

Wastewater

(Sewerage)

Activity Management Plan

2006

Stratford District Council

Appendix R of LTCCP

Wastewater Activity Management Plan

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1. Introduction

1.1 Background

Under the Local Government Act 2002 the purpose of local government is:

“To enable local decision making by and on behalf of citizens in their local communities to promote their social, economic, cultural and environmental well-being in the present and for the future.”

The Stratford District Council provides and manages a wastewater disposal system under the provisions of:

- The Local Government acts 1974 and 2002.
- The Health Act 1956.
- The Building act 1991.
- The Plumbing and Drainage Act.
- Council Bylaws.

It provides this service to:

- Enhance public health and safety.
- Meet the community outcomes of:
 - A built environment that is attractive, safe and healthy.
 - Affordable high quality core services and facilities.
 - Sustainable development.
 - Clean air, water and land.

In undertaking its wastewater activity, Council is seeking to meet the requirements for the sustainable provision and adequate management of a wastewater infrastructure that meets the needs of current and future communities and supports the desired Community Outcomes from the LTCCP.

Council also has obligations under the Health Act 1956 and the Building Act 1991 which outline general duties of a local authority to improve, promote and protect public health by the sanitary and responsible treatment and disposal of wastewater.

The purpose of this plan is to provide for the long term management of Councils wastewater infrastructure. It considers Council’s wastewater strategy for the future, examines current practices and enables the community to be more informed about district wastewater issues.

The wastewater activity encompasses the planning, maintenance and provision of reticulation systems and wastewater treatment and disposal, and all associated infrastructure for the district.

1.2 LTCCP Community Outcomes

In preparing the first LTCCP Council has used both current and new information concerning community outcomes. To arrive at the Regional outcomes research was undertaken in conjunction with our two neighbouring Local Authorities, New Plymouth District Council and South Taranaki District Council and the Regional Authority, Taranaki Regional Council. The four Councils appointed AC Nielsen Ltd to identify community desired outcomes for the regional community, those desired outcomes that will add to or sustain the community’s well-being.

The community was actively engaged in the process to identify what they considered important and which five outcomes they thought required most attention over the next five years. While the primary focus was on outcomes common to the regional community each district was required to identify any local preferences.

The Stratford community was directly consulted key outcomes for the district and these have formed the basis for Councils LTCCP.

The Regional and Stratford community outcomes to which water primarily contributes are addressed in Volume One, Chapter "Levels of Service/Performance Measures" of the LTCCP.

1.3 Wastewater Goal and Principal Objectives

The wastewater activity goal is:

“To contribute to the health and environmental needs of the community through the sustainable provision and adequate management of an effective, efficient and environmentally acceptable system of sanitary management”.

The wastewater asset consists of:

- A reticulation system of pipes and manholes that collect the sewage and transport it to the point of treatment.
- An oxidation pond treatment system where the sewage is treated before discharge to the Patea River.

The principal objectives of the wastewater system are to:

- (a) Plan for, and forecast, the investment for the future maintenance and provision of the wastewater infrastructure in perpetuity, and to anticipate growth and demand trends that may effect this level of investment;
- (b) Ensure that all reticulation and treatment services meet adequate health and service standards;
- (c) Monitor and assess the performance and compliance of various wastewater infrastructure;
- (d) Maintain an adequate management system for all matters relating to the wastewater infrastructure; and
- (e) Provide for informed community consultation.

2. Levels of Service and Detailed Activities

The levels of service and performance measures are discussed in Volume One of the LTCCP under the chapter "Levels Of Service/Performance Measures".

2.1 Health and Safety

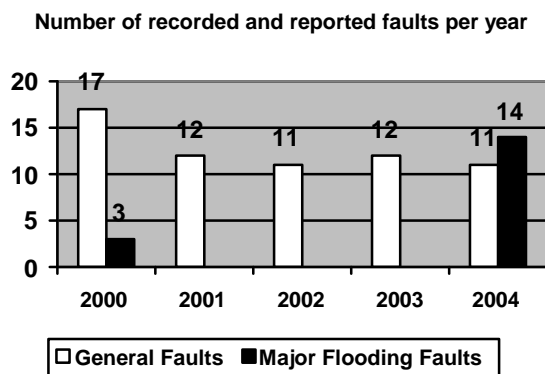
This area measures the number of times per year faults occur in the reticulation system whether through blockages, complaints about odour, discharges or other faults that are of concern to the public.

Some of the faults, particularly discharges from private gulley traps or manholes on the street, could result in community health issues but to date there is no evidence of this in the district. As soon as a fault is noted or reported any areas affected by the discharge are cleaned and if necessary disinfected.

The following graph shows the number of reported faults per year. Over half of the faults relate to a section of line in Cordelia Street which had sunk and caused blockages. This line has now been re-laid to grade and should result in a decrease in the number of reported faults.

A further problem with this section of line is that during wet weather it can become overloaded due to infiltration from the Oberon Street line. This problem is being addressed in 2006/07 and should reduce the total faults occurring in the system.

The main type of general faults are due to blocked laterals which can be caused by tree root penetration, poor pipe alignment with resultant lips or objects introduced into the system by the property owner.



2.2 Environmental Standards

Council manages the risk of detrimental environmental effects through its compliance with resource consent conditions for treated effluent discharge into the Patea River and odour discharge to the air from the oxidation ponds.

2.3 Responsiveness

The Services Facilities Maintenance Contract states a set response time and actions to be taken for reticulation system faults which typically include blockages, odour and discharges. These are measured through contract reporting and monitoring.

2.4 Service Costs per Household

Council desires to keep the costs to the community at a reasonable level while at the same time providing an acceptable level of service.

Council needs to ensure that best practises are being followed and the contract managed to achieve the desired level of service at an affordable price.

2.5 Renewal and Capital Projects

Every Annual Plan lists a number of renewals and capital works items that are targeted to be completed as part of the annual wastewater activity. This item measures the percentage completion of these projects so the community can see the result of its investment in identified works the wastewater area. It is assumed due to the nature of some of the works that carry-overs will occur from time to time.

3. The Existing Situation Described

3.1 The Wastewater System

The Stratford wastewater system services over 2,200 properties or 97% of the Stratford urban area. All other dwellings in the district are serviced by septic tanks which are the responsibility of individual property owners.

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The Stratford township system consists of 41.6 km of pipes that discharge into an oxidation pond treatment facility on Victoria Road.

