
INFRASTRUCTURE REPORT
PREPARED BY MURRAY ENGLAND – ASSET MANAGER WATER SERVICES
SELWYN DISTRICT COUNCIL

Purpose

1. This report considers the impact of re-zoning approximately 47 ha of land within the Rolleston Structure Plan area in relation to the water supply, wastewater system, and stormwater network operated by Council.
2. The specific pieces of land are described in the covering s32 report.

Water Supply

3. The Rolleston Water Supply provides UV treated deep groundwater to the Rolleston community from bores M36/7836, M36/7533, M36/7833, BX23/0507, M36/3922, BX23/0312, M36/2298, BX23/0508, and BX23/0827. These bores supply water to the network either direct online or via reservoir and booster pump stations (**Refer Appendix 1**) . Several other wells are planned or drilled, but not yet operational.
4. Water take consents (CRC175045, CRC160628, CRC193859 and CRC962217) limit the maximum rate of water take based on a range of controls (Table 1). The maximum total water take from the scheme is limited to 7,183,440 m³/year. The maximum instantaneous water take for the scheme is 573 L/s. The daily water take limit is not specified, although daily limits exist for some bores.

Table 1 – Consented water take for the Rolleston water supply scheme

Consent number	Bores	Water take limits
CRC160628	M36/0026 BX23/0312	Bore decommissioned Max 100 L/s Max annual volume 246,240 m ³
CRC175045	M36/7533	Max 75 L/s (each bore)

	M36/7833 BX23/0507 M36/7835 <i>Proposed: M36/7834</i>	Max 300 L/s (combined from all bores) Max annual volume 4,445,700 m ³
CRC193859	M36/2298 BX23/0508 BX23/0827	Max 52.8 L/s, up to 4,562 m ³ /day Max 70 L/s Max 70 L/s Max annual volume 739,500 m ³
CRC962217	M36/3922	Max 55.6 L/s, up to 4,800 m ³ /day No annual volume

5. Over the last 3 years, the maximum supply demand was 19,200¹ cubic metres per day and 3,300,000 cubic metres per year. This means consented capacity for some growth is available.
6. The water supply provides both 'on-demand' connections via water meters and also a small number of restricted connections mainly to rural residential properties.

Future Growth Demand

7. In response to the accelerated growth within the Selwyn District, hydraulic models have been used to plan future water infrastructure for a number of water supplies including Rolleston.
8. The master planning provides an assessment of the sizing and timing of new infrastructure for new reservoirs, water sources (bores) and pipelines to service growth. Part of the master planning requires a water balance to be developed to forecast growth, using historical peak demand per household. The water balance forecasts the peak instantaneous flow per year versus the water resources available to determine the staging of new bores (**refer Appendix 2**).
9. Rolleston is expected to see significant growth over the next 30-years. Capacity

¹ Jan 2021

upgrades are proposed to meet this growth including additional water sources (bores), storage and pipeline infrastructure. Recently Council developed the 2021 – 31 Long Term Plan which included budget for further development funded, capacity upgrades on the Rolleston water supply.

10. As the township grows the consented allocation will be put under pressure. To ensure that growth is appropriately integrated with the provision of infrastructure, and planned growth is able to be serviced, priority of water allocation needs to be given to those developments within the Rolleston Structure Plan area².
11. I confirm that the areas under consideration are within of the Rolleston Structure Plan area and therefore, should the land re-zoning be approved in whole or in part, consented water can be made available.

Fire Fighting Capacity

12. The Rolleston scheme was designed as a domestic supply and complies with the NZ Fire Fighting Code of Practice.
13. The Council requires that all new subdivisions are to be designed and constructed in accordance with the Selwyn District Council's 'Engineering Code of Practice'. Section 7.5.4 – Fire service requirements.
14. It is considered that the reticulated water supply for the areas subject to this assessment would need to be designed to meet firefighting standards when either subdivision and/or building consents are sought from Council.

Conclusion

15. I consider that additional capacity within the network to service the areas under consideration is available and further capacity upgrades are proposed and planned for and therefore future water demand from the proposed rezoning can be met.
16. It is noted that development contributions are payable for any additional lots developed.

² [Final-Rolleston-Structure-Plan-230909.pdf \(selwyn.govt.nz\)](#)

Wastewater

General

17. Wastewater is treated and disposed of at the Pines Wastewater Treatment plant (the Pines WWTP) in Rolleston. Council consulted on the expansion of the Pines WWTP, to cater for growth, as part of the 2021/31 LTP. The Pines WWTP is currently at or near capacity, with upgrades currently underway and additional upgrades planned and budgeted for.
18. The Pines WWTP is designed to be progressively upgraded to accommodate up to 60,000 person equivalents (PE) of incoming flow, with plans to increase the treatment capacity up to 120,000 PE being prepared. The current connected catchment (2021) has a population equivalent of approximately 42,000 - 45,000.
19. The ongoing expansion of the plant is critical to allow for the future growth of Rolleston and other townships that the plant processes e.g. Lincoln, Prebbleton, West Melton, and Springston. Recently Darfield, Kirwee, and the NZDF base have connected. In 2024 Leeston, Southbridge, Doyleston will also be connected.

