

**EASTRIDGE LANDING SUBDIVISION, PHASE V,
ARTHUR, ONTARIO**

FUNCTIONAL SERVICING REPORT

July, 2024



K. J. BEHM & ASSOCIATES INC.
CONSULTING ENGINEERS

1.0 Introduction

In support of an Application for Draft Plan Approval for the Eastridge Landing Subdivision, Phase V, Arthur, this report describes the underground servicing, roadworks, lot grading and drainage, utilities and stormwater management design required for this Phase. Attached is the proposed Draft Plan of Subdivision for Phase V as prepared by Black, Shoemaker, Robinson, Donaldson Ltd.

The preliminary design of the underground servicing, roads, lot grading and drainage, utilities, and stormwater management for Phase V was included in the original designs for Phase I, II, III, and IV.

This report is to be read in conjunction with the attached proposed Engineering Plans and Sewer Pipe Design Sheets for Phase V.

2.0 Sanitary Sewers

Phase V can be serviced with sanitary sewers and lot services with sanitary sewer connections to the existing sanitary sewer in previous Phases. Attached is the previous Sanitary Sewer Pipe Design Charts for Phases III and IV, as well as the current ones for Phase V. The difference in design flows is insignificant.

3.0 Sewage Allocation

The Stage 1 expansion of the Arthur Sewage Treatment Plant and the Frederick Street Pumping Station have now been completed. Sewage allocation has been granted to all of the proposed residential units in the Eastridge Landing Subdivision, Phases I, II, III, and IV. Sewage allocation for Phase V will be determined at the time of the Subdivision Agreement for Phase V.

4.0 Storm Sewers

Phase V can be serviced with storm sewers and lot services with storm sewer connections to the existing storm sewers in previous Phases. Attached is the previous Storm Sewer Pipe Design Charts for Phases III and IV, as well as the current ones for Phase V. The difference in design flows is insignificant.

5.0 Watermains

Phase V can be serviced with watermain, hydrants and lot services with watermain connections to the existing watermains in previous Phases. The watermain pressures, watermain flows and hydrant fire flows for Phase V were included in the Watermain Flow Assessment prepared by Triton Engineering Services Limited dated November 2, 2016. A watermain has been provided on the southerly leg of Walsh Street as an extension to future development to the south of Phase V.

6.0 Roads

All roads in Phase V will be designed with curb and gutter, asphalt roads and sidewalks in accordance with current Township standards. The roads in Phase V will be extensions of Schmidt Drive and Walsh Street and will have access/egress to existing streets in previous Phases. Walsh Street has been extended to the south limit to provide access/egress to future development to the south of Phase V.

7.0 Lot Grading and Drainage

The Lot Grading design for Phase V will be in accordance with current Township standards.

8.0 Utilities

Underground electrical distribution, streetlighting, telephone, fibre optics, cable T.V. and gas mains can be provided with extensions from existing facilities in previous Phases.

9.0 Stormwater Management

Drainage from Phase V will be directed to the proposed storm sewers and roadways and will discharge to the existing SWM Facility that was constructed in Phase I. The existing storm sewers in previous Phases are adequate to accommodate the drainage from Phase V. The existing SWM Facility will also accommodate drainage from Phase V. The existing SWM Facility will provide quality and quantity control for Phases 1-5 for all rainfall events up to the 100-year storm.

10.0 Township, Ministry of the Environment, Conservations and Parks Approvals

Prior to any underground servicing in Phase V, Township review and approval of the proposed Engineering Plans will be required, and an Environmental Compliance Approval Certificate will be required from the MOE for the sewers in Phase V.

Respectfully Submitted

K. J. BEHM & ASSOCIATES INC.



Kenneth J. Behm, P.Eng.
President



Q= C.I.A. x 0.0028 (cms)

C=Impervious Coefficient

I =Rainfall Intensity

I=1593

A= Area (hectres) $(t+11)^{0.8789}$

(5yr Return Period)

TOWN OF ARTHUR **TOWNSHIP OF WELLINGTON NORTH** **STORM SEWER DESIGN (metric)**

Design Sheet No. 1 of 2

Date: March, 2021

Design: K. J. Behm, P.Eng.

