Lasby, Mary

From: Murray Totland <mtotland@arbutusproperties.com>
Sent: Friday, October 28, 2022 2:00 PM
To: Clark, Charlie; Hill, Darren (City Councillor); Gough, Hilary (City Councillor); Dubois, Bev (City Councillor); Block, Cynthia (City Councillor); Loewen, Mairin (City Councillor); Kirton, David (City Councillor); Davies, Troy (City Councillor); Donauer, Randy (City Councillor); Gersher, Sarina (City Councillor); Jeffries, Zach (City Councillor)
Cc: jdrexel
Subject: Arbutus Properties Affordable Housing Project - Monday Council
Attachments: DJI_0883.JPG; Base lift.jpg; 221028-668-001-Meadows Partial Build Out Sanitary Flow Monitioring.pdf; Parcel J affordable housing proejct site plan.pdf

Good day Your Worship and Councillors. We have a rezoning request for one of our development sites in Rosewood going to Council on the Public Hearing agenda on Monday. It is not a typical rezoning request in that it deals with a holding provision currently in place on a portion of our affordable rental housing project site. We need the Holding Symbol removed so we can proceed in a timely manner with the project. I have attached a plan of the site and just to orient you, Building A is complete and fully occupied. Building B is our project in question and that ½ of the site has the holding provision applied against it. We have CMHC affordable housing program approval for this second building and are under a strict timeline and conditions with them to not be in default of our approval.

The hold provision is in place as a condition of concept plan approval from 2015 and relies upon a lift station and force main being constructed by Arbutus for it to be removed. We started that work earlier this year and I'm happy to report that we are making good progress and want to provide you additional information on that prior to Monday[s meeting so you have better context within to make your decision on our request.

Here is a quick update on the work. I should add that the lift station and forcemain we are constructing is a temporary one with a 15-year service life and this construction is set out and governed by the conditions and terms of the servicing agreement we signed with the City in 2015. I would add that we are fully funding the $7 million cost of this temporary lift station and forcemain at no expense to the City. We have spent approximately $5.5million on the work to date.

- The lift station is being constructed on a utility parcel we are dedicating to the city adjacent to the SaskPower substation at the end of Taylor Street where it intersects Wess Road.
- The lift station will connect to the existing gravity sewer main on Meadows Parkway and pump sewage about 3.5 kilometres north along Wess Road to a connection point to another City sewer main adjacent to the CP tracks near Moncton Place in College Park.
- We have completed the majority of the forcemain construction including the connection point at Moncton place. Work on the forcemain is expected to be finished by the end of November.
- We have completed installation of all the final underground water and sewer that connects the existing Meadows Parkway underground infrastructure to the new lift station.
- The wet well and foundation work for the lift station is essentially complete and the lift station control building will be constructed in November. This was some significant construction as the wet well extend underground for approximately 10 metres and I've attached a couple photos of the install.

- The largest challenge so far on the construction has been supply chain issue around the proprietary equipment the City requires.
- Regardless, purchase orders have been issued for all the mechanical works and installation of the final mechanical equipment with begin in early December. We are trying to finalize the electrical design with the City and hope that is forthcoming so we can place the final equipment orders.
- We are however, still awaiting final lift station design approval from the City which they seem reluctant to provide us, despite the servicing agreement already in place.

Our current schedule has us completing the work in 1st quarter 2023 and have the lift station and forcemain operational. Once operational, the holding provision condition can be removed from all the remaining development lands we have in Rosewood.

I would like to share some new information today that is very relevant to our request, and we believe should provide Council the confidence to proceed with approving our request to remove the hold provision on Monday. We have always had a concern regarding the process by which the holding provision was applied against ½ of our development Parcel J. I know there must be some way to assess projected sewer demands, but the software models tend to be overly conservative and generally overstate demand and understate real capacity. So, to address this, we recently had our engineering consultant conduct real time flow monitoring in the existing sewer that would serve the catchment area in question to determine what percentage of the pipe capacity is being utilized today and whether there is sufficient capacity to allow the H symbol to be removed now, without having the lift station operational. As we suspected would be the case, **there is significant unused capacity in the existing sewer that serves Parcel J** – to the point that we could add the flows from our second apartment project today and still have excess capacity in the pipe. I've attached Catterall's brief report on this and it has been shared with the City Manager and your Administration today.

In essence it tells us that not only can the hold provision be removed today, but given the actual flow conditions in this sewer, the hold provision should not have been placed on the remainder of this parcel in the first place. Council should feel entirely comfortable removing the hold provision on Monday without exposing the City to any undue or unnecessary risk.

If you have any questions about this, I'd be happy to discuss, and we plan to be at council on Monday to speak to this matter.

