Appendix A

Infrastructure Report

GW WILFIELD LTD

Wilfield – West Melton

Infrastructure Report

South Zone Plan Change
20232-R0

September 2020

DAVIE LOVELL·SMITH

PLANNING SURVEYING ENGINEERING

Shaping the future since 1880

Revision History

Rev Number:	Prepared By:	Description:	Date:
R0	AJEH	Initial Report	18/9/20

Document Control

Action:	Name:	Signed:	Date:
Prepared By	Andy Hall		18/9/20
Reviewed By	Todd Inness		18/9/20
Approved By	Andy Hall		18/9/20

Contents:

Appendices:

1.0 INTRODUCTION

The proposed Plan Change site is located on the southern urban fringe of West Melton on the south side of the current Wilfield residential land development and east of Weedons Ross Road. This proposal is for a Plan Change to create 130 new residential and rural residential house sites. 73 of these lots will be within the Wilfield development and the remaining 57 lots are attributed to the adjacent land against Weedons Ross Rd.

Davie Lovell-Smith (DLS) have held several meetings with Strategic Planners and Infrastructure Engineers at Selwyn District Council (SDC), primarily Murray England with specific regards to servicing the proposal for water supply and sewer. It is the applicant's intention to construct infrastructure that will meet the demands of this project and also compliment the long-term requirements of West Melton. The proposed infrastructure will be integrated into the existing networks and all efforts will be made to ensure that the installations are complimentary to the current assets.

The applicant recognises the strategic approach towards the servicing of West Melton for additional water supply and further reticulation of wastewater back to Rolleston. It is hoped that this proposal provides some impetus to achieving those strategic goals. The applicant accepts that a partnering arrangement with Council will be required to deliver upgraded sewer and water supplies for the proposed plan change and potential other development in West Melton.

All proposed infrastructure will be designed and constructed in compliance with SDC Standards unless otherwise agreed. All infrastructure works will be designed in detail following subdivision consent and referred back to Council Engineers for approval prior to any construction being undertaken on site.

All sites will be serviced for sewage, water supply, telecommunications and power. Stormwater will be discharged to ground on-site. All sites will be earthworked to ensure drainage to the street or natural flow paths. All building platforms will be elevated above secondary flow paths and the 1 in 50 year critical storm event. There is no gas reticulation proposed for this development.

The over-riding feature of the proposal will be the retention of existing stormwater flow across the site. Existing drainage features will be retained and the development will be moulded around them. We understand that the applicant has met with the Council Drainage Engineers and they have agreed that sites do not need to drain to the roads but can instead drain onto neighbouring sites consistent with the natural contour of the land and the pre-development flow paths on the site. The proposed sites are easily large enough to allow this to occur and still provide suitable building platforms. The exception to this will be the control of a secondary flow path that will be maintained through the site.

2.0 SEWER

It is intended that all new sites in the proposed plan change will be serviced by Local Pressure Sewer. A network of pipes will transfer wastewater to the existing Council Pump Station on Silver Peaks Drive.

The sewer demand for the proposal has been calculated using SDC Code of Practice. Please refer to the calculation below for the peak domestic demands.

If we include the current approved sites in Wilfield, plus the sites in the plan change application, then there will eventually be a total of 389 lots connecting to the existing Silver Peaks pump station.
Average sewer flow
ASF = 389 lots * 220 l/person/day * 2.7 people/lot

ASF = 231 m^3/day
ASF = 2.67 l/s

Peak wet weather flow
P/A ratio = 2.5 Part 6: Wastewater drainage SDC Code of Practice
SPF = 2 Part 6: Wastewater drainage SDC Code of Practice

MF = P/A ratio x SPF x ASF

MF = 2 x 2.5 x 2.67
MF = 13.37 l/s Overall peak flow

The Rising Sewer main from the Pump Station at Silver Peaks Drive to the main sewer Pump Station at Rossington Drive is a 160mm PE. Internal diameter is 136mm. The capacity of that pipe is sufficient to deal with the additional flows produced from the proposed plan change but the pumps at Silver Peaks and Rossington Dr will need to be upgraded.

The Wilfield Rising Sewer calculation below shows a friction unit headloss of 1m per 79m and a velocity of 0.92m/s.

