Lot #10 Conservation Easement 5100 Bristol Road Canandaigua, NY 14424 March 8, 2021, Rev. 03/29/22 Metrose 10-lot Subdivision

A perpetual conservation easement restricting development of the open space land and allowing use only for agriculture, forestry, passive recreation, protection of natural resources or similar conservation purposes, pursuant to § 247 of the general municipal law and/or §§ 49-0301 through 49-0311 of the environmental conservation laws, shall be granted to the town, with the approval of the town board.

The conservation easement shall prohibit residential, industrial or commercial use of open space land (except in connection with agriculture, forestry and passive recreation) and shall not be amendable to permit such use. Local utility distribution lines, stormwater management facilities shall be allowed as indicated on the proposed site plans. Future driveways, trails and agricultural structures may be permitted on preserved open space land with planning board approval provided that they do not impair the conservation value of the land. Forestry shall be conducted in conformity with applicable best management practices as described by the New York State Department of Environmental Conservation's Division of Lands and Forests or Ontario County Soil and Water Conservation District.

The intension is to restrict the building of housing sub-divisions on the land, which includes all permanent buildings including apartments, houses, building and/or condos. This parcel of land shall provide an open space buffer between residential properties. The purpose of this easement is to conserve open space within the town's residential areas. Agricultural uses shall be allowed on this property. Trails and other passive recreation shall be allowed on the conserved land. Small sheds, portable outhouses, temporary buildings such as tents, teepees, Seneca long houses, etc. that normally sit on the surface on cement blocks or pressure treated lumber are allowed as permitted by the Town of Canandaigua.

Mowing of grass and agricultural lands shall be allowed. Mowing should not impact the preservation of mature trees and forest.

Prohibited activities:

- 1. No clear cutting of trees. Landowner may remove dead trees and perform normal forestry management practices involving occasional cutting of live softwoods and brush. Landowner may remove trees growing up under larger trees to help the larger trees. Live older hardwoods are not to be cut down for any reason, especially (but not limited to) oak, maple and hickory. No cutting of large trees neither for sale of their lumber nor for firewood use unless they are already dying or dead. Forestry vehicles may access the land as required.
- 2. <u>No commercial mining</u> or gravel or clay extracting, or of any other minerals, no deep well drilling, for water, or oil, or gas.
- 3. No public use for motorized vehicles, whose tires tend to make ruts and damage the

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The unension is to testracture from boasing sub-divisions up the land, which accides all portranguish buildings paraments, thoses, building an boarders. This parcel of faild show all of a conservation space for botween residential properties. The purpose of the caseron as to conserva open space within the lower steellential areas. Agricultural result be allowed in this property. The beat stretches necessary conservation with the allowed should should be allowed. Small should should should be allowed the conservations from a facility of the lower stretches are conserved back of all should should are all one of the conservations of the conservation of the cons

