

APPENDIX C – Fluvial Geomorphology

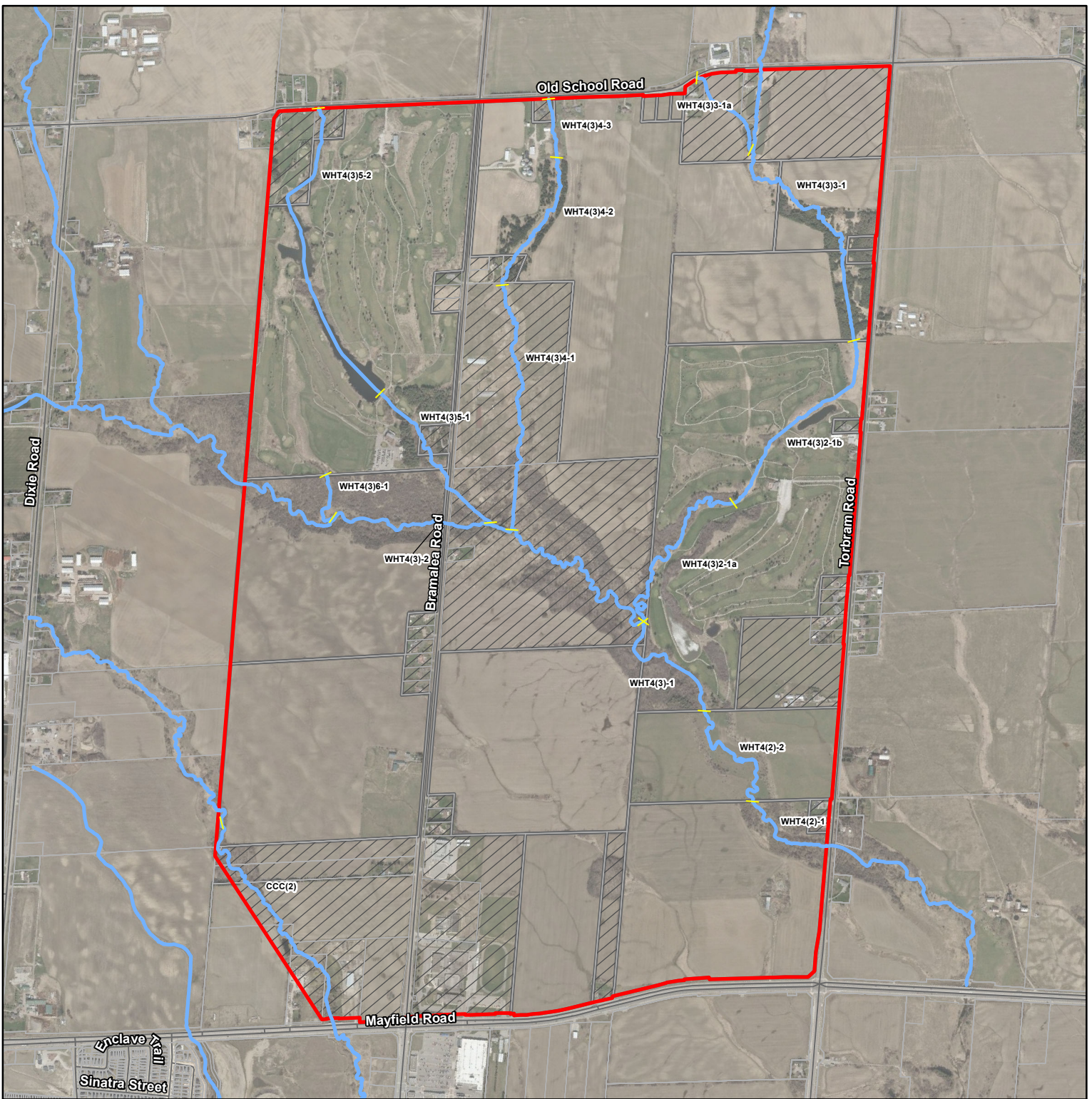
Appendix C1 – Figures

Appendix C2 – Historical Record

Appendix C3 – Photo Record

Appendix C4 – Tables

Appendix C1 – Figures



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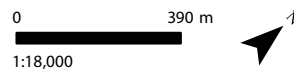
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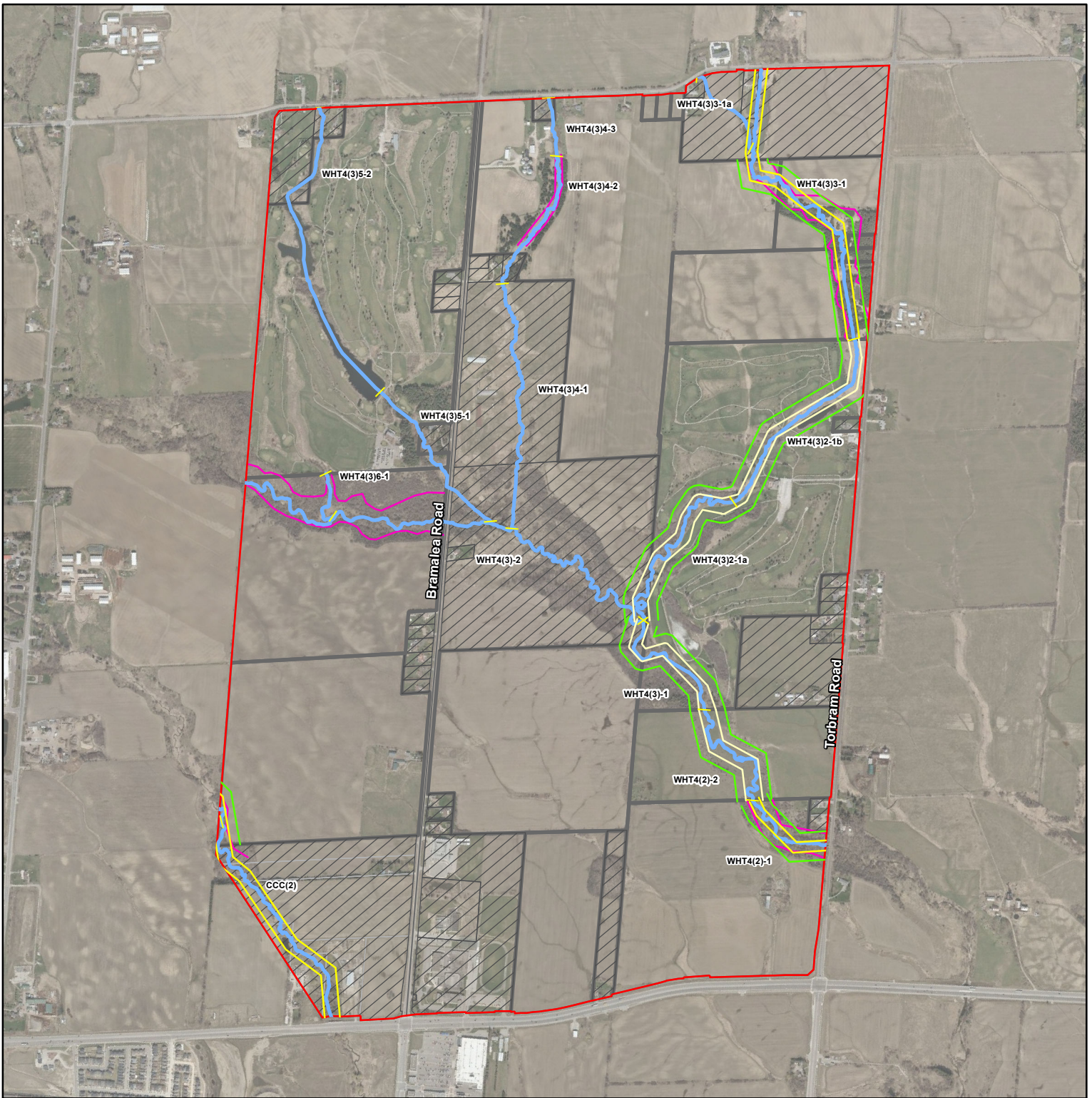
- Study Area
- Non-Participating Property
- Participating Property
- Watercourse (GEI, TRCA 2024)
- ⚡ Reach Breaks