Pipe Hydraulics Using Colebrook-White equation in simplified usage mode							
(water at 15 degrees Celsius (kinematic viscosity 1.141x10-6 m^2/s))							
Project :	Wilfield Rising Sewer				**JOB NO:**	20232	
		Pipe diameter	**136**	mm	D =	*0.136*	*m*
		Gradient - 1 in	**79**		S =	*0.01266*	
		Pipe Roughness - ks	**1.5**	mm	ks =	*0.0015*	*m*
			Results for Full Bore Conditions:				
			Velocities	**0.923**	m/s		
			Discharge	**13.40**	litres/sec		
			Discharge	**0.0134**	m^3/sec		

A number of sites will be able to connect to the existing infrastructure located in existing roads. There is an existing 63mm OD common rising sewer located in Ridgeland Way. This pipe has limited capacity and can accommodate up to approximately 30 sites.

There is a 75mm OD common rising sewer at the intersection of Ridgeland Way and Kingsdowne Dr. This pipe also has limited capacity.

An additional connection will need to be made to the Silver Peaks DR pump station via a proposed reserve link into the development area as shown on the attached plan in Appendix A. It is estimated that this pipe will be a 90mm(OD) PE subject to modelling. The proposed new rising main will connect into the receiving manhole immediately adjacent to the pump station. A short length of existing berm will need to be trenched to install the new pipe. There will not be any trenching required in any existing road pavements.

All new sites will be provided with a 40mm OD lateral and boundary connection box in accordance with Council Standards.

All public sewer pipes over private land or reserves will be covered by appropriate easements in favour of SDC. The pump station is located on its own utility lot and is vested in SDC.

West Melton – Rolleston Sewer

The sewer connection from West Melton back to the Pines Treatment Plant is currently at capacity. The restriction in capacity is created by the gravity sewer running from the corner of Wards and Walkers Road, back into Rolleston.

An investigation and review of how this capacity can be increased has been undertaken in consultation with Council. Connection to the sewer in Hopkins Road overloads the system across Rolleston and is not currently feasible. The only feasible alternative is to extend the existing rising sewer all the way to the Pines Treatment Plant. This equates to 5.75km of new rising main.

This option has the added advantage of freeing up capacity in the existing gravity system in Walkers Road for other land development in its vicinity or the expansion of facilities such as the prison.

Please refer to the attached sewer calculations in Appendix B.

The existing pipe is PN10. This pressure rating will become a factor in the capacity of the pipe. It is assumed that the permitted normal pressure allowable in this pipe would be 70% of the rating. This reduction in pressure allows for the effects of surge. Therefore the permitted pressure will be 70m of head.

As can be seen in the calculation in Appendix B, the 70m maximum pressure restricts the number of sites to 1276 lots in West Melton. If this number of lots were to be adopted then it would easily accommodate the proposed number of sites in the Plan Change.

Calculations into the pump sizing have been carried out and there are Flygt N-Pumps available for this flow and head.

Council may also like to address the emergency storage of wastewater. It has been detailed in the calculation that 8 hrs of storage amounts to 253m^3.

There are 829 existing sewer connections in West Melton leaving 447 expansion sites that can contribute to the cost of this sewer upgrade. The upgrade cost may amount to the following:

5750m of 225dia rising sewer at $200/m	$1,150,000.00
Pump Upgrades	$50,000.00
Drilling under Rail	$20,000.00
Storage facility	$300,000.00

Sundry	$20,000.00
Contingency	$100,000.00
Design and Approvals	$50,000.00
TOTAL	**$1,690,000.00**
$/Lot (447 lots)	**$3,780.76+gst**

Some consideration should also be given to the capacity that would be made available in the gravity sewer on Walkers Rd. It would be assumed that any new connections into this sewer would pay contributions and that those contributions would be directed to the costs above.

3.0 WATER SUPPLY

The proposed Plan Change amounts to 130 lots, 73 additional Wilfield lots plus 57 future lots. If we use Chart 1 from the Councils Code of Practice we can determine that the peak water supply flow per site will be approximately 0.12l/s. For the additional 130 lots this amounts to an additional demand of 15.6l/s.

However, there are a number of sites that will have restricted connections. A restricted connection has a peak flow demand of 0.03472 l/s/site. A standard connection has a peak demand of 0.12 l/s/site. We expect there to be approximately 20 restricted sites in the zone and 110 sites with full connections. With the restricted supply sites, the demand for the Plan Change area reduces to **13.89l/s.**

Please refer to the attached calculations and plans in Appendix C for the determination of existing and proposed water demands.

If we use the sewer calculations as the limitation to the future size of West Melton, then the total maximum number of lots able to be serviced is **1276**. Using the Councils Code of Practice we can determine a peak flow of **145.79/s** for this future overall demand. This is a combination of full connections and restricted connections.

