. These have an influence on the SIN, DRP and *E. coli* in the tributaries themselves and on the nitrogen loads to the wider catchment. The [Tutaenui], Porewa, Pikatu and Rangitawa streams are all subject to point sources from the Marton, Hunterville, Sanson and Halcombe STP discharges respectively. Just below the Bulls Bridge (SH1), the Bulls STP and Riverlands meatworks discharges enter the mainstem of the river. Ohakea STP flows into the [Rangitikei] after discharge into a drainage system some 4.4 km downstream of the Bulls Bridge and the Flockhouse STP system discharges into the Parewanui drainage system which also enters the river near Scott's Ferry."[94]

We have examined the graphs of SIN, DRP and *E coli* on pages 240 and 241 of Mrs McArthur's evidence. They demonstrate the significant effect of the point source discharges. We also note, as advised by Mrs McArthur, that "Soluble inorganic nitrogen increases from upstream to downstream. The mean concentration is generally within the proposed standards until the river reach between the McKelvies and Scott's Ferry sites."[95]

Mrs McArthur also advised us "The implementation of the FARM strategy in the Coastal [Rangitikei] zone is largely driven by the need to ensure land use intensification does not degrade the river any further."[96] The conversion of land use to more intensive forms such as dairying does not necessitate the catchment being included in Table 13.1. Rule 13.1 as notified applies to all dairy conversions Region-wide.

Intensive land uses comprise 22% of the catchment and non-intensive sheep and beef farming comprises 66%.[97]

We do not accept that there is an evidential basis for including the Coastal Rangitikei Water Management Sub-zones in Table 13.1. The main contributing factor to the water quality problem seems to be point source discharges. The catchment can also be differentiated from the Manawatu catchment above Gorge and Northern Manawatu Lakes Water Management Sub-zone as in this case only 20% of the catchment is in dairying.

93 Ibid, page 234.
94 Ibid, page 235 (references to figures in the quoted text removed by us).
95 Ibid, page 235.
96 Ibid, page 236.
97 Ibid, page 243.

Mangawhero/Makotuku (Whau_3b, Whau_3c, Whau_3d)

We note that "River health as measured by MCI is high at both of the upper catchment sites on the Mangawhero and Makotuku Rivers and declines rapidly downstream ... There are two significant point sources in this target catchment. Ohakune STP discharges to the Mangawhero River just downstream of the Ohakune township and the Raetihi STP discharges to the Makotuku just downstream of the township of Raetihi."[98]

Intensive land use comprises just 3% of the catchment and non-intensive sheep and beef farming comprises 58%.[99] There are only five dairy effluent discharges in the catchment, with one of them to water.[100] We do not accept that there is an evidential basis for including the Mangawhero and Makotuku River catchment in Table 13.1. To the extent that water quality problems exist, they seem attributable to the sewage treatment plant discharges.

Overall findings in relation to the inclusion of catchments in Table 13.1

With regard to the catchments listed in Table 13.1 we find that the following should be retained:

(a) Mangapapa;
(b) Mangatainoka;
(c) Upper Manawatu above Hopelands;
(d) Manawatu above Gorge;
(e) Lake Horowhenua provided cropping and horticulture are retained as intensive farming land uses to be regulated (Hoki_1a, Hoki_1b);
(f) Waikawa (West_9a, West_9b);
(g) South-west catchment Lake Papaitonga (West_8); and
(h) Other coastal lakes - Northern Manawatu Lakes (West_6).

We find that the following catchments should be deleted from Table 13.1:

(a) Mowhanau (as recommended by officers);
(b) South-west catchment Waitarere (West_7);
(c) Other coastal lakes - Kaitoke Lakes (West_4);
(d) Other coastal lakes - Southern Whanganui Lakes (West_5);
(e) Coastal Rangitikei (Rang_4); and
(f) Mangawhero/Makotuku (Whau_3b, Whau_3c, Whau_3d).

8.6.9.2 Is it appropriate to target only intensive farming land uses?

Rule 13-1 targets intensive farming land uses. We note that of the catchments or Water Management Sub-zones that we have decided should remain in Table 13.1, the percentage (rounded) of intensive farming land use and non-intensive sheep and beef farming is as follows:

[98] Ibid, page 249 (references to figures in the quoted text removed by us).
[99] Ibid, page 256.
[100] Ibid, page 250.

Catchment	Intensive farming land use	Non-intensive sheep and beef
Mangapapa	20	50
Mangatainoka	28	51
Upper Manawatu above Hopelands	16	69
Manawatu above Gorge	41	48
Lake Horowhenua	25	51
Waikawa	24	26
Lake Papaitonga	19	54
Northern Manawatu Lakes	50	28
Average	28	47

We were told[101] that on a whole farm basis the nitrogen leaching rates for the farms included in the Council's case studies were in the range of 15 to 26 kgN/ha/year for dairy farms and 10-11 kgN/ha/year for non-intensive sheep and beef farms. In rough terms, the leaching from dairy farms on a per hectare basis is therefore around twice that from non-intensive sheep and beef farms. From the above table, we see that intensive farming land use in the remaining target catchments comprises just over one-quarter of the catchment areas and sheep and beef comprises just under half of the catchment areas on average.

The relative nitrogen contribution of dairy and non-intensive sheep and beef is a product of land area and leaching rates. The above figures result in roughly equal contributions of nitrogen from intensive farming land use as from non-intensive sheep and beef farming. In other words, half of the nitrogen loading problem is derived from non-intensive sheep and beef farms. These non-intensive sheep and beef farms are excluded from Rule 13-1 as notified. We do not find that to be appropriate. Unfortunately, there is no scope within submissions to include non-intensive sheep and beef farms within Rule 13-1. Even if submissions had sought that as an outcome, given the number of farms that would be potentially affected, that would be a matter more appropriately considered under a Plan variation or change.

We recommend that the Council consider this matter further upon the release of this decision.

8.6.9.3 Which types of intensive farming should be included in Rule 13-1?

As notified, Rule 13-1 regulated four types of intensive farming land use: dairy farming, cropping, market gardening, and intensive sheep and beef farming. These land uses were selected due to their supposedly high rate of nitrogen leaching. There were a large number of submissions seeking that some or all of the listed land uses remain as permitted activities or that they be deleted from Rule 13-1.

[101] Manderson, Section 42A Report, August 2009, page 14 Table 3.

We are satisfied on the evidence that dairy farming has a relatively high rate of nitrogen leaching relative to other pastoral farming enterprises and that it should be included in Rule 13-1.

In their End of Hearing Report in April 2010 the officers recommended that "cropping" be defined as:

> **Cropping** means using an area of land in excess of 20 hectares to grow crops. A "crop" is defined as cereal, coarse grains, oilseed, peanuts, lupins, dry field peas or dry field beans. This definition does not include crops fed to animals or grazed on by animals on the same *property*^.

We were provided with evidence on the nitrogen leaching rates of cropping by the officers and submitters. Dr Manderson[102] reported crop leaching rates of 24 kgN/ha/year. Dr Shepherd[103] used Overseer version 5.4.3 to predict nitrogen losses from wheat and maize crops. Version 5.4.3 includes a new cropping model developed by the AgResearch and Plant and Food CRIs. Dr Shepherd predicted leaching rates for winter wheat at 6 kgN/ha/year, maize at 30 kgN/ha/year and spring wheat at 35 kgN/ha/year. The range of leaching rates is therefore 6 to 35 kgN/ha/year, with most results being 24 kgN/ha/year or more. On that basis, it would seem appropriate to include cropping in Rule 13-1.

However, we also heard compelling evidence[104] that the farmed areas used for cropping varied on a paddock by paddock basis annually. In some areas, the land was typically involved in a ten year rotation whereby it would be cropped[105] two years in a row and then left fallow (in pasture) for 5 to 10 years. The cropped paddocks were generally leased from farmers on a "hand shake" contractual basis. We find that it would be extremely problematic to include such a transient land use in a regulatory framework. For that reason, as well as the small areas of cropping noted below and the lack of information we had about the ability for cropping to meet the Rule 13-1 limits and the consequences for the farmers, we have decided that cropping should not be included in Rule 13-1.

We are also mindful that, of the target catchments that we have decided should be retained in Table 13.1, only the Lake Horowhenua catchment (3%) has any area in cropping. In that catchment, the cropping area is very small compared to dairy and sheep and beef farming and so its overall contribution to nitrogen leaching will be commensurately small.

In their End of Hearing Report in April 2010 the officers recommended that "market gardening" be deleted from the Glossary and from Rule 13-1 and the alternative term "commercial vegetable growing" be used instead. They recommended a definition of "commercial vegetable growing" as follows:

> **Commercial vegetable growing** means using an area of land greater than 4 hectares for vegetable growing, on an annual basis, for human consumption. Fruit crops and vegetables that are perennial are not included.

We were provided with evidence on the nitrogen leaching rates for commercial vegetables by the officers and submitters. Dr Clothier[106] told us that for a

[102] Ibid, page 14.
[103] Shepherd, Supplementary Evidence, undated.
[104] Ian Corbett.
[105] Potatoes and barley.
[106] Clothier, Section 42A Report, August 2009, page 38.

large commercial vegetable enterprise near Levin his calculations using the SPASMO meta-model had predicted 431 kgN/ha/year of leaching over a two year period, or around 215 kgN/ha/year. We note, however, that the Levin enterprise had crop failures so it seems to us that those estimates should be used with care. Dr Shepherd used Overseer Version 5.4.3 to predict nitrogen losses from a potato crop at 10 kgN/ha/year. Dr Whiteman, appearing for Horticulture NZ, advised us of a "Fictitious Farm Strategy" prepared by LandVision for 400 ha of crops comprising potatoes, carrots and brussel sprouts. This study also used Overseer Version 5.4.3. The vegetable crops and their predicted nitrogen leaching rates were potatoes at 58 kgN/ha/year, carrots at 18 and 19 kgN/ha/year and brussel sprouts at 30 kgN/ha/year.[107]

We find that the latter Overseer predictions are more reliable than the earlier SPASMO results as they use more recent modelling software developed specifically for cropping situations. The range of predicted leaching rates is therefore 10 to 58 kgN/ha/year, with most results being 18 kgN/ha/year or more. On that basis alone, it would seem appropriate to include commercial vegetable growing in Rule 13-1.

However, commercial vegetable growing also occurs on a mix of leased and farmer-owned land. For example, Ms du Fresne told us that for her 200 ha enterprise "40% of the land is owned and 60% is leased. The nature of the leases varies, with some being renewable annually and some longer term, usually on a 3yrs basis with a right of renewal. The area of land that we grow on could change a number of times a year depending on when leases become available or cease."[108] As with cropping, we find it would be extremely problematic to include such a transient land use in a regulatory framework. That is one reason why we have decided that commercial vegetable growing should not be included in Rule 13-1.

We also have very little evidence about the ability of commercial vegetable growers to meet the limits in Rule 13-1 or the consequences for them.

We are also mindful that of the target catchments or Sub-zones that we have decided should remain in Table 13.1, only the Mangapapa (2%) and Lake Horowhenua (3.5%) have any areas in horticulture (which includes commercial vegetable growing). These are very small areas compared to the areas in dairy and sheep and beef farming and so their overall contribution to nitrogen leaching will be commensurately very small.

In their End of Hearing Report in April 2010 the officers recommended that "intensive sheep and beef farming" be defined as:

> **Intensive sheep and beef farming** means using land for sheep, beef and mixed sheep/beef farming on *properties*^ greater than 4 ha where irrigation is used in the farming activity.

We were provided with very little evidence on the nitrogen leaching rates of intensive sheep and beef farming by the officers and submitters. None of the 25 case study farms discussed in the evidence of Mr Taylor comprised irrigated sheep and beef farms. Dr Shepherd provided information on an

[107] Fictitious Farm Strategy Version 2, February 2010, page 4. The date on the Version 2 document is September 2009, but we were told that the date should be February 2010 (September 2009 being the date for Version 1).

[108] du Fresne, Case Study - Woodhaven Gardens (evidence), undated page 1.

irrigated beef unit in Dannevirke. He predicted[109] a nitrogen leaching rate of 19 kgN/ha/year. That is a relatively high leaching rate but it does not relate to a sheep or sheep/beef enterprise. We received no evidence on the actual area of land within the Table 13.1 Sub-zones currently comprising irrigated sheep and beef farming. None of the tables in Mrs McArthur's evidence showing "proportional land use" for those catchments contained any data relating to irrigated sheep and beef farming. We accordingly find that there is no evidential basis for including intensive sheep and beef farming in Rule 13-1.

We find that only dairy farming should be retained as an "intensive farming land use" to be regulated under Rule 13-1. We accept that the term "dairy farming" must be defined. We have amended the definition of that term in the Glossary based in part on the recommendations of the officers.

Returning to our earlier findings regarding the target catchments to be retained in Table 13.1, this means that Lake Horowhenua should be deleted from that table as its retention depended upon market gardening (horticulture) being regulated under Rule 13-1.

The result of our decision on these matters is that voluntary or industry-led nutrient leaching management methods will apply to the intensive farming land uses comprising cropping, commercial vegetable growing and irrigated sheep and beef farms. In that regard, we note the advice of the experts[110] who advocated a mix of regulatory and voluntary approaches.

8.6.9.4 Is the LUC approach to setting allowable nitrogen leaching levels efficient and effective?

In the POP as notified, Table 13.2 established allowable nitrogen leaching rates for each LUC land class. There were four suites of leaching rates, applying firstly when Rule 13-1 commenced in a target catchment (year 1) and thereafter at years 5, 10 and 20.

There were a large number of submissions seeking the deletion of Table 13.2.

The evidence of Dr Mackay sets out the scientific explanation to how the year 1 leaching rates were established. Dr Mackay has used what he calls a "natural capital" approach to determining allowable nitrogen leaching. He summarised this approach as follows[111]: "The N leaching loss limit for a given land unit can be calculated using the potential animal stocking rate that can be sustained by a legume-based pasture fixing N biologically, under optimum management and before the introduction of additional technologies. Using the land units listed in the extended legend of the LUC worksheets' 'attainable potential livestock carrying capacity' as a proxy for the soil's natural capital, stocking rates were transformed to pasture production and used in the OVERSEER® nutrient budget model to calculate N leaching losses under a pastoral use."

Dr Mackay further explained that "The definition of the attainable potential carrying capacity is the number of stock units per hectare capable of being

[109] Shepherd, Section 42A Report, August 2009, page 14 Table 6.
[110] Including Dr Parminter for Fonterra (Parminter, Statement of Evidence, 30 October 2009, pages 2 to 4).
[111] Mackay, Section 42A Report, undated, page 9 para 34.

carried on a particular LUC unit, assessed within the limits of the technology of the time (ie. 1980s) and given favourable socio-economic conditions."[112] He also advised that "The introduction of technologies, including irrigation, drainage, N fertiliser, wintering pads, off-farm grazing and imported feeds has the potential to lift pasture and livestock production levels significantly above the inherent productive capacity of a basic legume-based pasture system."[113]

Dr Mackay also quoted studies carried out in 1989, 1999 and 2006 on legume-based pasture production. On the basis of these studies, he stated that "the estimates of the potential productive capacity of a legume-based pasture, fixing N biologically under a 'typical sheep and beef farming system' for each Land Use Capability (LUC) unit in New Zealand listed under 'attainable potential carrying capacity' in the extended legend of the Land Use Capability are still very relevant today".[114]

We were concerned about the limitations to the methodology identified by Dr Mackay. Intuitively, it does not seem sensible to ignore changes to the land's carrying capacity that have actually occurred due to technology changes that have arisen since the 1980s (some 30 years ago). Dr Roberts, appearing for Ravensdown, had similar concerns. He advised "... N loss from grazed pasture systems is directly linked to biological productivity which is least often linked to LUC class where productive constraints are overcome by introducing technological advances. The annual productivity of legume based pastures, all other things being equal, is directly linked to the amount of N cycling through the soil/plant/animal/atmosphere system, and so is N loss. Thus Ravensdown believes the natural capital/LUC approach does not accurately reflect current agricultural practice and as such will inequitably limit and or reduce future agricultural production potential in the region."[115]

Despite questioning the officers extensively on the matter, it remains unclear to us how the LUC leaching rates determined by Dr Mackay were translated into the leaching rates in Table 13.2 as notified. Dr Mackay's original (namely not reduced by 0.9 or 0.75) leaching rates were listed in the third column of Table 3 of his Section 42A Report (and in his para 35). Comparing his results for land farmed at 90% of potential to the actual values in Table 13.2 as notified, and in the version of Table 13.2 recommended to us in the officers' End of Hearing Report[116], reveals that a rather random series of amendments had been made to his values, as shown in the table below (leaching rates in kgN/ha/year).

LUC class	I	II	III	IV	V	VI	VII	VIII
Mackay	30	27.4	23.5	17.5	16.3	14.5	8.3	0
Table 13.2 POP	32	29	22	16	13	10	6	2
Table 13.2 EOH	32	29	25	19	18	16	6	2

[112] Ibid, pages 33 - 34 para 109.
[113] Ibid, page 33 para 108.
[114] Mackay, Supplementary Evidence for the End of Hearing Report, pages 5-6.
[115] Roberts, updated Statement of Evidence, undated, paras 8 and 9.
[116] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 13-9.

We note that the amended leaching rates in the POP as notified favour Class I and II land and penalise all other land classes. In that regard, Ms Marr advised "The maximum nitrogen loss rates that this [modelling] produced have been adjusted to account for the fact that not all land is used at its maximum level; some land is used for non productive uses (houses, tracks, bush) and some land is not as intensively used as it could be (e.g. small areas of land suitable for cropping in the middle of a larger farm are unlikely to be used for cropping). Flatter more productive land is likely to be better utilized and used closer to its productive potential, (because it is easier and more cost effective to develop and utilize this land). For higher LUC classes, VI and above, land is generally more hilly, more difficult to develop and likely being used at a lower percentage of potential. For these reasons the potential figures where [sic] adjusted by 0.9 for better class land, and by 0.75 for lower class land. These were checked against knowledge of actual Overseer modelled losses from farms in these catchments to benchmark against current losses."[117]

However, this is not actually the case. In the POP as notified, the Class I, II and III leaching rates were scaled by a factor of 0.9, but were then adjusted by 5, 5 and 4 kgN/ha/year respectively. The Class V and VI figures had approximately 1 kgN/ha/year added and subtracted respectively once they had been scaled by a factor of 0.75.

In the End of Hearings recommendation for Table 13.2, all of Dr Mackay's values had been increased by around 1.5 kgN/ha/year other than for Class I land which was increased by 2 kgN/ha/year and Class VII land which was reduced by 2.3 kgN/ha/year. The officers' End of Hearing figures mirror those recommended to us by Fonterra[118] for year 1 of Table 13.2. The evidence presented by Fonterra does not explain how their year 1 numbers were selected. However, in answer to our questions Mr Willis explained orally that the Fonterra year 1 numbers were based on adding 1.5 kgN/ha/year to all LUC classes as a result of discussions amongst the Fonterra team. We do not find that to be a suitably robust approach and so we reject the year 1 allowable leaching rates proposed by the officers in their End of Hearing material and also as proposed by Fonterra.

We find that the only year 1 allowable leaching rates that have any degree of robustness, or scientific underpinning, are the base numbers derived by Dr Mackay. We have therefore decided that those numbers should be used as the year 1 numbers (with 2 for Class VIII as in the POP as notified) if Table 13.2 is to be retained in the POP.

We then turned our minds to the proposed reduction in allowable leaching rates over the 20 year timeframe encompassed within Table 13.2. The genesis of the year 5, 10 and 20 leaching rates is provided in the evidence of Ms Marr. Dr Mackay orally confirmed that he had no input to those leaching rates. Ms Marr explained "The nitrogen loss limits for year 5 and beyond were chosen to be achievable with current technology, align with industry targets and expectations, and provide reasonable time for the changes required."[119] It seems odd to us that Dr Mackay's methodology specifically excluded the effect of farm production technologies developed since the 1980s, whereas

[117] Marr, Section 42A Report, August 2009, page 27.
[118] Willis, Statement of Evidence, 30 October 2009, page 43.
[119] Marr, Section 42A Report, August 2009, para 85.

the Council's nitrogen leaching reduction targets are based on what is thought to be achievable with current technology.

Our concerns with the nitrogen leaching targets grew when we were advised that subsequent to POP notification, farm case study work had shown that around 20% of existing dairy farms in the target catchments would not be able to reach the year 20 leaching rates with current technology. In response to that issue, the officers recommended a policy approach whereby existing farms that could not reach the year 20 leaching levels would be effectively grandparented at their current leaching rates if it could be shown that "putting in place the nutrient management practices identified in the *nutrient management plan** for the activity to achieve the *cumulative nitrogen leaching maximum** .... would have an unreasonably high financial cost that in the opinion of the Regional Council would significantly outweigh the environmental benefit of the practice".[120]

To achieve that, the officers initially (November 2009) recommended such farms being considered as a discretionary activity under Rule 13-27[121], but in their April 2010 End of Hearing material[122] the recommended approach had changed with such farms being considered under a new controlled activity rule. That assessment was to have regard to "individual and cumulative effects, which may extend beyond the boundary of the property."[123] Additionally[124], if consent was granted nutrient losses "which cannot reasonably be mitigated on the property" were to be offset or mitigated or compensated for (we presume as a financial contribution) and in all cases leaching was not to exceed the farm's average leaching rate over the period 31 May 2007 to 31 May 2009.

It was unclear as to how consent processing officers would make consistent and informed decisions under the recommended approach. We were also unclear how mitigation of nutrient losses was to be achieved. We note from the End of Hearing report of Mr Neild[125] that the 2007-08 year was a significant drought year and so production (and leaching) in that year would have been low. In our view, it is not appropriate to include a drought year in a benchmarking period. In overall terms, we found the officers' recommended approach to be so subjective that even an experienced and well-informed consents officer would in all likelihood have difficulty applying it in a fair and consistent manner.

We were told that the alteration to the Rule 13-1 approach (and the policy provisions) were "introduced as a means of providing a pathway through the plan for those 20% of farms that because of the specified limitations i.e. high rainfall and low LUC will have difficulty meeting the nitrogen limits using cost effective measures. This was directly in response to Fonterra's submission."[126]

[120] Track Changes - End of Water Hearing -Yellow Version - 09 April 2010, page 13-5 Policy 13-7(b)(ii).
[121] Rule 13-27 as notified was not a section 9 land use rule however, which further complicates matters.
[122] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 13-14.
[123] Ibid, page 13-5 Policy 13-7(b)(ii).
[124] Ibid, pages 13-5 and 13-6.
[125] Neild and Rhodes, Economic Impacts of Proposed One Plan Limits on Nitrogen Leaching/Run-off Values, undated, page 11.
[126] Response to Questions on Rule 13-1 and Related Policies and Tables, 29 January 2010, pages 4 - 5.

However, the officers' approach was actually opposed by Fonterra. Mr Willis advised us that "Horizons' evidence for this rate of decline suggests that the rate is based on a combination of existing industry commitments and an assessment that up to 30% declines can be made with available technology. Both those claims are disputed by Fonterra witnesses. Based on the evidence of Mr Newland and Mr Smeaton I suggest that an appropriate rate of decline would be 10% over 10 Years. That rate is suggested by Mr Smeaton as the lower of the range that can be achieved (on average) without a significant effect on farm profit."[127]

Other submitters were also concerned about the reducing leaching rates in Table 13.2 as they considered them to be overly restrictive. For example, the Foundation for Arable Research submitted that "The setting of values for N runoff and leaching in relation to LUC may severely impact on the best long-term environmental and productive land uses for land within the Horizons jurisdiction"[128]. Some submitters[129] wished to see the Table 13.2 leaching rates used as "notional targets" against which a farmer's performance could be assessed. Others simply wished to see Table 13.2 deleted. For example Ravensdown asked that we "delete in entirety the LUC approach and investigate a land use approach that is consistent with the OVERSEER Model"[130]. Dr Roberts added "The overall objective of using OVERSEER should be to establish a benchmark N loss figure for a property and over time with management changes demonstrate a long term reduction in N loss".[131]

Given the concern about the year 5 and beyond leaching rates in Table 13.2, we next considered whether or not the achievement of the recommended year 20 leaching values would solve the actual environmental problem of concern, namely excessive soluble inorganic nitrogen (SIN) levels in rivers contributing to periphyton proliferation. In other words, how effective would Rule 13-1 be if Table 13.2 were adopted? This consideration derives directly out of our obligations under s 32(3) of the RMA. This matter is addressed in the evidence of Mrs McArthur and in the End of Hearing report of Dr Biggs. For each target catchment, the Council has calculated what the annual load of SIN will be in the rivers[132] if all land in the catchment is assumed to be leaching at the allowable Table 13.2 year 20 leaching rates.[133] The Council has then calculated what the load of SIN would need to be in those rivers if the SIN standards in Schedule D are to be achieved. The Schedule D SIN standards were derived by Dr Biggs to enable periphyton standards to be met.

For over half of the target catchments that we have decided should remain in Table 13.1, the Council was not able to undertake this analysis as they were unsure what the hydraulic regime was for some lakes, or they were unsure about how they should accurately account for loads derived from upstream land uses. However, the available results of Council's "effectiveness analysis" of Rule 13-1 are[134]:

[127] Willis, Statement of Evidence, 30 October 2009, page 14 paras 53 and 54.
[128] Foundation for Arable Research, submission 402-3.
[129] Ballance Agri-Nutrients, Federated Farmers.
[130] Hansen, Statement of Evidence, 19 October 2009, page 6 para 25.
[131] Roberts, updated Statement of Evidence, undated, para 31.
[132] In units of tonnes/year.
[133] This assumption is reasonable as Rule 13-1 does not preclude conversions or intensification provided that occurs within the Table 13.2 leaching limits.
[134] From McArthur, Section 42A Report, August 2009. We have rounded the values to the nearest whole number.

Catchment	Year 20 Load (Tonnes/year)	Schedule D Load (Tonnes/year)	Exceedance (%)
Mangapapa	16	10	60
Waikawa	55	9	610
Mangatainoka	301	266	13
Upper Manawatu above Hopelands	751	358	110
Manawatu above Gorge	176	n/a[135]	n/a
Papaitonga	15	n/a	n/a
Northern Manawatu Lakes	88	n/a	n/a

As can be seen, the best result is that after 20 years of applying the Table 13.2 reduced leaching rates the water quality in the target rivers will still be 13% above the Schedule D standards and at worst it will be 610% above those standards. In some of the retained target catchments, we have no idea how effective the rule will be.

In his End of Hearing report, Dr Biggs further assessed the Upper Manawatu case study and provided us with information regarding predicted maximum periphyton biomass[136] under nitrogen-limited conditions. He advised[137] that under the current state of the river the predicted maximum periphyton biomass was 1000 and at year 20 under Rule 13-1 (using the Table 13.2 leaching reduction values) it would be 1020. In answers to our questions, he agreed this difference would be within the margin of error of the predictions. He also advised[138] that biomass exceeding the Schedule D standard of 200 could occur for more than 8 weeks per year in 3 out of 4 years.

A key conclusion we reach is that the effect of applying the Table 13.2 nitrogen leaching reductions is negated by allowing ongoing dairy conversions to occur (which Rule 13-1 does), such that after 20 years the river water quality and periphyton biomass will be no better in 20 years time than it is now. We accept that it will stop the situation from getting worse, but see little sense in such an approach. In that regard, we note that Dr Mackay advised us "Attempting to achieve the absolute water quality standard [the actual Schedule D SIN standards] would cause massive upheaval, because it would require radical changes to current land uses. The only land uses that could continue unchanged would be land under native or exotic forest, scrubland and extensive sheep and beef. For intensive livestock, radical and unrealistic changes would be required."[139]

We balance that against the significant cost of imposing Rule 13-1 on existing dairy farms which is an important s 32(3) RMA consideration.

[135] Ibid, see para 421 for a figure of 1174 tonnes/year which we have not inserted as the officers orally advised that figure was not appropriate to use.
[136] In units of mg chlorophyll *a*/m^2.
[137] Biggs, Supplementary Evidence, undated, page 7.
[138] Ibid, page 12 para 19.
[139] Mackay, Section 42A Report, undated, para 56.

A number of farmers raised the issue of the significant costs that individual farmers would face in terms of implementing the on-farm measures required to meet the Table 13.2 nitrogen leaching rates, particularly the leaching rates required at Year 20.

The Council's economic evidence[140] was that the cost of implementing Rule 13-1 across 428 dairy farm businesses[141] was $58 million. That is a significant cost for implementing a rule that will not achieve the desired environmental outcome. We accept the submissions of Ms McIndoe for Fonterra in that regard. She submitted "Quite simply, Horizons has failed to demonstrate that the benefits to society outweigh the costs of regulation in the manner proposed."[142]

On balance, we find that the LUC nitrogen leaching approach embodied in Table 13.2 is not appropriate for existing dairy farms for the following reasons:

(a) Dr Mackay's "natural capital" approach is not based on technological changes that have enabled farmers to lift productivity levels since the 1980s;

(b) For existing farms, the "natural capital" approach therefore ignores existing land use and existing levels of farm production. That is inequitable and impracticable;

(c) The officers have taken Dr Mackay's scientifically derived values and arbitrarily amended them to address point (b) which has resulted in Table 13.2 lacking scientific robustness;

(d) The year 5, 10 and 20 nitrogen leaching reduction values were derived arbitrarily and do not relate to the achievement of the Schedule D water quality standards;

(e) Around 20% of targeted dairy farms will not be able to meet the year 20 leaching values in a practicable and affordable manner;

(f) The achievement of the year 20 leaching values will not resolve the actual environmental issues of concern (namely the high soluble inorganic nitrogen levels and levels of periphyton in the affected rivers) for those few rivers where Council has been able to assess the effect of Rule 13-1. In some of the target catchments which we have decided should remain in Table 13.1, we have no idea how effective the rule will be; and

(g) The implementation of Rule 13-1 will impose a significant cost on the farming community.

We therefore accept in part the submissions that ask for Table 13.2 to be deleted, insofar as it includes year 5, 10 and 20 leaching rates and insofar as it applies to existing dairy farms.

Given our previous findings regarding "intensive" farming land uses, and having now decided that the staged LUC-based nitrogen leaching reduction approach embodied in Table 13.2 is not appropriate, we are left with considering an alternative form of Rule 13-1 for existing dairy farms as sought by submitters such as Ravensdown. That is a rule that requires a nutrient

[140] Neild and Rhodes, Economic Impacts of Proposed One Plan LUC Nitrogen Leaching/Run-off Values (Section 42A Report identified in footer), August 2009, page 7.

[141] The Neild and Rhodes evidence did not quantify the costs of implementing Rule 13-1 on cropping, vegetable growing, or irrigated sheep and beef farms due to a lack of data on those land uses.

[142] McIndoe, Legal Submissions, 19 February 2010, para 20.

budget and nutrient management plan to be prepared for existing dairy farms. The nutrient management plan would require the implementation of practicable and affordable "best management practices" (BMPs) that are designed to reduce nitrogen leaching.

The application of such a rule will minimise nitrogen leaching from existing dairy farms in the remaining target catchments by having all existing dairy farms implement a package of best management practices that is applicable to the circumstances of their individual farms. We find that is the best outcome that can sensibly be achieved at this time.

In that regard, we accept the evidence of Fonterra. Mr Willis advised us that in his view "Regulatory design that seeks to address an extant problem should focus of [sic] improving the performance of the laggards rather than forming the primary means of promoting widespread behavioural change (the need for which is not already accepted across large parts of the affected community). Blunt regulation of those who have performed well risks perverse behaviour. Regulation should ensure the good work of early adopters is not undermined by others and that 'free-riders' (those who benefit from outcomes but who do not contribute to those outcomes) pay the cost."[143]

With regard to applicable "best management practices" we note that, as advised by Dr Clothier, "Urine patches are a prime cause of the N 'leakiness' of soil-plant systems that are grazed by animals."[144] However, Dr Mackay also advised "Best management practice, as it currently stands, does not place a limit on the number of animals or the number of urinations. Hence, as animal numbers and production increase, so do N leaching losses, even under best management practices."[145] So, putting to one side any mandated reduction in stock numbers, we heard from a number of experts regarding appropriate best management practices to reduce nitrogen leaching. The range of available BMPs was usefully summarised in tabular form by Dr Mackay[146] and we repeat his list below:

(a) Cut and carry;
(b) Intensive forage cropping;
(c) Herd homes and effluent capture;
(d) Winter feed pads and effluent capture;
(e) Low nitrogen feeds;
(f) Replace nitrogen fertiliser with equivalent supplements;
(g) Graze animals off-farm over the winter months;
(h) Reducing stock rate and decrease cattle/sheep ratio;
(i) Best management (amount and timing) of nitrogen fertiliser inputs;
(j) Nitrogen inhibitors;
(k) Non-pastoral land use; and
(l) Creation of wetlands and riparian zones.

We envisage some or all of these best management practices being required on individual existing dairy farms through a consenting process.

[143] Willis, Statement of Evidence, 30 October 2009, pages 14 - 15 para 57.
[144] Clothier, Section 42A Report, August 2009, page 21 para 73.
[145] Mackay, Section 42A Report, undated, page 23 para 76.
[146] Ibid, page 46.

Interestingly, as advised by several experts, Overseer "...assumes best practice regarding effluent treatment and application[147], stock yard runoff, fertiliser application, silage storage, and stock exclusion from waterways."[148] It seems to us that these best management practices should be implemented on the targeted dairy farms as a matter of course. In that regard Dr Manderson advised us, in terms of the Council's initial six case study farms, "In most cases the farmers were managing their N-inputs efficiently (eg. low N-fertiliser rates and split dressings), and several already had significant N-mitigation practices in place (eg. the regular use of N-inhibitors, feeding maize silage)"[149] but that "all dairy cases required some degree of stock exclusion from appreciable streams or lakes, and the installation of bridges or culverts across regular crossings".[150]

On that basis, we conclude that Rule 13-1 should additionally require the fencing of streams and the bridging of certain water bodies for all existing and new dairy farms unless it is impracticable or unaffordable to do so. This represents an extension of existing requirements on dairy farmers under the Clean Streams Accord.

