



AGENDA

CATCHMENT OPERATIONS COMMITTEE

Wednesday, 11 August 2010 at 10.00am

Notice is given of a meeting of Horizons Regional Council to be held on
Wednesday 11 August, 2010 at 10.00am in the Meeting Room,

Marton Service Centre,
Hammond Street, Marton.

Business to be discussed includes:

- River and Drainage Engineering Report
- Te Kawau Drainage Scheme: Culvert Inspection
- Lower Manawatu Scheme - City Reach Project
Update on Design and Consent Issues
- Sustainable Land Use Initiative (SLUI)

**RECOMMENDATIONS IN REPORTS ARE NOT
COUNCIL POLICY UNTIL ADOPTED BY COUNCIL**

NEWS EMBARGO

Items in this agenda may be subject to amendment or withdrawal at the meeting. Items are embargoed until two days before the date of the meeting.

Reporters who do not attend the meetings should seek confirmation of the agenda material or proceedings from the Chief Executive prior to any media reports.

for further information regarding this agenda, please contact:
Julie Kennedy, 06 9522 800

CONTACTS	24 hr Freephone : 0508 800 800	help@horizons.govt.nz	www.horizons.govt.nz	
SERVICE CENTRES	Kairanga Cnr Rongotea & Kairanga-Bunthythorpe Rds, Palmerston North	Marton Hammond Street	Taumarunui 34 Maata Street	Woodville Cnr Vogel (SH2) & Tay Sts
REGIONAL HOUSES	Palmerston North 11-15 Victoria Avenue	Wanganui 181 Guyton Street		
DEPOTS	Levin 11 Bruce Road	Taihape Torere Road Ohotu		
POSTAL ADDRESS	Horizons Regional Council, Private Bag 11025, Manawatu Mail Centre, Palmerston North 4442			
PHONE	06 9522 929			

- | | | |
|-----|---|---------|
| 8. | Lower Manawatu Scheme - City Reach Project
Update on Design and Consent Issues
<i>Report No: 10-120 (Incl. Annex A)</i>
<i>File No: PRD 5 16</i> | 31 – 64 |
| 9 | Sustainable Land Use Initiative (SLUI)
<i>Report No: 10-119 (Incl. Annex A)</i>
<i>File No: ELM 6 00</i> | 65 - 68 |
| 10. | Members' Questions | |

M J McCartney
CHIEF EXECUTIVE



Minutes of the fifteenth meeting, seventh triennium, of the Catchment Operations Committee of Horizons Regional Council held in the Tararua Room, Horizons Regional Council, 11-15 Victoria Avenue, Palmerston North at 10.03am on Wednesday 9 June 2010.

PRESENT Crs MC Guy (Chairman), DB Meads, GP Murfitt MNZM JP (to 12.00pm), PW Rieger.

IN ATTENDANCE Crs Bailey, Chettleburgh, Plowman
 Group Manager Operations Mr A D Cook
 Group Manager Mr C Mitchell
 Environmental Management (to 10.12pm and from 12.35pm to 12.57pm)
 Committee Secretary Mrs J Kennedy

ALSO PRESENT Mr P Blackwood (Manager Investigations and Design, from 11.00am to 12.00pm), Mr G Cooper (Environmental Manager Land to 10.12am and from 12.35pm to 12.57pm), Mr W Wheeler (Design Engineer, from 11.00am to 12.00pm), Mr G Doull (Senior Design Engineer, from 1.08pm), Mr J Philpott (Consultant, from 1.04pm to 1.20pm), Joel Perry, Andrew Gray, Mike Pritchard, William McKay and Louise McCormack (Sustainable Land Use Initiative students, to 10.12am).

APOLOGIES

Apologies were received from Crs Murfitt (leaving at lunch time), Gordon (Leave of Absence), and Walker (unwell).

An apology was noted from Cr White (One Plan Deliberations).

RD 10-122 *Moved* **Rieger/Murfitt**

that apologies be accepted from Crs Murfitt (leaving at lunch time), Gordon (Leave of Absence), and Walker (unwell).

CARRIED

LATE ITEMS

There were no late items advised.

CONFLICT OF INTEREST

There were no Members' conflict of interest issues.

SUSTAINABLE LAND USE SCHOLARSHIP RECIPIENTS

Mr Cooper, Environmental Manager Land introduced five recipients of the Sustainable Land Use Initiative Scholarship to the Committee. Not all recipients were present due to Massey exams. Those students present were: Joel Perry, Andrew Gray, Mike Pritchard, William McKay and Louise McCormack. The students introduced themselves and outlined some of their studies to Members.

CONFIRMATION OF MINUTES**RD 10-123****Moved****Rieger/Meads**

that the Minutes of the meeting of the Catchment Operations Committee meeting held on Tuesday, 12 April 2010, be confirmed as a correct record.

CARRIED**RIVER AND DRAINAGE ENGINEERING REPORT***Report No. 10-88*

This item reported on progress with river and drainage activities for the two-month period 1 April 2010 to 31 May 2010.

The Group Manager Operations (GMO) introduced the report and was available to answer questions of clarification on points of interest. He outlined Council's position around progress on the Taonui Basin consent and advised that the Hearing Commissioners had accepted a formal request for the hearing to be adjourned for a period of around 18 months. The bridge replacement contract would be awarded early in the financial year but the full benefit of that work would not be achieved until the consent application was addressed and stopbanks linking with the bridge could be built to full height. In the interim the community would be provided with a significantly improved, rather than ideal, standard of flood protection.

Cr Chettleburgh expressed concern at the suggested name of Okatia, to be considered as a name for the recreational access facility on the Manawatu River in the vicinity of the Fitzherbert Avenue bridge. He believed that the four city representatives had previously recommended the names; Pauline Keys and Kitty Siefert, for the naming of that facility. Accordingly, after further discussion, it was agreed that the four city representatives meet as soon as possible to further consider and agree on the naming of the facility.

RD 10-124**Moved****Meads/Murfitt**

that the Committee recommends that Council:

- a. **agrees** *that the four Palmerston North constituency Councillors meet as soon as possible to further consider the naming of the new steps and associated amenity enhancement elements on the Manawatu River in the vicinity of the Fitzherbert Avenue bridge.*

CARRIED

Members also discussed progress around Kimberley Reserve; the renewal of a consent for the opening of the Waikawa River mouth and the request from Horowhenua District Council to transfer that consent to Horizons Regional Council; and clarification around an agreement that the Reid's Line floodgate on the Makino Stream would be operated to prevent overflows from the Makino Stream through Feilding, irrespective of the source of water in the stream.

Clarification was sought around progress on the Burkes Pump options. The GMO advised that two possible options had been identified at a recent meeting held with ratepayers concerned. Details of the two options, including an independent estimate on costings would be presented to ratepayers by mail in two to three weeks time, asking them to identify their preferred option.

There were further questions of clarification asked around:

- slow progress on the reconstruction work on State Highway 3 (Napier Road);
- progress around the compulsory land acquisition under the Public Works Act (1981) with respect to one remaining affected party adjoining Rongotea Road at Kopane;

- the considerable time spent by Horizons in providing advice in respect to a number of drainage issues, and where that responsibility should ultimately lie;
- problems in obtaining support from the Hokio A Trust with respect to proposed channel clearance work on the Hokio Stream.

RD 10-125**Moved****Murfitt/Meads**

that the Committee recommends that Council:

- receives** and acknowledges the information contained in Report No. 10-88; and
- acknowledges** that a Schedule of Works Completed is available for inspection.

CARRIED**RANGITIKEI RIVER SCHEME – REVIEW NO. 4***Report No. 10-87*

This item informed Members of the findings of a review of the channel management/erosion control components of the Rangitikei River Scheme.

Mr Cook, Group Manager Operations (GMO) and Mr Blackwood, Manager-Investigations and Design introduced the item and provided clarification as required.

Mr Blackwood responded to comments around continued erosion in the degradation reach of the channel and outlined that steps would need to be taken to implement a phasing-in of extraction restrictions over a maximum of a three-year period. He clarified Members' questions around locations in the Scheme where gravel extraction must be curtailed to the absolute minimum.

Cr Meads commented on the positive level of cooperation shown between all parties concerned and congratulated Mr Cook, Mr Blackwood, and the Catchment Operations team, for the way the Review had developed so far.

RD 10-126**Moved****Meads/Murfitt**

- receives** the information contained in Report No 10-87 and Annex;
- adopts** the Rangitikei River Scheme Review No. 4 Final Draft Report for the purpose of stakeholder consultation;
- endorses** the proposed consultation programme; and
- notes** the intention to include a final review proposal in the 2011-12 Draft Annual Plan.

CARRIED

The meeting adjourned at 12.00pm

The meeting reconvened at 12.35pm

SUSTAINABLE LAND USE INITIATIVE (SLUI)

Report No. 10-83

This report updated Members on progress on Council's Sustainable Land Use Initiative (SLUI).

Mr Mitchell, Group Manager Environmental Management updated the Committee on the positive outcome of the recent Afforestation Grant Scheme (AGS). He confirmed that approval had been received to fund 200 ha from the public pool to the amount of \$2,000 per ha for the completion of the Seddon, Steele and Stellingwerf joint venture forestry projects. This figure was \$40,000 short of what was originally budgeted for and Mr Mitchell said the shortfall would be funded out of operating expenses.

The original AGS application for \$2,200 was approved and recommended by Audit, Risk Investment Committee, followed with confirmation by Council. There was discussion around the process for now accepting the offer and to which forum it should be recorded under. Ultimately there was agreement that an action point be taken to instruct the Chief Executive to have a review of the process for recording, monitoring, and reporting on joint venture forestry ventures funded as part of the Sustainable Land Use Initiative.

Accordingly, recommendation (b) was included to accept the offer from the AGS.

RD 10-127

Moved

Meads/Rieger

that the Committee recommends that Council:

- a. **receives** the information in Report No. 10-83 and Annex;
- b. **accepts** the offer from the Afforestation Grant Scheme public pool of \$2000 per ha for the completion of the Seddon, Steele and Stellingwerf joint venture forestry projects.

CARRIED

ISSUES ARISING FROM ANNUAL SCHEME RATEPAYER MEETINGS

Report No. 10-84

This item informed the Committee of progress in addressing the significant issues raised at annual meetings for river and drainage schemes that were held during April and May 2010.

The Group Manager Operations introduced the report and was available to answer questions of clarification.

RD 10-128

Moved

Meads/Guy

- a. **receives** the information contained in Report No. 10-84 and Annex.

CARRIED

MANGATAINOKA SCHEME DRAFT RATING REVIEW REPORT

Report No. 10-86

This item informed the Committee of the findings of a review of the Mangatainoka Scheme targeted rating system; recommended changes to the system; and sought Council's approval of a Draft Rating Proposal for the purpose of stakeholder consultation.

Mr Cook, Group Manager Operations (GMO) introduced the item and advised that the Review was prepared by Mr Philpott, CPG New Zealand Limited, who was available to assist in responding to questions of clarification.

Cr Meads commented on the Review and believed Mr Philpott had done an excellent job in presenting his report which outlined the proposed key changes for the Mangatainoka Scheme rating system. He also commented on the positive input provided by the Scheme Liaison Committee.

The GMO commented on the proposed consultation programme as presented in the item. Provided the Committee approved the draft proposal, it was anticipated that the process would be finalised with approval for inclusion in the Draft Annual Plan within the current triennium.

RD 10-129

Moved

Meads/Guy

- a. **receives** the information contained in Report No 10-86 and Annex;
- b. **approves** the Mangatainoka Scheme Draft Rating Proposal for the purpose of stakeholder consultation;
- c. **endorses** the proposed consultation/submissions/hearing programme; and
- d. **notes** the intention to include a final rating proposal in the 2011-12 Draft Annual Plan.

CARRIED

TAWATAIA-MANGAONE SCHEME AUDIT REPORT

Report No. 10-85

This item informed the Committee of the findings of an audit of the Tawataia-Mangaone Scheme, and recommended actions arising from the audit.

Mr Cook, Group Manager Operations (GMO) commented on the audit report and identified, as a key issue, the provision of appropriate spillway capacity for the Tawataia dam. In the event that the recently assigned provisional Medium Potential Impact Classification (PIC) in terms of the Building (Dam Safety) Regulations 2008 was upheld, the matter would certainly need to be addressed. Even if a Low PIC was ultimately assigned, the present risk of the dam overtopping and potentially failing, would need to be significantly reduced.

Members asked questions of clarification and accordingly agreed with the recommendations in the Audit Report, in particular around the Tawataia Dam; that a detailed investigation of the hydraulics of the Tawataia Dam be undertaken to determine upgrade requirements for the dam spillway.

RD 10-130

Moved

Guy/Rieger

- a. **receives** the information contained in Report No 10-85 and Annex;
- b. **notes** the actions proposed in response to recommendations contained in the Audit Report.

CARRIED

**LOWER MANAWATU SCHEME – CITY REACH PROJECT
UPDATE ON DESIGN AND CONSENT ISSUES**

Report No. 10-89

This item updated the Committee and Council about work done to date in assessing adverse effects in respect of proposed City Reach flood protection upgrade works, and the additional investigations that were required before consent applications could be lodged.