Wastewater Conveyance

20. Wastewater will need to be either connect to adjoining infrastructure where available or conveyed to the nearest connection point. This matter can be resolved at engineering approval stage (**Refer Appendix 4**).

Pines Wastewater Treatment Plant

21. The land surrounding the Pines WWTP has 8 centre pivot irrigators currently irrigating an area of 238 ha. This equates to servicing for more than 95,000 PE, or more than 75,000 PE if the largest irrigator is not in operation.
22. There are long term plans to expand the irrigation area to cover 302 ha. This equates to servicing for more than 120,000 PE, or more than 100,000 PE if the largest irrigator is not in operation. Ultimately, additional areas within the 486 ha of land consented could be developed for land based disposal, while remaining in compliance with the existing Resource Consent conditions.

Strategic planning

23. A masterplan has been developed for the treatment plant to confirm what it would take to expand the ultimate treatment capacity to 120,000 PE. Indicative plant layouts are shown in **Appendix 7**. Two options were considered for “Pines 120” (i.e. upgrading Pines WWTP to serve 120,000 PE), as summarised below:

- Option 1 Fully aerobic system (similar to current plant)
- Option 2 Primary treatment + anaerobic digestion

24. Council has budgeted for option 2 (**Refer Appendix 6**) within the long term plan.

Conclusion

25. Conveyance of wastewater to the Pines WWTP is feasible and will be subject to the engineering approval process.

26. The currently designed wastewater treatment system which is being built in modular stages has an ultimate capacity of up to 60,000 PE. The extension of the Pines WWTP to 120,000 PE capacity has been identified and funded in the LTP, with design and consenting works programmed for the forthcoming years, to allow for development within the district, including that proposed in this land re-zoning request,.

27. Should these areas be approved, it is noted that development contributions are payable for any additional lots.

Stormwater

28. It is anticipated that stormwater will be discharged to ground, which is a common practice in the Rolleston area due to the free draining nature of the underlying gravels. As such, the discharge of stormwater to ground is considered appropriate.

29. Resource consent for stormwater discharge from Environment Canterbury will be required before any subdivision consent can be approved.

Conclusion

30. There is a viable means to dispose of stormwater for these areas. I would recommend that a stormwater consent is obtained from Environment Canterbury prior to resource consent being applied for from Selwyn District Council.