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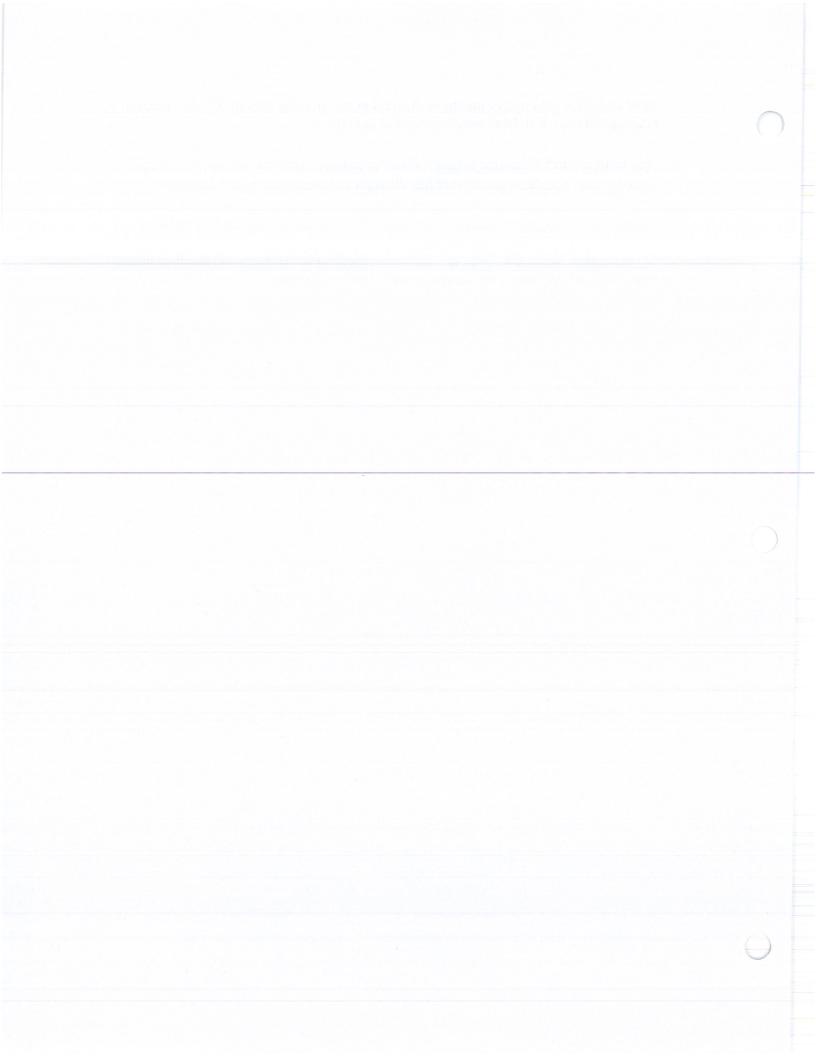
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the compactable quantities where or they extracting according what things are not a decreased as a compact with the second compact of the com

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moss and grass covering of the trails. A small gravel parking area off the dedicated road is acceptable as a trail head may be added in the future.

- 4. <u>Any trails are to be used for hiking</u>, on soil or natural materials. No paving of trails with cement or asphalt. Landowner has the right to restrict who may hike there.
- 5. <u>Benches and rustic seats</u> may be added for meditation and resting to enjoy nature.
- 6. No permanent roads to be built through the property. Foot <u>Bridges</u> and steppingstones may be added, as long as they don't require deep foundations.



MAR 3 1 2022

TOWN OF CANANDAIGU

For

CONNECTION OF BRISTOL RD. AND MAE'S LANDING WATERMAINS, TOWN OF CANANDAIGUA

Introduction:

Metrose Custom Homes have requested to tap into an existing watermain on Bristol Rd. to provide water for a proposed ten lot subdivision at TM# 83.00-1-7.150 and TM# 83.00-1-8.000 located on Bristol Rd. Ten new single family residences are proposed on lots one through ten. A conservation easement is to be placed on most of the lot ten. William Metrose, LTD has authorized Marks Engineering, P.C. (ME) to prepare a map, plan, and report.

This map, plan and report has been prepared in accordance with Article 12 Section 12 of the New York State Consolidated Laws and provides the information required by the Town Law to facilitate the tapping of Bristol Rd. - Mae's Landing to the Canandaigua Consolidated Water District.

Marks Engineering, P.C. has been retained by William Metrose, LTD to provide an engineer's report for a water distribution extension tapping into the existing watermain on Bristol Rd. As such, the following analysis was conducted in accordance with the New York State Health Department and Recommend Standards for Water Works 2012 Edition (Ten States Standards).

Existing Conditions:

Currently, an 8" watermain runs along the northern side of Bristol Rd. inside and adjacent to the southeastern boundary of 5100 Bristol Rd. (TM# 83.00-1-7.150). This watermain is supplied by the West Street pump station that pumps water purchased from the City of Canandaigua to the Cramer Road tank where water is then gravity fed to Bristol Rd. The City of Canandaigua drafts water form Canandaigua Lake at the treatment works on County Road 16. The city supplies water to approximately 40,000 residences. The City of Canandaigua Water Treatment Plant has the capacity to produce 9 MGD of treated water. The plant is currently producing an average of 4.25 MGD with a peak flow of 6.7MGD. The water treatment plant is operating at approximately 50% capacity.