Mr Cook, Group Manager Operations (GMO) advised that it was important for agreement to be reached in respect of measures to mitigate or offset as many identified effects as possible, before lodging a consent application by 20 August 2010.

Mr Doull, Senior Design Engineer explained how the “Before Works” scenario had now changed. Essentially, it was established that in a 500-year flood event the existing city stopbanks would not fail. Rather, it was assumed that water would flow over the top of some stopbanks, but they would not fail. Accordingly, the adverse effects associated with raising those stopbanks have now been reduced from those predicted earlier.

Members considered the report and asked questions of clarification around the predicted level of adverse effects on the various floodplain compartments, and the level of consultation to be undertaken with ratepayers concerned.

Mr Doull was thanked for providing a well written and presented report.

RD 10-131

Moved

Meads/Rieger

- a. **receives** and notes the contents of Report No. 10-89;
- b. **notes** that consultation with parties potentially affected by the Lower Manawatu Scheme City Reach Upgrade project works will commence immediately; and
- c. **notes** that a report on further investigations together with an update on consultation will be available for the August Committee meeting.

CARRIED

MEMBERS’ QUESTIONS

Cr Plowman asked for an update on the proposed channel management works for the right hand bank of the Whanganui River at Kakahi. The Group Manager Operations anticipated that an application for a consent would be lodged over the next few months.

The meeting closed at 1.55pm

Confirmed

GROUP MANAGER OPERATIONS

CHAIRMAN

A Significant decision? If Yes	N
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 6
Date: 11/08/2010
Report No: 10-118
File No: PRD 5 00

RIVER AND DRAINAGE ENGINEERING REPORT

PURPOSE

1. The purpose of this item is to report on progress with river and drainage activities for the two month period 1 June to 31 July 2010.

FINANCIAL IMPACT

2. Funding provision for all activities reported on in this item is included in the 2009-19 Long-term Council Community Plan (LTCCP) under the River and Drainage Schemes and Non-Schemes Activities.

BACKGROUND

3. With all scheme maintenance programmes being substantially completed by the end of May, the focus during the period has been on planning for the forthcoming planting season, preparing planting sites and harvesting plant material.
4. While earthworks were essentially halted with the onset of wet weather conditions in early June, some other outstanding aspects of capital works programmes have progressed. Various aspects of the works at Balgownie have continued, albeit at an extremely slow rate; concrete and fencing works have continued as part of the flood protection project at Tangimoana; and construction of a new drainage pump in the Moutoa Scheme has progressed almost to completion.
5. Many scheme administration and end of year financial matters have been attended to and a start has been made in assembling records of scheme activities for the year ended June 2010.
6. The Operations management team has prepared a detailed schedule, including resource requirements, timelines and priorities, of significant physical works, investigations, and consultation projects to be undertaken during 2010-11. A total of 70 such projects have been identified.
7. An important milestone was reached in the Lower Manawatu Scheme rural upgrade project with the advertising of tenders for the construction of a new bridge at Kopane. Considerable interest has been shown in the contract works. Tenders will close on 17 August.
8. An application was lodged in May for a consent to divert flood waters out of the beds of rivers via various existing structures within the Lower Manawatu Scheme area, including stopbanks, guidebanks, groynes, spillways, sluiceways and floodgates. Those various diversions have been occurring for many years, and the transitional provisions of the Resource Management Act allowed them to continue until such time as an Operative Regional Plan regulating such activities, became operative. The Beds of Rivers and Lakes (BRL) Regional Plan became operative in 2001 and under that Plan, existing diversion activities were a controlled activity and therefore required consent. However

that requirement was obviously overlooked at the time and it became apparent recently that the diversions were not legally authorised. A consent has now been granted for a 35-year term.

9. Mediation in respect of a claim for damages arising from a stopbank breach at Whirikino in February 2004 was set down for 22 July and staff spent some considerable time assisting our insurer's legal team in preparing for that. However the mediation was postponed two days before the scheduled date and a new date of 28 September has been scheduled.
10. A concerted effort was made during the period to complete the execution of Licence Agreements for the 53 Council owned detention dams within five flood control schemes. At the end of the period, the status of agreements was as follows:
(Note: some dams cross property boundaries)

Scheme	Agreements signed	Negotiation continuing	Refusal to sign
Porewa	29	1	0
Tutaenui	12	4	2
Matarawa	4	0	2
Pakihi	2	0	0
Tawataia-Mangaone	1	0	0

11. The new agreements more clearly set out the respective responsibilities of Council and landowners. They also provide for the payment of an annual Licence fee that recognises lost production and disruption to farm management arising from the existence and periodic operation of the dams. Arising from the consultation that has recently taken place and the substance of the agreements, there is an increased but nevertheless very reasonable expectation that Council will in future be more pro-active around its maintenance responsibilities. There will also be modest increases in scheme costs in respect of maintenance and licence fees and provision has been made for those in 2010-11 scheme budgets.
12. Licence fees for part of 2009-10 and for 2010-11 in advance have now been paid in respect of all dams where agreements have been signed.
13. Letters will be forwarded shortly to those property owners who have declined to sign agreements reminding them of the protection the dams have under existing legislation and District Plans, and the rights and responsibilities that Horizons has with respect to access and maintenance.
14. Further to an item reported to the Committee in June, and the positive response from Councillors representing the Palmerston North Constituency, it has been agreed that the new river access steps at Fitzherbert bridge will be named Okatia and that Tanenuiarangi O Manawatu Incorporated (TMI) will be invited to join with Council in an appropriate naming ceremony.
15. Staff have met with senior Palmerston North City Council officers in exploring options for the long-term management of vegetation on the re-contoured Anzac Cliff face, assuming that the various pre-requisite plan change and consent processes ultimately allow proposed river realignment and cliff re-contouring work to proceed. In view of Horizons' interest in ensuring the long-term stability of the cliff for river management and amenity enhancement purposes, and of our involvement in vegetation management of other City Council owned land along the river, an offer has been made to assume a similar role in respect of the lower cliff face. TMI also has an interest in being involved in the ongoing management of vegetation on the Cliff face in view of its historic association to the

adjoining Te Motu o Poutoa pa site, and through its existing relationship with Horizons, they could easily have that involvement.

16. As reported in June, options for providing improved drainage outlet from the Taonui Basin had been narrowed down in consultation with the most affected property owners to two 'primary pumping' options at Burkes flood gates. Subsequently letters have been sent to that stakeholder group, providing further details and property-specific indicative rating impacts for each of those two options. Property owners were requested to complete a response form indicating their one preferred option. At the time of reporting, ten responses had been received. Staff will follow up with other parties and an update will be provided at the meeting.
17. Assuming there is confirmed support for primary pumping, and hopefully a clear preference for one of the two options, it is proposed to go forward with a consultation process involving all Manawatu Drainage Scheme ratepayers, culminating with a submissions hearing probably in mid November.
18. A significant amount of staff time has been assigned in monitoring compliance with Council's stopbank grazing protocols. A media release on the subject received very wide coverage throughout the region. At this time of the year considerable damage can occur in a short period of time if heavy cattle are allowed to graze on the banks and for that reason the protocols require that there be no grazing between 15 June and 15 September. Approximately 30 specific site visits have been made over the period to address reported cattle grazing. In most instances owners or occupiers have co-operated in immediately removing stock, however our rights in enforcing the protocols have been challenged in a few instances. Currently staff are working through a formal process with five property owners/occupiers where damage reinstatement is required.
19. Council's powers in this matter are ultimately found in the Soil Conservation and Rivers Control Act 1941. Under Section 154 of that Act, it is an offence to wilfully cause damage to any defence against water under the control of Council and where wilful damage is caused, Council has the ability to recover the cost of repairs. The protocols are designed to prevent such damage occurring and that is understood by most. The protocols are presently being reviewed to reflect our experience since they were first adopted in July 2007 and feedback will be sought from the Lower Manawatu and Rangitikei Scheme Liaison Committees on any changes before they are re-printed.
20. Steady progress has been made as staff resources have allowed, with investigations into the channel condition and erosion risks associated with the Taringamotu River. The field work has almost been completed and the findings need to be written up along with river management options, as a basis for consultation with affected parties. It is anticipated that a meeting will be arranged in September.

ASSET MANAGEMENT

21. The end of year capitalisation of assets constructed in the 2009-10 financial year has been completed. The value and quantity of assets has been adjusted in the Asset Management System (AMS) to reflect assets that have either been constructed, acquired (typically as a result of a scheme review), or written off since 1 July 2009. The AMS has subsequently provided the depreciation for the year, and the accumulated depreciation since the last revaluation of assets.
22. The annual inspection of assets is well underway. All assets in the Asset Management System now have a condition rating for the current financial year. Analysis and spot checking of these ratings is programmed for August to determine if the ratings are consistent across all schemes for similar asset types. Publishing of condition rating trend

lines for scheme assets that will show the change in asset condition over time for flood protection, erosion protection and drainage assets, are scheduled to be completed by the end of September.

23. The project to apply the latest advancements in GIS technology to improve our asset management procedures is steadily progressing. Combining GPS systems with in-house mapping software, assets are being mapped and measured with improved accuracy. To date mapping has been completed for five schemes. The recently completed maps for the Lower Manawatu Scheme will be tabled at the meeting as an example of this work.

SCHEME REVIEWS, AUDITS AND RATING SYSTEM REVIEWS

RANGITIKEI SCHEME – REVIEW OF CHANNEL MANAGEMENT

24. A Final Draft Review Report was adopted by the Committee and subsequently by Council in June. Since then further work has been completed to identify rating impacts of the proposed changes in scheme management, on the respective rating classes. While the overall impact of the changes is not great (10% rates increase over four years), the impact on the erosion categories is significant. A draft newsletter has been prepared and will be discussed, along with the rating impact information, with the scheme liaison committee at a meeting scheduled for 5 August. It is proposed that a full non-statutory consultation process with the wider ratepayer group will then commence.
25. Initial discussions have also been held with the two larger gravel extractors affected by the proposed changes in gravel management. There is obviously serious concern around the impacts on the aggregate industry. Further work is required in consultation with the industry to determine a practicable means of achieving the required dramatic reduction in currently consented extraction volumes within an acceptable timeframe.

MANGATAINOKA RIVER SCHEME – RATING REVIEW

26. A draft rating review was adopted by the Committee and subsequently by Council in June. Since then a comprehensive newsletter has been prepared and distributed to all scheme ratepayers. Indicative rates assessments were enclosed with newsletters for those direct benefit ratepayers who would have a scheme rate in excess of \$5 under the new rating system. A public meeting has been arranged for 3 August, submissions will close on 20 August and a submissions hearing is set down for 9 September. The objective is that a proposed new rating system will be included in the 2011-12 Draft Annual Plan.

TAWATAIA-MANGAONE SCHEME – AUDIT

27. Preliminary design work has been undertaken in respect of the major issue of inadequate dam spillway capacity, as identified in the recently completed scheme audit.

TURAKINA RIVER SCHEME – NEW SCHEME ESTABLISHMENT

28. A new catchment management scheme was established through the 2010-11 Annual Plan process. It is proposed to convene a meeting of all riparian ratepayers and the owners of the larger middle and upper catchment properties, in Marton towards the end of the September. The purpose of the meeting will be to form a liaison committee and to consider a programme of work for the first year of scheme operations.

INVESTIGATIONS AND DESIGN

WHANGANUI FLOOD RISK AND MITIGATION OPTIONS

29. Only minor design support for the Balgownie flood protection project has been necessary during this period.

RANGITIKEI RIVER: CHANNEL MANAGEMENT

30. With almost all work focusing on preparation of the LMS City Reach resource consent application only minor time has been available for this work. However, discussions have proceeded with both major gravel extractors on the Rangitikei River on implications to the industry of the cut-back in available gravel and possible solutions.

LOWER MANAWATU SCHEME

31. A very large amount of investigation, involving both staff and an external consultancy, has proceeded on assessing the flooding impacts and mitigation options for constructing the LMS City Reach works to the 0.2% AEP (1 in 500-year) standard. These investigations have focused in detail on the Staces Road-Aokautere, Turitea Science Centres, Longburn, Makerua and Taonui Basin areas. The findings are presented in a separate report.

MANAWATU DRAINAGE SCHEME – BURKES PUMP

32. A report was completed on the four options under consideration.

KAHUTERAWA/TURITEA STREAMS INVESTIGATION

33. Detailed investigations into flood and erosion hazards and the possible need for proactive management of both the Kahuterawa and Turitea Streams have proceeded. It had been intended that a draft report on this investigation would be presented to the August meeting of the Catchment Operations Committee, however the work required has been more complex and time consuming than initially thought. The assessment of current river management issues and problems and the hydrology is complete. Work is well advanced on possible river management stratagems. The investigation is being funded through the Non-Schemes Investigations activity budget.