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 Phase 1 - Subwatershed Characterization and Integration Report
 Fluvial Geomorphologic Assessment

Figure 1
 Watercourse Reach Delineation

Reach naming convention, HDF adopted from SABE





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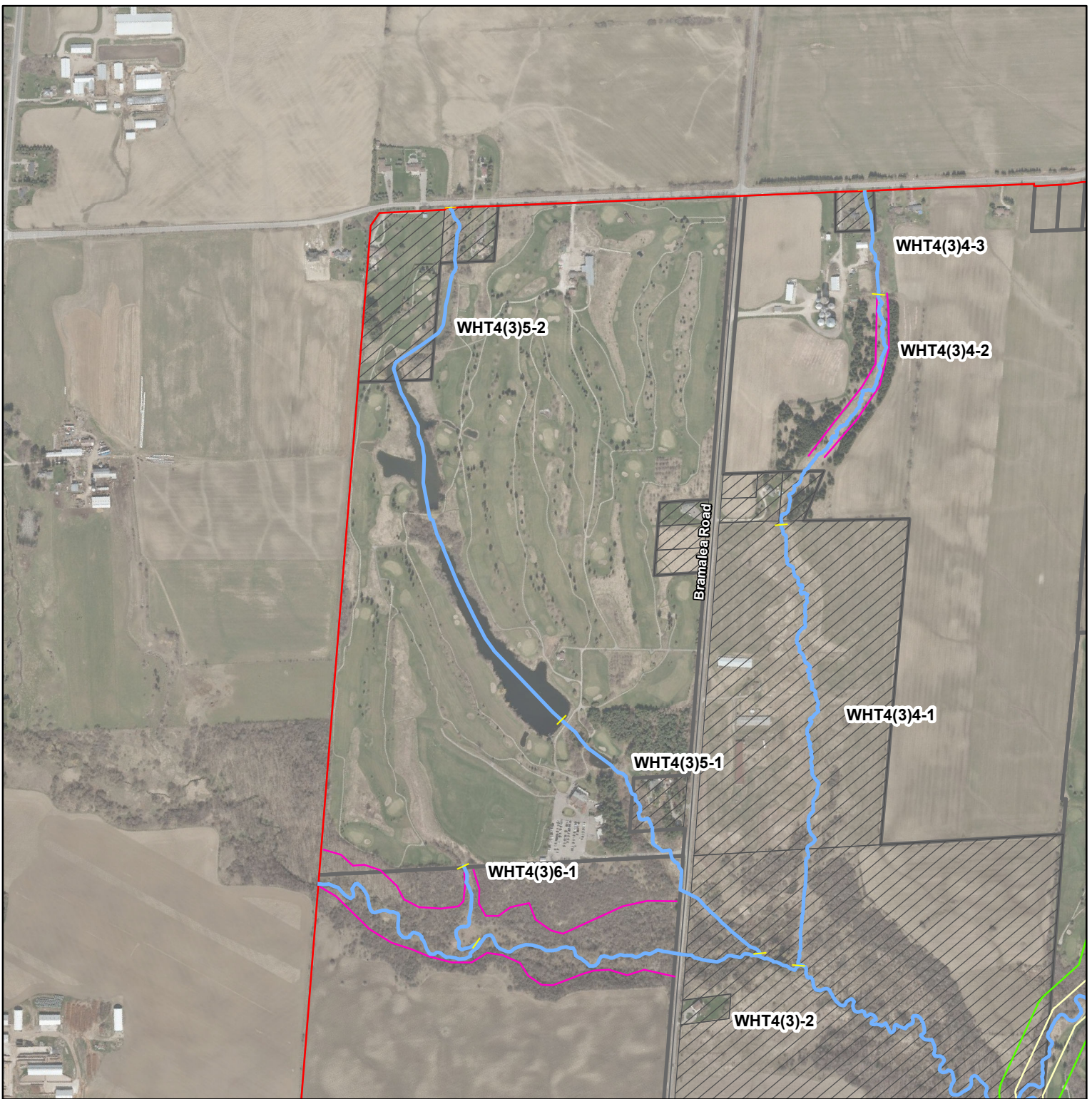
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- Meander Belt (GEI 2024)
- Meander Belt (Beacon 2024)
- Redside Dace Habitat (Preliminary Belt + 30m)

Reach naming convention, HDF adopted from SABE

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Figure 2
 Erosion Hazard Delineation