It is recognised that the current West Melton Water supply is at its limits. Council have been investigating alternative water supplies including:

1. Connection to the Edendale water supply
2. Connection to a bore on Johnson Road
3. Redevelopment of the Wilfield bore
4. Installation of a reservoir

As part of the previous development of the site, Bore M35/6201 in Wilfield was converted from a farm irrigation well to a Council Asset supplying potable water to West Melton. This well has again been redeveloped and made a lot deeper to produce significant additional flows.

Along with the redevelopment of this bore, the Council will also apply for an enlarged permitted take. New abstraction flows are yet to be confirmed but may in itself provide for the additional 13.89l/s required for the Plan Change area (130 sites) and potentially the additional 28.67l/s required for the balance future expansion(246 sites).

The bore delivers raw water to Rossington Rd for treatment and then the treated water is piped back to Wilfield. Both pipes under the highway are 160mmPE (136mm ID). Otherwise, the pipes are 150mm uPVC.

If, potentially, the upgraded Wilfield Bore can produce 35l/s, then a new raw water delivery pipe will be required as the unit headloss in the existing 150mm dia pipe will be too great.

The water demand for Wilfield alone, including for the Plan Change is almost 35l/s. The pipe from the Rossington Road treatment and pumping plant, back under the highway to Wilfield, is 136mm ID. This return connection pipe may also need to be upsized. Once the pipe reaches Silver Peaks Dr in Wilfield, it branches off into 150mm dia pipes so large scale upgrading is probably not required.

Connection to the Plan Change area will need to be by the existing watermain on Ridgeland Way and also connecting back to Silver Peaks Dr as shown on the concept plan. Both points of connection are 150mm uPVC.

Full modelling of the water supply at subdivision consent stage will confirm the extent of the upgrade works.

Council have progressed with a pipe connection to the Edendale bore. This is expected to produce an additional 20l/s for the West Melton Community.

The bores in and around West Melton are considered unreliable. In a dry year we could expect bore yeilds to significantly reduce. To protect against a potential water shortage, it's expected that the existing small plastic tank farm will be replaced with a large and safe reservoir such as a steel sectional tank. Perhaps 1000m^3. If the reservoir is implemented then the connection to the Johnson Rd bore may not be required. This will require further investigation.

Potentially the connection to Johnson Road may not be required if the reservoir is implemented.

The costs for the reservoir and various upgrades would be shared amongst the total future development lots totalling 447 new sites. 150 of these would be from the proposed plan change and that would cover a substantial part of the cost.

Edendale Connection	$1,000,000.00
Reservoir and pump	$600,000.00
Wilfield redevelopment	$200,000.00
Wilfield raw water pipe upgrade	$400,000.00
Sundry	$100,000.00
Contingency	$200,000.00
Design Costs	$150,000.00
TOTAL	**$2,650,000.00**
$ per lot (447 lots)	**$5,928.41+gst**

Cost associated with treated water upgrades within Wilfield andthe connection pipes under the Highway will be the responsibility of the applicant.

The water supply will be designed in accordance with SDC specifications and SNZ PAS 4509:2008 New Zealand Fire Service Fire Fighting Water Supplies Code of Practice. The fire fighting water supply classification will be FW2.

All sites will be serviced by meters connected to a minimum 50mm ID submain, laid along the frontage of all new streets. Rear sites will be installed with 25mm pipes up the driveways and connected to water meters at the street boundaries.

All watermain construction will be completed to Council standards. All watermain pipes will be uPVC, with submains and lot connections in PE.

4.0 STORMWATER

As discussed previously, the development will be designed around the retention of existing stormwater flow patterns across the site. Existing drainage features will be retained and the development will be moulded around them. The applicant has met with SDC Drainage Engineers and they have agreed that future sites do not need to drain to the roads but can instead drain onto neighbouring sites consistent with the natural contour of the land.

Please refer to Appendix D for a plan derived from the Selwyn District Flooding Hazards Web Site. This depicts a significant flow channel through the site. The 1 in 200 year event reaches a depth of 0.96m. This channel is also shown on the LIDAR Data in Appendix D. This channel will be diverted into the road network and the flow maintained as part of the proposal.

Primary stormwater from the site will be discharged to ground. The soakholes on the individual sites will be constructed as part of the Building consent process but the drainage and soakholes associated with the roads will be constructed as part of the subdivision and will be vested in SDC.

Consent or a certificate of compliance for stormwater discharge to ground from the development site will be obtained from Environment Canterbury (ECAN). All consenting from ECAN will be verified by SDC as being suitable for transfer to their ownership if required.

It is expected that all stormwater will be able to be permitted to discharge to ground without treatment with the exception of stormwater discharge during construction. Stormwater discharge during construction will comply with the Environment Canterbury (ECAN) Erosion and Sediment Control Guidelines. Erosion and Sediment Control Management Plans will be compiled for both ECAN and SDC approval.