The main users of the system are residential dwellings. The content of discharges from commercial properties is primarily domestic by nature although there are three local industries that have a specific commercial use of the system.

The District is framed by Mt Taranaki/Egmont on its western boundary and steep hill country leading to the Wanganui River on its eastern boundary. Its topography is dominated by the mountain and its volcanic ring plain with numerous water courses. The mountain also influences the weather which typically has high annual rainfalls. The volcanic ash soils from the mountain are very free draining and are generally stable.

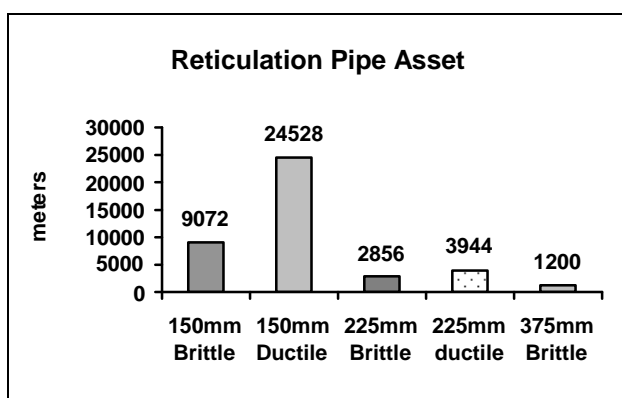
3.2 System Description

The summary of Councils wastewater assets (as at 30 June 2003) is summarised in table below:

Population		8856 (2001 census)
Property Connections	Connected	2286
	Unconnected	2242 (143 Urban, 2099 Rural)
Physical Statistics	Reticulation length	41.6km
	Laterals*	28.6km
	Pump stations	3
	Man holes	355
	Oxidation ponds	2
	Inlets	1
	Outlets	1
	Value	Replacement
Depreciated Replacement		\$835,300
Discharge volumes	Average Daily	4800m ³ per day
	Peak daily	17,800 m ³ per day
	Minimum winter	3200m ³ per day

(* Note – laterals based on estimate of average 12.5 m per property and 2286 property connections)

The following table shows the reticulation pipe asset types and quantities. (Note - brittle = glazed earthenware, concrete, fibrolite - ductile = plastic).



3.3 Financial Summaries

- Details of the current 10 Year budget projections are contained in the financial sections of the LTCCP.
- Summary of current valuations and depreciations (2001 Opus Consultants).

Asset		Qty/Size	Expected Economic life (Yrs)	Age (Yrs)	Replacement Value \$000	Depreciated Replacement Value \$000
Pipework	150mm	33.6km	80	60	1619.7	410.8
	225mm	6.8km	80	60	655.6	166.3
	375mm	1.2km	80	60	167.1	42.4
Manholes		355	80	60	380.3	96.4
Pump stations	Structure	3	80	45	13.2	8.9
	Infrastructure	3	30	27	23.3	3.7
	Pumps	3	30	2	11.0	10.2
Ponds	Facultative Pond	2.6ha X 1.5m deep	50	45	424.2	93.8
	Maturation Pond	1.7ha X 1.5m deep	50	45		
Inlet		1	80	60	16.4	1.9
Outlet		1	80	60	52.1	0.9
					3362.9	835.3

3.4 Issues

(a) **Age and Condition of System**

The current system is in need of some significant improvements, particularly in relation to water infiltration into the pipe system and increasing resource consent requirements for the discharge of treated effluent into the receiving waters.

Council is developing strategies to address these improvements. However infiltration issues are not readily solved so an incremental but progressive approach to reducing the problem is being undertaken.

(b) **Water Infiltration**

Water infiltration is a major area of concern. Due to the high rainfall of the region ground water is reasonably high particularly during the winter months and after prolonged wet periods. Combined with this and the age and condition of the reticulation, system there are significant quantities of ground water infiltrating the system.

When designing a sewer pipe the accepted figure to allow for a stormwater infiltration is a factor of “five” (a pipe five times the required capacity to manage wastewater volumes to cope with groundwater infiltration). At times Stratford has had to cope with a factor of “20 times” the system capacity due to high rainfall, groundwater and infiltration levels.

Infiltration is from two main sources:

- Direct discharge into gully traps from roof down pipes and gully traps being too low and surface water running into them.
- Ground water infiltrating into wastewater pipes through poorly finished manholes, cracked pipes and failed joints.

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The following actions have been taken to reduce infiltration levels:

- (i) Residential and commercial properties have been inspected to detect any direct discharges into gulley traps etc. Where there is a fault non-compliance notices have been served to property owner's explaining what the problem is and what remedial action is required. This should be completed by January 2007. It is estimated that this could reduce the infiltration by a factor of 7.
- (ii) An internal inspection of the main sewer pipes is progressively being undertaken using closed circuit television. The tapes obtained are played back and a condition rating of each section of pipe completed. The condition rating provides information on problem areas and help priorities required remedial works.
- (iii) A system model is being developed which provides information on what size the pipes should be to make sure that the system operates satisfactorily. It is expected that the model will be completed by June 2007.

Where pipes are identified as being undersized and with a high level of infiltration they will be replaced with those of a larger size rather than endeavouring to repair the existing pipes. The model will allow for the more accurate estimate of costs and help set priorities for future works.

(c) **Oxidation Pond Treatment System Upgrade - Resource Consent Requirements**

Council has two resource consents for the oxidation ponds, one for odour discharge into the air and the other for treated water discharge in to the Patea River.

By June 2007 a new resource consent for the discharge of treated effluent into the Patea River will be developed by the Taranaki Regional Council (TRC). The conditions in the resource consent will relate partially to the increase status of the Patea River as a notable waterway under the Regional Councils 2001 Regional Fresh Water Plan, which emphasises its environmental, recreational, fishery and aesthetic value and also reflects the willingness of the community to improve environmental care and management.

Working with the TRC Council has programmed improvements for the upgrade of the oxidation ponds treatment and the structure where the treated effluent is discharged into the Patea River. This work is further described in the section on capital and renewal works.

(d) **New Zealand Waste Strategy**

Under the NZ Waste Strategy requirements, Council along with the New Plymouth and South Taranaki District Councils have adopted the Taranaki Regional Council "Taranaki Waste Strategy" which will come into force in 2006. This strategy is environmentally based and from 2006 will prevent any treated or untreated sludge being buried underground or deposited into land.

