

Infrastructure Report

Franco Phase 2 FTA Referral • Halswell

Franco Farms Ltd

Residential Subdivision

21566

April 2026



DAVIE LOVELL-SMITH

PLANNING SURVEYING ENGINEERING



Shaping the future since 1880

Revision History

Rev Number:	Prepared By:	Description:	Date:
R0	TI	Initial servicing report for FTA referral application	11/03/2026

Document Control

Action:	Name:	Signed:	Date:
Prepared By	Todd Inness		11/03/2026
Reviewed By	Jamie Verstappen		10/04/2026
Approved By	Todd Inness		10/04/2026

This report has been prepared by Davie Lovell-Smith Ltd on the specific instructions of our client. It is solely for our clients use for the purpose for which it is intended and in accordance with the agreed scope of work. Any use or reliance by any person contrary to the above, to which Davie Lovell-Smith Ltd has not given prior written consent, is at that persons own risk.

Table of Contents

1.	General	1
2.	Site Description.....	2
3.	Site Conditions.....	2
4.	Geotechnical Assessment.....	3
5.	Earthworks.....	4
6.	Roading.....	5
7.	Water Supply	5
8.	Sewer	6
9.	Stormwater.....	8
10.	Power, Telecommunications and Street Lights	9
	Appendix A – Subdivision Concept	11
	Appendix B – Flooding Maps	12
	Appendix C – CCC Infrastructure Consultation.....	13

1. General

1.1 Introduction

This report addresses the servicing of the proposed residential development in Halswell at Lot 3 DP 68573 and Part Lot 1 DP 1537 (672-690 Halswell Rd). The total area of the subdivision is approximately 35ha, proposed to be subdivided into approximately 350 lots.

The proposed development has two main intricacies, being it straddles the boundary between two Councils and is separated in two by the Halswell River. The development can be described and referred to in its two separate parcels.

This report has been prepared based on an indicative scheme plan.

Of the 348 lots shown on the indicative scheme plan, approximately 256 lots are located within Lot 3 DP 68573 on the northern side of the Halswell River in the Christchurch City District and 92 lots including the Stormwater Management Facility located on the south side of the Halswell River in the Selwyn District.

This report addresses aspects of servicing of the proposed development to support the referral phase application under the Fast Track Approvals Act 2024. Servicing aspects covered include stormwater treatment, disposal and reticulation, sewer reticulation, water supply, earthworks, roading, pavements, power and telecommunications. In addition, the suitability of the soils over the site to accommodate residential development is addressed.

The key conclusions are;

- The site soils and geotechnical findings generally support the construction of residential infrastructure.
- There is existing reticulated Council water supply for the proposed development to connect to. Upgrades of existing infrastructure are likely to be required to meet the additional demand following initial consultation with Council.
- Stormwater can be treated and detained on-site before discharging to the Halswell River in accordance with Council requirements and good engineering practice.
- Wastewater servicing for the development is possible. Three main options are discussed in the report, with these options to be further explored through subsequent application phases to ensure a suitable servicing strategy is implemented.
- A suitable vehicle, pedestrian and cycle servicing strategy is possible with good connectivity to existing transport infrastructure.

The design and construction of the proposed subdivision infrastructure will need to comply with the requirements of Christchurch City Council's Infrastructure Design Standard and Construction Standard Specifications and the Selwyn District Council/Selwyn Water Limited Codes of Practice (CoP). Negotiations and agreements will be required between the Christchurch City Council (CCC), Selwyn District Council (SDC) and Selwyn Water Ltd (SWL) for any 'cross border' servicing. Consultation will also be required with

telecommunications and power providers (Orion) to ensure the coordinated provision of power and telecommunications.

2. Site Description

The site is located in Halswell and straddles the CCC/SDC boundary being the Halswell River. It is bounded by Sabys Road to the northwest, Candys Road to the north, Nottingham Stream and part of the Halswell River along the eastern boundary and Halswell River and rural land to the south. The subject site is currently a rural block which has had past and current agricultural and horticultural use.

