# Waverley Sawmills Limited
# Monitoring Programme
# Annual Report
# 2015-2016

Technical Report 2016-76

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# Executive summary

Waverley Sawmills Limited (the Company) operates a wood waste disposal site located on Monk Road at Waverley, in the Whenuakura catchment, and a former wood waste disposal site located on Village Settlement Road at Waverley, in the Moumahaki catchment. The Monk Road site is consented to receive untreated wood waste only, and the Village Settlement Road site is consented to receive treated and untreated wood waste. All the wood waste discharged at both sites originates from the Company's sawmill in Waverley. This report for the period July 2015 to June 2016 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the Company's environmental performance during the period under review. The report also details the results of the monitoring undertaken and assesses the environmental effects of the Company's activities. This is the tenth compliance monitoring report on the Company's activities at the Monk Road and Village Settlement Road sites.

The Company holds a total of four resource consents relating to its wood waste disposal sites, which include a total of 35 conditions setting out the requirements that the Company must satisfy. The Company holds one land use consent for the purpose of piping a stream, two consents to discharge wood waste onto and into land, and one consent to discharge leachate and stormwater to land and water.

**Overall an improvement was required in the Company's level of environmental performance with their resource consents.**

The Council's monitoring programme for the period under review included three inspections, nine water samples, and four soil/wood waste samples collected for physicochemical analysis. Eight additional wood waste samples were collected as a result of treated wood waste having been disposed of at the Monk Road site.

At the Monk Road site it was found that treated wood waste had been disposed of on one occasion during the year under review. An abatement notice was issued requiring that the waste be removed. The Company undertook an investigation to identify the area containing the treated wood waste, and this was then removed within the agreed timeframe. It was also found that leachate at the Monk Road site still has potential to cause effects, and elevations in the concentration of contaminants were noted. There was one minor non-compliance relating to the filtered carbonaceous biochemical oxygen demand in the Kohi Stream tributary.

At the Village Settlement Road discharge site, remediation undertaken during the 2013-2014 year has remained effective and stable during the 2015-2016 year, although a marginal breach of the copper consent limit on the soil beyond the site boundary was found (43 mg/kg dry weight versus a limit of 42 mg/kg dry weight). This would result in little, if any, environmental effect and therefore resampling is recommended after the spring rains.

During the monitoring period an improvement was required in the Company's environmental and administrative performance

For reference, in the 2015-2016 year, 71% of consent holders in Taranaki monitored through tailored compliance monitoring programmes achieved a high level of environmental performance and compliance with their consents, while another 24% demonstrated a good level of environmental performance and compliance with their consents.

In terms of overall environmental and compliance performance by the consent holder over the last several years, this report shows that the Company's performance has deteriorated in the year under review.

This report includes recommendations for the 2016-2017 year.

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# 1. Introduction

## 1.1 Compliance monitoring programme reports and the Resource Management Act 1991

### 1.1.1 Introduction

This report is for the period July 2015 to June 2016 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by Waverley Sawmills Limited (the Company). The Company operates two landfill (monofill – wood waste) sites. One site is situated on Monk Road at Waverley, in the Whenuakura catchment (consents 6413-2, 6412-1 and 7342-2). The other site, now closed, is on Village Settlement Road in the Moumahaki catchment (consent 6528-2).

One of the intents of the *Resource Management Act 1991* (RMA) is that environmental management should be integrated across all media, so that the Company's use of water, air, and land should be considered from a single comprehensive environmental perspective. Accordingly, the Council generally implements integrated environmental monitoring programmes and reports the results of the programmes jointly. This report discusses the environmental effects of the Company's use of water, land and air, and is the tenth combined annual report by the Council for the Company.

### 1.1.2 Structure of this report

Section 1 of this report is a background section. It sets out general information about:

- consent compliance monitoring under the RMA and the Council's obligations;
- the Council's approach to monitoring sites though annual programmes;
- the resource consents held by the Company in the Whenuakura and Moumahaki catchments;
- the nature of the monitoring programme in place for the period under review, and
- a description of the activities and operations conducted at each of the two wood waste disposal sites.

Section 2 presents the results of monitoring during the period under review, including scientific and technical data.

Section 3 discusses the results, their interpretations, and their significance for the environment.

Section 4 presents recommendations to be implemented in the 2016-2017 monitoring year.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

### 1.1.3 The Resource Management Act 1991 and monitoring

The RMA primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

(a) the neighbourhood or the wider community around a discharger, and may include cultural and social-economic effects;
(b) physical effects on the locality, including landscape, amenity and visual effects;
(c) ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
(d) natural and physical resources having special significance (for example, recreational, cultural, or aesthetic); and
(e) risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' inasmuch as is appropriate for each discharge source. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with Section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans, and maintains an overview of the performance of resource users and consent holders. Compliance monitoring, including both activity and impact monitoring, enables the Council to continually re-evaluate its approach and that of consent holders to resource management and, ultimately, through the refinement of methods and considered responsible resource utilisation, to move closer to achieving sustainable development of the region's resources.

### 1.1.4 Evaluation of environmental and consent performance

Besides discussing the various details of the performance and extent of compliance by the Company, this report also assigns them a rating for their environmental and administrative performance during the year under review.

**Environmental performance** is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. **Administrative performance** is concerned with the Company's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretations, are as follows:

**Environmental performance**

- **High:** No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment .The Council did not record any verified unauthorised incidents involving significant environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

- **Good**: Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self reports, or in response to unauthorised incident reports, but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

  For example:

  - High suspended solid values recorded in discharge samples, however the discharge was to land or to receiving waters that were in high flow at the time;
  - Strong odour beyond boundary but no residential properties or other recipient nearby.

- **Improvement required:** Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self reports, or in response to unauthorised incident reports. Cumulative adverse effects of a persistent minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

- **Poor:** Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self reports, or in response to unauthorised incident reports. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

**Administrative performance**

- **High:** The administrative requirements of the resource consents were met, or any failures to do this had trivial consequences and were addressed promptly and co-operatively.

- **Good:** Perhaps some administrative requirements of the resource consents were not met at a particular time, however this was addressed without repeated interventions from the Council staff. Alternatively adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

- **Improvement required:** Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

- **Poor:** Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.

For reference, in the 2015-2016 year, 71% of consent holders in Taranaki monitored through tailored compliance monitoring programmes achieved a high level of environmental performance and compliance with their consents, while another 24% demonstrated a good level of environmental performance and compliance with their consents.

## 1.2 Process description

In 2002, the Company was in the process of carrying out due diligence with regard to potential purchase of the sawmill. During this process the new owners noted that the sites to which their mill wood waste was being discharged did not have resource consents to cover this activity. While the Company viewed the issue of consenting the disposal site strictly a matter for the disposal contractor, they considered it good environmental governance to make it their business, and become involved.

As a result, the Company applied for and were granted consent to install a culvert at the Monk Road site and a consent to discharge untreated wood waste to the site. They were later granted a consent to discharge treated wood waste to a site on Village Settlement Road.

As a result of on going leachate generation from historical filling at the Monk Road site, the Company applied for, and were granted, a consent to discharge stormwater and leachate to land and water in August 2008. This consent was renewed in 2010.

Wood waste is generated at the sawmill at various stages of the timber processing operation, from de-barking through to gauging. In the course of applying for resource consent to discharge treated wood waste, the Company identified ways to reduce the quantity of treated wood waste produced. One of these measures included machining timber products before they were treated with preservative whenever possible. Such alterations to the production process have significantly reduced the quantity of treated wood waste for disposal.

The site at Monk Road is a gully in the upper reaches of a catchment predominated by dairy farm land. Immediately above the discharge area is a small farm dam. The Company installed a culvert at the site that conducted the discharge from this dam around and downstream of the discharge area, effectively bypassing the discharge area. The aim of this work was to reduce the quantity of water entering the discharge area and coming into contact with the wood waste discharged therein.

After this development was completed, and prior to the purchase of the sawmill by the current owners, a spring was discovered under the filled area. It was found that the presence of the spring was promoting leachate generation. This leachate was found to be discharging into the unnamed tributary of the Kohi Stream. The presence of copper chromium and arsenic in the leachate indicated that treated wood waste had been disposed at the site in the past. A consent to permit this leachate discharge was obtained by the Company in August 2008 and the consent was renewed in October 2010.


**Figure 1** Waverley Sawmills discharge sites

The discharge site on Village Settlement Road was chosen because it is elevated and therefore dry. The site is small in size compared to the Monk Road site and while it is situated close to an unnamed tributary at the north west end of the site, the surface gradient and contours dictate that surface water from the site flows in a south easterly direction, some distance from any water body. The Company is now at the point that it produces no treated wood waste as all machining is done prior to treatment and the Company's Village Settlement Road site was closed in June 2014. Site remediation work was undertaken in the 2013-2014 year to ensure that the consent soil component concentrations for the cap and surface soils down gradient of the fill area were met. This was discussed in the 2013-2014 Annual Report.

**Photo 1** Waverley Sawmills discharge site at Village Settlement Road, Waverley – post closure

**Photo 2** Waverley Sawmills Limited discharge site at Monk Road, Waverley

## 1.3 Resource consents

The Company holds four resource consents the details of which are summarised in the table below and outlined in sections 1.3.1 to 1.3.3.

**Table 1** Resource consents held by Waverley Sawmills Limited

| Consent Number | Purpose | Granted | Review | Expires |
|---|---|---|---|---|
| 6412-1 | To install and maintain a culvert (Monk Road) | Mar 2005 | June 2016 | June 2022 |
| 6413-2 | To discharge untreated wood waste (Monk Road) | May 2012 | June 2016<br>June 2022 | June 2028 |
| 7342-2 | To discharge leachate (Monk Road) | Oct 2010 | June 2016 | June 2022 |
| 6528-2 | To discharge treated wood waste (Village settlement Road) | July 2012 | June 2018 | June 2022 |

### 1.3.1 Discharge to water

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations.

**Consent 7342-2**
The Company holds discharge permit **7342-2** to cover the discharge of leachate and stormwater from a sawmill waste disposal site to water and into land where it may enter in an unnamed tributary of the Kohi Stream. This permit was issued by the Council on 7 October 2010 under Section 87(e) of the RMA. It is due to expire on 1 September 2022.

The permit has six special conditions.

Condition 1 requires that the consent holder adopt the best practicable option to prevent or minimise effects.

Conditions 2 and 3 limit certain parameters in the unnamed tributary of the Kohi Stream and prohibit certain effects beyond reasonable mixing.

Conditions 4 and 5 require the consent holder to regularly take samples of the unnamed tributary of the Kohi Stream and undertake chemical analysis.

Condition 6 is a review condition.

### 1.3.2 Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA Act stipulates that no person may discharge any contaminant onto or into land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations.

**Consent 6413-2**

The Company held discharge permit **6413-2.0** to cover the discharge of wood waste from sawmilling operations onto and into land. This permit was issued by the Council on 31 May 2012 under Section 87(e) of the RMA. It is due to expire on 1 June 2022.

The original consent permitted only the disposal of untreated sawdust, shavings and bark. A varied consent was granted on 2 February 2016 amending special condition 2 to provide for the disposal of additional untreated wood wastes and furnace ash (**6413-2.1**).

Condition 1 relates to the provision of a management plan for the site.

Condition 2 specifies that only the following untreated materials be discharged to the site:

- Untreated wood shavings;
- Sawdust;
- Bark;
- Slovens and sawmill waste;
- Morbark chipper slovens, chunks and fines;
- Batten plant and processing shed off-cuts;
- Broken fillet sticks;
- Furnace ash; and
- Yard sweepings.

Condition 3 requires that the discharges only be made to a certain area.

Condition 4 requires that the consent holder be the sole source of materials discharged.

Condition 5 requires that discharged materials do not enter water.

Condition 6 requires the consent holder to adopt the best practicable option to prevent or minimise effects when exercising the consent.

Condition 7 specifies the requirements for capping and reinstatement.

Condition 8 relates to review of the consent.

The permit is attached to this report in Appendix I.

**Consent 6528-2**

The Company holds discharge permit **6528-2** to cover the discharge of wood waste from sawmilling operations onto and into land. This permit was issued by the Council on 31 July 2012 under Section 87(e) of the RMA. This consent expires on 1 June 2022.

Condition 1 requires the consent holder to adopt the best practicable option to prevent or minimise effects when exercising the consent.

Condition 2 relates to the provision of a management plan for the site.

Condition 3 specifies that only treated and untreated shavings sawdust and bark can be discharged to the site.

Condition 4 specifies the area in which the discharges may occur.

