

ENGINEERING ASSESSMENT REPORT

for

12 Huna Road & 234a SH30, Whakatane Julians Land Co.

Description

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Quality Assurance Statement			
Task	Responsibility	Signature/Approval	
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1. GENERAL INFORMATION

The subject site is legally described as Lots 1 & 2 DPS 89311. Lot 1 DPS 89311 held in Computer Freehold Register SA36C/847. It is a Fee Simple Title and consists of 10.7935 hectares more or less. Lot 1 is legally owned by Julians Land Co Limited and currently operating as Julians Berry Farm.

The site also includes the neighbouring Lot 2 DPS 89311 held in Computer Freehold Register SA70D/189. It is a Fee Simple Title and consists of 5175 square metres more or less. Lot 2 is legally owned by Dawn Parade 2012 Limited.

Lots 1 & 2 DPS 89311 have a combined area of 11.311 hectares which are zoned as Deferred Residential in the Whakatane District Plan. Both lots have 2nd party interests for drainage and limited access onto SH30.

The client is undertaking a private plan change to Residential Zoning of 12 Huna Road and 234a SH30 with the Whakatane District Council (WDC).

Concept layout showing the extent of the plan change, drawing 20-30851-02-C2 Rev2 is included in **Attachment A** of this report.

The objective of this report is to assess the engineering feasibility of the services of the three waters, transport, and utilities (power, fibre and telephone) for the new proposed lots. This report details the general design philosophy and identifies possible engineering issues and recommendations for this project. This report is intended for use as a supporting document to the Private Plan Change.

This project includes:

- Roading and Access.
- 3 Waters supply and disposal.
- Utilities.

2. ROADING AND ACCESS

The main access to the new development will be off Huna Road and also through the existing Shaw Road development. Huna Road forms a Tee intersection with SH30 which is a Regional Arterial.

During prior meetings with WDC and Waka Kotahi, S&L were advised that Waka Kotahi are planning to introduce a safe system strategy on SH30 from Awakeri to Whakatane, commencing at the Te Rahu Canal Bridge and ending at Phoenix Drive. This length of proposed safe system includes the intersection of Huna Road.



Figure 1: Waka Kotahi Safe System Proposal

This strategy will reduce the turning movements at Huna Road to left in/left out. Waka Kotahi advised that a new roundabout will be introduced at Thornton Road intersection to provide right turn movements as part of the strategy. This means that side road users between the new Thornton Rd roundabout and the existing Phoenix Drive roundabout will required to make use of these roundabouts when wanting to make a right turn onto, or off SH30. Drivers will be required to turn left and travel in the opposite direction, make a right turn at the roundabouts and travel back to their desired destination.



Figure 2: Existing SH30/Huna Road intersection (looking west on SH30)

S&L have been advised that the safe system design is only at concept stage with funding to be sought to allow tentative programmed construction to commence between 2024 to 2027. There is no guarantee that the project will gain funding and S&L were advised that interim improvement solutions to the SH30/Huna Road intersection, to support the development would be considered by Waka Kotahi. This would require submission of a concept design and supporting traffic assessment report to be reviewed by Waka Kotahi Safety Engineers.

The internal road network of the proposed development will be designed and constructed generally in accordance with the Development Code including intersections. The development intention is to provide an internal future link to connect Huna Road to Shaw Road as an extension of Kotare Drive. This through route will be designed to Kotare Drive standard and become available when the neighbouring site to the east is developed. The neighbouring site owned by Mr Van Der Aa is already zoned residential. This owner supports the proposed development and through road connection.



Figure 3: Existing western terminal end of Kotare Drive

The wider carriageway and more robust pavement proposed for this through route allows for a future bus route and route for heavier traffic (single unit furniture removal truck) with less side friction while still flagging to motorists that they are in a confined environment to encourage slower vehicle speeds. Unlike the existing section of Kotare Drive pictured, the through road extension will have a similar central grass median, however restricted access for residential properties along the road frontage. This allows the through road to operate relatively unimpeded as a collector. Residential access will be at intersections to the local road/laneways off this through road. The

central median of the through road shall have gaps to provide for right turning movements at the local road/laneway intersections.

