DAVIS OGILVIE
ENGINEERS / SURVEYORS / PLANNERS

PRELIMINARY SERVICES REPORT

42542 / 52 AMBERLEY BEACH ROAD & 187 CARTERS ROAD, AMBERLEY – STAGES 3 + / EGMONT DIXON LIMITED

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Davis Ogilvie & Partners Ltd

QUALITY ASSURANCE

Title:	Preliminary Services Report – Stages 3 +
Client:	Egmont Dixon Limited
File Location:	\\dop5\jobdata\projects\42s\42542 - The Clearing - Stage 3+\Civil\Design\Servicing report\S 3+\42542.The Clearing Preliminary Servicing Report S3+ V2.docx
Version:	2
Date:	March 2023
Project No	42542

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DISCLAIMER

This engineering report has been prepared at the specific instruction of Egmont Dixon Limited. It outlines the design of the preliminary servicing for a proposed subdivision at 52 Amberley Beach Road, and 187 Carters Road, Amberley.

Davis Ogilvie did not perform a complete assessment of all possible conditions or circumstances that may exist at the site. Conditions may exist which were undetectable given the limited investigation of the site and have not been taken into account in the report.

Davis Ogilvie's opinions are based upon information that existed at the time of the production of this document. Assessments made in this report are based on the conditions found onsite and published sources detailing the recommended investigation methodologies described. No warranty is included—either expressed or implied—that the actual conditions will conform to the assessments contained in this report.

Davis Ogilvie has provided an opinion based on observations, site investigations, and analysis methodologies current at the time of reporting. The report cannot be used by any third party without the written approval of Davis Ogilvie. The report cannot be used if there are changes in the referenced guidelines, analysis methodologies, laws, or regulations.

Only Egmont Dixon Limited and the Local and Regional Territorial Authorities are entitled to rely upon this engineering report. Davis Ogilvie & Partners Ltd accepts no liability to anyone else in any way in relation to this report and the content of it and any direct or indirect effect this engineering report may have. Davis Ogilvie & Partners Ltd does not contemplate anyone else relying on this report or that it will be used for any other purpose.

Should anyone wish to discuss the content of this report with Davis Ogilvie & Partners Ltd, they are welcome to contact us on (03) 366 1653 or at Level 1, 24 Moorhouse Avenue, Addington, Christchurch.

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1.0 PURPOSE OF REPORT

The purpose of this report is to outline the preliminary engineering design concepts which are integral to the proposed development at 52 Amberley Beach Road & 187 Carters Road, Amberley known as The Clearing. Stages 1 & 2 were covered in a previous report with this report covering Stage 3 to the completion of the development. This report has been prepared in support of an application for resource consent.

This design report has been prepared to summarise:

- Proposed civil engineering design for the development at 52 Amberley Beach Road & 187 Carters Road, Amberley.
- Existing infrastructure around and within the site.
- Proposed conformance to national standards, Hurunui District Council's (HDC) policies and best practices relating to land development, in particular:
    - Hurunui District Councils (HDC) Development Engineering Standards (DES) 2017.
    - CRC082988 for the discharge of stormwater from Amberley Township.
    - NZS4404:2010 – Land Development and Subdivision Infrastructure.
    - Christchurch City Councils (CCC) Waterways Wetlands and Drainage Guide (WWDG).

2.0 PROPOSAL DESCRIPTION AND EXISTING SITE

The proposed development fronting Carters Road is expected to consist of 201 residential lots and a super lot over Stages 3 to completion. The development site is zoned Residential 1A.

The 'L' shaped site is bounded to the west by Carters Road, to the north by the under-construction retirement village and farmland that the retirement village will replace, to the east by farmland that will become Stage 2 of The Clearing and rural land to the south. The total area of the site is 19.88 ha, with 1.43 ha of that as the super lot, Lot 5000. A copy of the scheme plan is attached in Appendix A and shown below in Figure 1. The site is legally known as Lot 2 DP 559093 and includes part of Lot 3 DP 559093.

Figure 1: Proposed Scheme Plan.

The development site is currently rural in character and grades generally to the south-east. There are two existing stormwater outfalls from the southeast and east of the site via ephemeral watercourses through 225 Carters Road.

3.0 EXISTING INFRASTRUCTURE

There is a 300 mm Hurunui District Council (HDC) sanitary sewer main which enlarges to 375 mm where it joins with another 300 mm main draining through Stages 1 & 2 traversing the eastern boundary of the site. The sewer main follows the line of Teviots Drain. There are 150 mm HDC potable water mains to the west of the site on Carters Road and will be a 200 mm water main brought to the boundary of Stage 2 of The Clearing. Stormwater outfall is via an ephemeral watercourse to the southeast of the site known as Dry Gully and an ephemeral watercourse to the east of the site known as Teviots Drain. See Figure 2 below for the location of the HDC infrastructure on and adjacent to the site and their sizes.