The outcome of this strategy is the need in the future of Council to find a new method for the disposal of its treated sludge. Current treatment is burial at the old Swansea Road landfill site. In the future the most probable and economic outcome is for all treated sludge is composting. This is environmentally friendly resulting in recycling of the material and an economically viable solution.

This will not impact Council financially for another 15-20 years when the ponds will possibly require desludging again.

(e) **Reticulation System Capacity**

Council is developing a network model for the sewerage reticulation. This model will confirm the size of pipes required for the satisfactory operation of the network. This model should be completed by June 2007.

At present the main trunk at the lower end of Regan and along Swansea Road flows at capacity during wet weather. However an accumulation of gravel in the pipe downstream could be having a major impact on the efficiency of this section of pipe. The clearing of this gravel is in progress and should relieve the pressure on this section of trunk main.

The network model will confirm the adequacy or other wise of this section of pipe.

(f) **Desired Population Increase**

The desire to increase the population of the district could have significant effect on the wastewater system depending on where the added population would locate. Growth scenarios and their impacts are discussed in Section 5.

(g) **Lateral Reticulation System**

The lateral is the section of pipe from the main in the street to the property boundary and is discussed further in the Bylaws section (13.1 of this document). The main point is the issue of ownership and responsibility for maintaining this section of pipe. The current practice is not always consistent with the wording in the bylaw.

(h) **Private systems - Septic Tanks**

Toko, Midhirst and Whangamomona townships, district rural areas and approximately 90 residential properties in the Stratford township, currently rely on septic tank systems to dispose of their wastewater (see Appendix 4).

As part of the Councils 2005 Sanitary Services Assessment report a survey was undertaken of a percentage of these tanks measured against performance standards of AS/NZS 1547:2000 'Onsite Domestic Wastewater Management'.

Other than some minor isolated issues the general status of the tanks was satisfactory. However the rest of the septic tanks in the townships could be surveyed to assess a more accurate measure of performance.

The impact of the survey outcomes will indicate whether the current septic tank system is performing to standards and has the capacity to continue to do so. If not, there are a number of options to be considered. Under current Council funding policy any financial impact of these options are directly recoverable, as a private good, from the individual property owner.

In Stratford township where the wastewater system is offered, Council has strict requirements before any further septic tanks will be permitted and strongly encourage property owners to utilise the wastewater system.

(i) **Camper Van/Motor Homes Effluent Dumps**

The Motor Caravan Association has asked Council to give consideration to have an additional dump station in Stratford, currently there is one at the Holiday park in Page Street. Letters have been sent to the three local petrol stations asking if they are interested in hosting such a service. Discussions are in progress.

Currently there are no effluent dumps for camper vans/motor homes on SH43 between Stratford and Taumarānui. The Whangamomona community have raised the issue of establishing one in Whangamomona. At present there is no financial provision for installing such a system.

(j) **Asset Database Information Management**

Council has adopted the “Biz-e-asset” asset management database system. All the wastewater asset information will be entered and reporting structures set up by 30 June 2006. This will enable greater ease in reporting, analysing and management of asset information.

4. Maintenance and Operating

4.1 Ownership

Council intends to continue to own, control and manage the wastewater system and associated infrastructure in the District but maintaining them is ‘contracted out’.

J & L Taranaki Ltd has the current Wastewater Facilities Management Contract until 30 June 2006, with renewal clauses for another three years. This contract is managed by the Operations Business Unit of Council.

Design and development components are contracted out to specialists on an as needed basis.

4.2 Estimated Costs over next 10 Years

The estimated cost of operations and maintenance (including depreciation and other overheads) for the next ten years are detailed in the LTCCP.

As the upgrade in the oxidation ponds progresses there will be an increase in the operating and monitoring cost and this is reflected in the financial forecasts. These costs relate to the improved treatment to provide a higher quality effluent for resource compliance as discussed in Sections 6 and 7.

4.3 Issues

(a) **Contract Management**

The maintenance contract is operating satisfactorily and Council continues to seek improvements in monitoring and reporting of activities undertaken by the contractor.

The current system should be improved with more streamline analysis provided by the application of Biz-e-Asset (re: 3.4(j)) that will enable an improved level of monitoring and reporting on contractor and asset performance.

(b) **Reticulation System**

As discussed in 3.4(b) the existing system is subject to ground water infiltration. In times of prolonged heavy rain parts of the reticulation become overloaded resulting in over flows from some manholes and low lying gully traps. These generally occur in the winter when the ground water table is high and results in a maintenance requirement to clean up the affected areas. Current budgets allow for this maintenance cost.

As improvements are made to the system these maintenance requirements will be minimised.

(c) **Renewal and Capital Works**

Impacts of renewal and capital work programme have been taken into account when preparing operational budgets for future years. Operating costs will increase because of additional treatment at the oxidation ponds such as screening and aeration and the need for more detailed monitoring.

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4.4 **Emergency Management**

District wide emergency management is centrally co-ordinated by the Taranaki Regional Council. Stratford District Council has emergency response agreement under its facilities maintenance contract that addresses minor emergency responses.

Council recognises the need to formalise a localised wastewater response and action plan that identifies timeframes, actions and procedures in case of emergencies of a local scale. The types of emergencies to be planned for are of the scale where the basic operation of the wastewater service can not be provided.

5. Future Demand

5.1 Future Demand Predictions

(a) **Population**

Population growth in the district and demand on the wastewater system has remained reasonably consistent over the last 30 years. Statistics NZ predicts slight declines over the next decade and there are no indicators that signal any change in these trends for the future.

Stratford District Council has targeted the districts population to grow by 33% to 12,000. This desire is reflective of the outcomes from the LTCCP. There is no defining timeframe for this and no provision has been made for this possible growth. If a population increase is to occur it is anticipated that it will be a progressive trend happening over a number of years. The network model currently being developed will take into consideration possible areas of growth and if there are any pipes that are in need of replacement because of present loadings consideration will be given to using a larger size to accommodate any possible future population growth in that particular catchment.

It is anticipated that the work being completed on the oxidation ponds will also increase its capacity but to what extent is unknown. This will need to be determined when the upgrade work is completed. No provision has been made in this LTCCP to fund additional upgrades because of possible population increases.

The following are two assumptions on the population increase of 33% or 3,000 (equating to 1,000 new households) and their impacts on the wastewater activity. The assumption for the northern location for the increase is based on current subdivision trends. (NOTE - It is assumed for both scenarios that maintenance and operational costs will increase accordingly.)