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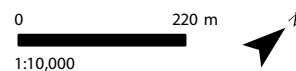
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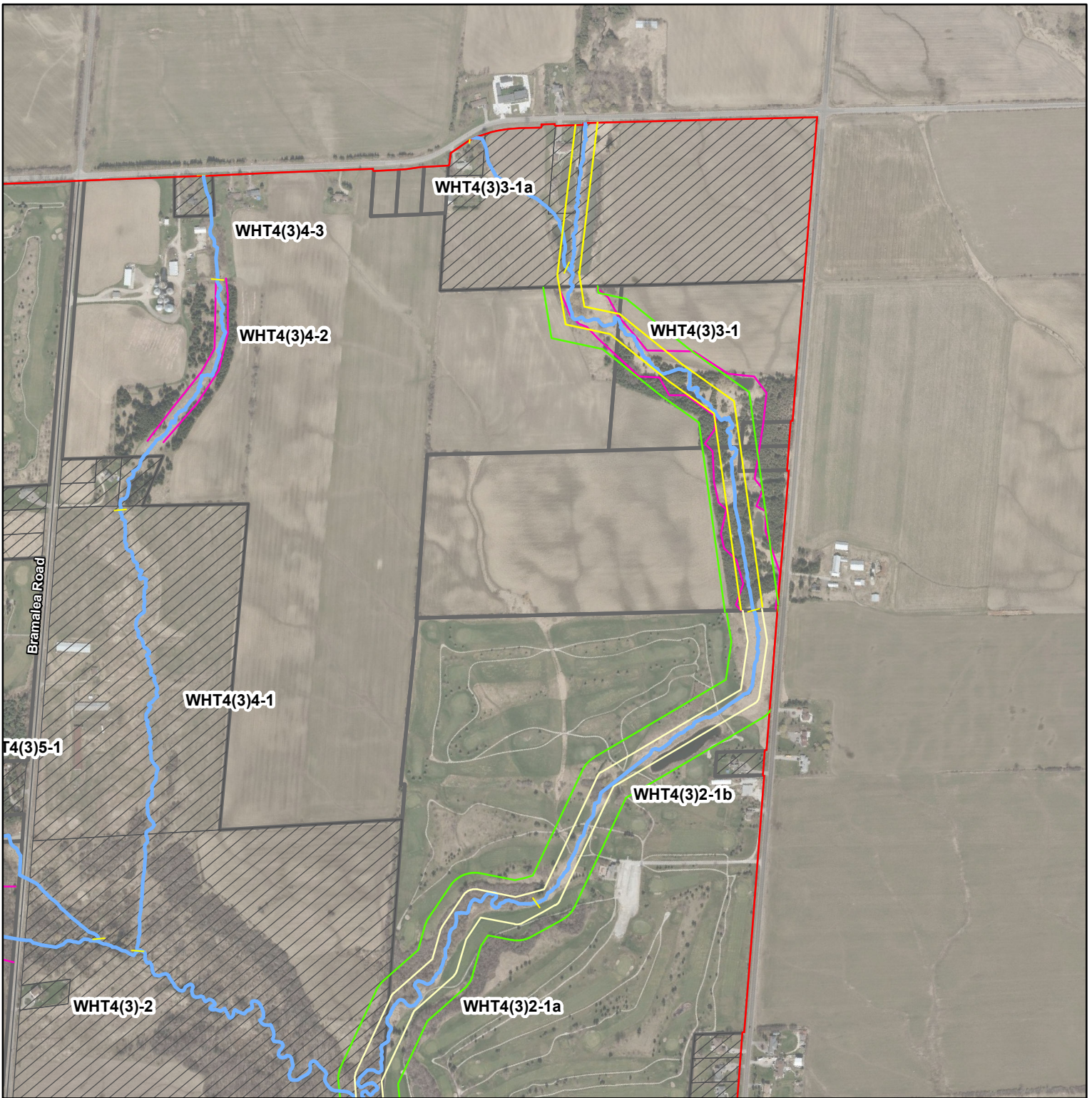
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Figure 2
 Erosion Hazard Delineation





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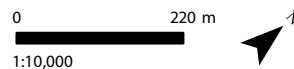
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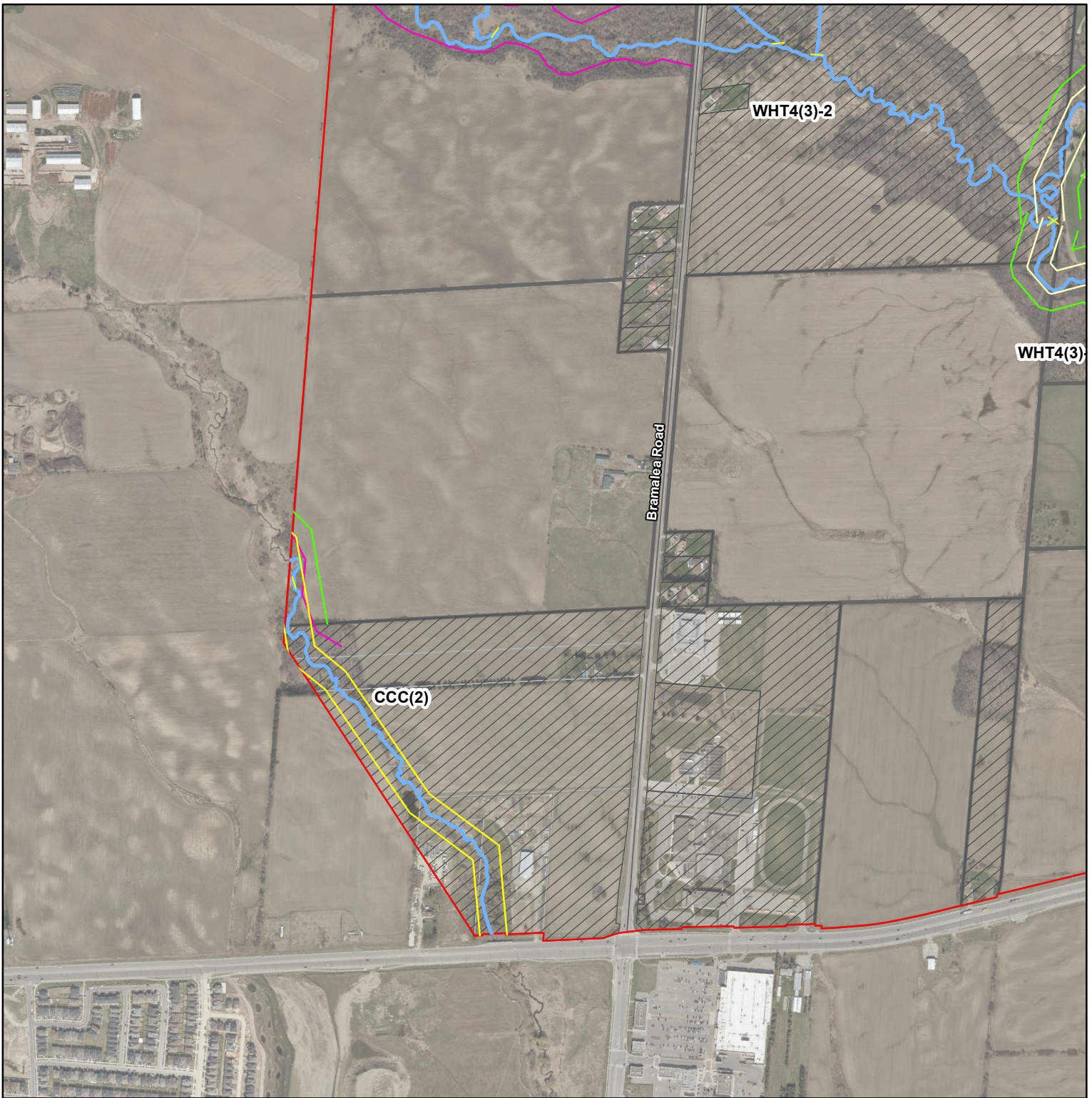
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Figure 2
 Erosion Hazard Delineation