The appropriate mix of best management practices needs to be decided on a farm by farm basis, as circumstances will vary considerably from farm to farm. This is how the POP as notified envisaged the FARM Strategy would work. As described by Mr Taylor "Options to mitigate N-loss are recommended to the farmer. The cost of these mitigation options can be weighed up against their effectiveness and the farmer chooses which of these they will implement as conditions on their consent."[151] This also reflects the advice of Dr Monaghan who advised us "The effectiveness of individual GEPs [best management practices] depends on factors such as soil type, topography, climate, land use and farm management system. Thus, there is usually no 'one size fits all' approach to mitigating N and P losses from farms, as these factors need to be considered on a farm-specific basis."[152]

We are satisfied that requiring a nutrient budget and nutrient management plan to be prepared for existing dairy farms in the target catchments, and practicable and affordable best management practices to be implemented on those dairy farms, is an effective and efficient means of minimising nitrogen leaching.

As notified, Rule 13-1 was silent in terms of it being a land use rule or a discharge rule. We have decided that it should be a land use rule promulgated under s 9(2) of the RMA as it will impose restrictions on the activity of farming as a land use. However, the consent for a farm obtained under the rule should logically also deal with the discharge matters dealt with under Rules 13-2 to 13-6 (excluding offal holes and farm dumps under Rule 13-5). The reason for this is that the nitrogen leached from those various discharge activities, if they are undertaken on a farm, will appropriately be included in the Overseer predictions of nitrogen leaching for the farm. The rules must therefore also be promulgated under ss 15(1) and 15(2A) of the RMA so that those other discharges associated with dairy farming are

147 We deal with the management of farm dairy effluent in our evaluation of Rule 13-6.
148 Manderson, Section 42A Report, August 2009, page 10 para 44.
149 Ibid, para 60.
150 Ibid, para 69.
151 Taylor, Section 42A Report, August 2009, para 10.
152 Monaghan, Section 42A Report, August 2009, para 7.

captured. The various conditions, standards and terms, and matters of control within Rules 13-2 to 13-6 need to be included in the amended Rule 13-1 and we have drafted those rules accordingly.

We note that such an approach preserves the "one stop shop" approach embodied in the POP as notified and encapsulated in the FARM Strategy document. However, given the changed nature of Rule 13-1 and various deficiencies with the FARM Strategy document, we have decided that it is not appropriate to refer to the FARM Strategy in Rule 13-1. The Council can amend and use that document if it wishes to.

8.6.9.5 Should Rule 13-1 apply to dairy conversions?

Rule 13-1 as notified applied to dairy conversions undertaken in all Water Management Zones in the Region after the date that the rule became operative. We do not know when that date will be, but if Rule 13-1 is appealed it may be five or more years away. We were also unsure what rate of allowable nitrogen leaching was intended to apply to dairy conversions, namely the year 1 values or the year 20 values. The POP as notified was silent on that matter and the officers provided us conflicting advice when asked.

In considering this matter, we note that the rate of dairy conversions in the Region appears to be quite low.

Dr Parfitt orally advised us that the growth of milk solids production in the Manawatu over the last decade was 2.55% compounding, however only 0.9% of that was attributable to dairy conversions. Mr Newman for Fonterra similarly advised us that for the Horizons Region "Over the ten year period to 2007-08 ... the amount of effective land for milking cows increased only 0.5% ...".[153]

In the End of Hearing material, Mr Neild informed us "The area in dairying in the Region has increased by 8.6% over the last decade (compared to 16.2% for New Zealand). This 8.6% increase in the Region in a decade represents a compound increase of 0.85% per annum. However, most of the growth is in Manawatu (2,700 hectares), Ruapehu (2,675 ha), Rangitikei (1,924) and Tararua districts (1,849). Wanganui and Horowhenua districts and Palmerston North City have shown little or declining growth."[154]

As discussed above, we have decided on a form of Rule 13-1 for existing dairy farms that requires nutrient management planning and the adoption of certain best management practices, including those regarding excluding stock access to streams. That form of rule does not require adherence to a particular nitrogen leaching rate. It simply requires that all practicable and affordable steps are taken to minimise nitrogen leaching. That is a fairly "light-handed" type of rule. We see no reason why it should not apply to dairy conversions in the target catchments. There seems little point in requiring existing dairy farms to implement best management practices if new dairy farms are not required to meet those same standards.

[153] Newman, Statement of Evidence, 30 October 2009, page 5 para 30.
[154] Neild and Rhodes, Economic Impacts of Proposed One Plan Limits on Nitrogen Leaching/Run-off Values, undated, page 12.

However, we have also decided that a more stringent requirement should apply to dairy conversions in the Region. These greenfields dairy farming enterprises should additionally be required to meet the nitrogen leaching rates that derive from the natural capital of the land, namely the original leaching rates determined by Dr Mackay. We note that in answer to our questions, Dr Mackay advised that he would be more comfortable defending his actual leaching rates as opposed to the various hybrids of them recommended by the officers and submitters.

We make these findings as we note that the existing water quality problems evident in the Region's rivers, insofar as they derive from land use as opposed to point source discharges, seem to stem from land being historically used in excess of its natural capital.

In deciding to use Dr Mackay's leaching rates for dairy conversions, we find that there is no need to amend those rates to cater for sand country where permanent irrigation has been installed nor to cater for anthropogenic factors and soil development. In terms of those issues, Dr Mackay advised us "Land development to date has largely been about removing limitations to plant growth. For example, irrigation, drainage, slope angle, etc are technologies that remove a limitation and might contribute to changes in the manageable properties of the soil, but do not change the inherent attributes of that soil. Little thought and effort has been given to developing technologies that change the inherent properties of a soil and add to the soil's natural capital and ecosystems services. That may be what land development into the future will need to tackle."[155] We also note that the rules will not apply to non-dairy intensive farming such as cropping and irrigated sheep and beef farming, which were the land uses undertaken by most of the submitters[156] who were concerned about these matters.

Additionally, we find that the intent of the POP as notified should be retained, namely the requirement for dairy conversions anywhere in the Region, and not just within the target catchments, to gain authorisation under Rule 13-1. We consider that to be an appropriate precautionary measure. The evidence, as summarised above, is that the number of dairy conversions within the Region as a whole is low, and so there are unlikely to be large numbers of parties affected by such a requirement.

8.6.9.6 Should Rule 13-1 be a permitted activity rule or a controlled activity rule?

As we have already noted, Rule 13-1 as notified required a controlled activity consent for intensive farming in the target catchments and for conversions to intensive farming anywhere in the whole Region. Several submitters, including Fonterra, Federated Farmers and Fert Research, considered that Rule 13-1 should instead be a permitted activity. Other parties, such as Wellington Fish & Game and the Department of Conservation, wished to see Rule 13-1 retained as a controlled activity defaulting to a discretionary activity.

As discussed above, we have decided that for existing dairy farms Rule 13-1 should be amended from that as notified, such that it simply requires nutrient management planning and the adoption of certain best management practices regarding stock exclusion from streams. This will result in a rule not dissimilar

[155] Mackay, Supplementary Evidence for the End of Hearing Report, undated, pages 11 - 12 para 39.
[156] Including Geoff Kane.

to Rule 3.10.5.3 adopted by Environment Waikato in Proposed Waikato Regional Plan Variation Five: Lake Taupo Catchment (RPV5). In that case, we understand that the Environment Court found that a consent was more appropriate than a permitted activity. The Court in the Taupo case noted that a degree of interaction between the farmers and the Council was necessary to ensure that farm-specific solutions to nitrogen leaching (namely appropriate farm-specific best management practices). The Court also referred to the mandatory record keeping requirements under the RMA for a controlled activity and the ability to recover compliance monitoring costs, whereas the situation for a permitted activity was less straightforward, making a controlled activity more efficient and effective.[157]

Those same considerations apply here and so we find that Rule 13-1 should be a controlled activity for existing dairy farms, defaulting to a restricted discretionary rule if there is non-compliance with the rule's standards and terms. We find that a restricted discretionary rule, with its targeted matters of discretion, is a more efficient and effective method than relying on the default discretionary Rule 13-27.

We are also satisfied that the rule regime for dairy farm conversions (new dairy farms) should adopt the same rule hierarchy. The only material difference between the regimes for existing and new dairy farms is that conversions must demonstrate compliance with the amended Table 13.2 year 1 leaching rates. To achieve that outcome, we have included a definition of the term "cumulative nitrogen leaching maximum" in the Glossary. This definition applies to the total area of a farm including any areas not used for grazing. Using the total farm area will enable landowners to include low leaching land use activities (such as retired land, forestry or sheep and beef grazing) as part of their overall farm package, thereby enabling a form of offset against the leaching that will occur from the part of the farm used for dairy cow grazing. We consider that to be an efficient and effective approach for new farms.

We find that the rules for both existing and new dairy farms should require the use of Overseer for the nutrient budget modelling which will underpin a nutrient management plan for each farm. The experts we heard from all agreed that this was the most appropriate model to use. We also accept the advice of Dr Manderson[158] that the operation of the Overseer model should be undertaken by accredited Overseer operators who have been trained in the correct use of the Overseer model. This view was echoed by other experts, including Dr Whiteman[159] for Horticulture NZ and Dr Ledgard[160]. To give effect to these findings we have included a definition of "nutrient management plan" in the Glossary that deals with those matters.

In making our findings on these issues, we note and accept the advice of Dr Parminter who stated "Well designed rules describe clearly what is considered to be unacceptable behaviours and minimise the number of freeloaders and holdouts present in all communities. Rules show that operating outside expected social norms is unacceptable, however they

[157] *Carter Holt Harvey Ltd v Waikato Regional Council*, A 123/2008 at paras 137 and 140.
[158] Manderson, Section 42A Report, August 2009, para 26.
[159] Whiteman, Statement of Evidence, 21 December 2009, paras 29 to 31.
[160] Ledgard, Section 42A Report, August 2009, para 12.

should not also penalise those already working within socially established boundaries."[161]

8.6.9.7 When should the rules commence?

As notified, Rule 13-1 would have commenced in the target catchments on the dates set out in Table 13.1. The first commencement date was April 2009. However, under section 20A(1) of the RMA the farming activities captured by Rule 13-1 could have continued until the rule became operative. Thereafter, under section 20A(2) of the RMA, farmers would have needed to apply for consent under Rule 13-1 within 6 months of the rule becoming operative.

In their November 2009 reports, the officers recommended that the Table 13.1 dates begin in April 2011 and end in April 2015. This was amended to July 2011 and July 2015 in the End of Hearing Reports. The rule would therefore have had a four year phasing in period. With the type of controlled activity rule that we now consider to be appropriate for existing dairy farms, we see no need for a staged approach to the rule's introduction.

We therefore reject submissions seeking a delay to the implementation of Rule 13-1 and a voluntary or educative approach in the meantime, except as that applies to non-dairy farming intensive land uses. As noted above, we do accept the view of some experts that a mix of voluntary and regulatory mechanisms is appropriate. However, we have decided that the voluntary mechanisms should apply to the intensive farming land uses comprising cropping, commercial vegetable growing and irrigated sheep and beef farms.

We consider that Rule 13-1, as amended, for existing dairy farms should commence in all of the remaining target catchments (see section 8.6.9.1) without the need to state any commencement time, as s 20A will prevail in any event. There is no need to stage the introduction of the rule as it applies to a smaller number of catchments and it does not require specified nitrogen leaching rates to be achieved. It will therefore be less onerous to comply with and implement for the famers and the Council.

The rules applying to dairy farm conversions (or new farms) require a commencement date. Necessarily, that date needs to be some time in the future so that parties undertaking dairy conversions are well aware of the requirements that will be placed upon them before they commence their conversions. We do not find the operative date of the Plan to be a suitable date as that could be many years hence. Instead, we find that a commencement date of 1 July 2011 is appropriate. We find that to be consistent with the general intent of Table 13.2 as notified.

8.6.10 Farm animal effluent discharges

Policy 6-9 as notified dealt with point source discharges to land, including those from agricultural, industrial and domestic wastewater sources. The submissions on this policy were largely confined to agricultural and domestic wastewater issues. The latter matter is dealt with in section 8.6.11 of this Part. In terms of agricultural discharges, submitters sought[162] the inclusion of a reference to "deferred irrigation" and that adverse effects on Schedule E

[161] Parminter, Statement of Evidence, 30 October 2009, page 3 para 14.
[162] Reid, submission 53-9.

habitats (as well as rivers, lakes and wetlands and their margins) be avoided remedied or mitigated.[163] We deal with the Schedule E habitats issues in section 8.6.6 of this Part.

Rule 13-6 as notified regulated the discharge of farm animal effluent from dairy sheds, feed pads, existing piggeries together with poultry farm litter and effluent. Rule 13-6 attracted a large number of submissions, many of which sought that the rule be deleted and replaced with a non-regulatory approach.[164] A number of other submissions[165] sought that Rule 13-6 be amended to remove uncertainties regarding the permeability of the sealing layer for effluent storage ponds. Numerous submitters[166] also sought that the matters of control in the rule be expressed with more precision.

Other submitters[167], mainly horticultural interests, sought a permitted activity rule for the discharge of poultry manure to land. We deal with those particular submissions in section 8.6.14 of this Part.

Given the level of interest in the discharge of animal effluent to land, we have asked ourselves a series of questions regarding Policy 6-9 and Rule 13-6 and the evidential basis for the propositions underpinning them. The questions were:

(a) Should a consent be required for the discharge of farm animal effluent to land?
(b) Should there be reference to "deferred irrigation"?
(c) What should the requirement be for pond sealing?
(d) What should the conditions[168] be for Rule 13-6?
(e) What should the matters of control be for Rule 13-6?

We work through these questions below and state our findings in relation to each of them. Readers should note that we deal with the issue of discharges from new piggeries in section 8.6.13 of this Part.

8.6.10.1 Should a consent be required for the discharge of farm animal effluent to land?

As notified, Rule 13-6 was a controlled activity rule. This means that applications to discharge farm animal effluent to land must be granted provided that they comply with the rule's requirements and conditions. Rule 13-6 was based on DL Rule 4 from the operative Land and Water Regional Plan.

As noted above, a large number of submissions sought that Rule 13-6 be replaced by "appropriate references to a non-regulatory approach". We take that to mean a permitted activity rule as the discharge of animal effluent to land is a breach of s 15(1) of the RMA and so it needs to be authorised by way of a permitted activity rule or a resource consent.

In this Region, the discharge of animal effluent to land has required a resource consent for some time. Ms Russell advised us that "There are currently 935

[163] Department of Conservation, submission 372-56.
[164] Pedersen and over twenty other submitters.
[165] Ibid.
[166] Ibid.
[167] Pescini Brothers and six other submitters.
[168] We use condition or conditions as a shortform for the column Conditions/Standards/Terms in the POP.

resource consents within Horizons' Region to discharge farm dairy effluent (FDE) from the 878 listed Fonterra suppliers. Of these resource consents, 917 are for discharge to land and 18 are for to [sic] discharge to water."[169] Ms Russell also informed us that "As at 30 April 2009 the compliance rate for FDE discharges was 73%."[170] She added orally that at the time of presenting her evidence the rate of significant non-compliance was 14%. Significant non-compliances are those that have an adverse effect on the environment or have the potential to have an adverse effect on the environment. She concluded that "The majority of non-compliances were due to breaches of discharge permit conditions that require the consent holder to ensure that there are no sump or pond overflows, there is no ponding of effluent on the soil surface, and there is [no] run-off of effluent to watercourses."[171]

Based on the evidence, around a quarter of farm dairy effluent discharge consent holders are not consistently complying with the conditions of their consents. On that basis, there seems little if any justification for moving away from a consenting regime to a permitted activity regime where there would be less regulatory oversight of the activity by the Council.

We therefore reject submissions asking for a "non-regulatory approach" to the discharge of farm dairy effluent to land and we find that these discharges should continue to require a controlled activity resource consent.

In our view, the research farms of AgResearch and LIC comprise production land and so they are covered by this rule.[172]

8.6.10.2 Should there be reference to "deferred irrigation"?

As we noted above, Mr Reid sought that Policy 6-9 specifically refer to "deferred irrigation".

Deferred irrigation was addressed in the evidence of Dr Houlbrooke who advised "To help overcome the problems associated with the spray irrigation of FDE to artificially drained soils and soils with drainage limitations, an improved treatment system called 'deferred irrigation' has been developed .... Deferred irrigation involves storing effluent in a pond then irrigating it strategically when there is a suitable soil water deficit, thus avoiding the risk of surface run-off or direct drainage of effluent. When applied effluent adds to the volume of plant available water (rather than drainage water), the soil-plant system's ability to remove soluble nutrients via plant uptake and immobilisation processes is maximised."[173] He added "The concept of 'deferred irrigation' has demonstrated that if FDE is stored in a suitably sized and lined pond when soil moisture is close to, or at, field capacity, and then applied to land at a time when appropriate soil moisture deficits exist, direct drainage or run-off of applied FDE can virtually be eliminated."[174]

We therefore find the concept of "deferred irrigation" to be an eminently sensible one and we have decided that it should be referred to in both Policy

[169] Russell, Section 42A Report, August 2009, para 11.
[170] Ibid, paragraph 22.
[171] Ibid, paragraph 28.
[172] LIC, submission 55-7, AgResearch, submission 166-7.
[173] Houlbrooke, Section 42A Report, August 2009, page 5 para 15.
[174] Ibid, pages 2 - 3 para 10.

6-9 (new clause (e)) and in Rule 13-6 as a specific matter of control (new matter of control (aa)).

8.6.10.3 What should the requirement be for pond sealing?

As can be seen from the discussion above, an effluent storage pond is a fundamental requirement for the successful implementation of deferred irrigation. The evidence of Dr Houlbrooke[175] was that, for a dairy farm, the effluent storage pond would need to be sized to cater for anywhere between 3 days to 12 weeks of farm dairy effluent production, depending on a range of variables including soil structure, land slope, soil infiltration rate and the type of irrigator used. These ponds need to be sealed in order to prevent excessive leakage of the effluent into the underlying shallow groundwater.

Initially Dr Houlbrooke advised us that the "Proposed One Plan Rule 13.6 currently states that all FDE ponds must be sealed to a permeability of less than $1x\ 10^{-9}$ m/s .... this relates to a leakage of less than 0.1 mm/day or approximately 23 mm over the duration of the milking season. However, a requirement for a near-zero leakage of FDE through a pond would likely exclude pond construction with a clay base liner and therefore such a limit would not be practically achieved. Environment Southland (2009) have suggested a higher leakage of 3.8×10^{-8} m/s in order to more practically allow clay-lined ponds."[176] However, he later revised this advice to be "Upon reflection .... I believe that a pond leakage rate of no more than 1×10^{-9} m/s is the most appropriate requirement."[177]

Dr Houlbrooke's evidence was that a pond lined to a permeability of 3.8×10^{-8} m/s would allow around 177.3 kgN per year to leach into the underlying groundwater, whereas a permeability of 1×10^{-9} m/s would reduce that to 4.67 kgN per annum. We therefore accept that the effluent pond permeability specified in condition (b) of Rule 13-6 should remain at 1×10^{-9} m/s as notified. We acknowledge that this will preclude the use of clay liners.

However, we find that it would not be equitable to impose this pond sealing requirement retrospectively on existing dairy farms. We note that the cost to the Region's dairy farm businesses of doing so would be around $10.7 million.[178] Therefore, we have redrafted condition (b) so that it only applies to ponds constructed or extended after the date that the Plan is made operative.

We also record that condition (b) as notified did not make the installation of effluent ponds mandatory. In our view it should have, as that would have ensured that deferred irrigation would be consistently enabled. However, there were no submissions seeking a mandatory requirement for effluent ponds and so we have no scope to amend the condition. This is a matter that the Council may wish to address in the future.

[175] Houlbrooke, Supplementary Evidence, November 2009, page 4 Table 2.
[176] Houlbrooke, Section 42A report, August 2009, page 29 para 55.
[177] Houlbrooke, Supplementary Evidence, November 2009, page 4 para 8.
[178] Neild and Rhodes, Economic Impacts of Proposed One Plan LUC Nitrogen Leaching/Run-off Values (Section 42A Report identified in footer), August 2009, pages 14, 52 - 53 and 63.

8.6.10.4 What should the conditions be for Rule 13-6?

As noted above, we have amended condition (b). We have also, as a matter of consistency, amended conditions (c)(i) and (c)(ii) to refer to the sensitive areas specified in Policy 14-2(d) which is part of the consent decision-making policy for discharges to air. The result of this amendment is that "public roads" (which are listed in Policy 14-2(d)(iib)) do not need to be separately listed in condition (c)(iv). We have also amended condition (c)(v) relating to effects on historic heritage for the reasons set out in section 5.6.2.1 of Part 5 (Biodiversity and Heritage Hearing) of this Volume.

Condition (d) has been clarified so that it precludes rainfall entering the effluent pond run-off from hardstand areas that are not used to hold animals. We understand, based on our questions to the officers, that this was the intent of the provision as notified. In condition (e), we have specified the use of the Overseer nutrient budget model for the reasons set out in section 8.6.9.6 of this Part, namely that the experts we heard from all agreed that this was the most appropriate model to use. As recommended by the officers[179], we have further amended condition (e) so that any nutrient budgeting undertaken for animal effluent discharges must be consistent with any nutrient management plan required under the amended Rule(s) 13-1. Finally, we have, as a matter of consistency, deleted from condition (f) the reference to odour being offensive or objectionable "to the extent that causes an adverse effect" as that terminology has been deleted from Policy 8-2 and Table 8.3 which set regional standards for ambient air quality.

8.6.10.5 What should the matters of control be for Rule 13-6?

As we have noted, numerous submitters sought that the matters of control in Rule 13-6 be expressed with more precision. We agree that more precision is required to ensure that potential adverse effects are avoided, remedied or mitigated. The evidence of Dr Houlbrooke and Dr Monaghan was helpful in that regard. We note that Dr Monaghan advised us about the best management practices (he called them good environmental practices or GEPs) that can mitigate nitrogen and phosphorus losses from farms. He said these include "Improved farm dairy effluent (FDE) management practices. These include pond storage provision, low-depth applications, low-rate application tools and improved scheduling of applications based on farm-specific monitoring information ..."[180]

Dr Houlbrooke advised us "... land application of FDE has proven difficult when it has occurred on soils with a high degree of preferential flow, soils with artificial drainage or coarse structure, soils with infiltration or drainage impediments, or when applied to soils on rolling/sloping country. These effects can be exacerbated by climate as high rainfall can further contribute to the poor environmental performance of such land application systems .... Furthermore, the high application rate of travelling irrigators has been found to be difficult to manage for soils on sloping terrain, and on soils with either infiltration or drainage limitations or preferential flow characteristics. Low application rate methods allow for greater control of application depth as well as better matching of the soil's ability to infiltrate and absorb applied FDE,

[179] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 13-29.
[180] Monaghan, Section 42A Report, August 2009, page 5 para 13.

thereby improving the likelihood of storing the valuable nutrients within the plant root zone."[181]

We have consequently inserted matter of control (aa) which specifically refers to the volume and rate of effluent discharged in relation to the infiltration rate and water storage capacity of the soil. We have also inserted reference to the nitrogen loading (matter of control (ab)) and the provision of effluent storage facilities (or effluent ponds) to give effect to the evidence we received, as discussed above, on the importance of those matters.

We have deleted matter of control (e) which related to effects on Schedule E habitats, as under condition (c)(iii) the discharge must be 50m away from such habitats, thereby avoiding potential adverse effects.

8.6.11 Domestic Wastewater Discharges

The provisions dealing wholly or in part with the discharge of domestic wastewater (apart from the general Chapter 6 objectives) are Policies 6-6, 6-9, 6-11 and 13-3 and Rules 13-10, 13-11 and 13-12.

Policy 6-6 as notified provided general guidance on the effects of discharges and land uses on groundwater quality. As discussed previously, Policy 6-9 as notified dealt with point source discharges to land, including those from domestic wastewater sources. Policy 6-11 dealt with human sewage discharges.

Some submitters[182] sought that Policy 6-6 be amended so that groundwater quality would be enhanced where it was degraded. We find that to be a sensible submission and one that is consistent with s 7(f) of the RMA. We have amended Policy 6-6(a) accordingly.

Other submitters[183] wished to see Policy 6-6(a) amended so that it required "no significant degradation of groundwater quality". In terms of those submissions, we decided that an exception needed to be made for Policy 6-6(a) as it is unavoidable that some discharges to land, which in themselves are desirable such as discharges of domestic wastewater, will result in some degradation of groundwater quality, albeit only minor. We therefore inserted clause (aa) which allows some degradation of groundwater quality if it better meets the purpose of the RMA (which is to promote the sustainable management of natural and physical resources) and the best practicable option is adopted for the treatment and discharge system.

There was some support[184] for Policy 6-9(a) while other submitters[185] wished to see the word "significant" deleted from that provision. In addressing those submissions, it became apparent that we needed to reconcile an inconsistency between Policy 6-9(a) and Policy 6-6, particularly the new clause (aa) that we inserted into Policy 6-6 that allows groundwater quality degradation in some circumstances. We decided that it was appropriate to delete Policy 6-9(a) and instead include a cross-reference to Policy 6-6 in Policy 6-9(c). We decided that this provided sufficient policy guidance,

[181] Houlbrooke, Section 42A Report, August 2009, page 2 paras 9 and 10.
[182] Manawatu Estuary Trust, Paton, Water and Environmental Care Assn, Forest & Bird, NKII, Taranaki Fish & Game.
[183] Tararua, Rangitikei, Horowhenua, Manawatu and Wanganui District Councils.
[184] Tararua, Rangitikei, Horowhenua, Manawatu and Wanganui District Councils.
[185] Manawatu Estuary Trust, Paton, Water and Environmental Care Assn.

particularly when combined with Policy 6-9(b) which provides safeguards against discharges causing land to become unsuitable for specified reasonable uses.

The territorial authority submitters were concerned that Policy 6-9(b) set unreasonable future demands on wastewater disposal areas. We do not consider that to be the case as to do otherwise would be inconsistent with s 5(2)(b) of the RMA in terms of the reasonable needs of future generations. Put another way, discharges to land should not create contaminated sites that are then left to future generations to deal with. We therefore reject the territorial authority submissions in that regard. We did however include a reference to future recreational land uses as sought by the TA Collective.[186]

There were a range of submissions on Policy 6-11. As notified, Policy 6-11(a) required all new discharges of treated human sewage to be to land or to flow overland or pass through a rock filter or wetland before entering surface water. We have amended that requirement so that a discharge to land is not required in preference to discharge to water. This was done to align Policy 6-11 with changes we made to Policy 6-10 as notified (now Policy 13-2B) whereby discharges to land are to be considered as an alternative, and not in preference to, discharges to water. We discuss that matter further in section 8.7 of this Decision.

To assist the clarity of the amended Policy 6-11(a), we split it into a series of four numbered sub-clauses (i to iv). The territorial authority submitters sought that 6-11(a) be expanded to allow for "an alternative system acceptable to the iwi body with manawhenua over the area concerned". We decided that such flexibility is desirable and so we also inserted clause (v) which allows an alternative system that mitigates adverse effects on the mauri of the water body.

As notified, Policy 6-11(b) required all existing human sewage discharges to water to be upgraded to meet the requirements of Policy 6-11(a) by 2020. Most submitters[187] supported this target date although NKII suggested a date of 2018. We have decided that the 2020 date is appropriate as a ten year period is more reasonable than an eight year period and it aligns better with local authority planning cycles.

Policy 13-3 as notified provided guidance to decision-makers on how they should exercise their discretion when evaluating discharges of domestic wastewater falling under Rule 13-12 (see below). There were only three submissions on this policy, two of which were in support. We have therefore only made minor wording changes to the policy to assist with consistency and clarity.

Rule 13-10 as notified regulated the discharge of domestic wastewater into or onto land as a permitted activity. Rule 13-11 dealt with new and upgraded discharges, also as a permitted activity. Rule 13-12 was a restricted discretionary activity rule for those discharges that could not comply with the conditions of Rule 13-10 or 13-11. There were a number of submissions on

[186] Forrest, Supplementary Evidence, undated, page 4 para 15.
[187] Sustainable Wanganui, Ecologic Foundation, Forest & Bird.

Rules 13-10 and 13-11, with the majority attributable to six submitters.[188] There were only two submissions on Rule 13-12.

The above rules as notified referred to the "Manual for On-site Wastewater Systems - Design and Management" (Horizons Regional Council, 2006). The correct reference should have been to a 2007 version of that document as the 2007 document is the one that actually went through the process in Part 3 of Schedule 1 to the RMA. Mr Barnett helpfully explained the history of guidance documents that preceded the Manual. He advised "In November 2000 Horizons produced the *On-site Wastewater System Guidelines for the Manawatu- Wanganui Region* with Mr Ian Gunn, of Auckland UniServices Ltd, Auckland, as Technical Advisor .... In 2004, Horowhenua District Council - working with staff from Horizons - adopted a guideline under the Council's Minimum Engineering Standards, entitled *Minimum Requirements for On-Site Wastewater Systems in the Horowhenua District*. This Memorandum of Understanding (MOU) was loosely based on Auckland Regional Council's (ARC) Technical Publication No 58 (TP58), *On-site Wastewater Systems Design and Management Manual* .... The Horowhenua model has been modified for the Proposed One Plan. Mr Sandy Ormiston of Ormiston Associates, co author of ARC's TP58, was engaged as Technical Advisor for Horizons' Manual for On-site Wastewater System Design and Management (Barnett *et al*, 2007). This was notified as part of the POP in May 2007. Version II of the manual has now been prepared, incorporating comments made by Mr Ian Gunn (peer review), submitters and TA staff (expanding the maintenance section)."[189]

Mr Barnett explained to us that the Manual and the content of Rules 13-10 and 13-11 had been workshopped with the submitters and there was technical agreement with the provisions of both. He explained[190] the changes that had been made to the Manual. He also advised us that "I am hopeful that this process will eliminate most of the issues raised by submitters in relation to on-site wastewater management in the Region. By the time of the Water Hearing there should be only a few points of difference for the Panel to consider."[191]

We were heartened by Mr Barnett's advice given the technical complexity of the Manual and the associated rules. However, when we heard from submitters it was clear that there were still areas of technical disagreement. We asked the submitters to caucus further with the officers on those matters. We subsequently received a caucusing report[192] relating to a meeting that had been held on 3 March 2010. The caucusing report recorded agreement on all matters other than whether or not the rules should specify the number of on-site wastewater treatment and discharge systems per property.[193]

In terms of that residual matter of contention, we find that the number of on-site wastewater systems per property will correlate directly with the number of dwellings permitted on the property and that in turn is controlled by district plan provisions. We see no need to duplicate those controls in Rules 13-10 and 13-11. We also note that Rules 13-10 and 13-11 are appropriately

[188] Drainaway, Manawatu On-Site Wastewater Users Group, Duffill Watts Consulting Group, Cuttriss Consultants, Pirie Consultants and others.
[189] Barnett, Section 42A Report, August 2009, pages 4 and 5.
[190] Ibid, pages 25 - 26 para 84.
[191] Ibid, pages 26 - 27 para 86.
[192] Thompson, Report of a Submitters' Caucus Meeting, 3 March 2010.
[193] Ibid, page 4.

effects-based, so that if the various conditions and separation distances are complied with, the potential adverse effects of any number of on-site wastewater systems per property will be appropriately avoided, remedied or mitigated.

Other than for that matter, we understand that the contents of Rules 13-10 and 13-11 as presented to us in the End of Hearing reports[194] from the officers, together with the contents of the Manual and that the definition of wastewater should include reference to greywater, are now agreed between the Council and submitters. We are grateful to the parties for the cooperation shown in working through the complex technical matters addressed by these provisions. We record that we have accepted the final wording recommended to us, subject only to some minor wording changes[195] to the rules that we have made for the sake of clarity and consistency and removing conditions (k) in Rule 13-11 and (f) in Rule 13-12 because the rules regulate discharges, not land disturbance.

The wording changes include the cut-off date up to which Rule 13-10 applies. We amended that from the notified wording "the time that this rule comes into effect" to "1 July 2011". We understand from our questions to the officers that the former phrase was meant to relate to when the rule became operative. We decided that was not an appropriate date to use as it could be several years into the future. We decided instead to use the date of 1 July 2011. Using that date will minimise the potential for a "gold rush" of domestic wastewater systems being installed that do not comply with the more sophisticated Rules 13-11 and 13-12.

We also note that the latest agreed version of the Manual is now called "Manual for On-Site Wastewater Systems Design and Management (Horizons Regional Council 2010)" and we use that new name throughout the provisions. A copy of that version of the Manual is included in Volume 5.

8.6.12 Biosolids discharges

Rule 13-4 as notified dealt with the discharge of Grade Aa biosolids and soil conditioners to production land as a permitted activity.

Some submitters sought that this rule be amended so that a consent is required for the discharges.[196] Other submitters sought that the rule be retained as a permitted activity, subject to some changes to the conditions.[197]

At the hearing, we heard from Ms Beecroft of CPG who advised us "I believe that Rule 13-4 seems to ignore the hard work and science that was used to develop the National Biosolid Guidelines NZWWA, 2003. It creates a further restriction of an already restrictive prescription for the management of biosolids. The Guidelines were developed with great thought and care. A concern among those involved with their production was that Regional Councils may simply take the work and then restrict it further. Proposed Rule 13-4 takes what is already developed to be best practice, and sets even

[194] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, pages 13-32 to 13-37.
[195] Including those made to Rule 13-11 (j) and (k) for the reasons set out in section 5.6.2.1 of Part 5 (Biodiversity and Heritage Hearing) of this Volume.
[196] Public Health Services - MidCentral Health, Manawatu Branch of NZ Green Party.
[197] Including Duffill Watts Consulting Group (now CPG), Minister of Conservation.

more stringent requirements, but without any indication or acknowledgement of any improved science behind these more stringent requirements."[198]

We accept the thrust of Ms Beecroft's evidence and agree that the discharge of biosolids to production land should generally be enabled.

Ms Beecroft helpfully recommended some amendments to the conditions of Rule 13-4 which we address below.

We accept Ms Beecroft's advice that there is no need to refer to the "ponding of material", because, as she stated, "By their very nature, biosolids are solid, and even the lightest of applications can reasonably be expected to reside on the surface until it breaks down and is incorporated into the soil."[199] We have therefore decided that conditions (a) and (b) can be merged by simply referring to "run-off" in condition (a). This means that condition (b) can be deleted.

With regard to condition (c) Ms Beecroft advised "Biosolids, by their very nature, contain human or animal pathogens. Even the highest Aa standard specifies a limit to pathogens which is endorsed by the Ministry of Health, rather than a complete exclusion".[200] We accept her advice and so we have amended condition (c) so that it refers only to soil conditioners and compost (see below regarding the inclusion of compost in the rule).