The development will include a Residential zone (standard lots), Urban living zone (smaller lots), mixed use (café), Parks/open space and stormwater reserve. The residential zone and Urban living zone shall be accessed by local roads/lane ways. The proposal is to provide narrower streets for the local roads/lane ways. These streets shall be 5.5m wide with less robust pavement commensurate with the low volumes of heavy vehicles. The narrower streets shall be widened on the 90-degree bends to allow the passage of emergency vehicles (fire engine) and an 11m single unit truck (rubbish collection). This confined nature with side friction promotes a low-speed environment to align with the intended development function. This self-explaining low-speed environment is evident within recent developments at Hobsonville in Auckland and Greenhill Park in Hamilton.



Figure 4: Example of 5.5m wide self-explaining local road/laneway (Urban Living-Greenhill Park Hamilton)

Concept layout showing the extent of the plan change, drawing 20-30851-02-C2 Rev2 is included in **Attachment A** of this report.

3. TRAFFIC ASSESSMENT

Location

The site is located on the eastern side of Huna Road, immediately north of SH30. The site contains Julian's Berry Farm and café.



Figure 5: Huna Road- Julian's Berry Farm entrance (left) and SH30 intersection beyond.

Huna Road is classified as a district local road with average daily traffic (ADT) of 224 vehicles per day (vpd). Huna Road is 7.1m wide with standard centreline marking to provide 3.5m lanes in each direction.

Sight distance and Traffic Volume

Sight distances and turning capability onto Huna Road (from the proposed development) are acceptable, with a clear sight distance in both directions. As stated in the Traffic Assessment Report the initial traffic generation assessment with respect to the proposed development is expected to increase the ADT to 686 vpd. The District Plan requires rural roads serving up to 150 dwellings and with an ADT up to 1000 vpd, to have a two-way road width of 6.5m to 6.7m. The existing width of 7.1m meets the requirement for the proposed intersection at Huna Road for the new development. The low traffic volume on Huna Road suggests that there will be minimal impact from the traffic generated by the new development. The Huna Road intersection will be designed to Austroads standards taking into consideration the traffic generated and potential conflict. To facilitate better turning facilities in and out of the development the new intersection could include standard traffic calming measures if required.

Proposed Through Road

The main carriageway within the development will provide a connection through to Shaw Road when the adjoining property to the east is developed. This through road will take traffic off the intersection of SH30 by offering an alternative route parallel to SH30 for short local trips. The through road boulevard will appear as an extension of Kotare Drive when constructed. This road corridor is wide with a central grassed median between lanes. The grassed median shall also be used for stormwater conveyance.

Local Roads

The local roads/laneways within the development are intended to be narrow at 5.5m wide. The narrow and confined road environment supports the desire for self-explaining streets which promote slower vehicle speeds and the desired driver behaviour. The local roads/laneways provide the access roads for each residential lot. This confines the turning and manoeuvre conflict to the local road/laneway intersections to reduce the conflict on the proposed through road for improved capacity, functionality, and crash reduction.

Alternative Transport Modes: Pedestrians and Cyclists

Footpaths are proposed along each side of the main internal road, with a wider shared path on the southern side for cyclists and pedestrians. Until the adjacent property to the east is developed there is no through connection available. Footpaths/shared paths are also proposed in the stormwater reserve located within the 80m separation strip between the development and the SH30 road corridor to provide an alternative off road connection through to Shaw Road. This connection is also not available until the adjacent property to the east is developed.