Condition 5 states that the consent holder shall be the sole supplier of waste to the site and special condition 6 deals with the control of stormwater on the site.

Conditions 7, 10 and 11 relate to capping requirements.

Conditions 8 and 9 set out maximum component concentration limits allowed in the soil at certain areas of the site.

Conditions 12 and 13 require the consent holder to notify Council of certain events.

Conditions 14 and 15 set out post closure monitoring requirements, and condition 16 is a review condition.

### 1.3.3 Land use permit

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations.

**Consent 6412-1**

The Company holds land use permit **6412-1** to culvert an unnamed tributary of the Kohi Stream for land improvement purposes associated with cleanfill activity. The Council issued this consent on 4 March 2005 as a resource consent under Section 87(e) of the RMA. It is due to expire on 1 June 2022.

Condition 1 requires the consent holder to adopt the best practicable option to prevent or minimise the discharge of silt or other contaminants into or onto the streambed and to avoid or minimise the disturbance of the streambed and any adverse effects on water quality.

Condition 2 states that the exercise of the consent should be undertaken in accordance with documents submitted with the application.

Condition 3 requires the consent holder to notify the Council 48 hours before and after works occur on site.

Condition 4 requires that the exercise of the consent shall not cause ponding on upstream properties.

Condition 5 relates to the lapse of the consent after 5 years if not exercised.

Condition 6 deals with review of the consent.

A copy of the consent is included in Appendix I of this report.

## 1.4 Monitoring programme

### 1.4.1 Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations, and seek information from consent holders.

The monitoring programme for the Company's wood waste disposal sites consisted of three primary components.

### 1.4.2 Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;
- in discussion over monitoring requirements;
- preparation for any reviews;
- renewals;
- new consents;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

### 1.4.3 Site inspections

Three routine compliance monitoring inspection were carried out at the Monk Road site and the Village Settlement Road site during the monitoring period. With regard to consent for the disposal of wood waste onto and into land at both sites, the main points of interest were site processes with potential or actual discharges to receiving watercourses, including contaminated stormwater. Air inspections focused on plant processes with associated actual and potential emission sources and characteristics, including potential odour, dust, noxious or offensive emissions. Sources of data being collected by the Company were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council.

Three additional site visits were made to the Monk Road site in follow-up to the wood waste sampling undertaken on 16 September 2015, which showed that there was sawdust and/or shavings from treated timber present on site. The results of the initial sampling on 16 September 2015 are given in Section 2.2.1.2 (Table 5), and the investigation and its outcomes are discussed in Section 2.3.

### 1.4.4 Chemical sampling

The Council undertook sampling at both discharge sites. These included leachate samples, surface water samples, wood waste samples and soil samples.

# 2. Results

## 2.1.1 Inspections

### 2.1.1.1 Monk Road Site

**16 September 2015**

The site was inspected in fine, overcast weather conditions. Water and wood waste samples were also collected. For the most part, the discharged wood waste appeared to be relatively clean and free of any unacceptable material, the exception being some discrete areas where several piles of untreated wooden off cuts had recently been dumped. These piles also contained a small amount of plastic sheeting and other materials (photos were taken that included Photo 3 and Photo 4).

**Photo 3** Unauthorised material found at the Monk Road site, 16 September 2015

**Photo 4** Unauthorised material found at the Monk Road site, 16 September 2015

The Company was reminded that special condition 2 of the consent specifies that only untreated wood shavings, sawdust, and bark are authorised for disposal at this site, and was instructed to remove the unauthorised material.

In relation to the timber off-cuts, the Company was advised that if it wished to dispose of any wood wastes other than untreated wood shavings, sawdust and bark, then a consent variation (to condition 2) would need to be obtained to permit this. An application to vary condition 2 of the consent was received by Council on 1 December 2015 and the varied consent was granted on 2 February 2016.

Slumping was still evident along the northern face of disposal area, but it appeared to be stable at the time of inspection. As previously discussed, the Company was advised to continue to monitor the slumping, and address if necessary, to avoid any discharged material entering surface water (which is prohibited by special condition 5).

Subsequent to this inspection, the wood waste samples collected at this inspection showed that treated wood waste was present at the site. This is discussed further in Sections 2.2.1.2 and 2.3.

**17 December 2015**

This compliance monitoring inspection was carried out during fine weather conditions site, with a Company Director in attendance. The inspection included a visit to the sawmill site to aid in the understanding of wastes generated at the site, and the management systems in place to ensure that only permitted wastes are disposed of at the Monk Road site.

It was noted that, at the Company's request, future compliance monitoring inspections would be carried out with a Company representative.

A composite sawdust sample was collected at the Monk Road site as a follow-up to recent mitigation and the removal of contaminated sawdust from the site. The results (presented in Section 2.3) showed that the composite sample contained no treated material. Water sampling was also undertaken.

It was found that the drain pipe for the contaminated spring water discharge had been extended and it was noted that the downstream drain had recently been cleaned out.

The inspection at the sawmill site found that silt control sumps and stormwater collection drains had recently been cleaned out. It was noted that heavy rainfall in the past had caused excess stormwater runoff from the site to discharge to the neighbouring railways site. The inspecting officer was informed that a ponding issue in the laydown area, where the logs are unloaded, has also been a problem. A stormwater collection manhole was to be lowered and the area was to be re-contoured to rectify both of these issues.

**6 April 2016**

The inspection was carried out in fine weather conditions. Receiving water samples were collected from upstream and downstream of the site, with a sample also collected from the drain below the culverted spring (IND0001055).

It was found that a lot of sawdust had been disposed of on the downstream end of the site since the last inspection. All the material appeared to be untreated and was predominantly sawdust. No unauthorised material was present at the time of

inspection. The recently deposited material extended for approximately 40 m, with only approximately 50-60 m left between the filled area and the road boundary.

**Photo 5** Recently discharged material at the Monk Road site, 6 April 2016

#### 2.1.1.2 Village Settlement Road

**16 September 2016**

The site was inspected in fine, overcast weather conditions. No soil sampling was conducted on this occasion. It was found that reasonable pasture growth was now present and that the area appeared to stable. There was a small boggy area at the toe of the fill where grass growth was establishing more slowly.

**17 December 2015**

The cap was not walked on this occasion. It was observed that the boggy area noted at the previous inspection had drained, and no issues were found at the site.

**6 April 2016**

The inspection was carried out in fine weather conditions. Composited soil samples were collected from the cap and up gradient and down gradient of the site boundary. Although relatively dry, the pasture covering the covered sawdust area appeared healthy. It was noted that there was no slumping present at the site.

## 2.2 Soil and water monitoring

### 2.2.1 Monk Rd

#### 2.2.1.1 Surface water sampling

Water sampling was undertaken on three occasions at three monitoring sites (KHI000100, KHI000130 and IND001055), with a total of nine samples collected during the period under review. The sites used for sampling are shown in Figure 2. Sites KOI000100 and KOI000130 are in the unnamed tributary of the Kohi Stream upstream of the site and at the downstream of the consented mixing zone. IND001055 is in the

open drain below the fill site, which is fed by a spring that originates (and is culverted) under the fill.

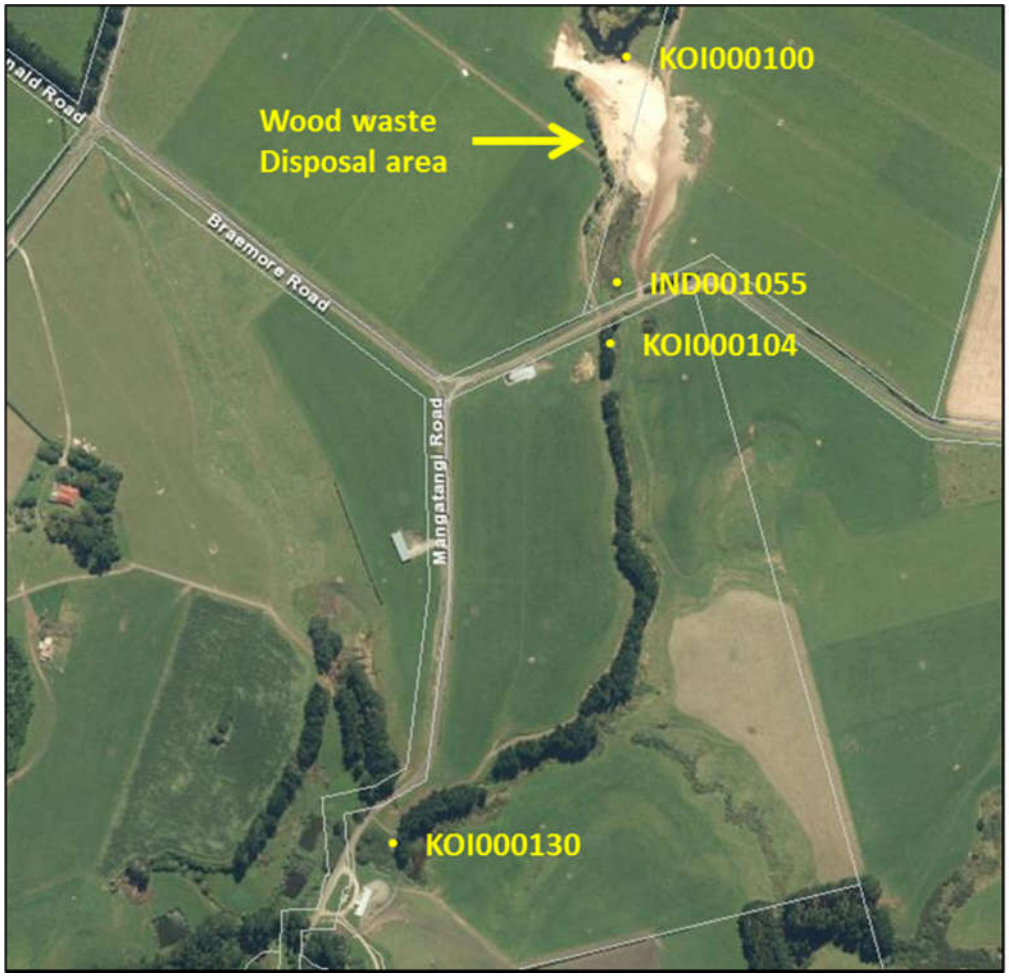


**Figure 2** Monk Road sampling sites, Waverley

The results of the sample analyses are given in the following tables. It is noted that the tributary above the site (at KHI000100) was flowing over the weir on 16 September 2015, but was not flowing over the weir on 17 December 2015 or 6 April 2016. It was also noted that the contaminated spring water was discharging from the pipe under the fill that feeds into IND001055 at an estimated flow rate of 0.1 L/s on 6 April 2016. However, the discharge drain below this (at IND001055) was full and stagnant, with no discharge occurring downstream beyond the road culvert.

**Table 2** Water quality analysis of samples taken from monitoring sites at Waverley Sawmills Limited's wood waste discharge site at Monk Road 16 September 2015

| Parameter | Unit | KOI000100 | IND001055 | KOI000130 | Consent limit at KOI000130 |
|---|---|---|---|---|---|
| Dissolved arsenic | g/m$^3$ | 0.001 | 2.88 | 0.077 | **0.1** |
| BODCF | g/m$^3$ | 0.5 | >800 | **3.2** | **3.0** |
| Conductivity | mS/m | 18.7 | 152 | 26 | **-** |
| Dissolved chromium | g/m$^3$ | <0.03 | 2.19 | 0.04 | **0.1** |
| Dissolved copper | g/m$^3$ | <0.001 | 1.44 | 0.001 | **0.01** |
| pH | pH | 7.0 | 4.1 | 6.6 | - |
| Temperature | Deg C | 12.4 | 27.0 | 12.8 | - |

BODCF= filtered carbonaceous biochemical oxygen demand

**Table 3** Water quality analysis of samples taken from monitoring sites at Waverley Sawmills Limited's wood waste discharge site at Monk Road 8 December 2015

| Parameter | Unit | KOI000100[a] | IND001055 | KOI000130 | Consent limit at KOI000130 |
|---|---|---|---|---|---|
| Dissolved arsenic | g/m$^3$ | 0.003 | 1.81 | 0.047 | **0.1** |
| BODCF | g/m$^3$ | 0.6 | 1400 | 0.9 | **3.0** |
| Conductivity | mS/m | 17.6 | 98.4 | 23.3 | **-** |
| Dissolved chromium | g/m$^3$ | <0.03 | 0.84 | <0.03 | **0.1** |
| Dissolved copper | g/m$^3$ | <0.001 | 0.27 | 0.003 | **0.01** |
| pH | pH | 7.1 | 4.8 | 7.1 | - |
| Temperature | Deg C | 18.3 | 22.6 | 16.2 | - |

a not flow to culvert inlet sampled from pond

**Table 4** Water quality analysis of samples taken from monitoring sites at Waverley Sawmills Limited's wood waste discharge site at Monk Road 6 April 2016

| Parameter | Unit | KOI000100[a] | IND001055 | KOI000130 | Consent limit at KOI000130 |
|---|---|---|---|---|---|
| Dissolved arsenic | g/m$^3$ | 0.003 | 4.31 | 0.065 | **0.1** |
| BODCF | g/m$^3$ | <0.5 | >2400 | 0.6 | **3.0** |
| Conductivity | mS/m | 20 | 196 | 23.4 | **-** |
| Dissolved chromium | g/m$^3$ | <0.03 | 3.98 | <0.03 | **0.1** |
| Dissolved copper | g/m$^3$ | <0.001 | 0.63 | <0.001 | **0.01** |
| pH | pH | 6.8 | 3.8 | 7.2 | - |
| Temperature | Deg C | 16.7 | 24.7 | 15.6 | - |

a not flow to culvert inlet sampled from pond

During the period under review it was found that the spring water at the source (site IND001055) had higher than usual levels of dissolved arsenic, chromium and copper, and BODCF when compared to the previous six years as shown in Figure 3, Figure 4, Figure 5, and Figure 6.