Ms Beecroft recommended a revised version of condition (c) that referred to the Guidelines for the Safe Application of Biosolids to Land in New Zealand (New Zealand Water and Waste Association, August 2003). We see merit in referring to those industry Guidelines, and note that to do so would be consistent with new Policy 13-2A which states that the Council may accept compliance with industry guidelines as being adequate to avoid, remedy or mitigate adverse effects. We have therefore inserted a new condition (ca) which was recommended to us by the officers.[201] We understand that it results from further caucusing between the officers and Ms Beecroft.

In terms of the separation distances specified in condition (d) as notified, Ms Beecroft advised "I am of the opinion that Aa standard biosolids are less noxious than many dairy shed or poultry effluent discharges, and that a separation from property boundaries should not be required." [202] We accept her advice, which was not opposed by the officers, and so we have deleted conditions (d)(i) and (d)(ii). We have however retained the other separation distances as notified, subject to amendments to achieve consistency as discussed in section 8.6.10 of this Part.

We have also amended condition (e) to cross-reference any nutrient management plan that may be prepared under Rule(s) 13-1. The reasons for that amendment are also set out in section 8.6.10 of this Part.

Ms Beecroft also sought the insertion of a new restricted discretionary activity rule dealing with Class Ab, Ba or Bb biosolids. She stated "Lower grade (Ab,

[198] Beecroft, Statement of Evidence, 23 February 2010, page 3 para 10.
[199] Ibid, page 3 para 12.
[200] Ibid, page 3 para 13.
[201] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 13-24.
[202] Beecroft, Statement of Evidence, 23 February 2010, page 4 para 15.

Ba and Bb) biosolids are deemed to be safe for application to land with appropriate management controls. To encourage the safe use of lower grade biosolids we believe a separate rule should be established to assist users to plan the safe use of lower grade biosolids."[203]

We were initially concerned that the inclusion of such a new rule was beyond the scope of the original Duffill Watts Consulting Group submission. However, upon re-reading that submission, we note that it states "HRC should be promoting the use of biosolids through One Plan, rather than imposing restraints that are more restrictive than have been competently established to be necessary."[204] We are satisfied that submission provides scope for the new rule.

Ms Beecroft had attached a version of a new rule to her evidence.[205] We understand that subsequent to her attendance at the hearing further caucusing occurred between Ms Beecroft and the officers regarding that wording. This led to the wording recommended to us by the officers in the End of Hearing reports.[206] We are grateful for that assistance and have largely adopted the recommended wording, subject to some minor changes for the sake of clarity and consistency.

With regard to the matter of compost discharges, the New Zealand Pork Industry Board had sought that Rule 13-6 be extended to include "solid manure, bedding and composted material".[207] Ms McGruddy presented us with pictorial evidence showing how pig effluent is dewatered, separated, stored and spread onto production land as a cost-effective alternative to the use of artificial fertilisers. She advised us orally that in some cases the dewatered effluent is mixed with straw to form compost which is then applied to the land as a substitute for commercial granular fertilisers.

We consider it appropriate to enable, as a permitted activity, the use of compost as an alternative to the use of fertilisers on production land. However, we note that compost is more appropriately dealt with under Rule 13-4 as that rule deals with biosolids and soil conditioners which have similar physical properties to compost. We have therefore added compost to the activity description of Rule 13-4. We are satisfied that the conditions of Rule 13-4 are adequate to avoid, remedy or mitigate the potential effects of compost discharges to production land.

8.6.13 New piggery discharges

As notified, Rule 13-6 only applied to existing piggeries, although it was unclear what the cut-off date for "existing" was. The discharge of animal effluent to land from new piggeries consequently required a discretionary activity consent under Rule 13-7, which enabled applications to be declined.

The evidence of Mr Barnett addressed discharges to land from piggeries and the rationale for making new piggeries a discretionary activity. The areas of concern he outlined related to nutrient loadings and odour. Mr Barnett advised us "Piggery waste is generally high in pH and nutrients - nitrogen

[203] Ibid, page 4 para 19.
[204] Duffill Watts, submission 287, 12th page.
[205] Beecroft, Evidence, 23 February 2010, Appendix 2.
[206] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 13-26.
[207] Submission 409-35.

(high ammonium-N content), phosphorus, potassium and sodium, and could contain amounts of heavy metals associated with the pigs' diet."[208] He went on to add "Odour from pig rearing operations is largely unavoidable but can be mitigated by good management practices. Odour can emanate from buildings housing the pigs, wastewater collection and treatment facilities (ie. sumps and pond system), or from the land application activity. Efficient and timely washing of the housing areas, the use of diet supplements that inhibit odour production, and odour masking agents for the wastewater are some methods of mitigating odour. A clean and tidy operation, with screen planting and good buffers to dwellings and other public areas goes a long way to managing the odour issue."[209]

The New Zealand Pork Industry Board sought that Rule 13-6 should apply to new piggeries as well as existing piggeries. Landlink sought that new piggeries be restricted discretionary activities. Ms McGruddy presented evidence to us on behalf of the New Zealand Pork Industry Board. She made the point, in answer to our questions, that in her opinion the primary issue of concern with the discharge of pig effluent to land is that of odour and that the primary way of mitigating potentially offensive odours (apart from good on-farm management) is through sound land use planning and the separation of sensitive receiving environments from operational rural areas. We note that to primarily be a district planning issue although Rule 13-6 does establish substantial separation distances for piggery effluent.

In terms of the issues of concern to the officers, we note that Rule 13-6, as amended in response to submissions (see section 8.6.10 of this Part) has a new matter of control (ab) that reads "nitrogen loading in terms of kgN/ha/year and kgN/ha in any 24 hour period". Therefore, decision-makers will be able to evaluate the circumstances of particular applications and impose nitrogen loading limits as appropriate. If, as Mr Barnett advised us, this requires large areas of land for the land disposal field due to the high nitrogen content of piggery effluent[210], then so be it. We have concluded that is not an impediment to including new piggeries within Rule 13-6.

With regard to potential adverse odours, Ms McGruddy pointed out that condition 13-6(c)(i) already requires a 150 m separation distance between piggery effluent discharge areas and sensitive sites. We also note that condition (f) requires that there must be no offensive or objectionable odour beyond the property boundary. These are adequate safeguards in our view. If Council receives applications for new piggeries that are not, in its view, likely to meet the conditions then the Council can return the application under s 88(3) of the RMA or request further information under s 92 of the RMA. If the conditions cannot be met, the application can be declined.

As a further safeguard, we note that matter of control 13-6(d) (as amended by us) relates to "management of odours arising from the effluent discharge". This will allow decision-makers to impose additional resource consent conditions designed to avoid or mitigate odour effects as they see fit.

[208] Barnett, Section 42A Report, August 2009, page 14 para 52.
[209] Ibid, page 16 para 57.
[210] Ibid, page 14 para 50.

We therefore see no reason for excluding new piggeries from the coverage of Rule 13-6 and we accept the submission of the New Zealand Pork Industry Board.

8.6.14 Fertiliser, poultry farm litter and soil conditioners

Under Rule 13-6 as notified, the discharge of poultry farm litter and poultry farm effluent to production land was a controlled activity. Some submitters[211] sought that poultry litter be confirmed as a fertiliser (by amending the Glossary definition of fertiliser) so that the discharge of poultry litter to land would be permitted under Rule 13-2.

Evidence on behalf of the Poultry Industry Association of New Zealand and Tegel Foods was provided by Ms Moleta.[212] Ms Moleta advised "Our further submission points 16 and 19 supported a number of submissions that requested a permitted activity rule for the '*discharge of poultry manure to land where it is immediately cultivated into the soil subject to the condition of ensuring that there is no direct discharge to a water body and a nutrient budget is used"*'.[213] She added "The Reporting Officer recommended that the submission be rejected, but has proposed the matter be worked through with the submitters and returned to in the supplementary report .... It is considered that standards and conditions could be included in a permitted activity rule that could avoid the adverse effects identified by the reporting officer."[214] Ms Moleta then set out a permitted activity rule for our consideration which included reference to poultry farm litter, which had also been referred to in the submission.

We note that the only advice we received from the officers on this matter was from Ms Barton. She advised that "if composted chicken litter was to be registered as a fertiliser by the likes of FertMark then it would be permitted under Rule 13-2."[215] We do not find that to be particularly helpful, but understand it to mean that the officers consider composted poultry farm litter to have the same benign characteristics as fertiliser.

Mr Barnett did not make substantive comments on the matter of poultry farm litter in his Section 42A Report. He did note that there are 30 poultry farming operations in the Region and "A discharge of contaminants to air from factory farms, including intensive pig and poultry farming operations is permitted provided there is no objectionable odour, dust or noxious or dangerous airborne contaminants beyond the property boundary under the Regional Air Plan."[216]

Bearing the officers' advice in mind, we accept the submissions of the Poultry Industry Association of New Zealand and Tegel Foods that the discharge of solid poultry farm litter (including solid poultry manure), but not poultry farm effluent, to land should be authorised as a permitted activity.

Rather than amending the definition of fertiliser in the Glossary, we find it more efficient and effective to insert an additional Rule 13-4B to deal with poultry

[211] Poultry Industry of NZ, Tegel Foods, Turks Poultry & Mainland Poultry Group.
[212] Moleta, Letter dated 10 November 2009.
[213] Ibid, page 2.
[214] Ibid.
[215] Barton, Supplementary Section 42A Report, 23 November 2009, page 38.
[216] Barnett, Section 42A Report, August 2009, page 12 para 45 and page 17 para 61.

farm litter. We have used Ms Moleta's suggested conditions as a starting point, but have amended and expanded them to provide consistency with other rules relating to agricultural discharges. As a cautionary measure, given the new rule is a permitted activity, we have required a separation distance of 150 m to sensitive sites and 50 m to property boundaries.

As a consequence of introducing new Rule 13-4B, have inserted a definition of "poultry farm litter" in the Glossary as follows:

> **Poultry farm litter** means solid poultry manure, bedding and composted material from poultry farm sheds.

We are of the view that liquid poultry farm effluent should continue to be regulated under Rule 13-6. We therefore retained a reference to "poultry farm effluent" in clause (d) of the activity description of Rule 13-6. In the context of the wording of the rule, we are satisfied that animals include chickens and so poultry farm effluent falls within the definition of animal effluent.

We have, however, amended the definition of "animal effluent" to exclude "poultry farm litter" to avoid overlap between Rules 13-6 and new Rule 13-4B. The definition of "animal effluent" is now as follows:

> **Animal effluent** means faeces and urine from animals other than humans, including associated process water, washdown water, contaminants and sludge, excluding *poultry farm litter**.

8.6.15 Stormwater Discharges

The discharge of stormwater to water and to land is dealt with under Policies 6-8 and 6-9 as notified. We have already evaluated the submissions on Policy 6-9 (see section 8.6.10). There were a wide range of submissions on Policy 6-8 and we evaluate those submissions in section 8.7 of this Part. We consider that to be more appropriate than dealing with them here in the context of stormwater discharges. We note that none of the submissions on Policy 6-8 addressed stormwater discharges specifically.

As notified, Rule 13-15 dealt with discharges of stormwater to surface water and land as a permitted activity. Rule 13-16 then dealt with discharges of stormwater to land that did not comply with the conditions of Rule 13-15, as a controlled activity. Rule 13-17 dealt with discharges of stormwater to surface water that did not comply with the conditions of Rule 13-16, as a restricted discretionary activity.

Some submissions[217] supported Rule 13-15 while others sought to delete or amend some of its conditions.

The oil companies and Transpower sought that condition (a) be amended so that it referred to hazardous substances or contaminants of concern "that may be entrained by stormwater". We find that to be a sensible submission. If hazardous substances or contaminants of concern are located on a site, but they are contained by bunds (or similar devices) so that they cannot be entrained by stormwater, then there is no need to exclude such sites from the permitted activity rule. We have amended condition (a) accordingly.

[217] Inghams, Ravensdown.

Ruapehu District Council sought that condition (b) be deleted. The officers agreed with that submission. Ms Barton advised "There does not appear to be any clear understanding as to the link between catchment area and effects or why the standard was required so I have recommended it be removed."[218] We accept that advice and have deleted condition (b).

We have amended condition (c) to delete the proviso "unless written approval is obtained from the affected property owner". We were advised by Ms Barton that "As a Permitted Activity standard it is inappropriate to require the approval of a third party."[219] We accept Ms Barton's advice, which was supported by Mr Maassen.[220] We have therefore deleted such references from all rules dealt with in the Water hearing.

We have amended condition (f)(iii) in line with the submission of Horizons Regional Council. Other conditions, including (e) and (i), have been amended to ensure consistency, for the reasons set out elsewhere in this Part.

In their End of Hearing report, the officers recommended deleting Rule 13-16.[221] They advised "The cascade of these rules provides for discharges of stormwater to water as a restricted discretionary activity where the permitted activity standards cannot be met. In relation to discharges to land where the permitted activity standards cannot be met, it falls for consideration as a controlled activity. However, the conditions within the controlled activity rule are similar to those within the permitted activity rule; this means that where they cannot be met, the activity would be a discretionary activity. This effectively means the consent status for discharges to land are more stringent than discharges to water. This was not the intent. It is recommended that discharges of stormwater to land not meeting the permitted activity standards be made a restricted discretionary activity, which would be the same category of consent as discharges to water. There would be no further cascade to a discretionary activity category."[222] We accept the recommendation of the officers and we are satisfied that the Horizons Regional Council's own submission provides scope for this change.[223] We have therefore deleted Rule 13-16.

There were a number of submissions on Rule 13-17. Some submitters sought the deletion of condition (a).[224] In response to those submissions, we have deleted reference to Site of Significance - Aquatic from the condition due to the wide aerial extent of those sites. In our view, it would be impractical to exclude stormwater discharges to the large number of streams deemed to be Sites of Significance - Aquatic.

Other submitters sought a timeframe for achieving acceptable water quality using the standards of Schedule D.[225] We deal with the Schedule D standards in section 8.6.5 of this Part, but note there is no defined timeframe by which they are to be achieved.

[218] Barton, Planning Evidence and Recommendations Report, August 2009, page 236.
[219] Ibid.
[220] Maassen, Response to Miscellaneous Legal Questions, 27 January 2010, para 6.
[221] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 13-42.
[222] McArthur and others, End of Hearing Report, undated, page 130 paras 417 and 418.
[223] Horizons Regional Council, submission 182-61.
[224] Ruapehu District Council, Rangitikei District Council.
[225] New Zealand Pharmaceuticals, Tararua District Council, Horowhenua District Council.

As a consequence of deleting Rule 13-16, we have inserted matters of control (ba) and (bb) into Rule 13-17. Similar matters of control were previously matters of control (c) and (d) in Rule 13-16. We find that decision-makers should be enabled to impose resource consent conditions in relation to those matters for stormwater discharges to land or water. We have also reworded matter of control (d) which related to the Schedule D standards. As was discussed in section 8.6.5, those "standards" are now called "targets" and conditions on discharge permits may be imposed to assist with maintaining or achieving them as appropriate. This change of wording has resulted in consequential changes Plan-wide. We have also amended the wording of condition (a). This change, which is also made in other provisions, is discussed in section 8.6.6 of this Part.

We address one further stormwater-related issue with regard to Rule 13-22. Mr Forrest recommended that Rule 13-22 be amended to exclude discharges of stormwater managed under Rules 13-15 to 13-17.[226] Mr Forrest's recommendation was based on the technical evidence of Mr Kennedy who advised "Rule 13-22 also identifies that the discharges of persistent and harmful contaminants [is a non-complying activity]. Specific persistent contaminants are identified in the rule. All road runoff in urban and rural runoff contains polyaromatic hydrocarbons (PAHs) generated from fuel and oil combustion ... Does that imply by default that all urban stormwater runoff is non-complying? The application of this Rule 13-22 requires better definition to be applicable to specific sources containing PAHs but not to include stormwater as a [non-complying] activity due to the presence of PAHs."[227]

We accept that it would be nonsensical to have typical stormwater discharges categorised as non-complying activities. We have therefore accepted the recommendation of Mr Forrest.

We note that there were only four other submissions on Rule 13-22. We reject the submission seeking the addition of future un-specified materials or chemicals to the list of contaminants in the rule.[228] Such a provision would be too uncertain. The other submissions were in support of the rule and we accept them.

8.6.16 Permitted activity takes and s 14(3)(b) takes

As notified, Rule 15-1 allowed the taking and use of surface water as a permitted activity and Rule 15-2 did the same for groundwater. The rules referred to s 14(1), but in the post-2009 amendment version of the RMA, s 14(1) is now s 14(2).

In Rule 15-1, the rate of take was not to exceed 30 m^3/d per property "where the water is required for an individual's reasonable domestic needs and/or the reasonable needs of an individual's animals for drinking water" (condition (a)(i)). Condition (a)(ii) referred to 15m^3/d per property for any other use.

There were a large number of submissions on Rules 15-1 and 15-2. Some submitters sought changes to the volumetric limits in the rules.[229] A number of

[226] Forrest, Supplementary Evidence, undated, page 5 para 19.
[227] Kennedy, Evidence, 19 October 2009, page 13 para 50.
[228] Manawatu Branch of NZ Green Party.
[229] Frew, Duffill Watts.

submitters sought the removal of any limit on stock water takes and provision for other agricultural activities (mainly milk cooling and farm dairy sanitation) on the basis of land area (rather than on a property basis).[230] A number of submitters specifically sought that the allowance for farms be based on a minimum of 420 or 450 litres per hectare.[231] Some submitters supported the rules as notified or with some changes.[232] Federated Farmers sought that both rules be amended to exclude s 14(3)(b) takes and AgResearch and Livestock Improvement Corporation sought wording that better reflected s 14(3)(b). A number of submitters sought the deletion of various conditions.

Condition (a)(i) in Rule 15-1 was based on the wording in s 14(3)(b) of the RMA, which states:

> A person is not prohibited ... from taking, using, damming, or diverting any water, heat, or energy if-...
> (b) in the case of fresh water, the water, heat, or energy is required to be taken or used for-
> (i) an individual's reasonable domestic needs; or
> (ii) the reasonable needs of an individual's animals for drinking water,-
> and the taking or use does not, or is not likely to, have an adverse effect on the environment.

We posed some questions to the officers about what the term "individual" meant in condition (a)(i) and what it meant in s 14(3)(b) of the RMA, in particular whether the term "individual" had a different meaning from the term "person". We also asked questions about the way in which takes allowed by s 14(3)(b) should be provided for.

Based on the above matters, we find that the following principal issues of contention arise in relation to Rules 15-1 and 15-2:

(a) Should the rules refer to an "individual's" needs and to s 14(3)(b) of the RMA?
(b) What should be the maximum daily takes and should they be based on land area?

8.6.16.1 Should the rules refer to an "individual's" needs and to s 14(3)(b) of the RMA?

Mr Maassen provided us with advice about the meaning of individual.[233] He noted that s 14 uses both "individual" and "person". Therefore, the meaning of "individual" in s 14(3)(b) RMA is intended to mean something different from the term "person". He considered that "individual" refers to a natural person and not a group of persons or a partnership.[234] In questioning, he accepted that it might include a husband and wife, but not a family trust. Whether it would include a partnership of two people was, he said, "fuzzy around the edges". "Individual" would not include a company.

Mr Gardner for Federated Farmers and Ms McIndoe for Fonterra expressed a contrary view. Mr Gardner submitted that "what is intended is that 'individual' should be read as being a slightly broader meaning of 'person'".[235] Ms

[230] Hamlin Family Trust and over twenty others, Hoggard.
[231] Hocken, Amberley Farm Trust and four others.
[232] Wellington Fish & Game, Mighty River Power, Horticulture NZ.
[233] Maassen, The Meaning of 'Individual' in Section 14 RMA, 25 January 2010.
[234] Ibid, para 9.
[235] Gardner, Legal Submissions, undated, para 32.

McIndoe said that "Fonterra submits that section 14(3)(b) should be read to apply to a body of persons, whether corporate or incorporate."[236] Fonterra was effectively saying that "individual" meant the same as "person". In answer to questions, Ms McIndoe conceded that would not be a normal statutory interpretation approach.

In the End of Hearing materials, Mr Maassen repeated his conclusion that the term "individual" does not extend to "a partnership, group of persons or body corporate".[237] He also found support for that view from the first reading of the Resource Management Bill (which contained a section 11 that did not refer to "individual") and the amended Resource Management Bill as reported back from the Local Government and Environment Committee (which included the reference to "individual's"). He said that the purpose of the change originated from the Ministry for the Environment Departmental Report on the Resource Management Bill dated June 1990 that says "it is necessary to phrase the exemption more tightly and control significant takes of water by groups of people and for stock watering purposes".[238]

In a different context, Mr Maassen advised that the interpretation of rules would be guided by the Interpretation Act 1999; s 34 of that Act provides that a word or expression used in an instrument made under an enactment has the same meaning as it has in the enactment under which it is made.[239] So, it would seem that, whatever the term individual means in s 14(3)(b), it would have the same meaning in Rule 15-1.

It is apparent that the person drafting the POP did not intend to restrict takes of water under Rule 15-1 on the basis of who owned the animals. The officers agreed that, in light of the issues about the meaning of the term "individual", its use in Rule 15-1 should be avoided. The purpose of Rule 15-1 is to allow the reasonable taking of water for animal drinking water, dairy shed washdown and domestic uses. Requiring a consent from a partnership, group of persons or body corporate for the same volume of take per property as would otherwise be permitted from a neighbouring property with animals owned by an "individual" is not reasonable in our view.

We have therefore decided to avoid the use of the word "individual" in the conditions of Rule 15-1.

In terms of referring to s 14(3)(b) in the wording of Rule 15-1, Mr Gardner submitted that the Council "is not empowered to regulate anything to do with the water that can be taken under [s 14(3)(b)], and can become involved only if there are, or are likely to be, adverse environmental effects arising from those takes."[240] Ms McIndoe referred us to s 30(4)(f) of the RMA and said that Rule 15-1 as proposed offends against that provision by undermining the statutory entitlements in s 14(3)(b) and that the Council had not presented evidence that the limit was imposed due to "adverse effects" concerns.[241]

We have concluded that Rule 15-1 could refer to s 14(3)(b) *if* an individual taking beyond the limits in Rule 15-1 would, or would be likely to, have an

[236] McIndoe, Legal Submissions, 19 February 2010, para 63.
[237] Maassen, Final Section 42A Legal Report, 6 April 2010, para 45.
[238] Ibid.
[239] Maassen, Response to Miscellaneous Legal Questions, 27 January 2010, para 3.
[240] Gardner, Legal Submissions, undated, para 3.
[241] McIndoe, Legal Submissions, 19 February 2010, paras 54 - 56.

adverse effect on the environment, one of the elements of s 14(3)(b). A question to be addressed, therefore, is whether the permitted activity rules should provide an allocation of water over and above that allowed under s 14(3)(b) or if that allowance should be included within the volumetric take limits imposed by the rules. We deal with that in the context of the next issue.

8.6.16.2 What should be the maximum daily takes and should they be based on land area?

In the context of the issue addressed above, we decided that we need to evaluate the potential adverse effects of Rule 15-1 permitted takes of water, including those allowed under s 14(3)(b) RMA. This matter was helpfully addressed in a report prepared by Dr Roygard in relation to the Region's surface water resources.[242] Dr Roygard analysed the amount of water required for a number of scenarios compared to the Schedule B core allocation limits for the Upper Manawatu and Mangatainoka catchments.

We firstly note that if every property in the Upper Manawatu catchment took the maximum 30 m^3/day allowed by Rule 15-1 as notified then the cumulative volume of take would amount to 154% of the core allocation limit (Scenario 2). However, Dr Roygard described that as "an academic, literal translation of the permitted activity rule".[243] We do not consider that to be a realistic base case.

However, we note that the officers have assessed what the amount of water taken using estimated land and average stocking rates (stock drinking water only for dairy and mixed sheep and beef) would be under a "dairy expansion" scenario in the Upper Manawatu catchment. We consider this to be a useful base case for comparative purposes. Under that scenario, the amount of water abstracted would equate to 14% of the core allocation limit.[244] We understand this to be a reasonable approximation of the takes allowed under s 14(3)(b) of the RMA. If the water needed for dairy shed washdown is added, then the amount of water abstracted would equate to 22% of the core allocation limit.[245]

In our view, both of these scenarios are sustainable and they also result in a reasonable amount of water remaining available for other resource users.

However, we also need to be mindful of a possible worst case scenario. If all of the catchment were to be developed into dairy farms, then the amount of water taken for stock drinking water and dairy shed washdown would equate to 65% of the core allocation limit.[246] In our view, that would not be sustainable and would result in adverse effects and therefore a cap needs to be placed on the cumulative takes allowed under s 14(3)(b) and Rule 15-1. We find that Rule 15-1 must consequentially refer to both ss 14(2) and 14(3)(b) of the RMA.

In making this finding, we accept the advice of Mr Maassen who told us "HRC decided to provide an allowance for activities to which section 14(3)(b) applies. This provides greater certainty for farmers. It is accepted that the

[242] Hurndell, Clark and Roygard, Permitted Activity Water Takes - Comparison of Options (Version 2), Technical Report to Support Policy Development, March 2010.
[243] Ibid, page 8.
[244] Ibid, page 21, Scenario 5.
[245] Ibid, page 21, Scenario 6.
[246] Ibid, page 21, Scenario 8.

permitted activity rule cannot override the express provisions of section 14(3)(b). However, the allocation in HRC's rule is sufficient for it to be able to say that if there is evidence that the amount is exceeded, then enforcement action in the absence of an authorising consent may be warranted. The enactment of the rule does not preclude a defence under section 14(3)(b)."[247]

In terms of determining what that limit should be, we note that Dr Roygard advised that "The water use requirement used in the analysis of all of [the] methods was Peak Daily Demand (PDD) as recommended by Aquas Consultants (2007). PDD for a milking dairy cow is 70 L/cow/day, and an additional 70 L/cow/day is provided for washdown; sheep require up to 4.5 L/sheep/day; and beef cattle have a PDD of 55 L/animal/day."[248] He went on to determine that, for an average dairy herd stocking rate, the overall requirement for animal drinking water and washdown water would be 428.4 litres/ha/day for the Upper Manawatu catchment and 392 litres/ha/day for the Mangatainoka catchment.[249] This gives an approximate average of 400 litres/ha/day between the two study catchments. We note that this value of 400 litres/ha/day is similar to the per hectare allowance sought by some submitters.

Dr Roygard estimated that, if properties in the Upper Manawatu catchment were allowed to take 400 litres/ha/day up to a cap of 30 m^3/day per property, then the amount of water abstracted would equate to 22% of the core allocation limit.[250] We consider that to be a sustainable and reasonable outcome. Beyond that, we find that adverse effects would be likely to occur.

On the basis of the above discussion, we have decided that Rule 15-1 should be amended to include takes allowed under s 14(3)(b) RMA and that the allowable volume of take for animal farming (namely for animal drinking water and dairy washdown water) should be 400 litres/ha/day up to a maximum of 30 m^3/day per property. We have therefore retained the notified "per property" restriction, modified to incorporate an area-based approach for animal farming. We note that this approach has the benefit of precluding smaller properties used for animal farming (those less than 75 ha in size) from abstracting the maximum allowance of 30 m^3/day per property. This will usefully avoid the gross over-allocation that could arise from "an academic, literal translation of the permitted activity rule".

We acknowledge that combined takes for animal drinking water and dairy shed washdown water (or animal farming) exceeding 30 m^3/day per property will require a resource consent (except to the extent that drinking water may be allowed by s 14(3)(b)). We do not find that to be an onerous requirement and note that Dr Roygard advised "In recent years Horizons has placed considerable emphasis on legitimising small combined takes for dairy-shed washdown and stock water where these have exceeded the Permitted Take thresholds in the current plan. Water metering has been addressed as part of this exercise."[251] We note that the comparable permitted activity rules in the operative Land and Water Regional Plan allow 15 m^3/day for surface takes and 50 m^3/day for groundwater takes. Rule 15-1 therefore represents a

[247] Maassen, Introductory Submissions, undated, page 16 para 29.
[248] Ibid, page 4.
[249] Ibid, pages 4 - 5.
[250] Ibid, page 22, Scenario 12.
[251] Roygard, Section 42A Report, August 2009, page 85 para 162.

relaxation of the operative Plan regime for permitted surface water takes and we would therefore expect the need for resource consents to diminish rather than increase.

In Rule 15-1, for takes other than for animal farming we have retained the notified limit of 15 m^3/day.

For reasons of consistency, we have taken the same approach in Rule 15-2, other than to set a maximum allowable take of 50 m^3/day as was used in the rule as notified.

In terms of the submissions about condition (b) in Rule 15-1, we understand that the recommended End of Hearing wording[252] is not in dispute so we have adopted it. We concluded that condition (f) should remain as it is important for the Regional Council to have access to information about water takes.

8.6.17 Setting core allocations and minimum flows for surface water

In the POP as notified, the setting of core allocation limits and minimum flows for rivers is addressed in Objective 6-3(a)(i) and Policies 6-15, 6-16 and 6-17. Objective 6-3(a)(iii) and Policy 6-20 deal with lakes.

The actual surface water core allocations and minimum flows for the Region's rivers are listed in Schedule B. We note that the POP does not contain minimum levels for lakes. Schedule B was ambiguous in how it dealt with lakes. Except for permitted activities, the taking and use of surface water from a river complying with the Schedule B minimum flows and core allocation limits is regulated under Rule 15-5 as a controlled activity. Takes not complying with the core allocation limits are regulated by Rule 15-6 as a non-complying activity. No rule specifically dealt with takes below minimum flows, which presumably would have defaulted to Rule 15-8 as a discretionary activity.

This section of this Part deals with submissions on the above matters.

We note that we dealt with permitted activity takes from surface and groundwater in section 8.6.16 of this Part. Reasonable and justifiable needs, supplementary takes, hydroelectricity takes, and takes from reservoirs and storages lakes are dealt in sections 8.6.18, 8.6.19, 8.6.20 and 8.6.22 of this Part respectively. Groundwater matters, other than permitted takes, are dealt with in sections 8.7, 8.9 and 8.12.

There were a large number of submissions on Objective 6-3, but only some of them referred to the setting of the core allocations and minimum flows. Some submitters wished to see Objective 6-3 deleted.[253] Other submitters supported the provisions[254] or supported them with amendment.[255]

We reject submissions asking for Objective 6-3 to be deleted. The setting of allocable volumes of abstraction for surface water (and groundwater), and

[252] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 15-12.
[253] Ruapehu Federated Farmers.
[254] Minister for the Environment, Wellington Fish & Game, Taranaki Fish & Game, Environment Network Manawatu.
[255] Tararua District Council, Rangitikei District Council, Horowhenua District Council, Wanganui District Council, Horticulture NZ.

minimum flow for rivers, is a fundamental component of sustainably managing those resources.

Some of the submitters who generally supported Objective 6-3 sought that the words "and providing for other values of rivers as necessary" be deleted from Objective 6-3(a)(i).[256] The Minister of Conservation sought a number of wording changes to Objective 6-3(a)(i) including to delete "existing", to insert "and improving", to refer to preserving the natural character of rivers and to change the qualification for the other values from "as necessary" to "as appropriate".[257]

We reject the submissions seeking the deletion of the reference to other values. It is important that the setting of minimum flows and core allocations has regard to values other than life-supporting capacity as appropriate (we therefore accept the Minister's submission in that regard), for example values relating to the use of the water for social and economic purposes. In that regard, Dr Roygard told us "The recommended core allocation limits have, in the majority of cases, been determined via a surety-of-supply analysis. The aim of this analysis has been to use the frequency at which the minimum flow will occur under various allocation limits as a guide to recommending allocation limits."[258] He added "For the majority of the sites where surety-of-supply analyses have been completed, the analysis used scenarios of allocation levels that were determined by various percentages of MALF (eg. 5%, 10%, 15%, 30%). The analysis results showed the frequency at which minimum flows would occur under that allocation regime (ie. minimum flow plus core allocation limit), based on the available historic flow record. The calculations assume full allocation and use (ie. every consent holder is using all of the time)."[259]

We understand this to mean that, once a minimum flow has been established, the core allocation is determined by assessing how many days of abstraction cessation would result from various allocation volumes. The aim of this exercise is to ensure that abstraction cessations do not occur overly frequently as that would be a detriment to abstractors. We accept that as being a sensible approach.

We do not consider that Objective 6-3(a)(i) needs to be amended to include a reference to natural character. As Dr Roygard explained, the minimum flows in Schedule B were informed by "various instream habitat studies that have been completed in the Region".[260] We also note that Objective 7-2(a)(ii) adequately deals with natural character. We have, however, included reference to enhancing the existing life-supporting capacity and we did not accept the Minister of Conservation's submission as we concluded that *existing* life-supporting capacity is what is relevant.

There were a number of submissions on Policies 6-15, 6-16 and 6-17.

There was general support for Policy 6-15, other than from the hydroelectricity generators. We deal with the issues they raise in section 8.6.20 of this Part.

[256] Ibid.
[257] Minister of Conservation, submissions 372-34 and 372-35.
[258] Roygard, Section 42A Report, August 2009, page 42 para 72.
[259] Ibid, page 44 par 73.
[260] Ibid, page 38 para 62.

Otherwise, we have deleted (b) as local water conservation notices no longer exist and we have amended (e) to "minimum flows" for consistency in terminology instead of "times of low flow" as was notified. As noted by Mr Judd, we understand that the Council monitors river flows and suspends relevant takes when the Schedule B minimum flows are reached.[261]

A number of submitters sought that Policy 6-16 be deleted in whole or in part.[262] Others supported it.[263] We reject submissions to delete the policy as it importantly underpins Schedule B. We have amended (a) to clarify that it, and Schedule B, applies to rivers. We have also removed reference to each water management zone and amended (a) to refer to the term "cumulative core allocations" instead of "core allocations" to align the terminology in Policy 6-16 and Schedule B. We reject the submission of Horticulture NZ to assess existing take consents as part of the core allocation when those consents are renewed. To do so would preclude the Council from considering the most beneficial end use of the water and the possible reallocation of the available supply from existing users to other users. In relation to (b), we deal with the issues raised by hydroelectricity generators in section 8.6.20 of this Part.