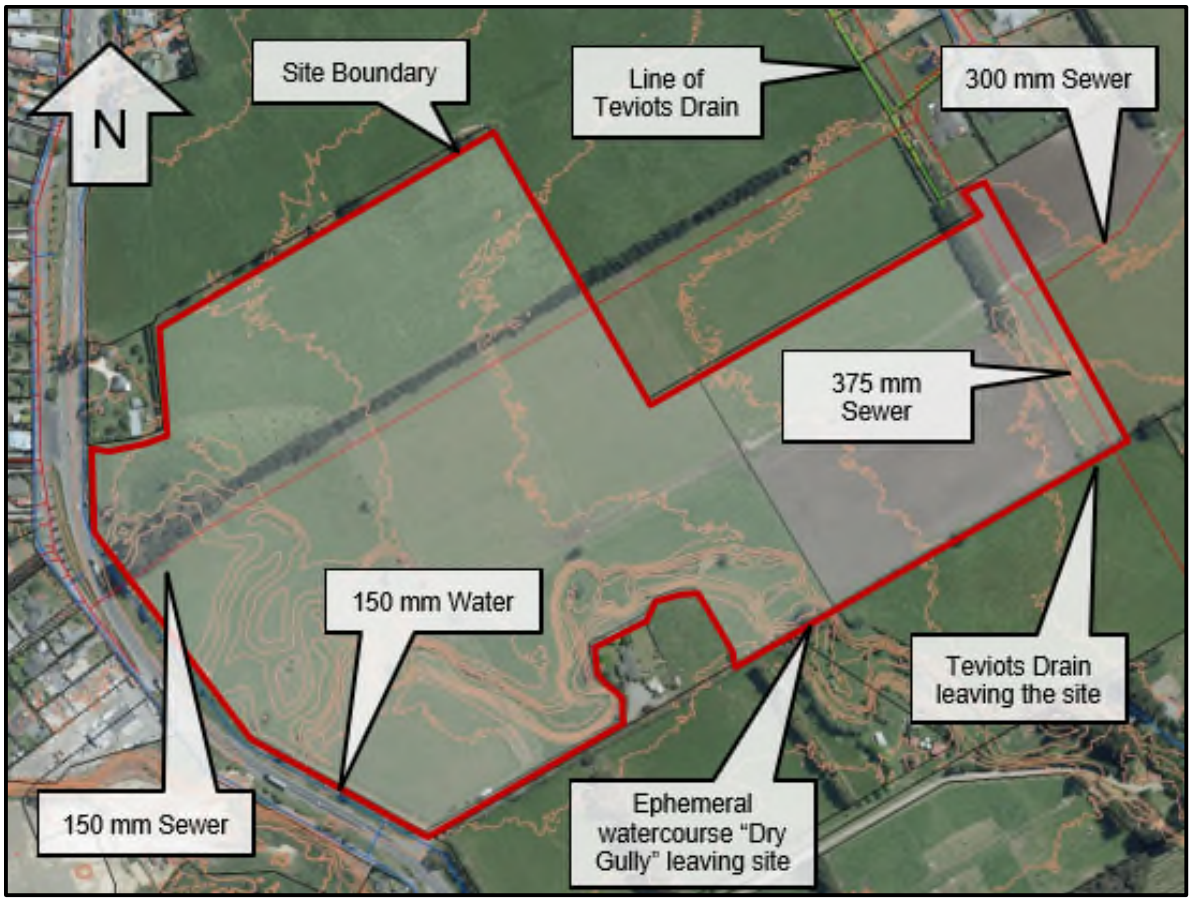

Figure 2: Existing Services

Both HDC and service provider reticulation is available adjacent to the proposed development site.

Figure 3 below is an extract from the Amberly Global Stormwater Discharge Consent, CRC082988, and shows the Dry Gully and Teviots Drain and their confluence not far from the southern boundary of the site.

HDC is currently installing a DN280 PE PN12.5 (237 mm ID) potable water main in the eastern berm of Carters Road with two 200 mm diameter connections, one for the under construction Retirement Village and one for The Clearing.

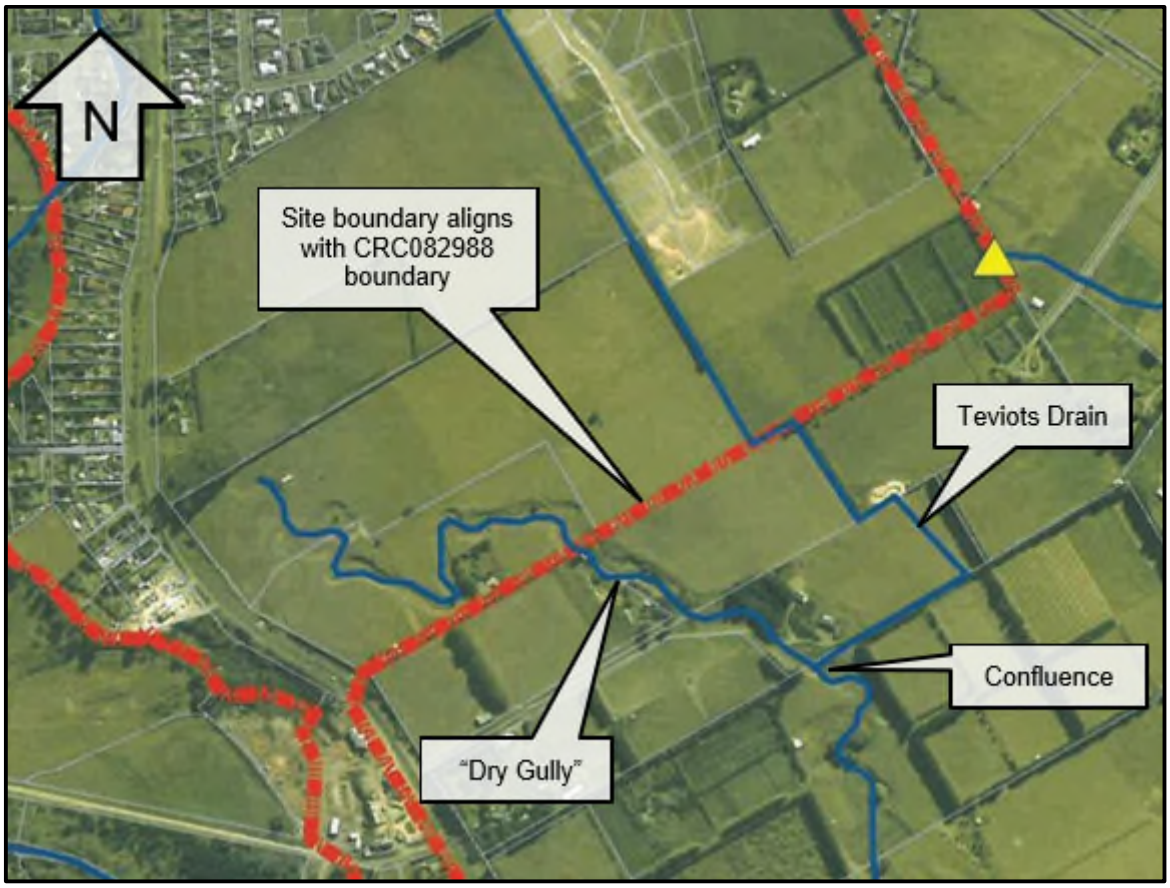

Figure 3: Ephemeral Watercourses from site

4.0 EARTHWORKS

The Listed Land Use Register (LLUR) maintained by ECan, documents sites that have had potentially hazardous land uses according to the Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL). Lot 3 DP 559093, 52 Amberley Beach Road, is listed as HAIL activity A10 - Persistent pesticide bulk storage or use and Lot 2 DP 559093, 187 Carters Road, is listed as HAIL activity G3 – Landfill sites, A8 – Livestock dip or spray race operations and I – Hazardous substance in sufficient quantity that it could be a risk to human health and the environment. The HAIL site on Lot 3 DP 559093 is not on the Stage 3 + area of the site but is located within the Stage 1 area.