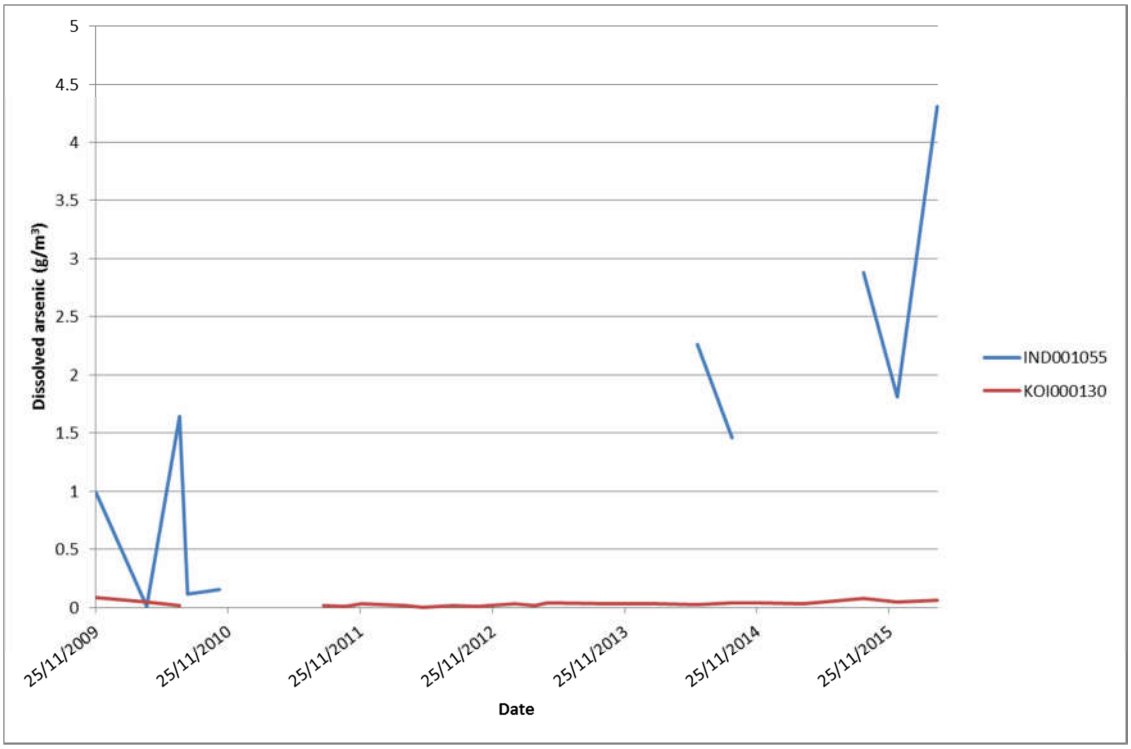


**Figure 3** Graph showing recent increase in dissolved arsenic at site IND001055

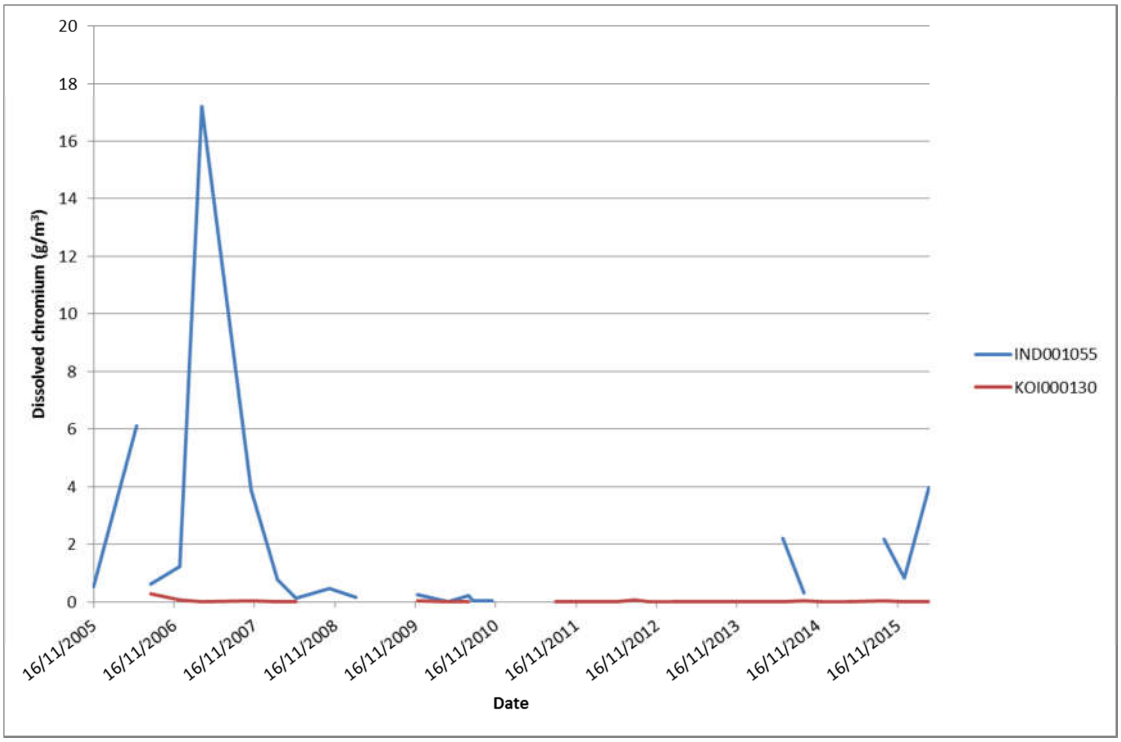


**Figure 4** Graph showing recent increase in dissolved chromium at site IND001055

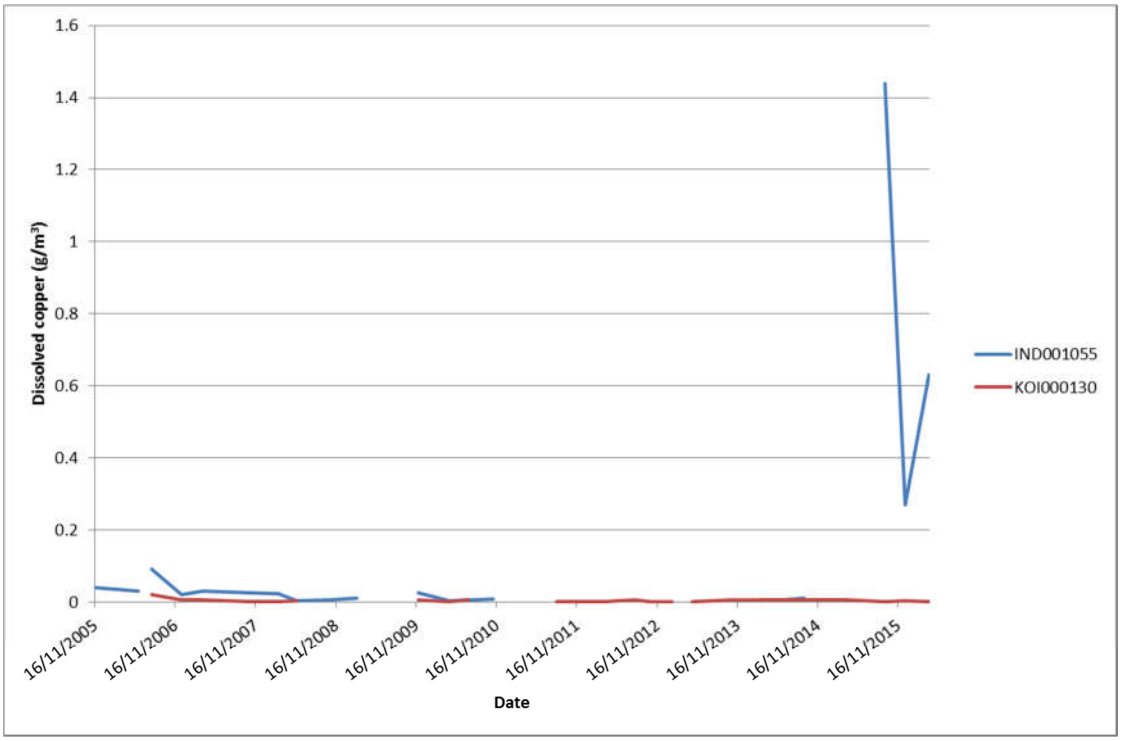


**Figure 5** Graph showing recent increase in dissolved copper at site IND001055

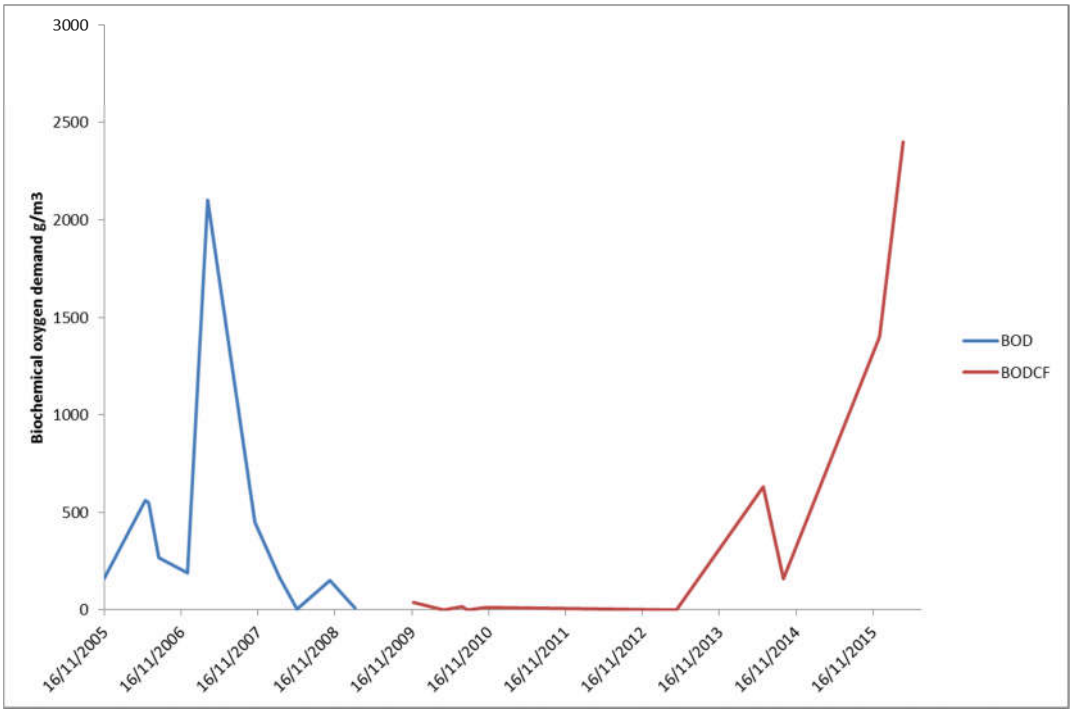


**Figure 6** Graph showing recent increase in BOD at site IND001055

Since the massive spike in contaminant loads in 2007 was noted, the levels of contaminants in this spring water were appearing to reduce and remain relatively consistent. However, this trend appeared to potentially be coming to an end in the 2013-2014 year, and in the case of arsenic, chromium and BODCF, a review of the time series data shows that these were increasing during the period under review. This indicates that the nature of the discharge is changing and should continue to be monitored.