Most submitters supported Policy 6-17.[264] However, some wished the methodology used to set the minimum flows and core allocations to be specified.[265] Others wanted to see some flexibility provided to allow parties who had undertaken their own research or investigations to propose figures different from those set in Schedule B.[266]

We do not find it appropriate to specify the methodology used. From the evidence of Dr Roygard, we are satisfied that the Council has used accepted best practice to set the minimum flows and core allocations. However, we do not wish to preclude the consideration of new methodologies in the future. We also consider it appropriate to allow the consideration of alternative minimum flows or core allocations on a case-by-case basis where a party has undertaken robust scientific research to justify different figures and where the alternative minimum flows or core allocations will have no more than minor adverse effects on the relevant Schedule AB Values for the river. We have inserted new Policy 16-17(c) accordingly.

There were relatively few submissions on Schedule B. Some submitters supported Schedule B and wish to see it retained.[267] Some submitters sought changes to the core allocations or minimum flows for specific rivers.[268] A few submitters asked that Schedule B be deleted.[269] We deal with the wider issues raised by the electricity generators in section 8.6.20 of this Part.

Some submitters asked that the minimum flows and core allocations in Schedule B be assessed to ensure they are based on robust science and that

[261] Judd, submission 96-2.
[262] Hamlin Family Trust and twenty others, WPI, Fonterra, Federated Farmers.
[263] Genesis, Taranaki Fish & Game, Wellington Fish & Game, Minister of Conservation.
[264] WPI, Wellington Fish & Game, Taranaki Fish & Game, Minister of Conservation.
[265] Federated Farmers, Horticulture NZ.
[266] Mighty River Power, Meridian.
[267] Taranaki Fish & Game, NKII.
[268] Woollaston, Auckland/Waikato Fish & Game, Environmental Working Party, Ngā Pae o Rangitikei, Horizons Regional Council.
[269] Federated Farmers, TrustPower.

they thereafter be amended accordingly.[270] We find that those submissions provide wide scope to amend the notified Schedule B figures, if appropriate.

In terms of this last matter, Dr Roygard informed us "Determining the minimum flows and core allocation limits for the Region's Water Management Zones and Sub-zones has been an iterative process. Following the work of Hurndell *et al*. (2007) to establish the minimum flows and allocation limits for the POP as notified, further work has been undertaken to refine the setting of minimum ... flows and allocation limits for the Region."[271] Dr Roygard then detailed the nature of the further work undertaken.[272] We understand that further refinements occurred after the preparation of Dr Roygard's primary evidence and these were detailed in his supplementary evidence.[273] Further work was also set out in the End of Hearing materials.[274]

Mr Male, on behalf of Mighty River Power, presented a comprehensive critique of the approach taken by the Council to the setting of core allocations and minimum flows but, in answer to our questions, Mr Cowper confirmed that Mighty River Power was not seeking any changes to Schedule B. Mr Cowper also advised that the provision of flexibility for the consideration of new figures within Policy 6-17(c) (discussed above) would satisfy Mighty River Power's concerns regarding the Schedule B figures set for the Whangaehu River.

The issues of concern to other submitters related to the figures for the Mana_8d Sub-zone (affecting the Eketahuna water supply and of concern to the Eketahuna Community Board), the Turitea Sub-zone (of concern to PNCC), the minimum flow for the Whanganui River at Te Maire (of concern to Auckland/Waikato Fish & Game and Genesis), and the figures for the Raparapawai Sub-zone. We accept Dr Roygard's conclusions on the first three of those issues of contention for the reasons set out in the End of Hearing Supplementary Evidence.[275] We note that, in terms of the issues of concern to PNCC and Genesis, agreement was reached between the officers and the submitters following caucusing and undertaking additional investigations and reporting. We are grateful to the parties for their assistance in that regard.

The issue of the Schedule B figures for the Raparapawai Sub-zone was addressed separately by Dr Roygard.[276] The submitters who came before us were concerned about the Schedule B figures for the Raparapawai Sub-zone and in particular about the use of the Jacksons Road flow monitoring site for the setting of minimum flows (and consequently take cessations) as opposed to the historical use of the Manawatu at Hopelands site. Firstly, we note that the Raparapawai Sub-zone is over-allocated and the officers have been mindful about adverse effects on the surety of supply for the existing three consent holders on that stream.

We also note that Dr Roygard advised that using the new Jacksons Road monitoring site in combination with the revised core allocation and minimum

[270] Federated Farmers, Horticulture NZ.
[271] Roygard, Section 42A Report, page 45 para 76.
[272] Ibid, paras 76 to 91.
[273] Roygard, Supplementary Evidence, undated.
[274] Roygard, Supplementary Evidence - Revision of Recommended [Minimum] Flows and Core Allocation Limits, undated.
[275] Ibid.
[276] Roygard, Appendix C of the Response to Hearing Panel Questions - Water, undated.

flow figures for the Raparapawai Sub-zone, at the current level of allocation, would result in take cessations "20 days per year on average, and on up to 64 days per year" whereas the use of the Manawatu at Hopelands monitoring site would result in take cessations on "21 days per year on average and up to a maximum of 74 days per year".[277] We therefore accept the officers' recommended Schedule B figures for the Raparapawai Sub-zone.

Before moving on to discuss the relevant rules, we note that we have amended the introductory text in Schedule B to provide improved clarity and certainty, together with consistency with other Schedules in POP. We have also concluded that it should be part of Part II of the POP as any person should be able to seek changes based on better information, should it become available.

Rule 15-5 as notified provided for takes complying with the Schedule B core allocations and minimum flows as controlled activities. A number of submitters sought the deletion of condition (b) of that rule.[278] Territorial authority submitters wished to have conditions (c) and (d) stated as matters of control rather than as conditions.

We have not deleted condition (b) as the whole point of establishing minimum flows is to require non-essential takes to cease when those flows are reached in order to safeguard instream values.

Similarly, we have not moved (c) and (d) to be matters of control as the whole point of establishing core allocations is to enable takes within the core allocations and generally not enable takes that exceed the core allocations. In our view, that matter needs to be a clear and certain condition in the rule and not a discretionary matter to be assessed on a case-by-case basis as would occur if conditions (c) and (d) were made matters of control. We have, however, merged (c) and (d) and referred to the term "cumulative core allocation limits" to reflect the terminology used in Schedule B, particularly the last column of that schedule.

The Minister of Conservation wanted to see (b) amended so that abstractions did not reduce flows below the Schedule B minimum flows. We reject that submission as, while most takes will be required to cease when the minimum flow is reached, certain permitted activity takes and specified essential takes will be allowed to continue. We address that matter in section 8.6.18 of this Part.

Horizons Regional Council wanted (b) to be amended to refer to the fact that certain permitted activity takes and specified essential takes will be allowed to continue when minimum flows are reached. We accept that submission as it provides additional clarity to readers. We have, however, decided to instead cross-reference Policies 6-19(a) and (b) which refer to those types of take.

In response to other matters raised by the Minister of Conservation, we have inserted an additional matter of control relating to effects on the natural flow regime, the magnitude of the median flow and the frequency of flushing

[277] Ibid, page 4.
[278] Rogers and over twenty others.

flows.[279] This also provides consistency with changes we have made to Policy 6-18 dealing with supplementary takes (see section 8.6.19 of this Part).

Rule 15-6 as notified categorised takes not complying with the Schedule B core allocations as non-complying activities. Some submitters sought that Rule 15-6 be amended to be a discretionary activity. We reject that as we find that takes exceeding the core allocations and takes below the minimum flows (other than for essential takes as defined under Policy 6-19) are generally not to be condoned. We have amended Rule 15-6 accordingly. The use of the non-complying activity status sends such a signal to potential applicants, which in our view necessarily and appropriately goes beyond a simple "thorough consideration of the effects of the activities and an assessment against the objectives and policies in the Plan" as suggested by the officers.[280]

As already noted, the issues raised by the electricity generators are discussed in section 8.6.20 of this Part.

8.6.18 Reasonable and justifiable need for takes and the cessation of takes

In the POP as notified, Policy 6-12 dealt with the reasonable and justifiable need for water and Policy 6-19 described how takes would be apportioned, restricted or suspended at times of low flow.

There were numerous submissions on Policy 6-12 seeking a wide range of outcomes.

We firstly note that we have amended the first paragraph of the policy to include reference to animal drinking water and dairy shed washdown water. This is consistent with the submissions of Fonterra and also reflects the amendments we have made to Rules 15-1 and 15-2 (as discussed in section 8.6.16 of this Part). In that regard, we have also inserted new Policy 6-12(aa) which specifies the numerical figures used for domestic needs, animal drinking water and dairy shed washdown. The relevant figures were derived from the evidence of Dr Roygard[281] and the report he helpfully prepared on permitted activity takes[282] (which we discussed in section 8.6.16 of this Part).

We have inserted a provision (Policy 6-12(c)(iiia)) to specifically provide for the water used within public water supplies (a defined term) that is for hospitals, other facilities providing medical treatment, marae, schools or other education facilities, NZDF facilities or correction facilities. Acknowledgement of the fact that such uses are routinely and appropriately accommodated by public water supplies was sought by the territorial authority submitters[283] and NZDF. We find that to be a sensible suggestion and one that is consistent with s 5(2) of the RMA.

Similarly, we have inserted a provision (Policy 6-12(c)(iiib)) to specifically provide for water used within public water supplies for public amenity and recreational facilities. This matter was raised also by the territorial authority

[279] Minister of Conservation, submissions 372-160, 372-161.
[280] Barton, Supplementary Report, 23 November 2009, Appendix 3, page 19.
[281] Roygard, Section 42A Report, August 2009, pages 84 - 85 para 161.
[282] Hurndell, Clark and Roygard, Permitted Activity Water Takes - Comparison of Options (Version 2), Technical Report to Support Policy Development, March 2010, page 4.
[283] Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Wanganui District Council, Ruapehu District Council.

submitters and we find it is reasonable to acknowledge that water is routinely and appropriately used for those purposes within areas served by public water supplies, including cities and towns.

In response to the evidence of the territorial authorities, we have substantially amended Policy 6-12(d). In that regard, we note that Mr Forrest sought flexibility for the situation where the existing allocation for a public water supply take exceeded the reasonable and justifiable allocation calculated in accordance with Policy 6-12. He told us "The above amendment would allow the Regional Council and the Territorial Authority the ability to adopt an alternative value than that prescribed by the formula within [Policy 6-12(c)] taking [into] account the specific situation of the community and the effect of the take."[284]

We agree with Mr Forrest in that regard. We also note that, when we questioned Mr Forrest and Mr Kirby, they both advised that the provision of such flexibility would satisfy many of their concerns with Policy 6-12. We have therefore amended Policy 6-12(d) so that decision-makers must consider imposing a timeframe within which to achieve the reasonable and justifiable allocation calculated in accordance with Policy 6-12 (see Policy 6-12(d)(i)). If a timeframe is not imposed due to the circumstances of the particular application, then an alternative allocation must be determined based on the social and economic circumstances of the community as well as the actual and potential effects of the abstraction on the relevant Schedule AB Values for the river. We find that to be an appropriate balance of the relevant s5(2) RMA matters.

In terms of Policy 6-19, there were also numerous submissions on it seeking a range of outcomes.

Some submitters pointed out referencing and numbering errors in the provisions which we have rectified. We refer to the correctly numbered provisions below.

Only two submitters sought the deletion of Policy 6-19.[285] We reject those submissions as it is unrealistic, in our view, to expect that takes essential to the health, safety or welfare of a community should be expected to cease when minimum flows are reached. We accept that such takes should be tightly prescribed and minimised as far as reasonably practicable.

A number of submitters requested that the water needed for the sanitation of farm dairies be included in policy 6-19(b)(iv).[286] We accept the need to refer to dairy shed washdown water (noting that our understanding is that the same water supply is generally used for milk cooling purposes) and, consistent with our decision on Policy 6-12(aa) and our decision on Rules 15-1 and 15-2, we have amended policy 6-19(b)(i) to include reference to animal drinking water and dairy shed washdown water. The numbers are consistent with those requested by the submission of Horizons Regional Council.[287]

[284] Forrest, Supplementary Evidence, undated, page 8 para 24.
[285] Ruapehu District Council, PNCC.
[286] Hamlin Family Trust and over twenty others, Fonterra submission 398-31.
[287] Horizons Regional Council, submission 182-19.

We discuss the submissions of the hydroelectricity generators in section 8.6.20 of this Part.

We have inserted new Policy 6-19(ab) which refers to supplementary takes. We decided this was necessary as Policy 16-19 as notified made no reference to those takes and yet they form an important component of the overall allocation framework. We decided it was important to overtly dispel any notion that these takes could continue until minimum flows were reached. We understand that such takes will be required to cease at much higher flows. This is consistent with the advice of Dr Roygard who told us "a supplementary allocation [is] to provide for consented takes at above median flow for storage or use. The taking at high flows is limited to takes that do not compromise the values of the water body or the surety of supply for the core allocation users."[288]

We have inserted a reference to NZDF facilities in Policy 6-19(b)(ii). This was sought by NZDF[289] and it is also consistent with Part 7 (General Hearing) of this Volume to include NZDF facilities as physical resources of regional or national importance in Policy 3-1(aa)(iii). We have further decided, however, that the essential takes described by Policy 6-19(b)(ii) should be required to minimise the amount of water taken to the extent reasonably practicable. This provides consistency with Policy 6-19(b)(iii).

Horizons Regional Council sought that Policy 6-19(b)(iii) be limited to takes that were lawfully established at the time of Plan becoming operative.[290] Instead, we find that the provision should relate to the time of Plan notification (31 May 2007) so as to avoid a "gold rush" of industrial takes prior to the Plan becoming operative some years hence. Existing lawful takes have a legitimate expection of being able to continue at times of minimum flow and many will have developed their enterprises on such expectations. However, new industries should be aware of the likelihood of take restrictions at times of minimum flow and they need to plan accordingly.

We reject submissions calling for the staged reduction of takes as the flows in rivers approach the minimum flow.[291] As Dr Roygard advised us "There has been a progression over time from having multiple levels of flow restrictions, with corresponding allocation limits, to a less complex framework with a single minimum flow and allocation limits above and below that flow."[292] We find the single minimum flow approach now adopted by the Council to be more efficient and effective (and more simple to implement and understand) than a staged reduction approach.

8.6.19 Supplementary surface water takes

Policy 6-18 as notified provided for supplementary water allocations from rivers. The Glossary definition of a supplementary water allocation take does not assist with understanding what a supplementary take actually is. However, the evidence of Dr Roygard does assist in that regard. He advised us that "This is a supplementary allocation to provide for consented takes at above median flow for storage or use. The taking at high flows is limited to

[288] Roygard, Section 42A Report, August 2009, page 34 para 48(iv).
[289] NZDF, submission 330-33.
[290] Horizons Regional Council, submission 182-18.
[291] Minister of Conservation, Horticulture NZ, Federated Farmers.
[292] Roygard, Section 42A Report, August 2009, page 36 para 58.

takes that do not compromise the values of the water body or the surety of supply for the core allocation users. These are provided for by Policy 6-18 and Rule 15-6(b) as a Discretionary Activity."[293] Such takes might, for example, provide "...for topping up a storage facility."[294]

There were few submissions on Policy 6-18. Some submitters sought that Policy 6-18 be deleted.[295] Others sought that it be retained.[296]

We reject submissions seeking the deletion of Policy 6-18 as supplementary takes (takes that occur when the river is above its median flow) serve a beneficial social and economic purpose, consistent with s 5(2) of the RMA.

Mighty River Power sought to exclude hydroelectricity takes from the concept of supplementary water allocation. We note that Policy 6-18(b)(iii) states that supplementary takes should not limit the ability of anyone to take water under a core allocation. However, we further note that (as discussed in section 8.6.20 of this Part) hydroelectricity generation takes do not form part of the Schedule B core allocations. Accordingly, we have inserted Policy 6-18(b)(iv) which requires that supplementary takes do not derogate from water allocated to existing hydroelectricity generation.

The Minister of Conservation sought that Policy 6-18(b)(i) be amended to provide that supplementary takes would not "lead to a significant departure from the natural flows regime, including frequency of flushing flows."[297] Mr Watts advised us "As noted in Mr Brown's evidence the maintenance of flushing flows is essential for removal of periphyton growth and reducing the smothering effect of sediment and is particularly important for native fish. Flushing flows are also important for maintaining floodplain connectivity, diversity of river bed habitats and for the preservation of natural character, as discussed in Mr Fuller's evidence."[298] We accept that advice and we have accordingly inserted Policy 6-18(b)(ia).

There were no specific submissions on Rule 15-6(b) as notified.

8.6.20 Hydroelectricity takes

As we have noted in preceding sections of this Part, there were a wide range of submissions from the hydroelectricity generators on the water chapters of the POP.[299] In general terms, the hydroelectricity generators sought greater recognition of the benefits of renewable energy generation and more favourable treatment of consent applications to take and use water for the generation of hydroelectricity.

Dr Roygard explained to us the importance of hydroelectric generation activities in the Region. He advised "The hydroelectricity sector is by far the largest user of water in Horizons' Region, with an estimated average use of 55 m^3/s or 4,752,000 m^3/day (SoE Report, Horizons 2005a). This is more than

[293] Roygard, Section 42A Report, August 2009, page 34 para 48(iv).
[294] Ibid, page 34 para 49.
[295] Fonterra, PNCC.
[296] Wellington Fish & Game, Taranaki Fish & Game.
[297] Minister of Conservation, submission 372-64.
[298] Watts, Statement of Evidence, undated, page 17 para 55.
[299] Genesis, Meridian, Mighty River Power, TrustPower, King Country Energy.

7.7[300] times greater than the combined maximum daily consented rate from groundwater and surface water for agriculture, water supply and industry which combined account for 1,153,799 m^3/day or approximately 13.354 m^3/s."[301] He added "More than half of the volume (approximately 29.7 m^3/s) is abstracted and exported from the Manawatu-Wanganui Region to the Waikato Region as part of the Tongariro Power [Scheme] .... The remaining hydroelectricity use totals approximately 25 [m^3/s]. This includes use by schemes such as the Mangahao power scheme, Piriaka Loop on the Whanganui River, and the Raetihi power scheme along with various smaller hydroelectricity takes ..."[302]

Importantly, the Region's existing hydroelectricity generation takes are excluded from the Schedule B core allocations and minimum flows. Dr Roygard advised "The concept of assessing core allocations and minimum flows after any [existing] takes for hydroelectricity (Policy 6-16) was incorporated into the design of the framework. Many of the existing hydroelectricity consents that are abstractive are located in the upper catchments, and flow recorders downstream of these provide flows records after abstraction by the hydroelectricity consents. Therefore, calculating any remaining allocation after the abstraction for hydroelectricity reflects a pragmatic approach to setting minimum flows and allocation limits from the residual recorded flows."[303]

We therefore accept the submissions of Genesis that "There is common ground with Council staff that existing lawful water allocations for hydro-electricity generation are not to be 'caught' by the minimum flows and core-water allocation framework."[304] We also accept that "There is also common ground with Council staff that existing water allocation for hydro-electricity generation needs to be maintained and protected against water allocation volumes upstream of hydro-electricity generation infrastructure."[305] This also reflects the importance placed on the generation of hydroelectricity in Chapter 3 of the POP. The hydroelectricity generators generally wish, as Mr Cowper advised on behalf of Mighty River Power, "... to ensure that the policy recognition and support given to energy and infrastructure in Chapter 3 is not undermined by the policy and rule content, or lack of content, in other chapters of the Proposed One Plan."[306]

On that basis, we have made a number of amendments to the provisions of Chapter 6 of the POP. We have amended Objective 6-3(a)(i), inserted new Policy 6-15(ba) and amended Policy 6-16(b) to clarify the position explained by Dr Roygard, namely that the Schedule B minimum flows and core allocations were set after allowing for existing hydroelectricity takes. We are grateful to Mr Richard Matthews (all references to Mr Matthews in this section are to Mr Richard Matthews) for suggesting wording for our consideration, although we have not adopted his precise wording.[307] We deal with Policy 16-18 in section 8.6.19 of this Part.

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[300] In response to questions, Dr Roygard conceded that there was an error in the mathematics and was to check. We are not aware of having received an updated figure. It seems that 4, rather than 7.7, is the correct number.
[301] Roygard, Section 42A Report, August 2009, page 27 para 41.
[302] Ibid, page 27 para 42.
[303] Ibid, page 41 para 68.
[304] Majurey, Legal Submissions, 18 February 2010, page 4 para 11.
[305] Ibid, page 5 para 15.
[306] Cowper, Legal Submissions, 24 February 2010, page 2 para 1.5.
[307] Matthews, Statement of Evidence Addendum, 18 February 2010, pages 9 - 10 paras 4.26 - 4.26B.

We decided those changes to Chapter 6 were necessary to accurately reflect the basis upon which the POP was developed, but we reject submissions by the hydroelectricity generators to amend the Values underpinning the water management provisions by making hydroelectricity generation a Schedule AB Value in its own right.[308] In our opinion, that is an unnecessary extra step. It is sufficient for hydroelectricity generation to be considered as part of the Existing Infrastructure (EI) Value (existing hydroelectricity generation) and the Industrial Abstraction (IA) Value (new and existing hydroelectricity generation) and we have clarified that hydroelectricity generation is included in the IA Value in Table 6.2 (and in the Schedule AB Surface Water Management Values Key), as suggested by Ms Clarke.[309] We have also included reference to "or use" in the IA management objective.

We do, however, acknowledge the potential for further hydroelectricity generation within the Region and accept that the development of that potential would be consistent with s 7(j) of the RMA as well as the various Government energy-related documents referred to earlier. As Mr Collins noted "Clearly some rivers have the potential to be used for hydro-electricity generation, and adverse effects may well be able to be avoided, remedied, mitigated or offset (particularly for those schemes which may be of a 'run-of-river' or 'short diversion' nature whereby the water is retained in, or discharged back into, the same river). To the extent that there may be some adverse effects on values, these may be more than counter-balanced by regional and national benefits. All rivers have potential value for hydro-electricity generation but clearly some will be better than others (where good head and flow is available and other constraints can be overcome) and site specific assessment is needed before those more suitable rivers and reaches can be identified."[310]

We have therefore amended Policy 6-1 to refer to that potential, noting that its realisation will need to occur in a manner cognisant of other Values within the relevant water bodies and their beds.

In section 8.6.18 of this Part, we discussed the POP provisions that impose restrictions on takes when the Schedule B minimum flows are reached in the Region's rivers. In terms of Policy 6-19, we accept the submission of Mr Cowper that "... it is most appropriate to build low flow controls for hydro developments into the conditions of consent that enable their operation".[311] In that regard, Mr Matthews advised us that, in his view, "Restrictions to the [Tongariro Power Scheme] takes should only occur as provided for in the [Tongariro Power Scheme] consents."[312] Mr Matthews then suggested an amendment to Policy 6-19 to deal with existing hydroelectricity generation activities. We accept the advice of Mr Matthews in that regard and note that, when we questioned the officers, they agreed that existing resource consents for the Region's existing hydroelectricity generation schemes contained suitable requirements for the release of residual flows below dam structures and also the cessation of takes at specified minimum flows. We understand that such consent conditions are based on robust science and research undertaken by both the consent holder and the Council. We have therefore inserted Policy 16-19(aa) which requires that, at times of Schedule B minimum

[308] Ibid, pages 5 - 6 paras 4.4 - 4.9.
[309] Clarke, Statement of Evidence, 19 October 2009, page 9 para 3.22.
[310] Collins, Statement of Evidence, 23 October 2009, page 27 para 5.23.
[311] Cowper, Submissions (legal), 24 February 2010, page 20 para 3.6(q).
[312] Matthews, Statement of Evidence Addendum, 18 February 2010, page 15 para 4.37.

flows, existing hydrogenation takes must be allowed to continue subject only to any minimum flow restrictions in their resource consent conditions.

We now address Schedule B. No hydroelectricity generation submitter sought specific changes to Schedule B. However, some wished the POP regime applying to hydroelectricity generation takes to be stated within Schedule B itself. Mr Matthews advised "The Officer's Supplementary Report suggests an alternative approach, being the inclusion of a footnote within Schedule B specifying that core allocation is only available downstream of the takes and diversions for existing hydroelectricity generation activities, or at a point upstream of those activities provided it does not increase the quantity that was allocated upstream of the hydroelectricity generation activity at the time the One Plan was notified. Such a footnote could achieve the outcome required, provided it is included in a manner which makes it abundantly clear that anyone seeking to change an allocation in any catchment upstream of the points specified in the table cannot do so in a manner which would have any adverse effect on existing hydro electricity takes. Whilst the allocation regime excludes hydro takes, it was established recognising that those takes exist and therefore needs to ensure that any changes in the allocation do not affect those existing takes."[313]

We note that the officers recommended an amendment to Schedule B (a footnote and a table showing the location of existing hydroelectricity generation takes) that was consistent with the advice of Mr Matthews and Mr Collins.[314] The actual officers' reports were strangely silent on this issue.[315] However, when we questioned the officers they advised that they considered the recommended amendment to Schedule B to be important so as to reflect changes to the Chapter 6 provisions such as those that we have discussed above. Given the agreement between the officers and the Genesis and Mighty River Power witnesses on this matter, we have amended Schedule B accordingly. However, instead of using a footnote (which was hard to see in the officers' recommended text) we have added the explanatory text that accompanied the new Table B.2 as an Advice Note on the first page of Schedule B.

In terms of the re-consenting of existing hydroelectricity schemes, Mr Majurey advised "As to activity status, the Proposed One Plan could, via bundling, treat fresh resource consent applications for [the Tongariro Power Scheme] as a non-complying activity. That potential uncertainty is clearly untenable and can be contrasted with the activity status for core-allocation takes."[316] We accept the opinion of Mr Majurey and so we have included new Rules 13-26A (dealing with discharges to land and to water associated with the renewal of consents for existing hydroelectricity generation schemes) and 15-5A (dealing with replacement take consents takes for those existing schemes). Again, we are grateful to Mr Matthews for recommending wording for such rules for our consideration.[317] We note that we have not included similar new rules in Chapter 16 as Rule 16-5 as notified already makes the ongoing use of

[313] Matthews, Statement of Evidence Addendum, 18 February 2010, pages 22 - 23 para 4.61B.
[314] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page B-13 and see also Collins, Statement of Evidence, 23 October 2009, page 28 para 5.24.
[315] McArthur and others, End of Hearing Report, undated, page 155 and Proposed One Plan - Appendix II of the Report on Scope for Water Chapter Recommendations, undated.
[316] Majurey, Legal Submissions, 18 February 2010, pages 5 - 6 para 21.
[317] Matthews, Statement of Evidence, 19 October 2009, pages 21 and 25 and Matthews, Statement of Evidence Addendum, 18 February 2010, pages 21 and 25.

established structures in the bed of a river or lake a permitted activity that is not subject to any conditions and Rule 16-9 deals with replacement consents for the damming of water.

The above discussion has focused on existing hydroelectricity generation schemes. The hydroelectricity generators also sought more favourable status for new hydroelectricity developments. For example, Mighty River Power sought that takes for new hydroelectricity developments exceeding the core allocations be assessed as discretionary activities as opposed to non-complying activities under Rule 15-6.[318] We are conscious of s 7(j) of the RMA and the various Government energy-related documents referred to earlier, but we reject such submissions. We find that all applications for new takes that fall outside the Schedule B core allocations should remain as non-complying activities as that sends the necessary message that such takes are generally not to be condoned.

We have however (as discussed in section 8.6.17 of this part) amended Policy 6-17 so that any party, including hydroelectricity generators, can propose different core allocations on a case-by-case basis as part of the consent process, if they have available robust science that justifies the different figures. We note that this is consistent with the advice of Ms Clarke for Meridian.[319]

In that regard, we note that our findings are also consistent with the advice of Mr Collins for Mighty River Power who stated "I understand that the minimum flows and core allocations specified in the plan cannot allow for new hydro electricity takes as it isn't possible to allocate unknown volumes in advance of any hydro scheme being investigated and proposed. I consider that the practical way to address the implications of any new hydro scheme is to provide a framework of objectives, policies and rules that enables new proposals to be considered on their merits through a comprehensive resource consent process, with the expectation that any such application will be accompanied by a *concurrent* plan change process to enable the resetting of minimum flows and core allocations for the water management sub-zone(s) concerned should the merits of the proposal and the outcome of the public processes involved be such that the Council is of a mind to make such a decision. This allows flexibility for any new hydro-electricity takes and diversions to be considered on their merits."[320]

8.6.21 Effects of groundwater takes on surface water

As notified, Policy 6-25 dealt with the effects of groundwater takes on surface water. We understand this to be an important issue because if a groundwater take is hydraulically connected to a surface water resource (a river, lake or wetland) then the abstraction of water from the groundwater bore can deplete the water in the river, lake or wetland.

As noted in section 8.6.1 of this Part, we have relocated Policy 6-25 into Chapter 15 where it now forms Policy 15-2C. As notified, Policy 6-25 was a relatively simple provision and there were few submissions on it.

[318] Collins, Addendum to Evidence, 24 February 2010, para 13. See also Schofield, Statement of Evidence, 19 October 2009, page 21 paras 7.13 - 7.15.
[319] Clarke, Statement of Evidence, 19 October 2009, pages 15 - 16 para 4.5.
[320] Collins, Statement of Evidence, 23 October 2009, page 33 paras 5.41 - 5.42.

Some submitters sought the deletion of Policy 6-25.[321] Others sought its retention.[322] Some submitters sought the revision of Policy 6-25 to remove any special treatment for hydroelectricity generation. We note that Policy 6-25 is actually silent on that matter and we dealt with the wider issues raised by such submissions in section 8.6.20 of this Part.

Other submitters sought that the subjective language in Policy 6-25(a) and 6-25(b), namely the terms "an appropriate scientific method" and "to the extent justified by the calculation" respectively, be clarified.[323] The Minister of Conservation wished to see the concept of "drawdown" incorporated in Policy 6-25(a) and an additional clause (c) that would require an assessment of the surface water depletion effect (if any) on the ecological and natural character of the surface water.

Mr Callander advised us "For those situations where groundwater abstractions affect surface waterways, there is typically a gradational impact, depending on the degree of hydraulic connection between the bore and the surface waterway. A particularly useful reference for quantifying those effects is Guidelines for the Assessment of Groundwater Abstraction Effects on Stream Flow (Environment Canterbury report R00/11, ISBN 1-86937-387-1, First Edition, June 2000) and could be referenced in a revised wording of clause (a) of this Policy, or similar quantitative methods."[324] He added "...the classification of surface water depletion effects is best achieved by quantifying the loss of surface flow that is estimated to occur as a proportion of the groundwater pumping rate, over a fixed time period for comparative purposes."[325]

Mr Callander then recommended the insertion of a table that classified the effects of groundwater takes into one of five classes. His table quantified the numerical effect on the surface water resource (eg in terms of the percentage of the groundwater take that would actually comprise surface water) and a suggested management approach.[326] We note that the officers recommended a simplified version of Mr Callander's table which comprised only four classes of takes[327], to which Mr Callander did not object.

In the absence of any contrary technical evidence, we accept the officers' recommendation to amend what is now Policy 15-2C to include the simplified version of Mr Callander's table of surface water depletion effects (namely with four classes of take) as Table 15-1, subject to some minor wording changes to improve readability. We did not see the need to include a reference to "low or negligible" effects, preferring instead to use the term "low" effects.

We have also therefore amended what was Policy 6-25(a) (now 15-2C(a)) to refer to the Environment Canterbury guidelines as an example. We have used the wording format the General Hearing Panel used for referring to external guidelines in Policy 3-2 where those guidelines had also not been referred to in the POP as notified.

[321] Federated Farmers, Horticulture NZ.
[322] Wellington Fish & Game, Taranaki Fish & Game.
[323] Fonterra, Mighty River Power.
[324] Callander, Section 42A Report, August 2009, page 16 para 65.
[325] Ibid, page 16 para 67.
[326] Ibid, pages 16 - 17 Table 1.
[327] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 15-9.

Mr Collins had this to say about the recommendations discussed above. "I consider that the changes proposed by Ms Barton are certainly a good step in the right direction .... [but the Table] does not go far enough to protect impacts on any hydro storage dam operation as it effectively states that if the groundwater flow takes more than 100 days to impact the storage volume, then the 'surface water deletion [sic] effect' will be classified as 'low or negligible'. The issue for the downstream hydro-electricity scheme is that a groundwater abstraction from the catchment may well take more than 100 days to manifest itself."[328] He sought that the "high" class of take provisions be expanded to read "... *or, in those catchments containing downstream hydro-electricity generation storage reservoirs, greater than or equal to 20% of the groundwater pumping rate after 730 days (two years).*"[329]

We understand the issue raised by Mr Collins but do not accept his recommended wording. Our understanding is that the surface water connection effects calculated after 100 days of pumping will be conservative as the drawdown effects generally equilibrate well before 100 days of pumping has occurred. We also note that it would be extremely rare in practice for a groundwater bore (such as that used for irrigation for example) to be continuously pumped for 100 days in any case, let alone for 730 days.

We do not consider that the additional clause (c) sought by the Minister of Conservation is necessary. The management approach column in the table describes how the groundwater takes will be managed. We note that the management approach refers to the takes being included in the core allocation and being governed by the minimum flow restrictions and that is sufficient in our view. We note that Mr Watts for the Minister of Conservation did not directly address Policy 6-25 in his evidence to us.

8.6.22 Takes from reservoirs and storage lakes

As notified, the POP did not have a specific rule authorising takes from reservoirs and storage lakes. There was some uncertainty as to what provision would apply to such takes.

Takes from rivers were controlled activities under Rule 15-6 if those takes were within the Schedule B core allocations. However, Schedule B does not apply to reservoirs and storage lakes and so takes from those surface waters would have fallen to be considered as discretionary activities under Rule 15-8. In our view, that is an overly onerous consent category for takes from reservoirs and storage lakes, particularly if the take has an element of public good, such as would arise for a public water supply take for example.

This was an issue of particular concern to PNCC. Mr Bashford advised us "The Proposed One Plan has introduced some uncertainty in respect of the Turitea water take. Rules 15-5 and 15-6 provide for water takes from surface water. Under the Activity Description contained within these rules, surface water is qualified further as being 'surface water from a river'. While the Turitea Scheme water is sourced from the Turitea Stream, the actual take is from the lake created by the lower dam .... If Rules 15-5 and 15-6 do not apply to the lakes in the Turitea scheme then the water take would fall under Rule 15-8 and be a discretionary activity. If the intention is for Rule 15-5 to apply to

[328] Collins, Statement of Evidence, 23 October 2009, page 38 para 5.61.
[329] Ibid.

the Turitea scheme then the water take will be a controlled activity subject to it complying with the core allocation and minimum flows."[330] He added "The Proposed One Plan needs to be clearer in what rules apply to storage lakes created by dams in rivers."[331]

Mr Bashford then went on to recommend an amendment to Rule 15-5 such that the activity description would include reference to a "water storage lake on a river".