Regards,

Murray

Murray Totland, P.Eng., MBA | Director of Planning | Arbutus Properties
Cell: 306.221.4694 | Main: 306.955.1554 | Fax: 1.888.735.2496
Email: mtotland@arbutusproperties.com | Website: www.arbutusproperties.com

ARBUTUS PROPERTIES

CATTERALL & WRIGHT | CONSULTING ENGINEERS

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October 28, 2022

City of Saskatoon
Saskatoon Water
222 3rd Avenue North
Saskatoon, SK S7K 0J5
via email: AJ.McCannell@saskatoon.ca

Attention: AJ McCannell, Engineering and Planning Manager

Re: Rosewood/Meadows - Sanitary Flow Monitoring – Partial Buildout, Saskatoon, SK

The purpose of this sanitary sewer analysis is to provide an update on the current observed flows contributing to the N1 sanitary catchment within the Rosewood/Meadows developments. This will support Arbutus Properties' proposed rezoning and development of the remaining Parcel J lands fronting Meadows Parkway.

BACKGROUND

The full build out of the Rosewood Neighborhood and more specifically the Meadows requires a sewage pumping station (SPS) to be constructed at the northeast corner of the development near the SaskPower station on Taylor Street. This station will pump to the Bernini Interceptor by Moncton Place in the East College Park neighbourhood allowing the holding symbol to be removed from all remaining Rosewood Lands. Eventually this pumping station and force main will be decommissioned and the flow diverted to the McOrmond sanitary trunk once it is extended south from the Brighton neighbourhood to Rosewood. The SPS and force main are currently under construction and expected to be operational in the first quarter of 2023.

Currently, sanitary flows from the partial N1 Catchment (refer to Appendix A) are routed temporarily into the N2 catchment until the SPS and force main are operational. At which time, this N2 connection will be removed and the N1 catchment will be routed directly to the SPS.

Arbutus Properties engaged JS Industries to install a Greyline Stingray 2.0 Portable Level-Velocity Logger (or monitor) at two locations within the N1 and N3 catchments to confirm the sanitary sewer capacity of the connection to the current N2 Catchment. Both monitor locations were flushed & cleaned upstream and downstream of the applicable manholes. Data was collected every 5 minutes. Direct data collected includes depth of flow, flow velocity, and flow temperature. The first monitoring began collecting data at the "Meadows Boulevard – East Monitor" location on September 21, 2022 within

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the N2 catchment and ceased on October 17, 2022. The second monitor began collecting data at the "Meadows Boulevard – West Monitor" location on October 17, 2022 with the N3 Catchment and ceased October 25, 2022. Raw data graphs for each monitor can be found in Appendix B. Photos of the monitor and respective installed sensors can also be found in Appendix C.

ANALYSIS

The raw data was converted to flow rates using the Greyline Logger V2.90 software. Graphs of the converted flow data can be found in Appendix D. For analysis of the sanitary sewer's capacity, only peak flows are of concern. Below is a summary of peak flows collected from each location. Please note that for the purpose of analysis, Meadows Boulevard – East Monitor was installed at a location to represent only the N1 Catchment. The Meadows Boulevard – West Monitor was installed at a location to represent a major portion of the N3 Catchment. Design peak flows were modified based on the monitor's location within the N3 Catchment.

Monitor	Applicable Sanitary Catchment	Observed Peak Flow (l/s)
Meadows Boulevard – East Monitor	N1	5
Meadows Boulevard – West Monitor	N3	17

Please note that the three peak data points on September 24 & 25 from the Meadows Boulevard – East Monitor were omitted due to the large variance of flow in comparison to the rest of the data. The cause of these readings has been assumed to be debris collecting on the sensor.

Peak flows of each location were compared to their respective and expected design flows of the current sanitary design parameters for the Rosewood Neighborhood. Please refer to the table below for the summary. Design flows were scaled to represent the current buildout of the catchments. The observed peak flows of each location are considered to have no infiltration included since no significant wet weather events were observed during the monitoring period. For the purpose of comparison, the design infiltration has been added to the observed monitor peak flows. This also allows for a more conservative analysis. Please refer to Appendix E for more detailed comparison spreadsheets.

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Monitor	Catchment	Observed Peak Flow (l/s)	Design Infiltration (l/s)	Observed Flow + Design Infiltration (l/s)	Peak Design Flow (l/s)	Design Flow Vs. Observed Flow + Design Infiltration	Sewer Design Capacity (l/s)	Sewer Design Capacity Vs. Observed Flow + Design Infiltration	Pipe Capacity Remaining (l/s)
Meadows Boulevard - East Monitor	N1	5.0	3.5	8.5	19.5	43%	32.6	26%	24.1
Meadows Boulevard - West Monitor	N3	17.0	8.0	25.0	34.7	72%	38.5	65%	13.5

The above table displays an excess of capacity in the current sanitary system. The observed peak flow plus design infiltration was scaled up to include a full build out scenario of the partial lands and remaining Parcel J lands. The increase in flow compared to the original design flows for the applicable catchments can be seen in the table below.

Monitor	Catchment	Original Design Flow (l/s)	Scaled Observed Flow + Design Infiltration (l/s)	Original Design Flow Vs. Observed Flow + Design Infiltration	Sewer Design Capacity (l/s)	Sewer Design Capacity Vs. Scaled Observed Flow + Design Infiltration	Pipe Capacity Remaining (l/s)
Meadows Boulevard - East Monitor	N1	24.0	12.22	51%	32.6	37%	20.4
Meadows Boulevard - West Monitor	N3	40.3	32.56	81%	38.5	85%	7.0

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SUMMARY

The flow monitoring program conducted displays an excess of capacity in the current sanitary routing in the Meadows development. The design peak flow generated from Phase 2 of the Parcel J development is 6.8 l/s (peak factor of 3.5) which is the less than remaining pipe capacity of the N3 Catchment (13.5 l/s). Removing the holding symbol on the remaining Parcel J lands fronting Meadows Parkway has no adverse effects on the current Rosewood sanitary system. This would only be a temporary scenario until the SPS would become operational in the first quarter of 2023.

