



14. INFRASTRUCTURE REBUILD/HOLLIS AVE/WASTEWATER PIPE RENEWAL

General Manager responsible:	General Manager, City Environment Group, DDI 941 8608
Officer responsible:	Unit Manager, City Water and Waste
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PURPOSE OF REPORT

1. The purpose of this report is to seek the Council's approval to replace the earthquake damaged 150 diameter wastewater pipe with a larger 225 diameter wastewater pipe.

EXECUTIVE SUMMARY

2. A technical report on this proposal (**Attachment 1**) has been provided by the Stronger Christchurch Infrastructure Rebuild Team (SCIRT). This report was considered by the Scope and Standards Staff Committee, which accepted the SCIRT recommendation that the rebuild option containing a betterment element should proceed and determined that a report should go to Council seeking approval for the additional funding for this option.
3. As shown on the plans included in the report, the wastewater pipe work in Hollis Ave was very badly damaged by the 22 February 2011 earthquake. The number of breaks in each manhole length is shown. The threshold being used to determine if renewal is warranted is six breaks or more, the standard defined prior to the earthquakes in the Council's Wastewater Asset Management Plan. On this basis three of the eight manhole lengths under consideration need replacing and four repaired. One length is undamaged.
3. The existing pipe is 150 millimetre diameter, but prior to the earthquakes this was known to be under capacity, and at least once per year, the network could not cope, resulting in discharge of raw sewerage out of manhole tops. Modelling work had been completed to determine the required size to prevent this happening, and it was proposed to include a capacity upgrade for all eight manhole lengths in Council's ongoing sewer renewal programme, although no specific proposal had been submitted.
4. Two options have been considered for repair of the main, as outlined in the **attached** report. In summary:
 - (a) Option 1 is to repair "like for like". This option will be funded through the LAPP insurance and Government funding mechanisms.
 - (b) Option 2 is to upgrade the pipeline while repairs are being undertaken.
5. Option 2 is recommended by the Scope and Standards Committee as the preferred option. It would be practical and economically efficient to take the opportunity while the renewal/repair is underway of renewing the whole 315 metres of pipework in the required larger 225 millimetres diameter pipe. This will prevent the regular sewer overflows that were occurring pre-earthquake, and that would continue to occur if only the "like for like" option is rebuilt.

FINANCIAL IMPLICATIONS

6. The estimated cost for the "like for like" option is \$254,000. The estimated cost of the recommended complete renewal in 225 millimetre pipe is \$587,000. The estimate for the betterment is therefore \$333,000.
7. It is expected construction would be complete in the current financial year. An estimated \$333,000 is therefore required to enable the betterment part of the rebuild to proceed.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

8. Not applicable as earthquake-related works.

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LEGAL CONSIDERATIONS

Have you considered the legal implications of the issue under consideration?

9. Yes. There are no legal considerations.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?

10. Earthquake-related works – restoration and improvement of level of service.

ALIGNMENT WITH STRATEGIES

Do the recommendations align with the Council's strategies?

11. Yes. They align with Council's Strategic Direction of providing wastewater collection services that "protect public health".

CONSULTATION FULFILMENT

12. Not applicable.

STAFF RECOMMENDATION

It is recommended that the Council approves upgrading of the pipeline for the repair of the earthquake damaged sewer pipes in Hollis Avenue and allocates \$333,000 from the betterment fund in order for the project to proceed.

Title: Non 'Like for Like' Concept Design Solution

Project: 10410 Holliss Avenue Wastewater

Change/Dispensation Sought

Replacement of "like for like" with an upgrade in diameter

Scope:

The extent of work for this project is for the length of 315 m of wastewater pipe, between Gunns Crescent and Centaurus Road. Also it is necessary to include the length of 131 m in Centaurus Road to MH 12123.

The works include the supply and installation of sewer reticulation renewals, associated fittings, sewer laterals, connections to existing manholes and replace with new manhole.

Following the February 2011 earthquake, CCTV of the pipes was completed and examined by City Care. Overall the pipe is in poor condition with numerous joint failures, multiple cracks and entire sections of pipe broken.

A level survey was carried out following the June 2011 earthquake for this area and obtained the levels for the invert and outlet pipes for each manhole. The survey showed that the existing gradients met the minimum IDS requirement (DN150 grade 1 in 350), except in the case of MH12098 to MH12097 (1:499). To achieve acceptable grades this pipe will need to be regraded along two sections from MH12098 to MH 12096. This involves the replacement of the manhole: MH 12096.

We have been advised that this section is currently under capacity following wet weather flooding surveys and follow up hydraulic analysis carried out by Chris Mance at CCC in early 2010. It has been recommended that the pipe diameter be increased from DN150 to DN225 as part of this renewal project (and 24.7 m length of DN300).