Murray England
Asset Manager Water Services, Selwyn District Council

16 August 2022

Appendix 1

Scheme layout – Water

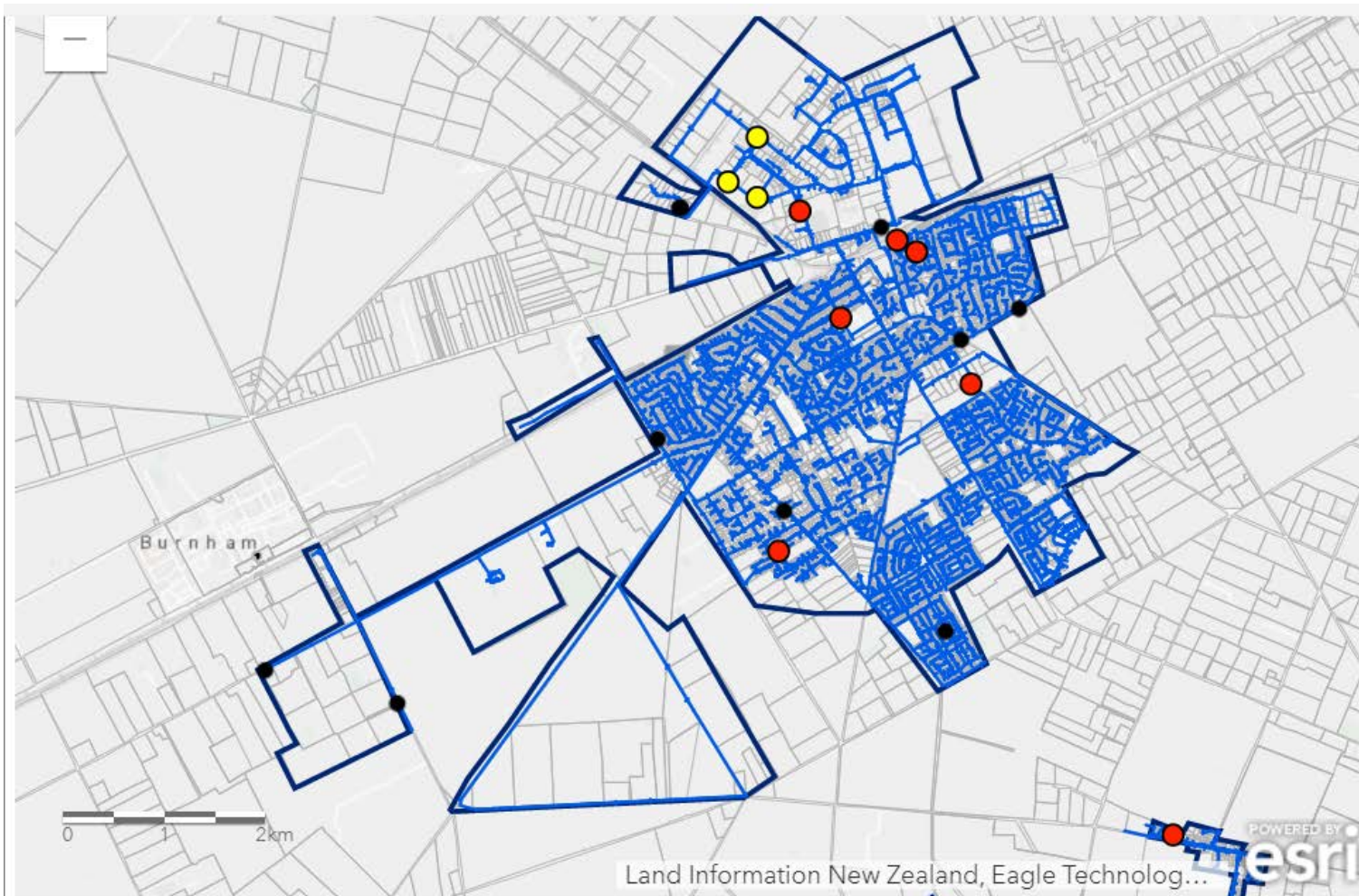








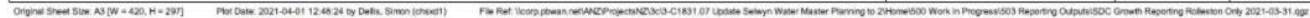


Figure 19-1
ROLLESTON Water - Scheme map
[Open larger map: 'Water Scheme'](#)

- | | | |
|---|---|---|
|  Scheme boundary |  Water treatment |  Source (bore) |
|  Reticulation |  Water reservoir |  Water Intake |
| |  Sample Tap |  Monitoring |