It is also noted that the pH of the discharge from the wood waste disposal area has decreased (i.e. has become more acidic) (Figure 7), with the spring water becoming more acidic. The combination of the elevated temperature of the spring water at IND001055 (Figure 8) and its more acidic pH is likely to be the cause of the mobilisation of metals from treated timber wood waste that was thought to have been disposed of at the site under previous management. This was prior to consent being sought by the current consent holder.

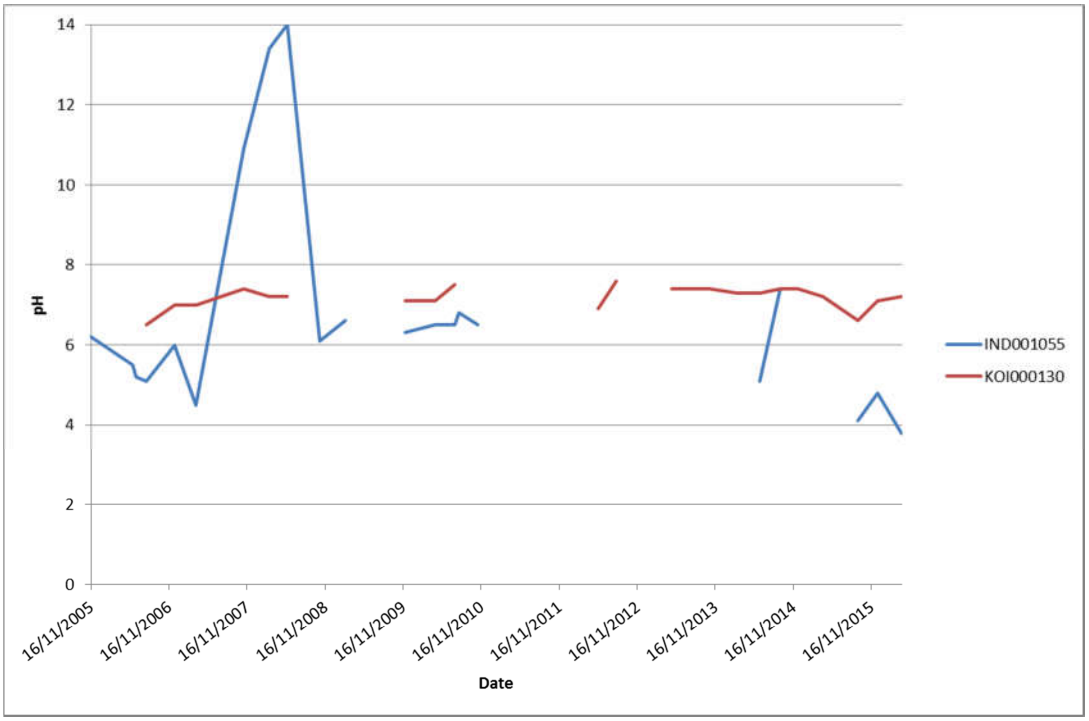


**Figure 7** Graph showing recent change in pH at site IND001055

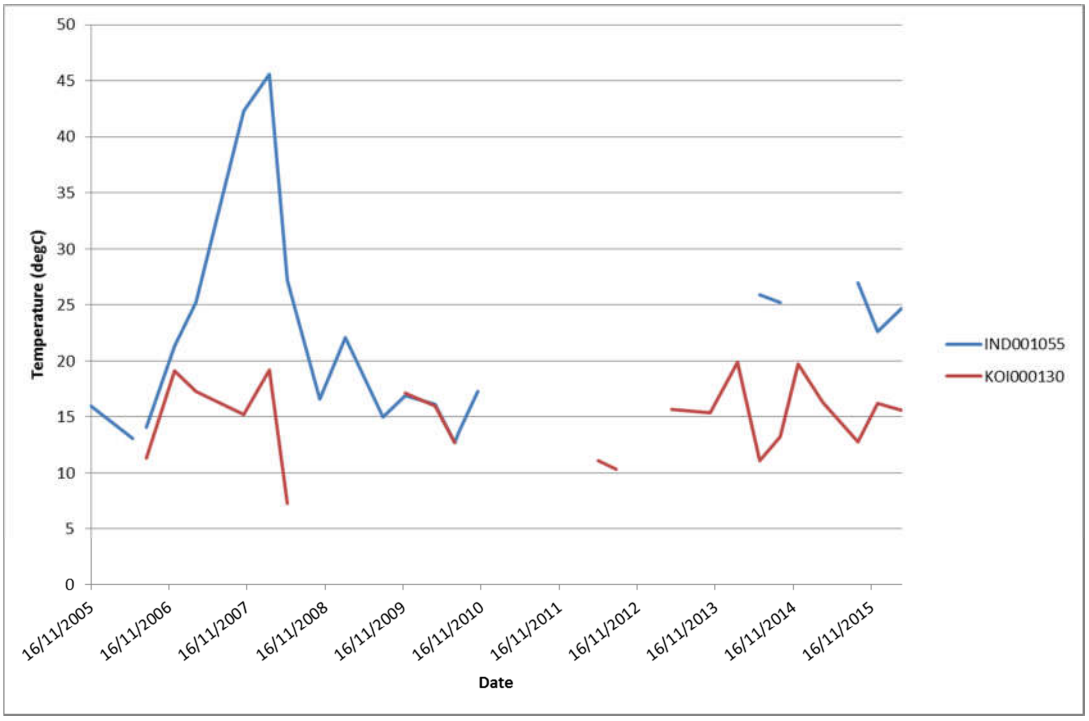


**Figure 8** Graph showing temperature at site IND001055

Notwithstanding the increases in contaminant loads within the discharge, after mixing with the unnamed tributary downstream of the sampling site and passage through the wetland, the discharge at the compliance point (site KOI000130), was generally within the specified limits given in the consent conditions. The only exception to this was a marginal exceedance of BODCF in the sample collected on 16 September 2015. This was also the only monitoring occasion during the period under review during which the spring water was reaching the unnamed tributary of the Kohi Stream.

It was recommended that the Company monitor this itself, and starts thinking about how the increasing BOD in the drain can be managed and/or remediated to prevent a breach occurring at the compliance point in the receiving water. The Company was also advised that the concentration of arsenic in the Kohi Stream, whilst compliant with consent conditions, showed an increase above the typical concentration on 16 September 2016.

#### 2.2.1.2 Sampling of discharged material

Wood waste sampling was undertaken at Monk Road on 16 September 2014. Sub-samples were taken from random places and at random depths in the piles of wood waste located above the fill area. These were then composited and analysed for copper, chromium, arsenic and boron (CCAB). The results are given in Table 5.

**Table 5** Results of CCAB analysis of wood waste sample, 16 September 2015

| Parameter | Unit | Result |
|---|---|---|
| Total recoverable arsenic | mg/kg dry weight | 43 |
| Total recoverable Boron | | <100 |
| Total recoverable chromium | | 56 |
| Total recoverable copper | | 420 |

The results indicated that there was no CCAB treated wood waste in the fill area. However, the results did show the presence of copper. This was logged on Council's incident register. The material was identified as copper azole based (Tanalith E) treated material, which was then removed from the site. The details of the investigation and remedial actions are discussed Section 2.3.

### 2.2.2 Village Settlement Road Site

Soil samples were taken from the capped areas, on virgin ground down-gradient of the landfill footprint and from the neighbouring property. The sampling sites are shown in Figure 9 and the results of the soil analysis are given in the following tables.

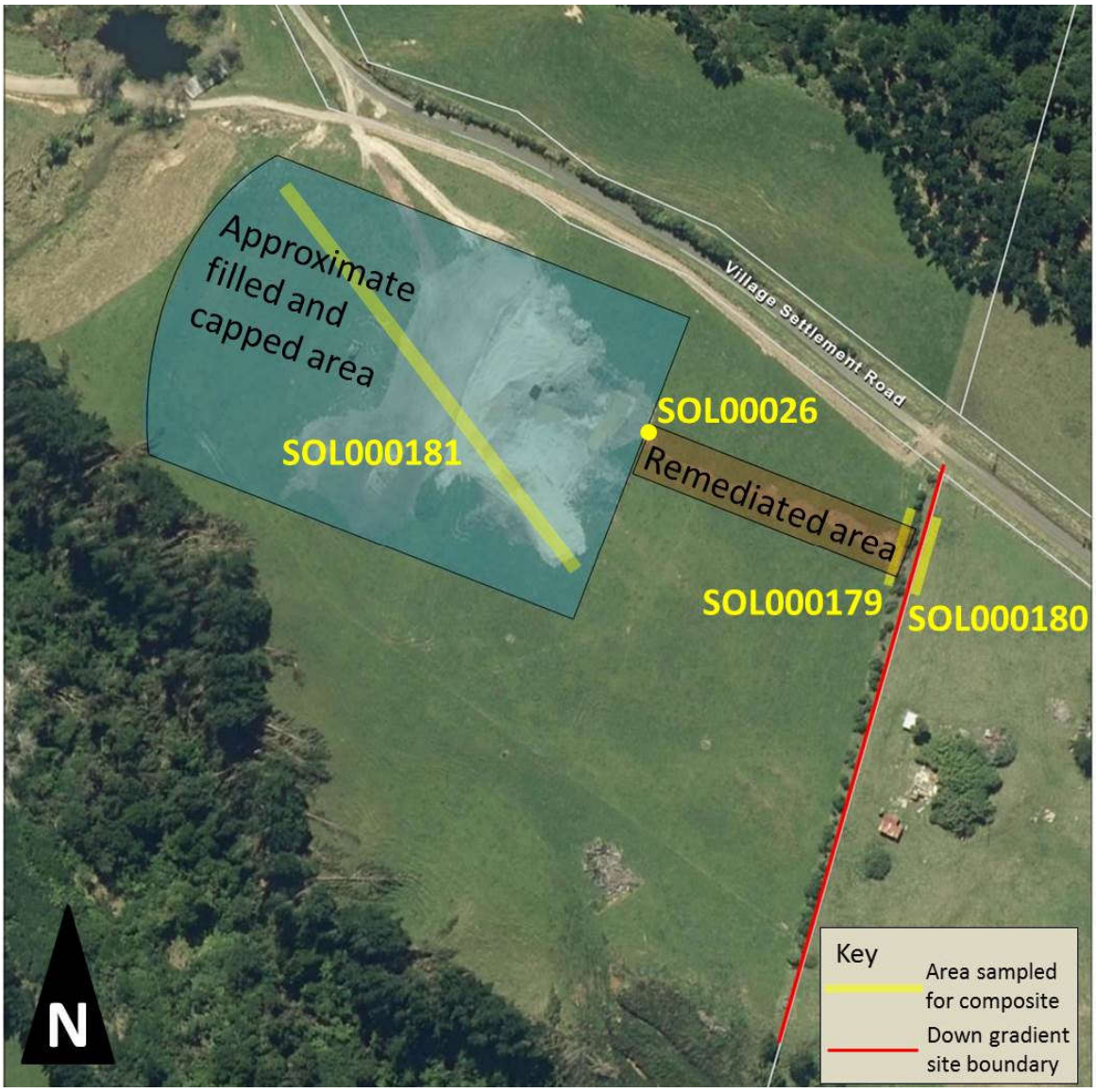


**Figure 9** Aerial view of the discharge site and sampling sites at Waverley Sawmills Limited's Village Settlement Road site

### 2.2.2.1 Capped area –site SOL000181

Twenty cores were taken along a north west diagonal transect passing through the centre of the capped area. These cores were made into a composite sample and analysed for CCAB. The results are given in Table 7. These results show that the capped areas were compliant with consent conditions in regards to the CCAB concentrations.

**Table 6** Results of soil sampling at site SOL000181, Village Settlement Road cap -6 April 2016

| Parameter | Unit | SOL000181 | 6528-2 Consent limit |
|---|---|---|---|
| Arsenic | mg/kg dry weight | 4 | ***30*** |
| Boron | | <20 | ***380*** |
| Chromium | | 18 | ***76*** |
| Copper | | 20 | ***40*** |

#### 2.2.2.2 Outside landfill footprint – site SOL000179

On 8 December 2014, 10 cores were taken across a 15 m transect running parallel to and about 3 m inside the eastern boundary fence. These cores were made into a composite sample and analysed for CCAB, as consent 6528-2 contains limits for these components and require the area to be remediated should CCAB levels exceed those limits once filling operations have been completed.

