In The Matter of the Resource Management Act 1991 ("the Act") And

In The Matter Plan Change 68 – Prebbleton

OFFICER COMMENTS OF MURRAY ENGLAND

Introduction

1. My name is **MURRAY RUSSELL ENGLAND.** My qualifications are BE (Environmental) and NZCE (Civil).

2. I am the Asset Manager – Water Services for the Selwyn District Council ("the Council") and I am authorised to present this statement on its behalf. I have been employed by the Council since March 2009 initially holding the position of Stormwater Engineer and since May 2012 the position of Asset Manager Water Services.

3. I have the responsibility of managing Council's 5 waters which include Potable Water, Wastewater, Stormwater, Land Drainage and Water Races.

4. I have read the Infrastructure Report prepared by Davie Lovell-Smith October 2020

5. This evidence considers the plan change request in relation to the water supply, wastewater system, stormwater and water race network operated by Council which will be impacted by this plan change. I have not specifically addressed relevant submission points that have been made by submitters, as I understand that my comments cover matters raised by the submitters.

Water Supply

6. The Prebbleton Water Supply provides untreated deep groundwater to the Prebbleton community from bores M36/7504, M36/0870, M36/4795, BX23/0421 and BX23/0874. These bores supply water to the network direct online (**Refer**

Appendix 1) . Several other wells are planned, but not yet drilled or operational.

7. Water take consents (CRC202353 and CRC010900) 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 1,576,800 m3/year. The maximum instantaneous water take for the scheme is 300 L/s. The daily water take limit is not specified, although daily limits exist for some bores.

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

Consent number	Bores	Water take limits
CRC010900	M36/0870 M36/4795	25 l/s Instantaneous 25 l/s Instantaneous
CRC202353	M36/7504 M36/0870 M36/4795 BX23/0421 BX23/087	75 l/s Instantaneous 25 l/s Instantaneous 25 l/s Instantaneous 75 l/s Instantaneous 100 l/s Instantaneous 1,576,800 m3 from 1 July - 30 June each year + limits for individual bores

8. Over the last 5 years, the maximum supply demand was 5,352[1] cubic metres per day and 703,919 cubic metres per year. This means consented capacity for growth is available.

9. 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

10. 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

[1] Dec 2017

including Prebbleton.

11. 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. Refer **Appendix 2**. 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.

12. Prebbleton is expected to see growth over the next 30-years. Capacity 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 Prebbleton water supply.

13. As the township grows the consented allocation will be put under pressure. However, at this time, should the plan change be approved in whole or in part, consented water can be made available.

Fire Fighting Capacity

14. The Prebbleton scheme was designed as a domestic supply and complies with the NZ Fire Fighting Code of Practice.

15. The Infrastructure Report accompanying the plan change states that "*The water supply will be designed in accordance with SDC specification and SNZ PAS 4509:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice".*

16. 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, which includes the following requirement:

    "The water supply reticulation should comply with the Fire Service Code of Practice. In particular, the reticulation must meet the requirements for firefighting flows, residual fire pressure and the spacing of hydrants.

    Location of hydrants shall comply with SNZ PAS 4509: 2008 with minimum hydrants spacing of 135 metres. Blue RRPM's (cat eyes) shall be installed to offset from the road

centreline adjacent to all hydrants. Hydrant Marker posts are to be installed to comply with Section G3.4 of the NZ Fire Service Code of Practice. Hydrant posts are not required in urban areas. The type of hydrant marker required is shown on drawing WS10.0 (see Appendix V).'

17. In summary, the reticulated water supply for this proposed plan change would need to be designed to meet firefighting standards when either subdivision and/or building consents are sought from Council.

Conclusion

18. I consider that additional capacity within the network to service this plan change can be made available with further capacity upgrades proposed and planned for and therefore future water demand from the proposed plan change can be met.

19. It is noted that development contributions are payable for any additional lots developed.

Wastewater

General

20. 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 2021/22 LTP. The Pines WWTP is currently at or near capacity, with upgrades currently underway and additional upgrades planned and budgeted for.

21. 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.