Road alignments have been directed along the edge of natural drainage swales. The roads will discharge directly to these natural flow patterns. Soakholes will be constructed in the base of the swales. Although not required by ECAN, this methodology will provide a level of stormwater treatment consistent with Low Impact Design.

This sustainable and environmentally sympathetic approach will also give the development a more interesting natural aspect rather than the usual earthworked and uniform contour associated with modern subdivision.

The natural sloping of the land is from northwest to south east. Runoff will be collected and discharged to ground. Secondary flow paths will be within reserves, roads, and lots. Please refer to the attached plan in Appendix D for Secondary Flow Paths.

5.0 POWER / TELECOMMUNICATIONS / STREET LIGHTS

Power and telecommunications will be provided to all sites to utility company and industry standards. All cables will be placed underground and all kiosks will be constructed on separate individual lots. The kiosk sites will be forwarded to Council for approval following the power design.

Street lights will be provided to the roading and reserves to SDC standards. The applicant will also provide a street light style to SDC for approval.

Full appraisals will proceed once Subdivision Consent has been obtained.

6.0 ROADING

The proposed subdivisions will be serviced with a road connection from the existing Wilfield Development. This will involve the extension of Ridgeland Way in its existing formation, through to Weedons Ross Road to create an additional transport connection into the overall development. Additional minor roads will be added as part of the detailed Urban Design.

Please refer to Appendix E for the typical cross sections of the proposed roads. Reference should also be made to the Stantec Traffic Report in the application.

No upgrades are intended for any existing intersections or roads.

The new extension of Ridgeland Way will be 18m wide with an 8m carriageway. No specific provision will be made for cyclists. Footpaths will be on one side only. Street lighting will be to SDC standards. Kerb and channel to council standards will be adopted but detailed design may create areas where a rural shoulder is used or perhaps a flush kerb only where stormwater can flow directly to roadside swales. All carriageways will be constructed to SDC standards and will be sealed with asphalt. Some cobbling may be included to indicate a change in road hierarchy and to add visual amenity.

We note that crossings to individual lots are required however the applicant would like to obtain the right to bond for this portion of the construction in order not to restrict the layout and dwelling position on the created lots.

7.0 EARTHWORKS AND CLEARING

As discussed previously, the ethos of the development relies on the maintenance of natural land form, and therefore will result in only minor earthworks. The earthworks will generally be restricted to the construction of road subgrades and adjustments to the existing overland drainage network.

Existing levels across the majority of sites will be maintained. Specific depths of excavation and fill are not known at this stage as detailed design has not been undertaken. It is estimated at this stage that the total volume of works will be between 50,000 and 100,000m^3.

All topsoil will be retained and replaced on the land immediately following bulk earthworks to a depth of up to 400mm. All disturbed topsoil will be re-sown with Council specification grass seed mixes. A balance of cut and fill will be maintained on site and removal of material from site will be minimised.

Sediment discharge from the development site will be controlled as per Council requirements. The basis of the sediment control will be the ECAN Guidelines and the discharge during construction will be dealt with in association with the overall discharge consent or certificate of compliance.

All dust created on the site will be controlled by water cart or other such approved methods.

All bulk filling will be compacted in accordance with NZS 4431:1989. All fill testing will be carried out by an independent laboratory.