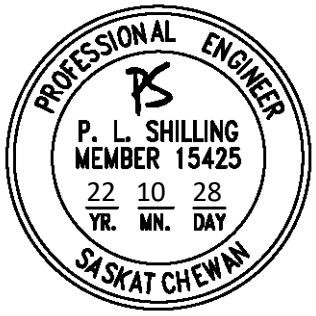
Should any questions or concerns arise from this report, please contact Catterall & Wright and we would be more than happy to discuss.

Yours truly;
Catterall & Wright
Per:

Ryan Snider, Engineer-In-Training

Reviewed:

Phil Shilling, P. Eng.



cc: Jeff Thomson, P.Eng., Senior Private Development Engineer, Land Development
via email: jeff.thomson@saskatoon.ca

Murray Totland, P.Eng., MBA, Director of Planning
via email: mtotland@arbutusproperties.com

Jody Minakakis, General Manager
via email: jminakakis@arbutusproperties.com

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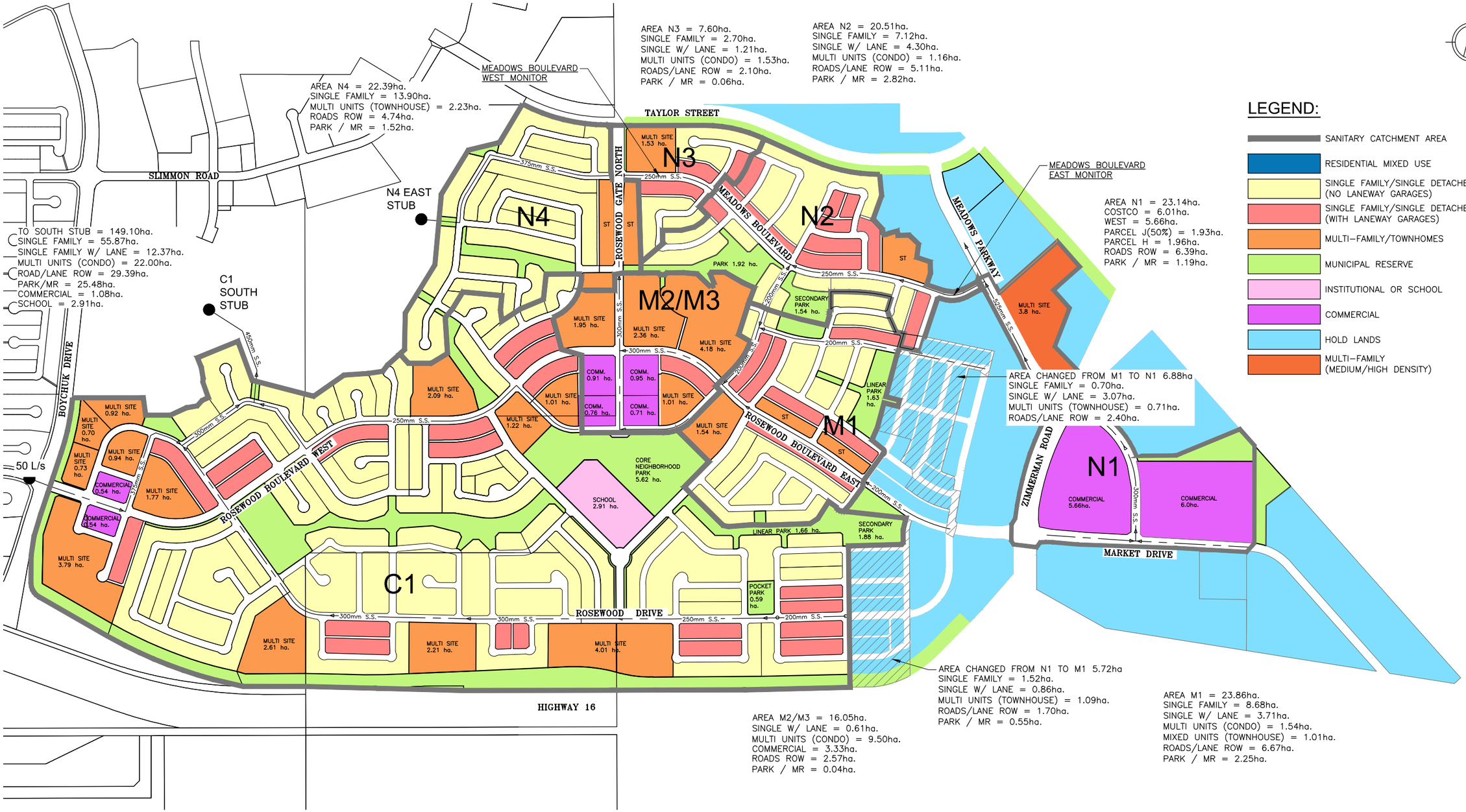
Appendix A: Rosewood Sanitary Catchments



1			PLS	
	PLAN DESCRIPTION/REVISION	DATE	BY	SEAL

CATTERALL & WRIGHT
CONSULTING ENGINEERS

DRAWN BY GCW DATE 2019-MAR-28

City of Saskatoon
Transportation & Construction Department

ARBUTUS MEADOWS PARTNERSHIP

ROSEWOOD & THE MEADOWS
SANITARY SEWER CATCHMENT AREAS
PARTIAL BUILD-OUT
(REVISED HOLD LANDS)

CHIEF ENGINEER

SCALES : HOR. 1:10,000 VERT.