Wastewater Conveyance

22. The applicant identified in the infrastructure report that *"It would be far more likely that there would be two full pump stations on the ODP Area. They would either pump ditectly into the Pines Rising Sewer or to the Springs Road Pump Station".*

23. The proposed rising main will be required to be extend along Springs Road to a

location nearer the new Pump Station site (Prebbleton Terminal PS). Refer **Appendix 3.**

24. The construction of the Prebbleton Terminal PS and rising main was completed in 2019 and was designed to meet a Peak Design Pumping Rate (1 x main pump at 50 Hz) of 101 L/s and a Peak design Inflow (PWWF) of 86 L/s

25. In July 2021 consulting engineering firm GHD reported on options to increase the pumping capacity of the Prebbleton Terminal PS to allow for unexpected growth outside of the existing township boundary which is beyond the original design parameters.

26. The key factors governing higher pumping flow rates, to allow for further growth, are considered to be the hydraulic capacity, surge and fatigue limitations on the existing rising main. Modelling indicates that it is feasible to operate the rising main at 136 l/s where the system is suitably maintained, and appropriate pump ramp up and ramp down schedules are applied. To achieve this, some modifications to the pump station will be required.

27. The existing wet well has provision for three pumps to be installed. This currently includes two 22 kW pumps and one 105 kW pump. The wet well and pump station design made provisions for a single 22 kw jockey pump and two larger 105 kW pumps. Pump spacing's within the wet well indicate that it could be feasible to include a third 105 kW pump in place of the jockey pump to enable a duty-assist-standby operation. In this case the corresponding DI pipework servicing the third pump bay would need to be upsized from DN150 to DN200. These upgrades with some electrical reconfiguration would be required to achieve flows of 136 l/s with a duty-assist-standby arrangement (noting that the 136 l/s is based on current pipeline friction and manufacturer's pump curves without a derating contingency applied). In the long term, deterioration of the rising main could reduce these flows to 115 l/s through increased roughness. Operating the pumps at a higher speed at the time could mitigate this.

28. To achieve flows greater than 136 l/s, or equivalent to 136 l/s as pipe roughness increases, upgrades to the Flygt pump controls would be required to allow operation at frequencies greater than 50 Hz, alternatively replacement of the

pumps would be required.

29. Upgrading the 1 km DN355 section of the rising main (the remainder is DN400) could increase flow capacity by approximately 5% for a given pump arrangement. Shifting the rising main discharge to the proposed South East PS (shortening the raising main) in Rolleston is estimated to allow an additional 4% flow for a given pumping arrangement. Ref **Appendix 4.**

30. There is capacity within the Prebbleton Terminal PS to accept flows from this plan change. However, there are other private plan changes lodged in addition to this plan change including PC68 and PC79 and capacity may not be available for all. It may be that priority is given to some plan change applications or parts of applications.

31. Further work is being undertaken to confirm capacity for all planned and proposed growth. This will be updated at the hearing.

32. Connection of the development's wastewater network to the Council's reticulated network (at the Prebbleton Terminal PS) is feasible. This will be the subject of an engineering approval process in the future.

Pines Wastewater Treatment Plant

33. The land surrounding the Pines WWTP has 7 centre pivot irrigators currently irrigating an area of 189 ha, with another 50 ha centre pivot irrigator to be installed this year (2021/22) bringing the total to 239 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.

34. 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

35. 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

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

Conclusion

37. Conveyance of wastewater to the Pines WWTP is feasible and will be subject to the engineering approval process. Approving this plan change may limit options to re-zone others areas in Prebbleton or may delay the development of exiting zoned land until further upgrades are funded and constructed.

38. 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 plan change request,.

39. Should this plan change area be approved, it is noted that development contributions are payable for any additional lots.

Stormwater

40. It is anticipated by the applicant that stormwater will be discharged to ground. The proposed management of stormwater is appropriate for this area

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

Conclusion

42. There is a viable means to dispose of stormwater for this plan change area. I would recommend that a stormwater consent is obtained from Environment Canterbury prior to resource consent (subdivision) being applied for from Selwyn District Council.