A flow test was conducted at the existing hydrant located west of the Hammocks and just east of TM# 83.00-1-7.150. This data was collected by the Town of Canandaigua Water Department. The following is a summary of the observed and calculated flows (see attached for MRB Hydrant flow curve):

Flow Hydrant – Bristol Road (west of the Hammocks)
Elevation = 839.0 ft
Static Pressure =167 PSI
Calculated Flow at 20psi = 2,925 GPM

Proposed Conditions:

The proposed watermain extension will serve public water and fire protection needs to ten residences by the addition of 690 feet of new 8" PVC watermain with one new fire hydrant. The new extension will have ten new domestic taps. Please see attached Site Plans.

We have assumed 300 gallons per Equivalent Dwelling Unit (EDU). The new extension will have an average demand of 3,000 GPD (10 EDU's). Therefore, the increase in daily average water demands will be less than 0.1% of the water treatment plant capacity. The maximum demand for the combined new residences would be 0.0126 MGD. This maximum demand would result in a 0.297% increase in the

Submitted: 03/31/22

water demand. The City of Canandaigua Water Treatment Plant has ample capacity to meet these demands.

Analysis:

The two areas of concern when analyzing a hydraulic system such as this are domestic and fire protection water pressures and volume. Typically, systems are modeled under two different scenarios: normal conditions and fire flows. In this case calculations were only performed for the more extreme of the two scenarios: fire flow.

The proposed extension calculations were done by hand using Appendix A: Friction Losses for Water Flow Through Pipes (see attached) as a reference for fitting and friction coefficients. The calculations apply the principles of conservation of mass and energy and the principles of hydraulics and fluid dynamics to determine results. Hydrant flow data provided by MRB (see attached) as well as proposed demands were used to determine pressures at the watermain under fire flow. The calculations pertain to the 690 feet of new 8" PVC watermain to be extended from an existing watermain on Bristol Road. When calculating water pressures, pipe length, material, size, and elevation, among other things, were considered.

DOMESTIC WATER SUPPLY:

Per the Town of Canandaigua and the NYSDOH Development criteria, any new watermain design must supply adequate domestic water usage while maintaining acceptable system pressures. The criteria are 15gpm of water shall be available to each home at a minimum of 35psi of pressure. Therefore, calculations were performed by placing a demand of 15gpm at each home as well as a 1,000 gpm flow from proposed hydrant (1) located just past 6+96.33 (end of the cul-de-sac) to determine static and residual pressures under fire flow conditions. Pressure reducing valves are proposed at each residence.

Normal condition calculations were excluded because it is evident that there will be a minimum of 35psi available even under fire flow conditions and therefore more than adequate domestic water supply is available.

FIRE PROTECTION WATER SUPPLY:

Per the Town of Canandaigua and the NYSDOH Development criteria, any new watermain design must supply adequate fire protection while maintaining acceptable system pressures. The recommendations set forth by the International Standards Organization (ISO) have historically been an acceptable method for determining adequate watermain pressures for fire protection.

For residential areas with one or two-family dwellings, ISO determines the needed fire flows by considering the distance between buildings and recommends these flows be provided at a minimum pressure of 20psi.

Table 1: Required Fire Flows

Distance Between Buildings	Needed Fire Flow			
10' or less	1,500 gpm			
11' to 30'	1,000 gpm			
31' to 100'	750 gpm			
More than 100'	500 gpm			

Submitted: 03/31/22

Based on the distance between the proposed buildings within the development, we are assuming that a minimum of 1,000 gpm at a pressure of 20 psi will be required. After completing calculations under these parameters, the following fire flow capacity was determined:

Proposed hydrant (1) located just past 6+96.33 (end of the cul-de-sac) at an elevation of 848.5 feet will have an available fire flow of 2,925 gpm with a residual pressure of 20 psi. This determination indicates that sufficient water flow and pressure exists. This calculation was conducted while maintaining a minimum of 15 gpm of water demands at each proposed lot.

Water Quality:

The proposed 8" PVC extension of 690 feet supports ten dwellings. Marks Engineering sees the addition of a new watermain as an improvement because the extension will have sufficient supply to meet anticipated demands and fire flows.

Conclusion:

The calculations and analysis above provide supporting detail that the existing water supply will have the appropriate water volume and pressure needs for the imposed demands while still providing adequate service to the remainder of the water district.

Report prepared by:

Brennan Marks, P.E.