The remainder of the catchment, beyond the scope of the project, rises into the Port Hills. Damage assessment and repair is therefore of a different nature to this flat lower section and does not need to be included.

Options Considered:

1. Option 1: Like for Like. This option involves a combination of repairs and renewals with the same diameter DN 150 pipe. Pipelines with major damage can be renewed and lines with minimal damage can be repaired. From MH 12104 to MH 12096 sections have significant numbers of breaks, and are over the required threshold for renewal. With this option this pipe needs to be regraded along two sections from MH12098 to MH 12096 with a grade of 1:350 as per IDS DN 150 pipe requirements.
2. Option 2: Upgrading the pipeline. This option involves permanent renewals to restore the network condition and add additional capacity by increasing the diameter from DN150 to DN225 for the whole pipeline, with improved capacity. With this option regrading is necessary along two sections from MH12098 to MH 12096 with a grade of 1:450 as per IDS DN 225 pipe requirements.

Consultation Required:

No consultation is required

Benefits/disbenefits of the Options:

Option 1 provides:

- Lower cost.
- No improvement in capacity to future.

Option 2 provides:

- Higher cost than like for like replacement.
- Improvement to the capacity of the pipeline. Upgrading the pipeline will stop the current wastewater surface flooding that occurs along Holliss Ave.

Costs

Cost for Option 1 is \$254,000 and for Option 2 is \$587,000.

Recommended Option:

Option two is recommended as it includes an increase in capacity that will relieve a choke in the system that currently results in wastewater discharging from manholes in wet weather events.