1. *That within 10 years the population increases to 12,000 and this increase is 90% (900 Households) in the northern Stratford urban area and 10% (100 Households) in the rural area throughout the district.*

The level and pattern of increase would have manageable impact in the rural areas and significant impacts in the Stratford urban area.

In the Stratford urban area the northern trunk main, Swansea Road from Regan Street to Celia Street, would be required to be upgraded from 375 mm to possibly a 525 mm diameter pipe. The main trunk from Celia Street to the ponds will also possibly have to be upgraded. The final size of the pipes would be known when the network model is completed and the appropriate parameters introduced. The best guesstimate for this is \$800,000.

The assumption also is that normal subdivision wastewater reticulation requirements would be met by the subdivider.

Some upgrading would be required at the oxidation treatment plant to treat the additional volumes. The best guesstimate for this cost is under \$100,000.

Any corresponding impacts in increased commercial demands would have to be considered at the time depending on the activities undertaken.

Strategies to minimise infiltration would be an important part of the upgrade to maximise the existing network performance. This possible cost impacts for this process could be up to \$250,000. However this could be considered as an operational cost.

2. *That within 10 years the population increases to 12,000 and this increase is 50% (500 households) in the Stratford north western urban area and 50% (500 households) rural.*

A 50% increase in the Stratford urban area would place the current system near its maximum and there could be a need to increase the size of some mains depending on where the development occurred and the results of the reticulation modelling that is currently being prepared.

Conservation strategies to minimise infiltration would be an important part of the upgrade to maximise the existing network performance. However this will be an ongoing process that may need to be expedited if there are to be a number of additional connects made.

Some upgrading could be required at the oxidation treatment plant to treat the additional volumes. However no costs are available as the work required will be dependent on the efficiency of the new pond system when the current upgrade is completed.

The assumption also is that normal subdivision wastewater reticulation requirements would be met by the subdivider. Any corresponding impacts in increased commercial demands would be mitigated under the District Plan.

A 50% increase in the rural population should not have an impact on the current sewerage system as it is likely that most of the increase would be on life style blocks on which there would be adequate area for a septic tank system to operate satisfactorily. If the increase was in the Midhirst township there could be issues with sewerage disposal which would need to be addressed at the time.

(b) **Industry**

There are two commercial industries that utilise the wastewater system for their commercial operation:

1. Stock Yards – have a holding facility to manage flow rates that are discharged into the reticulation system monitored and managed by Council.
2. Taranaki Galvanising – have pre-treatment requirements that are monitored by Council.

Other industries have their own facilities that are monitored under consent conditions by the Taranaki Regional Council.

In the short term, no other industries are expected to be established in Stratford that would impact greatly on the system. If in the future some do develop any effects will be mitigated under consent requirements and financial contributions.

(c) **Community**

When there are heavy rainfall events resulting in the discharge of sewerage from manholes and gully traps, there are concerns expressed by some members of the community. Council is progressively addressing this issue.

Environment concerns of the community, particularly of the Patea River, are represented through the reviews of consents requirements in partnership with the Taranaki Regional Council.

6. Capital Expenditure

6.1 Historic Capital Expenditure

The wastewater treatment system, Oxidation Ponds, is 40 years old. During this period it has required little capital or renewal works. Over the last four to five years there has been some replacement of failing wave bands and a change in the position of the outlet from the lower pond.

6.2 Future Capital works Programme

Future capital works funding requirements are shown in the LTCCP. Over the next ten years capital works are focused on two core areas:

1. Upgrade and improvement to the oxidation pond treatment system.
2. Upgrade and improvement to the reticulation system.

These provisions are provided to meet consent requirements and community expectations or service level performance.

6.2.1. **Upgrade and Improvement to the Oxidation Pond Treatment System**

This work has been in progress since 2001-02 and is in part general maintenance and in part capital improvements so that the effluent and method of discharge to the river will comply with new resource consent requirements. The net result will be an improvement to the quality of effluent discharged into the Patea River and the manner in which this is discharged.

Work completed to date is the removal of the sludge from the top pond and the installation of a mechanical inlet screen. This screen takes out undesirable solids such as plastic bags and other general litter. These solids lead to blockages in the pond's outlet screen systems, are unsightly, can become wind blown and add to odour problems. The cost of this work is \$420,000 which includes \$124,000 for testing and consultants fees.

Future plan works involve:

(a) *Oxidation Pond Air Diffusion System*

An air diffusion system (ADS) is to be installed in the lower or secondary pond. The ADS consists of a number of tubing lines installed on the bottom of the pond through which air is discharged. Extending above the tubing to the surface of the pond is a screen or aqua mat which allows water to pass through and provides a habitat for various forms of pond life. The additional oxygen and pond life reduces algae, suspended solids, bacteria and BOD. It is proposed that the ADS be installed by December 2006 at an estimated cost of \$100,000. This is a carryover from previous years and does not appear in the current budget.

(b) *New Outlet*

The current outlet into the Patea River is aesthetically and culturally unacceptable and requires improvement. As a result of pre-resource consents consultation a new rock groyne discharge system is to be installed downstream from the existing discharge point. This work is to be completed by March 2007 at an estimated cost of \$80,000. This is also a carryover from previous years and does not show in the current budget.

(c) *Treatment System Future Enhancements*

Also included is necessary strengthening works on the south east embankment on pond No. 2. Following on from signs of pond seepage a stability analysis was performed in January 2005 by consultants Harrison Grierson. The study considered the current situation to have a satisfactory factor of safety against instability for embankment structures. Options were provided for remedial treatments and these will be further investigated and actioned as necessary in March 2007.

- (d) *Embankment Strengthening*
Provisions for future enhancements have been made in 2009 -2011. This budget is for the likelihood for increasing demands in resource consent requirements to improve the quality of the effluent discharge. Areas that could possibly be improved are nutrient screening process, and a further upgrade of the air diffusion process.

In summary as at June 2006 the following programme is proposed:

- (a) Carried over from previous years \$290,000 of effluent upgrade to fund:
- Oxidation air diffusion system for completion December 2006.
 - New outlet structure for completion March 2007.
 - Embankment strengthening for completion March 2007.
- (b) New funding 2009/2011 \$315,000 for capital works plus \$200,000 for treatment enhancements and renewals, possible requirements when the pending resource consent is reviewed. Resource consent is to be reviewed every three years.