COASTAL HAZARD ASSESSMENT FOR AKITIO AND HERBERTVILLE

34. The coastal hazard assessment for the Akitio and Herbertville areas is a joint project with Tararua District Council (TDC). Tonkin and Taylor Ltd were commissioned to undertake the work at a cost of \$39,000. Work completed includes:
- Site reconnaissance (previous reporting period);
 - LiDAR of the two towns (to enhance the accuracy of the investigation and enable mapping of the inundation and erosion areas);
 - Setup of predictive models;
 - Completion of the bathymetric survey by Discovery Marine Ltd.
35. It had been hoped to conduct this survey work with either the Horizons Regional Council boat and equipment or local fishing boats. However, after initially indicating there would be no difficulties, the Maritime Safety Authority would not give their approval. This and

adverse weather has delayed the project, but progress should be rapid now and a final draft report is expected imminently.

36. A joint council projects team is administering this investigation and the costs of both the investigation and the LiDAR are being shared 50:50 between the two Councils.

REGULATORY ADVICE

37. The section has continued to provide specialist advice on flood risks and technical reports for consent applications, re-zonings and subdivisions. This was slightly less than the previous four months at 11 recorded matters, including:
- Several items of advice on a proposed bridge over the Manga Atua Stream;
 - advice on a proposed bridge widening over the Linton Main Drain;
 - one floor level/floodability assessment;
 - one possible subdivision, with respect to whether flood protection was proposed/possible;
 - advice in respect of several houses in Ruahine Street on proposed building works in the vicinity of the Manawatu River secondary stopbank;
 - advice on erosion and sediment control matters on the North East Industrial Zone development; and
 - assistance to PNCC in identifying flood risks in potential urban growth locations in Ashhurst

DESIGN ADVICE

38. Design advice has continued to be given to Operations Group project and scheme management staff and other departments' staff in relation to several matters. These have included
- detailed design of the repair to the Matapuna rock lining at Taumarunui.

CENTRAL AREA

GENERAL

39. Over the June/July period climatic conditions have been typical for a Manawatu winter. Maintenance works have been delayed at times due to wet ground conditions and higher river levels, yet overall there has not been any significant flood event.
40. The programmed maintenance works for the 2009-10 year have been successfully completed and in some areas additional work has been achieved. This is mainly because of the overall favourable weather conditions with less than the typical erosion and damage repair works being required. Work has therefore focused on the maintenance programmes, particularly the major bend maintenance and layering, and vegetation management programmes.
41. Stage two of the electrical upgrade at the Moutoa floodgates has been completed with extra work on the replacement of the switchboard in the control tower brought forward because of favourable prices obtained for scheduled works.
42. The programmed work within the City Reach Project has been substantially completed under budget. The exception being the road raising for the stopbank at Napier Road

where the work on the main stem of the carriageway has been suspended through the winter on advice from the New Zealand Transport Agency.

LOWER MANAWATU SCHEME (LMS)

43. Works undertaken within the LMS during June and July included:

MANAWATU RIVER MAINTENANCE

44. The stopbank inspection programme and associated up-dating of the Asset Management System continued through the period. An inspection by jet boat of the Manawatu River channel from Foxton Beach to the Ashhurst Bridge was also undertaken. This inspection was to identify any erosion sites, willow planting requirements and river hazards.
45. A willow planting programme has been developed and willow poles have been cut ready for distribution. Planting of these poles has begun towards the end of the period.
46. The small boat ramp located adjacent to the Foxton Beach flood protection/wavesurge bank was upgraded to improve access to the estuary. A five kilometre section of walkway located along the top of the stopbank was also mown between Foxton and Foxton Beach.
47. A 350 metre length of stopbank located at river distance 5.6km on the right bank has been cleared of heavy fennel growth.
48. At Fitzroy Bend within the Palmerston North City reach, the large piles of timber debris that were removed from the groyne heads were successfully burnt. A scheduled mow of the city stopbanks was also undertaken.
49. A programme of willow layering has made good progress with a total length of 1865 metres being completed at four locations between river distances 63-69 kilometres.
50. A 650 metre length of eroding steep river bank was battered and pole planted at the end of Hamiltons Line to try to maintain the current channel alignment. A further 130 metre length of river bank was planted just downstream of the Raukawa Drain outlet to strengthen the recently constructed tied tree protection works at that location.
51. Stock grazing on saturated stopbanks is a widespread problem this winter and a considerable number of hours have been spent following up with landowners to stop this practice before any significant damage occurs.

MANAWATU RIVER CAPITAL EROSION PROTECTION WORKS

52. Capex works undertaken included the delivery and placement of 180 cubic metres of riprap into two erosion sites located at Te Matai Road adjacent to the Manawatu River walkway.

OROUA RIVER MAINTENANCE

53. Between river distances 14 km and 28 km, a programme of gorse eradication was carried out on the up-graded stopbanks. Some sections of the banks were becoming quite heavily infested following recent major earthworks, in particular on the right bank between Kaimatarau Road and Rongotea Road. These stopbanks will require a chemical spray in spring to kill any gorse regrowth. Landowners will then be responsible for keeping the stopbanks clear of these and other invasive plant species.

54. Up-stream of the Kopane Bridge on the Pearson property, a 120 metre length of stopbank was cleared of overhanging pine trees. The top of one kilometre of stopbank was mown above the Kopane Bridge.

OROUA RIVER CAPITAL EROSION PROTECTION WORKS

55. Capex works comprised the delivery and placement of 280 cubic metres of riprap protection into an erosion site on the Bailey property at Daltons Road.

MANGAONE STREAM

56. A programmed stopbank mow was carried out within the Palmerston North city reach. At 27 Coventry St, trees were removed that were overhanging the boundary fence.

MAKINO STREAM

57. Immediately downstream of the Makino Diversion structure, fifty willow poles were planted behind recently placed riprap protection. When these trees are of sufficient size, they will be layered over to visually soften this hard-face material.

MAKINO STREAM CAPITAL EROSION PROTECTION WORKS

58. Capex works were undertaken on the Lesley property below Brewsters Road where 25 cubic metres of riprap was placed to protect the eroding stream bank.

TOKOMARU RIVER

59. Two floodgate outlets were machine cleaned for silt build up. Previously sprayed gorse bushes were removed from the stopbank.

MANGAORE STREAM

60. Channel clearance works have incorporated the mulching of willows on the bermland area on both the left and right banks for a distance of one kilometre from the Manawatu River confluence. The contractor also removed several rail iron hazards from the channel.

MANGAORE STREAM CAPITAL EROSION PROTECTION WORKS

61. Capex works included the placement of 260 cubic metres of riprap into two erosion sites at the bottom end of this stream.

MOUTOA FLOODWAY AND TOWER

62. A maintenance inspection of all the floodgates in the floodway was carried out. Silt was removed that had built up under the floodway gates.
63. Up-grades at the Control Tower included repairing the carpark after a trench was dug for electrical works. The Tower roof was replaced as were the old wooden doors at the rear of the building.

MOUTOA FLOODGATES – ELECTRICAL UPGRADE

64. Extra work following the completion of stage two of the electrical upgrade at the Moutoa floodgates has also been completed. That involved the replacement of the switchboard in the control tower building.
65. The project included the complete removal of the existing switch board and the installation of a new one manufactured by EMF, a local company. The only components re-used were three relatively new three phase circuit breakers supplying the gates. The new board is a modern design with circuit breaker protection across all circuits and constructed in a way that will facilitate ease of maintenance and protection.

SCHEME DRAINS

66. On the Raukawa Drain and the Whakarongo Drain, accumulated shingle was removed from below floodgates. Access to the Goodman-Badger drain was improved with earthworks over a 120 metre length.

VEGETATION MANAGEMENT

67. As part of the current programme to remove trees from the vicinity of stopbanks, a 900 metre length of overhanging willow was cleared on the Manawatu River at river distance 14.5 km on the left bank. Also on the Manawatu River up-stream of the Mangaore Stream confluence, a further 270 metre length of willow has been cleared away from the stopbank environs.

GRAVEL EXTRACTION

68. Further to the last bi-monthly report in which the annual gravel extraction volume for the Oroua River was stated, the following extraction volumes under global consents held by the scheme for other watercourses have been confirmed:
- Manawatu River - 49,329 cubic metres.
 - Makino Stream - 230 cubic metres from the vicinity of the Duke Street / Derby St Bridge to maintain channel capacity.
 - Stoney Creek - 350 cubic metres.

LOWER MANAWATU SCHEME – CITY REACH PROJECT

RUAMAHANGA RESERVE ROCKLINING

69. Works completed in this reporting period included the dismantling of the temporary site and walkway fencing, reinstating the farm water supply lines, grass seeding areas as required, tidying up access tracks and reinstating fencelines.

NAPIER ROAD DRAIN CULVERT

70. Works completed in this reporting period included reinstating boundary fences with the adjacent farmland, fencing off the existing Napier Road Drain stopbanks (PNCC owned) to allow continued sheep grazing and walkway use, and reinstating the temporary truck access to the site.

NAPIER ROAD RAISING

71. The contract for the reconstruction of State Highway 3 (Napier Road), awarded to Higgins Contractors Ltd. of Palmerston North, is well underway. Three progress payments have been made to date.
72. Ten 'Notices to Contractor' have been issued, instructing various changes and/or variations to construction plans. Most are of a minor nature, however two are significant. They will ultimately lower the value of the contract works to approximately \$525,000.
73. It has been agreed between all parties that on account of uncertain weather conditions, works on the main highway carriageway will be postponed until the weather improves. It is anticipated that work will recommence in September/October. In the interim, work will continue on both sides of the existing carriageway plus on the subdivision stub road to the extent that weather conditions allow.

NAPIER ROAD STOPBANKS

74. Only minor earth works, requiring a week or two of fine weather, are now required to complete a flood barrier on the two properties on the western side of Napier Road. This barrier is designed to link the 'hump' in the Napier Road carriageway, with the high terrace to the west of the highway.
75. On the first property, MacPhersons Nursery, the flood barrier is an engineered concrete retaining wall (83 metres) and then an earth stopbank for the balance (another 69 metres). The concrete retaining wall has been completed. The 'hard stand' area in front of the retaining wall, together with the 'bulk supply bins' for the nursery, has been reinstated. The earth stopbank has been constructed but is not complete. Wet weather has prevented it being shaped, top soiled and grassed.
76. On the second property, the earth stopbank was completed (55 metres). The boundary fences have now been erected and a native planting programme completed on the lagoon edge. A guillotine floodgate has been constructed ready to fit on the drainage pipes/headwall through this new stopbank.

LOWER MANAWATU SCHEME RURAL UPGRADE PROJECT

KOPANE BRIDGE

77. The Kopane Bridge Project Team met on 14 June to finalise outstanding issues prior to advertising for tenders. A Request for Tenders was subsequently released on 12 July with a closing date of 17 August 2010. It is anticipated that a recommendation for tender award will be presented to Council at its meeting scheduled for 28 September. The documents provide for a contract period of 70 weeks.
78. Prior to construction works commencing on site, Resource Consent conditions require some minor works to be completed. These include the temporary raising of the left and right bank stopbanks for a distance of 200 m upstream of the bridge as well as the removal of silt deposits from the right bank bridge abutments to maintain the flood carrying capacity of the channel during construction. Preparation of documents for these works is currently in progress.
79. Following meaningful negotiations, negotiated land acquisition and entry agreements have been executed with the last affected party. Accordingly land acquisition and land entry agreements are now in place with all eight affected parties and resource consents

relating to construction of a new bridge and demolition of the existing bridge have been granted. Accordingly there is no impediment to the award of the bridge replacement contract.

80. Both a Resource Consent and a Building Consent have now been granted in respect of proposed relocation of the Scheme owned house at 1107 Rongotea Road, within the remnant land area, have been granted by Manawatu District Council. That will facilitate the sale of the property as a small lifestyle block, with a substantially greater return than would have been achieved through the sale and removal of the house and sale of bare land to an adjoining owner.

LINTON MAIN DRAIN – STOPBANK UPGRADE

81. The contract to upgrade the left and right bank stopbanks for 400 m upstream of Ashlea Road has been suspended until spring due to inclement weather and ground conditions. This contract has approximately 100 m remaining to be completed on the left bank plus final top-soiling and reinstatement.
82. Survey and design work is currently in progress to extend the stopbank upgrade for a further 300 m upstream of the existing contract works during the 2010-11 season. That will take the upgrade to a point 700 m above Ashlea Road which relates to approximately 60% of the work to ultimately be undertaken on the Anderson property and 50% on the Gledhill property. Tenders will be advertised for this in September.
83. Design work is in progress for minor extensions to the Ashlea Rd bridge wing-walls and wheel-guards. This is required to transition the bridge structure to the upgraded stopbank. Approval from the Horowhenua District Council will be required prior to work occurring on or in the vicinity of the bridge.
84. The upgrade of 1,290 metres of the Linton Main Drain left bank stopbank below Ashlea Road achieved practical completion in May. The Contract still requires some final minor reinstatement of neighbouring farmland to be completed when ground conditions permit.
85. The equivalent contract on the right bank below Ashlea Road has been suspended until Spring, due to very wet ground conditions. There is approximately 500 m of stopbank, including a concrete wall section around the Ashlea Road pumpstation, to be completed.

MANAWATU RIVER – STACES ROAD STOPBANK

86. The contract for the construction and upgrading of 1,530 metres of stopbank below Aokautere School has been completed for a distance of 750 metres. Contract works were suspended due to difficulty experienced with regard to land purchase and property entry with the owners of one property involved in this project. Land acquisition and entry agreements have now been executed and the balance of contract works will be completed over a two to three week period as soon as weather and ground conditions allow. That is likely to be in October-November.