The topography of the sites is relatively flat with a gently undulating ground level. Several drains, streams and rivers both border and dissect the sites. The two parcels generally fall towards the Creamery Drain and Halswell River at a grade of approximately 1/200.

The Creamery Drain bisects Lot 3 DP 68573 flowing from a culvert at the Sabys/Candys Rd intersection to the Halswell River. The culvert at Sabys Rd is the discharge point from the establish CCC Creamery Ponds and has a constant base flow entering the Creamery Drain. A second drain grades northwest to southeast through this same parcel further south, known as Coakley Drain. It typically has no base flow, it is proposed to fill this drain in as part of the development and incorporate any storm flows into the developments primary and secondary flow infrastructure.

Nottingham Stream borders the eastern boundary of Lot 3 DP 68573 and in turn discharges to the Halswell River which flows west to east between the two parcels.

3. Site Conditions

3.1 Soils

A comprehensive Geotechnical Assessment has been undertaken by KGA Geotechnical. There is approximately 0.4m of topsoil on the site. The underlying soils of the site are predominated by alluvial deposits. Alluvial deposits generally comprise fine to coarse grained sand and silts as well as layers of cohesive clay and peat. The characteristics of the deposits can vary widely over small distances, both horizontally and vertically. An intermediate gravelly sand and/or sandy gravel was generally encountered between 4.0m to 6.0m depth to the west of Candys Road, becoming shallower to the south (towards Halswell Road). The alluvial deposits of sand and clay like materials were generally encountered to depths of 15.0m throughout the remainder of the site. Soft silts (cone resistance, $q_c < 1\text{MPa}$) are present across the site as indicated on KGA Drawing 3 (where greater than 0.5m thick). These areas are more clustered around the northeastern portion of the site and along the western boundary. Inferred dense sand and gravels are generally below 15m depth.

A large portion of lots will require engineered filling with imported silts, gravel and site won soils to ensure geotechnical and secondary stormwater flow requirements are met. The subsurface conditions are further discussed in the Geotechnical Assessment.

Groundwater was only encountered in one of the 2026 hand augers (west of Candys Road) at 2.8m depth with the CPTs measuring the groundwater between 0.6m and 2.5m depth. The shallowest groundwater levels (shallower than 1m depth) were measured in the southern paddock where lower ground levels are present and is historically mapped as swamp/wetland. This indicates there are areas with shallow groundwater

present and that groundwater ingress is relatively slow to open excavation, which can be attributed to the silty nature of the underlying soils.

A Preliminary Site Investigation (PSI) was conducted for Lot 3 DP 68573 and Part Lot 1 DP 1537 in 2026 by Momentum Environmental. The PSI concluded that there are four main areas of possible contamination that are confirmed or likely Hazardous Activities and Industries List (HAIL). The four areas are listed below;

1. Farmyard and pottery workshop risk area (101 Sabys Road) – Potential heavy metal, organochlorine pesticide (OCP), petroleum hydrocarbon and/or asbestos contamination around old sheds and buildings, pottery kilns, a potential former sheep dip, storage and burn areas.
2. Waste disposal to land risk area (101 Sabys Road) - Potential heavy metal, petroleum hydrocarbon and/or asbestos contamination from storage and burning of waste.
3. Residential risk area (6 Wroots Road) – Potential heavy metal, petroleum hydrocarbons and/or asbestos contamination around old buildings, storage and a potential burn area.
4. Historical buildings risk areas (101 Sabys Road and 6 Wroots Road) – Potential heavy metal contamination at the location of former buildings.

A Detailed Site Investigation (DSI) will be required to confirm the presence of the contaminants and levels. Following this it is expected a Remediation Action Plan and/or Site Management Plan will be developed to assist with the removal or management of soils to ensure all residual levels meet the residential end use limits.

4. Geotechnical Assessment

The comprehensive geotechnical investigation by KGA Geotechnical is attached to the FTA referral application. This consisted of a desktop study as well as numerous site tests.

The following points summarise the key findings of the geotechnical investigations applicable to the infrastructure and earthworks aspects of the development.