DATE

SHEET NO. C102

PLAN NO.

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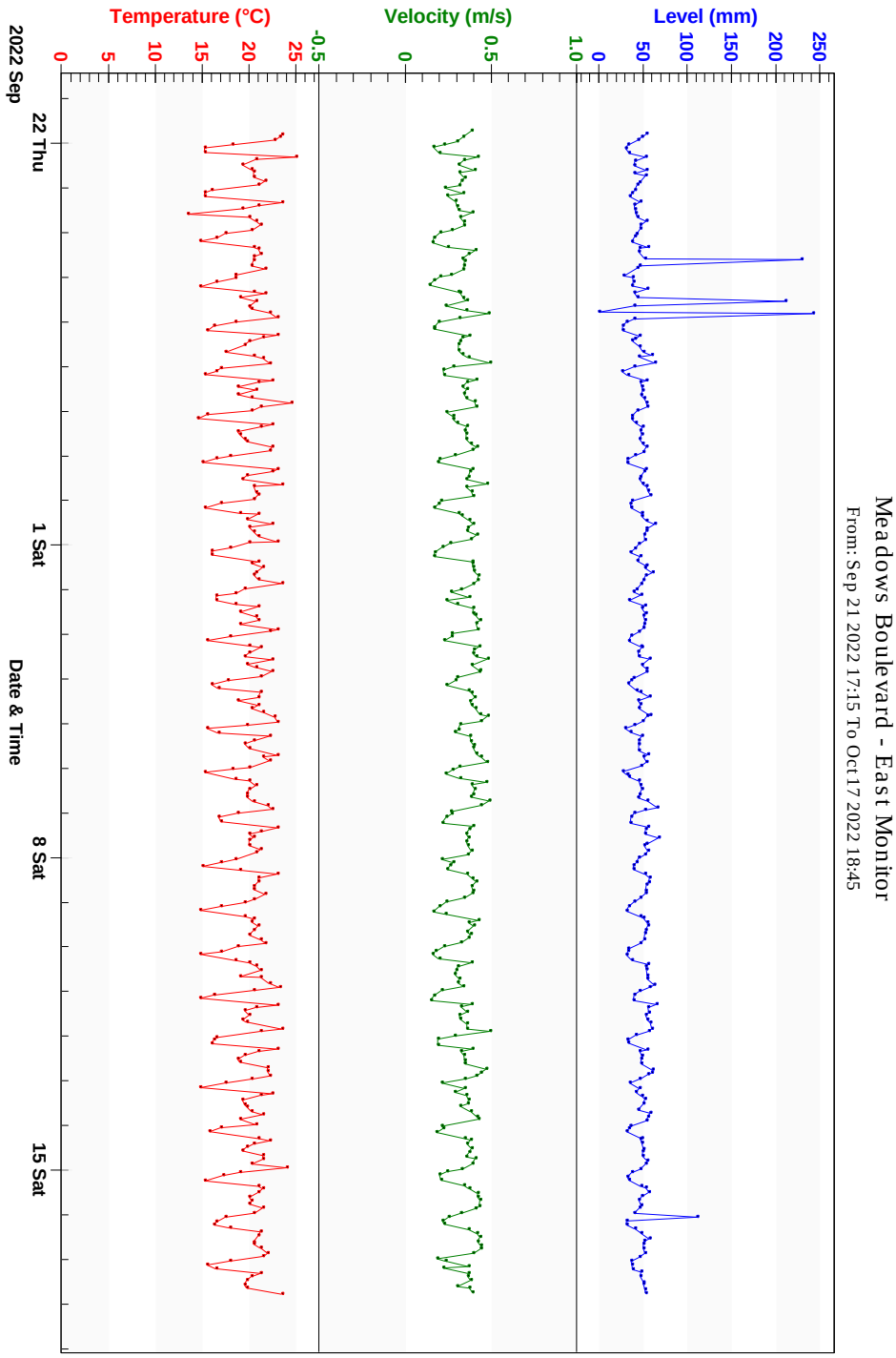
Appendix B: Monitor Data