We accept the evidence of Mr Bashford and acknowledge that the problem he has addressed could have a wider application within the Region as it would be incurred by public water supply takes and hydroelectricity takes from other reservoirs and storage lakes. We are consequently grateful for his suggestion regarding the amendment of Rule 15-5. However, as that Rule applies to takes complying with the Schedule B core allocations, we find that it is more efficient and effective to insert a new controlled activity rule dealing with takes from reservoirs and storage lakes. New Rule 15-5B has been inserted accordingly.

We based the matters of control for Rule 15-5B on relevant ones from those in existing Rule 15-5. We inserted a single condition requiring there to be a residual flow below the storage lake or reservoir. We find that to be necessary in order to address instream ecological matters.

8.6.23 Bores

As notified, the POP contained a number of provisions relating to bores.

Policy 6-21 related to the overall approach to bore management and Policy 6-22 related to bore development and management. Policy 15-3 dealt with consent decision-making for bores and referred to Policy 6-22. Rule 15-13 required a resource consent for bore drilling as a restricted discretionary activity. We understand that such consents are commonly referred to as bore permits. Rule 15-14 related to unsealed bores.

Horizons Regional Council sought a change to the notified definition of bore to set out more fully the type of hole included in the definition.[332] We have accepted the definition recommended by the officers in response to that submission as it appropriately captures bores drilled for purposes other than for accessing groundwater.[333]

As noted in section 8.6.1 of this Part, we have relocated Policy 6-22 to Chapter 15 where it now forms Policy 15-2A and Policy 15-3 is deleted as unnecessary.

There were very few submissions on Policies 6-21 and 6-22.

There was support for Policy 6-21 and no submissions opposed the bore management component of that Policy.[334] In terms of Policy 6-22, some submitters sought that the phrases "adequate separation from existing bores"

[330] Bashford, Statement of Evidence, 16 October 2009, page 28 paras 109 - 110.
[331] Ibid, page 28 para 111.
[332] Horizons Regional Council, submission 182-100.
[333] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, Glossary-3.
[334] Taranaki Fish & Game, Forest & Bird.

and "over-concentration of bores" be clarified.[335] Other submitters sought that Policy 6-22(a) be amended to "ensure adverse effects on those existing abstractions are avoided".[336]

In response to these submissions, we have amended Policy 6-22(a) (now 15-2A(a)) so that its purpose is to "to avoid adverse effects on the reliability of supply from properly-constructed, efficient and fully-functioning existing bores". We used the expression "properly-constructed, efficient and fully-functioning existing bores" deliberately as that expression is used in Policy 6-24 (now Policy 15-2B), which deals with the effects of groundwater takes on other groundwater takes.

We understand that the detailed amendments recommended by the officers to Policy 6-22(c) (their 15-14(c)) derive from the evidence of Mr Callander. He discussed the matters covered by the extra wording and advised "This extra wording should help to provide a better understanding of how bores can be constructed and managed in a way that avoids adverse effects."[337] We acknowledge the views of Mr Callander. However, we find that the changes that the officers subsequently recommended to us, as based on his advice, are beyond the scope of submissions.[338] When we put this matter to Mr Callander, he told us that he had simply been asked by the Council to undertake a technical review of the provisions and he had not been referred to any submissions.

There were few submissions on Rule 15-13. Some submitters wished the rule to be amended to be a controlled activity.[339] Horizons Regional Council wished the activity description to include reference to the "alteration" of a bore and for the activity to be a permitted activity.[340] The Council sought the insertion of two conditions and "any such other conditions as are considered necessary."[341]

Other submitters sought that the rule exclude reference to geotechnical investigation work, fence post holes and roading works.[342] We accept the thrust of these submissions and have deleted the reference to "hole" from the rule's activity description.

There was little technical evidence supporting the Horizons Regional Council submission to amend the activity status of the rule.

We note that Dr Roygard's evidence did not deal with this matter.

We also find the Council's submission to be somewhat odd given Mr Callander's advice that "Abstraction of groundwater from a bore results in a lowering of groundwater levels. It is important that these activities occur within a management framework of Policies and Rules that enable the use of groundwater to take place in a manner that avoids the adverse effects that can arise if bores are poorly constructed or if excessive amounts of abstraction

335 Federated Farmers, Horticulture NZ.
336 Affco Manawatu, Affco Wanganui Imlay.
337 Callander, Section 42A Report, August 2009, page 11 para 43.
338 Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 15-10.
339 Duffill Watts Consulting Group (now CPG).
340 Horizons Regional Council, submissions 182-78, 182-79.
341 Ibid, submission 182-80.
342 Meridian, Rangitikei District Council, Ruapehu District Council.

were to occur."[343] On the specific matter of bore drilling, he advised "The drilling of bores is a Restricted Discretionary Activity in the notified POP, although the staff submission suggests it should be Permitted. In my opinion, some form of site-specific consent is required to adequately control bore drilling and I suggest this could be achieved as a Controlled Activity."[344]

We also note that Mr Zarour, Council's groundwater scientist, advised us "I fully support Mr Callander's recommendation regarding the classification of drilling as a Controlled Activity, as a measure to enhance the efficiency of groundwater development in the Region and ensure resource protection. This also will help Horizons' efforts to maintain a reliable database that can be used in hydrogeological assessments, and in identifying potential effects and potentially affected parties during technical assessments of the feasibility of resource consent applications of different types."[345]

Notwithstanding the views of Mr Callander and Mr Zarour, the firm advice of the Council's planning officers (namely the written advice of Ms Barton in her Section 42A Report and the oral advice of Ms Marr during the End of Hearing reporting) was that Rule 15-13 should be made a permitted activity. Ms Barton advised "I have recommended that Rule 15-13 be altered to become a Permitted Activity Rule. I cannot understand what adverse effects the Restricted Discretionary Rule is trying to control and I am no clearer after having considered the Science Reports. The Rule appears to only trigger a requirement to log the bore location, diameter and screened depth. This appears to be for information only purposes. I will consider however, the need for an additional rule where the Permitted Activity Standards are not met. I will return to this matter in my Supplementary Report."[346]

In the event, Ms Barton did not revisit this matter in her Supplementary Report.[347]

On the basis of the technical evidence, we reject the Regional Council's submission and we have instead amended the rule to be a controlled activity. We have expanded the matters of control to cover matters that we consider to be important. We have also amended the rule to clarify that it is a rule promulgated under s 9(2) RMA.

We note that there were no submissions on Rule 15-14, but we have amended it so that the activity description includes the correct sections of the RMA and we have made a minor amendment to (b) to correct the grammar of the notified wording.

8.6.24 Activities ancillary to s 13 RMA activities

Chapter 16 deals with the regulation of activities undertaken in the beds of rivers and lakes and also within artificial watercourses. Certain activities in the beds of rivers and lakes are controlled by s 13 of the RMA. In section 8.6.7 of this Part, we discussed artificial watercourses and noted that the definition of bed in the RMA does not include the "beds" of artificial watercourses. Chapter 16 also deals with damming.

[343] Callander, Section 42A Report, August 2009, page 3 para 12.
[344] Ibid, page 4 para 14.
[345] Zarour, Section 42A Report, August 2009, page 146 para 295.
[346] Barton, Section 42A Report, August 2009, page 297 para 4.134.2.
[347] Barton and James, Supplementary Report, 23 November 2009.

Section 13 of the RMA (post-2009 amendments) is rather complicated (as was the pre-2009 version). We set out the post-2009 version in full below:

> **13 Restriction on certain uses of beds of lakes and rivers**
> (1) No person may, in relation to the bed of any lake or river,—
> (a) use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed; or
> (b) excavate, drill, tunnel, or otherwise disturb the bed; or
> (c) introduce or plant any plant or any part of any plant (whether exotic or indigenous) in, on, or under the bed; or
> (d) deposit any substance in, on, or under the bed; or
> (e) reclaim or drain the bed—
> unless expressly allowed by a national environmental standard, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or a resource consent.
> (2) No person may do an activity described in subsection (2A) in a manner that contravenes a national environmental standard or a regional rule unless the activity—
> (a) is expressly allowed by a resource consent; or
> (b) is an activity allowed by section 20A.
> (2A) The activities are—
> (a) to enter onto or pass across the bed of a lake or river:
> (b) to damage, destroy, disturb, or remove a plant or a part of a plant, whether exotic or indigenous, in, on, or under the bed of a lake or river:
> (c) to damage, destroy, disturb, or remove the habitats of plants or parts of plants, whether exotic or indigenous, in, on, or under the bed of a lake or river:
> (d) to damage, destroy, disturb, or remove the habitats of animals in, on, or under the bed of a lake or river.
> (3) This section does not apply to any use of land in the coastal marine area.
> (4) Nothing in this section limits section 9.

As notified, most of the rules in Chapter 16 were promulgated under s 13(1) and that remains the correct reference with regard to the post-2009 version of the RMA. A few of the rules refer to the removal of plants in the rule's activity description (for example Rules 16-6(b), 16-17 and 16-19). Those rules mainly referred to s 13(2) which remains correct, but Rule 16-17 referred to s 13(2)(b), which was the subsection that specifically regulated removal of plants in the pre-2009 version of the RMA, so we have changed that to s 13(2).

Where the rules relate to activities in the "beds" of artificial watercourses, we have inserted a reference to s 9(2) into the activity description.

Many of the rules as notified regulated a primary activity (such as the use or placement of a structure) under s 13(1) and then they also sensibly regulated a range of associated activities that might foreseeably arise while undertaking the primary activity. These associated activities included those regulated by other elements of s 13(1) (such as excavating, drilling, tunnelling, or otherwise disturbing the bed), together with discharges to water, land and air under s 15 and damming and diversions under s 14.

We find the regulation of the associated activities in this manner to be efficient and effective as it means POP users do not need to look to other chapters to see how those associated activities might otherwise be regulated.

We have, however, amended the reference to "associated activities" to "ancillary activities" as we find that terminology more appropriately describes the other activities that might arise in the course of undertaking the primary

activity. We note that many existing RMA plans, particularly district plans, use the term "ancillary activities" and so it has a widespread and commonly understood meaning.

For the sake of consistency, we have also attempted to describe the ancillary activities in the same way in the various rules. That had not occurred in the POP as notified. We have also used a standard suite of ancillary activities, where appropriate, in the various rules. We used new Rule 16-12B as our reference point for this consistency exercise. As Rule 16-12B was a new rule resulting from submissions, we were able to decide how the ancillary activities should be described by reference to the actual provisions of the RMA. The wording used in Rule 16-12B for the ancillary activities is:

(a) excavation, drilling, tunnelling or other disturbance of the river or lake bed pursuant to s13(1) RMA
(b) damming or diversion of water pursuant to s14(2) RMA
(c) discharge of water or sediment into water or onto or into land pursuant to ss15(1) or 15(2A) RMA
(d) deposition of substances in or on the bed of the river or lake pursuant to s13(1).

We note that we have amended the rules that were promulgated under s 13(1)(a) to authorise the maintenance of structures. We have deleted the terms "reconstruct", "alter", "remove" and "demolish" where they were used as those terms are now included in the Glossary definition of "maintenance" and so they do not need to be repeated in the activity description in the rule.

We are grateful to the officers for their assistance for providing recommended wording for us to consider in terms of the consistency issues discussed above.

8.6.25 Activities in or affecting flood control and drainage schemes

The Regional Council undertakes flood control and drainage activities in the exercise of its statutory functions under the Soil Conservation and Rivers Control Act 1941, the Local Government Act 1974 and the Land Drainage Act 1908. Mr Cook told us "That involves designing and implementing river control, flood control and drainage works, both within the framework of 32 managed schemes, and as isolated works outside defined scheme areas and spread widely across the Region. In the past, many of the works undertaken have been permitted activities under the Regional Plan for Beds of Rivers and Lakes (BRL Plan). However, a significant proportion of works, possibly 50%, have required resource consents. The Operations Group currently holds 155 active consents, 28 of which can be described as 'global' in that they provide for ongoing scheme-wide river management activities, as opposed to specific and finite works."[348]

The POP as notified dealt with activities undertaken in the various schemes in Policy 6-29 and Rules 6-13 and 6-14. Although not explicitly drafted in this manner, Policy 6-29 reflected the fact that the Values-based methodology in Schedule D (now Schedules AA and AB) had included separate Values for Flood Control (FC) and Drainage (D). As recommended by the officers, we have combined the FC and D values into a single FC/D Value in both Table 6.2 and Schedule AB.[349]

[348] Cook, Section 42A Report (Re: Environmental Code of Practice for River Works), August 2009, page 2 paras 9 - 10.
[349] Barton, Section 42A Report, August 2009, page 351.

As notified, Schedule D did not contain maps of the FC or D Values. Instead, Schedule I contained a single figure (Figure I:1) showing what we understand to be the rating districts for the various flood control and drainage schemes. As recommended by the officers, we have relocated Figure I:1 into what is now Schedule AB as Figure AB.11. We have, however, corrected Figure AB.11 so that it only indicates the reaches of rivers where flood control or drainage activities are actually undertaken as opposed to all land within the various scheme boundaries.

There were a number of submissions on Policy 6-29. Some submitters supported the policy and wanted it retained.[350] The territorial authorities sought that the policy include drainage schemes administered by themselves.[351] Some submitters sought that the policy not be limited to Regional Council-administered schemes.[352] Federated Farmers sought that Policy 6-29(b) be limited to life-supporting capacity Values. The Minister of Conservation sought that Policy 6-29(b) be broadened in scope to refer to "natural character, indigenous biodiversity and ecosystem functions or rivers and their margins".

We have decided not to broaden the application of the policy as sought by the territorial authorities and Mighty River Power. Policy 6-29 foreshadows Rule 16-13 which allows flood control and drainage activities undertaken by the Regional Council. As we discuss shortly, the Council's activities are undertaken in accordance with an Environmental Code of Practice for River Works (the Code) developed by the Council. It is the existence of the Code that makes Rule 16-13 a workable proposition as a permitted activity. The Code is not applicable to other parties (as they have not been involved in its production and implementation) and accordingly we do not find it appropriate to amend Policy 6-29 as sought and we reject the submissions seeking that outcome.

We also reject the submissions seeking to either narrow or broaden the scope of Policy 6-29(b). We addressed the Values-based approach adopted in the POP in section 8.6.4 of this Part. We find it is appropriate that, when undertaking flood control or drainage works, the Regional Council must maintain all other Values of the relevant river unless it is impractical to do so, in which case any adverse effects on the other Values must be mitigated or offset. We note that other Schedule AB Values (such as Life-supporting Capacity, Sites of Significance - Aquatic and Sites of Significance - Riparian) would in any case include the matters of concern to the Minister of Conservation.

We have amended Policy 6-29(a) to refer to the enhancement of the level of flood hazard or erosion control as sought by Horizons Regional Council.[353] It is unrealistic and undesirable to assume that the level of control will remain static overtime.

As we have noted, Rule 16-13 regulates, as a permitted activity, works undertaken by the Regional Council within flood control and drainage

[350] Taranaki Fish & Game, Wellington Fish & Game.
[351] Tararua District Council, Rangitikei District Council, Manawatu District Council, Horowhenua District Council, Wanganui District Council, Ruapehu District Council.
[352] Mighty River Power.
[353] Horizons Regional Council, submission 182-145.

schemes. As discussed above, we have amended the reference to flood control and drainage schemes to be "within a reach of a *river*^ with a Schedule AB Value of Flood Control and Drainage". This aligns the structure of Rule 16-13 with the Schedule AB Values-based approach throughout the POP.

There were relatively few submissions on Rule 16-13.

The Minister of Conservation sought that the rule be deleted and TMI opposed the permitted activity status.[354] We reject those submissions as enabling the Regional Council's statutory functions undertaken under the Soil Conservation and Rivers Control Act 1941, the Local Government Act 1974 and the Land Drainage Act 1908 is efficient, effective and consistent with s 5(2) of the RMA in that it enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety.

Some territorial authorities sought that the rule be expanded to cover their activities.[355] We reject those submissions for the reasons discussed above in relation to Policy 6-29.

TMI queried the incorporation by reference of the Code in the conditions of Rule 6-13. We are satisfied that Part 3 of Schedule 1 to the RMA titled "Incorporation of documents by reference in plans and proposed plans" enables that to occur.

However, we note that TMI also queried whether the Code "fulfils a required and accepted standard as a code of practice".[356] In considering that issue, we have decided that the only components of the Code that should be referenced in the conditions of the rule are those components that impose obligations on the Regional Council that are of a nature that would otherwise be included as conditions of permitted activity rules or resource consents. We note that large sections of the Code do not meet that threshold as they simply provide background information to readers of the Code.

We have therefore amended condition (a) of Rule 16-13 so that the only components of the Code that are incorporated into the rule by reference are:

(a) The Generic Standards in section 2.4.2 of Part One Generic Standards for Good Practice;
(b) The description of each Activity and the associated Standards for Good Practice in Part Two (for the avoidance of doubt, excluding the discussion of the Resource Management Act and potential beneficial and adverse effects);
(c) Generic Special Standards and the Site Specific Special Standards in Part Three (for the avoidance of doubt, excluding Scheme maps and Scheme dams and locations); and
(d) Part Seven Definition of Terms, insofar as those defined terms must not be used other than in relation to interpreting the Environmental Code of Practice for River Works.

We have amended the Code to refer to a site or reach identified in the One Plan as having one of the Values identified in the Code, rather than just referring to the maps in the Code (which are not incorporated by reference into

[354] Minister of Conservation, submission 372-165; TMI, submission 238-21.
[355] Rangitikei District Council, Manawatu District Council, Ruapehu District Council.
[356] TMI, submission 238-22.

the POP). We have also amended condition 28 in Section 2.4.2 Generic Standards for consistency with the wording of Table 16.1 condition (d) in Volume 3.

In terms of the Code itself, we note that the initial evidence of Mr Lambie described how the Code had been prepared and reviewed.[357]

In terms of submissions on the Code, Wellington Fish & Game sought the inclusion of a new section on Morphological Characteristics.[358] We note that the Minister of Conservation sought the "development of sustainable river management plans ... providing the basis for river works codes of practice ...".[359] We understand that, on the basis of these submissions, the Council officers embarked on a series of caucusing meetings with Wellington Fish & Game and the Department of Conservation representatives regarding the detailed wording of the Code.

Mr Lambie prepared Supplementary Evidence which outlined a series of recommendations regarding the contents of the Code and in particular the provisions contained within the "special standards for activities undertaken in sites of special environmental value".[360] Mr Lambie's evidence was prepared in response to the evidence of Mr Brown who appeared for the Minister of Conservation. Mr Brown advised "My evidence regarding the Environmental Code of Practice (ECOP) is restricted to issues relating to the Sites of Significance (SOS) and the Site Specific Special Standards. As discussed previously in my evidence I support the principle of using SOS in the ECOP to provide protection for specific species and their habitats. However, the use of Site Specific Special Standards in the ECOP does not provide sufficient protection to these biodiversity [sic]."[361]

Mr Brown recommended a large number of changes to the Code, although we are unclear whether or not his evidence related to a particular submission of the Minister as Mr Brown did not link his recommended changes to particular submission points. We do acknowledge, however, that the Minister made a number of submissions on Schedule D (now Schedule AB) Sites of Significance - Riparian and Sites of Significance - Aquatic and that those Sites link to the sites of special environmental value listed in the Code. As part of the End of Hearing materials, we received a further brief of Supplementary Evidence from Mr Lambie.[362] Mr Lambie's further evidence responded to the Supplementary Evidence of Mr Brown.[363]

We note that Mr Watts, also appearing for the Minister of Conservation, also recommended amendments to the Code.

In terms of these matters, we note that we have already narrowed the parts of the Code that are incorporated by reference into Rule 16-13. The Code is a Council document and the Council is responsible for its contents. Mr Maassen advised us "Documents incorporated by reference [DIRs] may be changed in response to submissions and the RMA contemplates a process for those

[357] Lambie, Section 42A Report, August 2009.
[358] Wellington Fish & Game, submission 417-89.
[359] Minister of Conservation, submission 372-45.
[360] Lambie, Supplementary Evidence, November 2009, pages 5 to 30.
[361] Brown, Statement of Evidence, undated, page 52 para 164.
[362] Lambie, Supplementary Evidence (for End of Hearing Report), undated.
[363] Brown, Supplementary Statement of Evidence, March 2010.

changes as much as for any other part of a notified plan .... Modification and changes to [DIRs] need not be specified in the plan but may be incorporated by editing the DIR .... Amendments to HRC documents should be made by editing the document irrespective of the degree of editing subject only to the question of scope and not by scheduling the modifications in the plan."[364] Subject to our view that we need the permission of the author to make changes to a document written by someone other than us, we accept that advice.

In terms of the various amendments to the Code recommended by Mr Lambie, Mr Brown and Mr Watts, we record that we acknowledge the amendments where those witnesses are in agreement and we prefer the evidence of Mr Lambie to that of Mr Brown and Mr Watts where Mr Lambie and those two witnesses are not in agreement. We have not, however, examined the resultant amendments to the Code in forensic detail as we do not find that it is our role to do so.

We have instead assessed the amended (or edited, to use Mr Maassen's words) sections of the Code incorporated by reference into Rule 16-13 and have determined that they remain fit for purpose in terms of adequately avoiding, remedying or mitigating the potential adverse effects of the flood control and drainage activities undertaken by the Council. We note that the amended version of the Code is the version dated June 2010 and we have referred to that version in Rule 16-13. We also note that the relevant extracts from the amended version of the Code are included in Volume 5.

We return now to the submission of Wellington Fish & Game which sought the insertion of a new section in the Code dealing with morphological characteristics. We note that the officers developed such a section in consultation with representatives from Wellington Fish & Game and the Department of Conservation. We make no comment on that new section as we have decided that it should not be incorporated by reference into Rule 16-13. In that regard, we accept the evidence of Mr Watts who advised us "Inclusion of Section 2.2 (Morphological Characteristics) as part of a permitted activity performance standard is in my opinion and on further reflection problematic, despite the stated intent to monitor the effects of river works, which I would strongly support. In addition to the methodological concerns raised in my evidence I am concerned that a monitoring standard of such a wide-ranging nature (with a lack of certainty over how it would be implemented) would not be appropriate as a performance standard in a rule. I therefore recommend that the issues which it seeks to address should be considered during the implementation of Method 6-9 instead (through the changes to that method recommended on page 62 of my evidence), and that it is not referenced from Rule 16-13."[365] We record that we have not accepted the additional amendments to Method 6-9 that were referred to by Mr Watts, as we decided that the method as revised by us is already sufficiently widely worded. We have, however, added the Department of Conservation and Fish and Game to the "Who" row, because of their role in the revisions to this method.

[364] Maassen, Documents Incorporated by Reference, 26 January 2010, paras 2 - 3.
[365] Watts, Supplementary Statement of Evidence, March 2010, para 59.

Horizons Regional Council made several submissions on Rule 16-13. They sought that it be extended to include activities undertaken "by or on behalf of the Regional Council".[366] We accept that submission as it sensibly acknowledges that the actual flood control and drainage works are often undertaken by contractors engaged by the Council.

The Council also sought that the rule be expanded to include the discharge of weed and other material extracted from waterways.[367] We accept that submission as it is sensible to enable such drain-cleaning activities. As a consequence of accepting that change, we find that it is also necessary to enable the removal of the weeds in the first instance pursuant to section 13(2) of the RMA.

However, we reject the other changes recommended by the officers to the activity description of Rule 16-13 in the End of Hearing material.[368] Those changes would significantly expand the scope of the rule and we find them to be well outside the scope of submissions. Should the Regional Council wish Rule 16-13 to include those activities, such as reclamation, drainage and discharges onto land next to rivers, then in our view it should more properly undertake a Plan variation or change process.

Lastly, in terms of Rule 16-13, the Regional Council sought that activities be allowed to occur within Sites of Significance - Aquatic where those activities would otherwise be categorised as discretionary activities under Rule 16-4.[369] We accept that submission and have also included Sites of Significance - Cultural as some are now included in the POP, subject to the activities being undertaken in compliance with relevant standards in the Code. That will ensure that the potential adverse effects of such activities are appropriately avoided, remedied or mitigated.

Rule 16-14 as notified dealt with activities undertaken by other parties where those activities had the potential to adversely impact on flood control or drainage schemes. We firstly note that we have amended the activity description of Rule 16-14 to ensure consistency with the changes we made to the activity description of Rule 16-13.

There were relatively few submissions on Rule 16-14.

We have inserted a reference to artificial watercourses in the early part of the activity description as (h) to (k) of that description already included artificial watercourses.

Some territorial authorities sought that the rule not preclude activities undertaken by them or that it alternatively enable activities undertaken by them.[370] We reject the submissions seeking exclusion of territorial authority activities for the simple reason that those activities would have the same potential adverse effects as activities undertaken by any other party. We reject the latter submission for the reasons discussed in relation to Rule 16-13.

[366] Horizons Regional Council, submissions 182-86 and 182-87.
[367] Horizons Regional Council, submission 182-88.
[368] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-29.
[369] Horizons Regional Council, submission 182-89.
[370] Rangitikei District Council, Manawatu District Council, Ruapehu District Council.

Some submitters sought a relaxation of the restrictions relating to fences.[371] In terms of this issue, Ms Barton advised "In my opinion it is appropriate for council to have discretion over the allowance of fences which are perpendicular to the watercourse due to the damage such a structure could cause during high flood flows including diversion of water away from where it is designed to go."[372] We accept Ms Barton's advice.

Transpower sought that (b) be amended to provide for the maintenance or upgrading of existing overhead infrastructure and the establishment of new infrastructure that avoids locating support structures in areas identified in (h) to (k).[373] We have decided that new structures within the areas covered by the rule should require resource consents even if they are for power transmission lines as those structures can impede flood flows and debris. We have amended the rule's activity description to clarify that activities wholly over these areas are not captured by the rule.

Some submitters sought that Rule 16-14 be a restricted discretionary activity rule instead of a discretionary activity rule.[374] In that regard, Ms Barton advised "In my opinion, due to the wide range of activities and the huge variances in location covered by this rule, it is appropriate that this rule remain discretionary in order to give the consents department full discretion to consider the wide range of potential activities that this rule covers."[375] We acknowledge that advice and we have accordingly decided that the rule should remain a discretionary activity rule so that decision-makers will not be fettered in terms of the conditions that they might wish to impose on activities requiring consent under this rule.

Horizons Regional Council sought that an additional restriction be imposed on activities undertaken by other parties affecting structures "maintained by the Regional Council for the purpose of flood or erosion protection or drainage".[376] We find that to be a sensible suggestion and we have accordingly inserted clause (ga).

Janita Stuart submitted[377] on Chapters 6, 10 and 16 of the POP in terms of her concern about restrictions historically placed on activities undertaken on the Manawatu River secondary stopbank located between Ruahine Street at Fitzroy Bend and Ruamahanga Crescent. As part of the End of Hearing materials, the officers advised "... Janita Stuart raised concerns at the hearing regarding Palmerston North's secondary stopbank and the potential restrictions placed on landowners (in Rule 16-14) which reside [alongside] the stopbank. Careful consideration has been given as to how best [to] address this issue. A series of discussions were held with the Operations Department and as a result it is recommended that a new rule be inserted. This rule (16-14A) is specifically tailored to the secondary stopbank and provides less onerous restrictions while still allowing the functional integrity of the stopbank to be retained."[378]

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371 ONTRACK.
372 Barton, Planning Evidence and Recommendations Report, August 2009, page 354.
373 Transpower, submission 265-50.
374 Landlink, Mighty River Power.
375 Barton, Planning Evidence and Recommendations Report, August 2009, page 354.
376 Horizons Regional Council, submission 182-90.
377 Stuart, submissions 13-1 and 13-2.
378 McArthur and others, End of Hearing Report, undated, page 143 paras 497 - 499.

We have considered the new rule recommended by the officers and find it to be an excessive response to the issue raised by Mrs Stuart. The introduction of a new rule such as this with its precise and detailed provisions should more properly occur by way of Plan variation or change. When we questioned Mrs Stuart at the hearing, she advised that she would be satisfied with a rule that precluded excavations and land disturbance activities on the secondary stopbank, but allowed other activities (such as planting shrubs and constructing fences). We have therefore inserted a new clause (l) into the rule which limits the application of the rule to matters (f) and (g) on the secondary stopbank.

8.6.26 Gravel extraction

In the POP as notified, gravel extraction from the Region's rivers and lakes was dealt with in Policy 6-32 and Rule 16-15. We note that the Regional Council's own gravel extraction activities are authorised by Rule 16-13 and we have amended Rule 16-13(b) to make that clear by inserting the words "including gravel extraction" into the activity description. We also note that we have relocated Policy 6-32 as notified into Chapter 16 (where it is now Policy 16-2A) for the reasons discussed in section 8.6.1 of this Part.

In response to the submissions of Higgins[379], we have developed a new gravel extraction policy for inclusion in Part I of the POP. This new Policy (also numbered Policy 6-32) seeks to enable gravel extraction (subject to various other policies and ensuring the gravel extraction volumes are sustainable) in recognition of the benefits that gravel extraction can provide. We find that to be consistent with s 5 of the RMA.

There were few submissions on Policy 6-32 as notified (now Policy 16-2A). Wellington Fish & Game supported the policy and wished it to be retained.[380] Some territorial authorities sought that it be deleted and replaced with a regional aggregate strategy.[381] We reject those submissions as the development of any strategy document of the nature and scope discussed in the submissions should more properly occur by way of Plan variation or change.

Landlink sought that Policy 6-32(c) be amended to refer to "accelerated erosion" in addition to the matters already listed.[382] We have not accepted that submission as accelerated erosion is dealt with in Chapters 5 and 12 of the POP. However, we have instead deleted Policy 6-32(c) (now 16-2A(c)) and inserted a new Policy 16-2A(d) which relates to the effects of the cumulative volume of gravel extraction in relation to the matters that were referred to in the original Policy 6-32(c), together with site-specific effects and river management needs.

We also amended policy 6-32(b) (now 16-2A(b)) to provide greater clarity regarding when the allowable volumes of abstraction in Table 16.1A (previously Tables 6.3 and 6.4) can be exceeded. The notified provisions simply stated that could occur when "better information is available".

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379 Higgins, submission 153-3.
380 Wellington Fish & Game, submission 417-49.
381 Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Wanganui District Council, Ruapehu District Council.
382 Landlink, submission 440-42.

The amended wording for Policy 16-2A(b) and 16-2A(d) was based on wording recommended to us by the officers (their Policy 16-8).[383] We have accepted Ms Jamieson's submission on behalf of the Minister of Conservation that "generally" in (b) should be deleted. We note that Mr Baker appearing on behalf of Higgins advised us "Recommended Policy 16-8 satisfies Higgins submission point requesting policy clarity for gravel allocation. The exceptions to the quantities listed in Table 16.1(a) are reasonable. The matters to be considered for river reaches not listed in Table 16.1(a) are also reasonable."[384] We are satisfied on that basis that the amendments to what is now Policy 16-2A are within the scope of submissions.

On the advice of the officers, we merged Tables 6.3 and 6.4 as notified and included them as new Table 16.1A in Chapter 16. We note that Rangitikei Aggregates sought the removal of Tables 6.3 and 6.4, or their amendment, as to "allow an increase in the volume of gravel extraction when the rivers are overburdened with gravel will facilitate the effectiveness and efficiency of river control within the Region."[385] We are satisfied that adopting the amended numbers now contained within Table 16.1A falls within the scope of these submissions. The actual amended volumes of abstraction were provided to us by Mr Blackwood. He advised us "The role of the gravel extraction industry is key to enabling gravel extraction. This industry must receive some certainty on likely extraction quantities. The supply quantities presented in Tables 6.3 and 6.4 of the notified Proposed One Plan have been adjusted to present estimates of the long-term supply rates and will give a good guide to the gravel extraction industry on long-term gravel availability."[386]

Mr Watts and Ms Jordan challenged the gravel extraction figures for the Manawatu River that had been recommended to us during the hearing. In the End of Hearing materials, we were told "On review I note that the figures given by Peter Blackwood are a maximum take over a 20 year period (rather than an annual average). The amounts have been revised so that they are now consistent with the rest of the table in that they are an average volume which is taken on an annual basis."[387]

Mr Blackwood orally suggested a further amendment to Table 16.1A as part of the End of Hearing reporting by the officers, namely that we reinstate the 20,000 m^3 annual volume for the Hamilton's Line to Oroua confluence portion of the Manawatu River.

We heard no technical evidence disputing the Table 16.1A allowable volumes of gravel extraction recommended by Mr Blackwood and so we have accepted his advice in that regard. In making that finding, we acknowledge that Mr Watts opposed the recommended new volumes on jurisdictional grounds.[388]

Rule 16-15 as notified dealt with small-scale gravel extraction. There were only two submissions directly on this rule. Auckland/Waikato Fish & Game wanted the rule to specify that extraction could only occur from beaches at

[383] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, pages 16-5 and 16-6.
[384] Baker, Summary of Caucusing Outcomes (evidence), 24 February 2010, page 2 para 4.
[385] Rangitikei Aggregates, submissions 279-10, 279-11, 279-14 and 279-15.
[386] Blackwood, Section 42A Report, August 2009, page 9 para 37.
[387] McArthur and others, End of Hearing Report, undated page 120 para 356.
[388] Watts, Evidence, undated, page 51 para 160.

least 3 m away from the channel.[389] We reject that submission as being overly conservative. We have, however, amended condition (d) so that gravel cannot be extracted from a river bed that is covered by flowing water. We also note that the gravel extraction activity must comply with the section 16.2 general conditions, including those relating to sediment discharges and water clarity.

Genesis wanted the rule not to apply to "naturally occurring lakes" as opposed to it not applying to all lakes as was the case in the notified version. In response to that submission, we have amended the rule so that it applies to all lakes. We are satisfied that compliance with the conditions of the rule will ensure that the potential adverse effects of small-scale gravel extraction in lakes are appropriately avoided, remedied or mitigated. We have made other amendments to the conditions of Rule 16-15 to improve consistency of wording, including addressing the matters discussed in sections 8.6.6 and 8.6.24 of this Part of Volume 1.