President

Marks Engineering, P.C.

bmarks@marksengineering.com



Attachments:

- Location Map
- Proposed Site Plans
- NYSDOH 348 Application for public water supply improvement
- MRB Hydro CAD results for Hydrant Curve for Junction HYD-201F
- Headloss Calculations
- Appendix A: Friction Losses for Water Flow Through Pipes (Wiley)
- Proposed Description of a Conservation Easement to the Town of Canandaigua
- Sanitary Sewer District Extension Plan (Map)

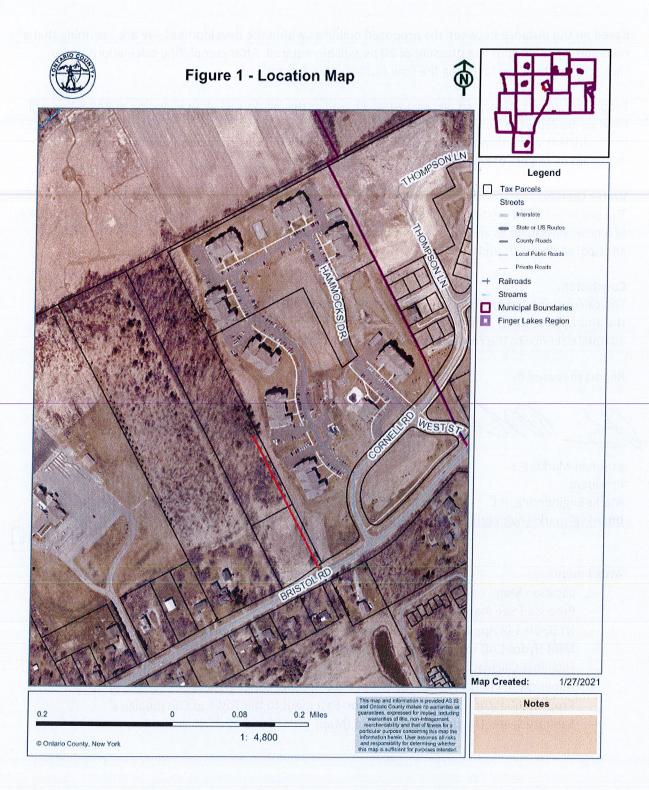


Figure 2: MRB Hydrant Curve from Hydro CAD Model



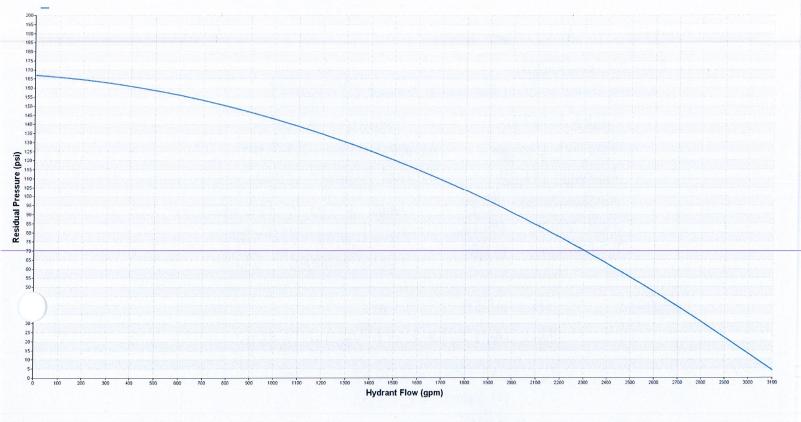
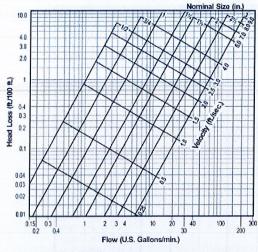


Figure 3: Headloss Calculations

Marks Engineering	JOB 19-094 SHEET / OF / BY JPS DATE 1/27/21
	BY JPS DATE 1/27/21
Metrose 11 Lot Sub Water Service	
Fire Flow Colculations:	
Existing Hydrant on Bristol Road (west o	f Hommand HYD-201F
Stat? C - 167 ps?	Elewtron - 839.0 ft
Flow Fost-1000 gpm A	Vollable FireFlow - 2,925 gpm
Residual- 143 PSi A	lesidual Pressure - 20 psi
Residential demand - 165 gpm Total demand - 1,165 gpm Total Residual - 137 ps;	Length of new 8" PVC main From hydrant "HYD - 201F" (West of Hammocks) = 690'
Headless: Hz = (+) 9.5 A =	4.1 pse
Hp = 690' (1/00') x	2.24 (PSi/bo') = 15.46 ps?
Hf = (2) 8" Tee:	= 2.20 psi
(2) Valves = 2.83 ps;	0.63 ps
H _T = 22.39 psi	
New Hydront Residual Pressure (1,165 gpm
EX Hydrant - Headlass	= Residual Presiure
137 ps - 22.34 ps	= 114.61 ps
A second	er en