- The majority of the site is likely to behave as a TC2 property.
- There is potential for lateral spreading within the vicinity of Nottingham Stream and the Halswell River. We recommend a 20m no build zone which is consistent with the current concept plan indicating a 20m reserve band, land inside this 20m zone is considered to behave as TC3.
- The site is underlain by interbedded silts, sandy silts and silty sands overlying intermediate gravels and/or gravels. The soils in the upper 15.0m are expected to be variable across the site.
- There is potential for ongoing static settlements at the site due to the presence of soft soils; however, potential for settlement is not expected to adversely affect subdivision or land development. The appropriate solution for managing static settlements will be confirmed once additional testing has been completed and further development details are available. This is on the basis of relevant experience on nearby sites with similar ground conditions.

- The local groundwater level was encountered at depths of 0.6m to 2.5m within our onsite investigations (shallow and deep).
- Liquefaction ejecta was observed across the site during the February 2011 earthquake event as discussed fully in the geotechnical report.
- Further investigations will be undertaken for the substantive application.
- Site-specific shallow investigations will be required to confirm foundation design for the development of each new Lot.

From the investigation it can be concluded that the site is capable of supporting residential infrastructure and earthworks can be undertaken in a manner to create suitable platforms to support residential dwellings.

5. Earthworks

Earthworks will be carried out on the site to ensure that all future lots will drain towards the new roads at a grade of at least 1/300.

The CCC site is located within the Flood Management Area overlay of the Christchurch District Plan (CDP). It can be assumed that if SDC were to have a similar overlay it too would be considered in the Flood Management Area as the ground levels between the sites are similar. As such the site will need filling during bulk earthworks to raise the natural topography and ensure future build platforms are sufficiently elevated. The finished contour of the site will be shaped to drain towards the new stormwater facility. The site is not located within the food ponding area and therefore compensatory storage is not considered necessary. Regardless, there will be a volume of additional flood storage provided by the proposed road network and the stormwater treatment and detention facilities to be constructed. The proposed minimum finished building platform levels for the site will be confirmed following flood modelling of the detailed design finished earthworks surface. Finished lot levels will be elevated a minimum of 250mm above the 1 in 200-year event water level to ensure finished building platforms are elevated a minimum of 400mm above this level. Please refer to Appendix B for copies of both the CCC and SDC flood models.

The shaping of the site would be undertaken through cut fill activities. As mentioned above, a large quantity of filling will be required. Some fill will be sourced from on-site cut, including the stormwater management area excavation, road pavement cut and infrastructure trenching. However, it is expected that the volume of fill required will be significantly more than the cut generated on-site. Imported fill material, is expected to be pitrun gravel material from local quarries or locally sourced silt material from other subdivision type construction sites. Fill will need to be verified as uncontaminated prior to importing.

Shaping of the natural contour will be required in the reserve adjacent to Nottingham Stream, Creamery Drain and the Halswell River. This is to ensure no ponding will occur and any overland flow is directed into the stormwater reserve. The height difference between the lots and the top of the banks of the water courses can easily be transitioned across the 20m wide reserve whilst maintaining suitable overland flow paths. Removal of excess material from site is not anticipated to be required.

Sediment runoff within the site will need to be controlled as per CCC & SDC's requirements. The basis of the sediment control and discharge will be the Environment Canterbury Guidelines. Co-ordination with the three

Councils will be required for the construction phase discharge consents, with CCC typically granting developers use of their global discharge consent, while the SDC preference is for developers to obtain their own. This is further discussed in the Stormwater section of this report.

6. Rooding

The site is proposed to consist of a major local road and six minor local roads, two of which are cul-de-sacs. The legal widths of these roads are 19m reducing to 18m after the last Sabys Road connection for the major and 16.5 or 16m for the minor local. The major local roads allow a formed width of 9m, with minor local roads likely to be a formed width of 8m. The major local road provides the connection to Candys Road, before linking through to Sabys Road and then continuing through the entire extent of the development site, which will include crossing the Halswell River. All legal and formed widths will be consistent with the requirements of both the CCC and SDC District Plans.

