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| Report No:  | RESC12-07-05 |
| File No:  |              |
| Date:   | 02 July 2012 |
| <b><i>Information Only – no decision required</i></b> |              |

## REPORT SUMMARY

**Report to:** Engineering Services Committee  
**Meeting Date:** 19 July 2012  
**Report Author:** Gary Clark – Transportation Manager  
**Subject:** **River Gravel Matters**

### EXECUTIVE SUMMARY

This report provides information on the issues surrounding the removal and relocation of gravel in the rivers within Tasman District. The Engineering Services Committee requested that Engineering staff liaise with other Council staff around the matters of gravel removal and issues with consents and provide a report.

### RECOMMENDATION/S

It is recommended that the Committee receives this report.

### DRAFT RESOLUTION

**THAT the Engineering Services Committee receives the Gravel Matters report, RESC 12-07-05.**

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## **1. Purpose**

- 1.1 The purpose of this report is to provide information on:
- Matters relating to gravel extraction;
  - Matters around the relocation of gravel within the river beds;
  - Issues around consents, and
  - Consent processing.

## **2. Background**

- 2.1 The Council has been subject to pressure around the removal of gravel to address flooding issues in rivers. This issue has been part of the public forum and in the media with the Council being accused of not appropriately managing gravel in the river systems.
- 2.2 The Council has, through a Tasman Resource Management Plan (TRMP) change (known as Part IV), looked at the issues around gravel management and provided a framework that is more flexible than the previous rules. In the absence of an RMA plan, the law required consents for all activities in the beds of lakes and rivers.
- 2.3 The management of the gravel resource within the river system is critical to the health and sustainability of the District's rivers.

## **3. Key Issues**

- 3.1 The key issue is that the extraction of river gravels and sands from a river bed to meet industry demand, including for roading, is in greater amounts than that required to manage bed and bank stability. It is also an issue for managing the flood risk for all rivers.
- 3.2 The community perceive gravel beaches as an easy source of gravel and do not generally understand its function in the wider river.

- 3.3 Gravel is like water or air in one sense; it is a mobile, public resource that needs to be understood to be managed (except where the bed of the river is on private land in which case the owner has rights to the gravel). The more that is known the better it can be managed to enable river system values to be sustained. Better knowledge will assist in understanding the river habitat, water quality, channel stability and riparian flood risk.
- 3.4 Gravel can be allocated in the sense that its sustainable extraction limits can be defined by rules and consents granted for its removal within those limits. But there is no power to direct its use once it is extracted. It should also be noted that once removed it cannot be used to manage floods through gravel relocation.
- 3.5 Inappropriate excavation of gravel from riverbeds can have very significant adverse effects on the water quality of the river, as well as erosion and flood control (effects beyond the river).
- 3.6 Essentially the Council manages extraction of gravels pursuant to the objectives of the RMA and the Soil Conservation and Rivers Control Act 1941. All gravel excavation is driven by environmental judgments, not by the pursuit of profit. Gravel can be viewed as a natural resource and as a public resource. This is because the ordinary incidents of ownership do not in fact apply because of the environmental functions of gravels in the bed of an active river.
- 3.7 There is constant and large demand for high quality gravel in the Tasman District. River bed gravel has historically been a source of good quality gravel that is relatively cheap to extract and process. However, the amount of gravel entering the river systems at the river source (mountains and hills) in general is low.
- 3.8 It should be noted that there may be isolated sections of rivers that show a surplus of gravel.
- 3.9 In order to meet demand for gravel and aggregates in a sustainable manner, the Council has provided for Quarry Areas where sources of high quality hard rock have been identified. The potential of these areas to supply aggregate in the future are protected from reverse sensitivity issues through limitations on residential development.

#### **4. Sustainable Yield**

- 4.1 An analysis of 40 years of historical data relating to river bed levels in the District concluded that the amount of gravel being taken from the main rivers, including the Waimea, Motueka and Takaka Rivers, exceeded the amount entering the

river systems over that time. As an example the cross-sectional area underneath the Motueka Bridge is around 300m<sup>2</sup> greater than it was in the 1950s. While the silt on the banks has increased, the river has cut down. There is no increase in gravel, merely silt on the bank edges.

- 4.2 The analysis revealed that the loss of gravel within the system could be attributed to both natural loss and gravel extraction, but most of the loss (estimated at more than 80 percent for the Motueka River) was associated with gravel extraction (based on gravel returns). The issues associated with bed degradation have been exacerbated significantly by gravel extraction along with possible effects along the coastline. Some natural degradation of river beds is unavoidable. However, further degradation can be greatly reduced by limiting gravel extraction in river beds.
- 4.3 Even in degrading rivers, gravel moves within the river bed and can sometimes form beaches or banks that are more or less stable. If gravel beaches build up significantly they can cause localised problems during floods as banks are over-topped.
- 4.6 The perception that bed levels are increasing in some of these degrading rivers, and that the Council needs to take more gravel out of rivers to manage this perceived problem, is sometimes reinforced by the appearance of gravel beaches that are much higher than the adjacent water level.
- 4.7 The size of the gravel resource appears larger than it really is if it is seen as the difference between water level and the top of the gravel beach, rather than considering the bed level in a more longitudinal way, i.e., along the length of a river rather than at a specific beach location.

