BURNSIDE

Oxford County Road 19 Schedule C Environmental Assessment

Environmental Study Report

County of Oxford

21 Reeve Street, PO Box 19614
Woodstock ON N4S 7Y3

Oxford County Road 19 Schedule C Environmental Assessment

Environmental Study Report

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21 Reeve Street, PO Box 1614, Woodstock ON N4S 7Y3

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Disclaimer

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) was retained by the County of Oxford (the County) to complete a Municipal Class Environmental Assessment (MCEA). The purpose of the study is to assess the transportation needs on Oxford Road 19 and its right-of-way (ROW) between Highway 19 and the Norfolk County boundary, to confirm recommendations for improvements along this corridor. This road is currently subject to load restrictions in the Spring, making the movement of goods across the County more difficult. The road cross section is also being reviewed to confirm its ability to accommodate the traffic volumes / types that it serves, as well as, to meet the needs of active transportation modes in this area. In addition, sightlines do not meet current standards along some sections of the road and design for improvements will consider the potential for adjusting horizontal and / or vertical alignments and gradelines to improve safety along the corridor. Finally, the width of the road ROW does not meet the County's current guidelines, as identified in the Official Plan.

The 2019 Oxford County Transportation Master Plan (Paradigm Limited, January 2020) indicated that a MCEA should be completed for the subject section of Oxford Road 19, to support the safe and efficient movement of people and goods in this area.

The study objectives are:

- To confirm what improvements to the road's structure and design are needed.
- To consider what improvements to the road may be needed to support future traffic conditions, population growth and County goals.
- To understand the location and significance of ecological, archaeological, and cultural features that may be impacted by improvements to the road.
- To characterize socio-economic conditions, including the location and characteristics of private properties that may be impacted by improvements to the road.
- To obtain and address input from relevant agencies, adjacent landowners and other stakeholders.
- To obtain and address input from Indigenous communities with Treaty and Aboriginal Rights in the study area.
- To identify a preferred solution and design concept to address all current and future road needs while considering sensitive features, stakeholder input, and Indigenous rights.

The MCEA study follows a comprehensive planning and design process to ensure protection of the environment, facilitate a proactive and meaningful consultation process with a broad range of stakeholders, determine a solution that minimizes disruption to the existing residents and businesses, and to produce comprehensive documentation that meets all the requirements of the MCEA process.

1.1 Description of Study Area

Oxford Road 19 is a County road that is also referred to as “Ostrander Road” in the Township of South-West Oxford and is referred to as “Otterville Road” in the Township of Norwich.

The Study Area includes approximately 16 km of Oxford Road 19 between Highway 19 (Plank Line), and the Norfolk County boundary (Windham Line), excluding the urban settlements of Springford and Otterville, as shown in Figure 1. The sections of road through Springford and Otterville are not included in the MCEA as improvements were carried out previously in these areas.

Lands within the road right-of-way (ROW) and its vicinity are included in the Study Area, as shown on Figure 1.

Figure 1: Study Area

1.2 Municipal Class EA Process

Projects developed by municipalities that have the potential to affect the natural, social, and cultural environment may be subject to the Municipal Class Environmental Assessment (MCEA) process.

Prior to March of 2023, the MCEA process followed the guidance in the Municipal Engineering Association Guide for Municipal Class EAs (2000, as amended in 2004, 2007, 2011 and 2015).

In March of 2023, an updated MCEA document was approved by the Ministry of the Environment, Conservation and Parks (MECP). Because the Oxford Road 19 MCEA (OR19 MCEA) commenced before 2023, the study can continue to use the guidelines from the previous document or switch to the new process.

This OR19 MCEA was nearing completion in early 2023 and, therefore, it was decided to continue following the earlier document. In that document, there are several types of studies that can be completed depending on the project's complexity and potential for environmental impact. An initial project category, or schedule, was identified based on the preliminary understanding that the OR19 would need to be reconstructed and that there would be some need to widen the ROW and acquire some private property. This preliminary project description was reviewed and updated throughout the EA process.

Based on the preliminary project description, the project may meet the following criteria, as outlined in the MCEA document:

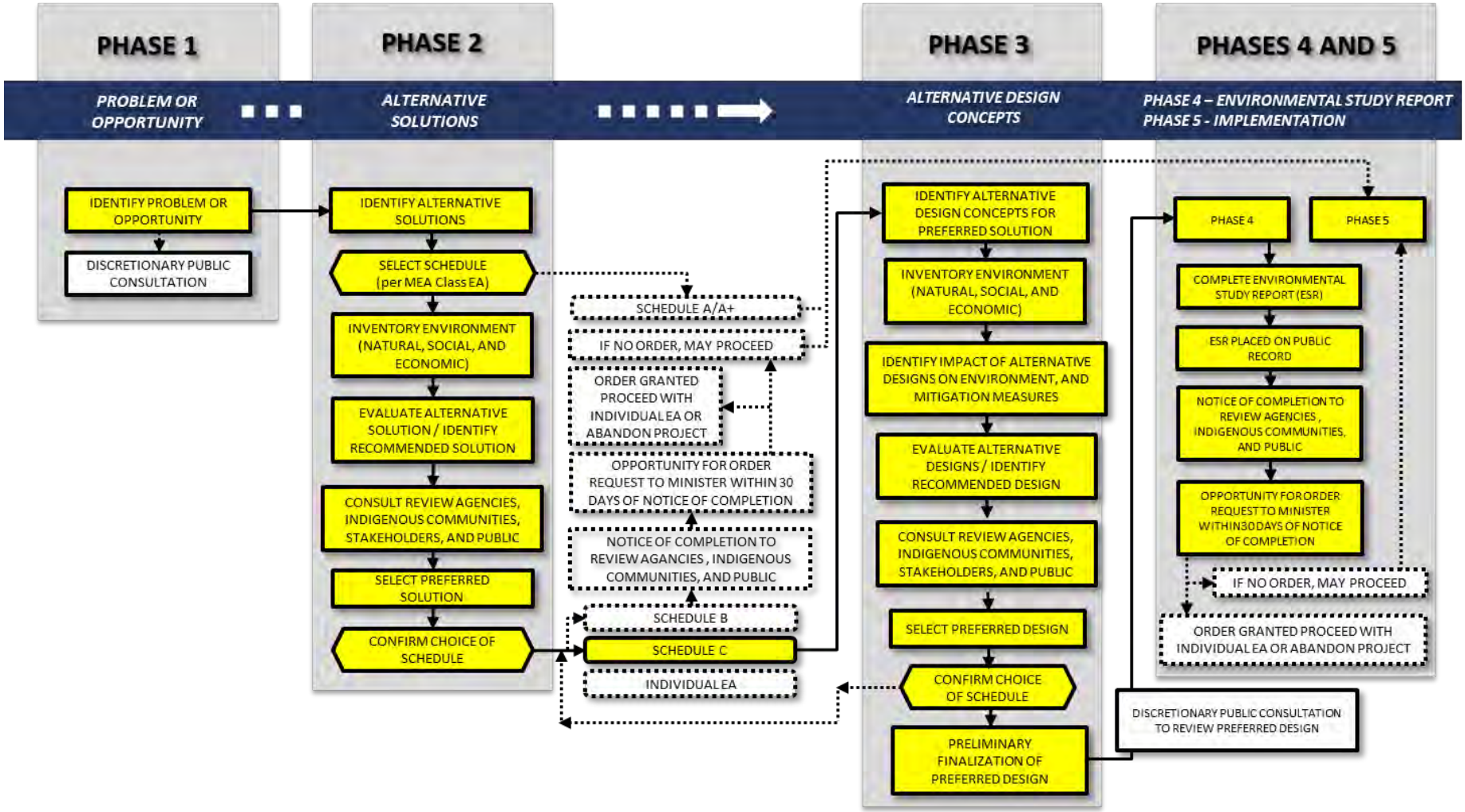
> *Reconstruction or widening where the reconstructed road… will not be for the same purpose, use, capacity or at the same location and which will have a construction cost of over $2.4 million.*

The reconstructed road will be used for the same purpose and at the same capacity but may not be at the same location as any widening of the ROW and resultant property acquisition is considered to be a "new location". As such, the project is subject to Schedule C of the MCEA process. Schedule C projects have the potential for significant environmental impacts and must proceed under the full planning and documentation procedures of the MCEA document. Schedule C projects require that an Environmental Study Report (ESR) be prepared and filed on the public record for review by the public and regulatory agencies. Proponents undertaking Schedule C Projects are required to complete Phases 1 through 5 of the MCEA Process.

The phases of the MCEA are illustrated in Figure 2 and summarized as follows:

- Phase 1 - Identify the problem (deficiency) or opportunity.
- Phase 2 - Identify alternative solutions to address the problem or opportunity by taking into consideration the existing environment and establish the preferred solution, taking into account public and review agency input. At this point, determine the appropriate schedule for the undertaking and document decisions in a Project File for Schedule B projects or proceed through the following phases for Schedule C projects.
- Phase 3 - Examine alternative methods of implementing the preferred solution, based upon the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects.
- Phase 4 - Document, in an ESR, a summary of the rationale and the planning, design and consultation process of the project as established through the above phases and make such documentation available for scrutiny by review agencies and the public.
- Phase 5 - Complete contract drawings and documents and proceed to construction and operation, monitoring construction for adherence to environmental provisions and commitments. Where special conditions dictate, the operation of the completed facilities is also monitored.

Figure 2: Municipal Class Environmental Assessment Process Flow Chart



2.0 Project Need and Justification

The 2019 Oxford County Transportation Master Plan (Paradigm Limited, January 2020) (TMP) identified the need to undertake a Class Environmental Assessment Study for Oxford Road 19, however, specific deficiencies were not identified. Other studies and policies, including those considered in this current Schedule C MCEA, have highlighted the need for improvements with specific reference to:

- Road conditions and design-related safety factors.
- The ability of the road to meet future population and commercial growth and demand.
- The need to meet the County's current design requirements, including the ROW widths set out in the County's Official Plan.

The need for improvements to Oxford Road 19 is described in the following sections.

2.1 Load Restrictions

Oxford Road 19 is currently subject to a seasonal load restriction from March 1 to April 30, with the exception of the section through Otterville to Oxford Road 59, as shown on Figure 3.

A traffic count (July 2018), taken on Oxford Road 19 to the east of Highway 19, indicated that truck traffic amounted to about 8.5% of the overall traffic at that location. At the south limit of the Township of Norwich, there is a significant amount of vacant and underutilized industrial lands that would benefit from unrestricted load limits on Oxford Road 19, providing a connection to Oxford Road 13, Highway 19 and Tillsonburg. A number of existing industrial facilities in Otterville may also benefit from such improved connectivity. Several large agri-businesses are located on Oxford Road 19, both east and west of Oxford Road 59, as well as along the overall corridor (e.g., Sonneberg Dairy, Hogenboom Greenhouses, P.H. Kuivenhoven Greenhouses) that will also benefit from such improved connectivity.

Therefore, the current seasonal load restrictions may be hindering goods movement in the southern part of the County and negatively impacting the economic viability of the surrounding area.

Figure 3: Load Restrictions in the County

2.2 Road Surface Conditions

The structural condition of Oxford Road 19 was assessed in the following reports:

- 2015 Road Needs Study (Burnside, December 2016)
- Road Needs Engineering Study 2020, Oxford County (Golder, May 17, 2021)

The findings of these reports are summarized in Table 1 for the rural segments of the road.

Table 1: Road Condition Needs and Geometric Improvement Needs Identified in Previous Road Studies[1]

Location (ID)	Base Install Year	Surface Install Year	Study Year	Ten Year Road Needs Identified in Respective Road Study
Highway 19 to 0.3 km East (224258)	1960	2011	2015	No needs identified.
			2020	Proposed full depth reclamation + two lift overlay; crack seal.
0.3 km East of Highway 19 to Zenda Line (224288)	1960	2011	2015	Proposed fibremat reinforced chip seal, drainage improvements.
			2020	Proposed single surface treatment. One vertical sight distance deficiency.
Zenda Line to West Limit of Springford (224624)	1960	2011	2015	Proposed full depth asphalt reclamation (pulverize), one lift hot mix asphalt, drainage improvements.
			2020	Proposed single surface treatment. Two vertical sight distance deficiency.
East Limit of Springford to 1.0 km East of the East Limit of Springford (225110)	1960	2010	2015	No needs identified.
			2020	Proposed full depth reclamation + two lift overlay (surface treatment).
1.0 km East of the East Limit of Springford to 1.9 km East of the East Limit of Springford (225210)	1960	2010	2015	No needs identified.
			2020	Proposed full depth reclamation + two lift overlay (surface treatment).
1.9 km East of the East Limit of Springford to the West Limit of Otterville (225300)		2010	2015	Proposed fibremat reinforced chip seal, drainage improvements.
			2020	Proposed full depth reclamation + two lift overlay (surface treatment).
East Limit of Otterville to Oxford Road 59 (225662)	1960	2010	2020	No needs identified.
			2015	Proposed one lift overlay: crack seal. One vertical sight distance deficiency.
Oxford Road 59 to 354 m West of Baseline (225737)	1960	2013	2020	No needs identified.
			2015	Proposed one lift overlay: crack seal. Eight vertical sight distance deficiencies.
354 m West of Baseline to Windham Line (225737a)	1960	2010	2020	Proposed full depth asphalt reclamation (pulverized), one lift hot mix asphalt, drainage improvements.
			2015	Proposed single surface treatment.

[1] The road needs in the Settlements of Springford and Otterville are not included in the above table. Improvements were made to the roads in these Settlements in 2016 (i.e., culverts, cold recycle and hot mix asphalt) and therefore these areas are not included in this study.

Based on previous studies, there are no significant horizontal curves along Oxford Road 19 within the study area that would result in significant sightline issues. However, a number of vertical sightline deficiencies were identified as noted in Table 1, meaning that road profiles do not allow for sufficient sightlines. In addition, the road surface was noted to require repairs in several locations. Surface improvements are currently being planned for Oxford Road 19 between Highway 19 and Zenda Line, as well as, between the east limit of Springford to the west limit of Otterville. However, repairs are also needed in other sections of the road. The surface improvements are considered ongoing maintenance, required to maintain acceptable pavement conditions in the short term, pending more substantial improvements that have been identified in this MCEA.

Given the age of surface on Oxford Road 19, with installation dates between 2010 and 2013, it is expected that full depth asphalt replacement will be required to improve the road structure (i.e., to remove seasonal load restriction). Similarly, it is noted that the base is over 60 years old and therefore may be near the end of a typical lifecycle for such infrastructure, requiring replacement and augmentation to meet the structural capacity requirements for this road.