Water Race

43. There is a length of water race bounding the development along Hamptons Road.

44. The race will need to be piped under road crossings and potentially along the frontage of residential properties.

Conclusion

45. There are viable means to manage the water race

Murray England

17 December 2021

Appendix 1

Scheme layout – Water

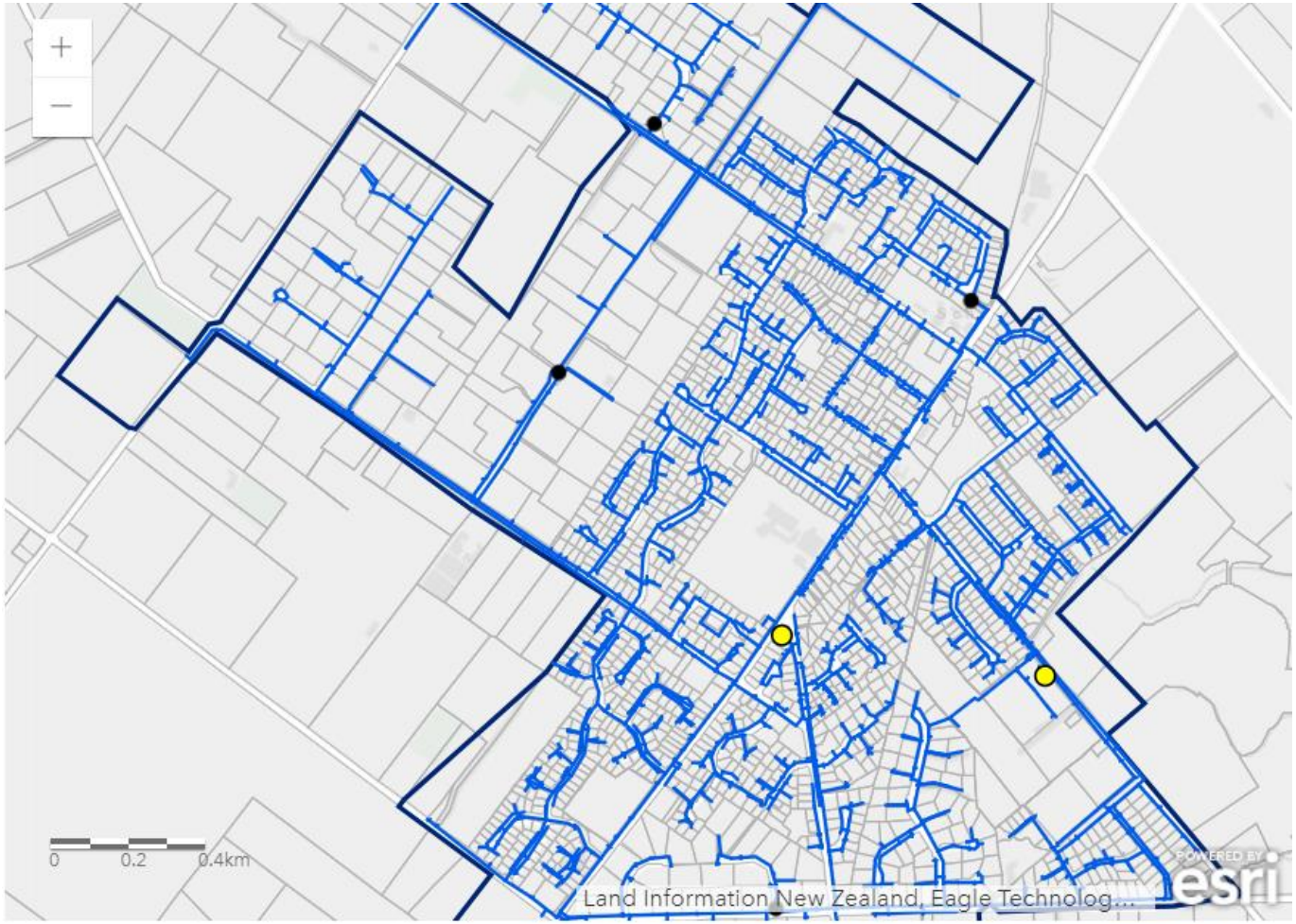
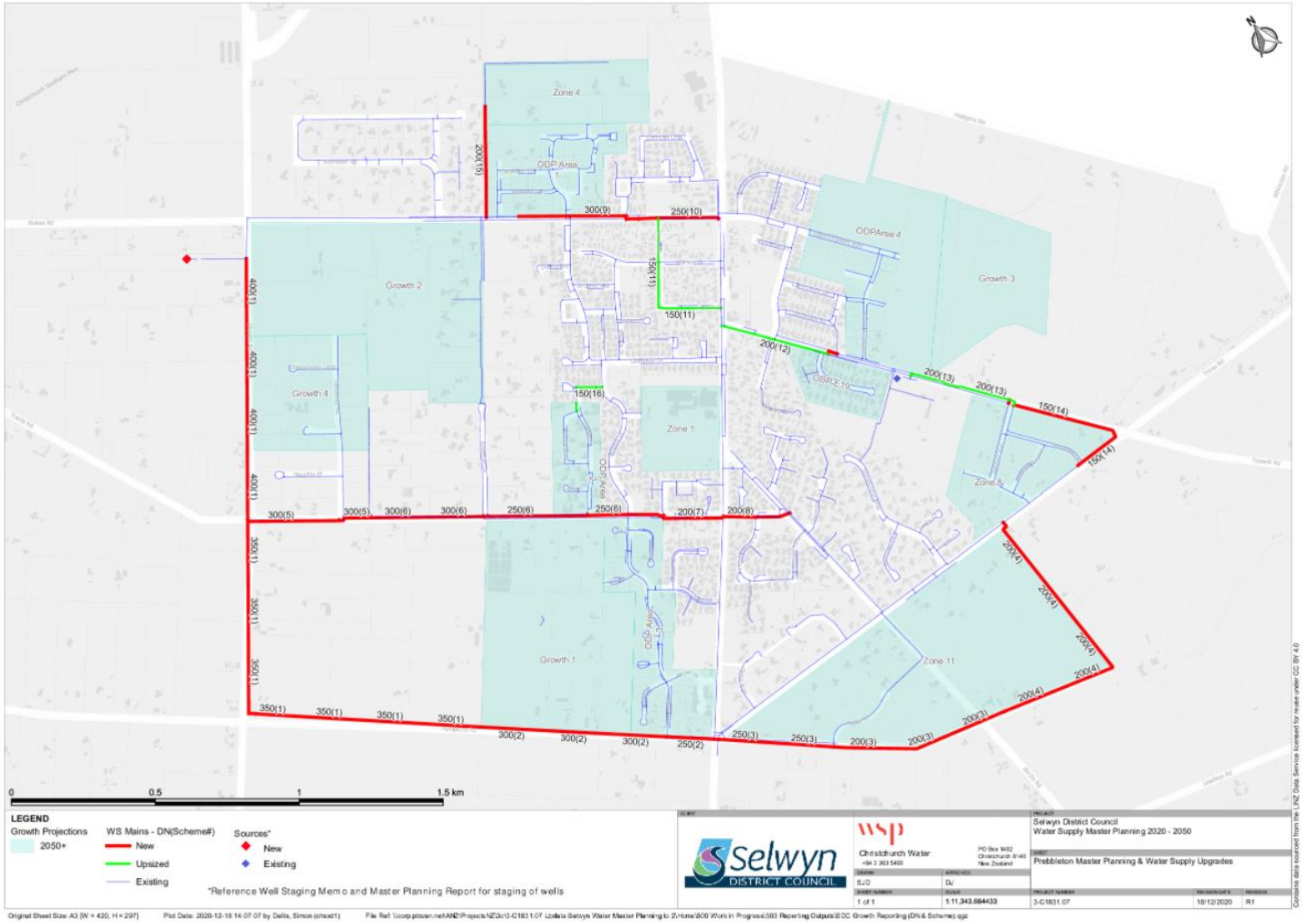


Figure 16-1
PREBBLETON Water - Scheme map
Open larger map: 'Water Scheme'