## **5. Council Works**

- 5.1 Part of the river works control programme requires management of gravel to deliver outcomes expressed in the Rivers Activity Management Plan which is prepared to fulfil the Council's duties and functions under the Soil Conservation and Rivers Control Act 1941.
- 5.2 It is important for the Council to manage gravel beaches to address localised flooding risk. However, this must be done in the context of maintaining the stability of the entire river. It means that gravel relocation within a degrading reach that could include moving gravel across the bed to fill eroded sections is the preferred management method rather than extraction of the gravel beach.

- 5.3 In addition to this river gravel management objective for the control of river-bed levels and floodway capacity, there is also a separate demand for extractable gravel for a range of end-uses in the building and construction industry, including the construction of roads.
- 5.4 The TRMP provides the framework for establishing sustainable limits for extraction and both managing any effects of activities that may be required to carry out river erosion and flood control work, as well as managing the effects of any extraction of sand or gravel for purposes not related to erosion or flood control.
- 5.5 The more explicit determination of the Council's resource management role in the TRMP will complement the Rivers Activity Management Plan to provide a much greater level of certainty about why, where and when gravel may be extracted from the rivers in a consistent way.
- 5.6 The process historically followed by the Council's river asset managers to manage gravel extraction as part of the river works programme was not as transparent or consistent as it could have been. The sustainable gravel extraction limits or priorities were set outside a formal process and implemented through the resource consent process. However, the river asset managers need the flexibility to manage gravel in a way that maximises their ability to manage the river works programme efficiently, effectively and in a timely manner.
- 5.7 The Council's Rivers asset manager, like any member of the public, needs to demonstrate that extracting gravel from any river is sustainable and there are no adverse effects. To achieve this information is required on the gravel supply and demands of the river system.
- 5.8 The dynamic nature of river systems and the connection between gravel management for river management purposes requires a responsive approach.

## **6. Consents**

- 6.1 We now have Part IV of the TRMP. This sets the sustainable limits for gravel extraction on a broad scale. It does accept that there may be surpluses of gravel moving through some river systems that could be extracted. The plan allows for consent to move or extract gravel from rivers.
- 6.2 If it is an organisation other than the Council doing the work then any significant volume of gravel beyond the set limits will be non-complying activity and can only be granted if it is satisfied that either that the adverse effects of the activity on

the environment will be minor or the application is for an activity that will not be contrary to the objectives and policies of the Plan.

- 6.3 It is expected that the following items will be addressed as part the Assessment of Environmental effects:
- The location, rate, method and timing of the extraction and deposition of material.
  - Measures to provide for safe navigation.
  - Measures to provide for and maintain the passage of fish.
- 6.4 Short term effects on the following:
- Aquatic and riparian ecosystems, including habitats of birds nesting on the river bed and riparian vegetation.
  - Noise on neighbouring properties.
  - The natural character and amenity of the river or lakes and effects on public access to the river.
  - Machinery working within wetted parts of the river.
- 6.5 Long term effects:
- River bed and bank stability upstream and downstream of the activity and measures to remedy any instability or erosion.
  - River users, and landowners potentially affected by the activity including effects of flood flows and effects on structures.
- 6.6 The challenging part of the Assessment of Environmental Effects (known as an AEE) is the “long term effects” listed above. Having enough information to prove that any effects over the long term are sustainable is the challenge. With other resources like water the Council undertakes significant work to gather this information to allow the management of the resource. This does not happen in the case of gravel. In fact the lack of data, including bed levels, gravel movement and detailed information about quantity and location of gravel extracted over time means that we cannot yet be more definitive. The costs of determining sustainable limits have been a council cost which is not insignificant but it has represented a saving to the aggregate industry.
- 6.7 If someone wants to prove that the gravel is there to be extracted they will need to do some work. This also applies to the Council’s asset managers. Most people do not see this as cost-effective. Applicants often feel the gravel is there and they should be able to take a “common” resource and sell it for a profit.

## **7. Processing of Consents**

- 7.1 Usually four people are involved in the processing of applications for consent to extract gravel:
- a) The Consent Planner processing the application.
  - b) A Water Quality Scientist examining potential adverse effects on fish.
  - c) A Rivers Scientist examining the sustainable yield of gravel in the river if the extraction is beyond the set limits and risk to upstream and downstream neighbours.
  - d) A Rivers Engineer to assess the risk to upstream and downstream neighbours and potential issues for existing river protection works and other structures.
- 7.2 In general it is expected that the applicant will state the following work practices for gravel extraction:
- The material is scraped off more than 600 millimetres above the water level in the bed of the river and does not result in any hole more than 600 millimetres deep in the bed of the river.
  - There is no material removed within 20 metres of any structure, including stopbanks and other defences against water.
  - There is no damage caused to the banks as a result of the removal.
  - There is no disturbance from nesting (black-fronted terns and black-billed gulls) and/or inanga spawning habitat (the principal whitebait species) or trout during the spawning season (river dependent)
- 7.3 An application does not need to meet the non-complying tests if the work is being undertaken for Soil Conservation and River Control Act purposes.
- 7.4 The application is then processed as required by the Act.

## **8. Recommendation**

- 8.1 It is recommended that the Committee receives this report.

## **9. DRAFT RESOLUTION**

- 9.1 THAT the Engineering Services Committee receives the River Gravel Matters report, RESC 12-07-05.**