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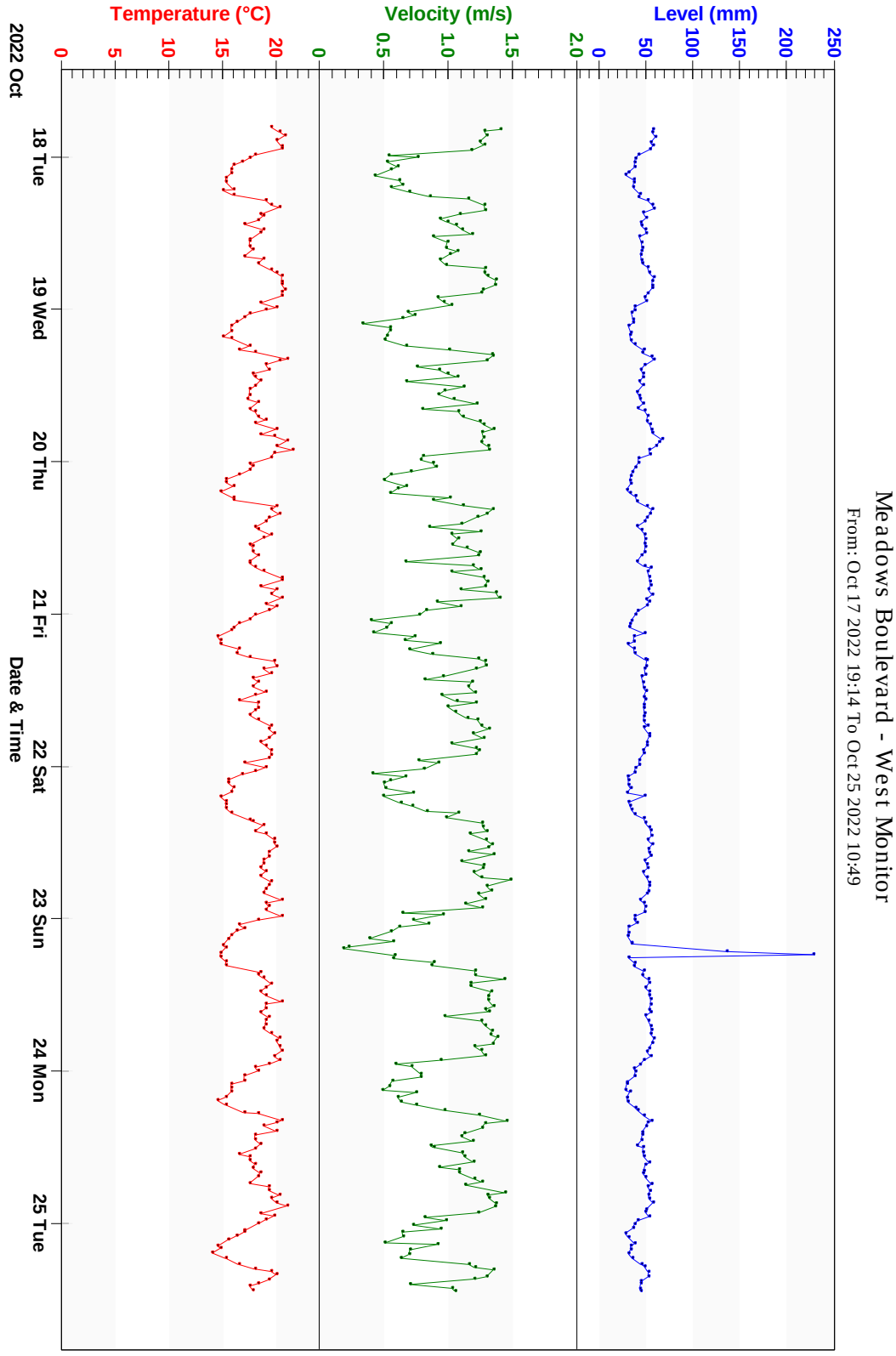

Meadows Boulevard - West Monitor

From: Oct 17 2022 19:14 To Oct 25 2022 10:49

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Appendix C: Monitor Photos

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Meadows Boulevard – East Monitor

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Meadows Boulevard - West Monitor