Project Name: Eastridge Landing Subdivision, Phases III, IV, V, Arthur

Location	Drainage Area #	From MH	To MH	Length (m)	C	Increment A	CA	Total CA	Flow Time min. To Section	In Section	Rainfall Intensity mm/hr	Total Q=CIA cms	Slope S %	Diameter D (mm)	Capacity Q cms	Velocity V m/sec.	Fall in Line metres	Manhole Inverts Upper metres	Lower metres	Manhole Invert Drop m
Schmidt Dr.		10	9	47.9	0.00	0.000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.50	300	0.0684	0.9673		466.424	466.184	0.030
Schmidt Dr.	1/1A	9	8	49.17	0.50	0.242	0.1210	0.1210	10.00	0.92	109.68	0.0372	0.50	300	0.0684	0.9673		466.154	465.908	0.030
Schmidt Dr.	2/2A	8	7	33.5	0.50	0.249	0.1245	0.2455	10.92	0.50	105.62	0.0726	0.50	375	0.1240	1.1225		465.878	465.710	0.030
Schmidt Dr.	04-Mar	7	6	98.7	0.50	0.450	0.2250	0.4705	11.42	1.24	103.55	0.1364	0.70	375	0.1467	1.3282		465.680	464.989	0.030
Schmidt Dr.	5	6	5	82.2	0.50	0.316	0.1580	0.6285	12.66	1.03	98.76	0.1738	0.55	450	0.2114	1.3295		464.959	464.507	0.070
Schmidt Dr.	6	5	4	83.7	0.50	0.514	0.2570	0.8855	13.69	0.95	95.13	0.2359	0.55	525	0.3189	1.4733		464.432	463.972	0.050
Schmidt Dr.	7	4	3	31.0	0.50	0.597	0.2985	1.1840	14.64	0.34	92.03	0.3051	0.60	525	0.3331	1.5389		463.922	463.736	0.050
Schmidt Dr.	7A	3	Ex.2	66.1	0.50	0.075	0.0375	1.2215	14.98	0.72	90.97	0.3015	0.60	525	0.3331	1.5389		463.686	463.289	0.490
Schmidt Dr.	8	Ex.2	Ex.1	20.2	0.50	0.196	0.0980													
	19				0.20	0.517	0.1034	1.4229	15.70	0.23	88.81	0.3443	0.70	525	0.3598	1.6622		463.240	463.100	0.320
									15.93											
Walsh Street	26/26A	Ex119	Ex.19	23.5	0.50	0.354	0.1770	0.1770	10.00	0.48	109.68	0.0544	0.98	300	0.0957	1.3543		465.000	464.770	0.010
Walsh Street	12	Ex.19	Ex.20	80.4	0.50	0.063	0.0315	0.2085	10.48	1.29	107.52	0.0628	0.56	300	0.0724	1.0237		464.760	464.310	0.130
Walsh Street	13	Ex.20	Ex211	71.0	0.50	0.730	0.3650	0.5735	11.77	0.91	102.11	0.1640	0.50	450	0.2016	1.2676		464.180	463.820	0.020
Walsh Street	14	ExRYC6	Ex211	45.0	0.50	0.228	0.1140	0.1140	10.00	-	109.68	0.0350	0.51	300	0.0691	0.9770		464.430	464.020	
Walsh Street	15	Ex211	Ex.21	69.7	0.50	0.662	0.3310	1.0185	12.68	0.87	98.69	0.2814	0.59	525	0.3303	1.5260		463.800	463.390	0.040
Walsh Street	16	Ex.21	Ex.22	57.7	0.50	0.652	0.3260	1.3445	13.55	0.63	95.61	0.3599	0.50	600	0.4342	1.5356		463.350	463.060	0.030
Walsh Street	17	Ex.22	Ex.1	19.3	0.50	0.591	0.2955	1.6400	14.18	0.21	93.50	0.4294	0.50	600	0.4342	1.5356		463.030	462.930	0.250
									14.39											
Schmidt Dr		Ex.1	Ex189	39.8																
from 2							1.4229													
From 22							1.6400	3.0629	15.93	0.35	88.14	0.7559	0.50	900	1.2801	2.0122		462.680	462.480	0.010
		Ex189	EX. 3	38.5				3.0629	16.28	0.36	87.14	0.7473	0.42	900	1.2801	2.0122		462.470	462.310	
	19A	EX.3	EX.2	19.6	0.20	1.805	0.3610													
	18				0.50	0.226	0.1130	3.5369	16.64	0.18	86.15	0.8532	0.36	Ex. 900	1.1449	1.7997		462.470	462.310	0.020
Schmidt Dr.		EX. 2	EX. 1	14.6				3.5369	16.82	0.14	85.66	0.8483	0.41	Ex. 900	1.1449	1.7997		462.290		
									16.96											
Schmidt Dr	-	10	11	29.2	-	-	-	-	-	-	-	-	0.50	300	0.0684	0.9673		466.401	466.255	0.080
Schmidt Dr	-	11	12	69.7	-	-	-	-	-	-	-	-	0.50	300	0.0684	0.9673		466.175	465.826	0.020
Schmidt Dr.	20/20A	12	13	20.0	0.50	0.432	0.2160	0.2160	10.00	0.34	109.68	0.0663	0.50	300	0.0684	0.9673		465.806	465.706	0.080
Walsh Street	21	13	14	19.5	0.50	0.170	0.0890	0.3050	10.34	0.29	108.14	0.0924	0.50	375	0.1240	1.1225		465.626	465.528	0.020
	22	14	16	52.5	0.50	0.058	0.0290	0.3340	10.63	0.78	106.86	0.1000	0.50	375	0.1240	1.1225		465.508	465.245	0.075
									11.41											
Walsh Street	10	15	16	53.0	0.50	0.350	0.1750	0.1750	10.00	0.91	109.68	0.0537	0.50	300	0.0684	0.9673		465.570	465.300	0.075
	From 14						0.3340													
	9	16	Ex.17	47.0	0.50	0.288	0.1440	0.6530	11.41	0.62	103.59	0.1894	0.50	450	0.2016	1.2676		465.170	464.935	0.045
	11	Ex.17	Ex.18	12.4	0.50	0.344	0.1720	0.8250	12.03	0.15	101.13	0.2336	1.00	525	0.4301	1.9867		464.890	464.76	0.042
Eastview Dr	-	Ex.18	Ex188	44	-	-	-	0.8250	12.18	0.52	100.56	0.2323	0.49	525	0.3010	1.3907		464.718	464.500	0.060