Appendix 2

Prebbleton Water Supply Master Plan



Appendix 3 –

Prebbleton Wastewater Network

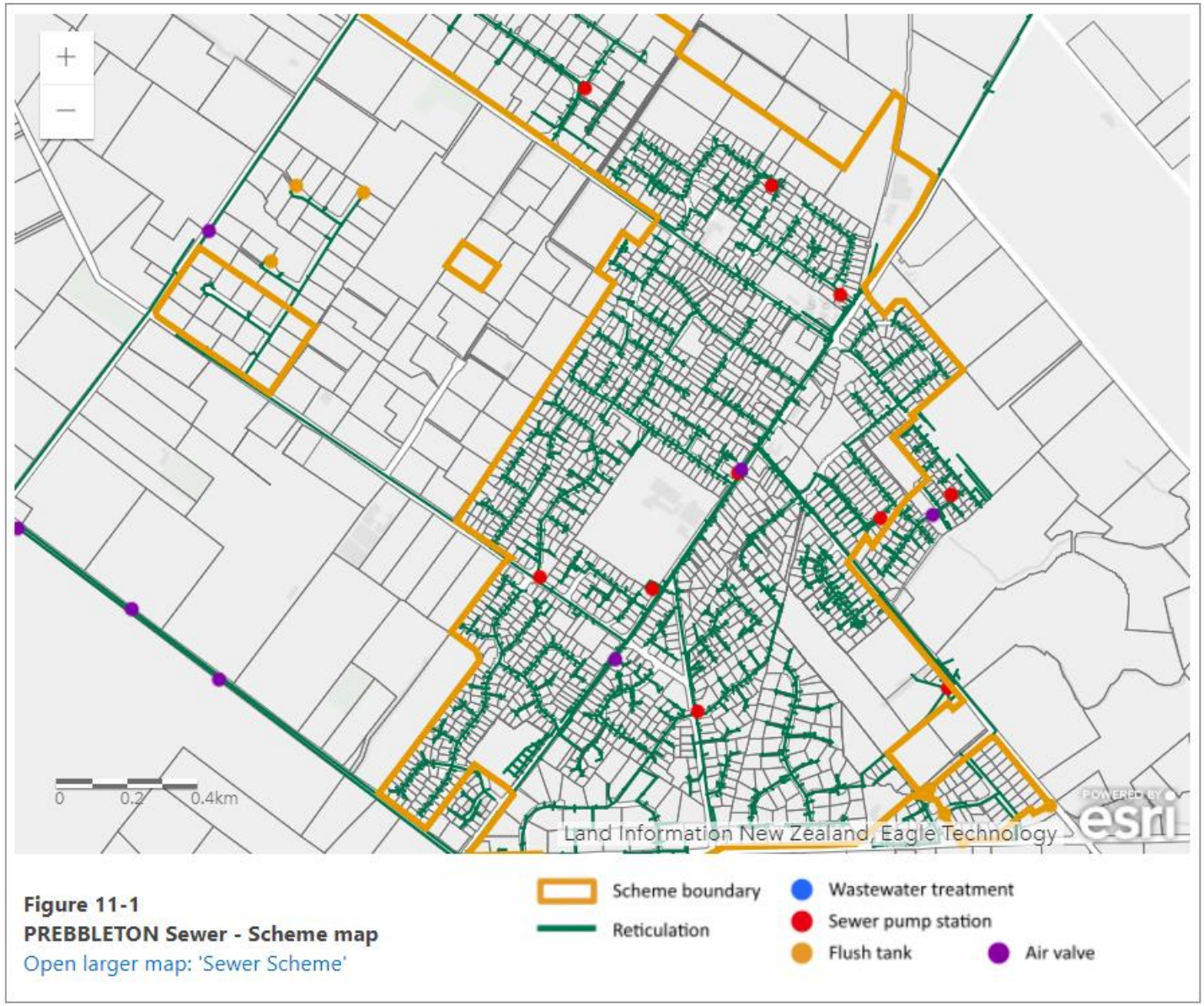
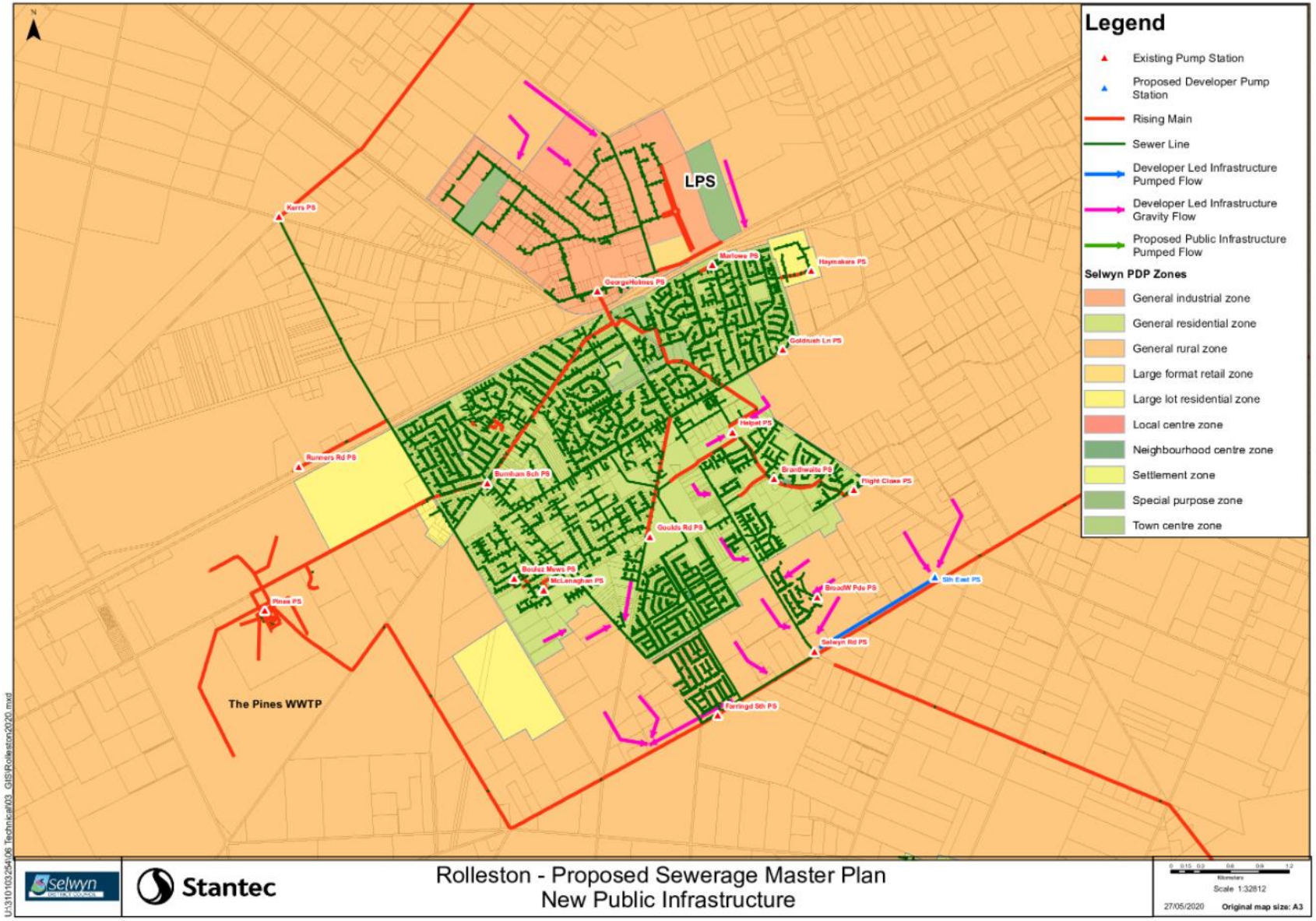