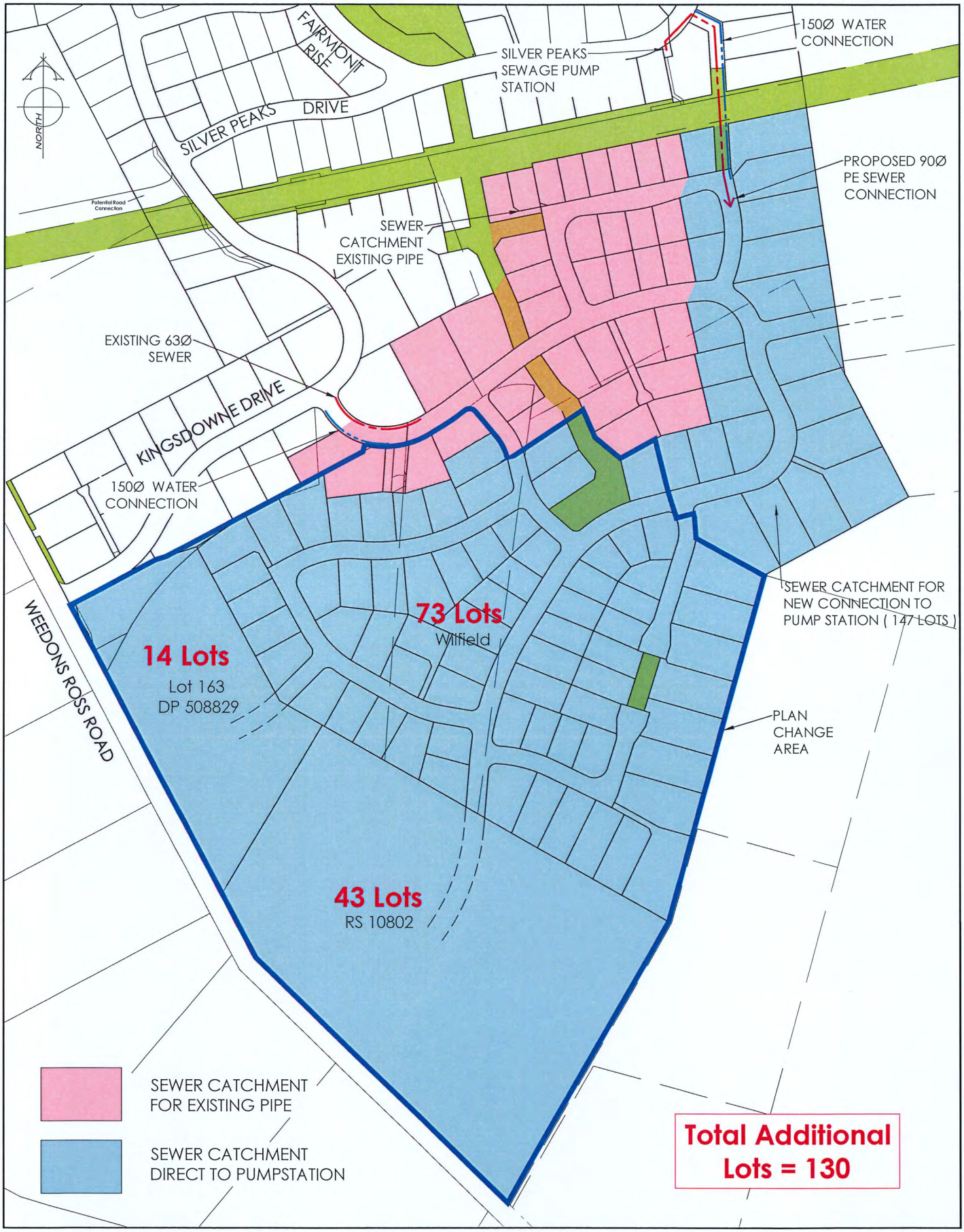
A geotechnical appraisal of the development has been previously presented. This appraisal found the development site as not being susceptible to earthquake and liquefaction damage, and has determined that the land can be considered to be equivalent to the Ministry of Business, Innovation, and Employment (MBIE) Technical Category 1 (TC1). Based on this assessment no land remediation is required, however the site may still not be considered good ground in terms of NZS 3604. Further testing may be required for future building consent applications for foundations.

Andy Hall
Chartered Professional Engineer
Davie Lovell-Smith Ltd

Sept 2020

APPENDIX A

Appendix A – Proposed Development Layout Plan and Engineering Concepts



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West Melton South Zone Engineering Concept

Scale: 1:5000@A4
Date: September 2020

Drawing No: E20232

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APPENDIX B

Appendix B – Sewer Calculations

West Melton Sewer Demands

20232

ajeh

Assumption: West Melton to Connect existing Rising Sewer through to Pines Treatment Plant

Existing homes in West Melton	597	lots
Undeveloped sites	202	lots
Future densification of existing sites	50	lots
Previous Plan Change	71	lots
South Zone of Wilfield	**130**	73 plan change lots plus 57 future lots
Existing Commercial (equivalent)	30	lots
ADDITIONAL FUTURE CONNECTIONS	**196**	Iterative number based on allowable pressure in pipe to Rolleston
TOTAL CONNECTIONS	**1276**	Limit West Melton to this number of sewer connections
Total Conns contributing to upgrade	447	(150+50+176+71)

MF = ASF x 2.5 x 2

ASF = 220 litres x sites x 2.7 people =	757944	litres/day
	757.94	m^3/day
Average Flow over the day =	8.77	l/s
MF =	43.86	l/s