MAKINO STREAM STOPBANK UPGRADE AT WARWICK STREET, FEILDING

87. The need has been identified for a short section of flood protection work on both the left and right banks of the Makino Stream between Warwick and Manchester Streets in Feilding. The proposed left bank stopbank requires the acquisition of approximately 675 m² of land from a neighboring commercial landowner. This acquisition has been negotiated and an agreement has been reached whereby Manawatu District Council will assume ownership of the land as an extension to an adjoining recreational reserve.

Horizons will meet the legal costs involved and the LMS will assume responsibility for maintaining the land and the stopbank to be constructed there upon. Legal documentation is currently being prepared.

ASHHURST STREAM SCHEME

88. All scheduled maintenance works, being, erosion repair and drain spraying were completed prior to winter.
89. Programmed capital work associated with flood protection improvements, did not proceed on account of some complex issues identified during the detailed design phase. Extra survey and design work was completed and this highlighted the need for the proposed new stopbanks to be extended further upstream (above North Street) than originally planned for.
90. Following confirmation of design details, and on-site meetings with affected property owners, and re-consideration of construction methodologies, project estimates have been reviewed. The revised estimate is significantly higher than the 'Rough Order of Cost' estimate as was previously prepared and used as the basis of consultation around a new targeted rating system. Staff are currently reviewing alternative approaches for providing flood protection before a meeting of Ashhurst ratepayers is convened. It is anticipated that we should be in a position to arrange that meeting later in September.

LOWER KIWITEA SCHEME

91. A programme of wattle tree removal from front-line willow protection plantings was carried out over a two kilometre reach at the bottom end of the Scheme. Throughout the coming year, wattles will be progressively removed from front-line willow protection.

NORTHERN AREA

GENERAL

92. Weather conditions were generally wet during June, with more settled periods experienced in July between rain events. Overall flows in all the rivers were average range June and July, with a few first level warnings being registered but nothing of concern in the main rivers.
93. Staff completed a preliminary report on the Taringamotu River Investigation. The report addresses river condition in terms of edge vegetation condition and encroachment, general channel stability and lateral erosion. It is estimated that a programme of channel and vegetation management work would cost \$750,000 to complete over a period of some years. That preliminary report will now be expanded into a river management proposal for discussion with affected property owners. It is anticipated that we will be in a position to commence the consultation phase in late September.
94. A report was also prepared on the extent of edge vegetation management work required on the lower Ongarue River (within the confines of Taumarunui). The report was prepared in response to a request from Ruapehu District Council (RDC), which has some concerns around the potential for erosion impacts on infrastructure and reserve land. A five-year programme of vegetation management and planting is proposed, possibly attached to the existing Upper Whanganui Scheme. Total estimated cost for necessary works is approximately \$120,000. Funding options will now be developed in advance of discussions with RDC officers.

RANGITIKEI RIVER CONTROL SCHEME

95. During the reporting period the Rangitikei River has experienced average flows for the time of year, with a few rain events increasing flow above the 4.0 metre warning on seven occasions, and above the 4.5 metre warning level on two occasions. No damage has been observed arising from these moderate floods.
96. A full river inspection is planned for early August for the purpose of formulating a detailed maintenance programme for 2010-11.
97. Two reports have been prepared to assist in the planning and financial aspects of the proposed channel works associated with the Rangitikei Scheme Review. The first report was a review of completed and outstanding works under the 20-year flood protection upgrade project. The original budget for that project was \$6,126,842.00, and with 55% of the project work completed, that has been revised downwards to \$4.75 million. To a large extent this anticipated saving of approximately \$1.4 million results from very competitive contract prices received to date, although there are some other factors. The reduced capital work costs will impact significantly on scheme ratepayers within the flood protection categories and will offset rates increases to fund proposed additional channel management works.
98. The second report was a review of the forestry component of the scheme, with a view to ascertaining the likely funding contribution from that source, towards the cost of the proposed channel management work. The review has concluded that there are only two woodlots that could be logged over the next 10 years and the net revenue from those is estimated to be \$250,000. In total there are currently 43 hectares of woodlots owned by the scheme with harvest dates extending from 2010 to 2034.
99. Maintenance works completed during the period include repairs to the flood gate grill on Amon's Drain; mechanical cleaning of 19 km of scheme drains; checking of all scheme floodgates, channel hazard inspection over six km of river; pest plant spraying along 16 km of the Parewanui Stopbank; repairs to 300 metres of the access road to the river via Flock House; willow pole planting at various locations along a seven km stretch of the lower river reach; and pruning of 1.5 ha of pine trees at two locations.

TANGIMOANA FLOOD PROTECTION UPGRADE WORKS

100. Stage 1 of the Tangimoana stopbank upgrade has been completed, with the final payment made to the contractor.
101. On Stage 2 the contractor Graeme Bagrie Contracts Ltd made good progress until inclement weather brought about a halt to earthworks. That part of the work has now been suspended until next summer. Essentially 90% of the fill is in place over 1000 metres of the 1200 m length of new stopbank construction. The stopbank is up to height, and shaped over the majority of this length, however compaction tests have not met the specification over much of that length and accordingly topsoil placement has not been able to be completed.
102. The section of flood wall behind the Tangimoana campsite continues to be a minor problem. Material that was planned to be used as fill for the earth filled block wall failed sieve tests and accordingly has been rejected. Work on this 150 metre long structure has also been suspended until summer and until suitable material is found. As a result of the delay, temporary measures have had to be put in place to address security and wind issues for the camp.

103. The contractor is continuing on with the 120 metre long timber flood wall around one property and over the next few weeks will undertake the raising of the Tangimoana Road by approximately 500 mm at the entrance to the community.

POHANGINA-OROUA RIVER CONTROL SCHEME

104. Peak river levels of 2.55 metres were experienced in the Oroua River on 7 July. This caused some minor damage along the river, particularly to some new erosion protection works at Symth's, which will require some minor repairs.
105. The Pohangina River peaked at 1.91 metres on 27 June. While not a particularly large flood, erosion damage at sites of previous concern have increased, with a channel alignment at two main locations being of particular concern. The reach between 15.5 km and 17 km needs some significant alignment correction work. Another section at the lower end of the Totara Reserve is also causing some concern in respect of both the adjoining road and the property opposite.
106. Gravel extractions have been recorded as follows for the two months May to July 2010 inclusive. At the time of writing complete figures for July had not yet been received.
- Pohangina - 4,000 m³
 - Oroua – 2,200 m³
107. Scheme works completed on the Pohangina River included repairs to 120 metres of groynes; construction of three new tree groynes; 60 metres of live tree bank protection works; and 120 metres of tree layering. On the Oroua River, six new tree groynes were established on one property and 60 metres of tree groynes were repaired.

UPPER WHANGANUI RIVER MANAGEMENT SCHEME

108. Works undertaken during the reporting period included the clearance of old willow and poplar trees from the river bank immediately upstream of Victory bridge; the burning of large heaps of tree slash; and stopbank repairs in the vicinity of the Esplanade. An engineering survey of the Matapuna rock lining was done as a pre-requisite for design of strengthening work.
109. An unfortunate environmental incident resulted from the misinformed use of old tyres to assist with the burning of tree slash in close proximity to the township. Both the contractor concerned and the Operations Group have been infringed for this incident which involved a breach of One Plan rules and national environmental standards.
110. A meeting was held between senior Council and Hinengakau Development Trust officers to discuss various issues concerning execution of scheme works contracts.

MATARAWA FLOOD CONTROL SCHEME

111. Scheme works undertaken over the reporting period included the cleaning of all dams inlet/outlet structures; the removal of willows over a four kilometre section of the Mateongaonga Stream in the Longacre Valley; and the adjustment of the Dam 100 inlet throttle plate.
112. Staff and Cr Walker met with Messrs Tony Harrison and Greg Cox on two occasions in an attempt to resolve an impasse around proposed channel maintenance and erosion protection works on the Lower Mateongaonga Stream. Verbal agreement was ultimately

reached as to the nature and extent of works that are to be undertaken and that will now be confirmed in writing. The timing of the works will be governed by ground conditions and resource consent requirements.

TUTAENUI FLOOD CONTROL SCHEME

113. The only work completed during the period was the clearance of debris from the Tutaenui Stream channel within Marton township.

POREWA FLOOD CONTROL SCHEME

114. Work undertaken during the reporting period, included ongoing repairs to spalling concrete work on the Dam 100 spillway structure; 350 metres of mechanical drain cleaning; removal of trees from the ponding area of Dam 100; and clearance of trees from the Porewa Stream at Rata.

PAKIHI FLOOD CONTROL SCHEME

115. Maintenance works were undertaken at the upper detention dam on Ron Frew's property. The work comprised repairs to stock damage on the headwall and the mechanical cleaning of the inlet channel.

LOWER WHANGANUI RIVER SCHEME

LOWER WHANGANUI VEGETATION MANAGEMENT PROGRAMME

116. Minor scheduled maintenance work including vegetation management at the Upokongaro Jetty; spraying of willow regrowth; removal of 200 metres of willow and poplar; and burning of slash heaps, was completed during the period.

CAPITAL FLOOD PROTECTION WORKS AT BALGOWNIE

117. The main contract to construct stopbanks and blockwalls at Balgownie, Whanganui is progressing steadily. The contract includes 2050 m of stopbanks, of which 2,000 m are up to the design height, together with 525 m of blockwalls and 75 m of concrete walls, both of which are up to the design height.
118. The contractor's revised contract completion date of 13 August is optimistic given that he has not allowed for any delays due to wet weather. A weather dependant completion date in September would be more realistic.
119. The overall project to provide flood protection to the Balgownie compartment of the city is still tracking to be completed within the approved budget, although there is now very little proviso for contingencies.
120. With the completion of the concrete floodwall at AFFCO, the AFFCO to Sailing Club area of Balgownie now receives the desired level of flood protection.
121. New permanent security fences sited on top of the blockwalls at the upstream corner of the AFFCO site and at the Sailing Club have been erected, satisfying concerns from submitters during the Resource Consent process. The stoplog concrete structure at the Sailing Club has been completed with the stoplog system itself due to arrive from Germany in late August.

122. A low wooden “knee breaker” fence along Karoro Road using approved materials recycled from Wanganui District Council (WDC) has been completed. The installation of this fence has significantly reduced the number of trail bikes, quad bikes and four wheel drive vehicles that have attempted to access the stopbank from Karoro Road.
123. The stopbank has now been shaped, trimmed and compacted from AFFCO to the Sailing Club and top-soiling is currently underway. From the Sailing club to the end of Gilbert Street the stopbank is up to design height with trimming and construction of the vehicle ramps still to be completed. At the Q-West site a 100m section of earthworks is now up to design height with trimming to occur. Construction of the footpath along the top of the stopbank is proceeding, with shell rock being placed and compacted. General tidying of the site, including the berm areas is underway.
124. While the contractor may be able to substantially complete contract works within the next month or thereabouts, there will remain a number of finishing items, including formation grassing, general landscaping and walkway sealing, that will not be able to be satisfactorily completed until dryer and warmer conditions are experienced later in the year. The defects liability period in the contract extends for 12 weeks following the issue of a Certificate of Practicable Completion.
125. A separate contract awarded to W&W Construction 2010 Ltd of Wanganui for the construction of a 120 m long concrete floodwall along Wharf Street is now well underway and is approximately 50% complete.
126. Further contracts are yet to be awarded for smaller work associated with flood protection structures at the western end of Gilbert Street and in Wharf Street.

EASTERN AREA

GENERAL

127. Inspection of scheme assets in the Eastern Area has been completed and the Asset Management System (AMS) has been updated with inspection details. Works programmes have either been developed or updated in accordance with the inspections.
128. Staff are currently working on a resource consent application in respect of aerial spraying of re-growth on beaches in the Mangatainoka and Upper Manawatu/Lower Mangahao schemes.

MANGAROA STREAM CATCHMENT PROJECT

129. Another 1.5 km of cost-share fencing has been completed through two properties. Willow poles have been cut and are to be planted over the next two months.
130. Negotiations with staff from the Environmental Management Group (GEM) and landowners have secured \$50,000 worth of works for the coming season. The estimated cost to Horizons will be \$25,000 with funding approved through the Sustainable Land Use Initiative programme and Environmental Grant (Rivers) facility.

AKITIO SCHEME

131. A 30 m length of Tree Bank Protection Work; 100 m of channel clearing; removal of 300m of congested willow; and planting of willow poles were completed in July and staff have spent time visiting a number of ratepayers to discuss proposed works for the coming financial year.

EASTERN MANAWATU SCHEME

132. While all programmed work has been completed staff have spent time visiting a number of ratepayers to discuss proposed works for the coming financial year.

MANGATAINOKA SCHEME

133. River levels have fluctuated almost weekly for the past two months. There were three larger freshes in June, with the largest recording a stage height of 2.1 m at the Pahiatua town bridge. Recent inspections indicate that there has been little damage to the river banks.
134. Willow harvesting is well underway and staff are currently organising planting works for the coming months.
135. A newsletter outlining the proposed changes to the Differential Rating System arising from a recent review was sent out to all Mangatainoka Scheme ratepayers towards the end of July. There have been very few enquiries in response to the Newsletter. A public meeting has been arranged on 3 August 2010 at the Pahiatua Town Hall to explain the changes and the submissions hearing process ahead. The proposed new rating system, amended if necessary through the submissions process, will be implemented in July 2011.