Sabys Road and Candys Road will be upgraded to residential standards along the respective development frontages. This will include pavement widening, installation of kerb and channel, and construction of either pedestrian and/or shared user paths. The Sabys Road/Candys Road intersection is being upgraded to a round-a-bout as part of the Sabys Estate Development (RMA/2022/1651).

ROWs widths will achieve the District Plan requirements.

Footpaths will be installed along both sides of all internal roads. A 2.5m shared path will be installed along one side of the major local road to provide cycle connectivity as required. A dedicated pedestrian and cycle footbridge is proposed to be installed across the Halswell River. All other footpaths will be 1.5m in Christchurch City and 1.8m in Selwyn unless otherwise agreed to.

Preliminary scala penetrometer testing was carried out onsite as part of the Geotechnical Report provided by KGA Geotechnical. The results showed that a subgrade CBR of approximately 3 was consistently achieved. This would give a pavement depth approximately 600mm for the major local road and 450mm for the minor local roads.

All roads and Right of Ways will be constructed with an asphalt surface and formed widths will comply with the CDP and the Partially Operative Selwyn District Council District Plan (Appeals Version).

The roads will provide the secondary flow path for flows up to a 1 in 200-year storm event. Flood flows will be conveyed south to the Halswell River or into the stormwater basins to be constructed on the southern side of the River.

Streetlights will be installed along all vested road to Council Standards.

Please refer to Appendix A for the roading layouts and proposed bridge location.

7. Water Supply

Due to the only publicly available Council water supply in the area being owned by CCC, it is expected that the development, including the land located within the Selwyn District, will be serviced by the CCC supply with an agreement between the two Territorial Authorities in place to protect the supply to the Selwyn District lots.

The water supply network will involve connecting to the existing Council mains located in Sabys and Candys Road both being 250mm diameter PE mains. The proposed water supply for the development will consist of installing 250mm or 180mm diameter PE mains, subject to modelling undertaken during the design process. These mains will extend the length of all internal development roads. Submains will then be installed in all berms to provide future connection points for residential dwellings.

Initial consultation with CCC has confirmed that there will likely be upgrades needed to the existing supply main along Kennedys Bush Road and through Glovers Road. Please refer to Appendix C for a copy of the correspondence. The full extent of this upgrade will need to be modelled and discussed with Council during the Substantive Application. Council is also anticipating the need to upgrade the Wilmers Pump Station, including new wells to ensure there is sufficient source water for the wider Halswell catchment. It is expected that a Developers Agreement would be formed with Council to co-ordinate and contribute to these upgrades.

The peak water supply demand for the development has been estimated in accordance with the CCC IDS Part 7, Chart 1 for residential development areas. For a development with approximately 350 residential connections, the peak water supply demand is 0.15 l/s/lot, creating a total peak demand of 52.5 l/s.

The allocated firefighting water supply classification is expected to be FW2. This classification stipulates that the local water supply network must be able to provide at least 12.5 l/s within 135m of any lot and an additional 12.5 l/s within 270m of any lot. This flow can be provided by 2 hydrants discharging at 12.5 l/s. Hydrants will be spaced at approximate 135m intervals which will ensure compliance with the requirements of the New Zealand Fire Service Firefighting Water Supplies Code of Practice.

8. Sewer

As with the water supply due to the only publicly available Council sewer system in the area being owned by CCC, it is expected that the development, including the land located within the Selwyn District will be serviced by the CCC supply. An agreement between the two Territorial Authorities will need to be implemented to protect the infrastructure to the SDC lots.

The sewer network for the development is expected to be a Local Pressure Sewer (LPS) as approved for the adjacent development areas and is consistent with those implemented on other nearby developments. There are several factors that lead to this being the preferred options for the overall development, these are listed as follows;

- Shallow depth to groundwater. This can lead to infiltration of groundwater overtime as infrastructure ages and contributes to high cost of install, future maintenance and upgrades due to the dewatering.
- Ground conditions. Due to the lower bearing capacity of the underlying soils, large concrete structures and pipelines dependant on being laid and maintained at relatively flat grades are less preferred due to the risk of settlement over time.
- Earthquake and liquefaction resilience. The smaller diameter, welded PE pipe is far less susceptible to settlement, displacement and cracking during earthquake movement.
- LPS network can be laid to discharge against natural contour to ensure greater flexibility for the discharge location.