Several additional studies have been undertaken which provide specific recommendations for the reconstruction of Oxford Road 19, including:

- Pavement Investigation and Design, County Road 19, Highway 19 Easterly to Oxford County Border (DS Consultants Ltd., July 4, 2018)
- Geotechnical Investigation, Transmission Watermain Installation, Springford to Norwich (exp Services Inc., August 20, 2012)

Both studies note deficiencies in the pavement structure and make specific recommendations for the design and construction of the road base.

2.3 Projected Growth Within the County

Improvements to Oxford Road 19 will need to consider future population and employment conditions. In 2016, the population of the County was 110,862 residents, which showed a 4.9% increase from 2011. As stated in the *Phase One Comprehensive Review, Oxford County*, *(Hemson Consulting Ltd, March 2020)*, the County is anticipating an overall growth of approximately 47,000 people and employment of 21,000 jobs by 2046. This same study reported that the Township of Norwich experienced a minor population increase from 10,890 in 2001 to 11,310 in 2016. The Township of South-West Oxford on the other hand experienced a decline from a population of 8,090 in 2001 to 7,880 in 2016. Other communities in the County, including Tillsonburg, located just south of the Study Area, experienced greater population growth.

Although South-West Oxford's population declined, its share of employment growth relative to overall growth across the County was significant. Approximately 11.6% of the County's growth in employment occurred in South-West Oxford.

Overall, across the County, population and employment opportunities are expected to continue to grow across the forecasting period to 2046. Oxford Road 19 must be able to meet associated traffic demands.

Oxford Road 19 is a significant east-west corridor serving the southeast part of the County, connecting the villages of Springford and Otterville and the rural cluster of Ostrander, with connections to Highway 19, Oxford Road 13 and Oxford Road 59, as shown in Figure 4.

Figure 4: County Transportation Network

Source: Oxford County Official Plan

Oxford Road 19 connects to Norfolk County Road 19, which ultimately connects to Highway 24, about 15 km east of the Oxford County boundary. Traffic, from the south part of the Township of Norwich, may also choose to travel along Oxford Road 19 to access Tillsonburg or other points west.

The *Phase One Comprehensive Review, Oxford County (Hemson Consulting Ltd., March 2020)* provides the following estimates for growth in Oxford County:

- Oxford County household growth from 2011 and 2016 – 1.3% per annum (compounded); it is forecasted that household growth will equate to 1.16% per annum (compounded) from 2016 to 2046.
- Most of the growth has been in Woodstock, Ingersoll and Tillsonburg and most of the future growth is forecasted to occur in those centers.
- Household growth in Tillsonburg equated to 0.9% per annum (compounded) from 2011 to 2016; Tillsonburg experienced 15.8% of the County's population growth in this time period; Tillsonburg's employment grew by 1.8% per annum (compounded) during this time period. In 2019, Tillsonburg had 1,003 approved residential units and an 18-hectare supply of industrial land.
- Household growth in Norwich Township equated to 0.55% per annum (compounded) from 2011 to 2016; Norwich Township experienced 3.9% of the County's population growth in this time period; Norwich Township's employment grew by 3.1% per annum (compounded) during this time period.

Springford is a partially serviced (with municipal water) village in the Township of Norwich. A nine-lot subdivision was constructed in Springford over recent years, with no further development activity planned or forecasted in this village, except for four registered lots.

Otterville is a partially serviced (with municipal water) village in the Township of Norwich. Approximately 75 lots have been developed in Otterville over the last several years. A further 30-lot subdivision has draft approval in the village. No further development activity is planned or forecasted in this village.

Most of the development (residential and employment lands) in Norwich Township is to occur in the community of Norwich, which is fully serviced with municipal water and wastewater. As noted previously, some of the traffic from Norwich may choose to travel along Oxford Road 19, however Oxford Road 18 and Oxford Road 59 are the primary connections for the Town.

Based on the review of the population growth and employment growth that may impact the Oxford Road 19 corridor, together with growth from areas beyond the immediate municipalities (i.e., Norwich and Southwest Oxford), the analysis in this current study has assumed a conservative traffic growth rate of 1.0% per annum (compounded) on Oxford Road 19. We note that the County's TMP had forecasted growth rates of about

0.6% per annum for Norwich and 0.4% per annum for Southwest Oxford over the next 20 years. This conservation assumption will allow us to not only be prepared for the expected growth, but prepared for unexpected growth as well, within a reasonable tolerance.

2.4 Corridor Traffic Capacity

Road capacity is a function of the number of lanes of travel, the roadside characteristics that affect driver behaviour, the percentage trucks and traffic control features that allocate priority between conflicting flows of traffic. Typical two-lane County arterial roads may accommodate 12,000 to 15,000 Annual Average Daily Traffic (AADT) [i.e., 12,000 to 15,000 vehicles per day (vpd)] before additional travel lanes may be warranted. These capacities are estimates only, since the actual traffic operations will continue to function at higher traffic volumes, albeit with increased delay (i.e., lower speeds) for motorists travelling along the corridor.

Historical data collected by the County indicate that AADT volumes on OR19, between 2015 and 2021, varied between 1187 and 3657 vehicles per day, as shown in Table 2.

The data indicates that the current traffic volume is well below the road's capacity.

Table 2: Average Annual Daily Traffic Volume on Oxford Road 19

Road	Location	Year	AADT (vpd)
Oxford Road 19	East of Cranberry Line	2014 / 2015	2,583
		2016 / 2017	3,217
		2018 / 2019	3,597
		2020 / 2021	3,253
	West of Middletown Line	2014 / 2015	3,470
		2016 / 2017	2,627
		2018 / 2019	3,657
		2020 / 2021	2,870
	East of Csont Line	2014 / 2015	1,187
		2016 / 2017	n/a
		2018 / 2019	1,807
		2020 / 2021	1,730

Forecasted Corridor Traffic Growth and Capacity

Based on historical traffic growth, the analysis in this current study has assumed a conservative growth rate of 1% per annum (compounded) on Highway 19. This is based on the increase in traffic volume between 2010 and 2016[2].

Based on this assumed traffic growth rate, the AADT on the Oxford Road 19 corridor is forecasted to increase to the following by horizon 2046:

- Oxford Road 19 from Highway 19 to Oxford Road 59 – Future AADT 4400 vpd.
- Oxford Road 19 from Oxford Road 59 to Norfolk boundary – Future AADT 2300 vpd.

With these projects, the capacity of OR19 will continue to be sufficient to support future traffic conditions without the need for additional lanes.

2.5 Intersection Capacities on Oxford Road 19

The *Oxford County 2019 Transportation Master Plan (Paradigm, January 2020)* provides forecasts of traffic operations at a number of intersections on Oxford Road 19 within the study area. The Master Plan's findings are as follows:

- Minor street intersections, represented by using the Oxford Road 19 and Church Street intersection in intersection modeling, are forecasted to operate with minimal delays and significant reserve capacities beyond 2038.
- Major intersections, represented by using the Oxford Road 19 and Oxford Road 13 intersection in intersection modeling are forecasted to operate with minimal delays and significant reserve capacities beyond 2038.

Conditions at specific intersections are noted below.

Oxford Road 19 / Hwy 19 Intersection

MTO provided an eight-hour turning movement count taken on July 31, 2018, at the intersection of Oxford Road 19 / Highway 19. The analysis of this data indicated that the existing lane configuration and stop-controls adequately accommodate existing turning movements at this intersection. However, synchro modelling was completed as part of this MCEA at this intersection for the a.m. and p.m. peak hours under future 2046 condition. Based on the assumed growth rates of 1% on both Highway 19 and on Oxford Road 19, the modelling shows that the westbound traffic will experience a capacity issue with existing single westbound left-through-right lane configuration under future 2046 conditions. It is recommended to add a westbound left turn lane on Oxford Road 19 with a storage length of 20 meters at this location in the long term. However, since the existing conditions do not warrant this turn lane, it is recommended that the

[2] Data after 2016 is somewhat unreliable due to construction occurring in the area and the effects of COVID on traffic volumes.

traffic operations be monitored as growth occurs, with future implementation of the left turn lane once traffic operations warrant.

Oxford Road 19 / Oxford Road 59 Intersection

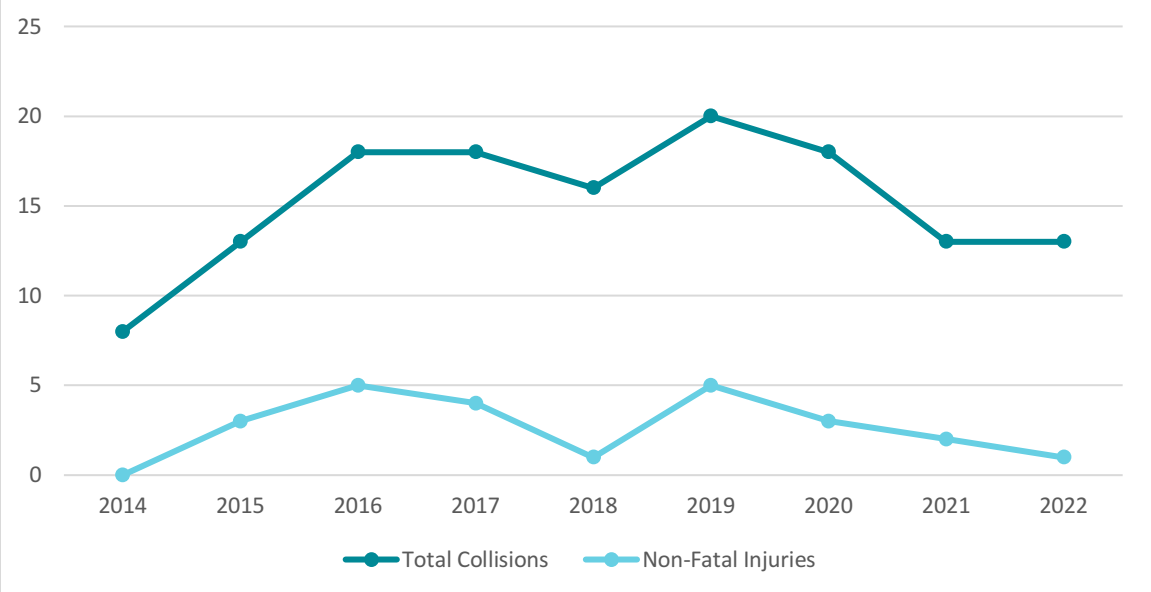
Traffic data at the intersection of Oxford Road 19 / Oxford Road 59 was not available and, therefore, it is recommended that an updated analysis of traffic operations be completed for this intersection as part of the future detailed designs for improvements to Oxford Road 19.

2.6 Collision Data

Collision data can be used to identify safety issues along road sections or at intersections. Collision data can be an indicator of the need for geometric improvements, capacity improvements and / or traffic control measures such as markings, signage, signals, speed management or physical barriers.

Collision records were provided by the County for the period July 2014 through December 2022. A total of 137 collisions were reported in this time period on Oxford Road19, with the temporal distribution summarized on Figure 5. There were zero fatal collisions, 24 collisions resulting in non-fatal injuries and 1 property damage only (PDO) collisions over the 8.4-year period considered.

Figure 5: Collision Data*



*Note: The figure includes collision data up to December 2022. For 2014 only June – December is provided.

It is noted that the COVID Pandemic may have impacted the collision rates in the 2020 and 2021 time periods.

In addition to the total number of collisions, the collision rate (expressed as collisions per million vehicle km of travel) has been reviewed. The average collision rate for all roads in Ontario was 1.45 in 2017. For secondary highways, the collision rate is typically in the range of 1.0 to 1.5. These rates include collisions that occur along the road corridors and at intersections.

The collision analysis for Oxford Road 19 is summarized in Table 3.

Table 3: Collision Rates at Select Locations on Oxford Road 19

Location (km)	Collisions	AADT (vpd)	Collision Per Km of Road Per Year	Collision Rate (per million vehicle kms)
Highway 19 to Springford West Limit (7.0 km)	62	3,090	1.05	0.93
Springford Settlement (1.35 km)	15	3,326	1.55	1.28
Springford Settlement East Limit to Otterville West Limit (3.45 km)	19	3,564	0.55	0.66
Otterville Settlement (2.0 km)	19	3,564	1.32	1.02
Otterville East Limit to OR59 (1.0 km)	8	3,564	0.73	0.95
Oxford Road 59 to Norfolk Boundary (4.7 km)	14	1,497	0.65	0.35

The above collision analysis indicates that the collision rates on OR19 are in the typical range for an arterial County Road. Along the OR19 corridor, the collision rates are highest in the Settlement areas (i.e., Springford and Otterville), which reflects the increased conflict potential due to the higher density of intersections and accesses in those areas.

A total of 39 collisions, which occurred at intersections, are summarized in Table 4.

Table 4: Collision Reported at Intersections Along Oxford Road 19

Intersection on Oxford Road 19	Number of Collisions – July 2014 to December 2022
Highway 19	6
Cranberry Line	5
Zenda Line	1
Oxford Road 13 (Springford)	7
Water Street (Springford)	1
Middletown Line	4
Dover Street / William Street (Otterville)	3
Oxford Road 59	8
Base Line	5
Total	40

The number of collisions at intersections, over the 8.4-year period of record, does not indicate a need for upgrading of traffic controls or significant modifications to the existing intersection designs. For comparison, the *2019 Transportation Master Plan* reported that the number of collisions at the Oxford County intersections having the five highest collision rates, for the period 2013-2017, ranged from 35 to 66 collisions in urban areas and from nine to 15 collisions in rural areas.