A Remediation Action Plan (RAP) has been developed for the area of contamination on the Stage 3 + to guide remediation of the site. We are seeking a resource consent from ECan as the HDC Global Stormwater Discharge Consent specifically excludes contaminated sites.

To allow for the stormwater secondary flow network to function correctly parts of the site will require cutting, and/or filling. To establish stormwater management areas which will include first flush storage and attenuation both cutting and filling will be required to achieve an efficient depth of storage. Achieving sufficient cover over the gravity sewer network drives the design levels in some areas. Note that minimum covers less than allowed for in the DES will likely be sought as what was allowed for in Stages 1 & 2. See the preliminary drawings in Appendix C which include a proposed surface and preliminary cross sections for the stormwater management areas. The design surface results in net cut of material.

In addition to the activities listed above, common services trenches, sewer and stormwater infrastructure will require excavation for installation. The trenches will be backfilled with site material and imported material where necessary.

All earthworks will be undertaken in accordance with the requirements of NZS 4431:2022 (Engineered fill construction for lightweight structures), the HDC and Environment Canterbury.

Final design, volumes, plans and an erosion and sediment control plan will be provided to Council during the engineering approval process for each stage of development.

5.0 SEWER

There is an existing 300 mm diameter sewer that enters the site from the northeast, joins with a 300 mm sewer draining through Stages 1 & 2 where it upsizes to a 375 mm and discharges to the southeast and ultimately drains to the HDC Amberley wastewater treatment plant (WWTP). This main will be where sewer from the development will be directed. There is also a 150 mm sewer main running through the site from southwest to northeast from Carters Road, this sewer is understood to be at capacity and will be maintained and protected by suitable easements but not utilised for this development. Figure 4 below shows invert levels at manholes on the main for connection.

Gravity sewer reticulation is proposed to be installed as nominally 150 mm diameter PVC-u SN16 pipe at grades of 1 in 200 or steeper for all lots.

Conceptual design shows reticulation will comply with capacity, and cover requirements of the HDC Development Engineering Standard 2017 (HDC 2017) and NZS 4404:2010, but not for grade. Noting that the reticulation will meet minimum CCC tractive force calculations. No sewer pump stations are proposed. Final details and design will be provided through the engineering approval process.

Figure 4: Manhole Invert Levels for Connection

Sewer demand is calculated using 2.7 people per allotment as required by the HDC Development Engineering Standard.

See Table 1 below for the demand calculations. A peaking factor of 4.0 has been used to calculate the peak wet weather flow from the average dry weather flow as per the DES.

Table 1: Summary of Sanitary Sewer Demand			
Lots		**Population Equivalent**	
201		543	
Flow			
l/person/day	**Average Dry Weather Flow [l/s]**	**Average Dry Weather Daily Volume [l]**	**Peak Wet Weather Flow [l/s]**
250	1.57	135,750	6.28

6.0 STORMWATER

Stormwater reticulation will be designed in accordance with the HDC Development Engineering Standards and engineering best practice. The requirements of CRC082988 cannot be met and as such discharge consent will be sought from ECan.

The site will be drained via a traditional system of pipes and inlets to a stormwater management area. The stormwater management area (SMA) will be in the existing Dry Gully, with first flush treatment adjacent to Teviots Drain for areas that cannot be graded back to the Dry Gully SMA. The majority of the site currently drains to Teviots Drain and will be regraded to discharge to Dry Gully. Ensuring that flows to Teviots Drain are not increased post development due to the significant reduction in catchment. Note that no on lot soakage is proposed in a change from the first version of this report. With all flows to go to the SMA.

The SMA will be adjacent to and in the Dry Gully, which will be bunded at its outlet from the site to form a stormwater attenuation basin. The stormwater management area will be sized to attenuate flows from the 24-hour 50-year event as required by HDC and CRC082988 for flows discharging to surface. Though there will likely be some infiltration to ground from the base and sides of the Dry Gully while it is storing water, however this is expected to be insignificant. The gully will not be lined, existing topsoil will remain and is of sufficient depth to ensure any water infiltrating will pass through the at least 200 mm of topsoil before discharging to ground.

A modified rational formula calculation was carried out using the DRAINs hydrologic and hydraulic model to estimate the attenuation volume required by comparing the pre and post development runoff rates until sufficient attenuation was achieved. Rainfall intensity has been taken from HIRDS version 4 to the year 2100 and RCP of 8.5. A predevelopment runoff coefficient of 0.35, following the New Zealand Building Code E1 and due to the layer of silt found under the topsoil in the geotechnical investigations has been used. The land is currently zoned Residential 1A, with an average proposed lot area of 542 m^2 for the development. The post development imperviousness has been taken from CCC's WWDG as the lot areas are more consistent with CCC zonings. From the WWDG Residential Transition is expected to have 65% imperviousness and Residential Medium Density to have 80% imperviousness, these have been adopted for the low and possible medium density areas due to the average lot sizes. For comparison, Stages 1 and 2 were calculated to have an expected imperviousness of 57.4% with a larger, 742 m^2, average lot size. A coefficient of 0.875 was used for impervious areas for the development as they are a mix of roof and hardstand.

The total modelled attenuation volume for the 50-year 24-hour event using a 65 mm wide slot as discharge control is 13,731 m^3. Given the surveyed shape of the dry gully this would require water to be stored to a level of RL 34.75 m at a maximum depth of 2.75 m. Currently there is no proposal to earthwork the Dry Gully other than to form a culvert crossing, as detailed design progresses this may be revisited if more or less storage is required.