West Melton Rising Main internal dia 225 mm

CALCULATION OF HEAD LOSSES USING COLEBROOK WHITE

West Melton to Pines Sewer Rising Main

Required duty flow **43.86** **l/s**

System details

Pipe Section	No pipes	Length m	Int Dia mm	Roughness ks, mm	Friction Loss, m	No. of Fittings							velocity m/s	Fittings loss,m	Total loss,m	Cumulative loss,m	Head, mAOD
						Bends,R/D=1			Tees	NRV	BFV	Other					
						90deg	45deg	22.5deg	L/b			Exit					
						0.75	0.3	0.15	0.8	1	0.4	1.5					
1	1	8000	225	0.6	57.682	8	1	1	6	2	1	2	1.10	1.033	58.715	58.715	58.715
2	1	5750	225	0.6	41.459	0	0	0	0	0	0	0	1.10	0.000	41.459	100.173	100.173
TOTAL FRICTION LOSS, m					99.141	TOTAL FITTINGS LOSS,m								1.033	100.173		
													TOTAL SYSTEM LOSSES, m		100.173		

Power requirements: $\frac{q \times h}{102 \times dp \times dm}$ kW = 80 kW

		Non return valve	butter fly valve

dp = pump efficiency (60% - 80%) 0.6-0.8	0.6	
dm = motor efficiency (90% - 94%) 0.9-0.94	0.9	
q = flow (l/s)	43.86	l/s
H = head (m)	100.17	m
Pump Level at West Melton	100.80	m
Outlet Level at Pines Treatment Plant	70.70	m
Static headloss	-30.10	m
Total Headloss	**70.07**	**m**

Max pressure to be 0.7 of PN10 = 70m

Storage required based on 8hrs of ASF = 252648 l

252.648 m^3

APPENDIX C

Appendix C – Water Supply Calculations and Plans

West Melton Water Demands

20232

ajeh

Assumption: Water demands required to meet the number of sewer connections

Existing homes in West Melton	597	
Undeveloped sites	202	
Future densification of existing sites	50	
Previous plan change lots	71	
South Zone of Wilfield	130	
Commercial (equivalent)	30	
ADDITIONAL FUTURE CONNECTIONS	196	Based on sewer capacity
TOTAL CONNECTIONS	1276	Limit West Melton to this number due to capacity in sewer
Existing Connections	829	(597+202+30)
Connections contributing to upgrades	447	(50+71+130+196)

Water Demands

Refer to Chart 1 Part 7 of CoP		
Peak flow rate per unrestricted connection =	0.12	l/s/site
Peak flow rate per restricted connection =	0.03472	l/s/site

Potential Maximum Flows:

Wilfield - reconsented	35	l/s
Jacklin	12	l/s
Royston	9	l/s
Elizabeth	9	l/s
Edendale	20	l/s
Johnson	10	l/s
4hr of Reservoir (1M litres)	69	l/s
TOTAL	**164**	**l/s**

Clearly the reliance on the reservoir is very high. The refilling of the reservoir following periods of high demand will require all wells to continue to produce at peak levels.

Assumption: Water demands required to meet the Wilfield Plan Change Only

CURRENT DEMAND			**Total Lots**
Existing homes in West Melton	597		597
Undeveloped sites	202		202
Previous Plan Change	71		71
Commercial (equivalent)	30		30
TOTAL CONNECTIONS	900		
Unrestricted Connections	844		
Restricted Connections	56		
Unrestricted flow at 0.12l/s/site	101.28	l/s	
Restricted Flow at 0.03472l/s/site	1.94	l/s	
TOTAL CURRENT DEMAND	**103.22**	**l/s**	

PROPOSED ADDITIONAL DEMAND FROM STH ZONE PLAN CHANGE		
Wilfield	73	73
Other Land	57	57

Unrestricted Connections	110	
Restricted Connections (estimated)	20	
Unrestricted flow at 0.12l/s/site	13.20	l/s
Restricted Flow at 0.03472l/s/site	0.69	l/s
TOTAL PROPOSED ADDITIONAL DEMAND	**13.89**	**l/s**

PROPOSED TOTAL DEMAND IN WILFIELD		
Extg zoned sites in Wilfield	260	
Wilfield portion of South Zone	73	
Unrestricted Connections	267	
Restricted Connections	66	
Unrestricted flow at 0.12l/s/site	32.04	l/s
Restricted Flow at 0.03472l/s/site	2.29	l/s
TOTAL PROPOSED DEMAND	**34.33**	**l/s**

PROPOSED ADDITIONAL DEMAND ELSEWHERE			
Future densification of existing sites	50		50
Future additional sites	196		196
Unrestricted Connections	236		
Restricted Connections	10		
Unrestricted flow at 0.12l/s/site	28.32	l/s	
Restricted Flow at 0.03472l/s/site	0.35	l/s	
TOTAL PROPOSED ADDITIONAL DEMAND	**28.67**	**l/s**	
			1276 lots