2.7 Intersection Safety

Traffic on Oxford Road 19 operates with free flow condition at most intersections within the study area and is only stop-controlled at Highway 19 and Oxford Road 59. Oxford Road 13 (i.e., in Springford) intersects with Oxford Road 19 at offset, stop-controlled intersections within the Settlement area. Outside of the settlement areas the following north-south Township roads have stop-controls at Oxford Road 19 within the study area:

- Cranberry Line
- Zenda Line
- Middletown Line
- Csont Line
- Base Line
- Windham Line

At some intersections, municipalities may opt to purchase additional land triangles for the purposes of managing vegetation clearance and sightlines. Ownership at intersections, known as daylighting, was reviewed at intersections in the Study Area, as summarized below:

Table 5: Daylighting at Intersections in the Study Area

Road Intersecting With OR19	Daylighting (Approximate Size of Additional Property Owned by County for Intersection Sightline Purposes)
Highway 19	Northeast quadrant of intersection: 7 metres x 17 metres Southeast quadrant of intersection: 12 metres x 25 metres
Cranberry Line	Northeast quadrant of intersection: 15 metres x 15 metres Southeast quadrant of intersection: 15 metres x 15 metres
Zenda Line	No daylighting
Middletown Line	No daylighting
Oxford Road 59	Northwest quadrant of intersection: 15 metres x 15 metres Southwest quadrant of intersection: 15 metres x 15 metres
Csont Line	No daylighting
Base Line	No daylighting
Windham Line	No daylighting

The *Geometric Design Guide for Canadian Road (TAC, June 2017)* provides recommendations for daylighting at uncontrolled approaches; however, the above noted intersections are stop controlled. As noted in the *TAC Guide,* the provision of approach sight triangles, although desirable at higher volume intersections, may not be needed for intersection approaches controlled by stop signs or traffic signals. In that case, the need for approaching vehicles to stop at the intersection is determined by the traffic control devices and not by the presence or absence of vehicles on the intersecting approaches. Sight triangles have been provided at the intersection of the major roads along the corridor (i.e., OR19 / Highway 19 and OR19 / OR59). Reduced sight triangles may be considered at the time of detailed designs for intersections of Township roads with OR19, depending on whether enhancements to sight distances are required to improve operational safety at those intersections. It is recommended that the dimensions of such sight triangles meet the requirements of the *TAC Guide* for approach triangles at uncontrolled intersections.

Railway Crossing

The CP Rail (CPR) corridor crosses Oxford Road 19 at about 260 meters east of Highway 19. The *Oxford County 2019 Transportation Master Plan (Paradigm Limited, January 2020)* indicates that the Ontario Southland Railway (i.e., a short line rail operator) operates the CPR corridor from Ingersoll to Tillsonburg, which includes this crossing. The TMP notes that the subject CPR line carries eight trains per week (i.e., 1.1 trains per day on average).

From a traffic perspective, the impact of crossing trains is considered to be minimal to the traffic operation on Oxford Road 19. However, according to the *Oxford County 2015 Road Needs Study (Burnside, December 2016)* the crossing surface for the subject crossing does not meet standards and, therefore, crossing surfaces should be widened

as part of any future road rehabilitation / reconstruction. According to Transport Canada's *Grade Crossing Standards (January 2019)* the crossing surface must be a width that is equal to the width of the travelled way and shoulders of the road, plus 0.5 m on each side, measured at right angles to the centerline of the road. The current crossing width is only 7.1 m, which is 3.0 m deficient under existing conditions and have a higher deficiency if the travel lane / shoulders are proposed to be widened. The County's *Transportation Master Plan (Paradigm, 2020)* recommends that the crossing surface at this railway crossing be widened where rehabilitation or reconstruction work is ultimately implemented. The County has also completed a detailed review of this crossing in 2020 and this information will be referenced as part of the detailed designs in this area.

2.8 Road and ROW Width

Travel Lane and Shoulder Width

The *Geometric Design Guide for Canadian Roads (Transportation Association of Canada, TAC, June 2017)* recommends the following widths for rural roads with an 80 km/h posted speed:

- A minimum lower limit lane width of 3.5 m, or a practical lower limit lane width of 3.3 m.
- A minimum shoulder width of 2.5 m for roads with less than 450 vph in the peak direction.
- Best practice also provides for gravel rounding of 0.5 m for design speeds of less than 100 km/h or 1.0 m for design speeds of 100 km/h or greater.

The *2017 TAC Guide* notes that paved shoulders are safer than unpaved shoulders as they provide a greater recovering and maneuvering area for motorists to take evasive action to avoid potential collisions or to reduce their severity. The *Highway Safety Manual, HSM (AASHTO, 2010)* estimates that the 3.5 m width reduces the crash potential by about 5% compared to the 3.3 m width, for certain types of collisions (i.e., single vehicle run-off-the-road, multiple vehicle head-on, opposite direction sideswipe and same-direction sideswipe collisions). The *2010 HSM* also estimates that a 2.4 m shoulder width reduces these types of collisions by about 13% when compared to a 1.8 m shoulder.

Most of Oxford Road 19 through the study area has travel lanes of approximately 3.35 m in width with gravel shoulders varying between about 0.6 m to 2.3 m in width. The County's *Transportation Master Plan* studies suggest that hard surfaces be widened to an 8.7 m width (i.e., a 3.35 m travel lane in each direction plus 1.0 m partially paved shoulder on each side) to improve safety, reduce maintenance and facilitate on-road cycling. However, the segment of Oxford Road 19 between the east limit of Otterville

and Oxford Road 59 (i.e., approximately 930 m) was rehabilitated in 2016 and the cross section was upgraded.

The County does not currently have prescribed cross section standards. However, previous TMP study has recommended minimum 3.35 m travel lanes and minimum 1.0 m shoulders (each side). This standard exceeds TAC's lower limit for lane widths, however, does not meet the TAC standard for shoulder width. Consultation with the County confirmed that a travel lane width of 3.35 m is acceptable, which is consistent with the upgraded section east of Otterville and with lane widths being provided on other roads within the County. However, widening of the existing shoulders is recommended, together with partially paving the shoulders, to improve safety along the corridor.

Right-of-Way Width

The Oxford County Official Plan identifies Oxford Road 19 as a "County Road', a category of road described as, "major roads which serve moderate to high volumes of inter-municipal and long-distance traffic movements between Provincial Highways and between Township Roads."

The standard for this type of road is set out in Table 3, County of Oxford Recommended Road Standards (Section 5.1.2.1 of the Official Plan). A summary is provided in Table 6 below. The policy identifies a ROW of 100 ft or 31 m3 in rural areas. Oxford Road 19 currently varies from about 20 m to 30 m along the corridor and is, therefore, narrower than the recommended width.

Table 6: Recommended Road Standards for County Roads

Function	Right-of-Way (Metres)	Property Access & Curbside Parking Policy
Moderate to high volumes of inter-municipal and long-distance traffic movements between Provincial highways and between Township roads.	26 m (85 ft) (within designated settlements) 31 m (100 ft) (in rural areas)[3]	• Direct access to abutting property shall be limited where possible • New residential lots adjacent to County Roads within settlements shall be designed with limited access except where an existing land development pattern makes this objective impractical • Commercial, Community Facilities, Industrial and multiple Residential uses may have access to arterial streets, but developments shall be grouped, and entrances, exits and

[3] 100 ft is the equivalent of 30.5 metres. It is recommended that the 30.5 m conversion be applied in the final designs for OR19.

Function	Right-of-Way (Metres)	Property Access & Curbside Parking Policy
		curb use controlled in order to reduce the number of access points that could hinder traffic movement. Strip or extended linear development shall be discouraged • Parking may be restricted to improve traffic movement • Adequate lighting shall be provided by the Area Municipality within designated settlements

2.9 Adjacent Development

In addition to providing connections to other County Roads, Highways, built up areas and surrounding Townships, the primary function of Oxford Road 19 is to provide access to agricultural lands, agribusinesses and residential properties that are located along Oxford Road 19. It is important that any future upgrades to Oxford Road 19 maintain access to these critical locations along Oxford Road 19. In addition to ensuring that access is maintained to these locations, it is also critical that these access points have a clear view of the road with no vertical or horizontal sightline obstructions so that users can safely enter into traffic travelling along Oxford Road 19.

2.10 Active Transportation

2.10.1 2021 Cycling Master Plan

The County's *2021 Cycling Master Plan* notes that the most notable opportunity for creating new cycling facilities is through paving or widening the shoulder conditions of the road if sufficient platform width is available. The Cycling Master plan also notes:

> *Since 2012 the County has maintained a policy to implement 1.0 m paved shoulders on County Roads that can accommodate that surface width. This has led to the reconstruction of approximately 131 kilometres of County Roads (or just under 20% of the County's overall road network) to include a 1.0 m paved shoulder, implemented on both sides of the road. It is advised that the policy be maintained to support the continued implementation of the County's proposed cycling network.*

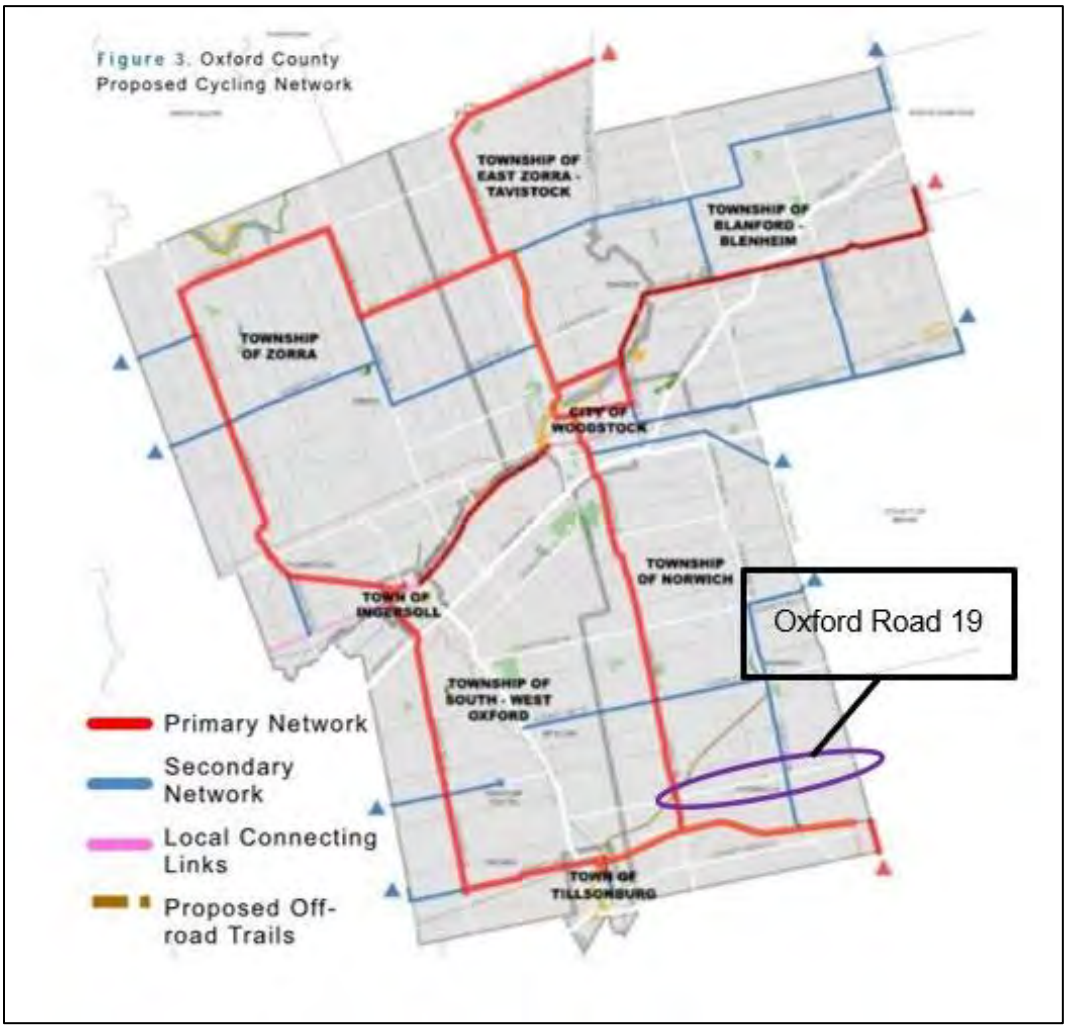
Oxford County standards require a total paved platform of 8.7 m to accommodate two lanes of traffic and 1.0 m of paved shoulder on each side of the road. As shown in Figure 6, the current condition of Oxford Road 19 cannot accommodate the necessary width to provide paved shoulders to support an on-road cycling facility.

Figure 6: Existing Paved Shoulder Facilities

Source: 2021 Oxford County Cycling Master Plan

The proposed future cycling network for the County, shown in Figure 7, does not include a cycling facility along Oxford Road 19. As shown above in Figure 6, the existing conditions along Oxford Road 19 does not allow for paved shoulders to be implemented. It is unknown if there are other factors that were identified during the development of the Cycling Master Plan that excludes Oxford Road 19 from the implementation of paved shoulders. It is possible that if road widening and ROW widening occurs, Oxford Road 19 could be included in the County's paved shoulder network.

Figure 7: Oxford County Proposed Cycling Network



2.10.2 Oxford County Transportation Master Plan

The Transportation Master Plan notes that one of the County's goals is to provide and support multimodal choices for commuters, including sustainable modes of travel such as public transit, passenger rail, walking and cycling, in order to further reduce reliance on single occupant vehicle commuter trips. The TMP lists a key strategic objective to expand active transportation facilities.

At the time of this report, Oxford County is currently undertaking an update to the 2019 TMP to continue looking at ways to improve growth and expansion in the future. The 2024 update to the TMP is planned to incorporate the implementation of the 2021 Cycling Master Plan and continue to grow upon the findings and recommendations of the 2021 Cycling Master Plan.

2.11 Summary of Road Improvement Needs

Based on the studies and discussion provided in Sections 2.1 through 2.10, the following road improvements are needed:

- Structural improvements to the road base and surface to eliminate the road restrictions.
- Changes to the grade in specified locations to reduce sightline limitations.
- Widening of the road ROW to meet County standards.
- Paving and widening of road shoulders to improve safety and potentially provide a cycling facility; however, Oxford Road 19 is not identified as part of the primary or secondary cycling network in the 2021 CMP. Paving and widening of the road shoulders should also recognize the need to accommodate agricultural traffic and horse and buggy traffic (Mennonite traffic) along these shoulders.
- Widening of the road surface at the railway crossing to meet standards set out in the *Grade Crossings Standards, Transport Canada, January 2019*.

The following additional work or studies may also be warranted:

- Inclusion of a westbound left turn lane on Oxford Road 19 at its intersection with Highway 19 in the future when traffic volumes warrant.
- Consideration for the need for daylighting at various intersections to improve safety, if required, based on current land use at intersection properties, to enhance sight lines and improve safety.
- Potential improvements at the intersection of Oxford Road 19 / Oxford Road 59 subject to additional traffic studies to be completed as part of the future detailed designs for improvements to Oxford Road 19.

In addition to these improvements, safe access to existing properties must be maintained.

3.0 Project Opportunity Statement

Phase 1 of the MCEA process is used to identify the challenge or opportunity that the process is meant to resolve. This statement assists in defining the scope of the project and serves as its central theme and integrating element that sets a benchmark for the final output of the project.

