

**4. THE CREATION OF AN EASEMENT OVER MCCORMACK'S BAY RESERVE FOR THE PURPOSE OF LOCATING A SEWAGE ODOUR BIO FILTER CONNECTED TO THE SEWER MAIN**

<b>General Manager responsible:</b>	General Manager City Environment
<b>Officer responsible:</b>	Greenspace Manager
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**PURPOSE OF REPORT**

1. The purpose of this report is for the Board to consider a recommendation that it approves an easement on McCormack's Bay Reserve to enable the City Water and Waste Unit on behalf of

4. The City Water and Waste Unit ensures that any contractors carrying out work on the reserve carry and produce evidence of having adequate public liability insurance with a minimum of \$1,000,000 cover
5. That any excavated material or intended bio filter bed material may be temporarily stockpiled in an appropriate area of the reserve that does not effect the existing vegetation or ecosystem. All excavated material after the completion of works to be removed off the reserve.
6. The contractor to locate any above and underground services (eg electricity, water, telephonic, storm water and sewage lines) on the reserve and protect from damage.
7. That the Consent of the Minister of Conservation be obtained.
8. That an easement be lodged with Land Information New Zealand.

**CHAIRPERSON'S RECOMMENDATION**

For discussion.

## BACKGROUND

- Christchurch's sewer network is designed to allow gasses to vent to the atmosphere at every second manhole and at every residential house. In instances where the pipe gradient is flat and sewage is retained within the network for some hours Hydrogen Sulphide gas builds up. The gas is non-toxic but is offensive to humans and detectable at low concentrations. To overcome this problem air may be sucked from the interior of the sewer network and passed through a biological filter consisting of wood bark chips. Microbes within the bark chips produce biologically induced oxidation of hydrogen sulphide, thus removing the "rotten egg" smell of Hydrogen Sulphide.

This technology is not new. Christchurch has fifteen biological filters at key locations around the city.

McCormacks Bay Rd is a typical environment for Hydrogen Sulphide gas to create a nuisance; with a long flat sewer main trunk pipe gradient, low air flows to disperse the gas, (Hydrogen Sulphide gas is heavier than air) and the close proximity of residential houses.

The intended Bio Filter arrangement will have an electric fan that will suck the air from the sewer network and force the air through the filter bed. A photographic mock up is detailed under Attachment Two. The filter bed will have a matrix of small pipes in the bottom, in which the Hydrogen Sulphide / air mixture will pass through and vent into the filter bed. The filter bed will be made up of wooden bark chips. It is proposed that the filter bed be some 40 m long, 2 m wide and 0.8 m deep. All pipework will be buried and the top of the filter bed will be nominally at ground level, as per mock up photos detailed in Attachments Three and Three A. The electric fan will be placed in a sound proofed concrete cabinet. Vehicles and pedestrian movements across the filter bed will not be permitted, and advisory signage will be provided by the City Water and Waste Unit. The area immediately surrounding the filter bed will be landscaped with shrubs in accordance with any Greenspace Unit planting schedule requirements.

As part of the City Water & Waste Units maintenance procedures the Bio Filter beds will be monitored for Hydrogen Sulphide and the bark chip replaced as necessary.

## THE OPTIONS

- The Council's Water and Waste Unit has considered a number of options and these are detailed as follows:

- Maintain status quo**

Residents in the area are experiencing noticeable levels of Hydrogen Sulphide and feel aggrieved that they are exposed to this situation. There is an expectation that the Council will rectify the situation. If the Council does not technically address the acknowledged odour problem then further complaints will be received.

- Re Locate the Bio Filter to another location**

Investigations have identified two possible sites, one on the reserve by the car park in front of #126- #130 McCormacks Bay Road (refer Attachment Four) and the other adjacent to the Petanque Piste, (refer Attachment One). Other options required the blasting of rock on road reserve in McCormack's Bay to achieve a filter bed below the surface or installing a much longer air extractor pipe, both options considerably expensive and impracticable. The option of placing the filter bed in reserve adjacent to 126 - 130 McCormacks Bay Road was publicly advertised, with a submission requesting the filter bed be located adjacent to the Petanque Piste. The City Water and Waste Unit are seeking to act on this submission.