Rolleston Water Supply Master Plan



Appendix 3 –
Rolleston Wastewater Network

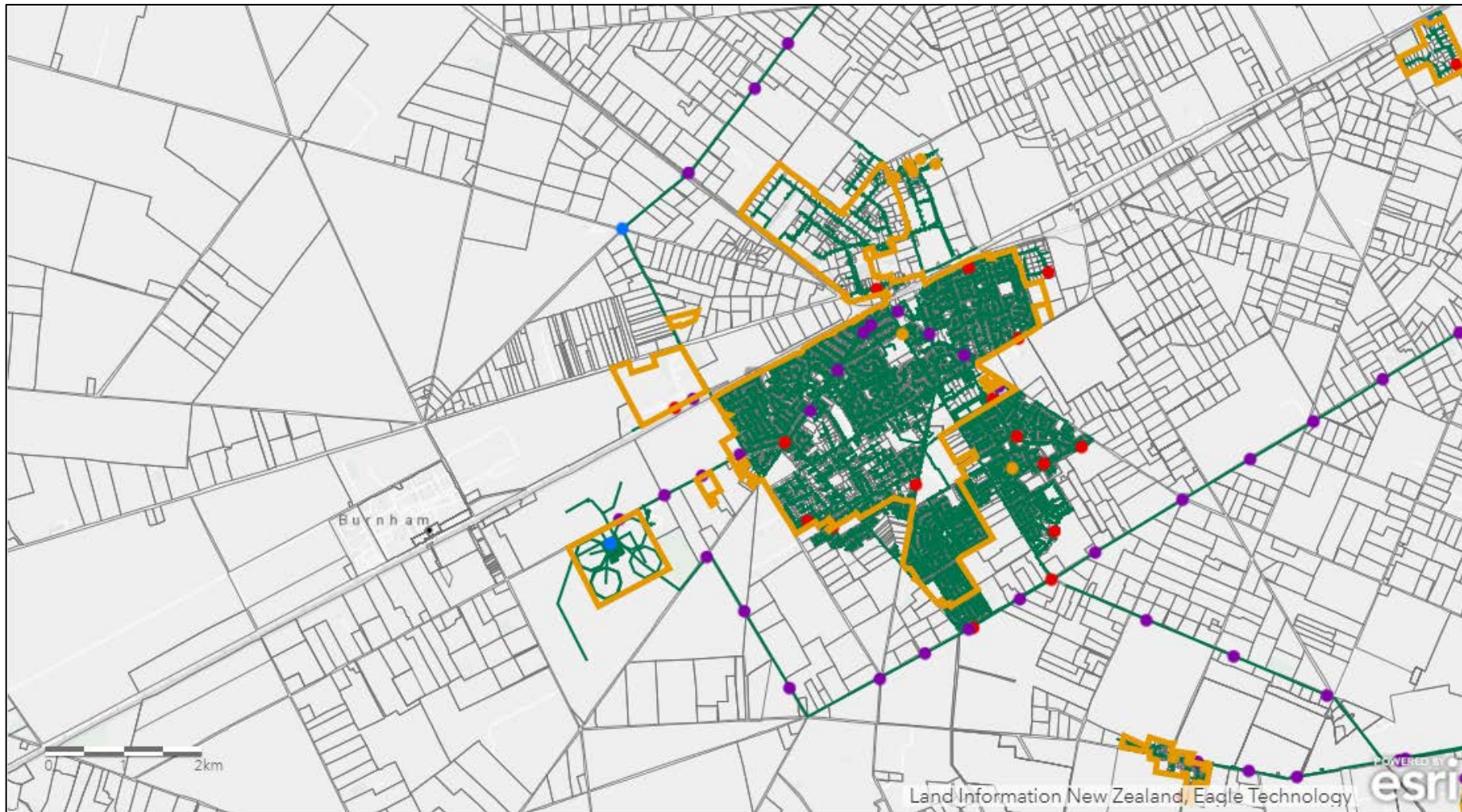


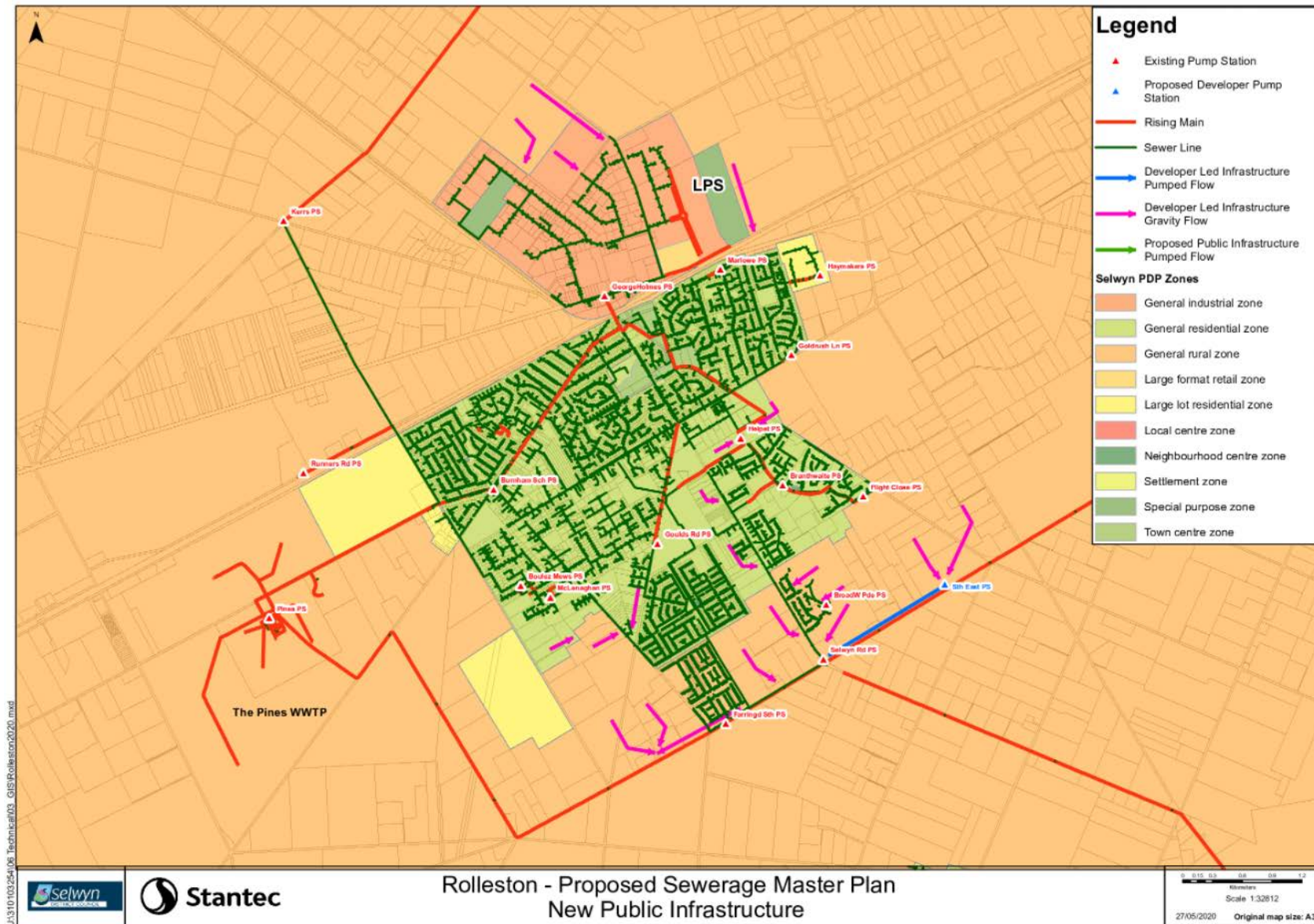


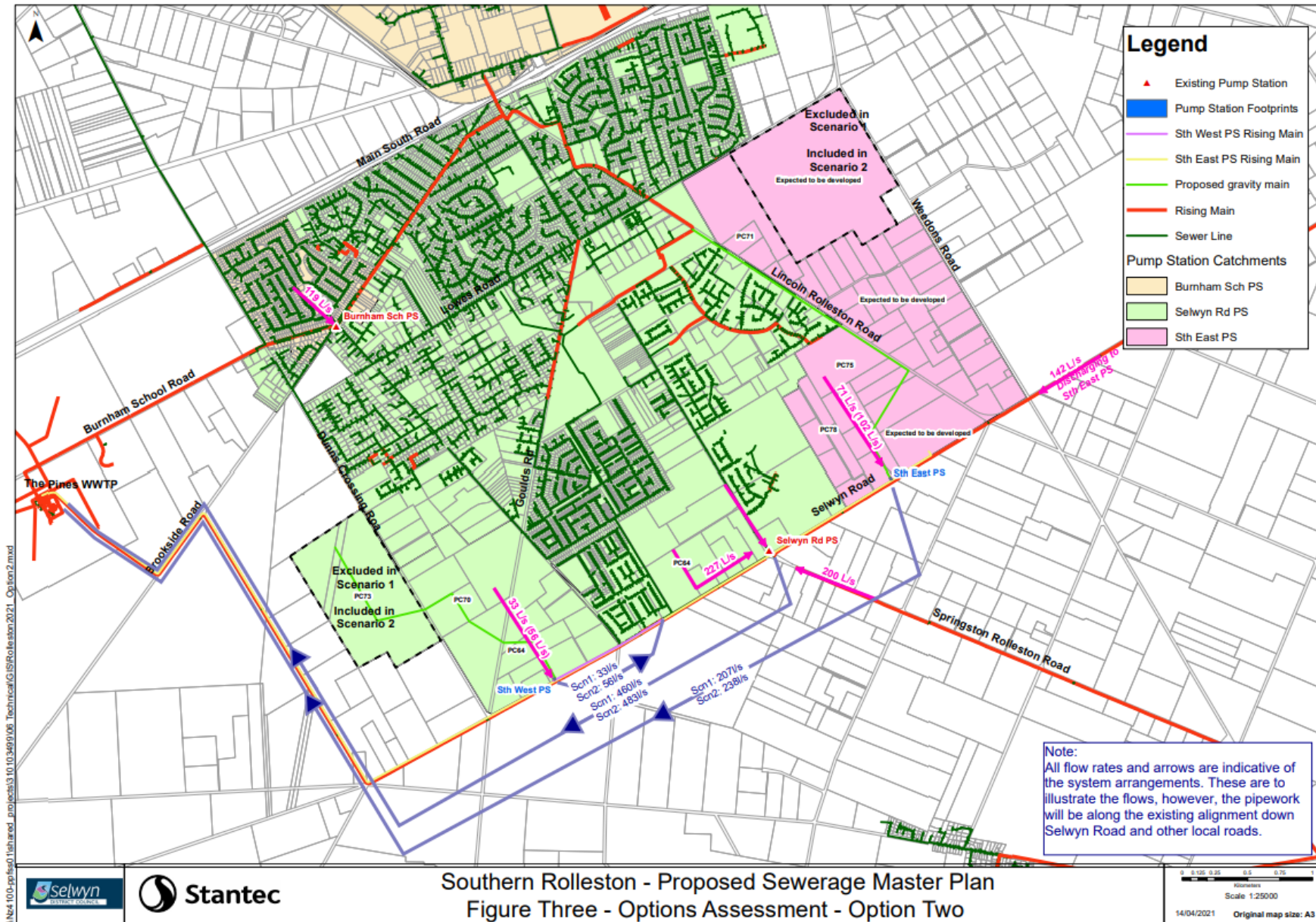
Figure 12-1
ROLLESTON Sewer - Scheme map
[Open larger map: 'Sewer Scheme'](#)

- | | | | |
|--|-----------------|---|----------------------|
|  | Scheme boundary |  | Wastewater treatment |
|  | Reticulation |  | Sewer pump station |
| | |  | Flush tank |
| | |  | Air valve |