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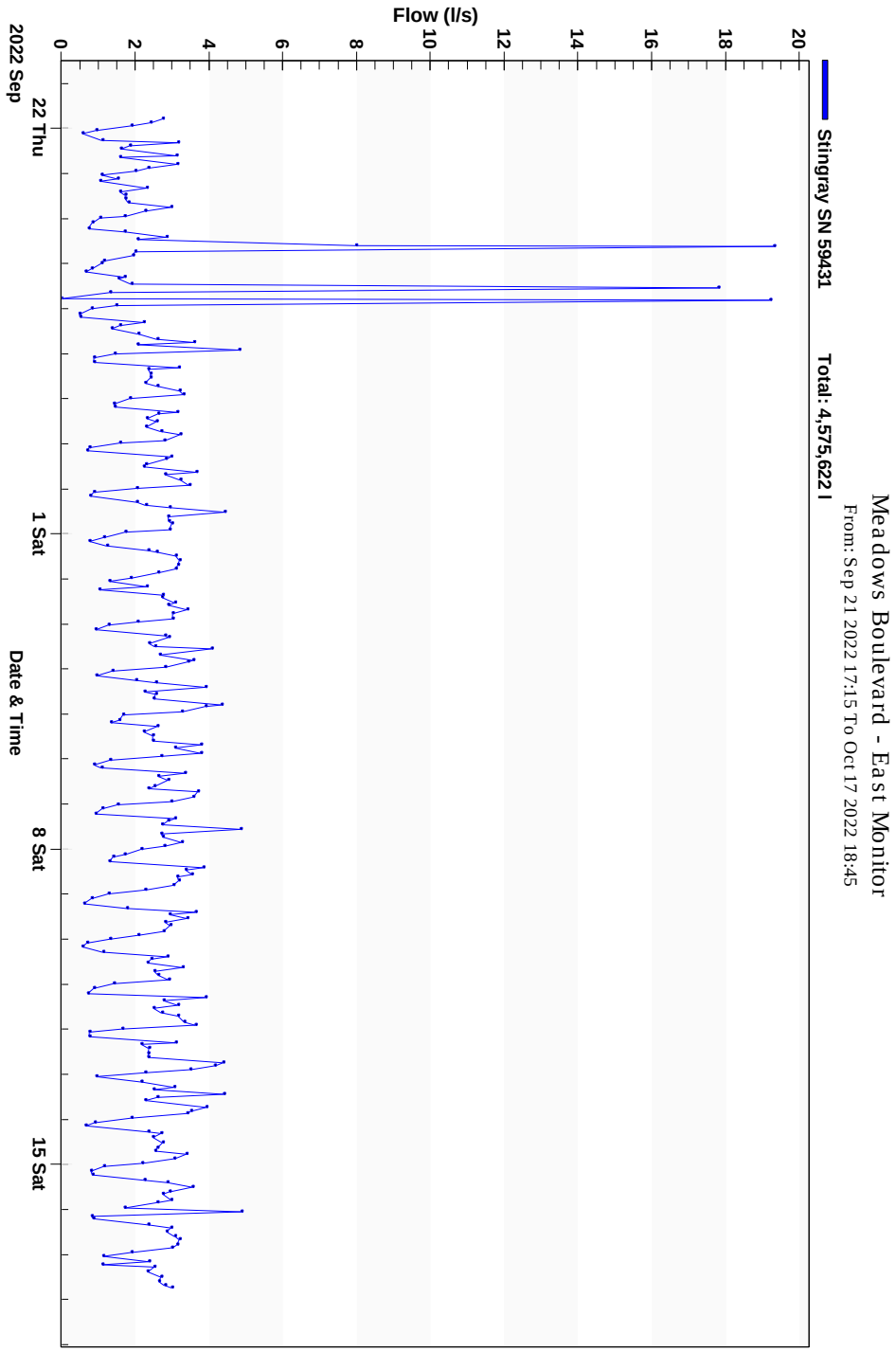
Appendix D: Flow Graphs



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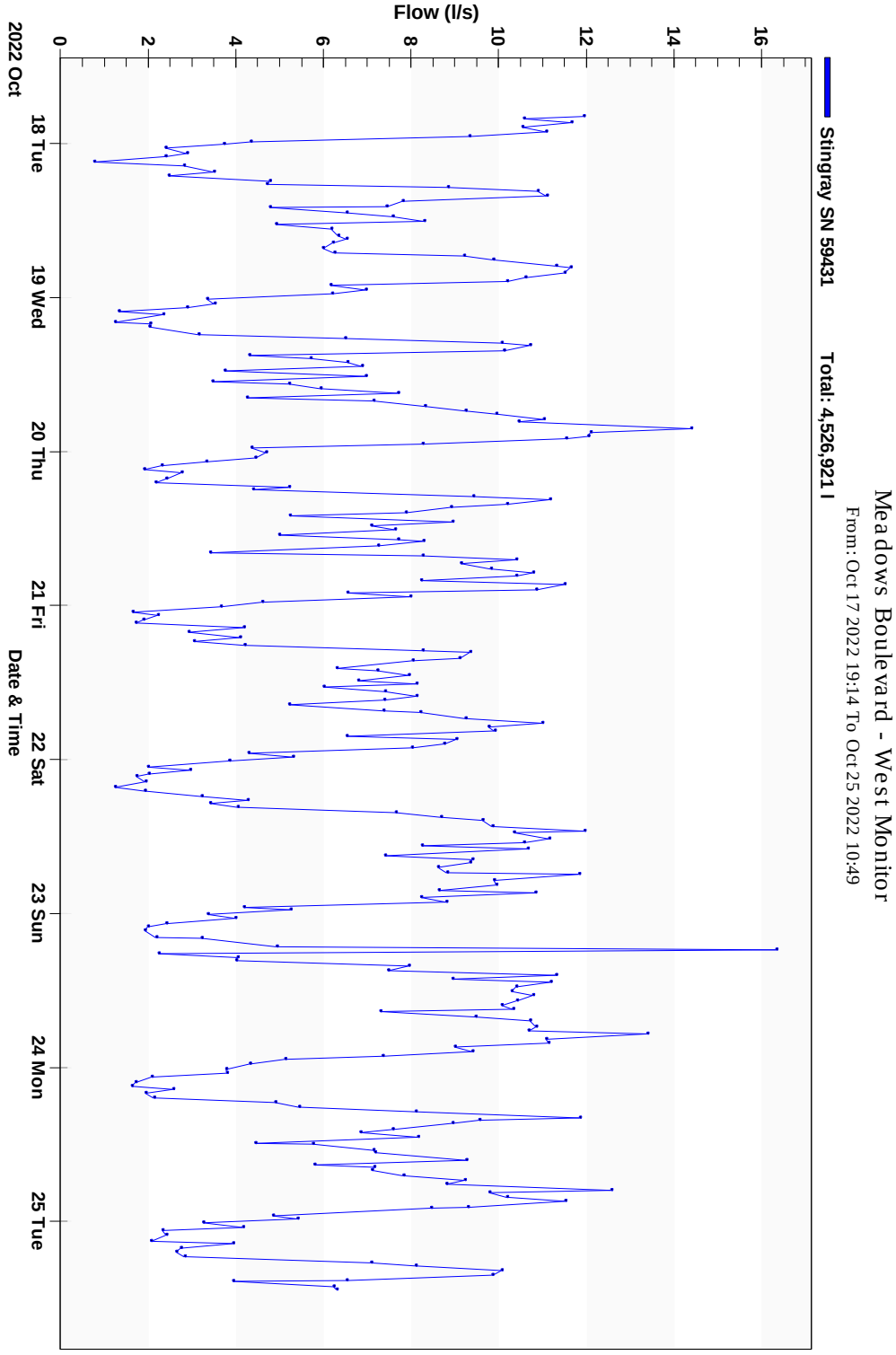