Sample results (given in the table below) show the component concentrations in the soil inside the down gradient boundary complied with the post closure limits contained in consent 6528-2

**Table 7** Results of soil sampling at site SOL000179, Village Settlement Road inside site boundary 6 April 2016

| Parameter | Units | SOL000179 3 m above south boundary | |
|---|---|---|---|
| | | Result | 6528-2 Consent limit (post closure) |
| Arsenic | mg/kg dry weight | 16 | ***38*** |
| Boron | | < 20 | ***160*** |
| Chromium | | 30 | ***76*** |
| Copper | | 48 | ***130*** |

#### 2.2.2.3 Neighbouring property-site SOL000180

Five cores were taken across a 15 m transect running parallel to the southern boundary fence. These cores were made into a composite sample and analysed for CCAB contaminants. The results, given in the table below, showed that this area was compliant with consent conditions in regards to CCAB post closure limits set out by the consent, with the exception of a marginal exceedance in copper.

The Company was advised that re-sampling would be undertaken early in the 2016-2017 year, after the spring rains.

**Table 8** Results of soil sampling at site SOL000180 Village Settlement Road beyond site boundary 6 April 2016

| Parameter | Units | SOL000180 3 m below south boundary | |
|---|---|---|---|
| | | Results | 6528-2 Consent limit (post closure) |
| Arsenic | mg/kg dry weight | 6 | ***30*** |
| Boron | | < 20 | ***20*** |
| Chromium | | 14 | ***76*** |
| Copper | | **43** | ***42*** |

## 2.3 Investigations, interventions, and incidents

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with the consent holder. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of potential or actual

courses of non-compliance or failure to maintain good practices. A pro-active approach that in the first instance avoids issues occurring is favoured.

The Council operates and maintains a register of all complaints or reported and discovered excursions from acceptable limits and practices, including non-compliance with consents, which may damage the environment. The Incident Register (IR) includes events where the Company concerned has itself notified the Council. The register contains details of any investigation and corrective action taken.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified company is indeed the source of the incident (or that the allegation cannot be proven).

In the 2015-2016 period, the Council was required to undertake significant additional investigations and interventions, or record incidents, in association with the Company's conditions in resource consents or provisions in Regional Plans.

A composite wood waste sample collected from the Monk Road site on 16 September 2016 returned results (Table 5) indicating that treated timber containing copper may have been discharged at the site.

**28 September 2015**
A follow-up site inspection was carried out at the Monk Road sawdust disposal site during fine weather conditions, with Company representatives in attendance.

The Company was informed that a composited sawdust sample that was collected from the Monk Road site on the 16 September 2015 contained elevated levels of total recoverable copper (420 mg/kg dry weight), hence further investigation was required as special condition 2 of the consent states that the consent authorises only untreated wood shavings, sawdust & bark. The Company representative indicated that he thought that some of the lighter coloured wooden shavings may have been from treated timber processing.

5 separate bag samples were collected from various piles of shavings/sawdust, each sampling location being photographed the GPS coordinates recorded.

Two separate solid wood samples were also taken to determine whether they had been treated. The locations from which these samples were collected were also photographed and the GPS coordinates were recorded.

The Company was instructed that the following action was to be undertaken:
Ensure that only untreated wood shavings, sawdust & bark are disposed of at the site as per special condition 2 of consent 6413-2 (referred to 6413-2.0).

The results of the samples collected were received on 12 October 2015 are given in Table 9.

**Table 9** Results for wood waste samples collected on 28 September 2015

| Sample | GPS | Arsenic mg/kg | Boron mg/kg | Chromium mg/kg | Copper mg/kg |
|---|---|---|---|---|---|
| Bag A | E1741552 N5601149 | <10 | <100 | <10 | <10 |
| Bag B | E1741574 N56011146 | <4 | <40 | <4 | <4 |
| Bag C | E1741555 N5601146 | 20 | <40 | 26 | 1930 |
| Offcut 1 | E1741549 N5601145 | 5600 | <40 | 6500 | 3500 |
| Bag E | E1241561 N5601128 | <4 | <40 | <4 | <4 |
| Offcut 2 | E1741529 N5601142 | 105 | <40 | 123 | 1900 |
| Bag D | E1741550 N5601140 | 13 | <40 | 12 | 9 |

The results confirmed that treated wood wastes were present on site, and an abatement notice was issued requiring that all unauthorised materials are removed and to ensure that no further discharges of unauthorised materials occur.

**27 October 2015**
An on site meeting was held at the Monk Road disposal site to discuss the matter of the unauthorised materials found to be present at the site on 28 September 2015, abatement notice EAC-20942 and the request for an explanation (Council letter dated 19 October 2015).

At the inspection it was found that the material that had been present in piles at the site on 28 September 2015 had been levelled out and/or covered, and both disposal levels at the site were very flat when compared to the photos taken at that previous inspection. There were still treated off cuts present at the site. The abatement notice was not yet being complied with at the time of inspection, however, the date on the abatement notice for the removal of the unauthorised material had not been reached (20 November 2015).

The Company agreed that they would locate and remove the treated shavings, the treated wood offcuts, and as much of the untreated off-cuts as they could. The measures that had, and were, being put in place at the sawmill site were outlined, and it was explained that the Company's investigations had identified that it was likely that the disposal of treated wood waste at this site was a one off occurrence of a few truckloads of copper azole based (Tanalith E) treated that had occurred approximately 6 weeks prior to this inspection. The details of their investigations, remediation and changes in practices occurring at the site to prevent a reoccurrence, would all be discussed in the letter of explanation to be provided to Council.

The likely sources of the treated and untreated off cuts at the sawmill site were sighted, as was the recently installed sawdust fired kiln heating system. The possibility of the Company applying for a variation to the consent to allow for the disposal of untreated off cuts was discussed.

It was also outlined that the Tanalith E treated sawdust was being burnt in the new boiler from time to time as permitted by the consent, and that the ash was being disposed of to land in various locations.

The following action was to be taken:

- Remove unauthorised material as per abatement notice EAC-20942
- Ensure that any ash from treated wood waste is disposed of appropriately and in accordance with the Regional Freshwater Plan for Taranaki.

The matter of the disposal of unauthorised untreated wood waste in the form of timber off cuts was subsequently resolved by a variation to condition 2 that allowed for a wider variety of (untreated) wood wastes to be discharged at the site. The application to vary the consent was lodged with Council on 1 December 2015 and the variation was granted on 2 February 2016. The varied consent provides for the disposal of the (untreated) wood wastes described in Section 1.3.2, and includes batten plant and processing shed off cuts.

**15 December 2015**

A re-inspection of the Waverley Sawmill waste disposal site on Monk Road was carried out to check for compliance with abatement notice number EAC -20942. It was explained that the tannalised wood was located initially using the GPS coordinates that the Council Officer had recorded when sampling. To identify the contaminated wood from uncontaminated, staff sprayed ammonia and then ribonic acid onto the sawdust. These two products reacted with the copper causing the copper to turn black. The inspecting officer was informed that a comprehensive assessment of the site was carried out to identify the location of the contaminated sawdust, and 15 truckloads of material were removed from the site. There was a visible difference on site, with the amount of timber offcuts and other waste materials (plastic) significantly reduced. The Company was informed that further samples may be taken to confirm no further contaminated sawdust remains on site, but that based on the photographs provided to Council of the removal works, an explanation of the removal process and from carrying out an inspection it appeared that the abatement notice EAC -20942 was being complied with at the time of inspection.

**17 December 2015**

A composite sample was taken from the wood waste present at the Monk Road site with a Company representative in attendance. It was reported that several loads of copper contaminated sawdust were returned to the sawmill to be mixed with uncontaminated sawdust and used as fuel in the kiln drier burner. The burner was operating at the time of inspection. No visible emissions or odours were noted.

The results of the sample are given in Table 10.

**Table 10** Results for a composite wood waste sample collected on 17 December 2015

| Arsenic mg/kg | Boron mg/kg | Chromium mg/kg | Copper mg/kg |
|---|---|---|---|
| 6 | <40 | 9 | 25 |

The results showed that there was no treated wood waste in the composite sample collected.

## 2.4 Discussion of site performance

### 2.4.1 Monk Road site

There was no evidence of illegal dumping found.

In regards to the discharge of wood waste the site, unauthorised material, namely treated timber off cuts, treated timber shavings and/or sawdust, and plastics were found at the site. An abatement notice was issued requiring that the material be removed and that the Company ensures that no further discharges of unauthorised material occur at the site.

The Company identified the areas affected by the disposal of treated wood waste, and removed this from the site as required by the abatement notice. Additional facilities were constructed at the sawmill site, and procedures were introduced to ensure that the treated and untreated wood wastes could be better segregated at the site. The consent was also varied to allow for the disposal of additional untreated wood wastes, including timber off cuts.

There were no odour or dust issues noted during any of the inspections and no complaints were received about the site. The pipe installed under the fill remained functional and was of sufficient length in the spring channel to ensure separation of the spring water from the wood waste as required by consent conditions.

The variation to consent required that a new management plan be provided to Council by 2 May 2016. The consent holder requested an extension to this date. A plan was submitted by the agreed date (3 June 2016), and the Council is in the process of reviewing this for consistency with the special conditions of the consent.

### 2.4.2 Village Road site

The cap was found to be in a satisfactory condition, with vegetative cover becoming well established during the period under review. There was no evidence of cracking, slumping, ponding or over grazing found during the 2015-2016 year. Sampling found that soil component concentrations complied with the consent limits, with the exception of a marginal exceedance of the copper concentration in the composite sample beyond the site boundary (43 mg/kg dry weight versus a limit of 42 mg/kg dry weight).

## 2.5 Environmental effects of exercise of consents

### 2.5.1 Monk Road site

The discharge of leachate from the site was still having an effect on the environment immediately downstream of the discharge, and it was noted that contaminant levels in the discharge were continuing to increase during the 2015-2016 year. The exact cause of the elevation is not known, however the receiving water quality conditions were met at the compliance point with the exception of a minor exceedance in BODCF on one occasion.

It is noted that the BODCF present in the spring water has increased significantly. However, during the year under review there were no significant effects observed. This

is due to the conditions prevailing at the time of sampling, as there was either sufficient dilution (16 September 2015) or the spring water was not reaching the tributary of the Kohi Stream (17 December 2015 and 6 April 2016).

No significant adverse effects were noted from the consented discharge of untreated wood waste at the site. However, due to the change in nature of the spring water, the Council has recommended that the Company undertake its own monitoring and gives consideration to contingency measures to prevent a breach of the receiving water conditions of the consent.

### 2.5.2 Village Settlement Road site

Sampling by the Council showed that the remediation works undertaken in the 2013-2014 year have continued to have been successful and the site remained compliant with consent conditions for the cap, buffer strip and beyond the site boundary during the 2015-2016 year, with the exception of a marginal exceedance in the copper concentration.

It is noted that the site must remain compliant with the post closure component concentrations for at least five years prior to consideration being given to allowing the consent being surrendered.

It should also be noted that the consent conditions were designed to reduce risk to the neighbour's property rather than being designed to have the site remediated to any particular land use guideline. Therefore the approach being taken to the marginal consent exceedance is to recommend that resampling be undertaken in the 2016-2017 year after the spring rain. At this time groundwater levels will be higher and consequently the risk of contaminants leaching from the waste would also be higher.

## 2.6 Evaluation of performance

A tabular summary of the Company's compliance record for the period under review is set out in Tables 11-15.