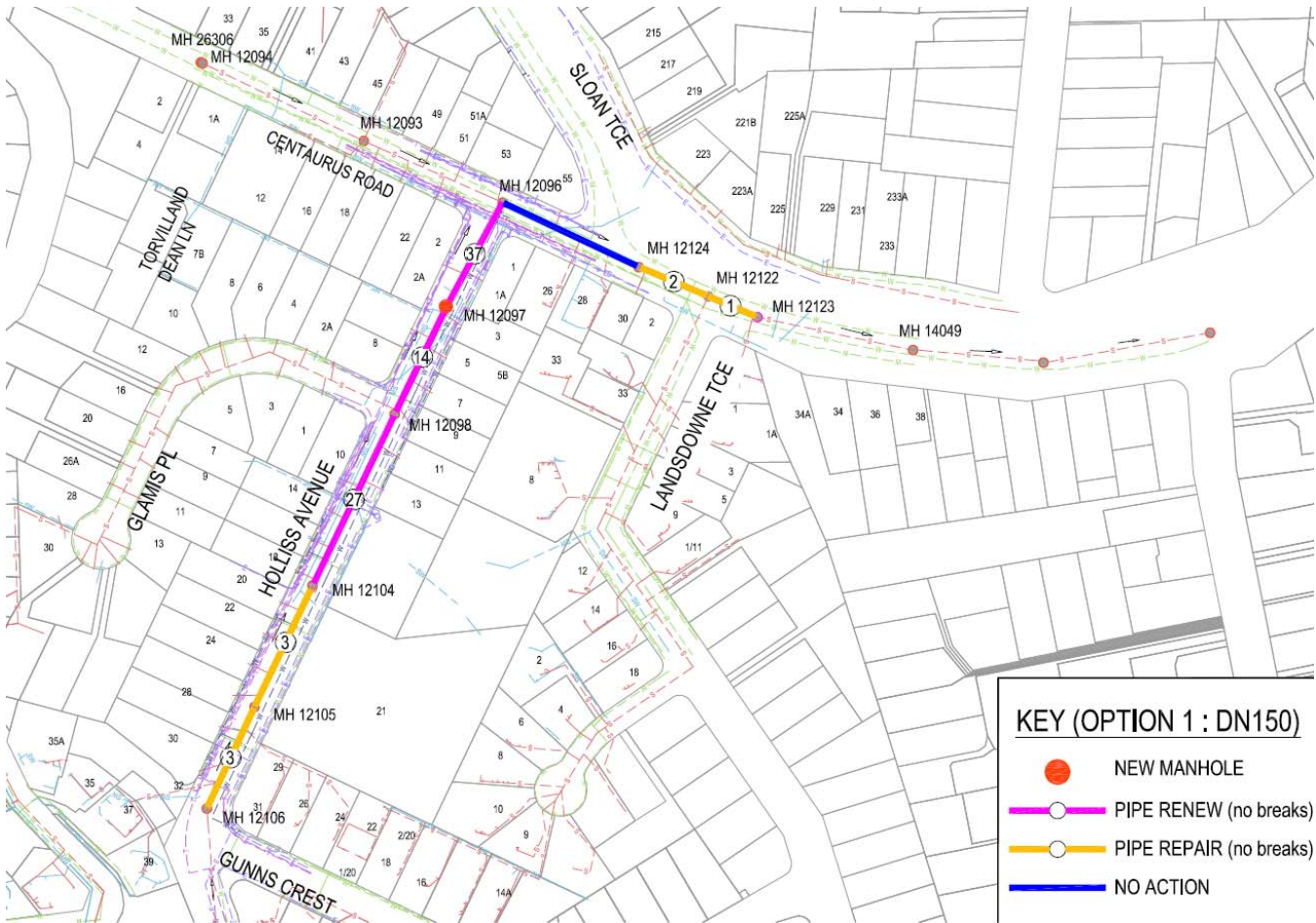
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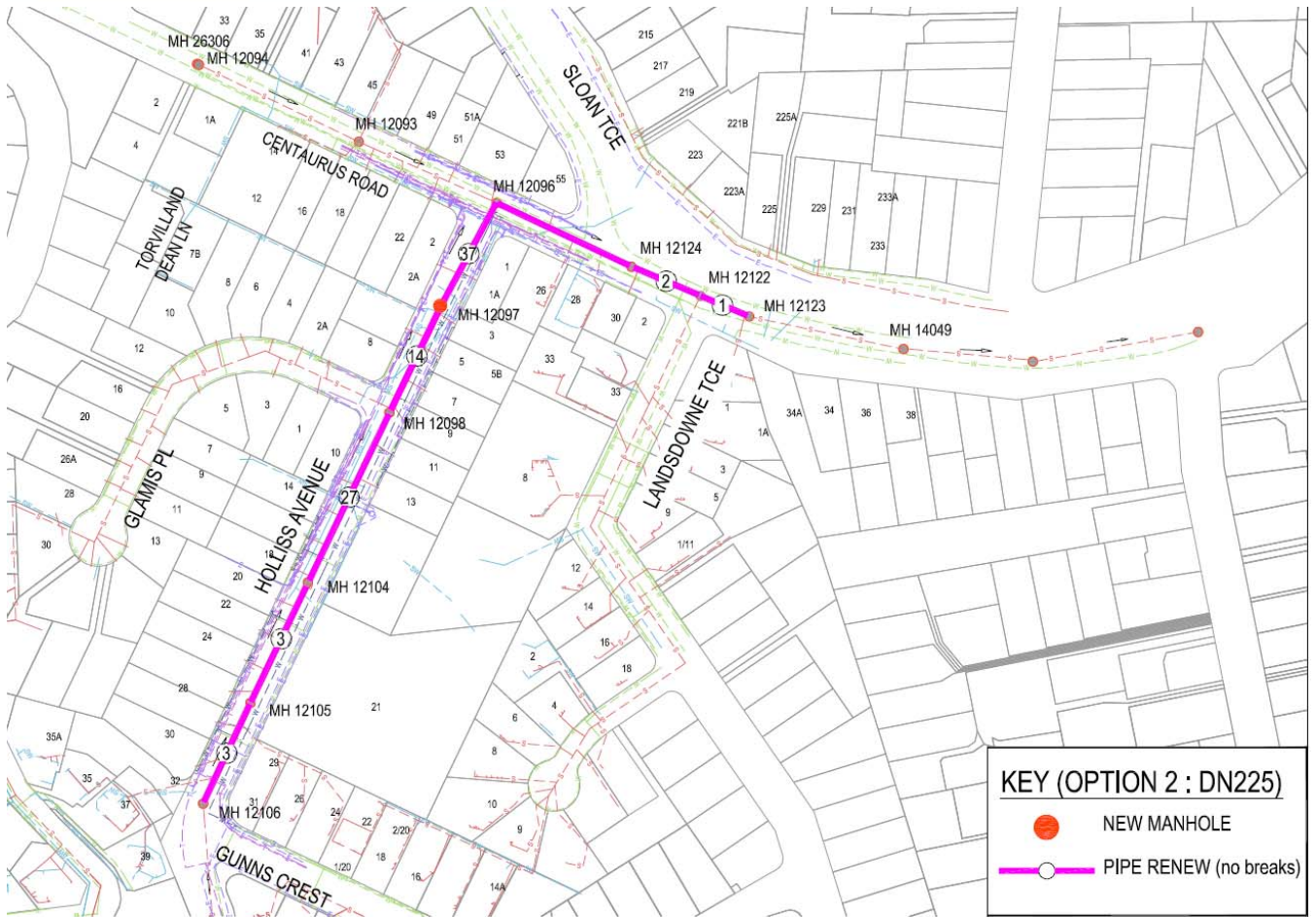
Approved By:

Simon Colin





PLAN: OPTION 1



PLAN: OPTION 2