SOUTH EASTERN RUAHINE SCHEME

136. Flows in the Southern Eastern Ranges streams have remained lower than normal for this time of the year and as a result new season's works which include planting of 1300 poles and 2 km of channel clearing in the Rokaiwhana, together with gravel reserve and weir repairs in the Kumeti have been uninterrupted.
137. Willow harvesting is well underway and staff are currently organising planting works for the coming months.

TAWATAIA - MANGAONE SCHEME

138. Further site survey work was completed on the Tawataia detention dam with investigations of the spillway capacity programmed to be completed in November 2010. Consultation with Scheme ratepayers regarding the recommended options for increasing the spillway capacity and estimates of cost for this work will follow. The proposed spillway upgrade work will be programmed for the 2011-12 financial year, subject to stakeholder agreement

UPPER MANAWATU – LOWER MANGAHAO SCHEME

139. Almost weekly freshes of 3.4 m stage height were recorded at the Upper Gorge water level recorder site, with a flood of 4.5 m recorded at the end of June. Recent inspections indicate that there has been little damage to the river banks apart from some slumping at one site. This site has been identified as a high priority for works in the coming 2010-11 works season.
140. A Scheme drain has been mechanically cleaned. The purpose of this work was to remove chemical contaminated soil arising from the inadvertent application of herbicide on a property having organic accreditation.

- 141. Willow harvesting has been completed for planting works to be undertaken in the coming months.
- 142. Staff have been working closely with contractors who have extracted 14,000 m³ of gravel from three particularly problematic beaches. A further 8,000 m³ of much needed gravel extraction is planned to continue in the coming months.
- 143. An application for the renewal of the current gravel extraction Resource Consent for the Upper Manawatu and Mangahao Rivers has been lodged. Notification is well under way with the Department of Conservation being the only outstanding party to be consulted. It is expected that a decision will be received within the next two months.

TOTARA RESERVE PROJECT

- 144. Staff have held discussions with Manawatu District Council (MDC) officers regarding an erosion site that is threatening Pohangina East Road at the Southern end of the Reserve. MDC is currently investigating possible remedial works.

SOUTHERN AREA

GENERAL

- 145. Weather conditions continue to be fairly settled for the time of year, with only occasional rainfall being recorded. Accordingly drainage systems have not been under pressure to date.
- 146. The focus for the period has been to ensure that all of the drains and pumpstations are in a good operating condition. Mechanical and manual clearance of weed build up has been undertaken at a number of pumpstations.
- 147. All scheme assets have now been inspected and their condition recorded in the asset management system.

OHAU-MANAKAU SCHEME

- 148. Further to agreement reached with Horowhenua District Council (HDC) concerning maintenance of the Ohau River through Kimberley Reserve, staff have completed a field inspection and have compiled a five-year works programme that will largely comprise planting and layering work, combined with targeted gravel extraction. The programme requires an annual expenditure of \$12,500, with an HDC contribution in lieu of scheme rates of \$10,000. Works will commence very shortly and staff will maintain ongoing communication with appropriate HDC staff around works programming and progress. An application for consent for the gravel extraction has been lodged by a private contractor and conditions in that consent should ensure that river management considerations will be to the fore when the consent is exercised.
- 149. A new fence has been erected along the toe of the new stopbank on Burnell's property.
- 150. Two additional tree groynes were constructed upstream of an existing tree protection work on the Waikawa Stream.
- 151. A total of 1.45 km of drains were machine cleaned

MANAWATU DRAINAGE SCHEME

- 152. Several large willow trees growing on the banks of Main Drain have been removed. Two small culverts on Durie Drain have been replaced and the drain machine cleaned.
- 153. The dumping of rubbish in scheme drains continues to be a problem especially in the roadside drains close to Palmerston North City boundaries. The section of Whiskey Creek alongside Flyers Line is a particular problem with tyres, sofas and other household rubbish recently being removed from the drain.
- 154. Weed build up at the Rangiotu Floodgates was again manual removed.
- 155. A total of 0.5 km of drains was machine cleaned.

MAKERUA DRAINAGE SCHEME

- 156. Minor maintenance work was undertaken at both Mangaore and Makerua East pumpstations. Both the floodgate and headwall were replaced on floodgate L6. The inlet of floodgate L26 was extended and a new headwall constructed.
- 157. Numerous fallen tree branches were removed from Akers Drain and the drain was machine clean upstream of SH56.
- 158. Several roadside drains were machine cleaned during the period and spoil was trucked away.
- 159. Discussions are on going with the New Zealand Transport Agency (NZTA) representatives around the upgrading of the Ashlea Road intersection and the associated lowering of the culvert pipe under SH56. A revised proposal which involves the realigning of both the intersection and the Akers Drain was recently presented by NZTA to Hugh and Michael Moleta for comment.

KOPUTAROA DRAINAGE SCHEME

- 160. A total of 6.0 km of drains were machine cleaned.

MOUTOA DRAINAGE SCHEME

- 161. Work on the Bowler Pumpstation is progressing steadily. The concrete pump chamber structure and the installation of the electrical cabinet were completed during the period. The project has been set back a little by a delay in the supply of cast iron discharge pipes; however the station is expected to be operational by mid August.

TE KAWAU DRAINAGE SCHEME

- 162. Floodgated culverts were installed in two private drains which discharge into Main Drain to prevent water from Main Drain back flowing into the adjacent paddock.
- 163. The section of Saunders Drain between Saunders Road and Duncan Road has been re-graded and two culverts lowered.
- 164. Machinery was used to remove the silt build from the outlet of floodgate S24.

165. An interim report was prepared on the condition of flood gated culverts under stopbanks and is the subject of a separate agenda item.
166. A total of 4.5 km of drains were machine cleaned

HIMATANGI DRAINAGE SCHEME

167. A small wash out on Whitebait Creek was repaired using concrete rubble.
168. A total of 1.4 km of drains was machine cleaned.

ENVIRONMENTAL GRANTS WORKS

169. Two Environmental Grants have been approved and works are planned for the coming month. Details are as follows:
- Elliott & Fouhy – Mangahao River – Planting as part of an Environmental Grant project undertaken last financial year. These works have a total cost of \$3,400.
 - M Fouhy – Mangahao River – Installation of tree groynes and planting of river bank at a total cost of \$2,300.

RECOMMENDATIONS

170. That the Committee recommends that Council:
- a. **receives** and acknowledged the information contained in Report No. 10-118; and
 - b. **acknowledges** that a Schedule of Works Completed is available for inspection.

A D Cook
GROUP MANAGER OPERATIONS

A Significant decision? If Yes	No
Do recommendations meet Significance Policy and LGA requirements?	

Item No: 7
Date: 11/08/2010
Report No: 10-117
File No: PRD 4 12

TE KAWAU DRAINAGE SCHEME: CULVERT INSPECTION

PURPOSE

1. The purpose of this item is to inform the Committee of the outcome of a recent programme of closed circuit television (CCTV) inspections of several flood-gated culverts under stopbanks within the Te Kawau Drainage Scheme.

FINANCIAL IMPACT

2. There is no financial impact associated with the recommendations in this paper.

BACKGROUND

3. There are currently 50 floodgated culverts of varying sizes within the Te Kawau Drainage Scheme and some 330 similar structures within other Schemes managed by the Operations Group.
4. All of these assets are inspected annually and a condition rating is assigned to each on the basis of visual inspection of the inlet and outlet structures, and where possible of short sections of the culvert bore viewed from each end. The culverts concerned typically range in diameter from 300 mm to 1200 mm. While it is possible to crawl through and closely inspect some culverts, in the majority of cases either pipe size or pipe submergence make that impossible.
5. Some of these structures are up to 60 years old; were constructed to largely unknown standards; and comprise pipes of questionable quality.
6. A not uncommon mode of stopbank breach is a 'piping failure' arising from the progressive development of a flow path along the outside of a culvert bore, either as a result of poor initial design or installation, or the loss of fill material through a broken or dislodged pipe joint, following foundation settlement. While careful visual inspection may in some instances detect signs of pipe collapse or settlement and associated piping problems, in most cases it will not.
7. While few piping related culvert failures have occurred in recent years, some potentially serious situations have been detected just in time. The likelihood of piping issues developing is very likely to increase as these structures become older, concrete deterioration occurs, and joint displacement increases.
8. Accordingly it has been decided to implement a programme of CCTV inspections of all significant culvert structures within stopbanks. The Te Kawau Scheme was chosen as a prototype for such inspection because of the age of much of the infrastructure and also the knowledge that 'butt-jointed' pipes, which present a far greater potential for joint displacement than the preferred 'spigot and socket' or 'rubber ring jointed' pipes, appear to have been commonly used in this scheme. Budget provision was made in 2009-10 to enable inspections of approximately 50% of culverts within the scheme.

CCTV INSPECTION SYSTEM

9. This type of inspection is commonly employed by managers of stormwater or wastewater reticulation infrastructure. The system involves sending a camera through the pipe by remote control and recording video footage of the condition of the pipe bore and joints. Silting, root intrusion and debris blockages are also identified. All information is fixed by distance from one end of the structure and is recorded in a computer.
10. The information stored is then used to compile log sheets and to assign condition ratings in accordance with standards developed by the New Zealand Water and Waste Association. A sample inspection report is attached at Annex A.
11. Scores are assigned to each defect identified, in respect of impact on both structural integrity and serviceability.
12. For structural integrity, peak scores below 15 indicate that a culvert is in good condition; scores greater than 30 indicate the culvert is in a poor condition; and scores over 50 indicate that there is a serious risk of pipe failure.
13. For serviceability, peak scores below seven indicate that the culvert is capable of performing well; while scores greater than 15 indicate that there is some impediment to the operation of the culvert.
14. The cost of undertaking a CCTV inspection and analysing results for a typical stopbank culvert is \$4,000.

2009-10 INSPECTION RESULTS

15. Inspections of 18 culverts varying in diameter from 150 mm to 1200 mm were undertaken in May 2010. The resulting inspection report has identified the following:
 - two culverts have been assigned structural grading scores, indicating that they should be replaced or refurbished within the next 12 months ;
 - five culverts have been assigned service grading scores greater than 15, due mainly to some level of silt build up or root intrusion, indicating a requirement for extensive cleaning work within the next 12 months; and
 - three culverts have been noted as requiring re-inspection once major blockages have been cleared.
16. In addition, structural defects of varying scale were noted on several culverts. While those defects do not justify replacement, repairs may be an option and in any event, regular ongoing monitoring will be required.

COMMENTS

17. While defects of the type identified were suspected to be present in a number of the Te Kawau Scheme culverts, the CCTV inspections have pin-pointed where problems exist and have provided a means of prioritising repairs and replacement. Two of the problems identified seriously compromise the integrity of the stopbanks concerned. Recent visual inspections had not identified those problems.

18. The present scoring system is based on the New Zealand Water and Waste Association standards that do not adequately reflect the particular design features of stopbank culverts and their associated inlet/outlet structures and floodgates. Nor do the standards address the particular risks associated with poor condition of culverts through stopbanks. Accordingly there is a need to modify the standards for our particular requirement and staff will address that issue.
19. CCTV inspection does require that a culvert is substantially free of water. Unfortunately the majority of flood-gated culverts within schemes tend to be either partially or fully submerged at all times and accordingly significant preparatory work involving temporary bunding and pumping will be required in many instances, in order to achieve satisfactory inspection results.
20. There are currently over 380 flood-gated culverts on Council's infrastructural asset register, many of which are over 50 years old. The useful life of culvert structures, as for most concrete structures, is identified as being 70 years in our asset management plans. On average we are replacing or refurbishing three or four culverts each year which falls well short of an optimal renewal programme. However there will be many well constructed culverts that will achieve significantly longer life cycles. A comprehensive programme of annual visual surface inspections, combined with periodic internal CCTV inspection and assessment will ensure that maximum asset life is being achieved while risk is being appropriately managed. The recommended frequency of CCTV re-inspection is ten years, unless particular problems are identified that justify more frequent inspection.
21. The 2010-11 Te Kawau Scheme budget anticipated some significant culvert upgrade work and accordingly the two culverts identified with serious defects will be replaced over the next 12 months. The budget will also allow all identified maintenance requirements to be addressed. All remaining culverts within the scheme will be inspected or re-inspected during the same period.
22. It is anticipated that a final report on the condition of all scheme culverts, together with a prioritised programme for replacement, refurbishment and ongoing monitoring will be available for discussion with the Liaison Committee, prior to setting budgets for 2011-12.
23. The experience gained from Te Kawau inspections will now be applied in preparing programmes for CCTV inspection of all stopbank culverts in other schemes. Funding for those programmes will be addressed through the 2011-12 scheme budget round.