A vortex type gross pollutant trap (GPT) with the ability to catch gross pollutants, medium to coarse sediments and floatables such as hydrocarbons will be used as pre-treatment of stormwater. A vortex type GPT will also catch a portion of fine sediment down to 50 micron and as a result remove a percentage of adsorbed or attached nutrients and metals. A high rate biofiltration system, such as the Filterra by SW360, can allow developable area to be maximised whilst achieving a very high level of treatment for the first flush of runoff. The Filterra system has been approved for use by both the Auckland Regional Council and Christchurch City Council among others and is advantageous due to its ease and cost of maintenance over other filtration systems and its small footprint compared to first flush basins. The mowing costs for a first flush basin are expected to be higher than the maintenance costs of the Filterra. Maintenance can be arranged by SW360 by arrangement.

All works will be designed and constructed in accordance with HDC requirements. Final details and design will be provided through the engineering approval process. Preliminary basin cross sections and a preliminary earthworks plan giving fill depths and proposed ground levels can be seen in Appendix C.

6.1 Comparison to the GHD Stormwater Management Plan

CRC082988 refers to the Stormwater Management Plan (SMP) for Amberley, written by GHD and dated June of 2010. The proposed attenuation has been designed to meet the requirements of CRC082988 and the HDC which require it to achieve greater attenuation than the SMP.

The SMP presents flows in its Table 4 for various locations around Amberley for the 12-hour event during 2-, 5- and 50-year rainfall. The modelling for the SMP found the critical duration for Amberley to be 6 hours in the 50-year event extending to 12-hours downstream at Hursley Terrace Road, and 12 to 24 hours for the 5-year event. The modelling carried out by GHD for the SMP sized basins to attenuate the 3-hour event and tested them against the 6- and 12-hour events to confirm they achieve pre to post peak rate attenuation for those 3 durations. The 24-hour event was not tested by GHD. CRC082988 requires attenuation of up to and including the 24-hour 50-year event, which results in greater storage volumes and lower peak flows than the requirements of the SMP, this higher standard has been adopted in the design of the SMP for the 5- and 50-year events.

Looking in greater detail at the SMP in the location of the proposed development. It proposes two basins on the Stage 3+ area, labelled Pond 17, and Pond for Future Development. See Figure 5 below for a snip taken from the SMPs Figure A7-1 showing the location of the proposed basins.

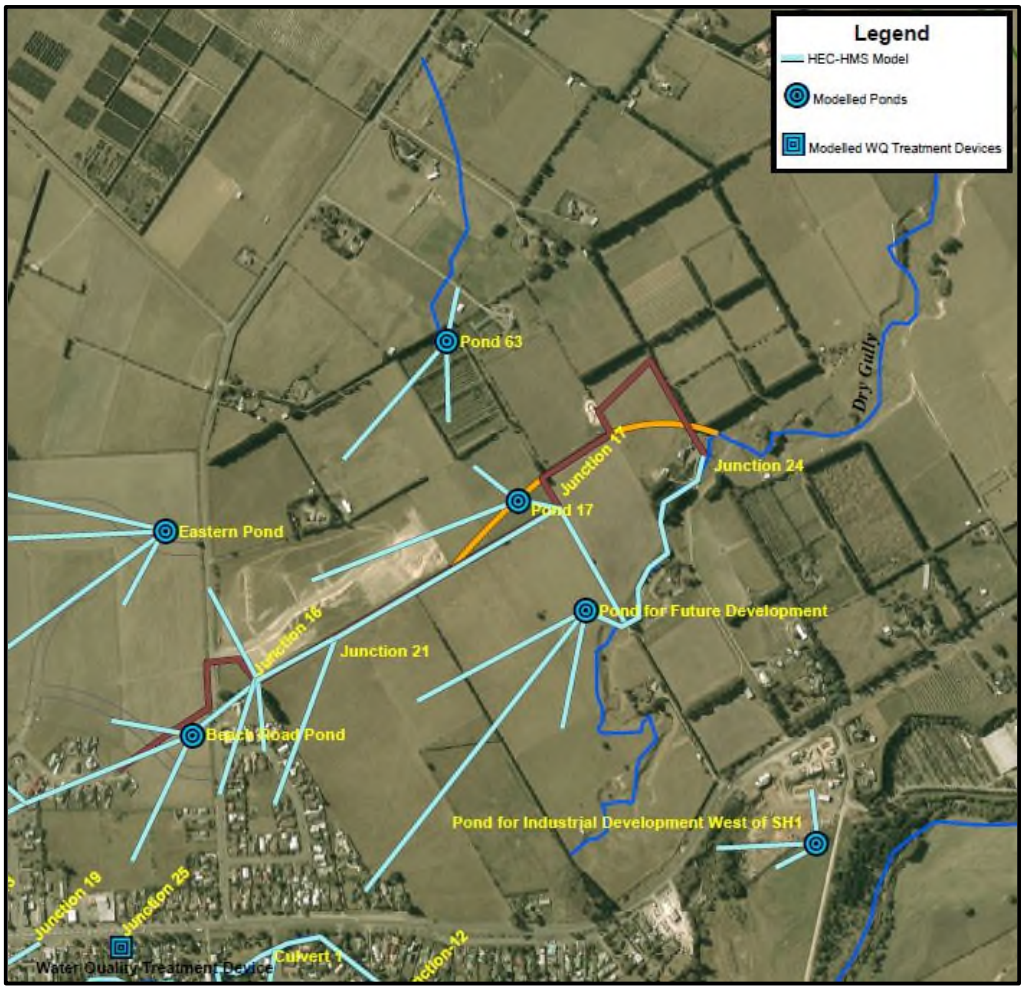

Figure 5: Snip from Amberley SMP

With Stage 1 & 2 of the development and proposed regrading in Stages 3+, Pond 17 becomes redundant as it will have virtually no catchment apart from green areas that will remain directly adjacent Teviots Drain. With some of its catchment directed to Pond 63 constructed as part of Stages 1 & 2 and some directed to the Dry Gully. The "Pond for Future Development" has had a significant portion of its catchment removed and directed to the basin which is part of the under-development Lifestyle Village. As a result, Pond 17 and Pond for Future Development will be merged into the basin proposed for the Dry Gully. The SMP indicated likely storage volumes of 1,900 m^3 and 11,500 m^3 respectively for Pond 17 and Pond for Future Development, giving a total of 13,400 m^3. The result of the initial modelling is a volume of 13,731 m^3 required in the SMA but from a substantially reduced catchment. This is as expected due to the 24-hour 50-year event being attenuated in accordance with CRC082988 rather than the 3-to-12-hour events calculated under the SMP.