**Table 11** Summary of performance for Monk Road culvert consent 6412-1

| **Purpose:** ***To erect, place and maintain a culvert in an unnamed tributary of the Kohi Stream in the Whenuakura catchment*** | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 1. The consent holder shall adopt the best practicable option when exercising the consent | Inspection and liaison with consent holder | Yes |
| 2. The consent shall be exercised generally in accordance with the information provided in the application | Inspection and liaison with consent holder and review of Council records | Yes |
| 3. The consent holder shall inform the Council of the culvert installation and completion of works within 48 hrs | Inspection and liaison with consent holder and review of Council records | Yes |

| Purpose: *To erect, place and maintain a culvert in an unnamed tributary of the Kohi Stream in the Whenuakura catchment* | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 4. The exercise of the consent shall not cause flooding of upstream property | Site inspection and review of incident register. No complaints received | Yes |
| 5. The consent shall lapse after 5 years if not exercised | Consent has been exercised | N/A |
| 6. Optional review provision | Opportunity for review June 2016 | N/A |
| Overall assessment of administrative performance in respect of this consent | | **High** |
| Overall assessment of environmental performance in respect of this consent | | **High** |

N/A = not applicable

**Table 12** Summary of performance for Monk Road untreated wood waste discharge consent 6413-2.0 (to 1 February 2016)

| Purpose: *To discharge untreated wood waste from sawmill operations onto and into land* | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 1. The consent holder shall supply a management plan for the activity | Review of Council records | Yes |
| 2. Only untreated shaving, sawdust and bark shall be discharged to the site | Inspection and liaison with consent older, gas sampling | **No - unauthorised materials found at inspection** |
| 3. Materials to discharge in certain area | Site specific monitoring programme – site inspections | Yes |
| 4. The consent holder shall be the sole source of material discharged | Inspection and liaison with consent holder | Yes |
| 5. Discharged material not to enter water | Inspection and liaison with consent holder | Yes |
| 6. The consent holder shall adopt the best practicable option when exercising the consent | Inspection and liaison with consent holder | **No – unauthorised materials were discharge at the site** |
| 7. Specifications for capping and reinstatement | Inspection | Yes |
| 8. Optional review provision | Opportunity for review June 2016 | N/A |
| Overall assessment of administrative performance in respect of this consent | | **Improvement required** |
| Overall assessment of environmental performance in respect of this consent | | **Improvement required** |

N/A = not applicable

**Table 13** Summary of performance for Monk Road untreated wood waste discharge consent 6413-2.1 (from 2 February 2016)

| **Purpose:** ***To discharge untreated wood waste from sawmill operations onto and into land*** | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 1. The consent holder shall supply a management plan for the activity by 2 May 2016 | Review of Council records | Plan received and currently being reviewed by Council staff |
| 2. Specifies the type of untreated wood waste permitted to be discharged at the site | Site specific monitoring programme – site inspections | Yes |
| 3. Materials to discharge in certain area | Inspection and liaison with consent holder | Yes |
| 4. The consent holder shall be the sole source of material discharged | Inspection and liaison with consent holder | Yes |
| 5. Discharged material not to enter water | Inspection and liaison with consent holder | Yes |
| 6. The consent holder shall adopt the best practicable option when exercising the consent | Inspection and liaison with consent holder | Yes |
| 7. Specifications for capping and reinstatement | Inspection | Yes |
| 8. Optional review provision | Opportunity for review June 2016 | N/A |
| Overall assessment of administrative performance in respect of this consent | | **High** |
| Overall assessment of environmental performance in respect of this consent | | **High** |

**Table 14** Summary of performance for treated wood waste discharge consent 6528-2

| **Purpose:** ***To discharge treated and untreated wood waste and associated leachate onto and into land*** | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 1. Adopt best practical option | Inspection and liaison with consent holder | Yes |
| 2. The consent holder shall supply a management plan for the activity | Review of Council records | Yes |
| 3. Only wood waste shall be discharged to the site | Inspection and liaison with consent older | No discharges at the site |
| 4. No wood treatment chemicals or sludges shall be discharged to the site | Inspection and liaison with consent older | No discharges at the site |
| 5. The consent holder shall be the sole discharger to the site | Inspection and liaison with consent older | No discharges at the site |
| 6. The consent holder shall minimise storm water movement across the site | Inspection and liaison with consent older | Yes |

| **Purpose:** ***To discharge treated and untreated wood waste and associated leachate onto and into land*** | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 7. Fill capped top certain specifications | Inspection and soil sampling | Yes |
| 8. Capped areas not to exceed certain contaminant limits | Inspection and soil sampling | Yes |
| 9. Non capped areas not to exceed certain contaminant limits prior to closure | Inspection and soil sampling | **No - marginal exceedance of copper concentration beyond site boundary** |
| 10. Final toe of cap to meet certain specifications | inspection | Yes |
| 11. Maintenance of capped areas | Inspection | Yes |
| 12. The consent holder shall notify Council 20 days prior to final capping | Review of Council records | Yes |
| 13. The consent holder shall notify Council 7 days after final capping is complete | Inspection and liaison with consent holder. Condition previously met | N/A |
| 14. The consent holder to retain consent for monitoring purposes for a minimum of five years after closure | Inspection and liaison with consent holder | Yes |
| 15. Entire filled are must be capped and reinstated by June 2017 | Inspection. Condition previously met | N/A |
| 16. Optional review provision | Opportunity for review June 2016 | N/A |
| Overall assessment of administrative performance in respect of this consent | | **High** |
| Overall assessment of environmental performance in respect of this consent | | **Good** |

N/A = not applicable

**Table 15** Summary of performance for Monk Road leachate and stormwater consent 7342-2

| **Purpose:** ***To discharge leachate and stormwater from a sawmill-waste disposal site into an unnamed tributary of the Kohi Stream*** | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 1. The consent holder shall adopt the best practicable option when exercising the consent | Inspection and liaison with consent holder | Yes |
| 2. Certain effects not to be present 50 m downstream of the discharge | Visual assessment and receiving water sampling | Yes |
| 3. Certain parameters no tot be exceeded at site KOI000130 | Receiving water sampling | **No - marginal exceedance of BODCF limit in one of three samples** |

| Purpose: *To discharge leachate and stormwater from a sawmill-waste disposal site into an unnamed tributary of the Kohi Stream* | | |
|---|---|---|
| **Condition requirement** | **Means of monitoring during period under review** | **Compliance achieved?** |
| 4. Records to be supplied | Review of Council records | N/A |
| 5. A review condition | Next opportunity for review June 2018 | N/A |
| Overall assessment of administrative performance in respect of this consent | | **High** |
| Overall assessment of environmental performance in respect of this consent | | **Good** |

N/A = not applicable

During the year, an improvement was required in the Company's level of environmental and administrative performance with the resource consents as defined in Section 1.1.4. Unauthorised materials including treated wood wastes and timber off cuts were disposed of at the Monk Road site. These were identified and removed within the agreed timeframe. Measures were put in place at the sawmill site to prevent a reoccurrence, and a variation to consent 6413 was granted to provide for the disposal of a wider variety of untreated wood wastes at the disposal site.

## 2.7 Recommendation from the 2014-2015 Annual Report

In the 2014-2015 Annual Report, it was recommended:

THAT monitoring of discharges from Waverley Sawmills Limited sites on Monk Road and Village Settlement Road in the 2015-2016 year continue at the same level as in 2014-2015.

THAT the options for review of resource consents 6412-1, 6413- 2 and 7342-2 in June 2016, as set out in conditions 6, 8 and 16 of the respective consents, not be exercised, on the grounds that the current conditions are adequate to deal with any potential adverse effects.

These recommendations were implemented.

## 2.8 Alterations to monitoring programmes for 2016-2017

In designing and implementing the monitoring programmes for air and water discharges in the region, the Council has taken into account the extent of information made available by previous authorities, its relevance under the RMA the obligations of the Act in terms of monitoring emissions and discharges and their effects, and subsequently reporting to the regional community. The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki emitting to the atmosphere and discharging to the environment.

It is proposed that for 2016-2017 the programme for the Monk Road site remains unchanged, but that the programme for the Village Settlement Road site is reduced to one inspection and soil sampling survey, with an additional sample being collected at

site SOL00180 due to the marginal consent exceedance found in the sample collected on 6 April 2016.

# 3. Recommendations

1. THAT monitoring of discharges from Waverley Sawmills Limited site on Monk Road in the 2016-2017 year continues at the same level as in 2015-2016.

2. That the Company investigates contingency measures to prevent a breach of consent at Monk Road as a result of the decreasing pH and increasing BODCF trends in the spring water.

3. THAT monitoring of discharges from Waverley Sawmills Limited site on Village Settlement Road site is reduced to one inspection and sampling survey, with an additional sample being collected at site SOL00180 due to the marginal consent exceedance found in the sample collected on 6 April 2016.

# Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

| | |
|---|---|
| BOD | Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate. |
| BODFC | Carbonaceous biochemical oxygen demand of a filtered sample. |
| CCAB | Copper, chromium, arsenic, and boron, which may be present at the sites from chromated copper arsenate and boron preserved timber. |
| Condy | Conductivity, an indication of the level of dissolved salts in a sample. |
| $g/m^3$ | Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures. |
| Incident | An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred. |
| Intervention | Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring. |
| Investigation | Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident. |
| IR | Incident register – contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan. |
| $NH_4$ | Ammonium, normally expressed in terms of the mass of nitrogen (N). |
| $NH_3$ | Unionised ammonia, normally expressed in terms of the mass of nitrogen (N). |
| pH | A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and numbers higher than 7 are increasingly alkaline. The scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5. |
| Resource consent | Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15). |
| RMA | *Resource Management Act* 1991 including all subsequent amendments. |
| UI | Unauthorised incident. |

*an abbreviation for a metal or other analyte may be followed by the letters 'As', to denote the amount of metal recoverable in acidic conditions. This is taken as indicating the total amount of metal that might be solubilised under extreme environmental conditions. The abbreviation may alternatively be followed by the letter 'D', denoting the amount of the metal present in dissolved form rather than in particulate or solid form.

For further information on analytical methods, contact the Council's laboratory.

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Taranaki Regional Council (2012): *Waverley Sawmills Limited 2011-2012 Annual Compliance Monitoring Report*. Technical Report 2012-30

Taranaki Regional Council (2011): *Waverley Sawmills Limited 2010-2011 Annual Compliance Monitoring Report*. Technical Report 2011-57

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# Appendix I

# Resource consents held by Waverley Sawmills

# Land Use Consent

**Pursuant to the Resource Management Act 1991**
**a resource consent is hereby granted by the**
**Taranaki Regional Council**

| | |
|---|---|
| Name of Consent Holder: | Waverley Sawmills Limited<br>P O Box 44<br>WAVERLEY |
| Consent Granted Date: | 4 March 2005 |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To erect, place and maintain a culvert in an unnamed tributary of the Kohi Stream in the Whenuakura catchment at or about GR: R21:515-629 |
| Expiry Date: | 1 June 2022 |
| Review Date(s): | June 2010, June 2016 |
| Site Location: | Monk Road, Waverley |
| Legal Description: | Sec 71 Blk II Wairoa SD |
| Catchment: | Whenuakura |
| Tributary: | Kohi |

*For General, Standard and Special conditions*
*pertaining to this consent please see reverse side of this document*

## General conditions

a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.

c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:

   i) the administration, monitoring and supervision of this consent; and
   ii) charges authorised by regulations.

## Special conditions

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 3154. In the case of any contradiction between the documentation submitted in support of application 3154 and the conditions of this consent, the conditions of this consent shall prevail.

3. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least 48 hours prior to the commencement and upon completion of the initial installation and again at least 48 hours prior to and upon completion of any subsequent maintenance works which would involve disturbance of or deposition to the riverbed or discharges to water.

4. The exercise of this consent shall not result in the significant ponding of water on the upstream neighbouring property.

5. This consent shall lapse on the expiry of five years after the date of issue of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

6. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2010 and / or June 2016, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 4 March 2005

For and on behalf of
Taranaki Regional Council

_____

**Director—Resource Management**

# Discharge Permit

**Pursuant to the Resource Management Act 1991**
**a resource consent is hereby granted by the**
**Taranaki Regional Council**

| | |
|---|---|
| Name of Consent Holder: | Waverley Sawmills Limited<br>P O Box 44<br>WAVERLEY 4544 |
| Decision Date: | 29 May 2012 |
| Commencement Date: | 29 May 2012 |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To discharge untreated wood waste from sawmill operations onto and into land at or about (NZTM) 1741513E-5601129N |
| Expiry Date: | 1 June 2028 |
| Review Date(s): | June 2016, June 2022 |
| Site Location: | Monk Road, Waverley |
| Legal Description: | Secs 71 & 72 Blk II Wairoa SD (Discharge site) |
| Catchment: | Whenuakura |
| Tributary: | Kohi |

*For General, Standard and Special conditions*
*pertaining to this consent please see reverse side of this document*

### General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### Special conditions

1. Within three months of the granting of this consent, the consent holder shall prepare and maintain a stormwater management plan that documents how the site is to be managed to minimise the infiltration of stormwater and spring water into the filled areas. This plan shall be followed at all times, shall be certified by the Chief Executive, Taranaki Regional Council, and shall include but not necessarily be limited to:

   a) the manner in which any stormwater water will be isolated diverted from the fill area;
   b) the manner in which any spring water will be isolated and diverted from the fill;
   c) a timetable for capping works for any completed areas; and
   d) details of final contouring and stormwater diversion of completed capped areas.