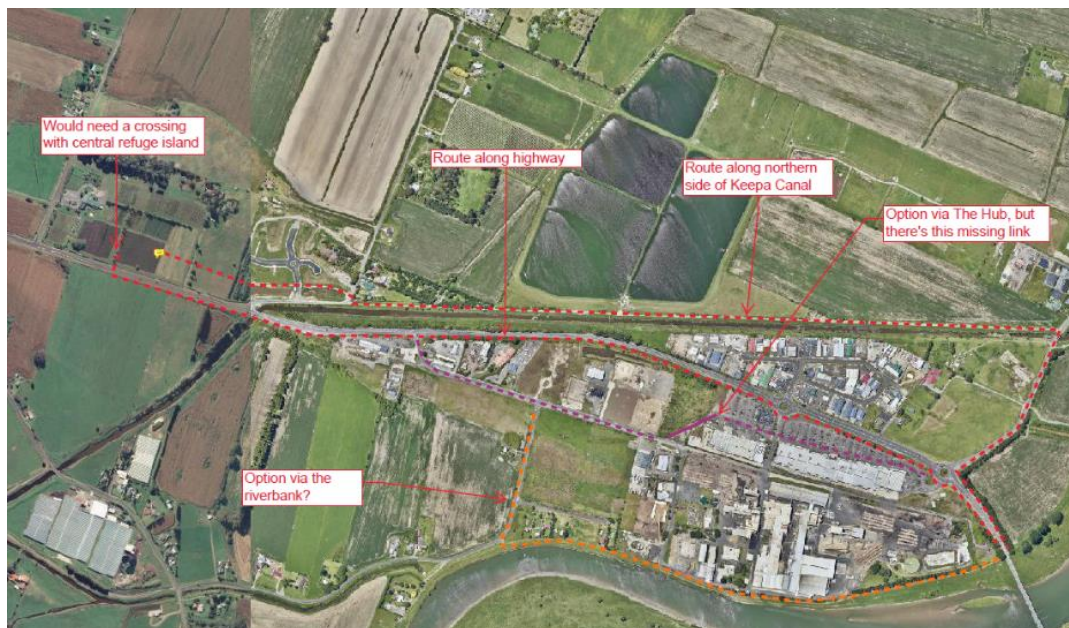


Figure 6: Proposed cycle paths

WDC need to consider the use of Development Contributions for the installation of a shared path crossing of Shaw Road and onto the northern side maintenance access track of the Kopeopeo Canal, running alongside Keepa Road for use by pedestrians and cyclists. This track could be upgraded to include a pedestrian/cycle bridge over the canal to provide an off-road pedestrian and cycle access to the Hub.

The Traffic Assessment Report Section 14 identifies Council's "District-Wide Transport and Recreation Strategy 2020". This strategy confirms the pedestrian and cycle link to the Whakatane urban area and the Hub commercial area.

Alternative Transport Modes: Buses

The existing bus service operates along SH30 adjacent to the site. The main through road provides access for buses, however this is not available until the through road is open between Shaw Road and Huna Road.

SH30/Huna Road intersection

With reference to the Draft Transportation Assessment report dated May 2021, SH30 is classified as a regional arterial and is the main link to Whakatane from the west. The intersection of Huna Road and SH30 is a Tee intersection with stop control on Huna Road approach. Both Huna Road and SH30 have 100kph speed restriction.

SH30 has average daily traffic of 16,450 vpd. Traffic generation assessed for the development will increase traffic arriving at the SH30/Huna Road intersection from 224 vpd to 914 vpd. It is expected that 80% of traffic from the development will travel east on SH30, towards Whakatane town with 20% travelling west towards Rotorua and Tauranga.

Traffic generated by the berry farm

The owner of the Julian berry farm has provided sales figures for the past 4 seasons from the summer of 2018 to 2021. The sales represent patrons who have travelled to the berry farm and purchased produce.

A summary of the 2021/22 and 2020/21 season transaction numbers is tabled below.

2021/22 Berry Farm daily sales		
Month	Weekend	Midweek
October	748	420
November	1089	480
December	753	578
January	611	426

2020/21 Berry Farm daily sales		
Month	Weekend	Midweek
October	841	432
November	1057	452
December	1005	738
January	601	727



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As per the Traffic Assessment Report section 7.1 the daily transactions between 24th September to 6th February "averages around 644 transactions per day. It is considered that 20% of cars have two rather than a single transaction. With two vehicle movements for each transaction, the daily traffic generation associated with customers is approx. 1030 vpd. It is understood that there are approx. 50 staff with a traffic generation of 100vpd. The total traffic generation is therefore approx. 1,130 vpd.

The berry farm however is only open around 4 months of the year. The existing annual average traffic generation is therefore estimated at approx. 377vpd.