Meadows Boulevard - West Monitor

From: Oct 17 2022 19:14 To Oct 25 2022 10:49

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Appendix E: Sanitary Spreadsheets

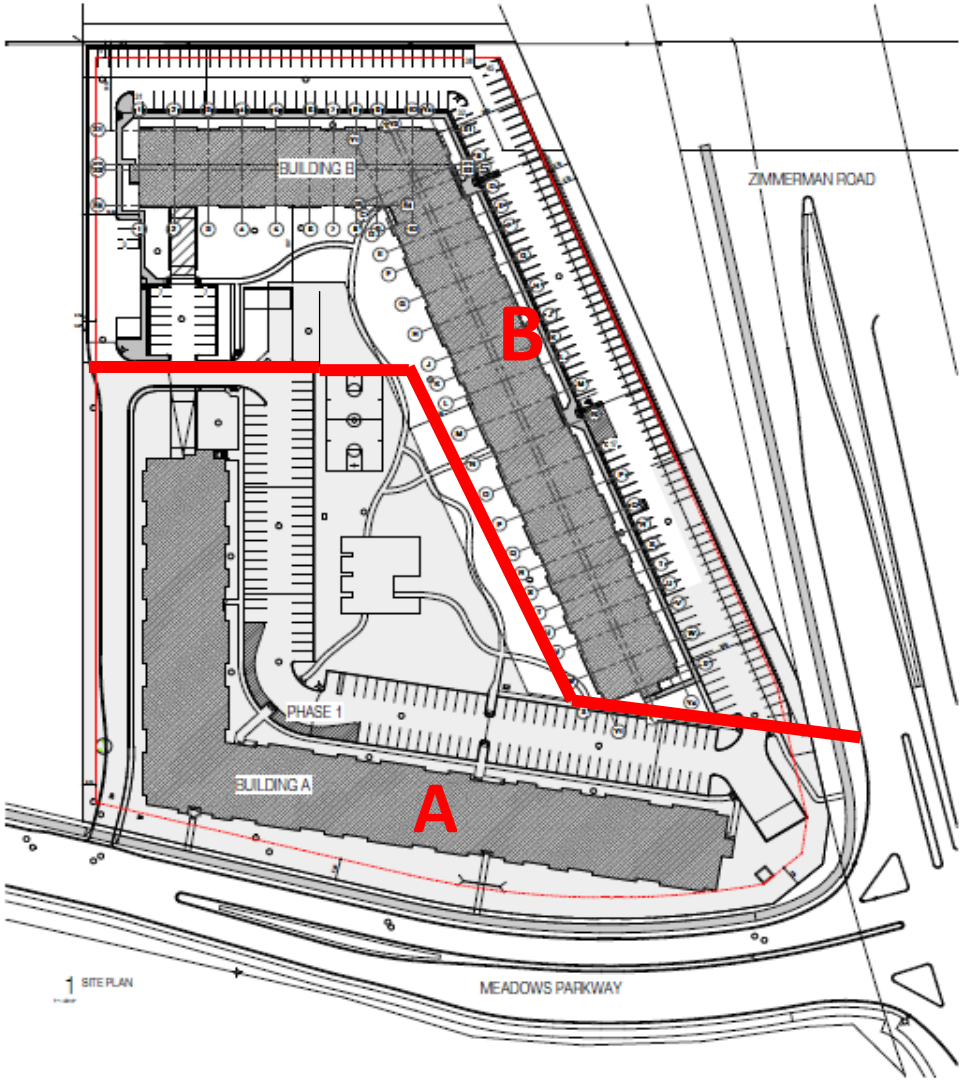
ROSEWOOD SANITARY SEWER DESIGN

Partial Build-Out

Manning's n = 0.013

Design Parameters on UMA Report (2007) - Rosewood Land Use	Based
Land Use	Population Density
Single Family	45.6
Single Family w/ Lane	73.8
Multi Unit (Condo)	80.3
Mulit Unit (Townhouse)	88.4
Mixed Use (Residential)	81.5
Commerical	125
Mixed Industrial	130