Appendix A: Friction Losses for Water Flow Through Pipe





FITTINGS 90° Elbow 45° Elbow Tee Branch Size (in.) Tee Run 8.0 1.0 3.8 1.5 1/2 1.4 4.9 2.0 1.1 3/4 1.7 6.0 2.5 1.4 3.8 1.8 11/4 2,3 7.3 4,0 2,1 1 1/2 2,7 8,4 4.0 12.0 5.7 2.6 2 2 1/2 4.9 14.7 6.9 3.1 7.9 4.0 3 6.1 16.4 11.4 5.1 4 7.9 22.0 16,7 8.0 6 12,3 32,7 21,0 10,6 14,0 49.0 8 10 17.5 57.0 26.0 13.5 15.5 12 20.0 67.0 32.0

78.0

88.0

107.0

118.0

137.0

37.0

43.0

53.0

58.0

67.0

18.0

20.0

23.0

25.0

30.0

Table A.3 Friction Loss Through Fittings in Equivalent Footage

of Pipe. Data Courtesy IPEX Inc.

25.0

27.0

32.0

35.0

42.0

14

16

18

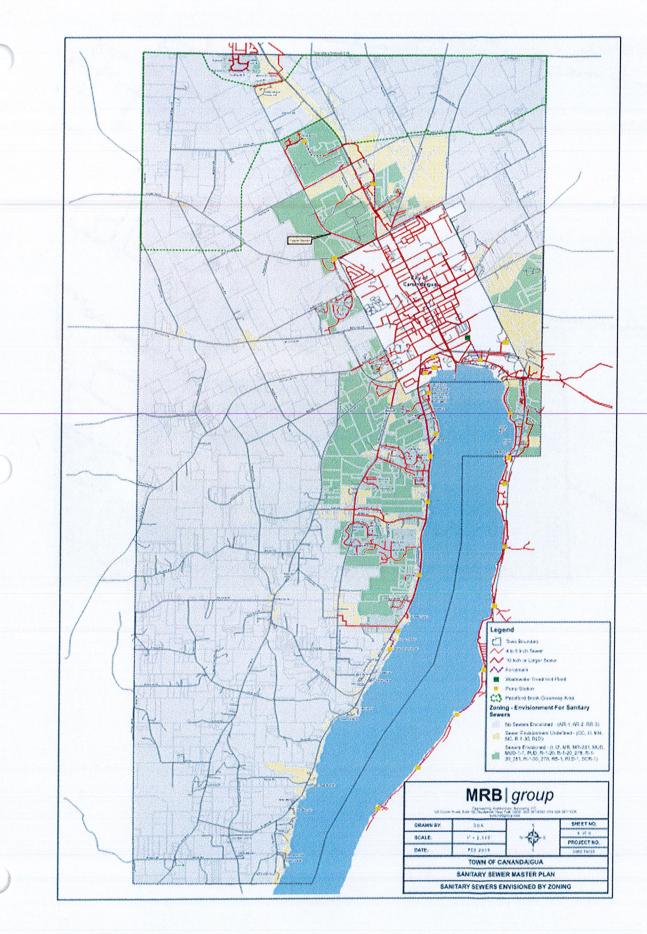
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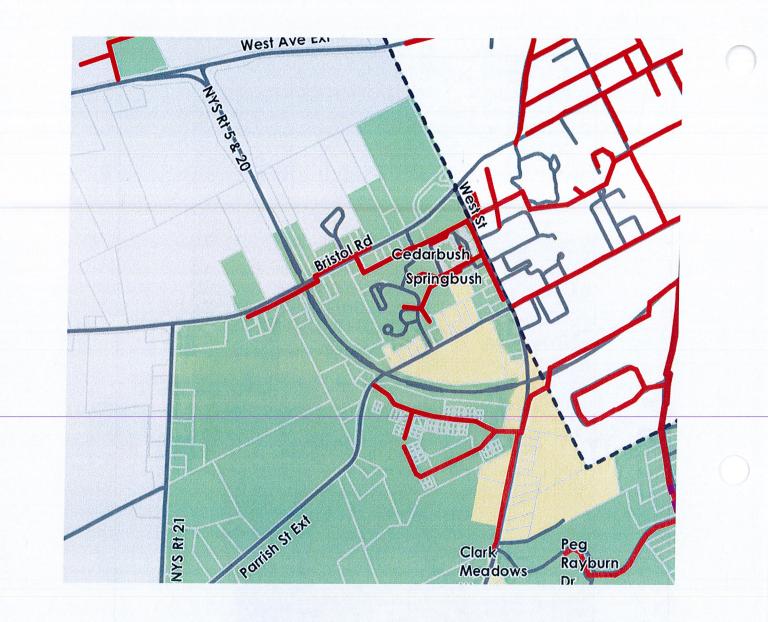
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Figure A.1 Graphical depiction of friction loss through PVC pipe. Data courtesy IPEX Inc.