Based on the project need identified in Section 1.0, the Problem or Opportunity Statement for this MCEA has been defined as follows:

> *Following completion of the County of Oxford's Transportation Master Plan, the County of Oxford has identified the need to improve Oxford Road 19 between Highway 19 and the boundary of Norfolk County to support the safe and efficient movement of people and goods to 2046.*

4.0 Description of the Existing Environment

In Phases 1 and 2 of the MCEA process, the existing environment is characterized in order to understand the baseline conditions against which any proposed solution to the Problem Statement is compared. The following sections describe the existing built, natural, social and cultural environments within the Study Area.

4.1 Built Environment

4.1.1 Methodology for Characterizing the Built Environment

The built environment was characterized using a variety of mapping, background data, digital data files and field reconnaissance. Background data included:

- Aerial photography
- GIS data provided by the County of Oxford to identify the location of below and above-ground utilities in the study area
- Reports including:
  - Oxford County 2022 Bridge Inspection Report
  - Oxford County Transportation Master Plan (2019)
  - Draft Oxford County 2024 Transportation Master Plan (currently under public review)
  - Oxford County Road Needs Engineering Study 2020

In addition, a topographic survey was completed which documented the location of above-ground infrastructure and road features.

4.1.2 Road Network

Oxford Road 19 runs east-west with a total length of approximately 19.5 km, with one lane for each direction. The posted speed limit is 80 km/h for rural areas, 50 km/h in Otterville and Springford, and 60 km/h in Ostrander.

Oxford Road 19 provides a direct road connection between the settlement areas (Otterville, Springford, Ostrander) and the north-south arterial roads serving the south part of the County (i.e., Highway 19, Oxford Road 59 and Oxford Road 13), as well as to Highway 24 (i.e., located east of the County). Oxford Road 19 also provides alternate travel connections between Norwich and Tillsonburg, as well as between Brantford and Tillsonburg. However, other east-west routes are also available in the broader area (e.g., Oxford Road 18 and Oxford Road 20, which bypass the settlement areas), thereby reducing the need for Oxford Road 19 to accommodate significant volumes of through traffic.

4.1.3 Bridges and Culverts

The *2022 Bridge Inspection Report (*provides a review of the County's bridge structures, including the following relevant data for bridges on Oxford Road 19, within the study area:

Table 7: Condition of Bridges on Oxford Road 19

Structure and Location	Description	Repair Needs
Structure 225260 - West of Otterville (1.05 km West of Middletown Line)	• Precast Concrete I-Girder • Span – 18.8 m • Roadway Width - 9.2 m; Structure Width – 10.4 m • Year Built – 1967; Last Rehabilitation - 2013 • BCI - 73.9	• Future structure rehabilitation should be considered. Convert to semi- integral, install erosion protection & slope stabilization, minor concrete repairs to abutments and girders
Structure 224538 - West of Springford (0.85 km east of Cranberry Line)	• Concrete Slab on Precast T-Beam • Span – 10.3 m • Roadway Width - 8.4 m; Structure Width – 10.0 m • Year Built - 1968 • BCI - 66.6	• Major Rehabilitation Recommended Within 7 Years - Replace barriers, convert to semi-integral, concrete repairs to girders & abutments, waterproofing and paving • Install guiderail, end treatments & structure connections
Structure 224383 - East of Ostrander (1.25 km East of Highway 19)	• CIP Concrete Rigid Frame • Span – 14.2 m • Roadway Width - 12.05 m; Structure Width – 13.33 m • Year Built - 2010 • BCI – 85.9	• Future structure rehabilitation should be considered Concrete repairs to curbs and soffit, Patch asphalt • Install buried ends of channels at three corners

None of the structures require major repairs or replacement. Widening of the structures may not be justifiable from a financial perspective. Therefore, widening of Oxford Road 19 may be constrained by the widths of these major structures, depending upon the ultimate preferred / required cross section in these areas. Detailed designs will consider the options for accommodating the cross sections at these structures.

The County has also identified a number of culverts along the corridor, as shown in Figure A-1 in Appendix A. The condition of these culverts is currently unknown and will

need to be reviewed as part of the detailed designs to determine if re-use or widening is required as part of improvements to the corridor.

4.1.4 Municipal Drains

Several municipal drains are located along, or across, Oxford Road 19, as shown on Figure A-1 in Appendix A. In some locations, municipal drains run directly adjacent to the road, forming a portion of the road's ditch.

Multiple adjacent farm fields have systematic or random tile drainage along the Oxford Road 19 corridor that discharge into the municipal drains.

4.1.5 Utilities

Utilities are shown on Figure A-1 in Appendix A and are described in the following sections.

Watermain

An existing 200 mm diameter transmission watermain runs between Oxford Road 13 and the east end of Otterville, connecting the Norwich and Otterville-Springford water systems. This watermain was installed after 2012 and, therefore, it is assumed that no repair or replacement of the main is required. However, the location and depth of watermain will be recognized as a constraint in the development of the design alternatives for the improvements to Oxford Road 19 in this area.

Hydro One Transmission Lines

Hydro One has the following primary overhead hydro transmission lines along the rural segments of the Oxford Road 19 corridor:

- North Side – Highway 19 to 365 m east of Cranberry Line
- South Side – 365 m east of Cranberry Line to 500 m east of Zenda Line
- North Side – 500 m east of Zenda Line to Otterville west limit
- North Side – Otterville east limit to 760 m east of Oxford Road 59
- South Side – 760 m east of Oxford Road 59 to 770 m west of Baseline
- North Side – 770 m west of Baseline to Windham Line

Widening of Oxford Road 19 will impact these pole lines and will be considered in the development of the alternatives for improvements.

Enbridge Gas Lines

Enbridge Gas has the following distribution gas mains along the rural segments of Oxford Road 19 corridor:

- South side – Highway 19 to 900 m east of Highway 19
- North Side – 140 m east of Zenda Line to west limit of Springford

- South Side – West limit of Otterville to East limit of Springford
- South Side – West limit of Springford to 200 m west of the west limit
- North Side – Otterville east limit to Oxford Road 59

Improvements to Oxford Road 19 will need to take into consideration the impacts on these gas mains.

4.2 Natural Environment

4.2.1 Methodology for Characterizing the Natural Environment

The following sources of background information were reviewed to identify ecological features which may be impacted by the proposed works:

- Aerial photography
- MNRF Natural Heritage Information Centre (NHIC) database for significant species and designated natural features within 120 m of the subject lands
- Draft 2016 Oxford Natural Heritage Systems Study (ONHSS)
- The Ontario Reptile and Amphibian Atlas (ORAA)
- The Ontario Breeding Bird Atlas (OBBA)
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), AgMaps mapping (2021)

Field Surveys were conducted on June 10, 2022. During the field investigations, information was collected about the plant species encountered at the Study Area. Vegetation communities were characterized using the Ecological Land Classification (ELC) system at the ecosite level for the Study Area using protocols outlined in Lee et al. (1998)[4]. Specific ecosites (based on the 2008 ELC approximations[5]) were determined based on collected data that best represent each distinct ecological unit.

Surveys were conducted primarily from the ROW for portions of the Study Area not in public ownership. Searches were also conducted for wildlife habitat features.

4.2.2 Vegetation Communities

A total of 31 ecosites were documented within the Study Area. A variety of vegetation communities including terrestrial, aquatic, wetland, agricultural, and constructed ecosites were observed. A description of the ecosites, along with the dominant and associated

[4] Lee, H.T, W.D. Bakowsky, J.L. Riley, J. Bowles, M. Puddister, P. Uhlig, S. McMurray. 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, Southcentral Region, Science Development and Transfer Branch. Technical Manual ELC-005.

[5] Lee, H.T. 2008. Southern Ontario Ecological Land Classification: Vegetation Type List. Ontario Ministry of Natural Resources, London, Ontario.

species of each ecosite are provided in Appendix B. Delineations of the vegetation communities are illustrated on Figure A-1 in Appendix A. The majority of ecosites present within the corridor are agricultural or constructed.

One rare vegetation community (as identified in the Significant Wildlife Habitat Technical Guide), Moist-Fresh Black Walnut Deciduous Forest type (FOD7-4) was found within the Study Area. It is unlikely that this ecosite is naturally occurring. Instead, it is likely that the composition similarity is a consequence of cultural influence such as historical clearing activities and shoreline disturbances. This interpretation is further supported by the ecosite's proximity to the Otter Creek Golf Club and the village of Otterville.

4.2.3 Provincially Significant Features

The County of Oxford's Official Plan identifies significant valleylands and locally significant natural heritage features / Environmental Protection within the Study Area. Included within these features is floodplain that exists within the community of Otterville. There are no Areas of Natural and Scientific Interest (ANSI) identified within the Study Area. A portion of the Otterville Complex BOC 7 Provincially Significant Wetland Complex is located within the Study Area just west of Otterville.

Although Significant Woodlands are not identified within the County of Oxford Official Plan, criteria for Significant Woodlands consistent with the Provincial Policy Statement are provided in the Draft 2016 Oxford Natural Heritage Systems Study (ONHSS). Per the 2016 ONHSS, any woodlands > 4 ha are classified as Significant Woodlands.

Ten candidate and one confirmed Significant Wildlife Habitat (SWH), as defined by the Ministry of Natural Resources and Forestry (MNRF), were identified as being potentially present within the Study Area:

- Bat Maternity Colonies
- Turtle Wintering Areas
- Amphibian Breeding Habitat (Woodland)
- Habitat for Special Concern and Rare Wildlife

In addition, one confirmed SWH feature, Rare Vegetation Communities, specifically the Moist-Fresh Black Walnut Deciduous Forest types (FOD7-4 / FODM7-4) was found to occur within the Study Area. It is Burnside's opinion that this community should not be considered SWH due to the level of anthropogenic influence and alteration in the area. See Section 4.4.2 below for additional details.

Overall, all SWH features are fairly limited and primarily coincident with watercourse corridor and woodlands.

Species at Risk

A desktop review of the NHIC, OBBA, Department of Fisheries and Oceans (DFO), and ORAA databases on December 1, 2021, yielded several Species at Risk (SAR) with the potential to occur within the Study Area. Communication with MECP (December 16, 2021) revealed additional species which have been added to this list.

Two SAR were identified during on-site terrestrial field investigations conducted as a part of the MCEA study. Barn Swallow (*Hirundo rustica, SC*) and Butternut (*Juglans cinerea, END*) were observed within the Study Area. The Butternut Specimen specifically is located within the ROW. The Barn Swallow was observed overhead but nesting habitat was not observed.

Candidate habitat, which may be present but could not be confirmed, for several additional species at risk is summarized in Table 8.

Table 8: Summary of Potential Species at Risk Habitats

Species	Designation under the Endangered Species Act	Potential Habitat
Endangered and Threatened Species		
American Chestnut (*Castanea dentata*)	Endangered	Woodlands. Not observed from roadside but could be present in woodlands away from roadside on private properties.
Red-headed Woodpecker (*Melanerpes erythrocephalus*)	Endangered	Woodlands along Spitler Creek and the Tributary of the Big Otter Creek.
Little Brown Myotis (*Myotis lucifugus*)	Endangered	Woodlands along Spitler Creek and the Tributary of the Big Otter Creek. May also use individual trees outside of woodlands for maternal roosting.
Northern Myotis (*Myotis septentrionalis*)	Endangered	Woodlands along Spitler Creek and the Tributary of the Big Otter Creek. May also use individual trees outside of woodlands for maternal roosting.
Tri-colored Bat (*Perimyotis subflavus*)	Endangered	Woodlands along Spitler Creek and the Tributary of the Big Otter Creek. May also use individual trees outside of woodlands for maternal roosting.

Species	Designation under the Endangered Species Act	Potential Habitat
Blanding's Turtle (*Emydoidea blandingii*)	Endangered	Suitable overwintering habitat may be present in the open water pond within the woodland along Spitler Creek between Springford and Otterville. Suitable overwintering habitat may also be present in in a small pond just west of the golf course and Otterville along the Big Otter Creek Tributary. Turtles may use watercourses and upland forests areas adjacent to wetlands as movement corridors.
Special Concern Species		
Crooked-stem aster (*Symphyotrichum prenanthoides*)	Special Concern	Woodlands.
Canada Warbler (*Cardellina canadensis*)	Special Concern	Small woodland (FODM7-7) north of Spitler Creek and narrow woodlands along tributary of the Big Otter Creek west of the golf course. Both are moist lowland forests with dense understory layers.
Eastern Wood-pewee (*Contopus virens*)	Special Concern	Woodlands.
Golden-winged Warbler (*Vermivora chrysoptera*)	Special Concern	Shrub thicket communities along Spitler Creek.
Wood Thrush (*Hylocichla mustelina*)	Special Concern	Woodlands.
Snapping Turtle (*Chelydra serpentina*)	Special Concern	Suitable overwintering habitat may be present in the open water pond within the woodland along Spitler Creek between Springford and Otterville. Suitable overwintering habitat may also be present in in a small pond just west of the golf course and Otterville along the Big Otter Creek Tributary. Turtles may use watercourses as a movement corridor.

Additional details regarding habitat preferences and where each species is likely to occur within the Study Area are described in the Terrestrial Natural Features Memo in Appendix B.

4.2.4 Oxford Natural Heritage Systems Study

The Upper Thames River Conservation Authority prepared a Natural Heritage Systems Study in 2016 for Oxford County. This document was prepared in collaboration with Oxford County Conservation Authorities – Grand River, Catfish Creek, and Long Point Region.

The report delineates the County's Natural Heritage System and provides the criteria used to identify features and functions. The report includes maps of the County's significant valleylands. ANSIs, wetlands, woodlands, and watercourses. The maps show that the study area corridor contains watercourses confirmed to be Spittler Creek, Plumb Creek, and Big Otter Creek. Spittler Creek and Big Otter Creek are both associated with significant valleylands. The report also shows wetlands within the study area across Spittler Creek. The study area also appears to contain woodlands.

4.2.5 Aquatic Habitat

Background Screening

Burnside's Aquatic Ecology staff reviewed the following sources of background information to determine ecological constraints which may impact the proposed works:

- Aerial Imagery (2021)
- Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF); Aquatic Resources Area (ARA) mapping (2017)
- Department of Fisheries and Oceans (DFO) Species at Risk (SAR) mapping (2022)
- Natural Heritage Information Centre (NHIC) mapping (2022)

A memo summarizing findings of the aquatic habitat assessment is provided in Appendix C.

The primary watercourse along Oxford Road 19 is not listed on MNDMNRF ARA mapping, however, Unnamed Tributaries of Plumb Creek which have cold-water thermal regimes, cross the roadway in two areas. Furthermore, the primary watercourse is listed on water resource mapping as Splitter Creek, a tributary of Otter Creek, and has an unknown thermal regime.