Funding details of the above are included in the financial section of the LTCCP, any discrepancy between these figures and the above then the financial section figures will take precedence.

6.2.2. Upgrade and Improvement to the Reticulation System

- (a) *Reticulation System*
As discussed in 3.4(b)(e) Council is investigating options for a reticulation model that will identify any areas where pipe sizes need to be increased to improve the overall capacity and performance of the system.

To determine the overall condition of the pipes an internal inspection using closed circuit television (CCTV) has been completed on approximately 10% of the reticulation. By the end of 2006 it is proposed that a further 10% of the reticulation will have been completed.

When a section of pipe has been filmed a condition rating of that section is completed by viewing the tape and recording any faults found. This will establish which sections of pipe are in most need of repair/replacement and a possible cost.

The current renewal budget is spread over a number of years but it is likely that as a suitable reticulation model is developed, this activity will be accelerated as financially manageable.

The two issues to be addressed in the reticulation system are:

1. The rehabilitation or replacement of existing pipes that have inadequate joints or are damaged and allow infiltration of ground water.
2. As for 1. above but they are undersized and require replacing with pipes of a larger diameter.

The capital component of a pipe renewal represents the increase in capacity when a smaller pipe is replaced with a larger pipe. If pipe is replaced with like sized pipe the work is fully funded from renewals.

6.3 Carryovers Funding

Due to the nature of the treatment upgrade involving system development and addressing evolving resource consent requirements, carryovers of funding has been required.

Carryovers have occurred over the last three years. There has not been a cost to Council as this capital upgrade is funded from loans that are only used on an as required 'on-call' basis.

Details of these carryovers are in the LTCCP.

Any renewal carryovers are held in the depreciation reserve and allocated when the job is undertaken.

7. Renewals and Depreciation

7.1 Future Renewals Needs

Over the next ten years the renewal programme focuses on the upgrade of the reticulation system which is the main area of concern for Council.

Renewals are funded under annual depreciation provision. Any depreciation surpluses each year will be used to repay the debt thereby reduce the annual loans' servicing requirements, as well as increasing the depreciation fund. Conversely, when renewals costs exceed the amount of depreciation funds available, loan funding may be used.

The Council aims to improve the service potential of all its wastewater infrastructure assets on a continuous and sustainable basis, and the budget forecast reflects the investment required to achieve this.

The major activities undertaken in the renewal programme include the following:

(a) **Wave Band Renewal**

Sections of the wave band require repaired to protect the embankments around the pond from wave damage. The proposal is to repairing the worst areas over 2006/2007 and then following up with a secondary repair in 2019/2020. The allocated funds have been accumulated in reserves over the last three years with an annual amount of \$17,600. In 2006/07 \$52,800 is budgeted for wave band renewal.

(b) **Reticulation**

The allowance is made for the renewal component of the upgrade works to the system discussed in 2.1(a).

The initial renewal work will be infiltration control using relining technology on the Oberon Street line. Although this is one of the newer lines in the town it has a high level of infiltration and is one of the reasons for some of the problems in Cordelia Street north. Included in this work is the repair/replacement of some of the manholes in this area.

When the computer model of the reticulation has been completed other lines will be considered for relining/replacing depending on the design size of the pipe required, its state of repair and depth.

(c) **Computer Modelling**

This funding is for the design and development of a suitable reticulation model and the testing, refinement and analysis required. (Re 3.4(b)(iii))

The computer model will show the required size of pipes in relation to the existing pipes. It will identify in-efficiencies in the system, and parts of the system that are not performing because the pipes are too small. From this information a more accurate programme and budget for works will be developed. This will be done for the next LTCCP.

7.2 Relationship Between Renewals Needs and the Ability of Depreciation to Fund

Council has to manage an unknown level of renewal demands and a lower capacity to fund depreciation. This situation exists due to the incremental process of trying to depreciate the reticulation asset 40 or 50 years into their life with some parts of the system due for renewal works, whilst trying to minimise the effect on rates.

The unknown factor is the condition of the wastewater reticulation system and a suitable model for its efficient operation. Both are under investigation and a more accurate estimate of the system requirements should be known by 2007.

Council, where necessary, funds major works out of loans, and incrementally improves the minor renewal work programme in an affordable and satisfactory manner for the community.

Depreciation is currently flat-lined and the cost of new capital is not factored in 10 year budget forecasts.

7.3 Future Depreciation Allocation

Depreciation is rate funded though targeted rates and is adjusted for inflation.

Once the current treatment capital work programme is completed in 2006/07 and the system model is defined by 2007, a more accurate assessment of depreciation requirements will be achieved.

8. Funding

8.1 10 Year Financial Plan

Councils wastewater activity financial 10 Year financial summary is shown in the financial section of the LTCCP.

8.2 Funding Policy

Activity: Wastewater

Description of Activity:

The contribution to the health and environmental needs of the community through the sustainable provision and adequate management of an effective, efficient and environmentally acceptable, system of wastewater management.

Reason Why Activity is Engaged in: see Clause 1.1.

Funding Sources and Mechanisms

Desired Benefits		Modified Benefits		Funding Mechanism	
Public	Private	Public	Private	Public	Private
5%	95%		100%		Targeted Rates

Access to the wastewater system has been determined as private good due to the user being identified at a household or business level. The majority of those in the Stratford urban area have access to the system and rely on it.

8.3 Schedule of Fees and Charges

These are the current (2005) charges for target rates for the wastewater service.

Council set a targeted rate under Section 16 of the Local Government Act 2002 (rating) in respect of sewerage disposal on the basis of a charge per the number of water closets and urinals within each separate rating unit which is connected to a public sewerage drain. This rate uses factors 7, 8 and 12.

The sewerage disposal rate under section 16 is \$113 where one water closets and/or urinals is connected.

The sewerage disposal rate under section 16 is \$170 where two water closets and/or urinals are connected.

The sewerage disposal rate under section 16 is \$226 where three water closets and/or urinals are connected.

The sewerage disposal rate under section 16 is \$225 where four water closets and/or urinals are connected.

The sewerage disposal rate under section 16 is \$283 where five water closets and/or urinals are connected.

The sewerage disposal rate under section 16 is \$311 where six water closets and/or urinals are connected.

The sewerage disposal rate under section 16 is \$339 where seven water closets and/or urinals are connected.

The sewerage disposal rate under section 16 is \$368 where eight or more water closets and/or urinals are connected.