The changes to the direction the sub catchments drain has the effect of moving flow from Teviots Drain to the Dry Gully, in the section upstream of their confluence. They combine 350 m, measured along the Dry Gully stream centre line, from the Stage 3+ boundary. The changes in flow expected, based on the preliminary modelling, are given in Table 2 below.

Table 2: Flow Changes in Teviots Drain and Dry Gully Flows				
Change in Flow [l/s]				
	5-year 12 hour	5-year 24 hour	50-year 12 hour	50-year 24 hour
Teviots Drain	-110	-72	-239	-156
Dry Gully	28	67	-12	90
Confluence	-90	-9	-267	-74

Note that the changes in Teviots Drain and Dry Gully do not directly sum to the change at their confluence. This is due to the attenuation basin in Dry Gully having a peak discharge later than the sites catchment to Teviots drain, meaning the peaks flows do not coincide.

In all cases the peak combined flow is less than pre-development. With the peak in Teviots Drain, which is understood to have capacity issues, also reduced in all cases. There are increases in flow in Dry Gully between the site and the confluence with Teviots Drain. To put these changes in perspective, the GHD catchment wide modelling of the existing case estimates a peak flow of 3.41 m^3/s at the confluence (Junction 24 in the GHD model) occurring in the 12-hour 50-year event, increasing to 4.78 m^3/s in the climate change to 2090 scenario. The GHD modelled 24-hour 50-year current case event is lower at 3.15 m^3/s, meaning the peak 50-year flow will not increase as it occurs in the 12-hour event which will have decreased runoff from the development to both Teviots Drain and the Dry Gully.

7.0 POTABLE WATER

A potable water main network will be constructed within the development to service the new allotments. A new water supply main, including fire hydrants, will be installed by the developer with a connection or connections to the existing HDC reticulation. The connections will be to a new main on Carters Road and to Stage 2 of The Clearing. We are working with Council to ensure that the existing potable water network has capacity to service the site. HDC Amberley Hydraulic model outputs will be used for detailed design.

Table 3: Summary of Potable Water Demand		
	Lots	**Peak Hourly Demand**
Stage 3+	201	20.1

It is anticipated that HDCs modelling will confirm that pressure of at least 400 kPa can be provided to the development and that internal modelling will then allow main sizing so that SNZ PAS 4509:2008 – New Zealand Fire Service – Fire Fighting Water Supplies Code of Practice (SNZ 4509) Requirements can be met.

Fire hydrant spacing will be in accordance with SNZ 4509 and the water main layout will be in accordance with HDC requirements. Final details and design will be provided through the engineering approval process.

8.0 COMMON SERVICES TRENCHING

Services including water, power and telecommunications will be installed within a common services trench to be located generally within the berm area of the road reserve. Specific locations will be provided following consultation with the service authorities and plans will be provided for approval to Council prior to installation.

All works carried out will meet the requirements of Councils' Development Engineering Standard 2017 and the network operators.

9.0 POWER AND TELECOM

Chorus has confirmed capacity to service The Clearing development as per Appendix D. Mainpower has confirmed that they can service the development at a meeting held between DO and Mainpower. They are developing a concept for the physical works required to connect Stages 3 to completion of the development.

10.0 STREET LIGHTING

Street lighting will be designed to provide a minimum of P3 luminance on the roads and pedestrian areas. The lighting will be designed in accordance with AS/NZS 1158.3.1:2020 Road Lighting – Pedestrian Area (Category P) lighting. LED street lighting will be provided. The lighting design will be completed by a suitably qualified lighting designer and submitted to HDC for approval.

11.0 ROADING

The carriageway pavements will be designed using the *Design Graph for Flexible Pavements Chart,* Christchurch Metropolitan Area – Code of Practice for Urban Subdivision. The total compacted pavement depths will be based on the expected traffic loading and CBR values of the "in situ" material measured at the depth of the proposed subgrade.

Road marking and signage shall meet the requirements of the Land Transport Rule (Traffic Control Devices) 2004 and associated sign specification, and the NZTA Pedestrian planning and design guide.

7.5 m, 9 m and 11 m carriageway widths are proposed and are adequate for waste and recycling collection vehicles. It is expected that residents on ROW's will place bins at the legal road frontage.

Appendix C shows typical road cross-sections for the proposed development.

12.0 CONCLUSION

The proposed development at 52 Amberley Beach Road and 187 Carters Road Amberley, The Clearing Stages 3 to completion, can be suitably serviced in accordance with HDC requirements, NZS 4404 and engineering best practice.

A new gravity sewer network will service the development, discharging to the existing gravity sewer network located to the southeast of the site.

It is proposed that stormwater from the site will be discharged to surface after GPT and first flush treatment and attenuation via the Dry Gully to the southeast.

A potable water network will be constructed within the proposed development to service the development, with the connection or connections to be determined by hydraulic modelling.

Drawings, specifications and supporting documents will be prepared in accordance with the HDC Development Engineering Standard, SNZ 4509, NZS4404:2010, NZS 4431:1989 *Code of Practice for Earthfill for Residential Development*, among others, and best engineering practice.

APPENDIX A

Scheme Plan

contractor to locate all existing services & verify all dimensions before commencing work

/ issue	/ date	/ reason	/ approved
C	05/22	Stage 6 added	RB

Lot 2 DP 559093
RT: 983583
Owner(s): Hurunui Developments Limited
Area: 15.0166ha more or less
Lot 3 DP 559093 (Lot 4000 Stage 2 RC.210185)
RT: 983584
Owner(s): UWC Limited
Area: 17.7178ha more or less (4.8635 ha subject to survey)

Areas and dimensions are subject to survey. For residential lots with access legs, the area shown is the net site area.

A full assessment of easements will be undertaken upon completion of the survey and engineering design. This may result in additional easements to those already shown.