The Traffic Assessment Report section 7.2 assesses the traffic generated by the café and berry farm referencing NZTA Research Report 453 "Trips and Parking Related to Land Use" (RR453) and the Roads and Traffic Authority of New South Wales "Guide to Traffic Generating Developments" (RTA)

This assessment shows an expected daily traffic generation of 771 vpd, with a peak hour traffic generation of 83vph. from the proposed development.

This demonstrates that traffic generated by the proposed development, using Huna Road and the SH30/Huna Road intersection, is less than the traffic demand during the berry picking season.

The full traffic distribution assessment for the development can be found under Section 7 of the Transportation Assessment Report.

Interim SH30/Huna Rd Intersection Improvements

Waka Kotahi is planning to introduce a safe system strategy on SH30 from Awakeri to Whakatane, commencing at the Te Rahu Canal Bridge and ending at Phoenix Drive. The safe system strategy is planned for construction 2024 to 2027, however there is no guarantee that funding will be secured, and the safe system strategy may not be implemented. To facilitate the development, without the safe system strategy, S&L will prepare an improvement solution to the SH30/Huna Road intersection for consideration by Waka Kotahi safety engineers.

The improvements shall adopt the findings from research report 644. "The crash performance of seagull intersections and left-turn slip lanes" >i by 2018 commissioned by NZTA and undertaken by Stantec New Zealand Ltd and G Wood, Consultant.

Intersection improvements to be considered to improve safety and reduce crashes include.

- Add a left turn lane out of Huna Rd (Recommended in the Traffic Assessment Report)

It is understood that WDC and Waka Kotahi have been in discussion with respect reducing the posted speed on SH30 to 80kph within the section that includes the Huna Road intersection. This speed reduction will reduce crash severity and provide greater time for drivers turning into or out of Huna Road to gauge gap acceptance as a safety initiative.





4. STORMWATER

The 80-meter building set back restriction from SH30 noted in the Structure Plan for inundation (Rule 11.2.8.1) shall be used for stormwater control. This area provides the space to incorporate the required attenuation and storage devices to mitigate downstream effects with respect to stormwater discharge from the development into the Kopepeo Canal.

The main through road of the proposed development has a central median. This median shall be utilised for the conveyance of stormwater. Runoff collected from the roads and lots arriving at the central median shall be discharged into a series of interconnecting ponds located within the stormwater reserve for controlled attenuation and storage.

Using the criteria set by Bay of Plenty Regional Council at the meeting of February 10th, 2022 for the Shaw Road development the following detention pond size has been assessed. This shall be further refined at detailed design stage. The top of the bund is proposed to be RL 2.0m, maximum water level 1.7m and pond invert 1.0m (average).

Site	Approx. Area (Ha)	Storage Required above RL = 0.60 (m)	Approx. Area Available (Frontage x 80.00)	Depth of Water (m)	RL Water Level Top of Pond (m)	RL Top of Bund (m)
Lot 1 & 2 DPS 89311 (Berry Farm)	10.7	4,632	38,000	0.6	1.7	2.0

The design intention is to bund off the 80m separation strip along southern boundary fronting SH30 as well as the western and eastern boundary extents of the 80m wide strip. The bund serves to separate the existing open drainage system of Shaw Road development and SH30, allowing these systems to operate separately as per their original design intention with no connection or influence from the proposed development.

The invert of the proposed attenuation ponds within the 80m strip have been set at circa RL 1.0m and invert level of the open drain on the SH30 roadway side of the bund is RL 0.43. This lower level allows SH30 to drain independently and unimpeded, to maintain the current ground water level along SH30. The outlet of the pond system will be near Shaw Road/ SH30 intersection where discharge directly to the end of Marshalls Drain is proposed.

The gravity storm water pipelines to service the individual lots within the proposed development will be designed and constructed to the WDC code of practice.

4.1 Building Platform

The finished ground level and minimum height for building platforms, take into consideration the stated flood level of RL3.0m with freeboard. The conceptual design shows that the fundamentals of

design can be met for Stormwater, Wastewater and Water with a minimum finished design ground level between RL3.3m and 3.5m.