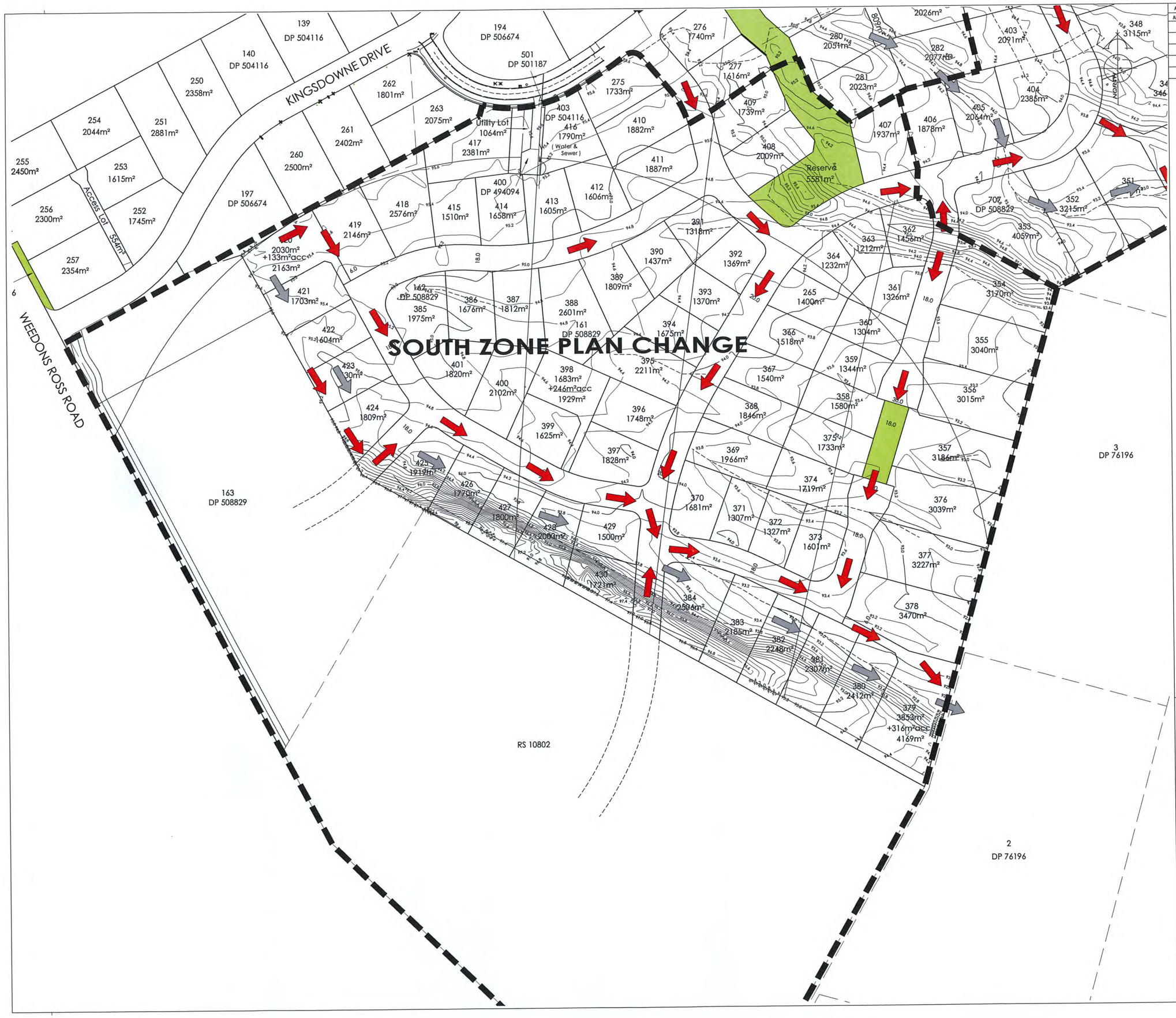
Total water demand for West Melton including for the Plan Change	**145.79**	**l/s**

OPTION A: Current Available and Potential Flows:		
Wilfield	26	l/s
Jacklin	12	l/s
Royston	9	l/s
Elizabeth	9	l/s
Edendale	20	l/s
Johnson	0	l/s
4hr of Reservoir (1M litres)	69	l/s
TOTAL	**145**	**l/s**