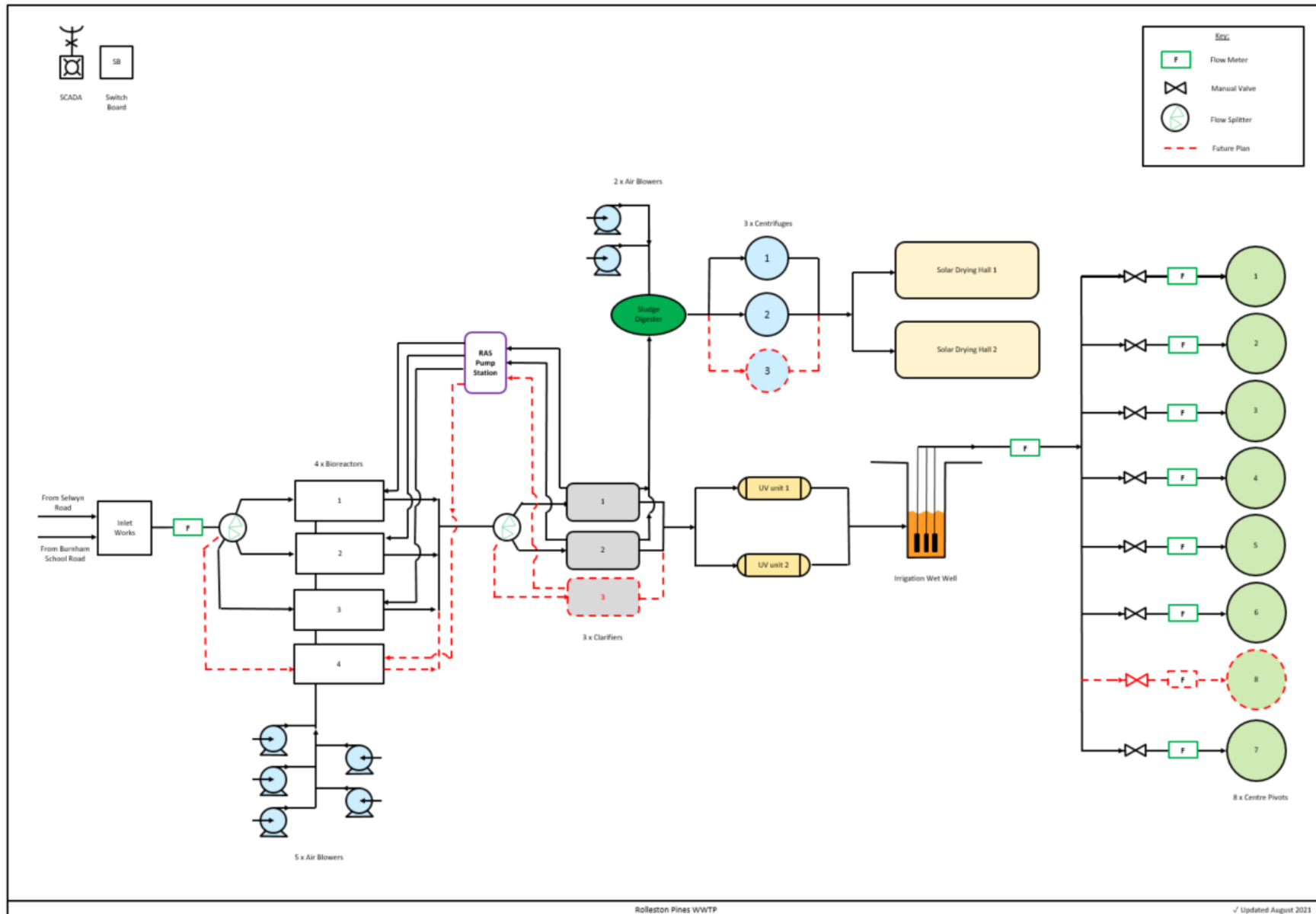
Rolleston Wastewater Master Plan (2021 LTP)



Rolleston South Wastewater Master Plan



Appendix 5 – Pines Layout



Appendix 6 – Pines 120 Consultation (2021 LTP)

Selwyn District Council

Long-Term Plan 2021–2031 41

FOR INFORMATION – OTHER IMPORTANT PROJECTS

In this section you can find information on other proposed projects which are likely to be of interest to the Selwyn community.

Have your say

We welcome your comments on any of these proposals. Please use the comments section on the submission form or share your views at www.selwyn.govt.nz/thisway2031.

Future of Malvern aquatic facility

We are proposing to repair the current swimming pool in Darfield. In the first year of the new Long-Term Plan (2021/22) a repair budget of \$1.5 million would be set aside. Although current usage and projected future population growth do not warrant a new aquatic facility in Darfield at this time, we propose to carry out a further feasibility study in 2027/28 to determine the needs for a facility in the Malvern area, based on the latest population growth projections. We will make a provisional allowance of \$6 million to build a new or upgraded facility in 2030/31. Any decision on a future facility in Malvern, following the completion of this study, will be subject to consultation at the time.

Commercial property investment

The Council has a property portfolio which includes a variety of buildings, farms and bare land that can be developed. To date the Council has successfully managed its investment portfolio, and the new Selwyn Health Hub in Rolleston is a good example. We propose to continue investing in commercial opportunities where they will create income streams and contribute to positive community outcomes. We are now proposing to include a total of \$30 million over the first six years of this Long-Term Plan, for commercial investment. Any investment proposals will be subject to a comprehensive business case and approval by the Council. Money will be borrowed and repaid from lease rentals. Investment will be carried out in line with the Council's Commercial Property Strategy, which was approved in 2016. A key purpose of our property investment activity is to generate returns which are used to offset rates increases.

Ellesmere wastewater

To continue to meet environmental standards and provide for growth in Ellesmere, the Council has considered two upgrade options for wastewater treatment. The first was to upgrade the existing Ellesmere wastewater treatment plant, including enhanced treatment processes, additional land for increased irrigation capacity and providing increased buffer storage. The second and preferred option is to pipe wastewater to the Pines Wastewater Treatment Plant in Rolleston. For environmental and operational efficiency reasons, piping to Rolleston provides a high level of treatment and the economy of scale ensures a cost effective wastewater treatment for generations to come. We are planning to start construction of this upgrade in 2023/24. The work will be funded by a combination of the sewerage district-wide targeted rate and development contributions.