Higgins sought the insertion of a new rule for large-scale gravel extraction. The Rangitikei District Council also sought "a new rule (i.e. Rule 16-15A) ... which replicates or reflects the Operative Beds of Rivers and Lakes Plan BRL Rule 15."[390] We accept those submissions for the reasons set out in Mr Blackwood's evidence, as referred to above, in terms of enabling gravel extraction. We note that Mr Blackwood helpfully listed what he thought would be suitable matters of discretion for such a rule.[391] The officers also recommended suitable wording for the new rule in their End of Hearing materials.[392]

We note that Mr Baker advised us "Recommended Rule 16-15(a) satisfies Higgins submission point requesting a specific rule for large-scale gravel extraction. I support the wording and matters of discretion recommended by the Planning Officer for proposed Rule 16-15(a), which provides clarity for large-scale gravel extraction."[393]

We have accordingly inserted new Rule 16-15A for gravel extraction which is a restricted discretionary activity rule.

8.6.27 Activities in protected rivers

In Chapter 16 of the POP as notified there were two rules that dealt with activities in protected rivers. Rule 16-1 made the erection or placement of a dam structure in certain rivers a prohibited activity. Rule 16-2 made the erection and placement of structures in, and the excavation, drilling, tunnelling or other disturbance of the bed of, certain rivers a non-complying activity.

We understand that Rule 16-1 is designed to give effect to water conservation orders (including former National Water Conservation Orders which are now water conservations orders) and former Local Water Conservation Notices within the Region. Rule 16.1 also includes four other rivers included in BRL Rule 7 of the operative Regional Plan for Beds of Rivers and Lakes and Associated Activities.

[389] Auckland/Waikato Fish & Game.
[390] Rangitikei District Council, submission 346-100.
[391] Blackwood, Section 42A Report, August 2009, pages 9 - 10 para 39.
[392] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-34.
[393] Baker, Summary of Caucusing Outcomes (evidence), 24 February 2010, page 2 para 2.

Some submitters sought that Rule 16-1 be deleted.[394] We reject those submissions. Under s 67 (4)(a) of the RMA, a regional plan must not be inconsistent with a water conservation order. It is important in our view that the provisions of the water conservation orders are given effect to in the POP. We are also satisfied that the rivers included in BRL Rule 7 should continue to be protected from damming given that there has been a prohibition on that activity since March 2001 when the Regional Plan for Beds of Rivers and Lakes and Associated Activities became operative.

Other submitters sought to allow dams of certain sizes or in certain situations.[395] We also reject those submissions. Our review of the relevant water conservation orders (and the former Local Water Conservation Notices) shows that they prohibited all dams and we find no reason to derogate from that intent.

We have however amended Rule 16-1 so that it accurately refers to the parts of the Rangitikei River that were covered by the Water Conservation (Rangitikei River) Order 1993. The officers recommended that Rule 16-1 be amended so that it related only to new dams constructed after 31 May 2007 (the time of POP notification).[396] We reject that recommendation because the operative Plan already prohibits those activities.

We understand from our questions to the officers that Rule 16-2 was based on BRL Rule 13 and BRL Rule 16 from the operative Regional Plan for Beds of Rivers and Lakes and Associated Activities. Rule 16-2 related to the Manganui o te Ao, Upper Rangitikei and Hautapu Rivers and the Makuri River gorge. These were the same rivers included in BRL Rule 13. The explanation to BRL Rule 13 is illuminating as to why those rivers were included in that rule. It states that "The rivers specified include the Manganui o te Ao and Rangitikei Rivers and specified tributaries preserved by National Water Conservation Orders, and two reaches of the Hautapu and Makuri Rivers identified in the RPS as outstanding and regionally significant natural features."[397]

However, neither of the Water Conservation Orders restricted the activities covered by Rule 16-2. In fact, both Orders state that water rights (or resource consents) may be granted for the purposes "of:

i. research into, and enhancement of, fisheries and wildlife habitats;
ii. the maintenance or protection of roads, bridges and other necessary public utilities;
iii. soil conservation works (and, for the Rangitikei Order, river control or other activities) undertaken pursuant to the Soil Conservation and Rivers Control Act 1941."[398]

In terms of the Hautapu and Makuri Rivers, we note that those rivers were listed in Policy 8.3(h) and 8.3(aa) of the operative Regional Policy Statement. Policy 8.3 dealt with outstanding and regionally significant natural features. As we discussed in Part 7 (General Hearing) of this Volume, some, but not all, of the Policy 8.3 rivers were included in Schedule F of the POP. The Hautapu and Makuri Rivers were not. It is not, in our view, appropriate to include

394 TrustPower, Meridian.
395 ONTRACK, Gordon, TrustPower.
396 Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-13.
397 Regional Plan for Beds of Rivers and Lakes and Associated Activities, page 100.
398 Ibid, pages 196 and 199.

Hautapu and Makuri Rivers in Rule 16-2 when the Council has not included them in Schedule F, which is the POP equivalent of operative RPS Policy 8.3.

We therefore accept the submissions asking for the deletion of Rule 16-2.[399]

The officers recommended to us a new Rule 16-2A that sought to regulate gravel extraction in the Rule 16-2 rivers as a non-complying activity.[400] We understand from our questions to the officers that recommended Rule 16-2A was based on BRL Rule 13 from the operative Regional Plan for the Beds of Rivers and Lakes and Associated Activities. The officers attributed that new rule to the submission of Meridian.[401] That submission actually seeks the deletion of Rule 16-2. We do not find the recommended new Rule 16-2A to be within the scope of submissions and in any case we find it to be inappropriate for the reasons discussed above in relation to Rule 16-2.

8.6.28 Dams and damming

There were no provisions in Chapter 6 as notified that dealt specifically with dams and damming. Leaving aside the protected rivers dealt with in section 8.6.27 and the various rules that allow damming as an ancillary activity, Chapter 16 as notified contained two rules that dealt with dams and damming. Rule 16-8 dealt with new and existing small dams as a permitted activity and Rule 16-9 dealt with other existing damming (but not the dams themselves, despite the wording of the "Rule" column) as a controlled activity. We understand that these rules were derived from BRL Rule 1(iii) and BRL Rule 2 from the operative Regional Plan for Beds of Rivers and Lakes and Associated Activities. Rule 16-5 is also relevant, and we discuss that later in this section.

There were few submissions on Rule 16-8. Some submitters sought that the rule be retained.[402] Others sought that it be deleted.[403] We reject the submissions to delete the rule as it is efficient and effective to allow small dams subject to compliance with conditions designed to avoid, remedy or mitigate adverse effects.

Electricity generators sought that the rule be amended so that the damming it allowed did not affect any existing consent to take or use water.[404] We reject those submissions as the catchments impounded by the dam can be no greater than 50 hectares and a residual flow is required below dams on permanently flowing rivers. In our view, those requirements adequately safeguard downstream water users.

Federated Farmers sought that the allowable catchment size be increased to 100 hectares, but in the absence of any robust technical rationale for that proposition we reject the submission.

We have amended some of the rule's conditions to ensure that they are clear and workable. This includes amending the requirement for a spillway sized to pass the "probable maximum flood" to a spillway designed to pass a 200 year

399 TrustPower, Meridian.
400 Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-16.
401 Meridian, submission 363-177.
402 Horticulture NZ.
403 Webb, Rangitikei District Council.
404 TrustPower, Mighty River Power.

return period flood. Mr Blackwood had orally recommended a 500 year return period flood but we consider that to be excessive for dams of this size.

Rule 16-9 applies to the lawfully established damming of water and the associated taking, diversion or discharge of water that is part of the normal operation of a dam. It does not apply to small dams regulated by Rule 16-8. There were few submissions on Rule 16-9. Genesis sought that other existing dams be a permitted activity whereas Mighty River Power sought that existing dams be controlled activities. Some submitters wanted the rule to be deleted.[405]

In our view, these submissions highlight the confusing nature of Rule 16-9. It does not relate to the erection or placement of dams under s 13(1) RMA. Rule 16-9 as notified only related to the lawfully established damming and associated taking or diversion of water under what was then s 14(1) RMA and the resultant discharge of water under s 15(1) RMA. To further complicate matters, the use of existing structures including dams is authorised by Rule 16-5, but Rule 16-5 excludes the damming of water by dam structures.

Ms Barton had this to say about Rule 16-9. "Rule 16-9 is in place to control existing dams which are lawfully established and do not meet the conditions set out in rule 16-8 (ie. So it has been erected through a discretionary consent issued by rule 16-20). This rule is used when a consent for that dam expires and its ongoing damming of water [cannot] be permitted by rule 16-8. As explained in the rule guide for rules 16-8 to 16-9 the intent of this rule is not to control the dam structure itself (The regional council has declined to give itself discretion as to whether the structure should remain and it is otherwise permitted by the rules in section 16.4) but rather the effects of the damming of the water i.e. The effect that the damming has on fish passage, residual flow of the water body and effects on rare habitats, threatened habitats and at risk habitats."[406]

Mr Lambie advised us about the importance of fish passage and the interaction between Part 6 of the Freshwater Fisheries Regulations 1983 (FWFR 1983) and the RMA. He concluded "Any legally existing dam or diversion structures subject to a water right issued under the provisions of the Water and Soil Conservation Act 1967 prior to 1 January 1984 are exempt from the provisions of the FWFR 1983. In such cases, Horizons is the inherent regulating authority for any retrospective provision of fish passage on dams built prior to 1984."[407]

It therefore seems apparent to us that the intention of Rule 16-9 was to require existing large dam structures (those that exceed the 3 m height of small dams regulated under Rule 16-8) whose existing consents for damming water were expiring to be subject to a controlled activity resource consent process that would enable the Regional Council to consider matters such fish passage.

Despite Ms Barton's view that "this rule will govern the renewal of any consents", Rule 16-9 as notified was not restricted to expiring consents. Instead, it applied to "any lawfully established damming of water". The "lawfully established" terminology is usually found in permitted activity rules

[405] TrustPower, Ruapehu District Council.
[406] Barton, Planning Evidence and Recommendations Report, August 2009, page 335.
[407] Lambie, Section 42A Report, August 2009, page 41 para 179.

that seek to authorise existing activities. Such permitted activity rules do not usually impose a resource consent requirement on those existing activities unless the conditions of the permitted activity rule are not met. Rule 16-9 is different as it imposes a requirement for a resource consent on any existing lawfully established damming of water. In light of the various ways that the existing lawfully established damming might have occurred, Rule 16-9 might be subject to s 20A(2) of the RMA. That would mean that, once Rule 16-9 became operative, all existing consent holders who held consents (including deemed consents that predate the RMA) for the damming of water would have 6 months within which to seek resource consents for the damming, taking, diversion or discharge of water "that is part of the normal operation of the dam".

To avoid that occurring, we have amended Rule 16-9 so that it specifically applies only to replacement consents for existing damming activities.

The notified conditions of Rule 16-9 related to "all conditions, standards and terms that were imposed at the time that the activity commenced" and the provision of a spillway. The officers recommended that both of these conditions be deleted.[408] In the End of Hearing Report, Ms Barton advised "On reviewing this rule and considering questions raised by the Panel, I have recommended the deletion of condition (b) as I agree that it does blur the line between controlling damming (the intent of the rule) and the dam structure (which the Regional Council has stated it does not wish to control once the dam structure established)."[409] We accept that advice and also find that the original conditions placed on damming consents (referred to in condition (a) of Rule 16-9) should be re-evaluated afresh at the time replacement consents are sought.

We have therefore deleted conditions (a) and (b).

We have inserted ancillary activities in the rule's activity description for the reasons set out in section 8.6.24 of this Part.

We note that, at the time replacement consents are sought, the use of the dam remains permitted under Rule 16-5. The taking of water from the reservoir behind the dam will be a controlled activity under new Rule 15-5B if the purpose is for public water supply or hydroelectricity generation and otherwise an innominate or discretionary activity. The reason is that, unlike some other chapters of the POP, Chapter 15 does not have a concluding "catch-all" or default rule. In the absence of specific submissions, we have not sought to rectify that situation.

The diversion of water and the discharge of water or sediment will be permitted under Rule 16-5.

8.6.29 Culverts

There were no objectives or policies in Chapter 6 as notified that dealt specifically with culverts. Chapter 16 as notified contained Rule 16-11 which made the erection, reconstruction, placement, alteration or extension of culverts a permitted activity subject to conditions.

[408] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-24.
[409] McArthur and others, End of Hearing Report, undated, page 146 para 522.

There were a number of submissions on Rule 16-11. Some submitters supported the rule.[410] No submitter sought the deletion of the entire rule, although most submitters sought various changes to its conditions.

We firstly note that we have deleted the words "reconstruction" and "alteration" from the activity description of the rule as those activities are included in the Glossary definition of "maintenance" and Rule 16-6 authorises the maintenance of structures. We have also amended the list of ancillary activities for the reasons set out in section 8.6.24 of this Part.

With regard to the conditions, we have deleted condition (a)(i) as we have deleted Rule 16-2. We have amended condition (a)(iii) in the way that it refers to flood control and drainage schemes for the reasons set out in section 8.6.25 of this Part. In response to the issue raised by Transit (now NZ Transport Agency), we have deleted condition (a)(iv). It is not necessary to limit the placement of culverts in urban areas to territorial authorities as it is the effects of the activity that are important as opposed to the status of the party undertaking the work.

Condition (b) as notified prevented the use of multiple culverts. Mr Lambie advised us "As I pointed out in my evidence (para 191) there may be situations where a multiple culvert barrel structure is appropriate. For instance a crossing over [a] wide shallow stream that keeps stock and logging trucks off the bed and out of the water may result in overall better environmental outcomes than continuing the activity across the bed and through the water .... In evaluating Boubée, *et al.,* 1999 (pg 27-29), it can be concluded that ecologically sensible designs are not a guaranteed outcome of devising the barrel configuration to accommodate the flow based on single culvert discharge designs. Given that constructing an appropriately designed multi-barrel installation appears to be case specific, it is reasonable that all multi-barrel proposals be vetted for environmental effects on a case-by-case basis."[411]

We also heard from Miss Egan representing NZ Forest Managers, Hancock Forest Management, Ernslaw One and PF Olsen. Miss Egan advised "Battery culverts [multiple culvert crossings] are generally used in wide shallow situations. To comply with rule 16-11 in its current form a waterway crossing in a wide, shallow waterway constructed with a single pipe would require significant fill and works to concentrate the water flow into the single pipe. A battery culvert on the other hand would require less fill and would allow the natural water flow to be maintained. To install a battery culvert resource consent will be required. This is an inequitable approach as in some situations the environmental effects related to the use of a battery culvert with multiple pipes will be less. In some situations a well designed battery culvert creates the lowest risk crossing option and can be installed to ensure no impediment to fish passage, and allow overtopping in major storm events."[412]

Based on the evidence, it seems the issue of contention for us to resolve is a possible impediment to fish passage versus practicality and the overall environmental risk. We note that other conditions of Rule 16-11 will safeguard

[410] NZ Forest Managers, Wanganui District Council, Tararua District Council, Horowhenua District Council, Manawatu District Council, Horticulture NZ.
[411] Lambie, Supplementary Evidence for the End of Hearing Report, undated, pages 11 - 12 paras 64 and 68.
[412] Egan, Statement of Evidence, February 2010, page 6 paras 5.3 - 5.4.

fish passage. Condition (j) requires the general conditions in Section 16.2 to be met. Condition (h) of Table 16.1 in Section 16.2 specifically states "The activity must be undertaken in a manner that provides for the safe passage of fish both upstream and downstream, including past any *structure*^".

Given that fish passage is therefore assured, we accept the evidence of Miss Egan and we have deleted the wording of condition (b) as notified as replaced it with wording based on Miss Egan's recommendations to us.[413]

Condition (c) as notified imposed a range of restrictions on the physical dimensions of culverts and the fill above them. With regard to culvert dimensions, we accept the evidence of Ms Barton who advised "Taking into account the expert advice received, and the approaches taken by other regional councils, I am of the opinion that our rule is appropriate for our Region and have only recommended minor changes. These include retaining the maximum culvert size as 1.2 m as standard culvert sizes are 1.2 m or 1.5 m but not 1.25 m; and the culvert standard to be written to cover both circular culverts, which will have a diameter size, and square culverts, which will have dimensions for width and height."[414]

We accept that advice and so we have retained a maximum culvert diameter of 1.2 m and we have amended condition (c)(ii) so that it refers to circular culverts and inserted new condition (c)(iia) relating to non-circular culverts.

Miss Egan opposed condition (c)(iii) as, in her view, it prevented multiple culvert crossings. We have already decided that multiple culvert crossings should be allowed. We therefore accept Miss Egan's evidence and we have deleted condition (c)(iii). We were also mindful that condition (c)(iii) was impractical as many culverts do not extend across the width of the wetted channel and the width of the wetted channel may well vary from day to day.

With regard to condition (c)(iv) Miss Egan advised us "In some topographical situations, such as incised gullies, it may be necessary to install fill greater than 2m in height even for relatively small streams. In such situations the current rule requires that a resource consent be obtained. This is unnecessary. Culverts can be safely constructed with more than 2 m of fill in incised gullies where the stream flow is minimal."[415]

The officers' concern with condition (c)(iv) seemed to relate to effects unrelated to instream ecological concerns. Ms Barton advised us "In terms of amending condition (c)(iv) to allow for more than 2 metres of fill, it is noted in section 4.153.2 of [the Planning Evidence and Recommendations Report dated August 2009] (page 342) that the addition of 2 metres of fill above a culvert with a diameter of 1.2 metres would result in a height of 3.2 metres. [That Report] stated that this could then potentially be deemed to be a large dam with potential for adverse effects to occur, including:

(a) increased scouring effects
(b) increased impacts on the bed of a river
(c) potential increased effects of water heading up and a spillway being required".[416]

[413] Egan, Statement of Evidence, February 2010, page 8 para 6.2.
[414] McArthur and others, End of Hearing Report, undated, page 150 para 540.
[415] Egan, Statement of Evidence, February 2010, page 7 para 5.9.
[416] McArthur and others, End of Hearing Report, undated, page 149 para 538.

We do not accept that a culvert which heads up (as all culverts do) would be classified as a dam. Nevertheless, we accept that the issue of contention can be avoided by requiring a spillway on larger fills. We have therefore amended condition (c)(iv) based on the wording suggested to us by Miss Egan[417] and by drawing on the wording that already exists in Rule 16-8 with regard to spillways for small dams.

We have amended condition (c)(v) in accordance with the evidence of Mr Lambie who advised us to "Delete the reference to a minimum culvert installation depth of 0.3 m. This measurement is superfluous, and a minimum depth of 20% of the culvert diameter will satisfy fish passage requirements."[418]

We note that we have also amended conditions in accordance with the reasons set out in sections 8.6.6 and 8.6.8 of this Part and also section 1.7 of Part 1 of this Volume.

8.6.30 Recording sites

Horizons Regional Council sought a new permitted activity rule to install, maintain, and remove flow recording sites as well as to divert up to 30 m^3/day of water for the purpose of measuring water quality or quantity, provided the water is returned to the water body within 50 m of the abstraction point.[419] Ms Barton advised us "I agree that this rule should be permitted given the amount of data collected from such devices and the importance of this data for the community. During consultation with submitters Genesis Energy noted that flow recording devices are often installed [by] other organisations and should be permitted. I agree with Genesis as often flow recorders run by other organisations provide the regional council with valuable information."[420]

We heard no views to the contrary and so we have inserted new Rule 16-12A as recommended to us by the officers.[421]

Table 16.1 in Section 16.2 as notified contained condition (v) that restricted excavation within 500 m upstream or 1 km downstream of any flow-recording site. This was of concern to Federated Farmers as they thought it could limit day to day gravel extraction for farm races and the like. Ms Barton advised us "... I approached Jeff Watson (Horizons Manager Catchment Information) who confirmed that flow recording sites are generally only installed in silt beds as gravel beds can cause issues with the measurements from flow recorders. In the last five years the Regional Council has not installed any flow recorders within gravel beds. He noted that the Regional Council talks to landowners before flow recorders are placed on the land and there are often agreements in place about access and if there is an issue with the flow recorder in place that generally is raised. Mr Watson also noted that if this condition was not in the Plan and someone was to disrupt the bed near a flow recording site, there would not only be serious consequences in terms of the data (which the Regional Council relies upon for flood warnings) being inaccurate, but also the cost of maintaining the site would rise from $10,000-$12,000 per year up to approximately $25,000 per year. Having reviewed the provisions with Mr Watson, it is considered appropriate to amend the distance to 500 metres

[417] Egan, Statement of Evidence, February 2010, page 8 para 6.2.
[418] Lambie, Section 42A Report, August 2009, page 9 para 41(iii).
[419] Horizons Regional Council, submission 182-94.
[420] Barton, Planning Evidence and Recommendations Report, August 2009, page 337.
[421] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, pages 16-27 - 16-28.

downstream of a flow recorder site rather than 1 kilometre. Mr Watson is happy that this change will still achieve the same outcome."[422]

On that basis we have deleted the 1 km requirement from condition (v) in Table 16.1.

8.7 Water (Chapter 6) Other Issues

In the sections that follow, we deal with the issues raised by submissions on Chapter 6 that have not already been dealt with in sections 8.6.1 to 8.6.30 of this Part or in other parts of Volume 1.

Readers should note that, if we do not discuss a particular submission point or the issue it raises, it is generally because we have adopted the recommendations of the officers in regard to that submission point. However, for the sake of brevity, we have not repeated the officers' recommendations or their reasoning in this Part.

8.7.1 Chapter 6 General

We note that we have not required all streams on farms to be fenced, but we have made that a requirement for dairy farms in the Table 13.1 catchments and also for all dairy farm conversions (see section 8.6.9 of this Part).[423] We refer submitters raising issues regarding Maori cultural concerns to Part 3 of this Volume.

8.7.2 6.1 Scope and Background and 6.1.1 Scope

We have amended the narrative under the heading "groundwater quality" to include a reference to improving groundwater quality where it is degraded.[424] As a consequence of other changes we have made to the provisions, and to reflect the matters dealt with in Rule 16-14, we have inserted an additional matter under the heading of "land adjacent to the beds of rivers and lakes".

8.7.3 6.1.2 Overview

We have amended the first paragraph to refer to "an expectation of access to clean, safe water".[425] We have also deleted the word "some" from the last sentence of the second paragraph.[426] We have removed emotive language from the text.[427]

8.7.4 6.1.3 Water Quantity

We have inserted a reference to "boating" in the fifth paragraph.[428] We have amended the fifth paragraph to refer to flow variability.[429] This foreshadows amendments we have made to Policy 6-18(b). We have added a reference to Lakes Papaitonga and Horowhenua in the seventh paragraph.[430] We have

[422] McArthur and others, End of Hearing Report, undated, pages 140 - 141 paras 476 - 477.
[423] Teo-Sherrell, submission 181-3.
[424] Manawatu Estuary Trust, Paton, Water and Environmental Care Assn.
[425] Lane, Manawatu Estuary Trust, Paton, Water and Environmental Care Assn.
[426] Ibid.
[427] Federated Farmers.
[428] NZ Recreational Canoeing Association.
[429] Minister of Conservation.
[430] Ibid.

also updated the numbers in Table 6.1 using figures provided by Dr Roygard as part of the End of Hearing materials.

8.7.5 6.1.4 Water Quality

We have amended the last sentence of the third paragraph to align with amendments we made to section 6.1.1.[431] We have amended the last sentence of the fourth paragraph to reflect the Regional Council's support for voluntary programmes.[432]

8.7.6 6.1.5 River and Lake Beds

We have amended the section title to align with terminology used in Chapter 16. We have added a sentence to the first paragraph discussing the benefits that can derive from gravel extraction.[433] This foreshadows new Policy 6-32 (see section 8.6.26 of this Part).

8.7.7 Issue 6-1: Water quality

We have amended the reference to "seepage" to "leaching" as we understand that nutrient leaching from agricultural land use is the actual issue of concern.[434]

8.7.8 Issue 6-2: Water quantity and allocation

We have added a sentence to the first paragraph discussing the potential for the increased demand for water adversely affecting both instream values and the natural character of rivers, wetlands and lakes, if not managed.[435] We have also inserted a reference to the effects of groundwater takes on surface water as this foreshadows the amended Policy 15-2C (formerly Policy 6-25).

8.7.9 Issue 6-3: River and lake beds

We have amended the section title to align with terminology used in Chapter 16.

8.7.10 Objective 6-1: Water management values

We reject submissions seeking the deletion of this objective.[436] It is important that it be retained as the identification of Values underpins the management regime used in the water chapters of the POP. We have, however, deleted the reference to life-supporting capacity as that is but one of the many Values listed in Table 6.2 and Schedule AB.

8.7.11 Objective 6-2: Water quality

We have amended Objective 6-2(a)(iv) to delete the reference to local water conservation notices as these no longer exist. They were replaced by provisions in the operative Regional Plan for Beds of Rivers and Lakes and

[431] Manawatu Estuary Trust, Paton, Water and Environmental Care Assn.
[432] New Zealand Pork Industry Board.
[433] Rangitikei Aggregates Ltd.
[434] Horticulture NZ.
[435] Minister of Conservation.
[436] Hopkins Farming Group.

Associated Activities. We have amended Objective 6-2(b) to require groundwater quality to be enhanced where it is degraded.[437]

8.7.12 Objective 6-3: Water quantity and allocation

In Objective 6-3(a)(ii), we have replaced the word "stock" with the phrase "drinking water for animals" as that better reflects the terminology in s 14 of the RMA and the provisions in Policies 6-12 and 6-19. We have amended Objective 6-3(b)(iia) so that it refers to the effects of groundwater takes on lakes or wetlands. The reason for that change is lakes and wetlands do not have Schedule B minimum flows and core allocations and so the provisions were potentially misleading as notified. We have amended Objective 6-3(b)(iii) to refer to "significant adverse" effects being "avoided" as a requirement (as notified) to simply manage those takes did not provide adequate direction to decision-makers.[438]

8.7.13 Objective 6-4: River and lake beds

We reject submissions seeking the deletion of Objective 6-4 as it necessarily foreshadows policies dealing with river and lake beds and also the provisions of Chapter 16.[439] For consistency and in response to submissions, we have amended Objective 6-4 as some of the other Chapter 6 objectives commence with enabling provisions consistent with s 5(2) of the RMA.[440] We have inserted a cross-reference to Objectives 7-2(b) and 7-2(c) which deal with issues of natural character.[441]

8.7.14 Policy 6-1: Water management zones and values and Table 6.2

We have amended the first paragraph to include a reference to Schedule C and its Groundwater Management Zones. Otherwise, see sections 8.6.4, 8.6.13 and 8.6.20 of this Part.

8.7.15 Policy 6-2: Water quality standards

We have amended the title for the reasons set out in section 8.6.5 of this Part. Otherwise see section 8.6.5.

8.7.16 Policy 6-3: Ongoing compliance where water quality standards are met

We have amended the title for the reasons set out in section 8.6.5. We have amended Policy 6-3(a) so that the Schedule D water quality targets are applicable beyond the zone of reasonable mixing.[442] This is consistent with the approach in s 107(1) of the RMA.

8.7.17 Policy 6-4: Enhancement where water quality standards are not met

We have amended the title for the reasons set out in section 8.6.5. We have amended Policy 6-4(a) so that the Schedule D water quality targets are applicable beyond the zone of reasonable mixing for the reason stated in

[437] Manawatu Estuary Trust, Paton, Water and Environmental Care Assn, Taranaki Fish & Game.
[438] Affco Manawatu, Affco Wanganui Imlay.
[439] Hopkins Farming Group, Ruapehu Federated Farmers.
[440] Horticulture NZ, Federated Farmers, Mighty River Power.
[441] Minister of Conservation.
[442] Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Wanganui District Council.

section 8.7.16 above. We have amended Policy 6-4(a) so that it firstly (in (a)(i)) requires existing water quality to be enhanced where that is reasonably practicable or otherwise that water quality is maintained, and secondly (in (a)(ii)) decision-makers are to have regard to the relevant Schedule AB Values for the water.[443] The inclusion of new clause (a)(ii) will enable decision-makers to have regard to the characteristics of a particular discharge and how that discharge may impact upon the identified Values within the specific receiving environment. This will better enable the overall approach in s 5 of the RMA.

8.7.18 Policy 6-5: Management of activities in areas where existing water quality is unknown

We have amended Policy 6-5(a) so that the Schedule D water quality targets are applicable beyond the zone of reasonable mixing for the reasons stated in section 8.7.16. We have also amended policy 6-5(a)(ii) for the reasons set out in section 8.7.17.

8.7.19 Policy 6-6: Maintenance of groundwater quality

See section 8.6.11.

8.7.20 Policy 6-7: Land use activities affecting water quality

See section 8.6.9 where we evaluated and discussed the issues of contention relating to Tables 13.1 and 13.2 and Rule 13-1 as notified. We have reviewed Policy 6-7 in light of our conclusions and decisions on those Chapter 13 provisions and we have amended the wording of Policy 6-7 accordingly.

8.7.21 Policy 6-8: Point source discharges to water

We have deleted the reference to reasonable mixing from Policy 6-8(a) because we have inserted it instead in the preceding policies. We have amended Policy 6-8(a)(ii) to include non-point source discharges to address the concern expressed about the relative loadings from discharges.[444] We acknowledge that consent applicants will need to rely on the Regional Council to provide information on those comparative loadings. In Policy 6-8(a)(iii) we have qualified the term "best management practices" with the words "contaminant treatment and discharge".[445]

We have not imposed a timeframe on Policy 6-8(a)(iv) as we find that the determination of suitable timeframes for improvement will be very much a case-by-case exercise depending on the circumstances of each situation.[446] We have, however, clarified that the improvement is to be to the quality of the discharge.

We accept submissions stating that Policy 6-8(b) is uncertain and it is unclear whether all of (i) to (iv) are to be met.[447] We note that Policy 6-8(b) is derived from s 107(2) of the RMA. To resolve the issue raised by the submissions, we have deleted the wording under the first line of (b) and have made (i) to (iii) of

[443] Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Wanganui District Council.
[444] Tararua District Council, submission 172-32.
[445] Ibid.
[446] Manawatu Branch of NZ Green Party.
[447] For example Rangitikei District Council, submission 346-33.

(b) additional items for decision-makers to consider along with the matters (i) to (iv) in Policy 6-8(a). We find that this will provide desirable flexibility and better enable the individual circumstances of consent applications to be evaluated and weighed by decision-makers. As a consequence of making that change, we have deleted Policy 6-8(b)(iv) and the last line of Policy 6-8(b). That last line is unnecessary as all decisions under the RMA must be consistent with the Act's purpose.

8.7.22 Policy 6-9: Point source discharges to land

See section 8.6.11 for Policy 6-9(a) to (c) and section 1.7 of Part 1 of this Volume for the amendment to Policy 6-9(d). We inserted new Policy 6-9(e) for the reasons set out in section 8.6.10 of this Part and we inserted new Policy 6-9(f) for the reasons set out in section 8.6.6.

8.7.23 Policy 6-10: Options for discharges to surface water and land

We note that Policy 6-10 has been relocated and is now Policy 13-2B for the reasons set out in section 8.6.1.

We amended (a) to refer to discharge to land "as an alternative" to discharges to water as opposed as being "in preference to" discharges to water. We made that change in response to submissions expressing concern about the notified wording.[448] In our view, it is inappropriate to state that discharging to land is preferable to discharging to water in all cases. While that may be the case in some situations, it will not necessarily always be the case. We find it is more appropriate to direct decision-makers to consider the alternative receiving environments and we envisage that they will do that based on the evidence relating to each particular situation.

8.7.24 Policy 6-11: Human sewage discharges

See section 8.6.11.

8.7.25 Policy 6-12: Reasonable and justifiable need for water

See section 8.6.18.

8.7.26 Policy 6-13: Efficient use of water

A number of submitters were concerned about the requirements for water audits and water budgets.[449] In response to those submissions, we have amended (a) so that water audits and budgets are to be used "as appropriate". Decision-makers can then decide on a case-by-case basis whether or not those measures are appropriate in the circumstances.

The territorial authorities sought that Policy 6-13 only apply if the water use was above that considered reasonable under Policy 6-12.[450] We have decided that is not appropriate as the water abstracted should always be used efficiently, regardless of whether or not Policy 6-12 is met. However, in response to the issue raised by the submissions, we have amended (b) so

[448] For example Manawatu District Council, submission 340-51.
[449] Federated Farmers, Meridian, Tararua District Council.
[450] Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Wanganui District Council.

that any imposed upgrading of infrastructure is aimed at achieving the Policy 6-12 reasonable use figures. The amendment is also consistent with the relief sought by the Ruapehu District Council which was that "there is a progressive upgrade of the water reticulation networks to minimise losses over time until the 'reasonable needs' as set out in Policy 6-12 are [r]eached".[451]

We have inserted new (ca) in response to submissions calling for the more frequent utilisation of water storage options.[452]

A number of submissions sought the compulsory installation of water meters.[453] We have decided that it would not be appropriate to make the use of water meters compulsory. We have, however, amended (e) so that monitoring is required and metering is listed as one method of achieving that monitoring. Decision-makers can then decide on a case-by-case basis whether or not meters are appropriate in the circumstances.

8.7.27 Policy 6-14: Consideration of alternative water sources

We note that Policy 6-14 has been relocated and is now Policy 15-1A for the reasons set out in section 8.6.1 of this Part.

We have amended Policy 15-1A to include the concept of water harvesting during periods of high river flows in response to the submission of Horticulture NZ.[454] The harvesting and subsequent storage of such high flows is an efficient and effective use of water that would otherwise be conveyed out to sea. This links to Policy 6-18 on supplementary takes (see section 8.6.19) and we have amended Policy 6-18 to provide environmental safeguards when supplementary takes occur.

We have also amended Policy 15-1A to include the concept of recycling, as raised by Landlink in their submission on Policy 6-12.[455]

8.7.28 Policy 6-15: Overall approach to surface water allocation

See section 8.6.17.

8.7.29 Policy 6-16: Core water allocation and minimum flows

See section 8.6.17.

8.7.30 Policy 6-17: Approach to setting minimum flows and core allocations

See section 8.6.17.

8.7.31 Policy 6-18: Supplementary water allocation

See section 8.6.19.

[451] Ruapehu District Council, submission 151-91.
[452] Baird, submission 443-17.
[453] Manawatu Estuary Trust, Paton, Water and Environmental Care Assn.
[454] Horticulture NZ, submission 357-74.
[455] Landlink, submission 440-34.

8.7.32 Policy 6-19: Apportioning, restricting and suspending takes in times of low flow

See section 8.6.18.