Lot 2 DP 559093, RT 983583 is subject to Land Covenant in Covenant Instrument **11761659.6**, Easement Instrument **10309925.5** (affects part formerly Lot 2 DP 491923); **946298** Notice declaring No.1 State Highway adjoining the land to be a Limited Access Road; Consent Notice pursuant to Section 221 Resource Management Act 1991 in **6330155.3** (affects part formerly Lot 1 DP 382581) and Variation of Consent Notice 6330155.3 in **7378702.2**; Compensation Certificate **5245051.1**; Subject to a right to drain sewage over 'ZD' on DP 559093 in E.I.10309925.4 and right (in gross) to drain sewage over 'B' on DP 559093 in E.I.10309925.3.

Lot 3 DP 559093, RT 983584 is subject to Land Covenant in Easement Instrument **10311979.3**

Easements to be surrendered shown:

B, C and ZD on DP 559093; created by Transfer **386795.1** and Easement Instruments **10309925.3** & **10311979.2**.

Lots 124-324 - Residential Lots (201)
Lot 602 - Legal Access Lot
Lots 1002-1007 - Roads to Vest in Hurunui District Council
Lots 3004 - 3008 - Local Purpose Reserves to Vest in Hurunui District Council
Lot 5000 - Balance Land Parcel

Residential Lot Counts Per Stage	
Stage 3 (Lots 124-186)	63
Stage 4 (Lots 187-273)	87
Stage 5 (Lots 274-284, & 287-322)	49
Stage 6 (Lots 285 & 286)	2
Total	201

Acoustic bund/fence area

CAD ref: 42542 - Scheme Plan (301B) - Stages 3-5.dwg

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Proposed Subdivision of Lots 2 & 3 DP 559093 (Lot 4000 Stage 2 RC210285)

The Clearing - Stages 3 - 6, Scheme Plan

UWC Limited

/ design	/ drawn	/ QA check	/ dwg
JW/BL	JW/RG	JW/TL	301
/ scale @ A1	/ date	/ file	/ issue
1:1500@A1 1:3000@A3	07/21	42542	C

contractor to locate all existing services & verify all dimensions before commencing work

/ issue	/ date	/ reason	/ approved
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MEMORANDUM OF EASEMENTS

NATURE	BURDENED LAND LOT NO	BURDENED LAND SHOWN	BENEFITED LAND / GRANTEE
RIGHT OF WAY, RIGHT TO DRAIN SEWAGE & WATER, RIGHT TO CONVEY WATER ELECTRICITY & TELECOMMUNICATIONS	126	N	Lot 127
	127	O	Lot 126
	132	P	Lot 133
	133	Q	Lot 132
	138	R	Lot 139
	139	S	Lot 138
	144	T	Lot 145
	145	U	Lot 144
	167	V	Lot 168
	168	W	Lot 167
	175	X	Lot 176
RIGHT TO CONVEY TELECOMMUNICATIONS IN GROSS	126	N	CHORUS NEW ZEALAND LIMITED
	127	O	
	132	P	
	133	Q	
	138	R	
	139	S	
	144	T	
	145	U	
	167	V	
	168	W	
	175	X	

Acoustic bund/fence area

CAD ref: 42542 - Scheme Plan (301B) - Stages 3-5.dwg

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Proposed Subdivision of Lots 2 & 3 DP 559093 (Lot 4000 Stage 2 RC210285)

The Clearing - Stage 3 Scheme Plan

UWC Limited

/ design	/ drawn	/ QA check	/ dwg
JW/BL	JW/RG	JW/TL	302
/ scale @ A1	/ date	/ file	/ issue
1:750@A1 1:1500@A3	02/22	42542	C

/ issue	/ date	/ reason	/ approved
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Lot 3 DP 559093, RT 983584 is subject to Land Covenant in Easement Instrument **10311979.3**

Easements to be surrendered shown:

B, C and ZD on DP 559093; created by Transfer **386795.1** and Easement Instruments **10309925.3** & **10311979.2**.

Lots 124-324 - Residential Lots (201)
Lot 602 - Legal Access Lot
Lots 1002-1007 - Roads to Vest in Hurunui District Council
Lots 3004 - 3008 - Local Purpose Reserves to Vest in Hurunui District Council
Lot 5000 - Balance Land Parcel

MEMORANDUM OF EASEMENTS			
NATURE	BURDENED LAND LOT NO	BURDENED LAND SHOWN	BENEFITED LAND / GRANTEE
RIGHT OF WAY, RIGHT TO DRAIN SEWAGE & WATER, RIGHT TO CONVEY WATER ELECTRICITY & TELECOMMUNICATIONS	231	Y	Lot 232
	232	Z	Lot 231
	602	AA	Lots 244-246
	256	AB	Lot 257
	257	AC	Lot 256
RIGHT TO DRAIN SEWAGE IN GROSS	273	AD	HURUNUI DISTRICT COUNCIL
RIGHT TO CONVEY TELECOMMUNICATIONS IN GROSS	231	Y	CHORUS NEW ZEALAND LIMITED
	232	Z	
	602	AA	
	256	AB	
	257	AC	

AMALGAMATION CONDITIONS
- That Lot **602** (Legal Access) hereon be held as to three undivided one-third shares by the owners of **Lots 244, 245, and 246** hereon as tenants in common in the said shares and that individual Records of Title issued in accordance therewith.

Acoustic bund/fence area

CAD ref: 42542 - Scheme Plan (301B) - Stages 3-5.dwg

DAVIS OGILVIE ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

Proposed Subdivision of Lots 2 & 3 DP 559093 (Lot 4000 Stage 2 RC210285)

The Clearing - Stage 4 Scheme Plan

UWC Limited

/ design	/ drawn	/ QA check	/ dwg
JW/BL	JW/RG	JW/TL	303
/ scale @ A1	/ date	/ file	/ issue
1:750@A1 1:1500@A3	02/22	42542	C

contractor to locate all existing services & verify all dimensions before commencing work

/ issue	/ date	/ reason	/ approved
C	05/22	Stage 6 added	RB

Lot 2 DP 559093
RT: 983583
Owner(s): Hurunui Developments Limited
Area: 15.0166ha more or less
Lot 3 DP 559093 (Lot 4000 Stage 2 RC210185)
RT: 983584
Owner(s): UWC Limited
Area: 17.7178ha more or less (4.8635 ha subject to survey)

Areas and dimensions are subject to survey. For residential lots with access legs, the area shown is the net site area.