Pines 120K

The Rolleston Pines Wastewater Treatment Plant has been designed so that it can be upgraded in stages to match population growth. The current plant has the capacity to treat wastewater for up to 60,000 people*. A masterplan has been developed for the treatment plant to expand the maximum treatment capacity to 120,000 people*. The cost will be around \$100 million and will be funded largely by development contributions.

Upper Selwyn Huts wastewater

The installation of a pipeline from Ellesmere Wastewater Treatment Plant to Pines Wastewater Treatment Plant (as proposed above) presents an opportunity to connect the Upper Selwyn Huts settlement to the scheme. This would have the additional benefit of allowing the Coes and Chamberlains Ford camping areas to connect, and would remove wastewater treatment facilities from near the Selwyn River. Another potential option is to provide a wastewater treatment plant and disposal field at the settlement, but this faces environmental, cultural, consenting and construction challenges. The Council will consult directly with the Selwyn Huts community on this proposal.

Land drainage network

There is a growing focus on the environmental performance of Selwyn's land drainage network, which is likely to require increased monitoring and reporting, as well as upgrades. It will be more challenging to gain and renew resource consents, and complying with these consents will be more demanding. Health and safety will continue to be a major focus. Local rānanga are likely to continue taking a significant interest in the operation of the land drainage network, and will be increasingly involved in decision-making.

To help us prepare for these changes, we are proposing to transition to a district-wide land drainage committee, within the first year of the Long-Term Plan 2021–2031. This new governance structure will be accompanied in the future by a district-wide rating scheme, similar to the approach used for water rates. One of the first responsibilities of the district-wide land drainage committee will be to develop the new rating structure, for consultation during or prior to the 2022/23 Annual Plan.

Proposed changes to fees and charges

Environmental and regulatory services fees and charges

The Council charges for a range of regulatory services including resource consents, building consents, and dog registration. We are proposing increases to the schedule of chargeable costs for these services. Details of the proposed fees and charges from 1 July 2021 are shown in the full draft Long-Term Plan, which is available at www.selwyn.govt.nz/thisway2031.

Solid waste fees and charges

Refuse bags: We propose to increase the charge for bags from \$2.50 to \$2.75 (incl GST) from 1 July 2021. This increase is to help offset the actual cost to Council to supply, collect and dispose of bags.

Pines Resource Recovery Park disposal charges: The waste disposal charge is currently \$257 per tonne (incl GST) and we propose to increase it to \$270 per tonne from 1 July 2021. Details of the proposed fees and charges from 1 July 2021 are shown in the full draft Long-Term Plan, which is available at www.selwyn.govt.nz/thisway2031.

Burial fees and charges

The Council's cemeteries are funded from a mix of fees and support from the general rate, which reflects the broad public benefit associated with this service. Burial fees and charges were last increased five years ago and we now propose to increase most charges by 15% from 1 July 2021 (including proposed Government waste levy increases). Details of the proposed fees and charges from 1 July 2021 are shown in the draft Long-Term Plan, which is available at www.selwyn.govt.nz/thisway2031.

Reserve fees and charges

The Council has carried out a review of the current fees and charges for the use of reserves, and we are proposing a new schedule of charges. This reflects the change made in recent years to district-wide rating for reserves. The proposed changes are to achieve a standardised set of charges that are consistent, fair and tailored to the usage of the reserve. Details of the proposed fees and charges from 1 July 2021 are shown in the full draft Long-Term Plan, which is available at www.selwyn.govt.nz/thisway2031.

Rural water charge – additional units

In response to a survey of rural water users last year, we plan to undertake a number of upgrades to the Darfield, Malvern and Hororata rural water supplies, to provide customers additional water units. The up-front charge to cover these upgrade costs will be \$4,702 (incl GST) per additional unit required. Annual rates, as outlined in the Long-Term Plan, will then apply for any units of water received.

* Commercial and industrial discharges take some of this capacity as well.
* As above.

OTHER IMPORTANT PROJECTS

In this section you can find information on other confirmed projects which are likely to be of interest to the Selwyn community.

Future of Malvern aquatic facility

The Council confirmed it will repair the current swimming pool in Darfield, with \$1.5 million set aside for 2021/22.

While current usage and projected future population growth do not warrant a new aquatic facility in Darfield at this time, we will carry out a further feasibility study in 2027/28 to determine the needs for a facility in the Malvern area, based on the latest population growth projections. The Council will also start work with groups in Darfield including local schools to identify opportunities for future combined sports and aquatic facilities.

In the meantime, we will make a provisional allowance of \$5 million to build a new or upgraded facility in 2030/31.

Any decision on a future facility in Malvern, following the completion of the feasibility study, will be subject to consultation at the time.

Commercial property investment

The Council has a property portfolio which includes a variety of buildings, farms and bare land that can be developed. To date the Council has successfully managed its investment portfolio, and the new Selwyn Health Hub in Rolleston is a good example. The Council confirmed it will continue investing in commercial opportunities where they will create income streams and contribute to positive community outcomes. We will include a total of \$30 million over the first six years of this Long-Term Plan, for commercial investment. Any investment proposals will be subject to a comprehensive business case and approval by the Council. Money will be borrowed and repaid from lease rentals. Investment will be carried out in line with the Council's Commercial Property Strategy, which was approved in 2016. A key purpose of our property investment activity is to generate returns which are used to offset rates increases.