RECOMMENDATIONS

24. That the Committee recommends that Council:
 - a. **receives** the information contained in Report No. 10-117.

J Foxall
AREA ENGINEER SOUTHERN

A D Cook
GROUP MANAGER OPERATIONS

ANNEX

- A Culvert inspection report and works programme

TE KAWAU DRAINAGE SCHEME CULVERT INSPECTION REPORT AND WORKS PROGRAMME

Culvert Name	Asset Number	Culvert Size	Culvert Length	Structural Integrity			Serviceability			Condition Comment				
				Peak	Mean	Average	Peak	Mean	Average					
S23	877230	600	15.1	10	0.66	10	2	10	8	7.93	8.57	5.8	120	Multiple Cracking and Silt
S26	877100	300	19.6	1	0.1	1	2	2	0	0	0	1	0	Line deviation and root intrusion in joints
S23a	877231	600	17.3	6	0.52	1.8	2	9	13	5.32	7.67	5	92	Pipe Hole U/S Silt Root intrusion
S28	877050	900	13.5	0	0	0	1	0	20	19.2	21.67	5.8	260	Silt build up
S24	877210	900	16.9	3	0.18	3	2	3	8	7.11	8.57	5.6	60	Inspection abandoned too much silt
S25a	877140	900	12	0	0	0	1	0	0	0	0	1	0	Minor surface damage silt build up
S22	877260	900	20.1	3	0.2	1.33	2	4	13	6.46	8.12	5.4	130	Cracking Cicum Mid root intrusion and silt
S19	877330	450	17.9	0	0	0	1	0	0	0	0	1	0	Good condition
S21	877012	300	11.6	31	5.15	12	5	60	5	0.43	5	2	5	Cracking Cicum d/s surface damage Joint faults
S2c	877350	150	11.8	45	4.31	23	5	46	58	14.81	11.67	5.8	175	Joint displacement d/s root intrusion
S18	877011	600	29.6	0	0	0	1	0	0	0	0	1	0	Good condition
S2a	877010	300	25	1	0.04	1	1	1	5	0.2	5	2	5	Inspection abandoned too much silt
S27	877070	1200	25	0	0	0	1	0	0	0	0	1	0	Culvert size change to box culvert 5m upstream
S4	877030	1200	25	4	0.13	2	2	4	0	0	0	1	0	Good condition
S2	877000	1200	25	0	0	0	1	0	8	0.32	8	3	8	Surface damage size change to box culvert 8m upstream
S20	877310	1200	30	0	0	0	1	0	0	0	0	1	0	Minor silt build up
S25	877130	2000	11.6	0	0	0	1	0	0	0	0	1	0	Good condition

Culvert Name	Asset Number	Culvert Size	Culvert Length	Works Required		Works Programme		Next Inspection
				Maintenance	Capital	Maintenance	Capital	
S23	877230	600	15.1	De silting		2010-11		2019-20
S26	877100	300	19.6	De silting		2010-11		2019-20
S23a	877231	600	17.3	De silting		2010-11		2015-16
S28	877050	900	13.5	De silting / Re-inspection		2010-11		2010-11
S24	877210	900	16.9	De silting / Re-inspection		2010-11		2010-11
S25a	877140	900	12	De silting		2010-11		2019-20
S22	877260	900	20.1	Ok		2010-11		2019-20
S19	877330	300	17.9	De silting		2010-11		2015-16
S21	877012	450	11.6	Ok		2010-11		2019-20
S2c	877012	300	11.6	Replacement		2010-11		2019-20
S18	877350	150	11.8	Replacement		2010-11		Following replacement
S2a	877011	600	29.6	Ok		2010-11		2019-20
S2b	877010	300	25	De silting / Re-inspection		2010-11		2010-11
S27	877070	1200	25	Ok		2010-11		2019-20
S4	877030	1200	30	Ok		2010-11		2019-20
S2	877000	1200	25	Ok		2010-11		2019-20
S20	877310	1200	30	Ok		2010-11		2019-20
S25	877130	2000	11.6	Ok		2010-11		2019-20

A Significant decision? If Yes	N
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 8
Date: 11/08/2010
Report No: 10-120
File No: PRD 5 16

LOWER MANAWATU SCHEME – CITY REACH PROJECT UPDATE ON DESIGN AND CONSENT ISSUES

PURPOSE

1. This report is to update the Committee and Council about Resource Management Act (RMA) consent requirements for the Palmerston North City Reach Project, work done to date in assessing adverse effects, and some additional investigative work that is required before consent applications can be lodged.

BACKGROUND

2. In December 2006 Council approved a programme of works to the value of \$11.5 million to allow Palmerston North's flood protection to be upgraded to withstand a 4,500 cumec flood in the Manawatu River. This flood has an estimated annual probability of 0.2% (0.2% Annual Exceedance Probability [AEP]) or one chance in 500 of occurring in the next 12 months. The programme has subsequently been revised and the budget increased to \$12.4 million through the 2009-19 Long-term Council Community Plan (LTCCP).
3. Consents are required for the work because flood levels in rural areas will be slightly elevated as a result of water being prevented from flowing through Palmerston North during a 4,500 cumec flood. This is therefore regarded as a diversion of flood water. It is emphasised that not only are the flood level elevations relatively small, but also that a 4,500 cumec flood is massively in excess of the rural design standard of 3,700 cumecs, and must inevitably cause widespread flooding with catastrophic damage. This is true with or without the Palmerston North works in place.
4. On 15 July 2009 the Catchment Operations Committee received a report on RMA consent issues needing to be considered in relation to the City Reach Project. The Committee then received an update on 9 June 2010. The update was prompted in part by the need to take a view of the adverse effects that was different from the view taken in July 2009. The change resulted from outcomes of the Taonui Basin hearing in November 2009.
5. Significant progress has been made on the identification of effects on floodplain areas downstream of Palmerston North city. In essence the conclusion is that the effects in all places are less than minor. They are low probability, and low impact, with the maximum effect being a 65 mm elevation of flood levels during an extremely rare event. The attached report explains this conclusion in more detail.
6. Nevertheless relief is considered in some cases. At Turitea and at Longburn, it has been identified that flood risk issues exist regardless of the City Reach works, and that flood mitigation proposals are worthy of further investigations. These will be pursued on their own merits. They should not be regarded as mitigation of the effects of the City Reach works, because no mitigation is required. Consent will also be sought for an activity at Aokautere that will neutralise any increase in flood level. The landowner will however obtain any other necessary consents, and will carry out the physical works. Once again,

the Aokautere proposal is not mitigation, rather it reflects an undertaking given to the landowner several months ago.

7. Rates relief is proposed for houses where the works are expected to increase the 0.2% AEP flood level by more than 50 mm. This also is not required as a mitigation measure. However it has been discussed at a public meeting, and expectations have been raised. The cost to the scheme will be small, and it could be seen as ungenerous of Council to decline the rates relief.
8. The Lower Manawatu floodplain can be considered as being divided into compartments whose response varies somewhat from one compartment to another. The table below describes the status of the seven potentially affected compartments, between Napier Road and Makerua. The effects on these compartments are very small, and the effect on other compartments is non-existent.

Reach	Any effect?	Degree	Comment
Napier Road	Yes – less than 20 mm	Less than minor, no houses experience any elevation of flood levels.	No mitigation is required
Staces Road	Yes – approx 65 mm	Less than minor – parties not affected	Despite our determination that the effect is less than minor, recommended that we satisfy the expectation for compensation for that effect, based on very low calculated damage costs. Write to parties undertaking to address that issue through a rates adjustment outside the consent process.
Aokautere	Yes-approx 65 mm	Less than minor – parties not affected	While the effect is less than minor, a relatively straight forward means of mitigating that effect has been identified. In accordance with an earlier agreement, it is proposed to include those mitigation works in the consent application. Whether or not those measures are implemented would be a decision for the affected party and would be dependant on him satisfying other planning requirements and meeting the full cost involved.
Turitea	Yes-35 mm	Less than minor – parties not affected	While there is no requirement to mitigate the identified less-than-minor effect, there is real benefit to be had from protecting the area. It would be sensible to include the additional works in the application (efficiency). Whether or not the work is done is a separate issue that will need to be addressed through the next Draft Annual Plan (DAP). In the meantime, dialogue with Turitea

			property owners will continue.
Longburn	Uncertain Indicative range 20 mm to 35 mm. To be confirmed after 2-D modelling completed.	Less than minor – parties not affected	There is no requirement to mitigate the less-than-minor effect identified. We could meet with the community and advise them that we have identified a flooding issue, and a relatively inexpensive means of providing improved protection. That would be at a cost to the Longburn community and would need to go through an Annual Plan or Long-term Council Community Plan (LTCCP) process. It would be difficult for Council to resource this in the near future. However given that Longburn residents are aware of our recent investigations, it would be appropriate that there be some initial communication with them in the near future.
Taonui Basin	Yes – Approx 60 mm, to be confirmed after 2-D modelling completed	Less than minor – parties not affected	In the event that the effect is found to be greater than 50 mm, owners of houses in the Taonui Basin below the 11 metre contour could be offered a rates adjustment in the same manner as the Staces Road area. It would reflect potential damage cost arising from our works.
Makerua Basin	Yes – Approx 23mm,	Less than minor – parties not affected	No mitigation is required. No rates relief is recommended.

NEXT STEPS

9. Most consultation is now complete, the content of the application is largely known, and matters have progressed to the point where the consent application can be put together and lodged. The target date for lodging the consent is 19 August, and it is expected that this target will be achieved.
10. A meeting of the LMS City Reach Project Working Party is set down for 1.00 pm on Thursday 12 August in the Boardroom. This will provide an opportunity to update members on consenting issues and on forward works priorities and programmes.
11. Meetings will be held in the near future with a small number of Aokautere landowners adjacent to the Manawatu River between Petersens Road and Anzac Cliffs. None of these properties have houses that could be affected by a 4,500 cumec flood. Meetings will also be held with iwi.
12. Further meetings will be held with representatives of Science Centre property owners. The physical details of the proposal are close to finality, and the next discussions will have to be about funding. Work is currently progressing on funding models. It is anticipated that a proposal in some form will come forward for consideration through either an Annual Plan or LTCCP process.

13. 2-D modelling of the Longburn flood hazard will continue, with a view to confirming our current conclusion that increases in flood depth will be less than 50 mm. Longburn residents will then be advised of our findings, and future meetings will be flagged to discuss improved flood protection for Longburn if that is the will of the Council.

RECOMMENDATIONS

14. That the Committee recommends that Council:
 - a. **receives** and notes the contents of Report No 10-120;
 - b. **notes** that consultation with parties potentially affected by the Lower Manawatu Scheme City Reach Upgrade Project works is well advanced and should be concluded in the near future; and
 - c. **notes** that it is expected that the City Reach upgrade project consent application will be lodged on 19 August 2010.

G S Doull
SENIOR DESIGN ENGINEER

A D Cook
GROUP MANAGER OPERATIONS

ANNEX

- A RMA Consents for Palmerston North City Reach Stopbank Upgrade

City Reach Flood Protection Upgrade – RMA Consent Issues



August 2010

Author

Graham Doull
Senior Design Engineer

Acknowledgements to

Kelly Standish, Group Secretary Operations

August 2010

ISBN: 978-1-877556-29-6

Report No: 2010/EXT/1104

CONTACT | 24hr Freephone 0508 800 800 | help@horizons.govt.nz | www.horizons.govt.nz

SERVICE CENTRES	Kairanga Cnr Rongotea & Kairanga-Bunnythorpe Rds Palmerston North	REGIONAL HOUSES	Palmerston North 11-15 Victoria Avenue	DEPOTS	Levin 11 Bruce Road
	Marton Cnr Hammond & Hair Sts		Wanganui 181 Guyton Street		Taihape Torere Road Ohotu
	Taumarunui 34 Maata Street				
	Woodville Cnr Vogel (SH2) & Tay Sts				

POSTAL ADDRESS | Horizons Regional Council, Private Bag 11025, Manawatu Mail Centre, Palmerston North 4442 | F 06 9522 929

CONTENTS

Contents	iii
1. Introduction	1
2. Napier Road Area	3
3. Staces / Pinfeld Road Area	5
4. Aokautere	7
5. Criterion for effects being considered less than minor	9
6. Fitzherbert Bridge	11
7. Turitea Science campus	13
8. Turitea Stream	15
9. Funding of Turitea Campus flood protection	17
10. Longburn	19
11. Taonui Basin	21
12. Makerua Basin	23
13. Summary and conclusions	25

1. Introduction

This report is a further update on progress towards applying for the RMA consents needed to allow the City Reach Flood Protection Upgrade Project to proceed and should be read in conjunction with Report No. 10-89, as presented to the Committee in June 2010.

2. Napier Road Area

The effects of the upgrade on the Napier Road area were fully described in the June 2010 report. The effects will be less than minor, and no mitigation is needed.

3. Staces / Pinfold Road Area

After the Catchment Operations Committee meeting in June 2010, a public meeting was held at Aokautere School Hall for Staces Road / Pinfold Road residents. There was general acceptance of the City upgrade proposals.