- Alternative treatment options**

Activated Carbon Filters have been trailed elsewhere in Christchurch with limited success. The cost of installing such a system in this location is prohibitive and would exceed the City Water and Waste Unit budget requirements. This type of system has high maintenance costs and is not a viable option.

## **ISSUES / OPTIONS SURROUNDING THE CURRENT PROPOSAL**

The City Water and Waste Unit have indicated the following:

- The location is commensurate with the Greenspace Unit plans for the future use and amenities of the reserve.
- The site does not have any cultural significance and is reclaimed estuarine land.
- A submission on behalf of the Avon – Heathcote Estuary Ihutai Trust has been received and all concerns have been addressed.
- A submission was made by a resident that planting be carried out to visually shield the intended Bio Filter bed. A landscape plan is being produced and the City Water and Waste Unit have indicated an agreement been reached with the resident.
- Previous complainants have been informed by staff from the City Water and Waste unit of the progress in addressing the odour problems and are in agreement with this proposal.

## ASSESSMENT OF OPTIONS

### The Preferred Option

	<b>Benefits (current and future)</b>	<b>Costs (current and future)</b>
<b>Social</b>	N/A	N/A
<b>Cultural</b>	N/A	N/A
<b>Environmental</b>	Will improve the local environment by the dissipation of sewer gas which has been accumulating in the sewer and leaking through manholes in McCormack's Bay Road.	There will be no detrimental effect on the environment as sewer gas will be dissipated underground in a dedicated bio filter bed.
<b>Economic</b>	N/A	N/A

**Extent to which community outcomes are achieved:**

Will not conflict with required community outcomes.

**Impact on Council's capacity and responsibilities:**

Will improve Council's present capacity to deal with odour problems.

**Effects on Maori:**

Nil.

**Consistency with existing Council policies:**

Yes.

**Views and preferences of persons affected or likely to have an interest:**

The community have been consulted on the initial intended location, and an alternative location has been considered.

**Other relevant matters:**

**Maintain The Status Quo (If Not Preferred Option)**

	<b>Benefits (current and future)</b>	<b>Costs (current and future)</b>
<b>Social</b>	No Benefit – detrimental effect on the community from odours.	Residents being forced to relocate outside their community because of potential odour nuisance.
<b>Cultural</b>	N/A.	N/A.
<b>Environmental</b>	Nil.	Potential adverse odours effecting the community.
<b>Economic</b>	Nil.	Nil.
<p><b>Extent to which community outcomes are achieved:</b> N/A.</p> <p><b>Impact on Council's capacity and responsibilities:</b> Will place further pressure on the Council to do something about the odour problem.</p> <p><b>Effects on Maori:</b> Will not specifically effect Maori.</p> <p><b>Consistency with existing Council policies:</b> Will conflict with Council Policy.</p> <p><b>Views and preferences of persons affected or likely to have an interest:</b> N/A.</p> <p><b>Other relevant matters:</b></p>		

**Relocate the Biofilter**

	<b>Benefits (current and future)</b>	<b>Costs (current and future)</b>
<b>Social</b>	N/A.	N/A.
<b>Cultural</b>	N/A.	N/A.
<b>Environmental</b>	Will improve the local environment by the dissipation of sewer gas which has been accumulating in the sewer and leaking through manholes in McCormack's Bay Road.	There will be no detrimental effect on the environment as sewer gas will be dissipated underground in a dedicated bio filter bed.
<b>Economic</b>	Prohibitive construction costs to blast and remove rock.	N/A.

**Extent to which community outcomes are achieved:**

Will not conflict with required community outcomes.

**Impact on Council's capacity and responsibilities:**

Will improve Councils present capacity to deal with odour problems.

**Effects on Maori:**

Nil.

**Consistency with existing Council policies:**

Yes.

**Views and preferences of persons affected or likely to have an interest:**

The community have been consulted on the initial intended location, and an alternative location has been considered.

**Other relevant matters:**

Lack of suitable alternative sites.