According to the DFO SARA mapping, there are no species at risk found within the work area. If there is the potential for in-water works to occur along Oxford Road 19, the proposed timing window for this project would be from June 15 to September 30.

Fish Habitat

On May 12, 2022, Burnsides Aquatic Ecologists visited six watercourse crossings within the study area along Oxford Rd 19 in Oxford County. The location of the crossings is summarized in Table 9 and shown on Figure A-1 in Appendix A. Of the six crossings visited that day, all crossings have the potential to support fish habitat. Each crossing was either found on Spittler Creek or was an unnamed tributary of Spittler Creek. This creek is a tributary of Otter Creek with an unknown thermal regime and is listed on MNRF water resource mapping. According to DFO SAR mapping there are no aquatic species at risk found within the region of Spittler Creek.

Fish habitat as defined under the Fisheries Act was noted at all sites with significant fish habitat (i.e. spawning habitat) observed at site locations CR2, CR3, and CR4. Each crossing had adequate flow / depth, riparian life, and substrate providing suitable fish habitat. While visiting these sites, large schools of bait fish were noted throughout both the upstream and downstream reaches of the crossings. Furthermore, spawning Chub species were observed in the downstream reach of CR2 and underneath the clear span bridge in CR3.

Fish were not observed at crossings five and six, however, this does not denounce the fact that these two crossings still have the potential to provide fish habitat. At CR5, the watercourse had adequate structure and depth to support cyprinid species. Downstream from the culvert where riparian vegetation was abundant, the watercourse widened and increased in depth potentially providing suitable fish habitat.

Upstream of CR6 there is no fish habitat as there are only two tile drainage features feeding this watercourse. However, downstream from the culverts an open channel exists and provides the potential for fish habitat based on its connectivity to Plumb Creek which is a tributary of Spittler Creek.

Table 9: Location of Water Crossings

Site Location	Coordinates
CR1 (3 km West of Browns Corner along Oxford Rd 19)	42.924287, -80.618157
CR2 (4.8 km West of Browns Corner along Oxford Rd 19, Spittler Creek)	42.921160, -80.639036
CR3 (12 km West of Browns Corner along Otterville Rd, Spittler Creek)	42.908870, -80.726018
CR4 (13.5 km West of Browns Corner Along Ostrander Rd, Spittler Creek)	42.906233, -80.744772
CR5 (14.3 km West of Browns Corner Along Ostrander Road, Unnamed Tributary of Spittler Creek)	42.904963, -80.753869

Site Location	Coordinates
CR6 (8 km West of Browns Corner Along Otterville Rd, Unnamed Tributary of Plumb Creek)	42.915617, -80.677689

4.3 Social Environment

4.3.1 Methodology for Characterizing the Social Environment

The social environment was characterized through a review of existing information, databases, plans and policies, including the following:

- Provincial Policy Statement, 2020
- County of Oxford Official Plan
- Online Source Water Protection mapping
- Aboriginal and Treaty Rights Information System (INAC)
- Correspondence with MECP staff to identify Indigenous interests in the area (refer to Section 11.4 for further information)

4.3.2 Indigenous Treaties, Rights and Interests

The Study Area lies within the lands of the Between the Lakes Purchase, also known as Treaty 3.

According to provincial government records[6], "The Between the Lakes Purchase was signed on December 7, 1792, by representatives of the Crown and certain Mississauga peoples". The territory described in the written treaty covers approximately 3 million acres.

The original Between the Lakes Purchase was signed in 1784. Due to uncertainties with the description of the lands in the original surrender, Treaty 3 was entered into in 1792 to clarify what was ceded. The Between the Lakes Purchase was named as such because it included all the land "lying and being between the Lakes Ontario and Erie".

Correspondence was received by MECP on December 15, 2021 (refer to Appendix H-5). It was indicated that the following communities may have Indigenous Rights, Treaty Rights or interest in the area:

- Aamjiwnaang First Nation
- Caldwell First Nation
- Chippewas of the Thames First Nation
- Delaware Nation (Moravian of the Thames)
- Chippewas of Kettle and Stony Point

[6] https://www.ontario.ca/page/map-ontario-treaties-and-reserves#t7

- Mississaugas of the Credit First Nation
- Munsee-Delaware First Nation
- Oneida Nation of the Thames
- Bkejwanong (Walpole Island First Nation)
- Six Nations of the Grand River (Elected Council and Haudenosaunee Confederacy Chiefs Council, represented by the Haudenosaunee Development Institute)

Contact was made with each of these communities during the MCEA. Additional information can be found in Section 1.1.

4.3.3 Land Use

The Study Area is located along Oxford Road 19 between Ostrander and the municipal boundary with the County of Norfolk. The corridor passes through the County of Oxford communities of Ostrander (South-West Oxford), Springford (County of Norwich) and Otterville (County of Norwich).

The two communities of Springford and Otterville within the Township of Norwich are zoned as Settlements by the County of Oxford Official Plan. The County of Oxford Official Plan Settlement Strategy Plan identifies these two as Serviced Villages. Lands surrounding Ostrander is identified as Rural Cluster. Outside of these communities, is the lands are Agricultural Reserve, Refer to Figure 8 for Official Plan land use designations.

Between the villages of Springford and Otterville is Spittler Creek which is zoned as Environmental Protection. This designation falls within the County's Natural Heritage System.

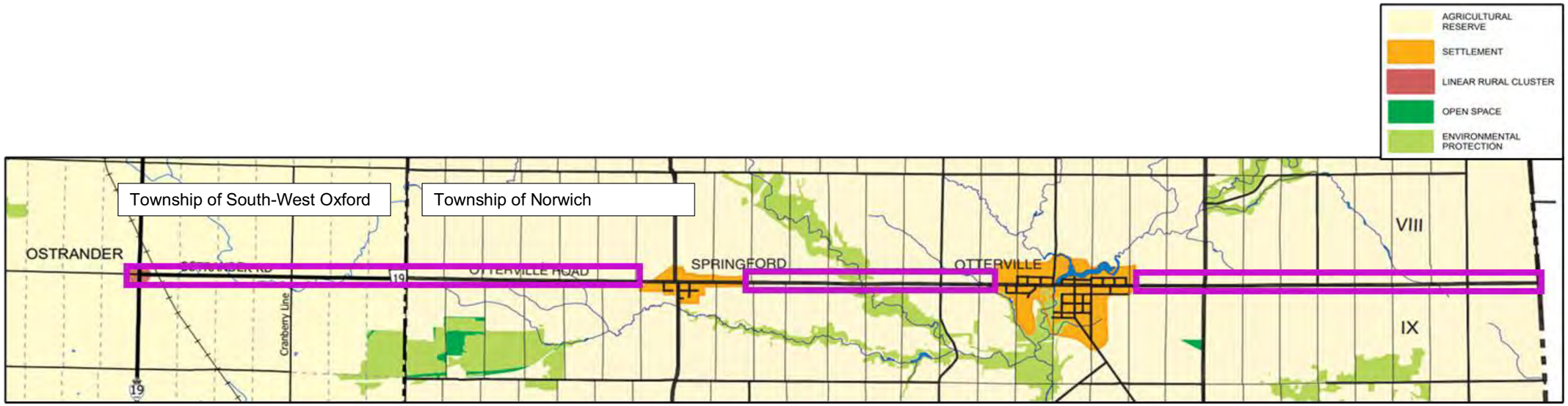
Within Otterville, the Otter Creek floodplain crosses Oxford Rd 19. As floodplain falls within the Open Space designation, this land also falls within the County's Natural Heritage System. Below the floodplain to the south of Oxford Road 19, the Environmental Protection designation begins.

The western portion of the Study Area in, and around, Ostrander is known as Plank Line. This area predominantly consists of residential dwellings. Outside of the community, directly to the east, is a CP Rail line. Further to the east, lands are dominated by agricultural fields until the community of Springford. The community is bordered by the Springford Community Park, Community Hall and Springford Baptist Church and Springford Reformed Church to the west. East of these buildings, the residential neighbourhoods compose the majority of the community. The Dunns Tree Farm, a Christmas tree farm, is located near the east border of Springford.

The east of Otterville is bounded by the Reformed Congregations in North America. The community of Otterville is dominated by residential neighbourhoods. East of Otterville to

the edge of the Study Area is predominantly agricultural lands which include Plaid Shirt Farm Ltd. In addition, the P.H. Kuivenhoven Greenhouses are located in close proximity to Otterville.

Figure 8: Land Use



4.3.4 Provincial Policy Statement

The 2020 Provincial Policy Statement (PPS) is the complimentary policy document to the *Planning Act*, 1990, issued under Section 3 of the *Planning Act*.

Section 1.6.7 addresses transportation systems, specifically noting the following:

> *1.6.7.1 Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs.*
>
> *1.6.7.2 Efficient use should be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible.*
>
> *1.6.7.3 As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries.*

The PPS also includes a variety of policies designed to protect natural heritage, natural resources, and cultural heritage and archaeology.

4.3.5 Oxford County Official Plan

The Oxford County Official Plan indicates that the County will, “Improve the functionality of the County transportation network by identifying and making provision for necessary improvements over time.” (Section 5.1.1).

Oxford Road 19 is a “County Road’, a category of road described as, “major roads which serve moderate to high volumes of inter-municipal and long-distance traffic movements between Provincial Highways and between Township Roads.”

4.3.6 Source Water Protection

The Study Area falls under the Long Point Region Source Protection Area and Lake Erie Source Water Protection Area. Areas which are vulnerable to the impacts of development include Wellhead Protection Areas, Intake Protection Zones, Issues Contributing Areas, Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas. Each is described as follows:

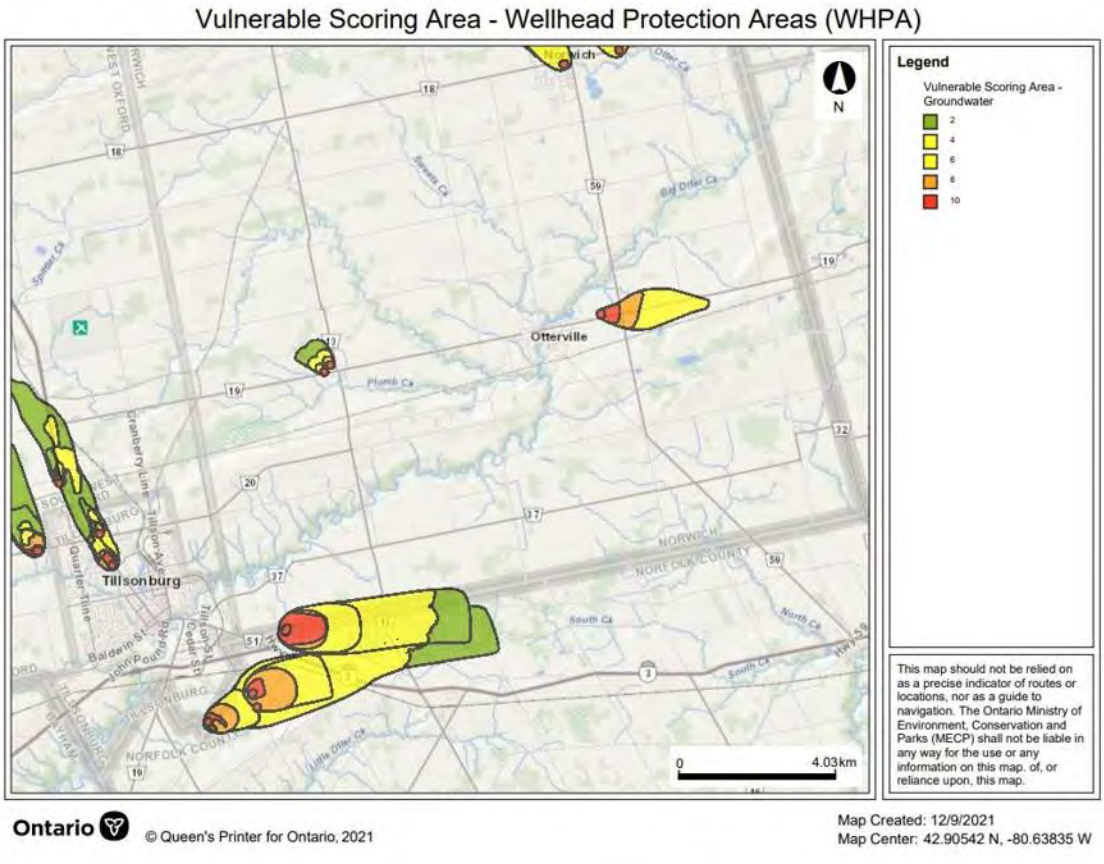
Wellhead Protection Areas (WHPAs)

A Wellhead Protection Area (WHPA) is an area from which a well draws water. Land uses that may pose a threat to drinking water quality and quantity in the applicable well are regulated within WHPAs.