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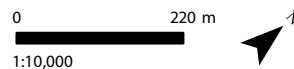
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Figure 2
 Erosion Hazard Delineation





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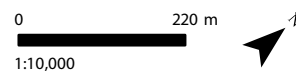
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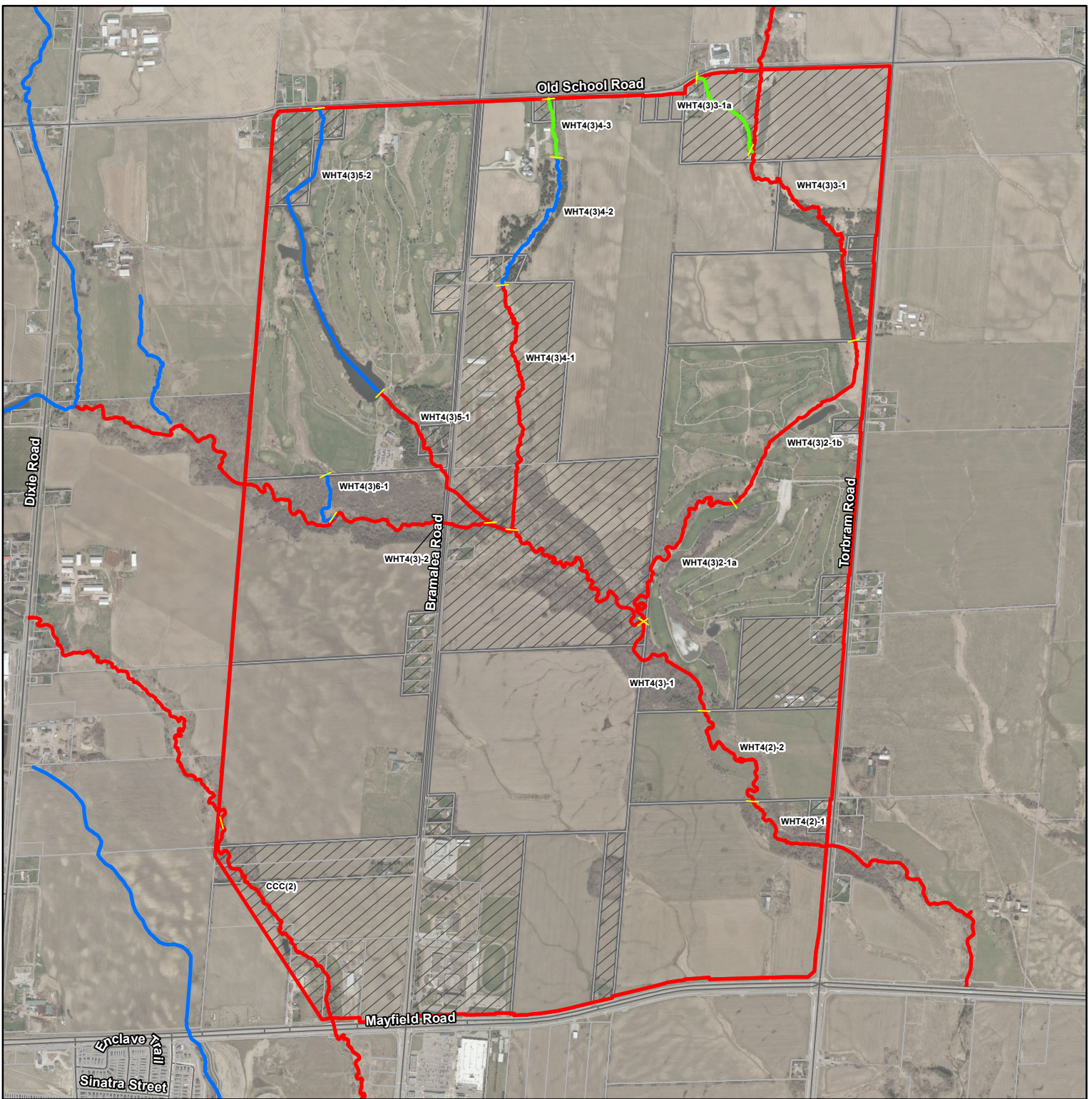
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Figure 2
 Erosion Hazard Delineation





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Legend

- Study Area
- Non-Participating Property
- Participating Property

Stream Constraints (GEI, TRCA 2024)

- High
- Medium
- Low
- Reach Breaks

Reach naming convention, HDF adopted from SABE

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 Phase 1 - Subwatershed Characterization and Integration Report
 Fluvial Geomorphologic Assessment

Figure 3
 Watercourse Constraint
 Rankings




Appendix C2 – Historical Record



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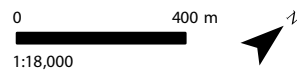
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Historical Imagery.