Table A.2 Friction Loss Data for PVC Pipe. Data courtesy IPEX Inc.

МdS	cu ft / sec	Velocity (ft/s)	Friction Head Loss (ft water / 100 ft)	Friction Pressure (psi / 100 ft)	Velocity (ft/s)	Friction Head Loss (ft water / 100 ft)	Friction Pressure (psi / 100 ft)	Velocity (ft/s)	Friction Head Loss (ft water / 100 ft)	Friction Pressure (psi / 100 ft)	Velocity (ft/s)	Friction Head Loss (ft water / 100 ft)	Friction Pressure
			1/2"										
	1 0.00	220			A STATE OF THE PARTY OF THE PAR	1,00	0,44	-	15			1 1/4"	
19335/02/90	5 0,01	See and the second	1	9,90		5.60			*	0,73	1.10	0,43	0.1
32200	7 0,01	83	42,66	18.47	THE PARTY OF	10.44			C. C. C. C. C. C.		1.55	0.81	0.3
	0 0.02	THE STATE OF THE S			6.32	20.21	8.75				2.21	1.57	0.6
50 90 1 A 10 P	5 0,03	520			7.59 9.48	28,33 42,82	12,26		Charles and the second	1 1 1 1 1 1 1 1 1 1	3.31	2,20 3,32	1.44
2	SECTION OF THE PERSONS							7.72	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9.51	4.42	5.65	2.45
2		200						9,65		14,37	5,52	8,55	3,70
3	SE HOLDER	88 M. C.						11.58	46,54	20,15	6,63	11,98	5.19
4		COLUMN TOWNS	4°								7.73 8.84	15.94	6.90 8,84
4		Marie Control	0,13	0.06						Tue side	9,94	25,39	10,99
50	STATE OF STATE		0.16	0.07							11,05	30.86	13.36
50		20 11 11 11 11 11 11 11 11 11 11 11 11 11	0.19	0.08									
65		22	0.26	0,11		5"							
70	2010 120/2007/00/00	200 100 100 100 100	0.30	0.13	1.14	0.10	0.04						
75			0,34	0.15	1,22	0.55	0.05						
90	Electric applications of the second	2,30	0,39	0.21	1,30	0.13	0.06	100000	6"				
100	SALES OF THE PARTY.	2.56	0.59	0,25	1.62	0.19	0.03	1.12	0.08	0,03	176		
125	6 B 8 (CE 2005) E	3,20	0,89	0,38	2,03	0,29	0,13	1,40	0,12	0,05			
150 175	THE SEARCH STATE OF	3,84	1,24	0.54	2,44	0.41	0.18	1,69	0.17	0.07	S12/8/9 (MISS N	8*	Malioza
200	1.00	5.11	2.12	0.92	2.84 3.25	0.55	0.24	1,97	0.22	0.10 0.12	1,30	0.08	0.03
250	THE CHARGE STREET	6,39	3,20	1,39	4,06	1,06	0,46	2.81	0,43	0,19	1,62	0,11	0,05
300	0.668	7,67	4.49	1.94	4.87	1.49	0.64	3,37	0.61	0.26	1.94	0.16	0.07
350 400	0,780	8.95 10,23	5.97 7.64	2.58	5.69 6.50	1.98 2.54	1,10	3.93 4,49	0.81	0.35 0.45	2.27	0.21	0.09
450	1,003	10,25	.,	3,37	7.31	3,15	1,36	5.06	1,03	0.45	2,59	0,27	0.12
500	1,114				8.12	3,83	1,66	5,62	1.56	0.68	3.24	0,41	0.18
600	1,337				9.76	5.37	2.33	6.74	2.19	0.95	3.89	0.57	0.25
700 800	1,560		18"		11,37	7,15	3,09	7,87 8,99	3,73	1,26	4.54 5.18	0,76	0.33
900	2,005	1,30	0.03	0,01				10.11	4.64	2.01	5.83	1,22	0.53
1000	2,228	1,45	0,04	0.02							6,48	1,48	0,64
1250	2,785 3,342	1,81 2,17	0.06	0.03	1.75	20"	0.00	3.000		i in a second	8,10	2,24	0.97
2000	4,456	2.89	0.14	0.08	2.33	0.05	0.02		24"		9.72	3.14	1.36
2500	5,570	3,62	0,21	0,09	2,91	0,12	0,05	2,01	0,05	0.02			
3000	6,684	4,34	0.29	0.13	3,49	0.17	0.08	2.41	0.07	0.03			
3500 4000	7.798 8,912	5,06 5,79	0.39	0.17	4.65	0.23	0,10	2.81	0.09	0.04			
4500	10,026	6.51	0.52	0.27	5,24	0.37	0.16	3.62	0.15	0,05			
5000	11,140	7,23	0.76	0.33	5.82	0.45	0.19	4,02	0.18	0.08			
5500	12.254	7.96	0.91	0.39	6.40	0.53	0.23	4.42	0.22	0.09			
6000 6500	13,368	8,68 9,40	1,08	0.46	6.98 7.56	0.63	0,27	4,83 5,23	0.25	0.11			
7000	15.596	10.13	1.42	0.61	8-14	0.83	0.36	5.63	0.34	0.15			
7500	16,710				8,73	0,95	0,41	6,03	0,39	0,17			
8000 8500	17,824				9,31	1.07	0,46	6,43	0.43	0,19			
9000	18.938 20.052				9.89	1.19	0.52	7.24	0.49	0.21			
9500	21,166							7.64	0,60	0.26			
0000	22,280							8.04	0.66	0.28			