Three portions of the Study Area are identified as WHPAs, as shown on Figure 9, including:

- The west part of the Study Area extending slightly past the Ontario Southland Railway (mostly within the Settlement / Rural Cluster)
- The western portion of Springford, east of Church Street (mostly within the Settlement / Village)
- East of Springford to Highway 59

Figure 9: Wellhead Protection Areas (WHPAs) Within the Study Area



Intake Protection Zones (IPZs)

An Intake Protection Zone (IPZ) is an area related to a surface water intake and within which it is desirable to regulate or monitor drinking water threats. These areas are either

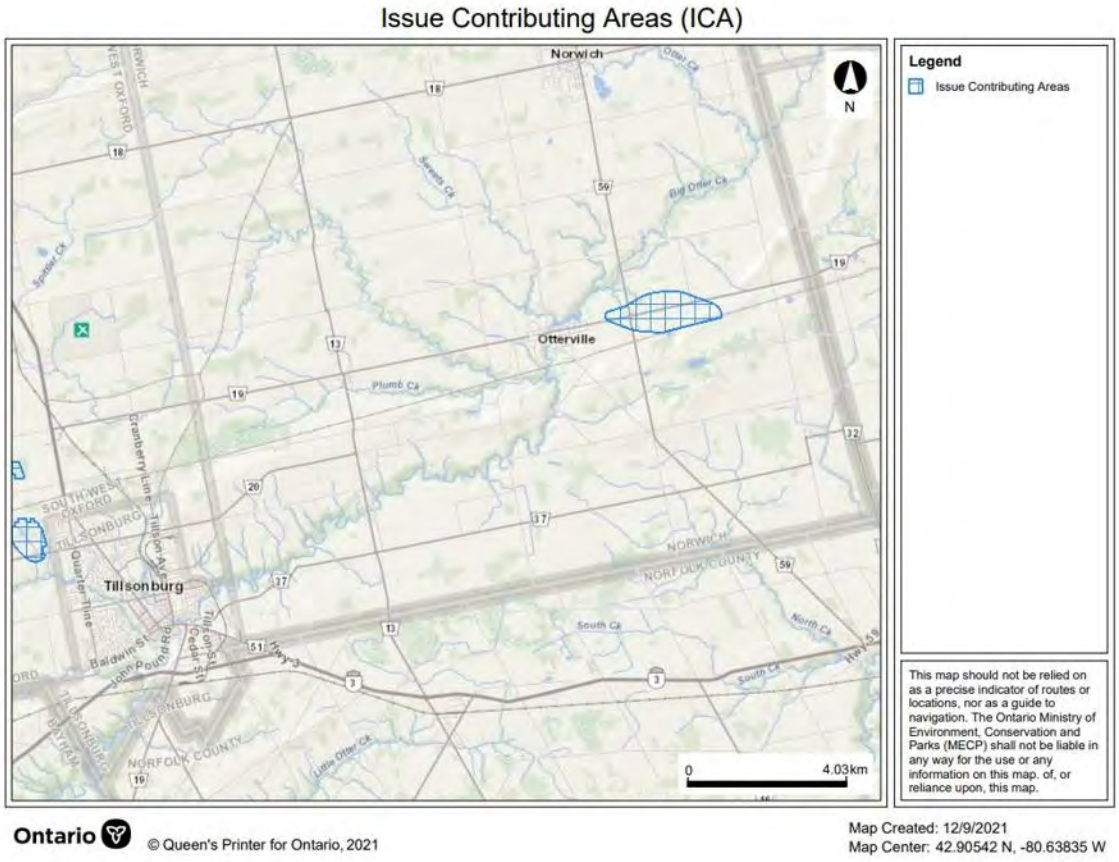
set distances, delineated based on the time it would take to respond to a spill, or based on the catchment area of the intake.

No IPZs were identified in the Study Area.

Issue Contributing Areas (ICAs)

An Issue Contributing Area (ICA) is an area within a vulnerable area where previous or ongoing human activities have, or could, contribute to the elevated concentration of particular substances in the drinking water source. The east portion of the Study Area east of Otterville (mostly on Agricultural Reserve) falls under ICA as illustrated in Figure 10.

Figure 10: Issue Contributing Areas (ICA) Within the Study Area



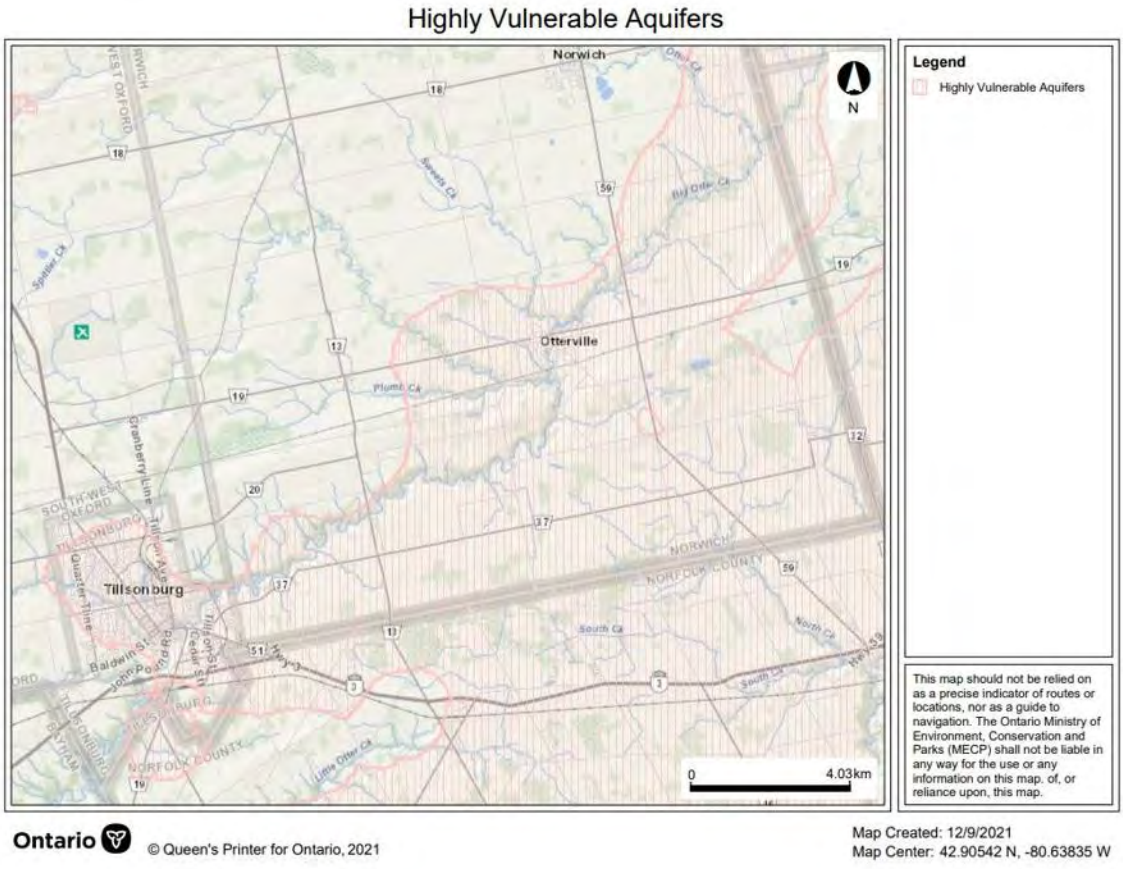
Highly Vulnerable Aquifers (HVAs)

A Highly Vulnerable Aquifer (HVA) is an aquifer on which external sources have, or are likely to have, a significant adverse effect, and includes the land above the aquifer. An aquifer can be considered highly vulnerable based on how deep it is underground, what

sort of soil or rock is covering it and the characteristics of the soil or rock surrounding it. The faster water is able to flow through the ground to an aquifer, the more vulnerable it is to contamination.

The eastern half of the Study Area east of Springford to the edge of the Study Area (mostly on Agricultural Reserve) falls under HVA area (Figure 11).

Figure 11: Highly Vulnerable Aquifers (HVAs) Within the Study Area

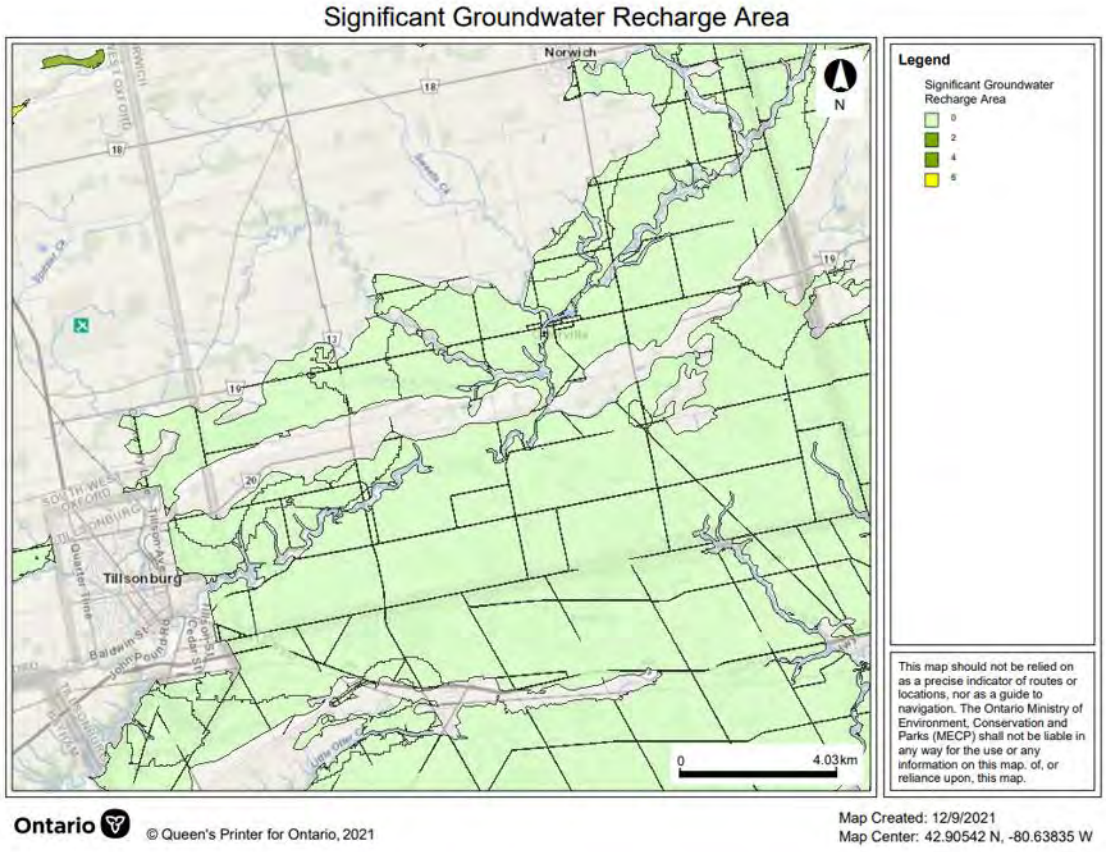


Significant Groundwater Recharge Areas (SGRAs)

A Significant Groundwater Recharge Area (SGRA) is a recharge area which helps maintain the water level in an aquifer that supplies a community with drinking water. Recharge areas often have loose or permeable soil such as sand or gravel, which allows the water to seep easily into the ground. Areas with shallow fractured bedrock are also often recharge areas.

The eastern half of the Study Area east of Springford to the edge of the Study Area (mostly on Agricultural Reserve) falls under an SGRA designation, as shown on Figure 12.

Figure 12: Significant Groundwater Recharge Area (SGRA) Within the Study Area



4.4 Cultural Environment

4.4.1 Methodology for Characterizing the Cultural Environment

The cultural environment includes the heritage and archaeological resources present within the Study Area. Both the assessment of archaeological potential and cultural heritage resources were carried out by Archaeological Resources Inc. (ASI).

The study of archaeological resources was carried out in accordance with the Ontario Heritage Act (Ontario Heritage Act, R.S.O. c. O.18, 1990, as amended in 2019) and the 2011 Standards and Guidelines for Consultant Archaeologists (S & G), administered by the Ministry of Citizenship and Multiculturism (MCM 2011).

The Cultural Heritage Report follows guidelines presented in the Ontario Heritage Tool Kit (Ministry of Culture, 2006) and Criteria for Evaluating Potential for Built Heritage

Resources and Cultural Heritage Landscapes (Ministry of Citizenship and Multiculturalism, 2016).

4.4.2 Archaeological Resources

A Stage 1 Archaeological Assessment was completed by Archaeological Services Inc. (ASI). A copy of the Stage 1 Archaeological Assessment Report is provided in Appendix D of this report. Stage 1 scope involves a 25-m buffer from the centreline of Oxford Road 19 between Highway 19 and Windham Line.

The Stage 1 background study determined 27 previously registered archaeological sites are located within 1 km of the Study Area. Two sites are located within the Study Area, and six sites are located within 50 metres. The Pettman Cemetery is approximately 100 m north of the Study Area.

Springford Community Cemetery and Pine Street Burial Ground are located within the Study Area and should be avoided. The property inspection determined that parts of the Study Area exhibit archaeological potential and will require archaeological assessment.

The preferred design concepts confirm that the proposed grading limits will impact areas of archaeological potential beyond the existing disturbed right-of-way, including the Springford Community Cemetery and adjacent right-of-way recommended for construction monitoring, and lands in proximity to the Pettman Cemetery site.

A summary of the recommendations is below:

1. Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit / pedestrian survey at 5-m intervals, where appropriate. Stage 2 is required prior to any proposed construction activities on these lands. Lands requiring a Stage 2 assessment are shown on Figure A-2 in Appendix A.

2. The eight registered archaeological sites within 50 m of the Study Area were identified in 1981 by Foster (1982-15). Due to the passage of time and paucity of mapping associated with the former archaeological assessment, these sites must be reassessed during any Stage 2 survey to determine cultural heritage value or interest as per the 2011 S & G.

3. Pettman Cemetery was identified in 1981 by Foster (1982-15) and is known from local knowledge to be a historical Black community burying ground possibly located within 50 m of the Study Area and preferred design concepts. The cemetery boundaries and number of burials remains unknown. Further archaeological assessment is required.

4. Springford Community Cemetery is within the Study Area. If future works are unable to avoid the legal boundaries of the cemetery and archaeological fieldwork is required, detailed strategies should be formulated once the impacts are understood.

5. Pine Street Burial Ground is within the Study Area. The cemetery property must be avoided by any proposed construction. Any construction impacts within the cemetery's legal boundaries will require a Stage 3 Cemetery Investigation to be conducted to confirm the presence of burial shafts.

4.4.3 Cultural Heritage Resources

A Cultural Heritage Resource Assessment (CHRA) was completed by Archaeological Services Inc. (ASI). A copy of the CHRA is provided in Appendix E of this report. The report presents an inventory of known and potential built heritage resources (B.H.R.s) and cultural heritage landscapes (C.H.L.s), identify existing conditions of the project study area, provide a preliminary impact assessment and propose appropriate mitigation measures.

A review of federal, provincial, and municipal registers, inventories, and databases revealed that there are two known features of cultural heritage value within the Oxford Road 19 Corridor Improvements study area. An additional 30 features were identified during background research and fieldwork. The key findings of the CHRA are shown on Figure A-2 in Appendix A and are summarized below:

- A total of seven built heritage resources (B.H.R.s) and 25 cultural heritage landscapes (C.H.L.s) were identified within the study area
- Of the 32 identified B.H.R.s and C.H.L.s, two properties were designated under Part IV of the Ontario Heritage Act (C.H.L. 13 and C.H.L. 20), one property has an Ontario Heritage Trust plaque (C.H.L. 20), one property is listed in the Ontario Heritage Trust's Places of Worship Inventory (B.H.R. 1), and 29 were identified during background research and field review

Recommendations are as follows:

1. Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to identified built heritage resources and cultural heritage landscapes. Avoidance measures may include, but are not limited to: erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified B.H.R.s and C.H.L.s, etc. Suitable mitigation measures including post construction rehabilitation with sympathetic plantings can also be implemented.