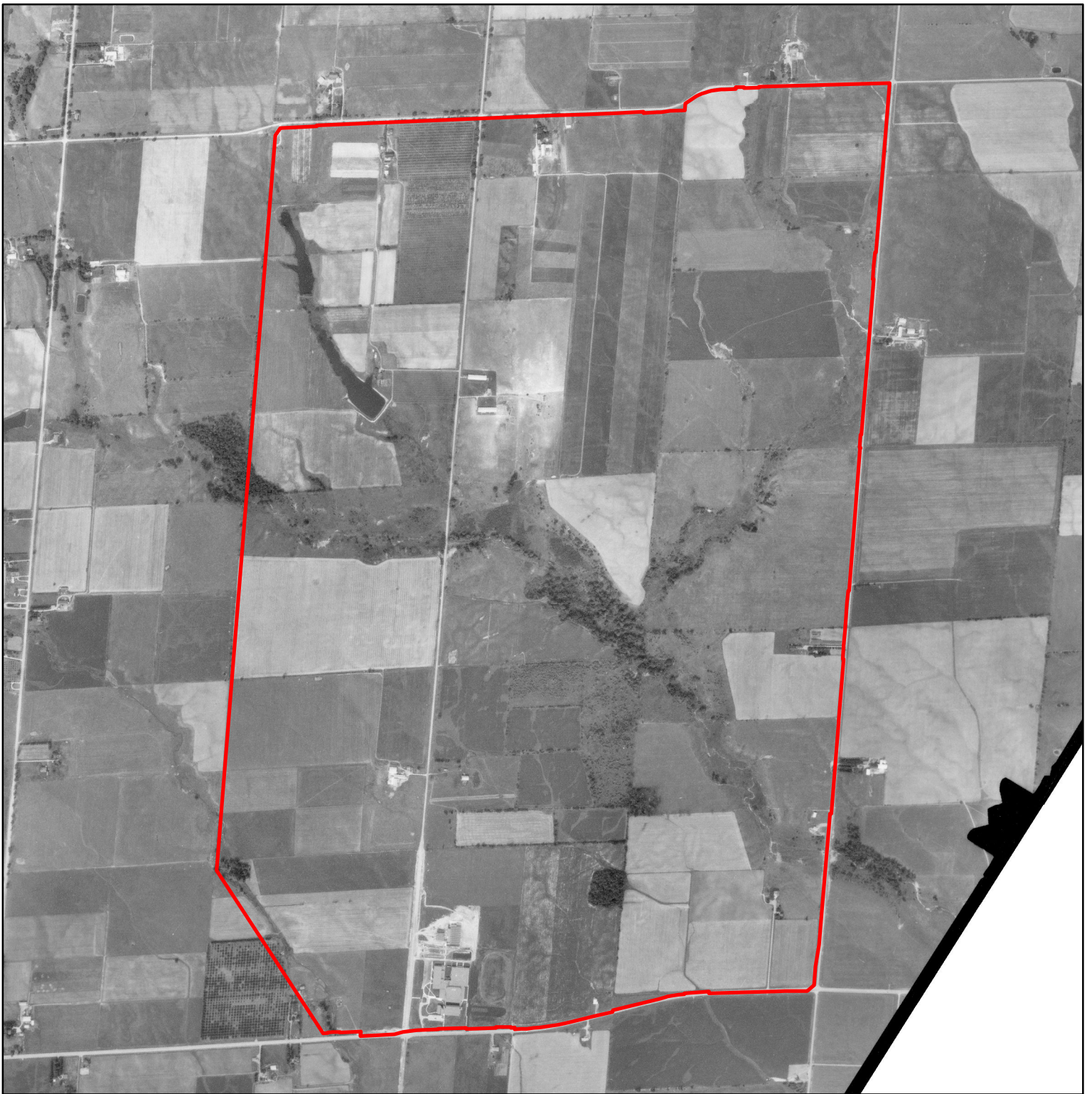
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 Study Area

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1954 AERIAL PHOTOGRAPH






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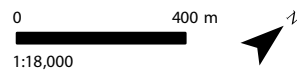
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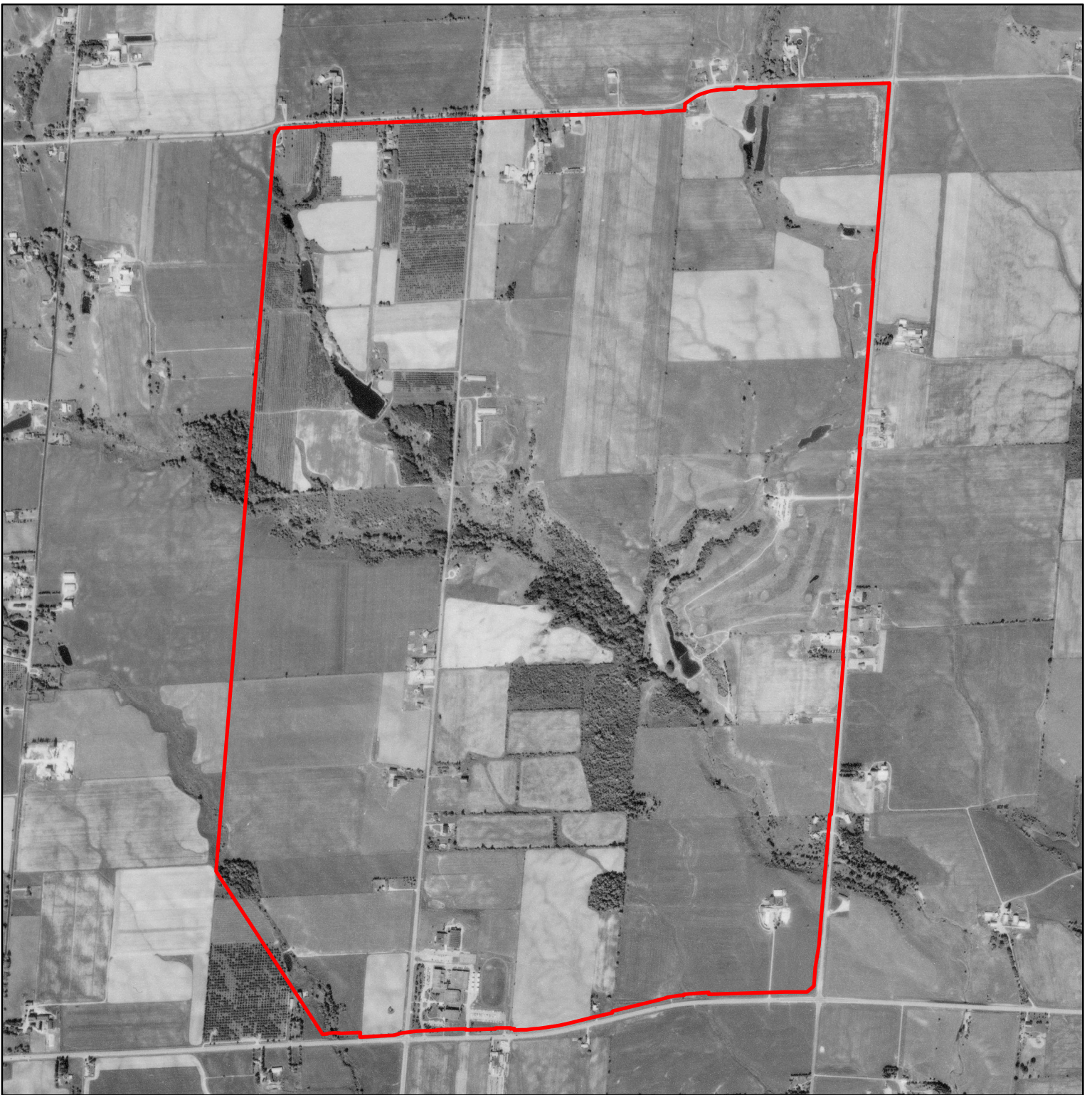
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1970 AERIAL PHOTOGRAPH