5. WASTEWATER

The gravity wastewater system of the nearest connection point flows into a pump station at the low point of the Shaw Road development. The pump station connects to the WDC wastewater treatment plant via a 125mm dia PE rising main approx. 1010m long and generally located along Keepa Road. While the existing pump station has additional wet well capacity of 22m³ the connecting manhole at the end of Kotare Drive is too high to provide a gravity connection to service the proposed development. The Julian's development will require a new Pump Station and rising main to connect to the existing manhole at the western end of Kotare Drive as a receiving manhole. The connection is reliant on the adjoining property to the east being developed.

The gravity wastewater pipelines to service the individual lots within the proposed development will be designed and constructed to the WDC code of practice.

6. WATER

The proposed subdivision is currently zoned Deferred Residential with the nearest piped water reticulation at the end of Kotare Drive and at SH30/Shaw Road intersection. The future growth plan (part below) shows a new DN200Ø ring main through Whakatane West connecting off the existing watermain at SH30/Shaw Road intersection.

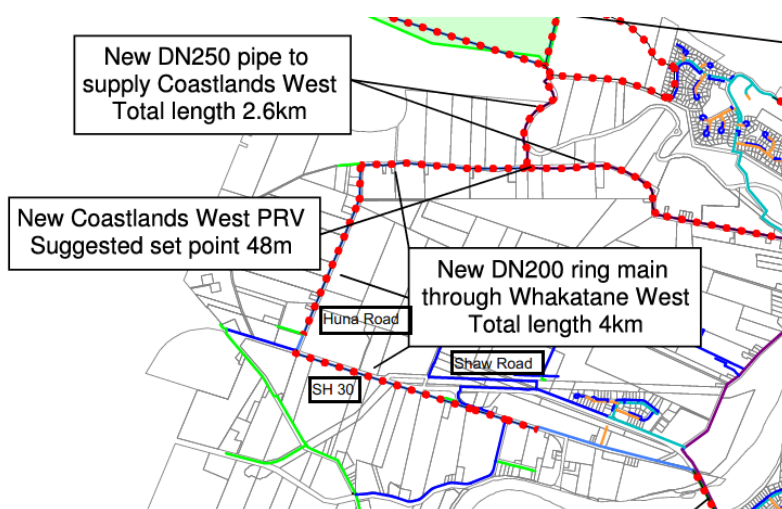


Figure 7: Growth plan for water reticulation

The development would be enhanced by this installation, or part of this installation up to the proposed Huna Road entrance for connection. The water main and rider main to supply the development will tee off this ring main at the development entrance off Huna Road. The watermain will initially be capped at the end of proposed collector road and connect through to the 100 dia watermain at the end of Kotare Drive when the adjoining property to the east is developed. This through connection will ensure the required pressure distribution to supply the level of service for domestic and firefighting reticulation. The internal reticulated system will be designed as per the WDC Development Code.

7. UTILITIES

Existing overhead power supply and ground mounted transformer is located directly opposite the proposed entrance on Huna Road. It is proposed to provide underground supply to the development. The power authority will be contacted at the detailed design stage to confirm whether this connection has the capacity from this point of supply.

Telecommunications services are available within the current urban area at the end of Shaw Road. Extensions to the existing networks will be required to service the proposed development. Confirmation of supply and network upgrades that may be required will be requested from the UFF provider at the time of detailed design.

8. CONCLUSION

Julians Land Co Limited is currently undertaking a private plan change to Residential Zoning and proposes to carry out a multi-lot residential subdivision at 12 Huna Road in Whakatane. Initial concept plans show a potential for the creation of medium density residential zone and higher density urban living zones, with road access through to Kotare Drive including stormwater management within the setback building restriction area.

Meetings have been held with both the Whakatane District Council and Waka Kotahi to discuss the development.

Pending final SH30/Huna Road intersection review, Traffic Assessment and finalised flood details from the Regional Council, S&L considers the initial concept for the property can support the proposed plan change and development.



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9. ATTACHMENT

Attachment A: Drawing 20-30851-02-C2 – Layout Concept Plan