8.7.33 Policy 6-20: Surface water allocation - lakes

See section 8.6.17.

8.7.34 Policy 6-21: Overall approach for bore management and groundwater allocation

See section 8.6.23.

8.7.35 Policy 6-22: Bore development and management

See section 8.6.23.

8.7.36 Policy 6-23: Groundwater Management Zones

There were few submissions on Policy 6-23.

We reject the submission[456] to withdraw the policy as it usefully indicates how the Schedule C figures will be used in resource consent processes. Mighty River Power sought that groundwater takes should not reduce the amount of water available for surface water users. We addressed that matter in section 8.6.21 of this Part.

We have decided not to amend Policy 6-23 to specify how the Schedule C figures were derived. Mr Callander advised us "The annual allocatable volume numbers in the modified version of Schedule C are based on 5% of the average annual rainfall within each zone. A ballpark indication of aquifer recharge would estimate that approximately 30% of rainfall reaches the groundwater. In addition, the aquifers receive additional recharge from seepage losses from some sections of surface water bodies. Therefore, a GMZ allocation limit of 5% of average annual rainfall is approximately 10-15% of the average annual groundwater recharge."[457] However, Mr Callander also advised "A Ministry for the Environment (MfE) report entitled Groundwater Resource Management: Information Gaps Analysis (September 2001) recommends that a conservative allocation of sustainable groundwater abstraction could be 20% of annual rainfall. The proposed limit of 5% in the POP is well below this [criterion]."[458] We note from the evidence of Mr Zarour that the Regional Council actively reviews groundwater use and allocable volumes. We therefore find it would be unduly constraining to specify a set percentage of the average annual rainfall allocation in Policy 6-23. However, as discussed in section 8.12, we have added a note at the end of Schedule C stating that the volumes are based on 5% of the average annual rainfall for each Groundwater Management Zone.

We do accept Mr Callander's advice where he stated "I suggest altering the wording of the policy's aim to make it clear that Schedule C lists an annual

[456] Ruapehu District Council.
[457] Callander, Section 42A Report, August 2009, page 12 para 48.
[458] Ibid, page 13 para 50.

volume within each zone that is available for allocation, and that those volumes are not to be exceeded throughout the term of this Plan ...".[459] We have therefore replaced the words "must comply with" with the words "must not exceed".

8.7.37 Policy 6-24: Effects of groundwater takes on other groundwater takes

We note that Policy 6-24 has been relocated and is now Policy 15-2B for the reasons set out in section 8.6.1.

There were few submissions on Policy 6-24. In our view, the policy provides a necessary framework for dealing with the adverse effects of groundwater takes. In that regard, we accept the advice of Mr Callander who stated "When groundwater abstractions occur, they create a localised drawdown in the groundwater levels in the surrounding area. This drop in groundwater levels can adversely affect the ability of neighbouring bores to operate effectively. The adverse effect can arise either from the drawdown effects of a single bore ... or due to the cumulative drawdown effects of several bores. Therefore, a policy is required to manage this potential adverse effect."[460]

Submitters sought the deletion or amendment of Policy 6-24(d).[461] We reject those submissions. If the adverse effects described above by Mr Callander arise, then one remediation option is to supply the adversely affected party with water. This may allow the new groundwater take application to be granted where it may otherwise have to be declined. We consider that to be an effective and efficient resource management response.

We have accepted the submission of Horticulture NZ who asked that the term "good quality bores" takes be replaced with the term "efficient and fully functioning bores". We note that better aligns with the provisions of Policy 6-22 (now Policy 15-2A), particularly the amended Policy 15-2A(a) (see section 8.6.23).

We note that the officers recommended significant amendments to Policy 6-24(b) and (c).[462] We understand those amendments arose from the evidence of Mr Callander.[463] However, we find those recommended amendments to be well beyond the scope of submissions and we refer readers to section 8.6.23 where we discuss the brief that the Regional Council gave Mr Callander.

8.7.38 Policy 6-25: Effects of groundwater takes on surface water bodies

See section 8.6.21.

8.7.39 Policy 6-26: Saltwater intrusion

We note that Policy 6-26 has been relocated and is now Policy 15-2D for the reasons set out in section 8.6.1.

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459 Ibid, page 12 para 47.
460 Ibid, pages 13 - 14 para 54.
461 Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Wanganui District Council, Ruapehu District Council.
462 Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, pages 15-7 and 15-8.
463 Callander, Section 42A Report, August 2009, page 14 para 55.

There were few submissions on Policy 6-26. We reject submissions calling for the policy to require the rectification costs of saltwater intrusion to borne by the Regional Council or consent holders.[464] That matter is beyond the scope of the POP. We also reject submissions seeking the replacement of the 5 km threshold in Policy 6-26(c) with a set of criteria for where saltwater intrusion testing will be required.[465] In that regard, we accept the advice of Mr Callander who stated "The definition of a 5 km zone appears reasonable based on the extent of drawdown effects that can occur in some coastal aquifers with low storage coefficients."[466] We have however replaced the word "coast", which we found to be somewhat vague, with the phrase "coastal mean high water springs line", which was already used in Policy 6-26(a).

8.7.40 Policy 6-27: General management of river and lake beds

We have amended the title of the policy for consistency reasons.

We have amended Policy 6-27(c) and (d) to refer to "avoids, remedies or mitigates" as sought by Meridian.[467] In our view, that is more consistent with s 5(2) of the RMA.

In response to the submissions concerned about natural character and morphological diversity, we have amended Policy 6-27(e) to refer to the "natural style and dynamic processes of the *river*^, such as *bed*^ style and width and the quality and quantity of *bed*^ habitat."[468]

In response to the submission of Powerco[469], we have amended Policy 6-27 (h) so that it refers to the operation, maintenance and upgrade of infrastructure and other physical resources of regional or national importance. This aligns the Policy 6-27 wording with the provisions of Policy 3-1 and Policy 3-2. It is also consistent with the submissions of the territorial authorities who sought that Policy 6-27 be amended "so that it is explicit to the essential works and services and essential activities that are recognised under Policy 3-1."[470]

8.7.41 Policy 6-28: Activities in waterbodies with a Value of Natural State, Sites of Significance - Cultural, or Sites of Significance - Aquatic

We have amended the title of the policy to refer to site (as a Glossary term) for the reasons set out in section 5.6.3.1 of Part 5 of this Volume.

We have accepted the submissions of Mighty River Power and Meridian to qualify Policy 6-28(a)[471] so that it concludes with the wording "as far as reasonably practicable or otherwise remedies or mitigates those effects". In our view, that provides appropriate direction to decision-makers as it is impracticable to require avoidance of effects in all cases, given the desktop manner in which the sites have been identified and the relatively broad scale of some sites.

[464] Manawatu Estuary Trust, Paton, Water and Environmental Care Assn.
[465] Federated Farmers, Horticulture NZ.
[466] Callander, Section 42A Report, August 2009, page 20 para 79.
[467] Meridian, submissions 363-91 and 363-92.
[468] Wellington Fish & Game, Minister of Conservation.
[469] Powerco, submission 272-18.
[470] See, for example, Tararua District Council, submission 172-49.
[471] Mighty River Power, submission 359-69; Meridian, submission 363-95.

We have deleted the last part of Policy 6-28(b) as the introductory words refer to the relevant Schedule AB Values.

8.7.42 Policy 6-29: Activities in waterbodies within a flood control or drainage scheme

We have amended the title of the policy for the reasons set out in sections 8.6.8 and 8.6.25. We have amended Policy 6-29(a) to refer to "maintained or enhanced" as sought by Horizons Regional Council. For the reason for that change, and also for the other amendments to the policy, see sections 8.6.4, 8.6.8 and 8.6.25.

8.7.43 Policy 6-30: Activities in waterbodies with other values

We have amended the title of the policy for the reasons set out in sections 8.6.4 and 8.6.8 of this Part. In response to the submission of the Minister of Conservation, we have amended Policy 6-30(b) so that it refers to an offset and we have included the notified reference to financial contributions in a separate Policy 6-30(c).[472] This acknowledges that an offset does not necessarily need to be an RMA-defined financial contribution comprising land or money.

8.7.44 Policy 6-31: Essential and beneficial activities

In response to the submission of TrustPower[473], we have amended Policy 6-31(a) so that it refers to the use, maintenance and upgrade of infrastructure and other physical resources of regional or national importance. This aligns the wording of Policy 6-31 with the provisions of Policy 3-1 and Policy 3-2. It is also consistent with the submissions of the territorial authorities who sought that Policy 6-31 be amended "so that it is explicit to the essential works and services and essential activities that are recognised under Policy 3-1."[474]

8.7.45 Policy 6-32: Gravel extraction

See section 8.6.26 of this Part.

8.7.46 Methods

In response to the submissions of TrustPower and Meridian[475], we have inserted a reference to hydroelectricity generators in the "Who" row of Method 6-1.

We have added iwi authorities to the "Who" row of Method 6-2.[476] We have deleted the last part of the "Description" row and the first part of the "Targets" row in that method as the dates in those provisions have now long passed and they are therefore redundant.

We have amended Method 6-6 to refer to native fish, native fish habitat spawning sites and fish passage (instead of "replacement of perched culverts" in the latter case) in response to the submissions of the Taranaki/Whanganui

[472] Minister of Conservation, submission 372-82.
[473] TrustPower, submission 358-47.
[474] For example Tararua District Council, submission 172-50.
[475] TrustPower, submission 358-48; Meridian, submission 363-99.
[476] NKII, submission 180-37.

Conservation Board who noted an absence of those items.[477] We accept that native fish spawning is as much an issue of regional significance as trout spawning.

In response to the submission of Sustainable Whanganui, we have inserted a reference to the Youth Environment Forum in the "Who" row of Method 6-8.[478]

See section 8.6.25 of this Part for a discussion of the issues that led to us amend Method 6-9.

8.7.47 Anticipated Environmental Results

In response to the submission of the Minister of Conservation[479], we have added the indicator "Measured flows of surface water compared to the allocation and minimum flow regime outlined in this Plan" to the first row. As a consequential amendment, we have expanded the AER in the third row to provide consistency with the amendments we made to Policy 6-6.

8.7.48 Explanations and Principal Reasons

We have made consequential amendments to the text to ensure consistency with amendments we have made to the provisions of Chapter 6. We have also made some minor changes to correct grammar and cross-referencing.

8.8 Discharges to Land and Water (Chapter 13) Other Issues

In the sections that follow, we deal with the issues raised by submissions on Chapter 13 that have not already been dealt with in sections 8.6.1 to 8.6.30 and section 8.7 of this Part or in other parts of this Volume.

Readers should note that if we do not discuss a particular submission point, or the issue it raises, it is generally because we have adopted the recommendations of the officers in regard to that submission point. However, for the sake of brevity, we have not repeated the officers' recommendations or their reasoning in this Part.

Readers should also note that in this section we do not discuss policies that have been relocated from Chapter 6 into Chapter 13. Those provisions are discussed in section 8.7.

8.8.1 Chapter 13 General

We have inserted new Objective 13-1 for the reasons set out in section 8.6.2.

In response to submissions, we have inserted a new Policy 13-2A titled "Industry-based standards".[480] We have deliberately kept the new policy broad rather than have it refer to specific guidelines as sought by the submitter. We find that industry-based standards, if they are developed with compliance issues in mind, can contain provisions that can be incorporated in resource consent conditions. This has the added benefit of generating consent

[477] Taranaki/Whanganui Conservation Board, submission 374-13.
[478] Sustainable Whanganui, submission 176-18.
[479] Minister of Conservation, submission 372-89.
[480] Oil companies, submission 267-8.

conditions that have industry acceptance and understanding, which in our view is an efficient and effective form of resource management.

As a consequence of our decisions in relation to Table 13.1, Table 13.2 and Rule 13-1, we have inserted a new Policy 13-2C to deal with management of dairy farming land uses. That new policy cross-references Policy 6-7 and foreshadows the nature of new Rules 13-1 to 13-1C.

We note that under each tranche of rules there is a Rule Guide. There were few, if any, submissions on these provisions. The officers recommended amendments to them in the End of Hearing material (the yellow track changes) and we have taken their recommendations into account when amending the Rule Guides in response to the amendments we have made to the rules. We do not discuss the wording in these Rule Guides further.

We note that some tranches of rules are preceded by general headings (such as 13-5 Rules - Stormwater for example). Where necessary, we have amended the wording of those general headings to be consistent with changes we have made to the titles of the actual rules that follow. We do not discuss the wording of these general headings further.

Volume 2 contains a number of non-specific headings not linked with particular provisions. We have not included sections with those titles in this Part. Instead, we have considered the relevant submissions listed under those headings in the more specific policy and rule sections that follow.

8.8.2 Policy 13-1: Consent decision-making for discharges to water

We have amended Policy 13-1(a) for the reasons set out in sections 8.6.4 and 8.6.5. We have amended Policy 13-1(c)(i) to avoid the use of the word "standards" for the reasons set out in section 8.6.5. We have amended Policy 13-1(c)(i) to replace the phrase "recognise and provide for" with the phrase "give effect to" as we have decided to generally avoid using the s 6 RMA language in the POP policies and "have regard to" was not appropriate in this context.

We have amended Policy 13-1(c)(ii) so that it better reflects the definition of effect in s 3 of the RMA (which uses the term "potential effect").

We reject submissions asking for the deletion of Policy 13-1(d).[481] While we acknowledge that, under s 104(1)(b), decision-makers on resource consent applications must have regard to any relevant provisions of a regional policy statement or proposed regional policy statement, we find that Policy 13-1(d) helpfully directs decision-makers to key parts of the RPS (Part I of the POP).

8.8.3 Policy 13-2: Consent decision-making for discharges to land

In response to submissions[482], we have amended Policy 13-2(c) to align the wording used for sensitive receiving environments with that used in Policy 14-2(d) and we have added in reference to infrastructure and other physical resources of regional or national importance identified in Policy 3-1. We have

[481] New Zealand Pharmaceuticals, Wanganui District Council, Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Ruapehu District Council.

[482] For example Transpower, submission 265-29.

made amendments to Policy 13-2(d) for the same reasons as set out in 8.8.2 above in relation to Policy 13-1(c). We reject submissions to delete Policy 13-2(f) for the same reasons as set out in 8.8.2 in relation to Policy 13-1(d).

8.8.4 Policy 13-3: Management of discharges of domestic wastewater

See section 8.6.11.

8.8.5 Policy 13-4: Monitoring requirements for consent holders

We have qualified the policy to refer to point source discharges as sought by Federated Farmers.[483] This acknowledges the fact that monitoring the effects of non-point source discharges can only effectively occur by way of the Regional Council's state of the environment monitoring programme.

We have amended Policy 13-4(c) to replace the term "conductivity meter" with the term "telemetry system" as sought by Horizons Regional Council.[484]

We reject submissions to delete Policy 13-4(c).[485] In that regard, we accept the evidence of Dr Roygard who advised us that the policy "proposes that holders of consents for discharges to water generally be required to monitor discharge volumes for consents greater than 100 m^3/day and report these to Horizons. These requirements are also addressed in Section 4.9.5 of this report. Information of accurate daily discharge volume combined with water quality parameter data, eg. nutrient concentration, will enable characterisation of the inputs from the discharge. Combining this with upstream flow and water quality information, and downstream water quality information, will enable characterisation of the relative inputs of the discharge to the receiving water body and the overall water quality in the river. This type of information, collected in a coordinated, consistent manner with all information going to a single database, will provide for improved knowledge to inform decision-making."[486]

In response to submissions[487], we have amended Policy 13-4(d) to clarify that the monitoring and reporting it requires, relates to the quality of the discharge and to the immediate receiving environment upstream and downstream of the discharge. In our view, such monitoring is required to effectively quantify the actual effects of point source discharges on the receiving environment. The specificity of the policy now differentiates this "impact monitoring" from wider state of the environment monitoring undertaken by the Regional Council. We note similar relief was sought by Horizons Regional Council.[488]

8.8.6 Rules: Agricultural Activities, Table 13.1, Table 13.2, Rule 13-1

See section 8.6.9.

[483] Federated Farmers, submission 426-156.
[484] Horizons Regional Council, submission 182-35.
[485] Wanganui District Council, Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Ruapehu District Council.
[486] Roygard, Section 42A Report, August 2009, page 139 para 254 (reference to footnotes removed by us).
[487] For example New Zealand Pharmaceuticals, submission 274-20.
[488] Horizons Regional Council, submission 182-36.

8.8.7 Rule 13-2 Fertiliser

In response to submissions[489], we have deleted condition (b) and inserted a new condition (ba) that requires all reasonable measures to be taken to prevent discharges into certain areas eg certain beds or surface water (using similar descriptions of these areas as in new Rules 12-3 and 12-4) and Schedule E habitats. However, we have referred to any lake or wetland (other than the Schedule E habitats) which has an area of 1 ha or more. This aligns with the amended approach taken for managing the discharge of agrichemicals in condition (i) of Rule 14-2. We decided to make these amendments as we acknowledge that it is not realistic to avoid discharges to these areas in all cases, particularly if the fertiliser is discharged from aircraft.

We have amended condition (c) to refer to the Code of Practice for Nutrient Management as sought by the Fert Research.[490] We note that amendment to be consistent with new Policy 13-2A.

In response to the submission of Fert Research[491], we have amended condition (d) so that where more than 60 kgN/ha/year of fertiliser is applied to the land a nutrient budget is required. We have specified the use of Overseer for the reasons set out in section 8.6.9.6. We have also amended conditions (d) (the addition of the cross-reference to new Rules 13-1 to 13-1C) and (e) for the reasons set out in section 8.6.10.4.

We note that some submitters raised the issue of how gypsum and lime would be dealt with under the POP rules.[492] In our view, gypsum and lime should be classified as fertiliser. The discharge of gypsum and lime would therefore be a permitted activity under Rule 13-2. However, we note that the definitions of "fertiliser" and "soil conditioner" in the POP were potentially confusing in that regard. We have therefore amended the definition of fertiliser so that it explicitly includes gypsum and lime and explicitly excludes animal effluent, soil conditioners and poultry farm litter as discharges of those materials are regulated under Rules 13-6, 13-4 and 13-4B respectively.

We have also amended the definition of "soil conditioner" so that it relates to material that is "applied to land by itself or with fertiliser" as opposed to being "added to a fertiliser, or applied to land by itself" as was the case in the notified definition. In our view, this clarifies that a "soil conditioner" is not "fertiliser" which may have been a conclusion able to be reached under the definitions as notified.

A related issue was how the discharge of animal-derived products such as "blood and bone" would be regulated. This was problematic as, although these materials are commonly considered to be a type of fertiliser, the definition of "fertiliser" excluded "dead animal matter".

The term "dead animal matter" was defined in the POP Glossary as notified as:

[489] NZ Agricultural Aviation Association, submissions 19-3, 19-4 and 19-5; Fert Research, submission 415-18.
[490] Fert Research, submission 415-19.
[491] Fert Research, submission 415-20.
[492] Rollinson, submission 177-1.

Dead animal matter means any substance derived from the tissue, bones or blood of animals or fish, whether processed or not.

Apart from the definition of "fertiliser", the term "dead animal matter" was only used in condition (a) of Rule 13-5 which authorises discharges into offal holes. We understand that, in the context of that rule, the term "dead animal matter" related to animal carcasses or parts of carcasses which are commonly disposed of in offal holes. We have therefore amended condition (a) of Rule 13-5 to refer to "animal carcasses, or parts thereof" and we have consequently deleted the term "dead animal matter" from the Glossary, Rule 13-4 and the definition of "fertiliser". That results in the discharge of material such as "blood and bone" now falling within the scope of Rule 13-2.

We are satisfied that conditions (c) and (e) of Rule 13-2 provide sufficient safeguards should anyone be so minded to discharge actual animal parts or dead fish to land under the supposed guise of those materials being fertiliser.

8.8.8 Rule 13-3 Stock feed including feedpads

We have amended condition (a) by deleting the reference to areas used for storing stock feed as sought by Horizons Regional Council.[493] We accept that the effects of discharges from such areas, if any discharges occur, are likely to be less than minor.

We have inserted a definition of feedpad as sought by Horizons Regional Council.[494] However, we have amended the wording recommended to us by the officers so that it refers only to an area of land that is artificially sealed. This avoids inadvertently capturing holding paddocks, forage crops and the like.

We have retained the permeability figure in condition (a) at $1x10^{-9}$ m/s for the reasons set out in section 8.6.10.[495]

8.8.9 Rule 13-4 Biosolids

See sections 8.6.12 and 8.8.7.

8.8.10 Rule 13-5 Offal holes and farm dumps

We have amended condition (a) of the rule as discussed in section 8.8.7 above. We have also deleted the word "organic" from condition (a) in recognition of the fact that inorganic wastes will be disposed of in farm dumps.[496] We have amended condition (e)(i) for the reasons set out in section 8.8.3 above in relation to sensitive areas.[497] We have deleted condition (e)(v) as sought by Horizons Regional Council.[498] We can see no effects-based reason for retaining that particular set back distance.

[493] Horizons Regional Council, submission 182-42.
[494] Horizons Regional Council, submission 182-102.
[495] New Zealand Pork Industry Board, submission 409-31.
[496] Ruapehu Federated Farmers, submission 246-35.
[497] Visit Ruapehu, submission 152-14.
[498] Horizons Regional Council, submission 182-48.

8.8.11 Rule 13-6 Farm animal effluent including dairy sheds, poultry farms and existing piggeries

See section 8.6.10.

8.8.12 Rule 13-7 Effluent from new piggeries

See section 8.6.13.

8.8.13 Rule 13-8 Agricultural land uses not covered by other rules

As a consequence of the amendments we have made to Rule 13-1, we have deleted Rule 13-8 as it no longer serves any useful purpose.

8.8.14 Rule 13-9 Discharges of water to water

We have amended the cross-referencing error in condition (d).[499] We have also amended the activity description to clarify that discharges of water to water from dams are regulated by Rules 16-8 and 16-9.

8.8.15 Rule 13-10 Existing discharges of domestic wastewater

See section 8.6.11.

8.8.16 Rule 13-11 New and upgraded discharges of domestic wastewater

See section 8.6.11.

8.8.17 Rule 13-12 Discharges of domestic wastewater not complying with Rules 13-10 and 13-11

See section 8.6.11.

8.8.18 Rule 13-13 Human effluent storage and treatment facilities

We reject submissions to delete condition (a).[500] It is important that effluent storage ponds are sealed to prevent the seepage of contaminants to underlying groundwater.

8.8.19 Rule 13-14 Discharges of untreated human effluent directly into surface water

We have deleted item (a) from the activity description as the date referred to (1 July 2009) has passed and so the provision is redundant.

8.8.20 Rule 13-15 Discharges of stormwater to surface water and land

See section 8.6.15.

[499] Landlink, submission 440-90.
[500] Tararua District Council, Rangitikei District Council, Horowhenua District Council, Manawatu District Council, Ruapehu District Council.

8.8.21 Rule 13-16 Discharges of stormwater to land not complying with Rule 13-15

See section 8.6.15.

8.8.22 Rule 13-17 Discharges of stormwater to surface water not complying with Rule 13-16

See section 8.6.15.

8.8.23 Rule 13-18 Discharges of dye and salt tracers

No submissions were made on this rule. We have only amended it to provide consistency of wording.

8.8.24 Rule 13-19 Discharges of cleanfill

We have amended this rule so that it relates to the discharge of "cleanfill material". The wording in the rule as notified was confusing and inconsistent. We have consequently included a definition of cleanfill material in the Glossary based on the one recommended by the officers.[501]

We have added an exemption for stockpiled gravel into the activity description to address the concerns of Higgins and Transit New Zealand (now NZ Transport Agency).[502] We accept that stockpiles of clean gravel extracted from the Region's rivers and stockpiles of gravel used for roading purposes are unlikely to generate discharges of environmental concern.

8.8.25 Rule 13-20 Composting operations

We have amended the definition of composting in the Glossary so that it includes compost.[503]

8.8.26 Rule 13-21 Closed landfills

We have retained the rule as notified other than amending matter of control (c) for the reasons set out in section 8.6.5.

8.8.27 Rule 13-22 Discharges of persistent and harmful contaminants

See section 8.6.15.

8.8.28 Rule 13-23 Discharges to Natural State water management zones, Sites of Significance - Aquatic and lakes and wetlands

In response to submissions, we have amended the rule to be a discretionary activity rule.[504] We consider that the retention of non-complying activity status is unduly onerous given the desktop studies which underpin the location of some Sites of Significance - Aquatic and the broad extent of some of those sites.

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[501] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, Glossary-4 and Glossary-5.
[502] Higgins, submission 153-17; Transit New Zealand, submission 336-30.
[503] Ruapehu District Council, submission 151-168.
[504] Landlink, Mighty River Power, Meridian.

We have deleted items (c) and (d) from the activity description because they overlap with new Rule 12-6. We have amended the description of "pests" to be consistent with the definition of vegetation clearance and land disturbance now used in the amended rules in Chapter 12.

8.8.29 Rule 13-24 Discharges of contaminants to surface water

The only amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume.

8.8.30 Rule 13-25 Discharges of contaminants to land that will not enter water

We have amended condition (b) of the rule to enable the bridging or culverting of rivers crossed by stock. This is a consequence of requiring such stock crossings to be bridged or culverted in amended Rules 13-1 to 13-1C. Otherwise, the only amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume.

8.8.31 Rule 13-26 Discharges of contaminants to land that may enter water

We have decided that the rule should not be amended to refer to the range of variables suggested by the Manawatu Branch of NZ Green Party as that would make the rule too subjective and difficult to implement consistently.[505] However, in response to the issue raised, we have amended condition (c) to recognise the fact that groundwater levels vary seasonally. We have also corrected condition (f) by replacing the word "detectable" with the wording "more than minor" as that is more appropriate RMA terminology. Otherwise, the only amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume.

8.8.32 Rule 13-27 Discharges of contaminants to land or water not covered by other rules in this plan

We reject the submission to make this rule a non-complying activity.[506] A discretionary activity allows decisions-makers to assess resource consent applications on their merits and grant or decline them as the specific circumstances dictate. We find that to be appropriate.

8.9 Takes, Uses and Diversions of Water and Bores (Chapter 15) Other Issues

In the sections that follow, we deal with the issues raised by submissions on Chapter 15 that have not already been dealt with in sections 8.6.1 to 8.6.30 and section 8.7 of this Part or in other parts of Volume 1.

Readers should note that, if we do not discuss a particular submission point or the issue it raises, it is generally because we have adopted the recommendations of the officers in regard to that submission point. However, for the sake of brevity, we have not repeated the officers' recommendations or their reasoning in this Part.

[505] Manawatu Branch of NZ Green Party, submission 433-57.
[506] Landlink, submission 440-97.

Readers should also note that in this section we do not discuss policies that have been relocated from Chapter 6 into Chapter 15. Those provisions are discussed in section 8.7. Readers should note that we have deleted Policy 15-3 as it cross-referenced Policy 6-22 and Policy 6-22 has been moved to Chapter 15 (it is now Policy 15-2A).

8.9.1 Chapter 15 General

We have inserted new Objective 15-1 for the reasons set out in section 8.6.2 of this Part.

We note that, under each tranche of rules, there is a Rule Guide. There were few, if any, submissions on these provisions. The officers recommended amendments to them in the End of Hearing material (the yellow track changes) and we have taken their recommendations into account when amending the Rule Guides in response to the amendments we have made to the rules. We do not discuss the wording in these Rule Guides further.

Volume 2 contains a number of non-specific headings not linked with particular provisions. We have not included sections with those titles in this Part. Instead, we have considered the relevant submissions listed under those headings in the more specific policy and rule sections that follow.

8.9.2 Policy 15-1: Consent decision-making for takes and uses of surface water and groundwater

We have deleted Policy 15-1(a) and included reference to Chapter 6 in (c) because, as discussed in Part 1 of this Volume, we decided to refer to "have regard to". In response to submissions[507], we have however expanded the list of RPS (Part I of the POP) chapters referred to.

We have amended Policy 15-1(b) to refer to s 14(3)(b) takes as sought by Federated Farmers.[508] This also usefully foreshadows amendments we have made to Rules 15-1 and 15-2 (see section 8.6.16). We have also amended Policy 15-1(b) to refer to properly-constructed, efficient and fully-functioning bores as a consequence of amendments we have made to Policy 15-2A (formerly Policy 6-22 discussed section 8.6.23).

We have added new Policy 15-2A(ba) to enable non-consumptive uses of water, as sought by Meridian[509] as such uses generally would have few, if any, adverse effects. We also note that recycling of water reduces demand on natural water resources which is beneficial.

8.9.3 Policy 15-2: Consent decision-making for diversions and drainage

For the same reasons as in 8.9.2 above, we have deleted Policy 15-2(a) and (d) and included reference to the chapters, as well as other relevant chapters, in new Policy 15-2(f). We note that submitters sought such cross-referencing to the chapters of the RPS (Part I of the POP).[510]

[507] NKII, Environmental Working Party, Ngā Pae o Rangitikei.
[508] Federated Farmers, submission 426-190.
[509] Meridian, submission 363-167.
[510] Powerco, NKII, Environmental Working Party, Ngā Pae o Rangitikei, Mighty River Power, Meridian.

We amended Policy 15-2(e) for the same reasons that we amended Policy 15-1(c) as set out in section 8.9.2 above.

8.9.4 Policy 15-4: Monitoring requirements of consent holders

Policy 15-4 as notified specified the type of monitoring that would occur for water takes. Dr Roygard advised us "Horizons have established a water-use monitoring programme with emphasis on automatic provision of water-use records to Horizons' databases on a daily basis. This provides high quality water-use records to enable the calculation of the natural flows of the [Region's] water bodies. The automatic provision of water-use records in a timely manner has the advantage of enabling early detection of any issues with the metering or compliance with consent conditions .... Timely provision of accurate information about water take volumes enables effective management of the resource. The POP has several monitoring requirements in relation to installation of water meters and automatic data transfer systems on water abstraction takes (Policy 15-4) and discharges to water (Policy 13-2). This monitoring not only enables calculation of natural flows for setting core allocation limits and minimum flows (Policy [6-16(a)]) but it also provides a mechanism to check compliance with these. Further, the monitoring provides a mechanism to monitor compliance with consent requirements in relation to Policy 6-19 (apportioning, restricting and suspending takes in times of low flow). Accurate monitoring also enables assessment of the efficiency of use of water (Policy 6-13). The water abstraction monitoring programme also provides the monitoring network that could be used to monitor compliance of consented volumes transferred under Policy 15-6. While the focus of the programme is the automated transfer of records, manually collected water-use records are required in some situations .... The proposed technical thresholds that generally require telemetry in Policy 15-4 were greater than 750 m^3/day for surface water and riparian takes, and greater than 4,000 m^3/day for groundwater takes."[511]

Submitters sought a range of changes to the notified provisions. Some wanted reference to pulse-count capable water meters to be deleted and for metering to be required only on takes greater than 500m^3/day or 1000m^3/day.[512] Some submitters wanted the 750m^3/day threshold in Policy 15-4(b) changed to 2000m^3/day and that it only apply for surface water bodies which were near to fully allocated.[513]

In terms of the threshold figures, Dr Roygard told us "Horizons has been implementing requirements for water metering and telemetry in accordance with these thresholds since 2004 and has also typically funded the installation and operation of telemetry units in accordance with these thresholds since 2004 .... Analysis of the consented volumes in 2009 shows these thresholds would provide for:

i. 95.9% of the consented surface water volume being automatically monitored, potentially requiring 160 of the 294 surface water consents to have telemetry.

[511] Roygard, Section 42A Report, August 2009, pages 59, 60 and 63 paras 108, 109 and 111 (reference to footnotes removed by us).
[512] Horowhenua Fruitgrowers Association, Horowhenua District Growers Association and around ten others.
[513] Horowhenua District Growers Association and around ten others.

ii. 53% of the groundwater allocation being automatically monitored, potentially requiring 39 of the 347 groundwater consents to have telemetry."[514]

We find that the level of metering required by the notified provisions is not onerous and we note that it has been in place since 2004 with telemetry units being provided by the Council. We accept the advice of Dr Roygard that it is important to have accurate information on the amount of water taken.[515] We also note that pulse count meters used in conjunction with telemetry allow for real time monitoring to occur. We see no effects-based reason to depart from the status quo and so we reject submissions seeking alternative thresholds in Policy 15-4(b). We acknowledge that the eventual finalisation of the proposed National Environmental Standard on measurement of water use may require these figures to be amended in the future.

We dealt with saltwater intrusion monitoring (Policy 15-4(d)) in section 8.7.39.[516]

8.9.5 Policy 15-5: Consent expiry and review

See section 8.6.3.

8.9.6 Policy 15-6: Transfer of water permits

We reject submissions seeking the addition of an extra clause (e) requiring that the effects of the transfer be of similar scale and intensity.[517] We understand that transfers often occur down the catchment (namely to a place in the river with a greater flow) and so the effects of the take will arguably be less in some cases. We also reject submissions calling for a specific reference to Chapter 4.[518] Transfers of water take permits require the approval of the Council under s 136(2)(b)(ii) and (4) of the RMA and the decision-maker is subject to the requirements of s 104 of the RMA. Therefore, all relevant parts of the RPS (Part I of the POP) must already be had to regard to, including those in Chapter 4.

8.9.7 Rule 15-1 Minor takes and uses of surface water

See section 8.6.16.

8.9.8 Rule 15-2 Minor takes and uses of groundwater

See section 8.6.16.

8.9.9 Rule 15-3 Use of heat or energy from surface water

No changes were sought to this rule.

8.9.10 Rule 15-4 Bore and groundwater testing

The only amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume.

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[514] Roygard, Section 42A Report, August 2009, page 63 paras 111 and 112.
[515] Ibid, page 63 para 114.
[516] Duffill Watts Consulting Group, Federated Farmers.
[517] NKII.
[518] Environmental Working Party, Ngā Pae o Rangitikei.

8.9.11 Rule 15-5 Takes and uses of water complying with core allocations

See section 8.6.17.

8.9.12 Rule 15-6 Takes of water not complying with core allocations

See section 8.6.17.

8.9.13 Rule 15-7 Takes from rivers protected by water conservation orders

We have deleted Rule 15-7 as sought by submissions.[519] The reasons are the same as those set out in section 8.6.27, namely that the relevant water conservation orders only prohibited dam structures and not the taking of water.