Note that the number of water closet and urinal units is assessed as what is required by the Acceptable Solutions, NZ Building Code, and not by what actually exists.

9. Resource Consents

9.1 Resource Consents (see Appendix 1)

Current conditions are covered under two resource consents with the Taranaki Regional Council, one of which is now expired. As non-notified consent consultation has been undertaken with effected parties and strategies put in place to comply with their issues (see 3.4(c)).

The capital works upgrades over 2004 - 2007 are a direct result of compliance issues and once these major works have been completed a new resource consent will be granted by the Taranaki Regional Council.

Current Consents

<i>Location</i>	<i>Type</i>	<i>Action</i>	<i>Summary</i>	<i>Expires</i>	<i>Status</i>
Stratford	Sewer	Discharge	4000m ³ /day to Patea River	1 June 2004	Application
Stratford	Sewer	Discharge	Desludge ponds air discharge	2004 - 2007	Current

10. Demand Management

10.1 Wastewater Demand Management Policies

Although there are no formal policies applicable to demand management, as this is not a significant issue for the Stratford District, initiatives and considerations have been made by the Council where appropriate.

Demand management involves the implementing a range of solutions, both related directly to the asset and others related to the use of the asset, for managing a demand in service. Solutions related to the use of the asset currently used by Council include:

- Use of District and Regional Plans.
- Initiatives to minimise stormwater infiltration (property inspections and requested remedial actions).
- Water Usage reduction strategies for commercial and community organisation facilities.
- Future recycling of treated solid waste.

10.2 Sustainable Development Issues

In the future other solutions could involve public education and the development of a formal future demand strategy for wastewater based on anticipated demands and a system model. Due consideration needs to be afforded to clearly identify the level of impacts if a change in demand is forecasted or desired and to continue to meet resource consent requirements.

11. Significant Negative Effects

11.1 Significant Negative effects caused by Wastewater

Health

The wastewater system has the potential to effect community health if it fails to operate according to required standards of operational performance. As standards are improved so is the system.

Periodic failures in the system such as discharge overflows in domestic reticulation systems and through street manholes are of concern and are being addressed as a priority by Council.

Currently there are no indications that community health has been or could be significantly effected by the performance of the wastewater system.

Odour

Odour is managed through the resource consent process. The upgrade of the oxidation pond treatment system of increased aeration and screening collectively will add to further minimise the possibility of an odour problem.

Environment

Council is working with the Regional Council on a review and improvement of its resource consent requirements. This has resulted in planned improvements in the treatment system and quality of discharge from the ponds and the method of discharge to the receiving waters.

Continued efforts will be made to ensure any environmental effects are minimised.

Culture

The treatment and disposal of wastewater into the Patea River has highlighted some cultural issues. Council is dealing with these issues as part of the consent consultation process. One such issue is the direct disposal of the discharge from the Treatment plant. To acknowledge and mitigate this issue Council is modifying the outlet structure to meet cultural and environmental concerns.

12. Significant Forecasting Assumptions, Uncertainties, Risk Management

12.1 Assumptions and Uncertainties

General Assumptions and Uncertainties	
Asset Life	Based on industry and accounting standards.
Capital cost impact on operations	The community can assume that as it seeks improvements and additions to its assets, rises in operational costs may occur due to the additional of improved infrastructure that will exist.
Constraints of Council	Due to the size of the Stratford District and correspondingly the size of the Council, the level of investment in planning, analysis and improvements is limited to what best suits the community both in practical and affordability terms.
Depreciation	Based on 2006 valuations.
Financial Values	All at today's 2006 values.
Funding allocations	All funding is based on expenditure predictions and as at 30 May 2006.
GST	Not included in financial forecasts.
Historic assumptions	Up to now Council has operated on historic assumptions and has managed the district according to the level the district can afford. The LTCCP process will determine its future approach to many areas of its asset management
Inflation	An allowance has been made for inflation in forecasts.
Interest on investments	5%
Interest rate on loans	9%
Knowledge	No commitment or contingencies that Council is aware of has been excluded.
Population Growth	Assumed constant at 9,000.
Service Levels	Unless stated are remaining constant.
Stratford Identity Project	The impact of the proposed "Stratford Identity" project has not been determined.
Valuations	Current valuations are based on 2003 figures.

Activity Assumptions and Uncertainties	
Activity Management Plan (AMP)	This is the first AMP for Wastewater. As such it will be the subject of continual improvement as information and analysis develop.
Asset Information - Biz@asset management system.	The information provided has been developed from an existing asset register managed through an in house database. Over the next 12 months an asset management system will be adopted and this will permit more manageable and accurate control of asset information.
Private Systems	Council does not intend to accept responsibility for private wastewater systems.
Renewal projections on Capital items.	Some allowance has been made in renewal budgets for proposed major capital works. These will be more accurately assessed on completion of the individual capital works projects.
Reticulation model.	Uncertainties relate to the reticulation system where a suitable model is yet to be developed that maximises the performance of all the system and also addresses the existing problems.
Reticulation system asset knowledge	There is not an accurate measure of quality. Assumptions and estimated age are made for valuation and renewal purposes

12.2 Risk Management

A high level risk assessment of Council activities has been undertaken and is considered within the next LTCCP. This covers the generic issues of governance and business practices and common issues in group activity areas.

The table below outlines some of the key asset risk issues and rates them according to the guidelines in Appendix 3.

Further more in depth analysis for risk for the wastewater activity should be undertaken in the future.

Risk	Controls	Consequence	Likelihood	Accept Risk
Oxidation Pond physical failure resulting in untreated wastewater discharge	<ul style="list-style-type: none"> • Design to appropriate standards • Renewal and capital programme • Overflow system • Monitoring requirements • LAPP insurance • Standard Operating procedures 	Moderate	Unlikely	Yes
Major failure of trunk and reticulation brittle pipe failure due to earthquake	<ul style="list-style-type: none"> • Renewal programme • Stock on hand • LAPP Insurance 	Moderate	Unlikely	Yes
Overflow of wastewater due to infiltration	<ul style="list-style-type: none"> • Planned response • Education of effected parties • CCTV surveys • Gully trap survey • Renewal and capital programme • By pass system 	Moderate	Likely	Yes
System Security breach	<ul style="list-style-type: none"> • Secured building/alarmed/monitored • Computer security systems • Security monitoring 	Moderate	Rare	Yes
Mechanical failures of plant and equipment	<ul style="list-style-type: none"> • SCADA monitoring • Standard operating procedures • Backup systems/equipment (eg Pumps) • Maintenance regimes • Renewal programme 	Minor	Moderate	Yes

13. Bylaws

13.1 Issues

(a) **Lateral Reticulation System**

1. *Ownership of System Between Private Property Boundary and Main System*
The issue of who owns, and therefore has responsibility for the lateral pipe system between the property boundary and the main in the street is an issue that needs clarifying. Currently there is a difference between the bylaw and current practice.