It was explained that the adverse effect caused by the City upgrade would be an additional 65 mm of flooding in a 0.2% Annual Exceedance Probability (AEP) (4,500 cumecs) flood, and lesser amounts in smaller floods. No effect would occur in floods smaller than a 0.5% AEP (4,000 cumecs) event. The effect would be to increase the depth of inundation of 14 houses and a complex of four commercial buildings during a 0.2% AEP flood. During a 0.33% AEP flood (300-year) seven houses would experience an increase in inundation depth of 23 mm.

For each of the buildings there is a very narrow range of flood sizes for which the effect will be to cause inundation of floors where none occurred before. However the probability of a flood being within this range is very small indeed, typically one chance in several thousand in a given year. Table 2 in the June 2010 report, and the paragraph preceding the table explain this in more detail.

Physical mitigation of this effect was not proposed. Given the rarity of the event, physical mitigation works such as ringbanking of houses would not be economic. Also, the adverse amenity effect of a ringbank would in many cases be unacceptable.

The City Reach Project is economical because the urban development is concentrated, and the cost of the work is small on a per property basis. However in more sparsely developed rural areas, the optimal response to such a rare risk is to insure.

The idea of mitigation via rates relief was mooted at the meeting. The rates relief can be viewed as a partial offset to the landowners' insurance premiums. The rates relief suggestion does not imply that these properties receive less than the required 1% AEP flood protection, it is simply a mitigation measure that would respond to small adverse effects in any flood larger than a 0.5% AEP flood.

An example was calculated for the meeting, on the basis of the expected annualised flood damage cost. The annualised damage cost resulting from the increased flood depth can be calculated using insurance industry records of actual payouts for flooded houses, and estimates of probabilities for an appropriate range of scenarios. This calculation gave a range of costs depending on the floor level of the house in question. At the high end of the range, the rates rebate would be about \$23 per \$100,000 of the improved value of the property (Improved value = Capital value – Land value). The Lower Manawatu Scheme (LMS) rural rate for a protected house is \$465.

4. Aokautere

Further consideration has been given to Mr Hopcroft's proposal to place fill on his land to facilitate residential development. Council is supporting this proposal because it effectively mitigates any adverse effect on flood levels.

An adjacent landowner to the north of Mr Hopcroft's property expressed concern that the fill might cause backing up of overland flows, and hence elevated flood levels on his property during a flood large enough to inundate the Staces Road area. Calculations have shown that if there is a suitable buffer zone between the fill and the property boundary, and high ground within the buffer zone is lowered, the adverse effects can be rendered less than minor.

Council's support would be demonstrated by including the proposed mitigation measures in its consent application. Responsibility for implementing the mitigation measures and for any associated costs would rest with Mr Hopcroft in the event that he obtains other necessary planning approvals for development of the property.

5. Criterion for effects being considered less than minor

The adverse effects that have been quantified to date are mostly small, and they occur rarely. The Resource Management Act (RMA) says that when effects are less than minor, mitigation need not be considered. The question then needs to be answered is:

“How small does an effect have to be before it can be considered less than minor?”

The RMA requires consideration of effects that are low probability and high impact. In this case the effects everywhere are 65 mm or less. A 0.2% AEP flood is certainly low probability, and it seems reasonable to say that 65 mm is not high impact, especially when considered in the context of the extreme flooding that would already be occurring in that event.

This effect should therefore be considered less than minor, and no mitigation should be required under the RMA.

However, as described above, there has been some public discussion about rates relief by way of mitigation. It is suggested that rates relief should receive consideration where the additional flood depth is more than 50 mm.

6. Fitzherbert Bridge

The low point on the road between the Fitzherbert Bridge and Summerhill Drive will be inundated by more than a metre of fast flowing water in the 0.2% AEP flood. Access will be cut off, and damage to the road is possible. The City flood protection project will increase that depth by about 50 mm, which could not be said to exacerbate the situation. More detailed information has been provided to Palmerston North City Council's (PNCC's) consultants who are assessing the security of the Fitzherbert Bridge.

7. Turitea Science campus

The effect of the works on this complex has been revised and the increase in flood depth around the buildings is now calculated at 35 mm, which is less than minor. There is no need to mitigate this effect.

However with or without the City Reach project, there is a flooding issue here, and there is merit in considering flood protection for the Turitea Science Campus. A map for such a project was attached to the June 2010 report to this Committee. The proposed stopbanking would have a small effect on river levels, because a minor flowpath across the floodplain would be cut off. At the Fitzherbert Bridge, flood levels would be elevated by 19 mm, and this would diminish in the upstream direction. Adjacent to the Esplanade, where there is no stopbank, the river would be elevated by up to 23 mm. At the upstream end of the Dittmer Drive stopbank the river would be elevated by 13 mm, and this would diminish in the downstream direction. Once again, these effects are less than minor.

Consideration of flood mitigation options has progressed intermittently over the past year, and has progressed further since the June 2010 report on the project. Discussions have been held with owners of the land that would be occupied by the proposed stopbank. The alignment has been confirmed for a proposed stopbank over most of its length, and some discussion has occurred about the details of construction.

There are some issues with a length of about 350 m of stopbank at the upstream end of the job. It is proposed that the construction would be a concrete wall rather than an earth embankment, because of space limitations. It is to be built on the land that was the old Batchelar centre, and is now owned by a company called "Iniatus Ltd", who are in receivership. Discussions with the Receiver indicate that while they see the merit of the project, there is likely to be an issue with their financial contribution. However it seems short sighted to exclude this site from the flood protection.

Meetings have been held with Massey University and AgResearch, who are the other two landowners who would have the stopbank on their land.

The Massey section presents some difficulties in fitting the stopbank in around a milking shed and race. However site discussions indicated that solutions can be found. There will also be some challenges in upgrading 400 m of existing stopbank on the south west corner of the site. There are space constraints because the existing stopbank has established trees that Massey are anxious to retain on the river side batter. There is irrigable pasture on the land side, and that is in short supply, so encroachment on to the pasture will have to be minimised.

8. Turitea Stream

The Turitea Stream flows through AgResearch land. There are two different flood hazards associated with the Turitea Stream.

- During a 4,500 cumec flood in the Manawatu River, water will back up in the Turitea Stream, to a point 100 m downstream of the State Highway.
- The stream has stopbanks to protect AgResearch from a flood in the Turitea Catchment, but they are not adequate to contain a 1% AEP flood in the Turitea Stream.

It is proposed that a comprehensive Turitea Campus flood protection project would include upgrading of Turitea Stream stopbanking downstream of the state highway, designed to withstand both of the above flood hazards.

9. Funding of Turitea Campus flood protection

The Turitea project is not required to mitigate effects of the City Reach Upgrade Project. The effects are less than minor. There is however merit in considering the project because of the flood hazard that exists irrespective of the City Reach Project.

Whether the project proceeds will depend on its being able to be funded. Possible funding mechanisms will need to be put forward and consulted on, before a decision is made.

Following the recent more detailed assessment, the estimate for the Turitea project has been revised upwards from last year's \$1.24 million to \$1.42 million.

Three funding mechanisms have been considered:

1. A one-off levy on all who benefit, possibly with a contribution from the City. This is the least favoured alternative; indications from Massey are that a series of annual payments would be much more acceptable than a single lump sum. Other organisations are likely to have a similar response.
2. The Turitea campus could become a separate rating category within the LMS, and all benefiting parties could pay in proportion to their capital value. Palmerston North would contribute in proportion to the considerable indirect benefit that it receives from having these facilities in this location.
3. The Turitea Campus could be incorporated into the City Reach Project. The \$1.42 million would be added to the cost of the City Reach Project, and the benefiting parties would pay rates on the same basis as other city ratepayers

Massey, as a crown entity, does not pay rates, so a formal agreement between Horizons and Massey would have to be entered into whereby Massey would make annual payments equal to the payments they would make if they did pay rates.

Further consideration of funding options is required before the next meeting is held with the Turitea Campus property owners.

10. Longburn

The City Reach upgrade will have a very small adverse effect on the flood levels at Longburn, but the effect would be less than minor, because flood levels will be raised by less than 50 mm. No mitigation is required under the RMA.

Even if mitigation of the incremental effect were to be attempted, there would be no practical way to do so. However, Longburn has a parallel with Turitea, in that it has a flood issue regardless of the City upgrade project. Longburn is safe in floods up to the 1% AEP event, but beyond that there is an issue with flooding. Proposals to provide flood protection probably have merit, and are worth pursuing even although no mitigation is required as a result of the City Reach works.

It was intended to produce maps showing flooding at Longburn and the adjacent rural area for the two scenarios, before and after completion of the City Upgrade works. A consultant, Philip Wallace, was commissioned to carry out a 2-D computer model study, and generate detailed flood maps. There have unfortunately been some difficulties, and the maps are not available at the time of writing this report. It is hoped that they will be available in time for the meeting.

In the meantime, Council staff have carried out a 1-D computer modelling exercise for Longburn. Resolution of the topography is coarse compared to the 2-D analysis, which divides the terrain into a grid of 6 m x 6 m squares. However, while the absolute levels from the 1-D would be significantly less accurate than the 2-D, the 1-D probably gives useful results for the difference between the two (before and after PN works) scenarios.

On that basis, the residential area of Longburn village experiences a flood level elevation of 20 mm during a 4,500 cumec flood. The industrial area occupied by the old freezing works, and also the Fonterra site, experience about 35 mm elevation of flood levels. Thus no mitigation is required.

In Longburn township south of State Highway 56 it is estimated, based on 1-D modelling, that 44 houses, commercial and industrial buildings would flood in the 0.2% AEP flood. On the north side of State Highway 56 initial findings are that not many houses would flood, and there is uncertainty as to whether the Fonterra plant would flood. This is difficult to determine with the 1-D analysis, and a definitive statement can not be made until the 2-D analysis has been completed.

The feasibility of flood protection for Longburn has received consideration. It may prove difficult to provide flood protection to a level as high as the 4,500 cumec event, but flood protection can realistically be improved beyond its current standard.

The obvious solution would be to construct a new stopbank on the edge of the high terrace adjacent to the river, between Shirriffs Road and the rail bridge. This however is not recommended, for reasons explained below. The preferred solution is to allow water to escape from the river at Longburn, and make its way down to the Taonui Basin, which is what the natural topography

dictates. Stopbanking would be placed around the village to protect development, while still allowing flows to the Taonui Basin.

A new stopbank along the edge of the river at Longburn is likely to increase the flood hazard of the Makerua Basin. For example, consider the case where the city works are complete, but Longburn has no additional protection. The river will carry 4,500 cumecs immediately upstream of Longburn. About 200 cumecs will escape through Longburn, and through the gap between the railway and the upstream end of the stopbanking system. The stopbanks start about 550 m downstream of the NIMT railway bridge.

When the river reaches the stopbanking system, it will be carrying 4,300 cumecs, and failures will occur. Say for example that they occur until the river flow has been reduced to 3,900 cumecs. It is reasonable, and simple, to assume that failures will occur equally on each side of the river. Thus 200 cumecs would flow through breaches into Makerua, and 200 cumecs would flow through breaches into Taonui.

Now consider the case where a stopbank is built along the edge of the river at Longburn. When the river reaches the stopbanking system, it will be carrying 4,500 cumecs, and additional failures will occur. Makerua and Taonui would both receive 300 cumecs as flow through breaches. However, Taonui would no longer receive the water that flowed through Longburn. There would be a rebalancing of flood flows into the basins, to the benefit of Taonui but the detriment of Makerua.

There are however flood protection options for Longburn that would not prevent water leaving the river, but would limit its spread as it flows towards the Taonui Basin. Longburn could receive significant protection as a result of such limitations on the spread of flows escaping from the river.

At the present time we have no indication of whether or not there would be support for flood protection at Longburn. Council may wish to pursue this with the Longburn community, however given present commitments around the LMS City Reach and Rural projects, the issue could not practically be addressed for another two years.

11. Taonui Basin

The Taonui Basin receives large quantities of water from a number of sources. An indicative scenario has been considered. For the pre-works case, about 40 million cubic metres would enter the Basin via the spillways. Another 12 million would overflow at Longburn, and enter the basin. Stopbank breaches would allow another 24 million cubic metres into the basin. The water level would be about a metre higher than the 1% AEP case considered for the Taonui Basin in last years consent application. In this case, the effect of the city works would be to elevate the Taonui pond by another 62 mm.

It is emphasised that a different set of quite valid assumptions could be made, and change the pond level by half a metre in either direction. Those changes in assumptions would probably change the 62 mm as well. A set of assumptions has to be chosen however, and it must be accepted that they will be somewhat arbitrary.

The 62 mm can therefore be taken as a reasonable indication of the effect. There is however one proviso. It would be advisable to wait for the result of Philip Wallace's modelling before fixing a figure. He will produce different, and probably more accurate results for flows leaving the river at Longburn. There is also another issue, that large volumes of water will be stored in the dozen or so old river channels between the Highway and the river, and between Longburn and Hamilton's Line. This will be quantified by Philip Wallace's work.

If, as is possible, the effect in Taonui is more than 50 mm, for the sake of consistency owners of houses in the enlarged pond should be considered for rates relief in the same way as the Staces Road houses. A sensible boundary for this effect would be the eleven metre contour, which would mean that about 40 houses would be affected.

Such relief would be entirely separate from any mitigation that may be required in respect of the diversion of floodwater into the basin during flood events up to the 1% AEP flood, as is the subject of another consent application.