- The LPS network can buffer peak flows using the IOTA control and individual tanks on each lots to ensure reduced loading on what is known to be a capacity constrained network area.

From the connection point a series of mains and submains will be installed within the road reserves to provide connection points for each lot. Each site will have a private individual pump unit and tank connected to a common pressure sewer pipe in the street. The development works will include the installation of a lateral pipe, isolation valve and boundary box to each lot located at the road boundary. The pump tanks will be installed at the time of building consent and connect to the boundary box installed by the developer. The power to the pump stations will be provided by the future owner.

The LPS system will be designed and sized by IOTA. The correspondence with CCC, SDC, SWL will be relayed to IOTA to ensure the network is designed accordingly. The average wastewater flow loading (ASF) for the 348 lots is calculated using the Code of Practice 6.4.1 equations and gives the following flow.

$$\begin{aligned}
 \text{ASF} &= 348 \text{ lots} \times 220 \text{ l/person/day} \times 2.7 \text{ persons/lot} \\
 &= 206,712 \text{ l/day} \\
 &= 206.7 \text{ m}^3/\text{day} \\
 &= 2.39 \text{ l/s}
 \end{aligned}$$

The previously consented Sabys Estate Development and 101 Sabys Road Development on the northern side of Candys Road have approval to discharge an LPS network into the existing sewer manhole (WwAccessID 46595) located in Sabys Road. Ideally, this development would integrate with these surrounding developments and discharge to a similar location. However, through consultation with CCC it is known that the existing network downstream from that discharge location through to the Wigram Pump Station (PS105) is nearing or at capacity. As such, the approximate 350 lots from this development will either need to find an alternative suitable discharge location, sufficiently buffer flows or undertake upgrades to the existing network to ensure there is sufficient capacity. It is known through discussions with CCC they are undertaking updated modelling for the wider Halswell area to look at options for upgrading the existing network to better manage current flows and allow for future development areas. The applicant intends to work with CCC on the future servicing strategy for this development to ensure it is co-ordinated and integrated into the upgrades that CCC are expected to be planning for to ensure the most cost effective and practical solution is reached for the developer, Council and ratepayers.

Please refer to Appendix C for correspondence with CCC regarding sewer network constraints downstream of the site. Based on this information, along with current understanding of the surrounding network, several viable servicing strategies have been identified to support the proposed development. Each option presents a feasible engineering pathway, with varying implications for programme, cost, and coordination.

OPTION 1

LPS network servicing the entire development and discharging to the existing manhole in Sabys Road, with the downstream network upgraded to cater for the additional flows yet to be allowed for in the Council network. Following initial consultation with CCC, this approach aligns well with Council infrastructure objectives for the wider area and best represents an integrated long-term solution. It would involve upgrades to existing pump stations and pipelines between the site and Pump Station 105 on Wigram Road, ensuring

sufficient network capacity. While this option requires a higher level of coordination with Council and structured Developers Agreements, it provides a robust and future-proofed outcome. With appropriate agreement frameworks in place, the scope of developer contributions can be clearly defined and aligned with servicing requirements.

OPTION 2

An LPS network servicing the development, discharging to a new on-site pump station, which then conveys flows directly to Pump Station 105 or another suitable downstream location where capacity is available. This option provides a high degree of flexibility and allows servicing to proceed independently of immediate downstream upgrades. The proposed pump station would be designed to deliver flows over distances of up to approximately 7km via a rising main installed within existing road corridors. The design can incorporate features such as oversized storage to buffer peak flows, reducing demand on the downstream network. Further hydraulic modelling, and Council planned strategic upgrades may identify opportunities to optimise the discharge location, potentially reducing infrastructure required and associated costs.