Figure 11-1
PREBBLETON Sewer - Scheme map
Open larger map: 'Sewer Scheme'

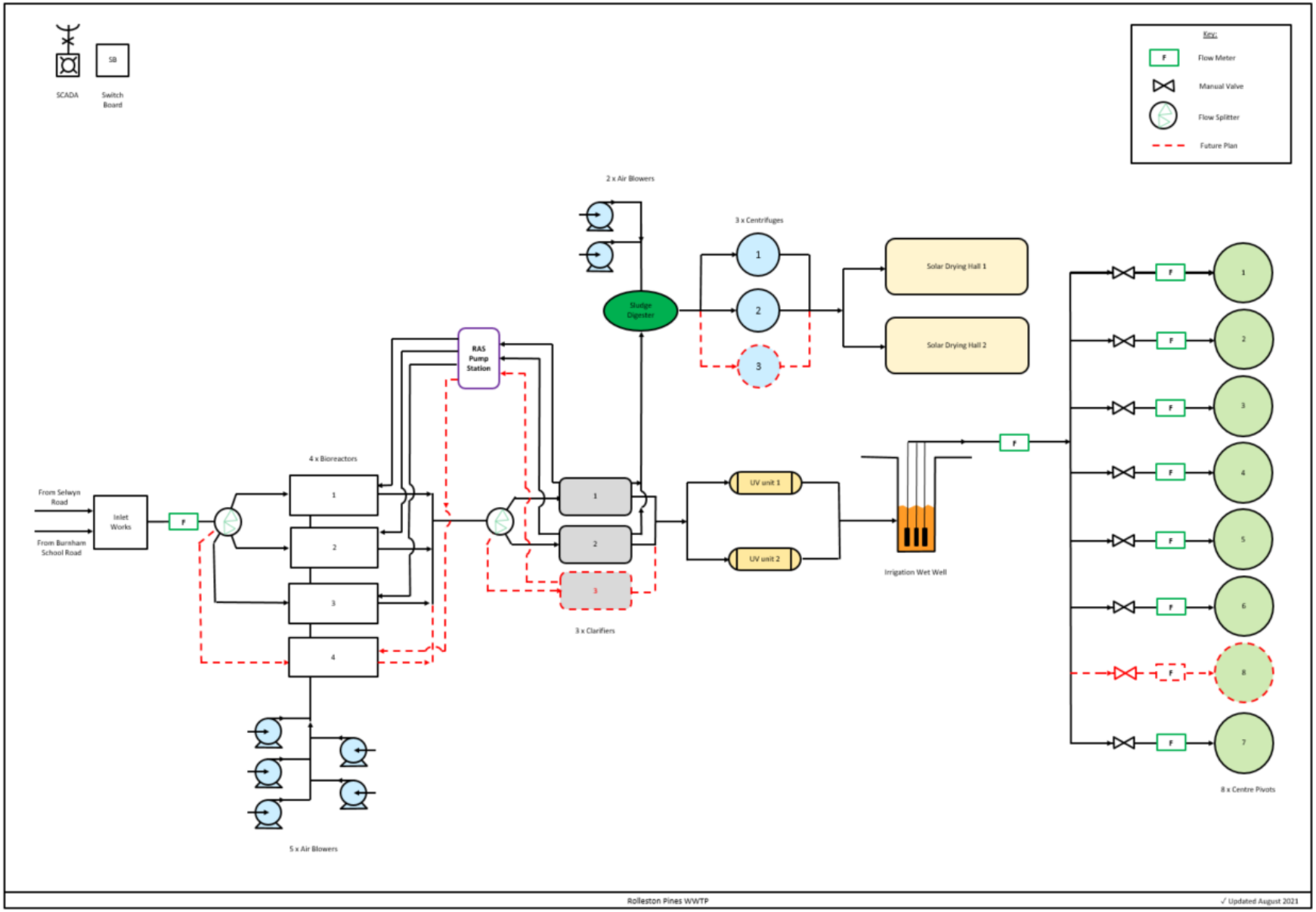
Appendix 4 –

Rolleston Wastewater Master Plan (2021 LTP)



Appendix 5 –

Pines Layout



Appendix 6 –

Pines 120 Consultation (2021 LTP)

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 $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 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[3]. A masterplan has been developed for the treatment plant to expand the maximum treatment capacity to 120,000 people[4]. The cost will be around $100 million and will be funded largely by development contributions.