12. Makerua Basin

As with Longburn the City Upgrade works have an effect on the floodability of the Makerua Basin, but the effect is less than minor, and therefore does not require mitigation under the RMA.

As indicated above, during a 4,500 cumec flood, stopbank failures will occur, and it is quite likely that large volumes of water will flow into the Makerua. An indicative “Before PN works” scenario was considered, and it gave a volume of about 20 million cubic metres of water spilled into Makerua. Close to 3,000 hectares would be inundated. Using the same assumptions, except that the city works were assumed complete, an extra 670,000 cubic metres of water were spilled into the basin. This would elevate the water by a further 23 mm.

13. Summary and conclusions

Status of Application

Reach	Any effect?	Degree	Comment
Napier Rd	Yes – Less than 20 mm	Less than minor, no houses experience any elevation of flood levels.	No mitigation is required.
Staces Rd	Yes – approx 65 mm	Less than minor – parties not affected	Despite our determination that the effect is less than minor, it is recommended that we satisfy the expectation for compensation for that effect, based on very low calculated damage costs. Write to parties undertaking to address that issue through a rates adjustment outside the consent process.
Aokautere	Yes-approx 65 mm	Less than minor – parties not affected	While the effect is less than minor, a relatively straight forward means of mitigating that effect has been identified. In accordance with an earlier agreement, it is proposed to include those mitigation works in the consent application. Whether or not those measures are implemented would be a decision for the affected party and would be dependant on him satisfying other planning requirements and meeting the full cost involved.
Turitea	Yes-35 mm	Less than minor – parties not affected	While there is no requirement to mitigate the identified less-than-minor effect, there is real benefit to be had from protecting the area. It would be sensible to include the additional works in the application (efficiency). Whether or not the work is done is a separate issue that will need to be addressed through the next Draft Annual Plan (DAP). In the meantime, dialogue with Turitea property owners will continue.

Longburn	Uncertain Indicative range 20 mm to 35 mm. To be confirmed after 2-D modelling completed.	Less than minor – parties not affected	<p>There is no requirement to mitigate the less-than-minor effect identified.</p> <p>We could meet with the community and advise them that we have identified a flooding issue, and a relatively inexpensive means of providing improved protection. That would be at a cost to the Longburn community and would need to go through an Annual Plan or LTCCP process. Would be difficult for Council to resource this in the near future. However given that Longburn residents are aware of our recent investigations, it would be appropriate that there be some initial communication with them in the near future.</p>
Taonui Basin	Yes – Approx 60 mm, to be confirmed after 2-D modelling completed	Less than minor – parties not affected	<p>In the event that the effect is found to be greater than 50 mm, owners of houses in the Taonui Basin below the eleven metre contour could be offered a rates adjustment in the same manner as the Staces Road area. It would reflect potential damage cost arising from our works.</p>

A Significant decision? If Yes	N
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 9
Date: 11/08/2010
Report No: 10-119
File No: ELM 6 00

SUSTAINABLE LAND USE INITIATIVE (SLUI)

PURPOSE

1. This report is to update Members of the progress on Council's Sustainable Land Use Initiative (SLUI).

FINANCIAL IMPACT

2. There are no financial impacts associated with this report.

PROGRESS TOWARDS TARGETS

3. The 2009-10 target for completing Whole Farm Plans (WFP) is 100 WFPs. Of these, 75 (75%) will be completed by our main contracted supplier, LandVision Ltd, and the remainder by CPG (formerly Soils Suitability Assessments Ltd). By the end of June 2010 LandVision had mapped 60 properties and CPG 21. Table 1 summarises progress toward WFP development.

Table 1: Whole Farm Plan Development – 30 June 2010

Whole Farm Plan Development				
	2006-07	2007-08	2008-09	2009-10
Farms Mapped	46	89	80	81
Draft Completed	46	89	80	81
Completed	45	89	80	81
Copy to Landowner (Active)	45	88	80	51
TARGET	40	80	80	100
CUMULATIVE (WFPs Completed)	45	133	213	264

4. Implementation generally begins the year following the completion of the WFP. The SLUI programme budgets on implementation taking at least five years to complete. Table 2 summarises implementation progress to date.

Table 2: Implementation Progress – 30 June 2010

Implementation Progress				
	2006-07	2007-08	2008-09	2009-10
Total Active WFPs	45	133	213	264
Works Programmes Planned *1		40	120	264
Works Started *2		39 (86%)	146 (109%)	248 (94%)
Projects Completed (Jobs)	13	67	99	191

*1 plans delivered

*2 work carried out or agreed to start this year

5. For the financial year to 30 June 2010 the 191 individual implementation projects completed have had a grant cost of \$1,381,239.25.

Table 3: Work Types and Grants June 2009 – 30 June 2010

Work Type	Number of Claims	Total Cost (\$)	Grant Paid (\$)	Grant Rate – Average (%)
Afforestation	15	\$819,048.43	\$355,746.48	43
Bush retirement	19	\$298,746.04	\$189,760.84	64
Consultancy	2	\$14,880.60	\$14,880.60	100
Crossing	1	\$850.00	\$850.00	100
Detention dams	1	\$1,000.00	\$300.00	30
Gully planting	4	\$12,358.26	\$7,660.54	62
Managed retirement	5	\$47,510.14	\$41,739.58	88
Nursery	1	\$225.00	\$225.00	100
Oversowing trial	1	\$1,695.33	\$847.67	50
Poplar maintenance	1	\$2,268.00	\$1,134.00	50
Protection fencing	6	\$98,212.79	\$69,217.89	70
Release spray	2	\$1,385.00	\$1,385.00	100
Resource consent	1	\$2,157.50	\$2,157.50	100
Riparian retirement	46	\$873,559.10	\$578,730.87	66
Slump control	2	\$16,515.00	\$5,271.50	32
Space planting	74	\$152,387.88	\$68,365.45	45
Wetland	10	\$93,876.29	\$42,966.33	46
Grand Total	191	\$2,436,675.36	\$1,381,239.25	57

ACTIVITY SUMMARY

6. Horizons has been successful in obtaining approval for Afforestation Grant Scheme (AGS) funding from the Public Pool on the remaining areas of the Joint Venture forests. Application agreements have been signed and the Ministry of Agriculture and Forestry (MAF) are currently undertaking inspection of the areas to confirm eligibility.
7. The Regional AGS Allocation Panel met in mid July. The panel had around \$2.7 million to allocate for planting next winter and approved 27 applications. All Horizons applications were successful resulting in approval of a further 493 hectares of planting next winter.
8. The Hill Country Erosion Fund application for funding was made by 31 May, this was followed up by a presentation to the applicant group in mid July and finally confirmation that our application had been successful on 23 July. The approved funding allocates \$7,519,000 through until the end of June 2015. Details for the new contract will be worked through with MAF.
9. The final invoice for 2009-10 MAF funding was paid at the end of June.
10. A spreadsheet to manage priority assessment is continually updated for proposed farm plans. The priority list for 2009-10 Whole Farm Plans (WFP) included 116 properties with 81 plans being completed by the end of June. Those not completed have now been migrated to the 2010-11 list with work now underway on the new years plans.
11. As noted in point three, only 81 of the 100 plans to be completed this year have been forwarded to Horizons. Contractors received 96 plans to map up until the end of June and are continuing to forward these plans into the new financial year. Despite the lower number of plans being completed we still feel we have made significant progress this year. The area mapped is up on past years, there are still plans on the waiting list and new landowners expressing interest.

12. Table 3 shows the full breakdown of works by type for the year. It is worth noting that the average grant rate for the year was around 57% and that landowners have contributed over \$1 million dollars as their share of works programme.
13. Repair of the SLUI database has been completed and a new version has been successfully tested. Some minor changes have been referred to the developer.
14. Of the 2008-09 Whole Farm Plans delivered 91% of landowners have started a work programme or will start this year. Delivery of 2009-10 plans is continuing and of the 51 plans delivered to date 31 have agreed to start a work programme this winter.
15. The winter planting season has largely been completed. All poplar and willow poles we were able to source have been distributed and all the 800,000 pine trees we had pre purchased have been uplifted.
16. Staff presented SLUI as part of Horizons programme at the National Field Days. A presentation to a group of rural valuers included site visit to John Cousins property. A number of staff attended the Emissions Trading Scheme workshops run by MAF.

RECOMMENDATIONS

17. That the Committee recommends that Council:
 - a. **receives** the information in Report No. 10-119.

C C Mitchell

GROUP MANAGER ENVIRONMENTAL MANAGEMENT

ANNEX

- A SLUI Overview Map



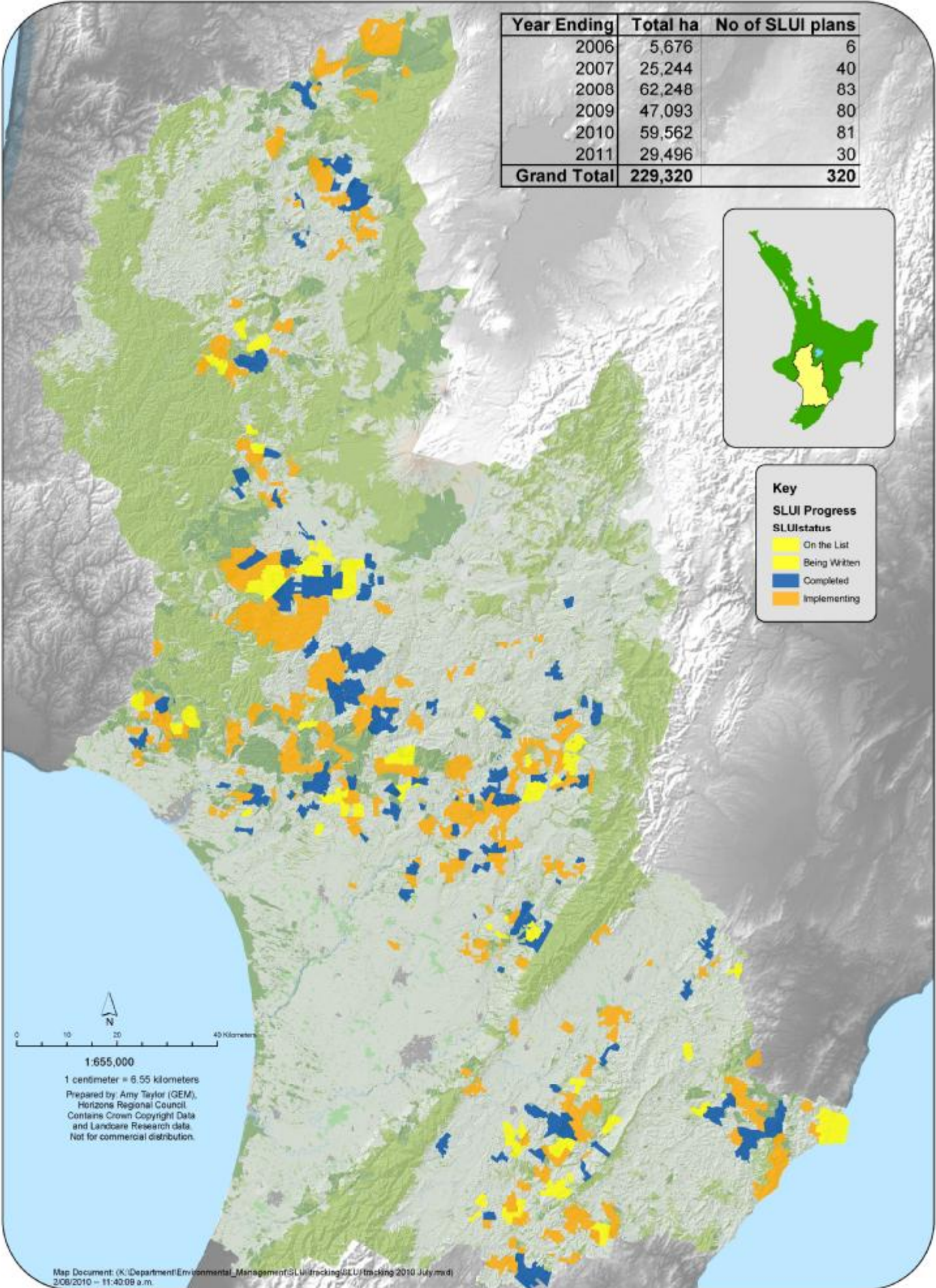
Horizons Regional Council: Environmental Management Group
SLUI Overview and Implementation Tracking

Year Ending	Total ha	No of SLUI plans
2006	5,676	6
2007	25,244	40
2008	62,248	83
2009	47,093	80
2010	59,562	81
2011	29,496	30
Grand Total	229,320	320



Key
SLUI Progress
SLUIstatus

- On the List
- Being Written
- Completed
- Implementing



1:655,000
1 centimeter = 6.55 kilometers
Prepared by: Amy Taylor (GEM),
Horizons Regional Council
Contains Crown Copyright Data
and Landcare Research data.
Not for commercial distribution.



11-15 Victoria Avenue
Private Bag 11 025
Manawatu Mail Centre
Palmerston North 4442

T 0508 800 800
F 06 952 2929
help@horizons.govt.nz
www.horizons.govt.nz