The Council bylaw states that:

"The point of discharge from a customer shall be the point on the public sewer which marks the boundary of responsibility between the customer and the Council".

ie. the customer is responsible for the lateral to the public sewer.

Current practise is that if a blockage occurs between the property boundary and the main in the street and this problem can be directly attributed to actions of the property owner, then the property owner is responsible for maintenance/repair costs. If it can be shown that the blockage is due to a damaged or poorly aligned pipe, Council will meet the full cost of repair.

To provide a clear understating to the community and a consistent application by Council officers, Council needs to determine whether it will continue with this practice, or have it modified. This should be considered along with national developments (see 2 below). The financial impact of this decision will only have a minor bearing on operating costs.

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2. *Maintenance of System within Private Property*

The NZ Water and Wastewater Association (NZWWA) are addressing the issue of responsibility for maintenance of the system on private property. Policy is being developed that will lead to a nationally accepted bylaw on responsibility.

Councils' main interest relates to the reduction of water infiltration into its system through pipes on private property.

The outcome of NZWWA's process may have some effect on maintenance costs for Council but this is unknown at this point in time and no provisions have been made in the current ten year plan.

14. Plan Review / Public Consultation

14.1 Reference to the Public Consultation Undertaken

Council has consulted the community to establish funding levels and agreed community outcomes as discussed in the introduction of this plan.

In addition Council continues other practices such as:

- Specific project or issue consultation.
- Annual Plan submissions.
- LTCCP process.

Council will continue to consult with the community as it further develops its LTCCP and undertakes its normal business practices.

14.2 When the Plan is Intended to be Next Reviewed

The plan will be reviewed on an annual basis by 30 June. Any changes and development will be expressed through the annual plan and LTCCP process.

15. Conclusion

This activity plan is the first for wastewater. As such it will be improved as more asset information, planning and analysis are developed. The improvement plan in Appendix 2 outlines some of the works required.

Appendix 1

Resource Consents

TRK920196

DISCHARGE PERMIT

Pursuant to the RESOURCE MANAGEMENT ACT 1991
a permit is hereby granted by the Taranaki Regional Council to:

Name: STRATFORD DISTRICT COUNCIL
PO BOX 320 STRATFORD

For a period to: 1 June 2004

Renewal: 6 May 1992

Review Dates: 1 June 1998

Local Authority: STRATFORD DISTRICT COUNCIL

Catchment: PATEA 343.000



PRIVATE BAG
STRATFORD
NEW ZEALAND
PHONE (0663) 7127
FAX (0663) 3097

DETAILS OF PERMIT

Purpose: TO DISCHARGE UP TO 4000 CUBIC METRES/DAY (110 LITRES/SECOND) OF TREATED WASTES FROM THE STRATFORD MUNICIPAL OXIDATION PONDS SYSTEM INTO THE PATEA STREAM AT OR ABOUT GR: Q20:226-062

Location of site: VICTORIA STREET STRATFORD

Legal description
at location: LOT 8 BLK II NGAERE SD

For conditions, restrictions and prohibitions pertaining to this permit, please see reverse side of this document.

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Appendix 2

Improvement Plan

Note: SAM = Services Asset Manager, OP = Operations Manager, CE= Chief Executive

Item	Task	2006/07 Quarters				2007/08 Quarters				2008/09 Quarters				Responsibility
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
Asset management	Complete another 10% CTV condition assessment on reticulation asset to enable improved assumptions on asset condition.													SAM
	Finalise input and implement Biz-E-Asset asset management system.													SAM
Depreciation	Identify all assets without condition assessment and determine a manageable depreciation and renewal programme.													SAM
Emergency Response	Formalise local emergency response procedure for the districts wastewater network.													SAM/OM
Infiltration	Investigate further options to minimise infiltration – asset and non-asset solutions													SAM
Policy	Confirm Council policy on laterals ownership and responsibility on road reserve.													SAM
	Formulate by-law to determine responsibilities for laterals on private property.													SAM/OM
Request monitoring	Review current systems of requests/complaints recording for monitoring, reporting and improvement purposes.													SAM/OM/CE
Reticulation System model	Investigate and prepare a suitable model for the reticulation system.													SAM/OM
Risk assessment	Review current assessments to more accurately identify and mitigate significant risks.													SAM
Septic Tanks	Consider further survey work on district wide perspective according to Public Health requirements and report accordingly.													SAM
Stratford identity	Determine a concept for this project and the impacts on wastewater.													SAM/OM/CE
User Satisfaction	Consider and as appropriate determine a community consultation strategy for wastewater issues.													SAM/OM/CE
Whangamomona	Determine Councils position on the provision of effluent dumps for campervans.													SAM

Appendix 3

Risk Consequence / Impact Guidelines (Qualitative Measures)