[illegible]

Q= C.I.A. x 0.0028 (cms)

C=Impervious Coefficient

I =Rainfall Intensity

I=1593

A= Area (hectres)

 $(t+11)^{0.8789}$

(5yr Return Period)

TOWN OF ARTHUR
TOWNSHIP OF WELLINGTON NORTH
STORM SEWER DESIGN (metric)

Design Sheet No. 1 of 2

Date: October, 2019

Design: KJB

Project Name: Eastridge Landing Subdivision, Phases III, IV, V, Arthur

Location	Drainage Area #	From MH	To MH	Length (m)	C	Increment		Total CA	Flow Time min.		Rainfall Intensity mm/hr	Total Q=CIA cms	Slope S %	Diameter D (mm)	Capacity Q cms	Velocity V m/sec.	Fall in Line metres	Manhole Inverts		Manhole Invert Drop m
						A	CA		To Section	In Section								Upper metres	Lower metres	
Schmidt Dr.		10	9	43.9	0.00	0.000	0.0000	0.0000	0.00	0.00	0.00	0.0000	0.50	300	0.0684	0.9673		466.346	466.126	
Schmidt Dr.	1/1A	9	8	53.17	0.50	0.202	0.1010	0.1010	10.00	0.92	109.68	0.0310	0.50	300	0.0684	0.9673	0.020	466.106	465.840	
Schmidt Dr.	2/2A	8	7	33.5	0.50	0.233	0.1165	0.2175	10.92	0.46	105.62	0.0643	0.50	300	0.0684	0.9673	0.020	465.820	465.652	
Schmidt Dr.	3/4.	7	6	98.7	0.50	0.440	0.2200	0.4375	11.38	1.40	103.71	0.1270	0.55	375	0.1300	1.1773	0.075	465.577	465.034	
Schmidt Dr.	5	6	5	82.2	0.50	0.316	0.1580	0.5955	12.78	1.03	98.32	0.1639	0.55	450	0.2114	1.3295	0.075	464.959	464.507	
Schmidt Dr.	6	5	4	83.7	0.50	0.514	0.2570	0.8525	13.81	0.95	94.73	0.2261	0.55	525	0.3189	1.4733	0.075	464.432	463.972	
Schmidt Dr.	7	4	3	31.0	0.50	0.597	0.2985	1.1510	14.76	0.34	91.65	0.2954	0.60	525	0.3331	1.5389	0.050	463.922	463.736	
Schmidt Dr.	7A	3	2	66.1	0.50	0.075	0.0375	1.8850	15.10	0.72	90.60	0.3015	0.60	525	0.3331	1.5389	0.050	463.686	463.289	
Schmidt Dr.	8	2	1	20.2	0.50	0.196	0.0980													
	19				0.20	0.517	0.1034	1.3899	15.82	0.23	88.46	0.3443	0.70	525	0.3598	1.6622	0.020	463.269	463.128	
									16.05											
Walsh Street	26/26A	119	19	23.5	0.50	0.362	0.1810	0.1810	10.00	0.48	109.68	0.0556	0.50	300	0.0684	0.9673		465.045	464.840	
Walsh Street	12	19	20	81.0	0.50	0.063	0.0315	0.2125	10.48	1.29	107.52	0.0640	0.50	300	0.0684	0.9673	0.050	464.780	464.385	