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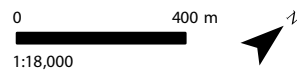
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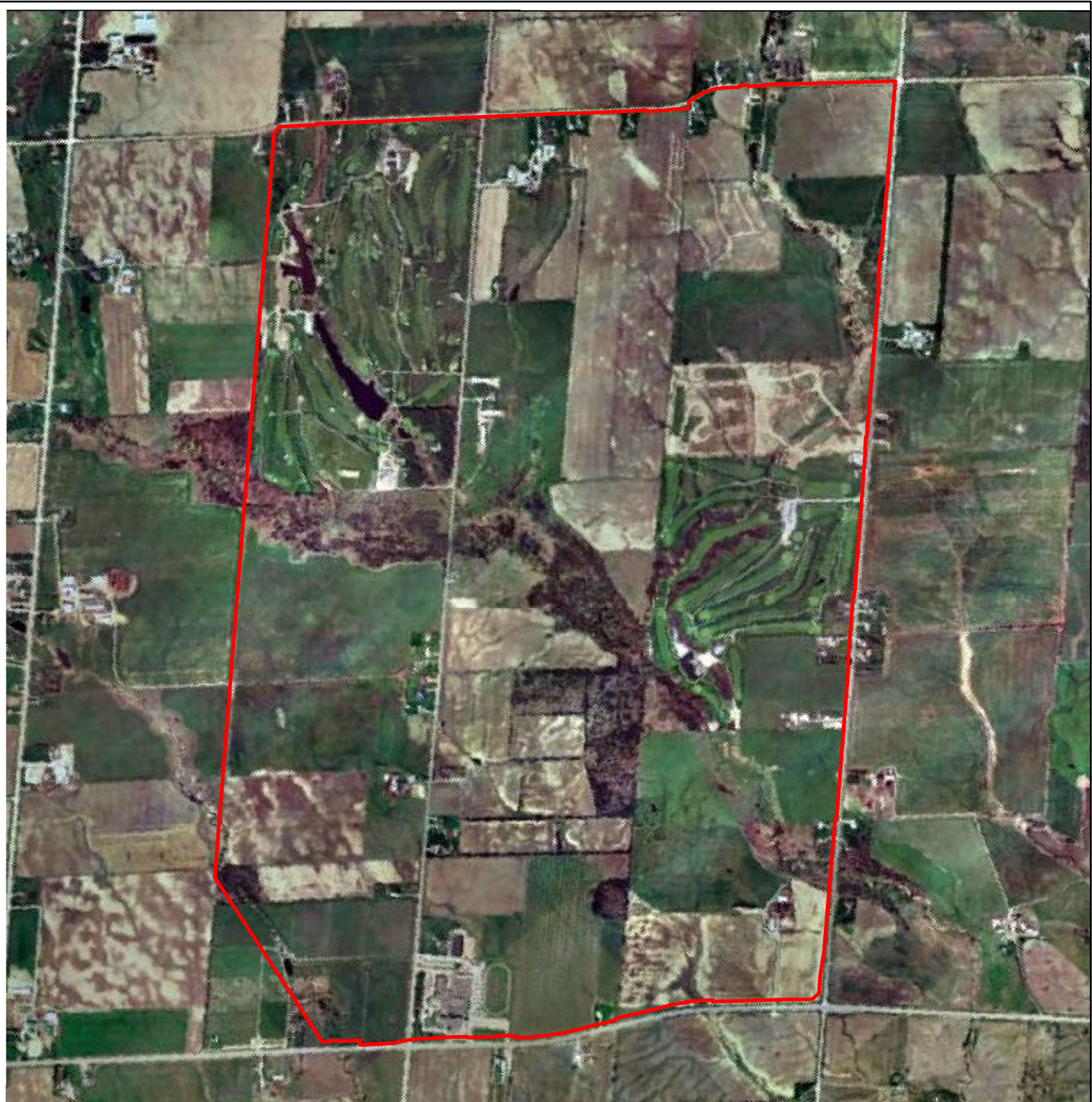
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1988 AERIAL PHOTOGRAPH






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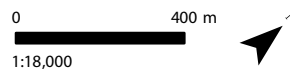
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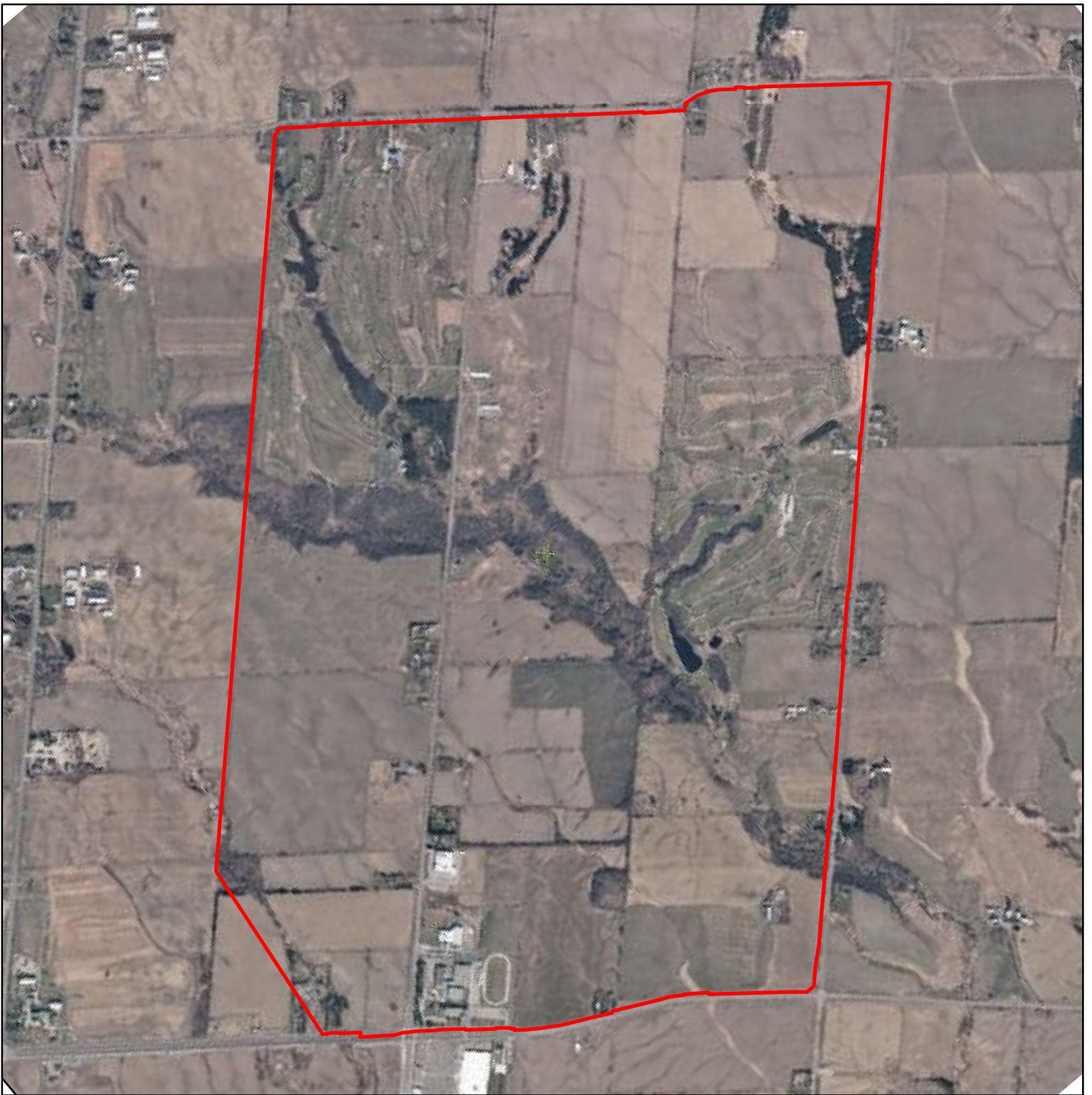
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2002 AERIAL PHOTOGRAPH