8.9.14 Rule 15-8 Other takes and uses of water

We reject submissions seeking this rule to be a permitted, controlled or restricted discretionary activity. Rule 15-8 is the default rule for water takes and uses and decision-makers must have the ability to decline applications if the circumstances dictate that to be the best resource management outcome. We have, however, amended the activity description of the rule to make it generally consistent with other default rules in the Plan.

8.9.15 Rule 15-9 Lawfully established diversions, including existing drainage

We reject submissions seeking changes to this rule. We note the concern of the electricity generators regarding condition (a).[520] However, we also note that we have inserted new Rule 15-5A which deals with the renewal of existing diversion consents for hydroelectricity schemes and that the new rule is a controlled activity. We consider that to be adequate provision for existing hydroelectricity generation schemes.

8.9.16 Rule 15-10 New drainage

We accept submissions calling for the deletion of condition (a).[521] We can see no effects-based reason for retaining the condition as notified, particularly as drainage schemes are presumably designed to deal with water that may be diverted from the land and into the scheme's drains. We also accept the amendment of condition (b) for the reasons set out in section 8.6.15.[522]

The only other amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume.

8.9.17 Rule 15-11 New diversions

We note the concerns expressed by Genesis, but we understand that the lakes they refer to are part of the Tongariro Power Scheme and that scheme is fully consented.[523] The TPS does not therefore rely on this rule for its ongoing operation.

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[519] TrustPower, submission 358-89.
[520] Genesis, TrustPower, Mighty River Power, Meridian.
[521] Horizons Regional Council, submission 182-76.
[522] Horizons Regional Council, submission 182-77.
[523] Genesis, submission 268-39.

We reject submissions seeking for this rule to be a controlled activity rule.[524] We are satisfied that the rule's conditions are sufficient to ensure that potential adverse effects will be adequately avoided, remedied or mitigated.

We reject submissions seeking that the rule be restricted to temporary diversions.[525] We are satisfied that the rule's conditions are sufficient to ensure that potential adverse effects of permanent diversions will be adequately avoided, remedied or mitigated.

In terms of the above two issues, we also note the limited scope of this rule in light of condition (a).

We reject submissions seeking that the rule be amended to allow diversions outside of river beds.[526] Such activities by their very nature are generally large-scale and should be assessed under a resource consent process. In most cases, we would anticipate there being a publicly-notified consent process due to the nature of potential adverse effects that out of river diversions can cause.

We inserted the term "use" into condition (f) to avoid potential adverse effects on existing uses of water.[527] We have deleted the reference to "the written approval of authorities" from condition (h) for the reasons set out in section 8.6.15.

8.9.18 Rule 15-13 Drilling and bore construction

See section 8.6.23.

8.9.19 Rule 15-14 Unsealed bores

See section 8.6.23.

8.10 Structures and Activities involving the Beds of Rivers, Lakes and Artificial Watercourses, and Damming (Chapter 16)

In the sections that follow, we deal with the issues raised by submissions on Chapter 16 that have not already been dealt with in sections 8.6.1 to 8.6.30 and section 8.7 of this Part or in other parts of Volume 1.

Readers should note that, if we do not discuss a particular submission point or the issue it raises, it is generally because we have adopted the recommendations of the officers in regard to that submission point. However, for the sake of brevity, we have not repeated the officers' recommendations or their reasoning in this Part.

Readers should also note that in this section we do not discuss policies that have been relocated from Chapter 6 into Chapter 16. Those provisions are discussed in section 8.7.

[524] NKII, submission 180-80.
[525] Wellington Fish & Game, submission 417-86.
[526] TrustPower, submission 358-96.
[527] Mighty River Power, submission 359-119.

8.10.1 Chapter 16 General

We have inserted new Objective 16-1 for the reasons set out in section 8.6.2.

We note that under each tranche of rules there is a Rule Guide. There were few, if any, submissions on these provisions. The officers recommended amendments to them in the End of Hearing material (the yellow track changes) and we have taken their recommendations into account when amending the Rule Guides in response to the amendments we have made to the rules. We do not discuss the wording in these Rule Guides further.

We note that the POP has a number of general headings (such as 16.2 Standard Conditions for Permitted Activities involving the Beds of Rivers and Lakes). Where necessary, we have amended the wording of those general headings to be consistent with changes we have made to the titles of the actual provisions that follow. We do not discuss the wording of these general headings further.

Volume 2 contains a number of non-specific headings not linked with particular provisions. We have not included sections with those titles in this Part. Instead, we have considered the relevant submissions listed under those headings in the more specific policy and rule sections that follow.

We also note that we have amended the titles of some rules to align them with amendments we have made to the rules themselves or to the definitions of some words in the Glossary. We do not discuss the wording of these rule titles further.

8.10.2 Policy 16-1: Consent decision-making for activities in river and lake beds (including modified watercourses)

We have inserted a new Policy16-1(ea) which cross-references particularly relevant chapters of the RPS (Part I of the POP).[528] As a consequence of making that amendment and for the reasons in section 1.7 of Part 1 of this Volume, we have deleted Policies 16-1(a) and 16(e). These amendments also make Policy 16-1 consistent in terms of format with Policy 15-1.

The officers recommended a new Policy 16-1(f) dealing with wetlands and Schedule E habitats.[529] There were no submissions on Policy 16-1 seeking that additional provision. The officers attributed this new provision to a submission of Genesis.[530] The cited submission actually relates to Rule 16-6. We therefore reject the officers' advice and find that there is no scope for the recommended additional Policy 16-1(f).

The officers also recommended a new Policy 16-1(h) dealing with the effects of damming on fish passage, bed stability and water flows.[531] There were no submissions on Policy 16-1 seeking that additional provision. In the End of Hearing Report on Scope, the officers attributed this recommended addition to an amendment "made to **improve the general user-friendliness** of the Plan",

[528] Powerco, NKII, TrustPower, Environmental Working Party, Ngā Pae o Rangitikei, Mighty River Power, Horticulture NZ, Meridian.
[529] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-2.
[530] Genesis, submission 268-48.
[531] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-2.

citing submissions from Ruapehu District Council and Jill Strugnell.[532] We reject that advice and find that there is no scope for the recommended additional Policy 16-1(h).

8.10.3 Policy 16-2: Consent decision-making for activities in the beds of artificial watercourses and artificial lakes

We have deleted the term "artificial lakes" from the policy title for the reasons set out in section 8.6.7 of this Part. We have also deleted "(including farm drainage canals and canals for the supply of water for electricity power generation)" from the first paragraph of Policy 16-2. The reason is that the term "artificial watercourse" is a now a defined term in the Glossary and so it is potentially misleading to cite two selected examples of artificial watercourses in the policy.

We have amended Policy 16-2(a) so it commences with the words "have regard to" for the reasons set out in section 1.7 of Part 1 of this Volume. We have deleted the words "artificial lake" for the reasons set out in section 8.6.7 of this Part. We made similar amendments to Policy 16-2(b) and 16-2(c).

We have amended Policy 16-2(d) so that it cross-references the appropriate parts of amended Policy 16-1.[533] The cross-reference includes Policy 16-1(ea) which itself cross-references relevant chapters in the RPS (Part I of the POP). Therefore there is no need for the new Policy 16-2(e) that was recommended by the officers.[534]

We reject the submission to delete Policy 16-2(c).[535] It is conceivable that an artificial watercourse could support a significant ecosystem and Policy 16-2(c) imposes no additional requirements on decision-makers than already exist under s 5(2)(c) of the RMA. We also reject the submission to qualify policy 16-2(c) with the words "as far as practicable".[536] The Policy does not afford a priority to avoiding all adverse effects (unlike some other POP policies) and so we find the qualification is unnecessary in this case.

8.10.4 16.2 Standard Conditions for Permitted Activities involving the Bed of Rivers and Lakes and Table 16.1

We have amended the title of Section 16.2, the preamble to Table 16.1 and the title for Table 16.1 to replace the word "standard" with the word "general" to avoid any confusion about the term "standard". We also inserted a reference to controlled activities in those provisions as the conditions apply to some controlled activity rules. We made other minor changes to the preamble for consistency of wording.

There were few submissions on Table 16.1.

We accept submissions seeking a new condition relating to the exclusion of activities within 20 m of a high pressure transmission gas pipeline.[537] We find

[532] Gilliland, Report on Scope for Water Chapter Recommendations, 9 April 2010, page 6 para 14.
[533] Environmental Working Party, Ngā Pae o Rangitikei, Mighty River Power, Horticulture NZ, Meridian.
[534] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-2.
[535] TrustPower, submission 358-99.
[536] Meridian, submission 363-174.
[537] Vector Gas, submission 115-10.

that to be a sensible precaution and so we have inserted new condition (va) in the Existing Infrastructure row of Table 16.1.

We reject submissions seeking the use of mobile machinery for work on rail infrastructure during the periods stated in conditions (o), (p) and (q).[538] We find that routine maintenance can be scheduled outside of those times and emergency works required for that infrastructure during the exclusion periods would be enabled by s 330(1)(c) of the RMA. We reject submissions seeking the deletion of conditions (n) and (p) for the same reasons.[539]

Submitters[540] sought the deletion of condition (p)(ii). The officers also recommended that the provision be deleted and so we have done that. Mr Lambie advised that "The title of Native Fishery Value should be changed to Whitebait Migration Value. The exclusion dates should be changed to include between 15 August and 30 November ...".[541] We have amended the title and the dates accordingly except that, in light of s 35(5) of the Interpretation Act 1999, we have deleted "between" and inserted "(inclusive)" for all provisions that included dates to clarify that the dates specified are also included in the condition.

We reject submissions seeking a monitoring role for iwi. That is beyond the scope of Table 16.1 in our view.[542]

Submitters were concerned about conditions (c) and (d) dealing with sediment discharge.[543] We note that conditions (c) and (d) both derive from condition (ii) of BRL Rule 4 of the operative Regional Plan for Beds of Rivers and Lakes and Associated Activities and they have consequently been in force since at least March 2001 when that Plan became operative. Dr Joy advised us "Sediment deposited on the stream bed is another major impact for fish and invertebrates, especially in New Zealand because our native fish are mostly benthic."[544] In terms of condition (c), Associate Professor Death recommended that the condition be amended "so that the maximum total accumulated time for sediment discharge over the 5 day period is 12 hours."[545] The officers supported this approach.[546] Mr Lambie advised us "Horizons, DOC and Fish and Game caucused on a Permitted Activity standard for short term high-intensity sediment release. We agreed that a short-term high-intensity event could be catered for and that the event should not last longer than 12 hours in total, should not go longer than 5 days, and should not recur more frequently than 12 months."[547]

We find the recommended amendment to condition (c) to be a significant departure from the notified provisions and also from the status quo under the operative Regional Plan for Beds of Rivers and Lakes and Associated Activities. We were provided with no specific evidence regarding actual adverse effects that had arisen under the operative provisions. We queried

538 ONTRACK, submissions 161-12 and 161-13.
539 Rangitikei District Council, submission 346-89, Meridian.
540 Rangitikei District Council, Ruapehu District Council, Horizons Regional Council.
541 Lambie, Section 42A Report, August 2009, page 6 para 30; see also Horizons Regional Council, submission 182-82.
542 TMI, submission 238-19.
543 Taranaki Fish & Game, Wellington Fish & Game.
544 Joy, Speaking Notes & Supplementary Statement of Evidence, 28 February 2010, para 2.13.
545 Death, Statement of Evidence, 19 October 2009, para 64.
546 Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-9.
547 Lambie, Supplementary Evidence for End of Hearing Report, undated, page 10 para 56.

Mr Lambie if there had been any complaints relating to sediment generation from the short-term activities allowed by BRL Rule 4 and he was not aware of any.

In this regard, we note that Mr Lambie originally told us in relation to condition (c) "The thresholds come from the operative Beds of Rivers and Lakes Plan and I am of the opinion that the same thresholds should be used, unless there is evidence to show they are too lenient."[548]

We have therefore decided to largely retain condition (c) as notified. We have, however, amended the term "5 days" to be "5 consecutive days" as that was recommended by Mr Lambie and it is also consistent with the operative provisions. We have also added that there must be no more than one activity in any 12 month period as recommended by Mr Lambie. We do not think that will unduly constrain the activities to which condition (c) will apply.

In terms of condition (d), we have amended the notified provision regarding a 30% change in horizontal visibility to refer instead to the targets set for percentage visual clarity change in Schedule D as we accept that the Schedule D targets vary from river to river.

We reject the submissions relating to condition (i) (diversions) for the reasons set out in section 8.9.17.[549]

Submitters were concerned about condition (k).[550] Associate Professor Death advised us "River straightening is one of the principal mechanisms for loss of habitat variability as flows are increased uniformly and channels created. I propose removal of 'in any 12-monthperiod' to 'in any 10 year period' to avoid a progressive annual increment on the straightening of river channels".[551] Mr Lambie told us "Horizons, DOC, and Fish and Game caucused on a permitted activity standard for small scale permanent straightening of the bed. We agreed that with the exception of installation of structures such as fords and culverts which tend to be self-governing one off events, all other means of permitting small scale channel straightening could result in cumulative straightening of significant lengths of channel. The conclusion reached was that no permanent channel straightening, except that associated with structures, could be permitted."[552]

However, the officers' End of Hearing materials recommended the retention of the notified provisions.[553] Ms Barton advised us "Having considered the caucusing position and that of Federated Farmers, it is recommended that the standard remain as notified for the following reasons:

(a) The standard is clear and does not restrict straightening to particular activities but rather focuses on the effects of concern.
(b) It would be difficult to define what temporary straightening is.
(c) The 100 metres length restriction currently in the standard is more generous than the 50 metre length proposed by Federated Farmers."[554]

[548] Lambie, Section 42A Report, August 2009, page 6 para 29.
[549] Rangitikei District Council, Ruapehu District Council, Meridian.
[550] Wellington Fish & Game, Taranaki Fish & Game.
[551] Death, Statement of Evidence, 19 October 2009, para 65.
[552] Lambie, Supplementary Evidence for End of Hearing Report, undated, page 10 para 61.
[553] Track Changes - End of Water Hearing - Yellow Version - 09 April 2010, page 16-10.
[554] McArthur and others, End of Hearing Report - Water, undated, page 140 para 474.

We accept Ms Barton's advice and have retained the provision as notified.

The Minister of Conservation sought the amendment of condition (o) to the period 1 March to 30 May.[555] However, this relief was not pursued by the witnesses appearing for the Minister so we have retained the notified provisions.

Meridian sought the amendment of condition (q) to the period 1 May to 1 September on the basis that that was the date used in BRL Rule 4. However, we note BRL Rule 4 related to trout habitat and condition (q) relates to trout spawning which is a different matter. We have therefore retained the notified provisions.

Submitters[556] were concerned about condition (u) as, in the view of one submitter, "it limits work undertaken during the summer".[557] In response to those submissions, we accept that the wording of the condition is vague. We have therefore replaced the words "public bathing beaches" with the words "sites with a Schedule AB Value of Contact Recreation" as the former areas were not identified in the POP whereas the latter are and the use of the latter term is consistent with the Values basis of the POP. We have also amended the term "weekends" to be "Saturdays, Sundays" to assist with the consistent implementation of the provision.

Submitters sought the deletion of condition (v).[558] We addressed that matter in section 8.6.30.

8.10.5 Rule 16-1 Damming of protected rivers

See section 8.6.27.

8.10.6 Rule 16-2 Other structures and disturbances in protected rivers

See section 8.6.27.

8.10.7 Rule 16-3 Reclamation and drainage of regionally significant lakes

We reject the submission to make this rule a discretionary activity.[559] We find it is appropriate to send a signal that these activities are generally not to be condoned. We have inserted ancillary activities for the reasons set out in section 8.6.24.

8.10.8 Rule 16-4 Structures and disturbances involving water bodies valued as Natural State, Sites of Significance - Aquatic, and Sites of Significance - Cultural

We reject submissions to delete the entire rule as it provides appropriate safeguards for the identified river reaches and sites.[560] We have inserted ancillary activities for the reasons set out in section 8.6.24.

[555] Minister of Conservation, submission 372-166.
[556] Rangitikei District Council, Ruapehu District Council, Meridian.
[557] Meridian, submission 363-175.
[558] Meridian, Rangitikei District Council.
[559] Landlink, submission 440-110.
[560] Genesis, TrustPower.

We have deleted Rule 16-4(d) as sought by the Minister of Conservation. We have instead cross-referenced Rule 16-13 in (b)(ii). The reason for that is that Rule 16-13 incorporates by reference components of the Regional Council's Environmental Code of Practice for River Works (the Code) and the Code includes standards to protect relevant Sites of Significance - Aquatic and Cultural (see section 8.6.25).

We have also deleted Rule 16-4(c) as we have instead included a reference to "lines, cables and ropeways that are suspended above the *water*^ and do not require a support *structure*^ ..." into (a)(i) and (b)(i) which in our view makes the rule easier to follow. We note that, by amending the rule in this manner, the excluded lines, cables and ropeways remain regulated by Rule 16-10. We have consequentially amended Rule 16-10 condition (b) to make that clear.

8.10.9 Rule 16-5 Use of structures

The only amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume. The rule relates only to "use" of structures so it is not appropriate to include the condition sought by Auckland/Waikato Fish & Game.[561]

8.10.10 Rule 16-6 Maintenance and repair of structures and associated removal of bed material and plants

We have inserted ancillary activities for the reasons set out in section 8.6.24.

We reject submissions to delete condition (a)[562] as the Table 16.1 conditions are designed to ensure that potential adverse effects are avoided or mitigated, which is appropriate for a permitted activity rule.

We have inserted a cross-reference to Rule 13-25 into condition (b) as sought by Horizons Regional Council.[563] This corrects the incorrect notified cross-reference. We have, however, excluded parts of Rule 13-25 that would not be applicable to the activities regulated by Rule 16-6.

8.10.11 Rule 16-7 Removal and demolition of structures

We have inserted ancillary activities for the reasons set out in section 8.6.24.

We reject submissions to delete condition (a)[564] as the Table 16.1 conditions are designed to ensure that potential adverse effects are avoided or mitigated, which is appropriate for a permitted activity rule.

We have amended condition (b)(i) to allow the removal of temporary bridges for military training purposes without notification to the Regional Council.[565] We have added condition (iii) as a consequence of inserting new Rule 16-12A (see section 8.6.30).

[561] Auckland/Waikato Fish & Game, submission 33-3.
[562] TrustPower, Meridian, Ruapehu District Council.
[563] Horizons Regional Council, submission 182-84.
[564] TrustPower.
[565] NZDF, submission 330-59.

8.10.12 Rule 16-8 New and existing small dams

See section 8.6.28.

8.10.13 Rule 16-9 Other small dams

See section 8.6.28.

8.10.14 Rule 16-10 lines, cables, pipelines and ropeways

We have inserted ancillary activities for the reasons set out in section 8.6.24.

We reject submissions to delete condition (c)[566] as the Table 16.1 conditions are designed to ensure that potential adverse effects are avoided or mitigated, which is appropriate for a permitted activity rule.

See section 8.10.8 for the explanation of the amendment we have made to condition (b).[567]

8.10.15 Rule 16-11 Culverts

See section 8.6.29.

8.10.16 Rule 16-12 Other structures including bridges, fords and other access structures

We have inserted ancillary activities for the reasons set out in section 8.6.24.

We reject submissions to delete condition (e)[568] as the Table 16.1 conditions are designed to ensure that potential adverse effects are avoided or mitigated, which is appropriate for a permitted activity rule.

We have amended condition (b) to allow "temporary bridges for military training purposes that are removed within 2 weeks of their erection".[569] In that regard, we accept the advice of Mrs Grace who told us "It is my opinion that it is appropriate for Chapter 16 to provide for temporary bridges that have a foot within the riverbed for military training purposes as permitted activities. While I acknowledge there may be some riverbed disturbance during construction, such bridges remain in place for a short number of days. Therefore, from this point of view, any effects they have are only extremely temporary. I consider that such temporary effects can be appropriately controlled by permitted activity conditions."[570]

We have also added condition(c)(iii) as Mr Owen appearing with Mrs Grace informed us orally that such bridges would not need to be in place for longer than two weeks.

We have not amended condition (c)(i) to allow whitebait and maimai structures of $10m^2$ as sought by Taranaki Fish & Game.[571] The reason is to have a

[566] TrustPower.
[567] Transpower, TrustPower.
[568] For example Rangitikei District Council, submission 346-97.
[569] NZDF, submission 330-59.
[570] Grace, Statement of Evidence, 28 September 2009, page 8 para 4.11.
[571] Taranaki Fish & Game, submission 406-76.

consistent approach for these structures in the coastal marine area (Rule 17-8 condition (c)) and in rivers and lakes.

We have added condition (c)(ii) to address the issue raised by Hancock Forest Management.[572] In that regard, we accept the advice of Miss Egan who advised us "Typically a ford crossing would be installed with a concrete pad approximately 4 metres wide. Condition (c) ... would therefore limit permitted ford crossing structures to 5 metres ... Ford crossings are a low risk structure that when constructed properly have minimal effects on the environment."[573] When we questioned Miss Egan, she advised that an allowance of 40m^2 would cater for most forestry fords.

The only other amendments we have made to this rule are wording changes for consistency for the reasons set out elsewhere in this Volume.

8.10.17 Rule 16-13 Activities undertaken by the Regional Council in flood control and drainage schemes

See section 8.6.25.

8.10.18 Rule 16-14 Activities affecting Flood Control or Drainage Schemes

See section 8.6.25.

8.10.19 Rule 16-15 Small-scale gravel extraction

See section 8.6.26.

8.10.20 Rule 16-16 Other minor bed disturbances

The only amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume, including the insertion of ancillary activities for the reasons set out in section 8.6.24 of this Part.

8.10.21 Rule 16-17 Plants

The only amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume, including the insertion of ancillary activities for the reasons set out in section 8.6.24 of this Part.

8.10.22 Rule 16-18 Minor activities involving the beds of artificial watercourses

We reject submissions to delete condition (a)[574] as the Table 16.1 conditions are designed to ensure that potential adverse effects are avoided or mitigated, which is appropriate for a permitted activity rule. We have inserted the relevant conditions from Table 16.1 into (a). We have amended condition (c) for the reasons set out in section 8.10.10 above in relation to Rule 16-6(b).

The only other amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume.

[572] Hancock Forest Management, submission 331-37.
[573] Egan, Statement of Evidence, February 2010, page 7 paras 5.11 and 5.12.
[574] TrustPower.

8.10.23 Rule 16-19 Bed disturbance of artificial lakes to maintain their function

We reject submissions to delete condition (a)[575] as the Table 16.1 conditions are designed to ensure that potential adverse effects are avoided or mitigated, which is appropriate for a controlled activity rule. We have, however, amended the cross-referenced general conditions from Table 16.1 as a consequence of changes made to the Table. We have amended condition (b) for the reasons set out in section 8.10.10 above in relation to Rule 16-6(b).

See section 8.6.7 of this Part with regard to our use of the term "non-natural lakes". The only other amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume, including the insertion of ancillary activities for the reasons set out in section 8.6.24 of this Part.

8.10.24 Rule 16-20 Activities that do not comply with permitted and controlled activity rules

We accept the submission of Horizons Regional Council to include the ancillary activities for the reasons set out in section 8.6.24.[576] The only amendments we have made to this rule are wording changes to achieve consistency for the reasons set out elsewhere in this Volume.

8.11 Schedule B Other Issues

See section 8.6.17 of this Part.

At the start of Schedule B, we have clarified that it only applies to rivers. Schedule B does not set minimum levels or maximum volumes of abstraction for lakes or wetlands.

8.12 Schedule C Other Issues

There were very few submissions on Schedule C.

We have inserted a note at the commencement of Schedule C to indicate that it is a component of Part II of the POP (namely a part of the Regional Plan). We decided that it should be part of the Regional Plan so that any person can seek a change to Schedule C.

We have discussed the issue of how the various groundwater allocation volumes were derived in section 8.7.36 of this Part.[577] As noted there, we decided that it would be helpful to indicate in Schedule C itself how the figures were derived. We have therefore inserted a note at the bottom of Table C.1 that reads "The annual allocable volumes in Table C.1 are based on 5% of the average annual rainfall for each *Groundwater Management Zone**."

We have inserted the full titles of the various surface Water Management Sub-zones in the middle column of Table C.1 to assist with the implementation and use of the POP.

[575] TrustPower, Meridian.
[576] Horizons Regional Council, submission 182-93.
[577] Federated Farmers, submission 426-70; Horticulture NZ, submission 357-150.

We heard from Mr Zarour who told us that he and Dr Roygard had agreed "to adopt the following changes to the original framework ... proposed in Zarour (2008a):

i. Changing the name of the originally named 'Eastern Groundwater Management Zone' into the 'Tararua Groundwater Management Zone' to express its relevancy to the District which it covers (ie. Tararua).
ii. Changing the name of the originally named 'Wanganui Groundwater Management Zone' into the 'Whanganui Groundwater Management Zone' (ie. with an h), to make the zone's name consistent with the names of the Whanganui River and the [surface] water catchment.
iii. Addition of three new units, namely:
    a. The East Coast Groundwater Management Zone.
    b. The North Whanganui Groundwater Management Zone.
    c. The North Rangitikei Groundwater Management Zone ...

The addition of the above listed three new Groundwater Management Zones is deemed necessary for completeness purposes and for better compatibility with the [surface] Water Management Zones. There are no consented groundwater abstractions in these new zones and only very few wells. No allocation limits are established for these zones, because they are not known to have a potential for exploitable groundwater resource. Establishing allocation limits there is impractical and is not necessary. In addition, Dr Roygard and I agreed to seek changing the allocation limits originally presented in Schedule C in the Proposed One Plan into the limits presented in Table 5 in this evidence. This is not a change in approach, but rather a correction of an error in the numbers originally presented in the POP that resulted from erroneous GIS calculations. From the beginning, allocation limits were intended to be set at 5% of average annual rainfall for the reasons provided in the following section, but a random error in the original GIS calculations produced different numbers. The mistake has been discovered during my work on Zarour (2008a) and the calculations have been redone as part of that work. The new numbers have been double checked internally at Horizons and independently by Mr Callander in 2008."[578]

We did not hear any technical evidence to the contrary and so we accept the advice of Mr Zarour. We have amended Schedule C accordingly and we note that correcting errors such as those noted by Mr Zarour is provided for under subclause 16(2) of Schedule 1 to the RMA.

8.13 Schedule D Other Issues

We have moved the Schedule D figures (maps) of the Water Management Zones and Sub-zones into a new Schedule AA. We have included a statement that Schedule AA is a component of Part II of the POP (the Regional Plan). We did that because it seemed to us that there may be circumstances where someone may wish to seek a change to the boundaries of a Zone or Sub-zone, for example for a hydroelectricity development; there is no reason to preclude that as an option.

We have inserted an index into Schedule AA to assist with the implementation and use of the POP. We have similarly inserted new Table AA.1 which lists the Water Management Zones codes and names. The officers have

[578] Zarour, Section 42A Report, August 2009, page 115 paras 241, 242 and 243.

recommended corrections to the Sub-zone descriptions (for example in what is now Table AA.2) and we have accepted those recommendations as is provided for under subclause 16(2) of Schedule 1 to the RMA.

We note that we have accepted the recommendation of the officers that several new Water Management Sub-zones be created. In that regard, Dr Roygard advised us "Several technical amendments are recommended to the Water Management Zones as notified in the POP and documented in the report of McArthur *et al.* (2007). The amendments include the development of further Sub-zones, taking the total from 117 to 124. The 43 WMZs remain unchanged. The recommended amendments are summarised as:

i. **Changing the Water Management Sub-zone for the Mangaramarama Creek** from a tributary of the Mangatainoka River to a tributary of the Tiraumea catchment. The Mangaramarama confluence occasionally enters the Mangatainoka River close to the Mangatainoka/Tiraumea confluence, and at other times it enters directly to the Tiraumea River.
ii. **Changes to the Manganui o te Ao Water Management Sub-zones** to better reflect the areas identified in the schedules of the National Water Conservation Order. The two originally specified Sub-zones (5d and 5e) have been redefined into seven Sub-zones (5d, 5e, 5f, 5g, 5h, 5i, and 5j). The main implication of this change is in terms of water allocation and it provides for further allocation than was identified in the POP as notified.
iii. **Addition of a further Sub-zone for the Makara Stream.** The new Sub-zone in the Lower Makotuku Sub-zone of the Lower [Whangaehu] Water Management Zone enables separate management of the minimum flows for the Makara and Makotuku water bodies.
iv. **Addition of a further Sub-zone in the Waikawa Catchment** to enable separate management of the minimum flows in the Manakau Stream and the Waikawa Stream."[579]

We have included larger scale figures (maps) which are easier for readers to use. We show the notified figures as "deleted" and indicate where in Schedule D they used to reside. As noted in Part 2 (Overall Plan) of this Volume, there were challenges to the adequacy of maps in the POP. In relation to those setting out the Water Management Zones and Sub-zones, we have decided that the larger size maps are suitable for the reasons expressed by Mr Maassen.[580] We note that the actual boundaries of the various Water Management Zones and Sub-zones (and the Schedule AB Values) are specified in various tables by way of map references. Ms Clark demonstrated an electronic "Point Click" version of maps to identify various items referred to in the POP. We understand that this tool will be available to users of the POP.

For our discussion of the former Schedule D values (now Schedule AB Values) and the former Schedule D standards (now Schedule D targets), see sections 8.6.4 and 8.6.5 respectively of this Part.

[579] Roygard, Section 42A Report, August 2009, page 19 para 26 (reference to footnotes removed by us).
[580] Maassen, Memorandum - Hearing Panel Question on Maps, 10 June 2010.

8.14 Glossary Terms

Some submitters sought that the POP include a definition of "river" that differed from that in s 2 of the RMA.[581] We reject those submissions as we do not consider it appropriate to deviate from the statutory definition for such a key term.

Horizons Regional Council sought a definition of "feedpad".[582] We discussed that submission in section 8.8.8.

Horizons Regional Council also sought a definition of "untreated human effluent"[583] We have accepted that submission and inserted a definition of "untreated human effluent" (with minor wording variation) as it will assist with the consistent interpretation and application of Rule 13-14 which prohibits the discharge of untreated human effluent.

Some submitters were concerned about the definition of "cropping".[584] Others were concerned with the definition of "intensive sheep and beef farming".[585] A number of submitters addressed the definition of "market gardening".[586] We have deleted those three definitions as new Rules 13-1 to 13-1C (replacing Rule 13-1 as notified which dealt with specified types of intensive farming) now, in terms of land use activities, deal only with dairy farming. We have similarly rejected the submissions that sought definitions of "intensive farming", "agriculture", "intensive pig and poultry farming", "intensive poultry farming" or a definition of intensive livestock farming which was inclusive of the poultry industry.[587] Several submitters sought changes to the definition of dairy farming.[588] We dealt with those issues in section 8.6.9.

Transpower sought that rivers defined as Natural State capture only "those waters both sourced and still flowing within the same area of Conservation Estate".[589] In response to that submission, we have amended the definition of Natural State rivers in Schedule AB above Table AB.2(formerly page D-20) so that it refers to rivers "within" public conservation land. New Figure AB-2 provides a visual guide to the location of those rivers.

Some submitters sought a definition of "artificial waterbodies".[590] In response to those submissions, we have included a definition of "artificial watercourse" for the reasons set out in section 8.6.7.

The Minister of Conservation sought a definition of fish passage.[591] We have rejected that submission as we are satisfied that the term "fish passage" will be readily understood by Plan users. We also decided that the Minister's

[581] Ruapehu District Council, Rangitikei District Council, Meridian.
[582] Horizons Regional Council, 182-102.
[583] Horizons Regional Council, 182-110.
[584] Manawatu District Council, Horticulture NZ, Federated Farmers.
[585] Ravensdown.
[586] For example Mountain Carrots NZ.
[587] Horticulture NZ, Federated Farmers, Osflo Spreading Industries, Poultry Industry of NZ, Tegel Foods, Turks Poultry and Mainland Poultry Group, Inghams.
[588] Manawatu District Council, Ravensdown.
[589] Transpower, submission 265-39.
[590] Horticulture NZ, Federated Farmers.
[591] Minister of Conservation, submissions 372-208 and 372-77.

suggested wording was overly complicated as it drew extensively on the provisions of the Freshwater Fisheries Regulations 1983.

There were a number of submissions on the definition of "animal effluent".[592] We discussed that issue in sections 8.6.10 and 8.8.7.

There were a number of submissions on the definition of "bore".[593] We discussed that issue in section 8.6.23.

A submission from a number of submitters sought a definition of a site where clean fill is placed.[594] We discussed that issue in section 8.8.24.

That submission also sought a change to the definition of compost in order to provide a distinction between domestic and larger-scale composting.[595] We have rejected that submission as Rule 13-20 deals with composting activities as a permitted activity. We have decided that its conditions are applicable to any scale of composting.

A number of submitters addressed the definition of "domestic wastewater".[596] We have amended that definition to include "greywater" for the reasons set out in section 8.6.11.

Some submitters sought changes to the definition of fertiliser.[597] Others were concerned with the definition of "soil conditioner".[598] We discussed those issues in section 8.8.7. We dealt with the definition of "dead animal matter" in that same section.[599]

Several submitters were concerned with the definition of maintenance and repair.[600] That issue was addressed in Part 7 (General Hearing) of this Volume.

A number of submitters sought the deletion of the definition of "reasonable mixing".[601] We reject those submissions as the term "reasonable mixing" is used in the policies of Chapter 6 and in the rules in Chapter 13. It would not assist Plan users for the definition to be deleted.

8.15 Water Overall Conclusion

See Part 1 of this Volume.

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592 Osflo Spreading Industries, Poultry Industry of NZ, Tegel Foods, Turks Poultry and Mainland Poultry Group, Inghams, NZ Pork Industry Board.
593 Ruapehu District Council, Rangitikei District Council, Horizons Regional Council, Horticulture NZ, Meridian, Federated Farmers.
594 Pirie Consultants and others.
595 Ibid.
596 Horizons Regional Council, Transpower, Pirie Consultants and others.
597 Osflo Spreading Industries, Poultry Industry of NZ, Tegel Foods, Turks Poultry and Mainland Poultry Group, Horticulture NZ, Ravensdown, Federated Farmers.
598 Horticulture NZ, Federated Farmers.
599 Osflo Spreading Industries.
600 Ruapehu District Council, Pirie Consultants and others.
601 Tararua District Council, Wanganui District Council, Horowhenua District Council, Manawatu District Council, Rangitikei District Council, NZ Pharmaceuticals.