2. As there are direct adverse impacts anticipated to the following properties: 225769 Otterville Road (B.H.R. 7), 224570 Ostrander Road (C.H.L. 3), 225400 Otterville Road (C.H.L. 12), and given the potential cultural heritage value of

those properties, a resource-specific Cultural Heritage Evaluation Report (C.H.E.R.) should be conducted to determine cultural heritage value or interest (C.H.V.I.). As there are direct impacts anticipated, should the C.H.E.R. determine that the property retains C.H.V.I., a resource-specific Heritage Impact Assessment (H.I.A.) should be conducted to evaluate alternatives, assess potential impacts to the resource, and recommend appropriate mitigation measures.

a) The C.H.E.R. and H.I.A. should be completed by a qualified heritage professional with recent and relevant experience as early in detailed design as possible.

3. Direct impacts to C.H.L. 13 (225422 Otterville Road) are anticipated to include grading and encroachment onto the northern portion of the property. However, encroachment is not anticipated to have a direct adverse impact on the known heritage attributes associated with this property. As C.H.L. 13 is designated under Part IV of the Ontario Heritage Act and there are direct impacts anticipated, a resource-specific H.I.A. is required as per clause 3.3.2.2 of the Oxford County Official Plan (County of Oxford, 2021). Given that the proposed undertaking is not anticipated to result in direct adverse impacts to the property and no known heritage attributes are anticipated to be impacted, it is recommended that the County of Oxford should consider waiving the requirement for a H.I.A. in this case if suitable mitigation measures including post construction rehabilitation with sympathetic plantings can be implemented.

4. As the property at 225947 Otterville Road (C.H.L. 20) is designated under Part IV of the Ontario Heritage Act and direct impacts anticipated due to property acquisition, grading, encroachment onto the northern portion of the property resulting in changes to the parcel boundaries, and removal/relocation of the Ontario Heritage Trust plaque, a resource specific H.I.A. is required as per clause 3.3.2.2 of the Oxford County Official Plan (County of Oxford, 2021). However, encroachment is not anticipated to have a direct adverse impact on the known heritage attributes associated with this property.

   a) The H.I.A. should be completed by a qualified heritage professional with recent and relevant experience as early in detailed design as possible.

   b) The Ontario Heritage Trust plaque should be removed prior to construction and stored in a secure facility to prevent damage. Following construction activities, this plaque should be reinstalled at its extant location, or in a similarly accessible location based on consultation with the Township of Norwich and the Ontario Heritage Trust.

5. To ensure the following properties are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design:

a) 224261 Ostrander Road (B.H.R. 1)

b) 224943 Otterville Road (B.H.R. 2)

c) 224948 Otterville Road (B.H.R. 3)

d) 225769 Otterville Road (B.H.R. 7)

e) 224570 Ostrander Road (C.H.L. 3)

f) 225227 Otterville Road (C.H.L. 7)

g) 225279 Otterville Road (C.H.L. 8)

h) 225413 Otterville Road (C.H.L. 11)

i) 225400 Otterville Road (C.H.L. 12)

j) 225422 Otterville Road (C.H.L. 13)

k) 225860 Otterville Road (C.H.L. 18)

l) 225877 Otterville Road (C.H.L. 19)

m) 225963 Otterville Road (C.H.L. 21)

Should this advance monitoring assessment conclude that the structure(s) on these properties will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

6. A qualified heritage consultant should be contacted during detailed design to review the designs in order to confirm impacts of the proposed works on the potential C.H.L.s at 225227 Otterville Road (C.H.L. 7), 225659 Otterville Road (C.H.L. 15), 225688 Otterville Road (C.H.L. 16), and 225720 Otterville Road (C.H.L. 17). This would determine whether there would be any adverse impacts to the properties and any subsequent cultural heritage requirements or reporting.

7. Should future work require an expansion of the study area, then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.

8. The report should be submitted to the Township of South-West Oxford, the Township of Norwich, the County of Norfolk, the Ministry of Citizenship and Multiculturalism and the Ministry of Environment, Conservation and Parks, for review and comment, and any other local heritage stakeholders that may have an interest in this project.

The final report should be submitted to the Township of South-West Oxford, the Township of Norwich and the County of Norfolk for their records.

5.0 Identification and Assessment of Alternative Solutions (Phase 2 MCEA)

Phase 2 of the MCEA process requires that a municipal proponent (Oxford County) identify and evaluate alternative solutions to the Problem / Opportunity Statement, assessing the impact of the solutions on the general condition of the natural, social / cultural, and economic environment including possible mitigating measures. At the conclusion of Phase 2, the appropriate MCEA planning schedule is confirmed. It is also in this phase that the first mandatory consultation with review agencies and the public is initiated.

5.1 Identification of Alternative Solutions

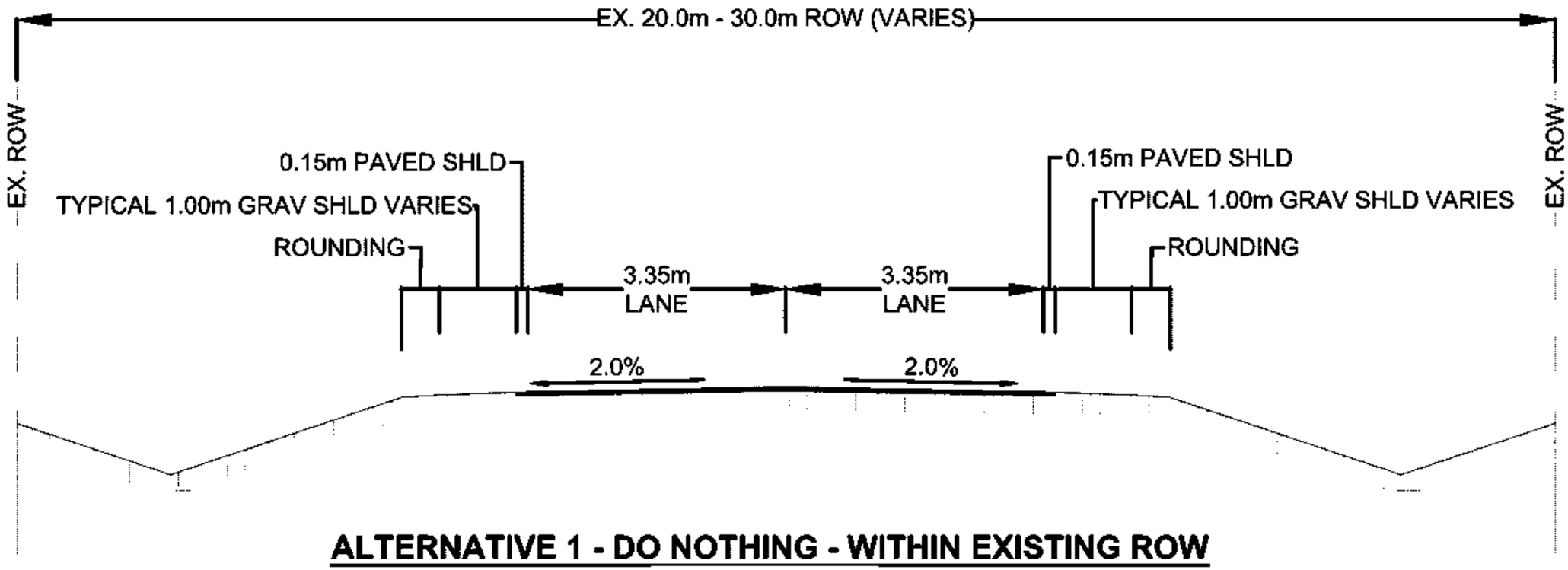
Five alternative solutions were identified to address the Project Opportunity Statement, including an option to do nothing and leave the road in its current condition. The Do-Nothing option is a mandatory consideration within the MCEA process and serves as a reference point for comparing other alternative solutions.

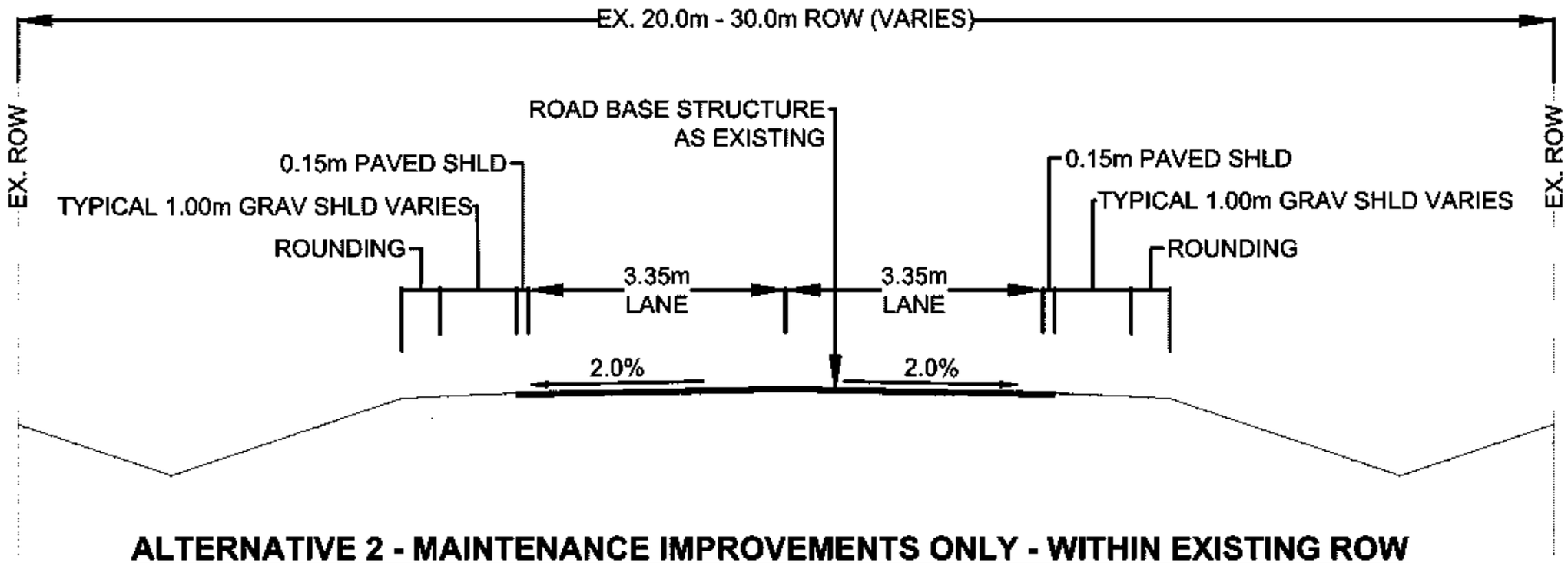
Alternative solutions are described in and shown in Table 10.

Table 10: Description of Alternative Solutions

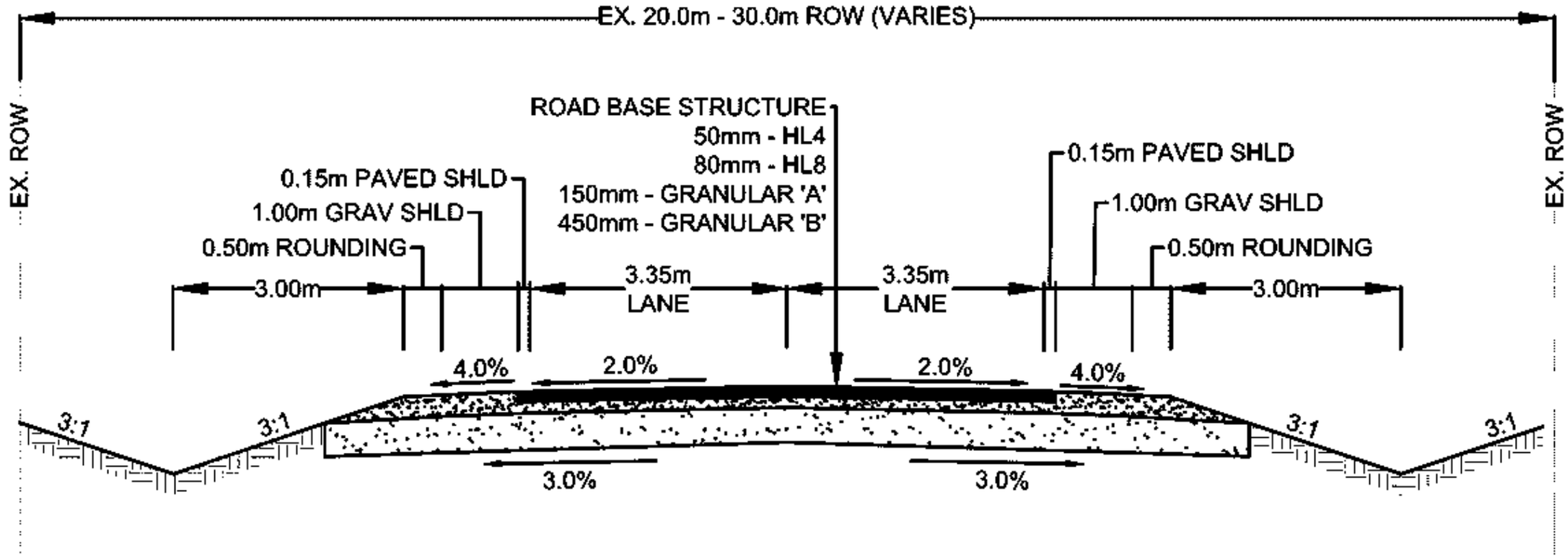
Alternative	Actions / Activities Included in the Alternative					
	Provide Regular Road Maintenance	**Provide 3.35 m Travel Lanes**	**Widen ROW to 30.5 m**	**Provide Structural Improvements to the Pavement to Remove Half-Load Restrictions**	**Improve Road Geometry and Sightlines**	**Add paved Shoulders**
Alternative 1: Do nothing	√	√				
Alternative 2: Provide regular road maintenance	√	√				
Alternative 3: Improve road structure within existing ROW	√	√		√	√	
Alternative 4: Widen ROW, widen and partially pave shoulders	√	√	√		√	√
Alternative 5: Improve road structure, widen ROW, widen and partially pave shoulders	√	√	√	√	√	√