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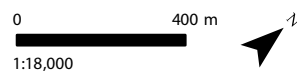
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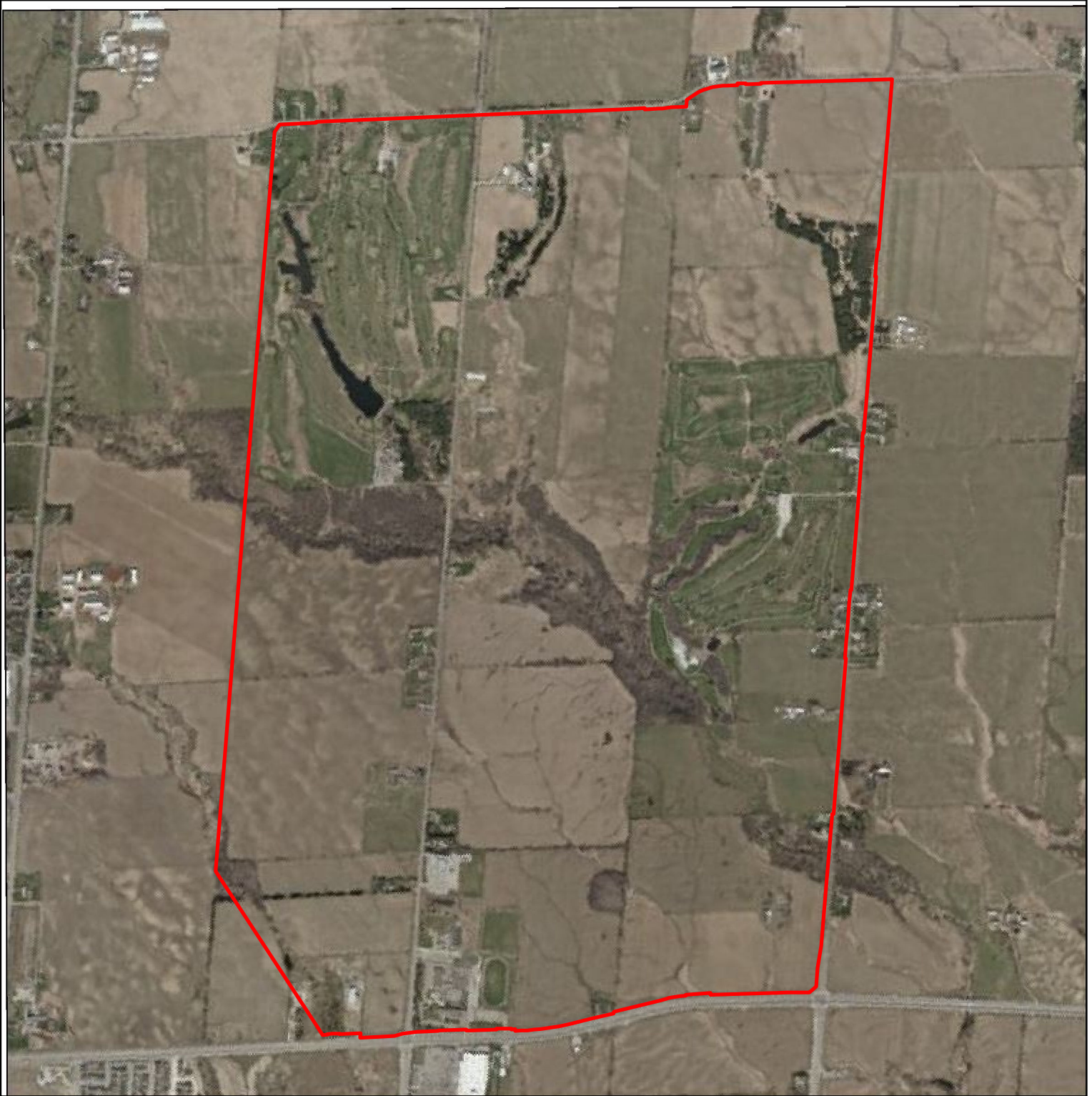
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2015 AERIAL PHOTOGRAPH






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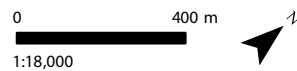
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Legend

 Study Area

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Phase 1 - Subwatershed Characterization and Integration Report
Fluvial Geomorphologic Assessment

2022 AERIAL PHOTOGRAPH



Appendix C3 – Photo Record

Photographic Record



Photo 1 – View of Reach CCC(2) from the top of the valley slope, within the study area.



Photo 2 – Several small drainage features convey flow from surrounding agricultural fields into Reach CCC(2).



Photo 3 – Scour pool at downstream extent of pipe, in Reach WHT4(3)6-1.



Photo 4 – Downstream view of Reach WHT4(3)6-1 from scour pool, shown in Photo 3.

APPENDIX C3

Fluvial Geomorphic Assessment

Phase 1 – Subwatershed Characterization and Integration Report

Mayfield Tullamore Landowner Group

March 26th – March 28th

PHOTOGRAPHIC RECORD





Photo 5 – Anastomosing portion of Reach WHT4(3)-2, upstream view.