Walsh Street	13	20	211	71.0	0.50	0.730	0.3650	0.5775	11.77	0.91	102.11	0.1651	0.50	450	0.2016	1.2676	0.150	464.235	463.880	
Walsh Street	14	RYCB	211	53.0	0.50	0.228	0.1140	0.1140	10.00	-	109.68	0.0350	1.85	300	0.1315	1.8607		465.000	464.020	
Walsh Street	15	211	21	72.5	0.50	0.662	0.3310	1.0225	12.68	0.87	98.69	0.2825	0.50	525	0.3041	1.4048	0.215	463.805	463.442	
Walsh Street	16	21	22	58.0	0.50	0.652	0.3260	1.3485	13.55	0.63	95.61	0.3610	0.50	600	0.4342	1.5356	0.075	463.367	463.077	
Walsh Street	17	22	1	19.3	0.50	0.591	0.2955	1.6440	14.18	0.21	93.50	0.4304	0.50	600	0.4342	1.5356	0.020	463.057	462.960	
									14.39											
Schmidt Dr		1	189	42.0																
from 2							1.3899													
From 22							1.6440	3.0339	16.05	0.35	87.80	0.7458	0.50	900	1.2801	2.0122		462.710	462.500	
		189	EX. 3	33.6																
	19A	EX.3	EX.2	19.6	0.20	1.805	0.3610													
	18				0.50	0.226	0.1130	3.5079	16.69	0.19	86.01	0.8448	0.36	Ex. 900	1.1449	1.7997	0.020	462.290	462.220	
Schmidt Dr.		EX. 2	EX. 1	14.6				3.5079	16.88	0.14	85.50	0.8398	0.41	Ex. 900	1.1449	1.7997	0.020	462.200		
									17.02											
Schmidt Dr	-	10	11	29.2	-	-	-	-	-	-		-	0.50	300	0.0684	0.9673		466.371	466.255	
Schmidt Dr	-	11	12	69.7	-	-	-	-	-	-		-	0.50	300	0.0684	0.9673	0.080	466.175	465.826	
Schmidt Dr.	20/20A	12	13	20.0	0.50	0.495	0.2475	0.2475	10.00	0.34	109.68	0.0660	0.50	300	0.0684	0.9673	0.020	465.806	465.706	
Walsh Street	21	13	14	19.5	0.50	0.136	0.0680	0.3155	10.34	0.29	108.14	0.0955	0.50	375	0.1240	1.1225		465.700	465.646	
	22	14	16	52.5	0.50	0.083	0.0415	0.3570	10.63	0.78	106.86	0.1068	0.50	375	0.1240	1.1225	0.040	465.626	465.528	
									11.41											
Walsh Street	10	15	16	53.0	0.50	0.219	0.1095	0.1095	10.00	0.91	109.68	0.0336	0.50	300	0.0684	0.9673		465.508	465.245	
	From 14						0.3570													
	9	16	17	47.0	0.50	0.314	0.1570	0.6235	11.41	0.62	103.59	0.1808	0.50	450	0.2016	1.2676	0.075	465.170	464.935	
	11	17	18	12.4	0.50	0.333	0.1665	0.7900	12.03	0.15	101.13	0.2237	0.50	525	0.3041	1.4048	0.075	464.860	464.798	
Eastview Dr	-	18	188	43.6	-	-	-	0.7900	12.18	0.52	100.56	0.2224	0.50	525	0.3041	1.4048	0.080	464.718	464.500	

[illegible]