2. This consent only authorises the discharge of untreated wood shavings, sawdust and bark at the site. The discharge of any other material or waste at this site shall not occur.

3. The discharge of materials shall only occur in the shaded area shown in Figure 1 (attached).

4. The Waverly Sawmills Limited sawmill site at Oturi Road, Waverley shall be the sole source of material discharged at the site.

5. The exercise of this consent shall not result in any discharged material entering surface water.

6. The consent holder shall at all times adopt the best practicable option or options (as defined in section 2 of the Resource Management Act 1991) to prevent or minimise any actual or potential effect on the environment arising from any discharge at the site.

7. Any area used for the discharge of material under this consent shall be capped and re-vegetated. The cap shall be contoured to ensure no ponding occurs over the discharge area and shall consist of a minimum of 300 mm of clean clay and 100 mm of top soil.

8. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 29 May 2012

For and on behalf of
Taranaki Regional Council

_____

**Director-Resource Management**


**Figure 1** Discharge area at Waverley Sawmill's Monk Road site

# Discharge Permit

**Pursuant to the Resource Management Act 1991**
**a resource consent is hereby granted by the**
**Taranaki Regional Council**

| | | |
|---|---|---|
| Name of Consent Holder: | Waverley Sawmills Limited<br>PO Box 44<br>Waverley 4544 | |
| Decision Date (Change): | 2 February 2016 | |
| Commencement Date (Change): | 2 February 2016 | (Granted Date: 29 May 2012) |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To discharge untreated wood waste from sawmill operations onto and into land |
| Expiry Date: | 1 June 2028 |
| Review Date(s): | June 2016, June 2022 |
| Site Location: | Monk Road, Waverley |
| Legal Description: | Secs 71 & 72 Okotuku Dist (Discharge site) |
| Grid Reference (NZTM) | 1741510E-5601130N |
| Catchment: | Whenuakura |
| Tributary: | Kohi |

*For General, Standard and Special conditions*
*pertaining to this consent please see reverse side of this document*

### General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

### Special conditions

1. Within three months of the granting of this consent, the consent holder shall prepare and maintain an updated stormwater management plan that documents how the site is to be managed to minimise the infiltration of stormwater and spring water into the filled areas. This plan shall be followed at all times, shall be certified by the Chief Executive, Taranaki Regional Council, and shall include but not necessarily be limited to:

    a) the manner in which any stormwater water will be isolated and diverted from the fill area;
    b) the manner in which any spring water will be isolated and diverted from the fill;
    c) a timetable for capping works for any completed areas; and
    d) details of final contouring and stormwater diversion of completed capped areas.

2. This consent only authorises the discharge of the following wood wastes. The discharge of any other material or waste at this site shall not occur:
    - Untreated wood shavings;
    - Sawdust;
    - Bark;
    - Slovens and sawmill waste;
    - Morbark chipper slovens, chunks and fines;
    - Batten plant and processing shed off-cuts;
    - Broken fillet sticks;
    - Furnace ash; and
    - Yard sweepings.

3. The discharge of materials shall only occur in the shaded area shown in Figure 1 (attached).

4. The Waverly Sawmills Limited sawmill site at Oturi Road, Waverley shall be the sole source of material discharged at the site.

5. The exercise of this consent shall not result in any discharged material entering surface water.

6. The consent holder shall at all times adopt the best practicable option or options (as defined in section 2 of the Resource Management Act 1991) to prevent or minimise any actual or potential effect on the environment arising from any discharge at the site.

7. Any area used for the discharge of material under this consent shall be capped and re-vegetated. The cap shall be contoured to ensure no ponding occurs over the discharge area and shall consist of a minimum of 300 mm of clean clay and 100 mm of top soil.

8. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2016 and/or June 2022 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 2 February 2016

For and on behalf of
Taranaki Regional Council

_____

A D McLay
**Director - Resource Management**


**Figure 1** Discharge area at Waverley Sawmill's Monk Road site

# Discharge Permit

**Pursuant to the Resource Management Act 1991**
**a resource consent is hereby granted by the**
**Taranaki Regional Council**

| | |
|---|---|
| Name of Consent Holder: | Waverley Sawmills Limited<br>P O Box 44<br>WAVERLEY 4544 |
| Decision Date: | 31 July 2012 |
| Commencement Date: | 31 July 2012 |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To discharge treated and untreated wood waste and associated leachate onto and into land at or about (NZTM) 1744652E-5597502N |
| Expiry Date: | 1 June 2022 |
| Review Date(s): | June 2014, June 2018 |
| Site Location: | Village Settlement Road, Waverley |
| Legal Description: | Lot 6 DP 5250 Blk VIII Wairoa SD (Discharge site) |
| Catchment: | Waitotara |
| Tributary: | Moumahaki |

*For General, Standard and Special conditions*
*pertaining to this consent please see reverse side of this document*

### General condition

a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act.

### Special conditions

1. The consent holder shall at all times adopt the best practicable option (as defined in section 2 of the Resource Management Act 1991) to prevent or minimise any actual or potential effect on the environment arising from any discharge at the site. This includes, but is not necessary limited to:

    a) controlling stormwater to minimise infiltration into the filled areas;
    b) leachate control to minimise to migration of contaminants from the tipface
    c) minimising the area of discharged wood waste that is uncapped; and
    d) minimising the duration for which discharged wood waste remains uncapped.

2. Within three months of this consent being granted the consent holder shall prepare and maintain a site management plan that documents how the requirements set out in this consent will be met. This plan shall be followed at all times and after having been certified by the Chief Executive, Taranaki Regional Council.

3. This consent only authorises the discharge of treated and untreated wood shavings, sawdust and bark at the site. The discharge of any other material at this site shall not occur.

4. The discharge shall only occur in the area depicted by the orange shading shown in Figure 1 (attached) and in particular but without limitation no discharges shall occur within 25 metres of the property's boundary.

5. The Waverly Sawmills Limited sawmill site at Oturi Road, Waverley shall be the sole source of material discharged at the site.

6. The consent holder shall establish and maintain all necessary stormwater structures and retention bunding to ensure that any tipface runoff is minimised and contained within the landfill footprint. This includes the establishment of new drains as required when new discharge cells are constructed.

7. When each discharge cell is full it shall be capped as soon as is practicable. The cap shall consist of a minimum of 600 mm of clean compacted clay and 200 mm of clean topsoil and shall contoured to ensure that stormwater is diverted away from the open tipface and drains freely from the capped area.

8. During the operational life of the landfill, the exercise of this consent shall not result in any of the maximum concentrations of contaminants shown in the table below being exceeded in the top 150 mm of soil beyond the site boundary.

| Contaminant | Maximum concentration |
|---|---|
| Arsenic | 30 mg $kg^{-1}$ |
| Boron | 380 mg $kg^{-1}$ |
| Total chromium | 76 mg $kg^{-1}$ |
| Copper | 130 mg $kg^{-1}$ |

9. Immediately prior to the final capping of the last discharge cell, the consent holder shall undertake any soil remediation action required to ensure that the levels of contaminants in the top 150 mm of soil in the areas identified in the table below do not exceed the respective maximum concentrations as also set out in the table below.

| | Maximum concentrations | | |
|---|---|---|---|
| Soil Contaminant | Capped Areas | Beyond site boundary | Area between toe and south boundary* |
| Arsenic | 30 mg $kg^{-1}$ | 30 mg $kg^{-1}$ | 38 mg $kg^{-1}$ |
| Total chromium | 76 mg $kg^{-1}$ | 76 mg $kg^{-1}$ | 76 mg $kg^{-1}$ |
| Copper | 40 mg $kg^{-1}$ | 42 mg $kg^{-1}$ | 130 mg $kg^{-1}$ |
| Boron | 380 mg $kg^{-1}$ | 20 mg $kg^{-1}$ | 160 mg $kg^{-1}$ |

*Area depicted by purple shading in Figure 1

10. After completing the final cell, the toe of the filled area shall be capped in a manner that ensures that the fill material is completely encapsulated with 600 mm of compacted clay prior to applying topsoil.

11. For the duration this consent is in effect, the consent holder shall maintain the capped areas at the site to following standards:

    a) all areas capped prior to the granting of this consent shall be maintained to their current standard;
    b) all areas capped during the exercise of this consent shall be maintained to the standard set out in special condition 7;
    c) with the exception of access tracks, a vegetative cover shall be maintained on all capped areas of the site; and
    d) an appropriate contour shall be maintained on all capped areas to ensure adequate drainage.

12. The consent holder shall notify the Taranaki Regional Council 20 days prior to commencing final capping of the final discharge cell. Notification shall include the consent number and a brief description of the activity consented and shall be emailed to worknotification@trc.govt.nz.

13. The consent holder shall notify the Taranaki Regional Council within 7 days of the completion of the final capping of the final discharge cell. Notification shall include the consent number and a brief description of the activity consented and shall be emailed to worknotification@trc.govt.nz. Once the Taranaki Regional Council receives and acknowledges this notification, no further discharges may occur at the site.

14. This consent cannot be surrendered for at least five years after reinstatement of the site, during which soil quality monitoring will be undertaken to ensure that the contaminants in the fill have been effectively contained. During this period the level of soil contaminant must not exceed the limits set out in special condition 9.

15. To ensure that a five year post closure monitoring window is available, the site must be closed to discharges, reinstated and remediated by no later than June 2017.

16. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2014 and/or June 2018 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 31 July 2012

For and on behalf of
Taranaki Regional Council

_____

**Director-Resource Management**

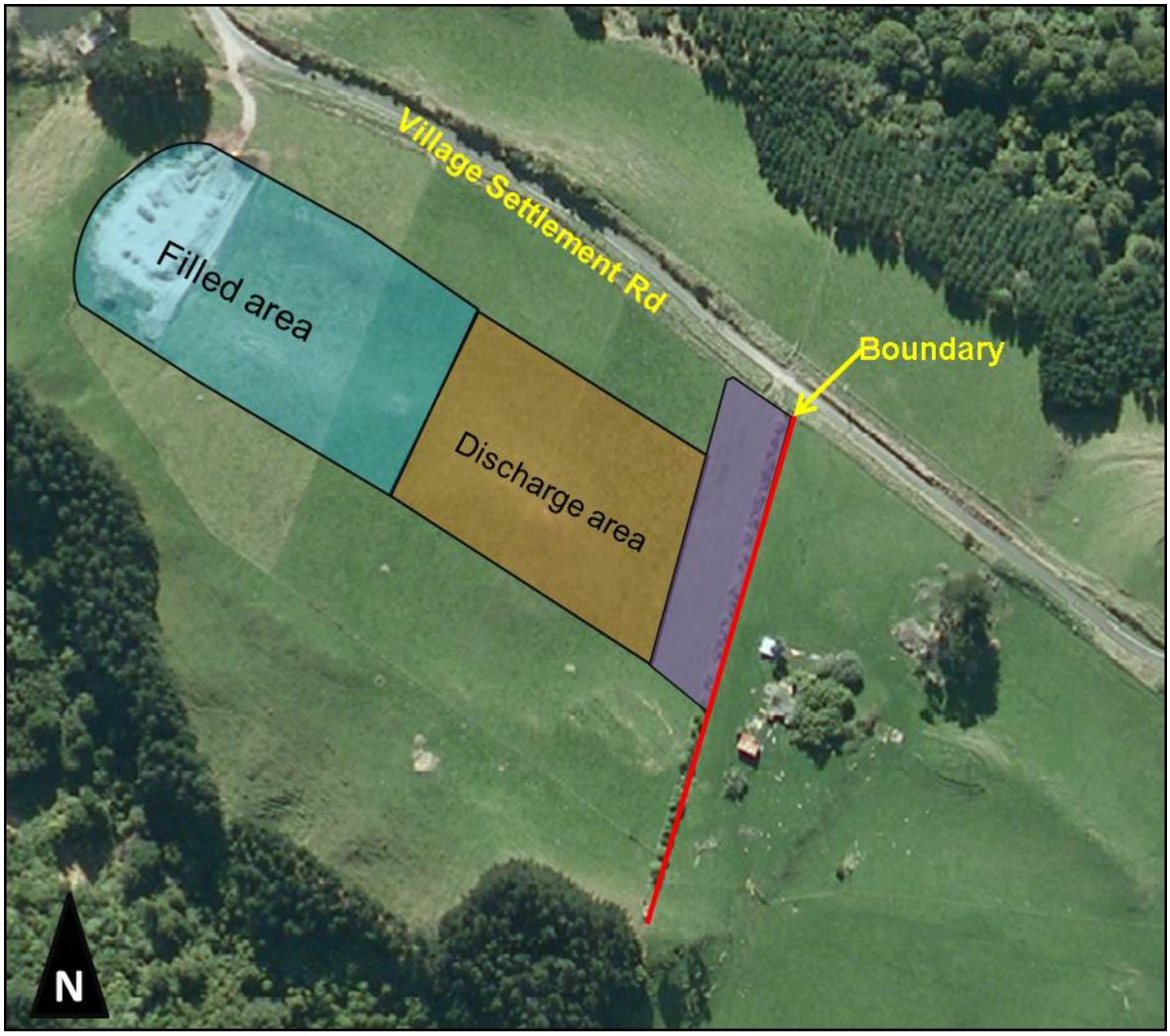


**Figure 1** **Discharge area at Waverley Sawmills Village Settlement Rd site**

# Discharge Permit

**Pursuant to the Resource Management Act 1991**
**a resource consent is hereby granted by the**
**Taranaki Regional Council**

| | |
|---|---|
| Name of Consent Holder: | Waveley Sawmills Limited<br>P O Box 44<br>WAVERLEY 4544 |
| Decision Date (Change): | 4 March 2014 |
| Commencement Date (Change): | 4 March 2014 (Granted: 7 October 2010) |