Ellesmere wastewater

To continue to meet environmental standards and provide for growth in Ellesmere, the Council has agreed to go ahead with connecting Ellesmere wastewater to the Pines Wastewater Treatment Plant in Rolleston. For environmental and operational efficiency reasons, piping to Rolleston provides a high level of treatment and the economy of scale ensures a cost effective wastewater treatment for generations to come. We are planning to start construction of this upgrade in 2023/24. The work will be funded by a combination of the sewerage district-wide targeted rate and development contributions.

Pines 120K

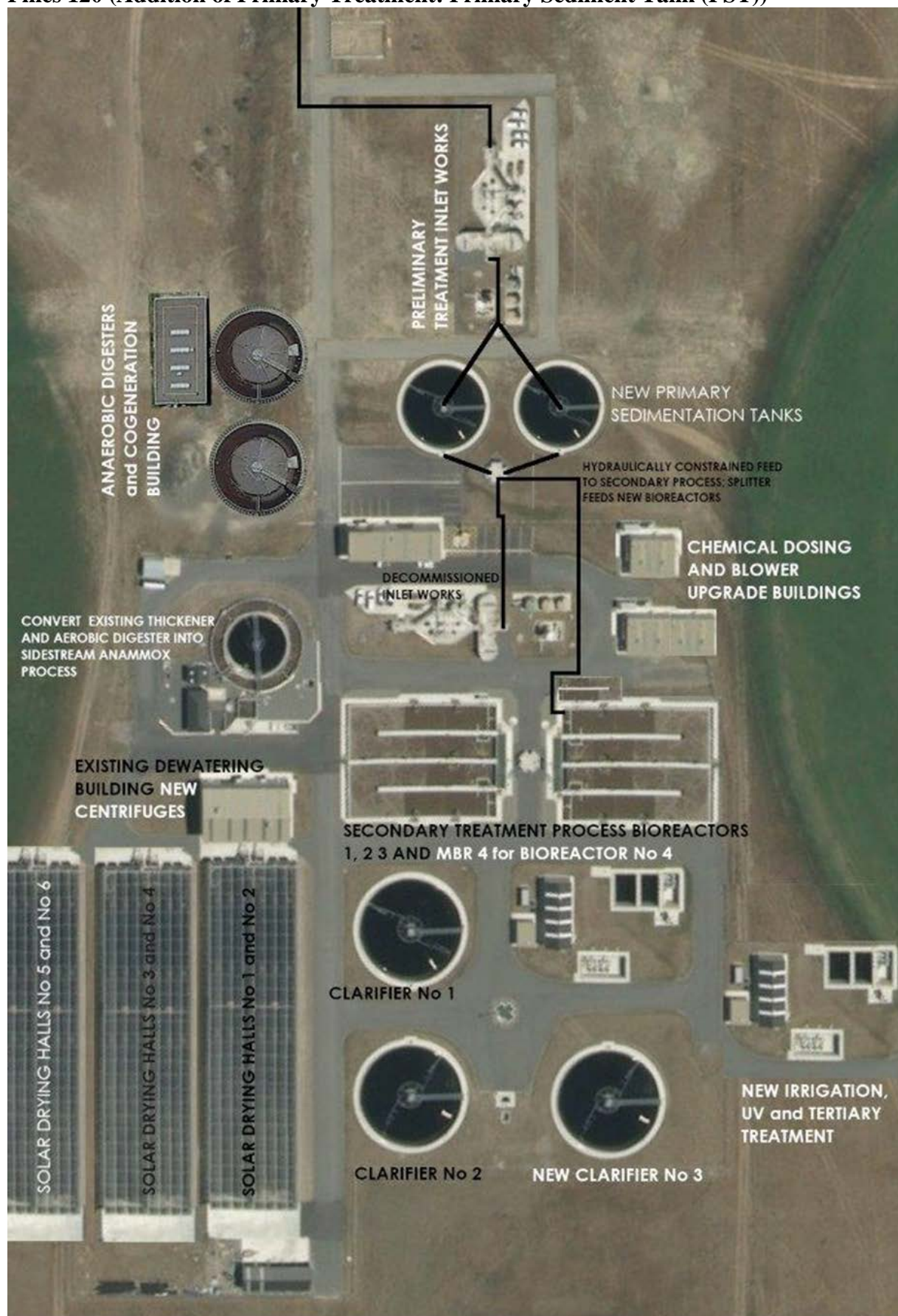
The Rolleston Pines Wastewater Treatment Plant has been designed so that it can be upgraded in stages to match population growth. The current plant has the capacity to treat wastewater for up to 60,000 people. A masterplan has been developed for the treatment plant to expand the maximum treatment capacity to 120,000 people. The cost will be around \$100 million and will be funded largely by development contributions.



**Appendix 7 –
Pines 120 (Existing Layout)**



Pines 120 (Addition of Primary Treatment: Primary Sediment Tank (PST))



Pines 120 (Duplicate Works: Fully Aerobic System)