Risk Score	Risk Rating	Risk Description	Description of Impacts in example activity areas			
			Financial risk management	Human resources	Political	Business risks
		Generic Impact Description	Revenue loss, Cost Increases & Financial or Budget Liability	Security incident, OH&S effect, Reduced performance, Key people/Resources unavailable	Adverse press, Reputation damage, Legal repercussions	Clients not served, Operations interrupted. Assets/Infrastructure unusable, Info Systems out
5	Catastrophic	Disaster with potential to lead to business failure	Huge financial loss. Significant over expenditure at Organisational and output level, where there is no capacity to adjust budget across the Portfolio or no means to seek additional funding. 100% loss of Business Unit funding.	Multiple staff or public affected, debilitating injuries and fatalities or widespread medical attention required. Loss of a significant number of key management level staff, impacting on skills, knowledge, and expertise needs. Severe staff morale problems.	Concentrated public and political interest and major loss of public support. Union involvement.	Major detrimental effects on clients. Consequences would threaten survival of the service, and also the organisation. Long-term sustained loss of production capability.
4	Major	Critical event, which will be endured with proper management	Major financial loss. Significant overrun at Organisational and output level, where management response requires significant additional funding, or termination or reduction of other initiatives. Possible 75% loss of Business Unit funding.	Extensive effects, injuries, hospitalisation or single fatality. Loss of some key staff, resulting in skills, knowledge, and expertise deficits. Severe morale or other organisational problems affecting performance and productivity.	Short-term public and political interest. Constant media attention, major internal inquiry and some union resistance.	Loss of production capability. Consequences would threaten survival or continued effective function of the service. Requires top-level management intervention.
3	Moderate	Significant event, which can be managed under normal circumstances	Significant financial loss, up to 50% of budget funding. Business Unit impact only, with some redistribution of existing budget.	Significant effects needing management action. Medical treatment, but no fatalities. Short-term skills, knowledge, expertise deficits.	Isolated public interest. Some medial interest and/or industry complaints, small internal inquiry.	Consequences could mean that the service is subjected to a significant performance review or a changed way of operating. Senior management involvement.
2	Minor	Event with consequences, which can be readily absorbed, but which requires management effort to minimise the impact	Some financial loss contained within Unit, 25% loss of budget funding. Minor over expenditure requiring monitoring and corrective action within existing budget.	Minor effects – injuries, but no fatalities. Health impact or probability leads to lost time or potential of public liability claim. Little skills deficit.	Local issue, isolated concerns raised by interest groups, with little media interest.	Consequences affect efficiency or effectiveness of the service. Managed internally.
1	Insignificant	Not worth worrying about. Existing controls and procedures will cope with the event.	Little or no financial loss, <5% budget funding impact.	No injuries or fatalities, little supporter action required. No skills or knowledge loss occurring.	No investigation required. Minimal to no effect on public reputation.	Affects only a small group of clients. Negligible service impacts dealt with by routine operations.

Risk Probability Guidelines

Risk Score	Risk Rating	Description of Event	Frequency
5	Almost Certain	The event is expected to occur in most circumstances High level of known incidences Strong likelihood of re-occurring with high opportunities / means to re-occur	Daily / Weekly
4	Likely	The event will probably occur in most circumstances. Regular incidences known (recorded / experienced) Considerable opportunity / means to occur	Monthly
3	Moderate	The event should occur at some time A few infrequent, random occurrences (recorded / experienced) Some opportunity or means to occur Council engineering projects usually designed to this level	Annually
2	Unlikely	The event could occur at some time No known incidences recorded or experienced Little opportunity, means or reason to occur Council engineering projects would require some compelling Capital risk justification to design to this level	Every 2-5 years
1	Rare	The event may occur only in exceptional circumstances Highly unheard of Almost no opportunity to occur Council Engineering would require very compelling Capital Risk justification to design to this level.	Every 10 years

Appendix 4

Properties with Septic tanks in the Stratford Urban area

12080/002.00	43 Flint Road	12080/214.05	11 Brecon Road	12090/387.00	20 Lear Street
12080/002.01	45 Flint Road	12080/215.00	23 Brecon Road	12090/448.00	52 Cordelia Street
12080/006.09	33 Flint Road	12080/246.08	1a Hamlet Street	12090/553.00	215 Regan Street
12080/016.00	35 Broadway	12080/310.00	56 Regan Street	12090/559.01	201 Regan Street
12080/020.00	47 Broadway	12080/321.00	48 Brecon Road	12090/561.01	187 Regan Street
12080/031.00	49 Titania Street	12080/332.00	20 Brecon Road	12090/588.00	123 Brecon Road
12080/033.00	53 Titania Street	12080/335.00	14 Brecon Road	12090/612.00	463 Broadway
12080/041.00	19 Craig Street	12080/642.00	32 Hamlet Street	12090/613.00	465 Broadway
12080/069.03	50 Cressida Street	12080/659.00	105 Pembroke Road	12090/614.00	471 Broadway
12080/157.03	74 Pembroke Road	12080/666.03	49 Seyton Street	12090/614.01	62 Warwick Road
12080/157.07	45b Cassandra Street	12080/666.07	51 Seyton Street	12090/618.00	148 Miranda Street
12080/160.03	43 Oberon Street	12080/666.09	47 Seyton Street	12090/636.01	110 Miranda Street
12080/160.56	34 Cassandra Street	12080/670.00	4 Antonio Street	12090/654.00	135 Portia Street
12080/209.09	108r Pembroke Road	12080/670.01	4a Antonio Street	12090/656.00	139 Portia Street
12080/209.11	114r Pembroke Road	12080/670.02	4c Antonio Street	12090/659.00	151 Portia Street
12080/209.15	107r Pembroke Road	12080/670.03	4b Antonio Street	12090/679.01	108 Hamlet Street
12080/209.18	119r Pembroke Road	12080/674.06	22 Antonio Street	12090/715.00	116 Brecon Road
12080/209.19	121r Pembroke Road	12080/674.13	36 Antonio Street	12090/718.00	110 Brecon Road
12080/209.20	123r Pembroke Road	12080/678.00	117 Pembroke Road	12090/719.00	108 Brecon Road
12080/209.21	125r Pembroke Road	12080/701.21	18a Antonio Street	12090/767.05	11 Warwick Road
12080/209.22	127r Pembroke Road	12080/717.05	186 Regan Street	12090/774.01	55 Warwick Road
12080/209.23	129r Pembroke Road	12080/721.04	210 Regan Street	12090/778.00	71 Warwick Road
12080/209.24	131r Pembroke Road	12090/002.00	1 Regan Flat B Street	12090/780.01	487 Broadway
12080/209.25	133r Pembroke Road	12090/002.01	11 Regan Street	12090/795.00	104 Ariel Street
12080/209.27	29 Hunt Road	12090/015.00	57a Brecon Road	12090/796.00	100 Ariel Street
12080/209.46	20 Fairbank Ave	12090/025.00	34 Celia Street	12090/828.00	464 Broadway
12080/209.63	15 Fairbank Ave	12090/026.01	30 Celia Street	12090/829.00	466 Broadway
12080/209.66	20 Glanville Road	12090/032.05	1 Elizabeth Grove	12090/835.00	122 Cordelia Street
12080/209.68	17 Glanville Road	12090/166.00	80 Miranda Street	12090/837.01	134 Warwick Road
12080/213.00	7 Brecon Road	12090/350.01	12a Lear Street	12090/840.01	121 Swansea Road