OPTION 3

A private on-site wastewater treatment system with discharge to adjacent waterways. This option offers a self-contained servicing solution, removing reliance on existing Council infrastructure, downstream upgrades, and associated network constraints. It also avoids the need for extensive off-site works and minimises disruption to surrounding road networks. While this approach may present additional consenting and long-term maintenance considerations, it provides a potentially efficient solution from a programme perspective and offers a practical pathway where timing or infrastructure constraints are critical.

Overall, while there are recognised constraints within the existing downstream network, the assessment confirms that there are multiple viable engineering solutions available to service the proposed development from a wastewater perspective. Each option provides a clear pathway forward, ensuring that an appropriate and deliverable servicing strategy can be implemented in alignment with project priorities, programme, and stakeholder requirements. Should the application be referred, the Applicant would engage with CCC and SDC to confirm the sewer servicing option for consenting purposes.

9. Stormwater

According to the flood data provided by the CCC and SDC, we note the following:

- The site is within a CCC District Plan Flood Management Area.
- Flood levels up to 1m depth in a 1 in 200-year event are expected across the site, generally within the low-lying areas as per the figures shown in Appendix B.

If the application is referred, consultation would be undertaken with CCC and SDC during the substantive application to ensure floor level requirements are sufficiently addressed. We expect that the site will generally be required to be raised using fill as detailed in the Earthworks section above.

The previously consented 101 Sabys Road Development was to discharge to a stormwater treatment and detention facility to be constructed on the southern side of Candys Road, within Lot 3 DP 68573 in accordance with the ODP. Due to the now intended development of Lot 3 DP 68573 through this referral application, it is proposed to shift the stormwater treatment and detention facility to the southern side of the Halswell River, within the Selwyn District to maximise the development area. The location of the proposed facility is shown on the Subdivision Concept plan included as Appendix A.

This solution will require co-ordination and agreement between the Applicant, CCC and SDC. The key matters to co-ordinate are;

1. The discharge of stormwater from CCC catchments into management facilities located on SDC land.
2. The conveyance of both primary and secondary flows under and/or over the Halswell River to the stormwater management area.
3. Discharge Consents will need to be obtained from Environment Canterbury spanning across the two Territorial Authorities.

Whilst the methodology listed above is the preferred strategy, as it allows one larger communal facility, an alternative split stormwater facility is possible. This would involve having two separate facilities, each located at the low point of both Territorial Authority catchments, both discharging to the Halswell River. This would eliminate the need to have an agreement between the two Territorial Authorities and separate discharge consents could be obtained as necessary for the parcels located in the different jurisdictions.

The first flush basin would be sized to treat the first 25mm of runoff from the development site in accordance with the Waterways and Wetlands Drainage Guide (WWDG). The first flush basin will discharge to a wetland that has been sized for the same catchment area, plus the Creamery Ponds first flush basin discharge as previously agreed with Council. The detention facility would be sized to attenuate flows for the Southwest Halswell Critical event being the 2% AEP 60hr event.

It is expected all house sites will discharge to the streets via kerb adaptors or sump connections. All stormwater emanating from roads, berms and lot frontages will be collected by sumps and pipes and directed downstream, eventually reaching the proposed stormwater basins.

All pipework will be designed to contain a 20% AEP storm event in accordance with Council Standards and the WWDG. The minimum size of vested pipes will be 225mm.

Secondary flow paths within the site will follow the road network and discharge to the proposed stormwater facility.

Full flood modelling will need to be undertaken as part of a Substantive Application.

10. Power, Telecommunications and Street Lights

Power and Telephone will need to be provided to all sites to utility company and industry standards. Consultation will be required with both the power and telecommunications providers to ensure sufficient capacity is made available for the development. This may require co-ordinated works to undertake any upgrades to the existing network required to service the proposed demand and undergrounding of overhead lines.

It is expected that all cables will be placed underground, and all kiosks will be constructed on separate individual lots. Existing power connections to the site will be incorporated into the proposed power design.

Streetlights will be provided to the roading to Council Standards. The applicant will also provide a street light style to Council for approval.

Appendix A – Subdivision Concept

Appendix B – Flooding Maps

Appendix C – CCC Infrastructure Consultation