	Zone	Land Use	Population	Cumulative Population	Area (ha.)	Population Density ppl/ha	Water Usage (lcpd)	Avg Dry Weather Flow (l/s)	Inflow & Infiltration (0.17 l/s/ha)	Peaking Factor	Peak Design Flow (l/s)	Observed Peak Monitor Flow (l/s)	Scaled Peak Monitor Flow (l/s)	Peak Monitor Flow + Design Infiltration (l/s)	Peak Design vs. Peak Monitor + Design Infiltration	Pipe Slope (%)	Pipe Dia (mm)	Max Capacity (l/s)	% Capacity
	M1	Single Family	396		8.68	45.6													
		Single Family w/ Lane	274		3.71	73.8													
		Multi Units (Condo)	124		1.54	80.3													
		Multi Units (Townhouse)	89		1.01	88.4													
		Road/Lane ROW			6.67														
		Park / MR			2.25														
			883	883	23.87	37.00	290	2.96	4.06	3.83	15.42					0.25	300	48.4	32%
	M2/M3	Single Family w/ La	45		0.61	73.8													
		Multi Units (Condo)	763		9.50	80.3													
		Commercial	416		3.33	125													
		Road ROW			2.57														
		Park / MR			0.04														
			1224	2107	16.05	76.24	290	7.07	6.79	3.57	32.02					0.25	300	48.4	66%
Original Build Out	N1	Costco	135		6.01	22.5													
		West	708		5.66	125													
		Parcel J (50%)	398		1.99	200	(*1.8ppl/unit)												
		Parcel H	392		1.96	200	(*1.8ppl/unit)												
		Road ROW			6.39														
		Park / MR			1.19														
			1633	1633	23.19		290	5.48	3.94	3.65	23.96					0.3	250	32.6	74%
Current Build Out	N1	Costco	135		6.01	22.5													
		West (50%)	354		2.83	125													
		Parcel J (50%)	398		1.99	200	(*1.8ppl/unit)												
		Parcel H	392		1.96	200	(*1.8ppl/unit)												
		Road ROW			6.39														
		Park / MR			1.19														
			1279	1279	20.36		290	4.29	3.46	3.73	19.47	5.0		8.5	43%	0.3	250	32.6	26%
FULL PARTIAL BUILD + Full Parcel J Development	N1	Costco	135		6.01	22.5													
		West (100%)	708		5.66	125													
		Parcel J (100%)	796		3.98	200	(*1.8ppl/unit)												
		Parcel H	392		1.96	200	(*1.8ppl/unit)												
		Road ROW			6.39														
		Park / MR			1.19														
			2031	2031	25.18		290	6.82	4.28	3.58	28.69		7.9	12.2	43%	0.3	250	32.6	37%
	N2	Single Family	325		7.12	45.6													
		Single Family w/ Lane	317		4.30	73.8													
		Multi Units (Condo)	93		1.16	80.3													
		Road/Lane ROW			5.12														
		Park / MR			2.82														
			735	2368	20.52	35.82	290	7.95	7.43	3.53	35.47								
Original Build Out Modified Based on Monitor Location	N3	Single Family	123		2.70	45.6													
		Single Family w/ Lane	81		1.09	73.8													
		Multi Units (Condo)	25		0.31	80.3													
		Road/Lane ROW			2.10														
		Park / MR			0.06														
			229	2597	6.26	36.59	290	8.72	8.49	3.49	38.96					0.42	250	38.5	101%
Current Build Out	N3	Single Family	123		2.70	45.6													
		Single Family w/ Lane (90%)	81		1.09	73.8													
		Multi Units (Condo) (20%)	25		0.31	80.3													
		Road/Lane ROW			2.10														
		Park / MR			0.06														
			229	2243	6.26	36.59	290	7.53	8.01	3.55	34.71	17.0		25.0	72%	0.42	250	38.5	65%
FULL PARTIAL BUILD + Full Parcel J Development	N3	Single Family	123		2.70	45.6													
		Single Family w/ Lane (90%)	81		1.09	73.8													
		Multi Units (Condo) (20%)	25		0.31	80.3													
		Road/Lane ROW			2.10														
		Park / MR			0.06														
			229	2995	6.26	36.59	290	10.05	8.83	3.44	43.44		22.7	31.5	73%	0.42	250	38.5	82%
	N4	Single Family	634		13.90	45.6													
		Multi Units (Townhouse)	197		2.23	88.4													
		Road ROW			4.74														
		Park / MR			1.52														
			831	5535	22.39	37.12	290	18.58	19.09	3.20	78.61								



468 Unit Affordable Rental Project

2 Buildings:

- Building A (224 units) nearing full lease up
- Building B (244 units) permit plans ready – wish to proceed with foundation permit concurrently with lift station construction

ERBUTUS PROPERTIES


PRAIRIE CRANE


VOLVO
KOMATSU