Proposed Description of a Conservation Easement to Town of Canandaigua 5150 & 5100

Bristol Road, Canandaigua, New York

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Canandaigua, Ontario County, State of New York, and being more particularly described as follows: Beginning at a point on the northerly road line of Bristol Road, said point being the southwest corner of lands of Riedman-Wegman Canandaigua, LLC by deed, Liber 1263, Page 571, thence;

- 1. S56°16'51"W a distance of 55.53 feet to a point on the said northerly road line, thence;
- 2. N27°00'06"W a distance of 25.99 feet to a point, thence;
- 3. Along a curve to the right with a radius of 70.00 feet and an arc length of 31.61 feet to a point, thence;
- 4. N00°27'30"W a distance of 43.15 feet to a point, thence;
- 5. Along a curve to the left with a radius of 180.00 feet and an arc length of 71.36 feet to a point, thence;
- 6. N26°57'35"W a distance of 496.79 feet to a point, thence;
- 7. Along a curve to the left with a radius of 75.00 feet and an arc length of 69.68 feet to a point, thence;
- 8. N27°00'00"W a distance of 367.77 feet to a point, thence;
- 9. S63°00'00"W a distance of 160.00 feet to a point, thence;
- 10. N27°00'00"W a distance of 411.61 feet to a point, thence;
- 11. N62°42'20"E a distance of 1704.71 feet to a point, thence;
- 12. S27°00'00"E a distance of 15.00 feet to a point, thence;
- 13. S62°42'20"W a distance of 1504.71 feet to a point, thence;
- 14. S27°00'00"E a distance of 1479.35 feet to the point of beginning. All as shown on a Ten Lot Residential Conservation Subdivision of William Metrose, LTD, by Marks Engineering, job number 19-094, March 31, 2022.