## Conditions of Consent

| | |
|---|---|
| Consent Granted: | To discharge leachate and stormwater from a sawmill-waste disposal site into an unnamed tributary of the Kohi Stream |
| Expiry Date: | 1 June 2028 |
| Review Date(s): | June 2014, June 2016, June 2022 |
| Site Location: | Monk Road, Waverley |
| Legal Description: | Sec 71 Blk II Wairoa SD (Discharge site)<br>Pt Lot 2 DP 4352 (Discharge source) |
| Grid Reference (NZTM) | 1741531E-5601034N |
| Catchment: | Whenuakura |
| Tributary: | Kohi |

*For General, Standard and Special conditions*
*pertaining to this consent please see reverse side of this document*

### General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act 1991.

### Special conditions

1. Notwithstanding any other condition of this consent, the consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this consent.

2. The exercise of this consent shall not give rise to any or all of the following effects in the unnamed tributary of the Kohi Stream at a point 50 metres downstream of the discharge;

    a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
    b) any conspicuous change in the colour or visual clarity;
    c) any emission of objectionable odour;
    d) the rendering of fresh water unsuitable for consumption by farm animals;
    e) any significant adverse effects on aquatic life.

3. The exercise of this consent shall not cause the receiving water at site KOI000130 (1741323E-5600500N) to breach the following standards;

    a) concentration of filtered carbonaceous biochemical oxygen demand no greater than 3.0 $g/m^3$;
    b) concentration of dissolved copper demand no greater than 0.01 $g/m^3$;
    c) concentration of dissolved chromium demand no greater than 0.1 $g/m^3$;
    d) concentration of dissolved arsenic demand no greater than 0.1 $g/m^3$.

4. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2012, 2014, 2016 and/or June 2022 for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 4 March 2014

For and on behalf of
Taranaki Regional Council

_____

A D McLay
**Director-Resource Management**

# Appendix II

# Soil and wood waste analysis results

Hill Laboratories
BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited
1 Clyde Street
Private Bag 3205
Hamilton 3240, New Zealand

Tel +64 7 858 2000
Fax +64 7 858 2001
Email mail@hill-labs.co.nz
Web www.hill-labs.co.nz

# ANALYSIS REPORT



| | | | | |
|---|---|---|---|---|
| **Client:** | Taranaki Regional Council | **Lab No:** | 1477338 | SPv1 |
| **Contact:** | Scott Cowperthwaite | **Date Registered:** | 18-Sep-2015 | |
| | C/- Taranaki Regional Council | **Date Reported:** | 25-Sep-2015 | |
| | Private Bag 713 | **Quote No:** | 49397 | |
| | STRATFORD 4352 | **Order No:** | 53242 | |
| | | **Client Reference:** | Waverley Sawmills 6528-2 | |
| | | **Submitted By:** | L Smith | |

**Sample Type: Miscellaneous**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Sample Name:** | | TRC152859<br>16-Sep-2015<br>11:15 am | | | | |
| **Lab Number:** | | 1477338.1 | | | | |
| CCAB, screen level | | | | | | |
| Total Recoverable Arsenic | mg/kg dry wt | 43 | - | - | - | - |
| Total Recoverable Boron | mg/kg dry wt | < 100 | - | - | - | - |
| Total Recoverable Chromium | mg/kg dry wt | 56 | - | - | - | - |
| Total Recoverable Copper | mg/kg dry wt | 420 | - | - | - | - |

# SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

**Sample Type: Miscellaneous**

| Test | Method Description | Default Detection Limit | Sample No |
|---|---|---|---|
| Environmental Solids Sample Preparation | Air dried at 35°C and sieved, <2mm fraction.<br>Used for sample preparation.<br>May contain a residual moisture content of 2-5%. | - | 1 |
| CCAB, screen level | Total recoverable digestion, ICP-MS. screen level | 2 - 20 mg/kg dry wt | 1 |
| Total Recoverable digestion* | Nitric / hydrochloric acid digestion. US EPA 200.2. | - | 1 |

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.



Carole Rodgers-Carroll BA, NZCS
Client Services Manager - Environmental Division

Hill Laboratories
BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited
1 Clyde Street
Private Bag 3205
Hamilton 3240, New Zealand

Tel +64 7 858 2000
Fax +64 7 858 2001
Email mail@hill-labs.co.nz
Web www.hill-labs.co.nz

# ANALYSIS REPORT



| | | | |
|---|---|---|---|
| **Client:** | Taranaki Regional Council | **Lab No:** | 1482909 SPv1 |
| **Contact:** | Scott Cowperthwaite | **Date Registered:** | 01-Oct-2015 |
| | C/- Taranaki Regional Council | **Date Reported:** | 09-Oct-2015 |
| | Private Bag 713 | **Quote No:** | 71873 |
| | STRATFORD 4352 | **Order No:** | 53472 |
| | | **Client Reference:** | Waverley Sawmills Resample |
| | | **Submitted By:** | L Smith |

**Sample Type: Miscellaneous**

| Sample Name: | | 153031 28-Sep-2015 1:05 pm | 153032 28-Sep-2015 1:12 pm | 153033 28-Sep-2015 1:14 pm | 153035 28-Sep-2015 1:23 pm | 153037 28-Sep-2015 1:20 pm |
|---|---|---|---|---|---|---|
| **Lab Number:** | | 1482909.1 | 1482909.2 | 1482909.3 | 1482909.5 | 1482909.7 |
| CCAB, screen level | | | | | | |
| Total Recoverable Arsenic | mg/kg dry wt | < 10 | < 4 | 20 | < 4 | 105 |
| Total Recoverable Boron | mg/kg dry wt | < 100 | < 40 | < 40 | < 40 | < 40 |
| Total Recoverable Chromium | mg/kg dry wt | < 10 | < 4 | 26 | < 4 | 123 |
| Total Recoverable Copper | mg/kg dry wt | < 10 | < 4 | 1,930 | < 4 | 1,900 |

| Sample Name: | | 153034 [Ground] | 153036 [Ground] | | | |
|---|---|---|---|---|---|---|
| **Lab Number:** | | 1482909.8 | 1482909.9 | | | |
| CCAB, screen level | | | | | | |
| Total Recoverable Arsenic | mg/kg dry wt | 5,600 | 13 | - | - | - |
| Total Recoverable Boron | mg/kg dry wt | < 40 | < 40 | - | - | - |
| Total Recoverable Chromium | mg/kg dry wt | 6,500 | 12 | - | - | - |
| Total Recoverable Copper | mg/kg dry wt | 3,500 | 9 | - | - | - |

# SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

**Sample Type: Miscellaneous**

| Test | Method Description | Default Detection Limit | Sample No |
|---|---|---|---|
| Environmental Solids Sample Preparation | Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%. | - | 1-3, 5, 7-9 |
| CCAB, screen level | Total recoverable digestion, ICP-MS. screen level | 2 - 20 mg/kg dry wt | 1-3, 5, 7-9 |
| Total Recoverable digestion* | Nitric / hydrochloric acid digestion. US EPA 200.2. | - | 1-3, 5, 7-9 |

**Sample Type: Timber**

| Test | Method Description | Default Detection Limit | Sample No |
|---|---|---|---|
| Grind | Grinding of nominally dry sample to form < 0.5 mm ground sample fraction. Analysis performed at Hill Laboratories - Food & Bioanalytical Division, Waikato Innovation Park, Ruakura Lane, Hamilton. | - | 4, 6 |

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

This report must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental Division

Hill Laboratories
BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited
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# ANALYSIS REPORT



| | | | |
|---|---|---|---|
| **Client:** | Taranaki Regional Council | **Lab No:** | 1517777 SPv1 |
| **Contact:** | Scott Cowperthwaite | **Date Registered:** | 18-Dec-2015 |
| | C/- Taranaki Regional Council | **Date Reported:** | 29-Dec-2015 |
| | Private Bag 713 | **Quote No:** | 49397 |
| | STRATFORD 4352 | **Order No:** | 55707 |
| | | **Client Reference:** | Waverley Sawmills 6528-2 |
| | | **Submitted By:** | Ray Harris |

**Sample Type: Miscellaneous**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Sample Name:** | | Waverley Sawmill 17-Dec-2015 11:30 am | | | | |
| **Lab Number:** | | 1517777.1 | | | | |
| CCAB, screen level | | | | | | |
| Total Recoverable Arsenic | mg/kg dry wt | 6 | - | - | - | - |
| Total Recoverable Boron | mg/kg dry wt | < 40 | - | - | - | - |
| Total Recoverable Chromium | mg/kg dry wt | 9 | - | - | - | - |
| Total Recoverable Copper | mg/kg dry wt | 25 | - | - | - | - |

# SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

**Sample Type: Miscellaneous**

| Test | Method Description | Default Detection Limit | Sample No |
|---|---|---|---|
| Environmental Solids Sample Preparation | Air dried at 35°C and sieved, <2mm fraction.<br>Used for sample preparation.<br>May contain a residual moisture content of 2-5%. | - | 1 |
| CCAB, screen level | Total recoverable digestion, ICP-MS. screen level | 2 - 20 mg/kg dry wt | 1 |
| Total Recoverable digestion* | Nitric / hydrochloric acid digestion. US EPA 200.2. | - | 1 |

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.



Carole Rodgers-Carroll BA, NZCS
Client Services Manager - Environmental Division

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# ANALYSIS REPORT



| | | | | |
|---|---|---|---|---|
| **Client:** | Taranaki Regional Council | **Lab No:** | 1564556 | SPv1 |
| **Contact:** | L Smith | **Date Registered:** | 08-Apr-2016 | |
| | C/- Taranaki Regional Council | **Date Reported:** | 15-Apr-2016 | |
| | Private Bag 713 | **Quote No:** | 49397 | |
| | Stratford 4352 | **Order No:** | 57295 | |
| | | **Client Reference:** | Waverley Sawmills 6528-2 | |
| | | **Submitted By:** | Rae West | |

**Sample Type: Soil**

| Sample Name: | | SOL000179<br>06-Apr-2016<br>11:40 am | SOL000180<br>06-Apr-2016<br>11:55 am | SOL000181<br>06-Apr-2016<br>12:10 pm | | |
|---|---|---|---|---|---|---|
| **Lab Number:** | | 1564556.1 | 1564556.2 | 1564556.3 | | |
| CCAB, screen level | | | | | | |
| Total Recoverable Arsenic | mg/kg dry wt | 16 | 6 | 4 | - | - |
| Total Recoverable Boron | mg/kg dry wt | < 20 | < 20 | < 20 | - | - |
| Total Recoverable Chromium | mg/kg dry wt | 30 | 14 | 18 | - | - |
| Total Recoverable Copper | mg/kg dry wt | 48 | 43 | 20 | - | - |

## SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

**Sample Type: Soil**

| Test | Method Description | Default Detection Limit | Sample No |
|---|---|---|---|
| Environmental Solids Sample Preparation | Air dried at 35°C and sieved, <2mm fraction.<br>Used for sample preparation.<br>May contain a residual moisture content of 2-5%. | - | 1-3 |
| CCAB, screen level | Total recoverable digestion, ICP-MS. screen level | 2 - 20 mg/kg dry wt | 1-3 |
| Total Recoverable digestion | Nitric / hydrochloric acid digestion. US EPA 200.2. | - | 1-3 |

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.



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