A full assessment of easements will be undertaken upon completion of the survey and engineering design. This may result in additional easements to those already shown.

Lot 2 DP 559093, RT 983583 is subject to Land Covenant in Covenant Instrument **11761659.6**, Easement Instrument **10309925.5** (affects part formerly Lot 2 DP 491923); **946298** Notice declaring No.1 State Highway adjoining the land to be a Limited Access Road; Consent Notice pursuant to Section 221 Resource Management Act 1991 in **6330155.3** (affects part formerly Lot 1 DP 382581) and Variation of Consent Notice 6330155.3 in **7378702.2**; Compensation Certificate **5245051.1**; Subject to a right to drain sewage over 'ZD' on DP 559093 in E.I.10309925.4 and right (in gross) to drain sewage over 'B' on DP 559093 in E.I.10309925.3.

Lot 3 DP 559093, RT 983584 is subject to Land Covenant in Easement Instrument **10311979.3**

Easements to be surrendered shown:

B, C and ZD on DP 559093; created by Transfer **386795.1** and Easement Instruments **10309925.3** & **10311979.2**.

Lots 124-324 - Residential Lots (201)
Lot 602 - Legal Access Lot
Lots 1002-1007 - Roads to Vest in Hurunui District Council
Lots 3004 - 3008 - Local Purpose Reserves to Vest in Hurunui District Council
Lot 5000 - Balance Land Parcel

MEMORANDUM OF EASEMENTS			
NATURE	BURDENED LAND		BENEFITED LAND/GRANTEE
	LOT NO	SHOWN	
RIGHT OF WAY, RIGHT TO DRAIN SEWAGE & WATER, RIGHT TO CONVEY WATER ELECTRICITY & TELECOMMUNICATIONS	5000	AF	Lot 324
RIGHT TO DRAIN SEWAGE IN GROSS	273	AD	HURUNUI DISTRICT COUNCIL
	279	AE	

Acoustic bund/fence area

CAD ref: 42542 - Scheme Plan (301B) - Stages 3-5.dwg

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ENGINEERS / SURVEYORS / PLANNERS
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue, Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

Proposed Subdivision of Lots 2 & 3 DP 559093 (Lot 4000 Stage 2 RC210285)

The Clearing - Stage 5 & 6 Scheme Plan

UWC Limited

/ design	/ drawn	/ QA check	/ dwg
JW/BL	JW/RG	JW/TL	304
/ scale @ A1	/ date	/ file	/ issue
1:750@A1 1:1500@A3	02/22	42542	C

FILTERRA®

The Next Generation in Rain Gardens

filterra® Bioretention Systems

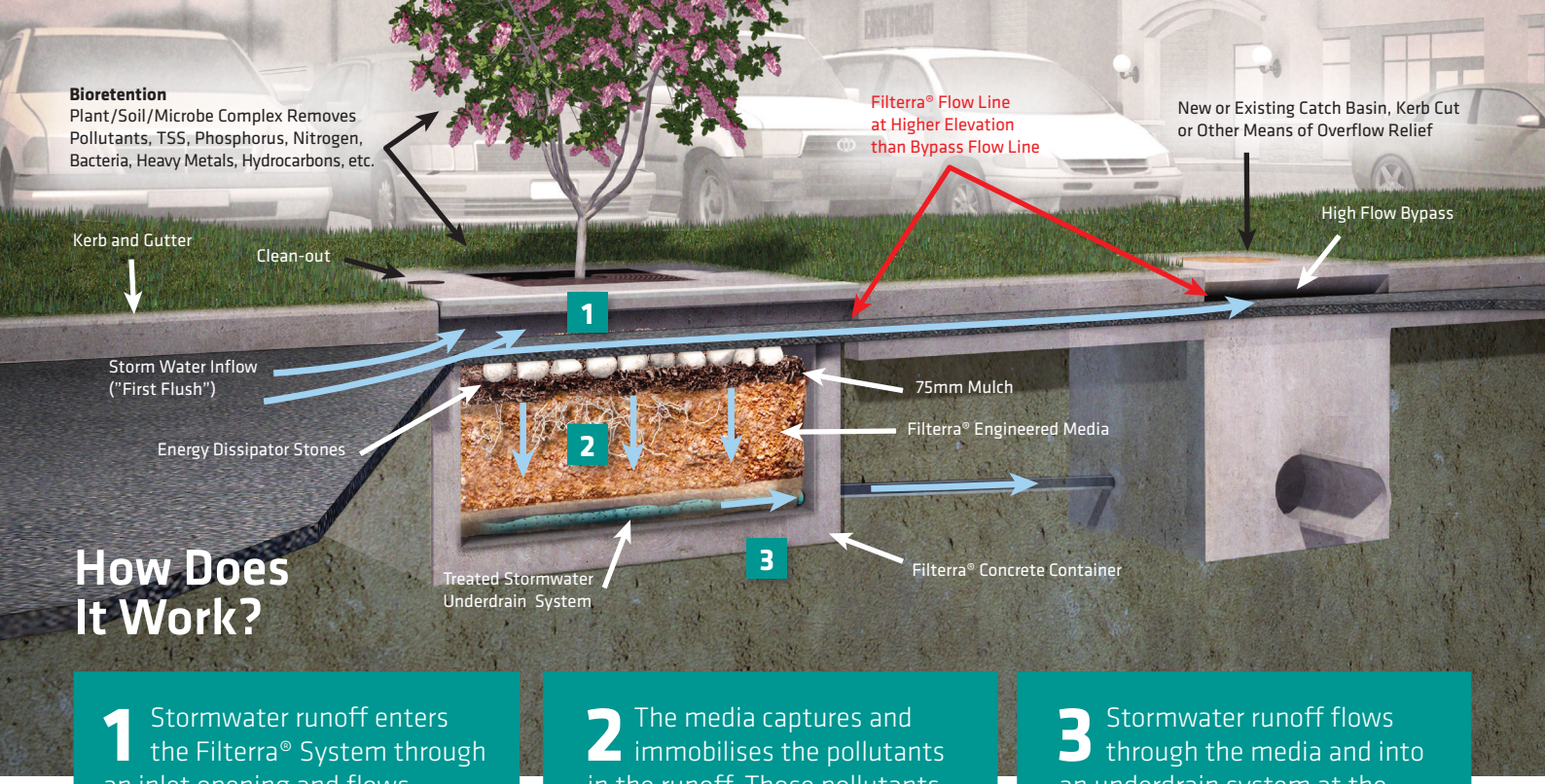
Filterra® from Stormwater360 is a pre-engineered and manufactured Stormwater Bioretention Treatment System that has been optimised for high volume/flow treatment and high pollutant removal.