Photo 6 – Valley toe impact in Reach WHT4(3)-2, downstream view.



Photo 7 – Series of ponds in Reach WHT4(3)5-2.



Photo 8 – Upstream view of diffuse wetland in Reach WHT4(3)5-1, downstream of Reach WHT4(3)5-2 pond outlet.

APPENDIX C3

Fluvial Geomorphic Assessment

Phase 1 – Subwatershed Characterization and Integration Report

Mayfield Tullamore Landowner Group

March 26th – March 28th

PHOTOGRAPHIC RECORD





Photo 9 – Upstream extent of uncovered portion of Reach WHT4(3)4-2, downstream of piped portion.



Photo 10 – Downstream view of Reach WHT4(3)4-2. Intermittently defined watercourse heavily vegetated with grass.



Photo 11 – Upstream extent of Reach WHT4(3)3-1, existing as a very sinuous watercourse flowing through grassy meadows.



Photo 12 – Upstream portion of Reach WHT4(3)3-1 flows through a confined valley. Several hairpin meander bends were observed.

APPENDIX C3

Fluvial Geomorphic Assessment

Phase 1 – Subwatershed Characterization and Integration Report

Mayfield Tullamore Landowner Group

March 26th – March 28th

PHOTOGRAPHIC RECORD





Photo 13 – Downstream portion of Reach WHT4(3)3-1, downstream of culvert. Watercourse displays severe degradation / widening.



Photo 14 – Downstream extent of Reach WHT4(3)3-1. Downstream half of reach flows through a cedar forest.



Photo 15 – Reach WHT4(3)2-1 traverses Mayfield Golf Course. Significant basal scour was observed throughout.



Photo 16 – Reach WHT4(3)2-1 flows under several crossings connecting golf cart pathways.

APPENDIX C3

Fluvial Geomorphic Assessment

Phase 1 – Subwatershed Characterization and Integration Report

Mayfield Tullamore Landowner Group

March 26th – March 28th

PHOTOGRAPHIC RECORD





Photo 17 – Downstream portion of Reach WHT4(3)3-1, downstream of culvert. Watercourse displays severe degradation / widening.



Photo 18 – Downstream extent of Reach WHT4(3)3-1. Downstream half of reach flows through a cedar forest.



Photo 19 – Reach WHT4(3)2-1 traverses Mayfield Golf Course. Significant basal scour was observed throughout.



Photo 20 – Reach WHT4(3)2-1 flows under several crossings connecting golf cart pathways.

APPENDIX C3

Fluvial Geomorphic Assessment

Phase 1 – Subwatershed Characterization and Integration Report

Mayfield Tullamore Landowner Group

March 26th – March 28th

PHOTOGRAPHIC RECORD





Photo 21 – Reach WHT4(3)2-1 flows through a woodlot downstream of Mayfield Golf Course. Valley toe impacts are common.



Photo 22 – Downstream extent of Reach WHT4(3)2-1 at its confluence with the tributary flowing from the west.



Photo 23 – Upstream extent of Reach WHT4(3)-1, downstream of confluence depicted in Photo 22.



Photo 24 – Downstream extent of Reach WHT4(3)-1 flowing from the woodlot into an open pasture.

APPENDIX C3

Fluvial Geomorphic Assessment

Phase 1 – Subwatershed Characterization and Integration Report

Mayfield Tullamore Landowner Group

March 26th – March 28th

PHOTOGRAPHIC RECORD





Photo 25 – Downstream view of Reach WHT4(2)-2's upstream extent.



Photo 26 – Reach WHT4(2)-2's central portion, meandering through a confined, grassy pasture.



Photo 27 – Reach WHT4(2)-2 widens significantly shortly upstream of its downstream extent.



Photo 28 – Reach WHT4(2)-2's downstream extent as it flows into a woodlot.

APPENDIX C3

Fluvial Geomorphic Assessment

**Phase 1 – Subwatershed Characterization and
Integration Report**

Mayfield Tullamore Landowner Group

March 26th – March 28th

PHOTOGRAPHIC RECORD





Photo 29 – Reach WHT4(2)-1's upstream extent, flowing from an open pasture into a woodlot.



Photo 30 – Cutoff channels present in central portion of Reach WHT4(2)-1.



Photo 31 – Several treefalls were observed throughout Reach WHT4(2)-1.



Photo 32 – Downstream extent of Reach WHT4(2)-1.

APPENDIX C3

Fluvial Geomorphic Assessment

Phase 1 – Subwatershed Characterization and Integration Report

Mayfield Tullamore Landowner Group

March 26th – March 28th

PHOTOGRAPHIC RECORD



Appendix C4 – Tables

Table 1: Watercourse Constraint Evaluation

Reach Name	Constraint Ranking from SABE	Integrated Multi-Disciplinary SWS Assessment					
		Surface Water (Hydrology)	Geomorphology	Aquatic Resources (Fisheries)	Hydrogeology (Groundwater)	Terrestrial/Riparian	SWS Constraint Ranking
WHT4(2)-1*	High	High	High	High	High	High	High
WHT4(2)-2*	High	High	High	High	High	High	High
WHT4(3)-1	High	High	High	High	High	High	High
WHT4(3)-2	High	High	High	High	High	High	High
WHT4(3)2-1 a*	High	High	High	High	High	High	High
WHT4(3)2-1 b*	High	High	High	High	High	High	High
WHT4(3)3-1	Medium	High	High	High	High	High	High
WHT4(3)3-1a ¹	Low	Low	Low	Low	Low	Low	Low
WHT4(3)4-1 ¹	High	Medium	High	High	High	High	High
WHT4(3)4-2*	Low	Medium	Medium	Medium	Medium	Medium	Medium
WHT4(3)4-3*	Low	Low	Low	Low	Low	Low	Low
WHT4(3)5-1	High	High	High	High	High	High	High
WHT4(3)5-2	Medium	Medium	Medium	Medium	Medium	High ²	Medium
WHT4(3)6-1	Medium	Low	Medium	Medium	Medium	Medium	Medium
CCC(2)	High	High	High	High	High	High	High

Notes

- 1 These reaches were located in non-participating properties within the Study Area; multidisciplinary constraints assessments are based on desktop assessments only.
 - 2 Met significant wildlife habitat within created golf course ponds that are highly disturbed and would benefit from ecological interventions. Technically this meets the high constraint criteria; however, it is recommended that this criteria does not drive the ultimate watercourse constraint ranking given the historical and ongoing alteration of the watercourse.
- * Reaches have been subdivided or revised from the SABE Phase 2 Part B Appendix C for the SWS.