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REHABILITATION OF SEWERS FOR THE FUTURE - RISK AND ASSET MANAGEMENT OF YOUR SEWER NETWORK

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RISK ASSESSMENT AND ASSET MANAGEMENT

Councils have in the past constructed their sewers backfilled them and let them drain away without much care or attention or at times not even a second thought. Like a corpse in a grave, buried and never to be seen again.

In recent years investigations have revealed that a lot of the sewers that have been constructed for greater than 40 years are showing signs of degradation.

This has come about due to a number of issues:

1. **Cracking ,** joint displacement, junction collapses etc, due to
    - Ground movements,
    - Rubber ring seals failing
    - Root intrusion

2. **Gas Attack;** this mainly occurs in Concrete or Asbestos Cement pipes, with the methane and hydrogen sulphide gases eat away the exposed surfaces of the pipe leading to collapses and sever longitudinal cracking.

Experience has shown that to maintain a system that is to function ideally then all information as to the location and condition of all sewers must be known and must be current.

This poses a series of questions:

1. Do you know what condition your sewers are in?
2. Do you know the exact location of all of your sewers?
3. Are the sewers under rail lines, bridges, highways, buildings etc?
4. Are those sewers that are in critical positions in good condition?
5. Should one of these lines that are in critical locations collapse; what would be the consequence?
    - Would it be minor inconvenience requiring a dig up and repair , or
    - A catastrophic situation that caused the closure of major infrastructure, or
    - Would it be the cause of a major environmental incident?

Can you prove to the Environmental Protection Agency if challenged that you have a programme in place that is designed to alleviate these occurrences or will you need to rely on ***Malfeasance?***

To ensure that you have current information as to the condition of your assets it is important that you check the condition of the asset regularly.

This can be done by cleaning the sewer with a pressure hose flushing the main with water and then undertaking Closed Circuit Television (CCTV) inspection and condition assessment using a recognised computer programme such as *"WinCan Version 8"* to give a consistent rating.

In doing this pre-emptive work you need to recognise that:

1. Sewers need to be cleaned and inspected on a 10 -15 year cycle
2. Condition assessment and report needs to be submitted
3. That the condition assessments are consistent and undertaken by a trained inspector/ camera operator.
4. That condition assessment reports are in accordance with the "Conduit I section ***Reporting Code of Australia WSA 05-2008 2nd Edition version 2.2***"

But why go to the expense of inspecting the sewers?

Basically to reduce your operating and maintenance costs by;

- reducing, eliminating chokes in the sewer,
- reducing, eliminating call outs;
- limiting surcharges (Health and Environmental issues)
- maintain the efficiency of the system.
- location of illegal connections (i.e. roof waters); and
- to assist in providing proof for the need for funding for planned maintenance.

Thereby saving you and your community money.

THE FITZROY RIVER WATER EXPERIENCE

In 2000 due to excessive flows through the treatment plants at time of peak wet weather a programme of inspections was devised to determine how sever the groundwater inflows entering the system were.

A programme of CCTV inspections was put together to have a look at a representative sample of the network. What was discovered was horrific.
Rockhampton had its first sewers operation from the 1930's, mostly the older mains were of Earthenware and were in poor to very bad condition, although still functioning in a fashion.
These mains constructed in the older part of the City fronts the Fitzroy River and are on the flood plain and the inverts are either just above or below the Highest Astronomical Tide (HAT). Some of the lower mains are below Lowest Astronomical Low Tide (LAT) and are constantly charged with ground water.

These mains in particular needed to be rehabilitated urgently as most were the large diameter Trunk Mains that carried the sewage to the treatment plants and should they fail all hell would break out up stream.

We needed to act and act fast; a tender was prepared for the Cleaning and CCTV Inspection and Condition Assessment reporting contract for the Trunk mains being lines > 450 mm up to 750mm, at the same time a tender was prepared for the Insitu lining of the Truck Mains. Both contracts were let and FRW commenced to rehabilitate its sewers.

The need to accelerate and to expand the programme was recognised and the budget allocation has been raised from an initial $800,000 in 2001 to $5,000,000 in 2009. The future budgets as identified in the Strategic Asset Management Plan (SAMP) will seek to have similar amounts, in excess of $5 million allocated for the rehabilitation of the

sewers.

With creation of Rockhampton Regional Council due to the amalgamation of Livingstone Shire, Fitzroy Shire, Mount Morgan Shire and Rockhampton City Council the need for this work has been increased and accordingly so will the need for budget reviews.

To date approximately 37.5 km of high risk sewers 300ø mm to 900ø mm have been lined and there original hydraulic capacity has been restored.

FRW has recently invited tenders for the next phase of this work being approx 100 km of smaller 150ø and 225ø diameter lines to be cleaned and inspected. From these inspections a lining programme will be formulated and acted on immediately.

FRW have now administered Contracts for the Rehabilitation of sewers annually for the past decade and has gained invaluable experience in the construction of the tender and contract documents along the vast experience in the administration of the actual contract and the types of linings that suit various applications.