[3] *Commercial and industrial discharges take some of this capacity as well.*
[4] *As above.*

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 rūnanga 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 races. 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.

OTHER IMPORTANT PROJECTS

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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.

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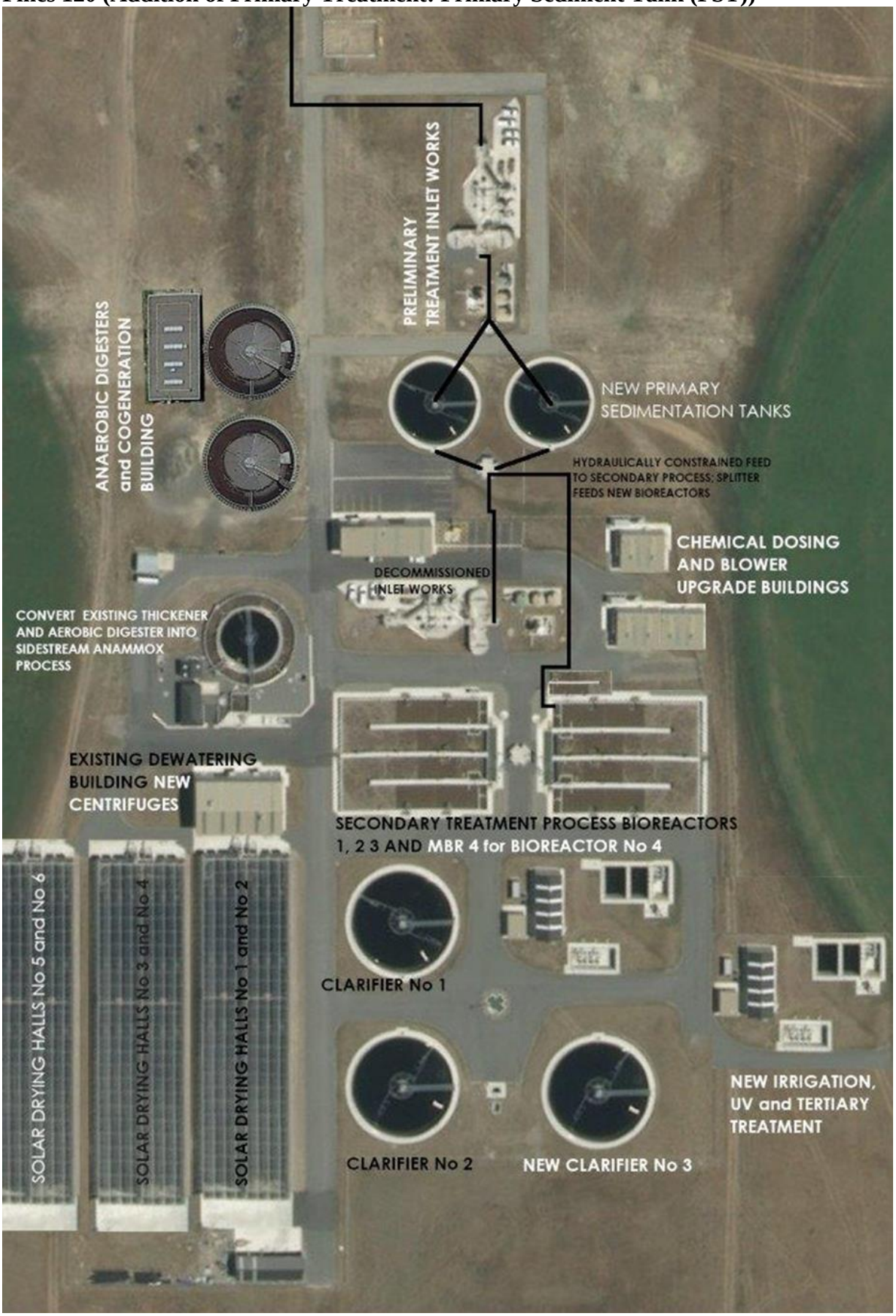
Appendix 7 –
Pines 120 (Existing Layout)

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



Pines 120 (Duplicate Works: Fully Aerobic System)