OPTION B: Current Available and Potential Flows:		
Wilfield - reconsented	35	l/s
Jacklin	12	l/s
Royston	9	l/s
Elizabeth	9	l/s
Edendale	20	l/s
Johnson	0	l/s
4hr of Reservoir (1M litres)	69	l/s
TOTAL	**154**	**l/s**

APPENDIX D

Appendix D – Stormwater Secondary Flow Paths



AMENDMENTS :		
AMENDMENT	DATE	DESCRIPTION

NOTES :

LEGEND

PROPOSED FLOW PATHS

NATURAL FLOW PATHS

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JOB TITLE:

GW Wilfield Ltd

SHEET TITLE:

Wilfield - South Zone Secondary Flow Paths

DRAWING STATUS

For Information

SCALE : 1:1250@A1 1:2500@A3

DATE : September 2020

CAD FILE : J:\20232\Secondary Flow PathsR0.dwg

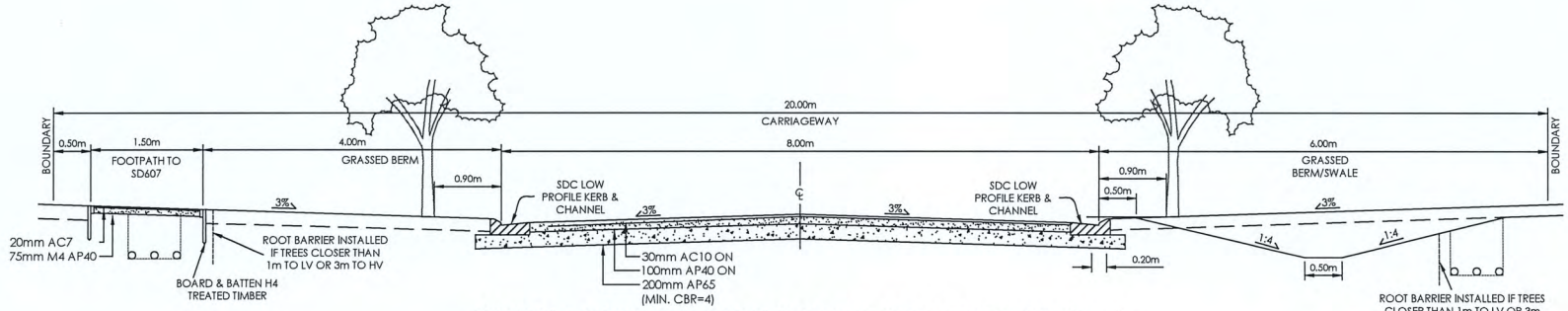
REVISION : **R0**

DRAWING No : **20232**

SHEET No: 1 OF 1

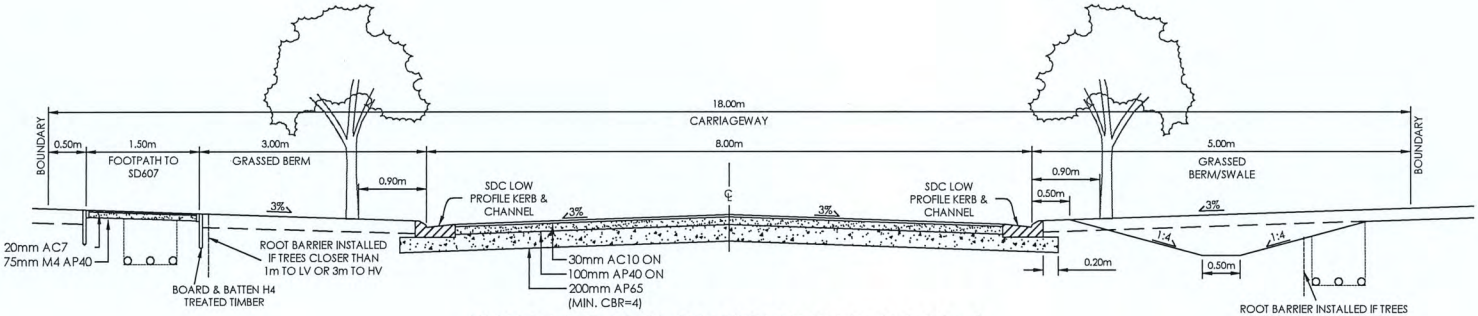
APPENDIX E

Appendix E – Typical Cross Sections of Roads



TYPICAL CROSS SECTION RIDGELAND DRIVE(20.00m)

SCALE 1:100@A4



TYPICAL CROSS SECTION ROAD (18.00m)

SCALE 1:100@A4

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West Melton
South Zone
Roading Cross Sections

Scale: 1:100@A4
Date: September 2020

Drawing No: E20232

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