The latest technology and advancements in bioretention allow the Filterra® system to work **as efficiently as a traditional bioretention system but in a footprint a fraction of its size.**

Filterra® is a revolutionary micro bioretention system with high performance, enhanced pollutant removal, low operating costs, easy to install and simple to maintain.

www.stormwater360.co.nz

Stormwater360® BETWEEN SKY AND SEA



How Does It Work?

1 Stormwater runoff enters the Filterra® System through an inlet opening and flows through the filter media mixture contained in a landscaped concrete container.

2 The media captures and immobilises the pollutants in the runoff. Those pollutants are then decomposed, volatilised and incorporated into the biomass of the Filterra®.

3 Stormwater runoff flows through the media and into an underdrain system at the bottom of the container, where the treated water is discharged.

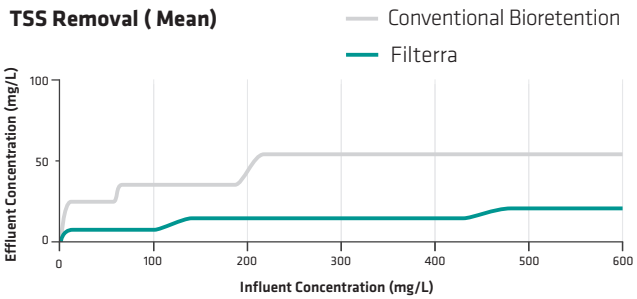
WHY USE FILTERRA® OVER TRADITIONAL SYSTEMS?

Small footprint

- **Fraction of the size of traditional rain gardens**
- Filterra® is typically less than 1% of drainage area. This contrasts to 3%-10% for standard bioretention cells
- Full use of land
- Ideal for urban retrofit and highly developed sites
- Can be located around underground services
- Ideal for coastal areas

Proven Pollutant Removal

- Filterra filter media has been optimised to operate under high flow rates while maintaining high pollutant removal performance
- Approved for TSS, Phosphorus, Enhanced Dissolved Metals, Nitrogen and Oil



Modified from:
FILTERRA EQUIVALENCY ANALYSIS AND DESIGN CRITERIA; GeoSyntec Consultants August 2015

Proven Performance

- 10 years field monitoring
- Equivalent or better performance than traditional rain gardens
- **No other product in NZ has Enhanced Removal certification from Washington Dept. of Ecology**
- Approved by over 500 regulatory agencies worldwide
- Maintained hydraulic conductivity

Maintenance

- First year maintenance included**
- Easy access – no confined space
- No specialised equipment needed
- **Minimal cost**
- Smaller and fewer treatment devices = less time to undertake maintenance

** Conditions apply

Prefabricated solution

- **Delivered as a Plug and Play Solution**
- 25 x Quality Assurance tests deliver consistent media and performance every time
- Available in open top or tree pit configuration
- Commissioning and hydraulic conductivity testing by Stormwater360
- Plant selection guidance
- Design assistance

www.stormwater360.co.nz
Freephone **0800 STORMWATER** (0800 786769)

Stormwater360®
BETWEEN SKY AND SEA

APPENDIX C

Preliminary Drawings

Gary Stevenson

From: Danny Masterson <Danny.Masterson@chorus.co.nz>
Sent: Thursday, 30 September 2021 11:02 am
To: Jared Wright
Subject: FW: [#DO41793] Chorus Confirmation of Supply | AY67871 | AY: Amberley Beach Road. Hurunui. Stage 1. 508 Lots (Lots 1-508)

Hi Jared,

As per below from our scoping and property development team. Confirmation we can supply fibre to this area at our standard UFB pricing of $1200 +GST per lot fee.

Let me know if you require a contract for stage 1.

Regards

Danny Masterson | Business Development Manager

CHORUS | **T** +6421849233

From: Chorus Property Developments <develop@chorus.co.nz>
Sent: Thursday, 30 September 2021 9:52 am
To: Danny Masterson <Danny.Masterson@chorus.co.nz>
Subject: Chorus Confirmation of Supply | AY67871 | AY: Amberley Beach Road. Hurunui. Stage 1. 508 Lots (Lots 1-508)

Hi Danny,

Here is the confirmation of supply your client requested after his conversation with Neville for all 6 stages and 508 lots in total. Please note we have cancelled the remaining 5 stages as per request from your client.

Thank you for providing an indication of your development plans in this area. I can confirm that we have fibre infrastructure in the general land area that you are proposing to develop. Chorus will be able to extend our fibre network to provide connection availability. However, please note that this undertaking would of course be subject to Chorus understanding the final total property connections that we would be providing, roll-out of property releases/dates and what investment may or may not be required from yourselves and Chorus to deliver the infrastructure to and throughout the site in as seamless and practical way as possible.

The cost involved would be our current standard fee of $1200 per lot excluding GST. This cost can only be finalised at the time that you are ready to proceed.

Chorus is happy to work with you on this project as the network infrastructure provider of choice. What this ultimately means is that the end customers (business and home owners) will have their choice of any retail service providers to take their end use services from once we work with you to provide the physical infrastructure.

Please reapply with a detailed plans when you are ready to proceed.

Thanks,
Maia Luxford Sullivan
Property Development Coordinator

T 0800 782 386 (opt. 1)
E Develop@chorus.co.nz

PO Box 9405
Hamilton
www.chorus.co.nz

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