Figure 13: Alternative Solutions

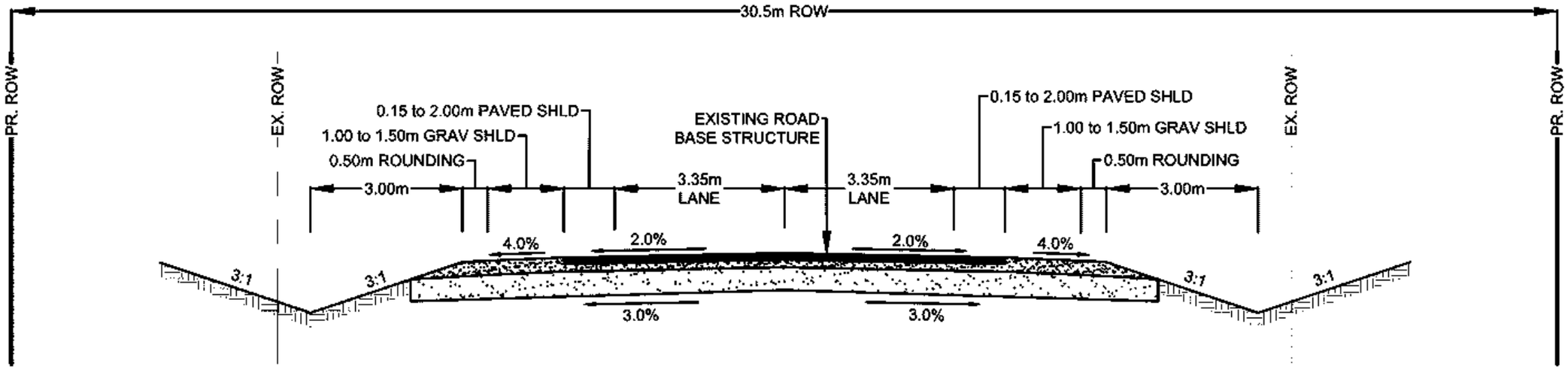




ALTERNATIVE 2 - MAINTENANCE IMPROVEMENTS ONLY - WITHIN EXISTING ROW

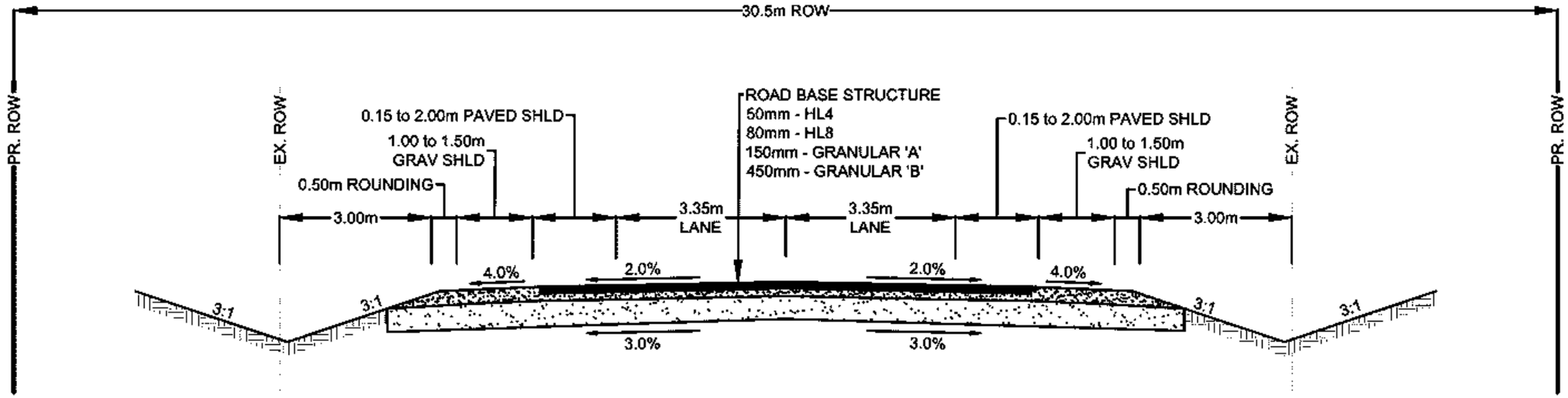


ALTERNATIVE 3 - IMPROVED PAVEMENT STRUCTURE - MINOR LANE WIDENING - WITHIN EXISTING ROW



NOTE: WIDTH OF SHOULDER TO BE DETERMINED AS PART OF CONSIDERATION OF DESIGN ALTERNATIVES AND PURPOSE OF SHOULDER (e.g., TO REDUCE MAINTENANCE, TO IMPROVE SAFETY, TO PROVIDE UNBUFFERED BICYCLE ACCESSIBLE SHOULDER OR TO PROVIDE BUFFERED BICYCLE ACCESSIBLE SHOULDER).

ALTERNATIVE 4 - PARTIALLY PAVED SHOULDER - MAINTAIN EXISTING PAVEMENT STRUCTURE - WIDEN ROW TO MEET OFFICIAL PLAN REQUIREMENT



NOTE: WIDTH OF SHOULDER TO BE DETERMINED AS PART OF CONSIDERATION OF DESIGN ALTERNATIVES AND PURPOSE OF SHOULDER (e.g., TO REDUCE MAINTENANCE, TO IMPROVE SAFETY, TO PROVIDE UNBUFFERED BICYCLE ACCESSIBLE SHOULDER OR TO PROVIDE BUFFERED BICYCLE ACCESSIBLE SHOULDER).

ALTERNATIVE 5 - PARTIALLY PAVED SHOULDER - IMPROVED PAVEMENT STRUCTURE - WIDEN ROW TO MEET OFFICIAL PLAN REQUIREMENT

5.2 Evaluation of Alternative Solutions

The Alternatives were systematically evaluated using a variety of quantitative and qualitative measures, as described in the following sections.

5.2.1 Evaluation Criteria

The overall objective of the evaluation was to identify a Preferred Solution among the five alternatives using a systematic and transparent approach. The Preferred Solution is the Alternative that best addresses the Problem Statement with as few negative impacts as possible.

To this end, a set of Evaluation Criteria were identified to comparatively evaluate the Alternative solutions. The Evaluation Criteria included:

Natural Environment

- Impacts to vegetation and vegetation communities
- Impacts to fisheries and aquatic habitat
- Impacts to terrestrial habitat
- Impacts to trees
- Impacts to Woodlots, Wetlands and Designated Features (including PSWs, ESAs, ANSIs, Regional NHS)
- Impacts to surface water and drainage
- Impacts to groundwater and source water protection
- Climate change and natural hazard impacts (erosion, soil stability, flooding)

Cultural Environment

- Impacts to cultural heritage resources
- Impacts to archaeological resources

Socio-Economic Environment

- Impacts to private property
- Compatibility with existing and future land uses
- Compatibility with active transportation plans or needs
- Conformity to municipal and agency plans and policies
- Impacts to air quality and noise levels
- Impacts to farms and business operations
- Provision of safe access to private properties and businesses

Technical Considerations

- Accommodation of all types of traffic and modes of travel
- Improvement to operational safety
- Road maintenance requirements

- Impacts to utilities and drainage work / structures

Financial Considerations

- Capital and operation / maintenance costs
- Property acquisition cost

5.2.2 Evaluation Results

The evaluation of the Alternative solutions was based on an assessment of potential impacts and a review of input received from the public and regulatory agencies during the study process. Table 11 provides a summary of the evaluation of alternative solutions. A detailed evaluation matrix is provided in Appendix F.

Table 11: Summary of the Evaluation of Alternative Solutions

CRITERIA FOR EVALUATING ALTERNATIVES	Alternative 1: Do Nothing	Alternative 2: Provide regular road maintenance	Alternative 3: Improve road structure within existing ROW	Alternative 4: Widen the ROW and widen partially pave shoulders	Alternative 5: Improve road structure, widen the ROW and widen and partially pave shoulders
PROBLEM STATEMENT (POS)	Does not meet POS	Partially meets POS	Partially meets POS	Partially meets POS	Meets POS
Natural Environment	◕	◕	◑	◑	◑
Cultural Environment	●	●	●	◕	◕
Socio-Economic Environment	◔	◔	◑	◕	◕
Technical Considerations	◔	◔	◑	◕	◕
Financial Considerations	●	◕	◕	◑	◑
OVERALL SUMMARY	Not Carried Forward	Least Preferred	Moderately Preferred	Moderately Preferred	Most Preferred

ORDER OF PREFERENCE
Most Preferred ●
More Preferred ◕
Moderately Preferred ◑
Less Preferred ◔
Least Preferred o

5.2.3 Preferred Alternative Solution

The preferred alternative solution is Alternative 5: widened and partially paved shoulders and structural improvements. The alternative provides:

- A two-lane road to County requirements with paved shoulder
- Widened and partially paved shoulders to reduce maintenance and improve safety, requiring the road ROW to be widened
- Improvement of pavement structure to remove half-load restrictions in the spring

6.0 Identification and Assessment of Alternative Design Concepts

6.1 Identification of Alternative Design Concepts

Phase 3 of the MCEA includes a review of the alternative methods to design the Preferred Solution to widen and partially pave the road shoulders and implement structural improvements. Each design concept includes a 30 m wide ROW and 3.35 m travel lanes. The design concepts were developed to address the needs identified in Section 2.11. Therefore, each concept includes the following improvements:

- Structural improvements to the road base and surface to eliminate the road restrictions
- Changes to the road profile in specified locations to reduce sightline limitations
- Widening of the road ROW to meet County standards (i.e., 30.5 m in rural segments and 26.0 m in built-up areas such as Ostrander)
- Daylighting at various intersections, where required to improve safety
- Widening of the road surface at the railway crossing to meet standards set out in the *Grade Crossings Standards, Transport Canada, January 2019*
- Inclusion of a westbound left turn lane on Oxford Road 19 at its intersection with Highway 19 in the future when traffic volumes warrant
- Potential improvements at the intersection of Oxford Road 19 / Oxford Road 59 subject to additional traffic studies to be completed as part of the future detailed designs for improvements to Oxford Road 19

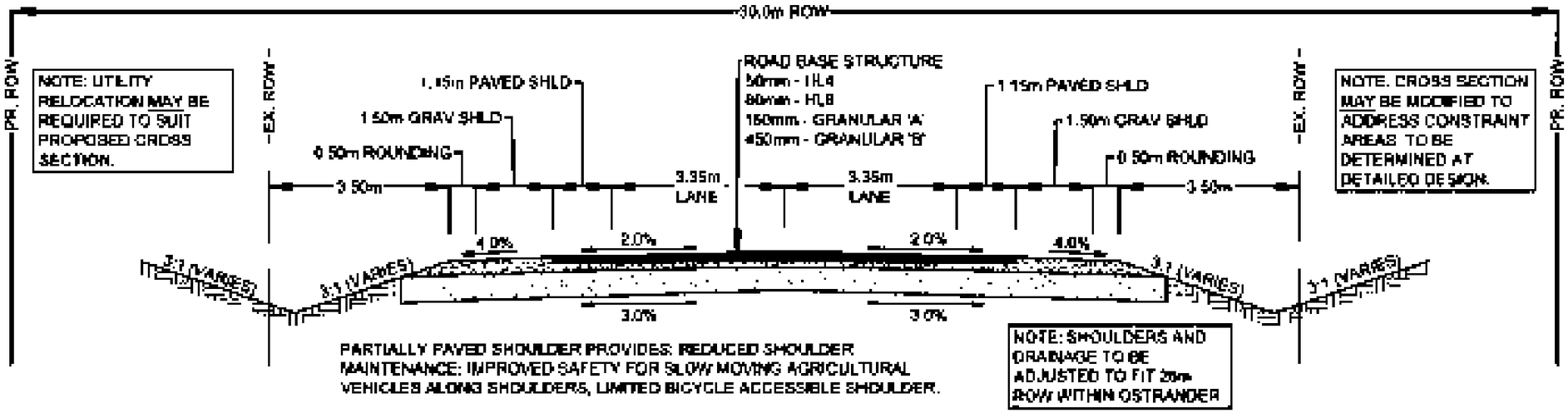
The width of the paved shoulder varies in each alternative, although the width of the overall shoulder (i.e., paved plus gravel) is the same for all alternatives.

Three Alternative design concepts were developed, as summarized in Table 12 and shown in Figure 14.

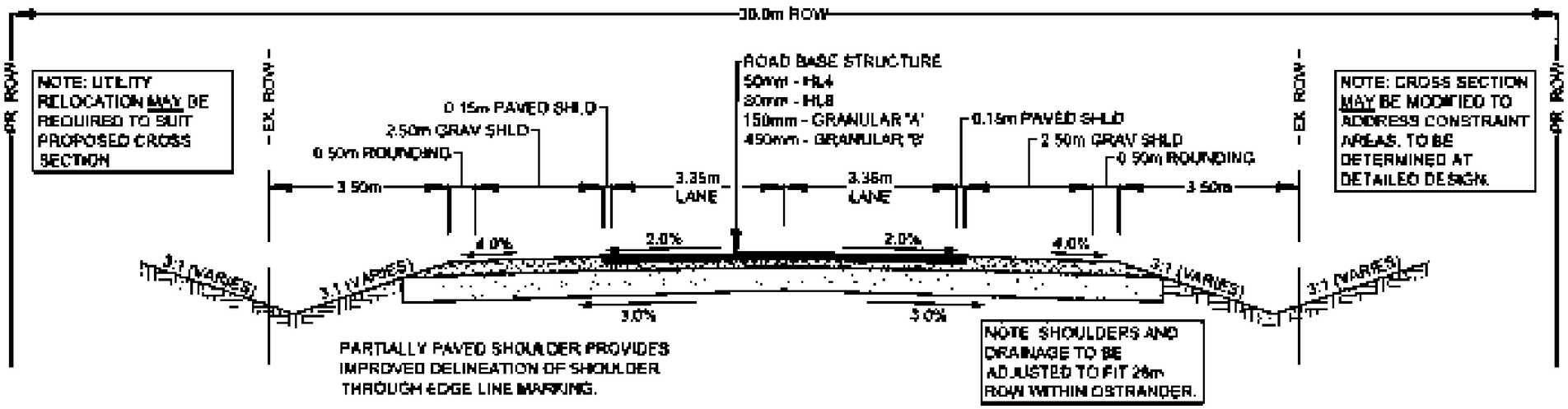
Table 12: Summary of Alternative Design Concepts

Alternative	Characteristics of Each Alternative				
	ROW Width	**Travel Lane Width**	**Paved Shoulder Width (on each side)**	**Total Paved Asphalt Width**	**Gravel Shoulder Width (on each side)**
Alternative 1 (Moderately wide paved shoulders)	30.5 m (26 m in Ostrander)	3.35 m	1.15 m	9.0 m	1.5 m with 0.5 m rounding
Alternative 2 (Minimally wide paved shoulders)	30.5 m (26 m in Ostrander)	3.35 m	0.15 m	7.0 m	2.5 m with 0.5 m rounding
Alternative 3 (Maximally wide paved shoulders)	30.5 m (26 m in Ostrander)	3.35 m	2.0 m	10.7 m	0.65 m gravel shoulder with 0.5 m rounding

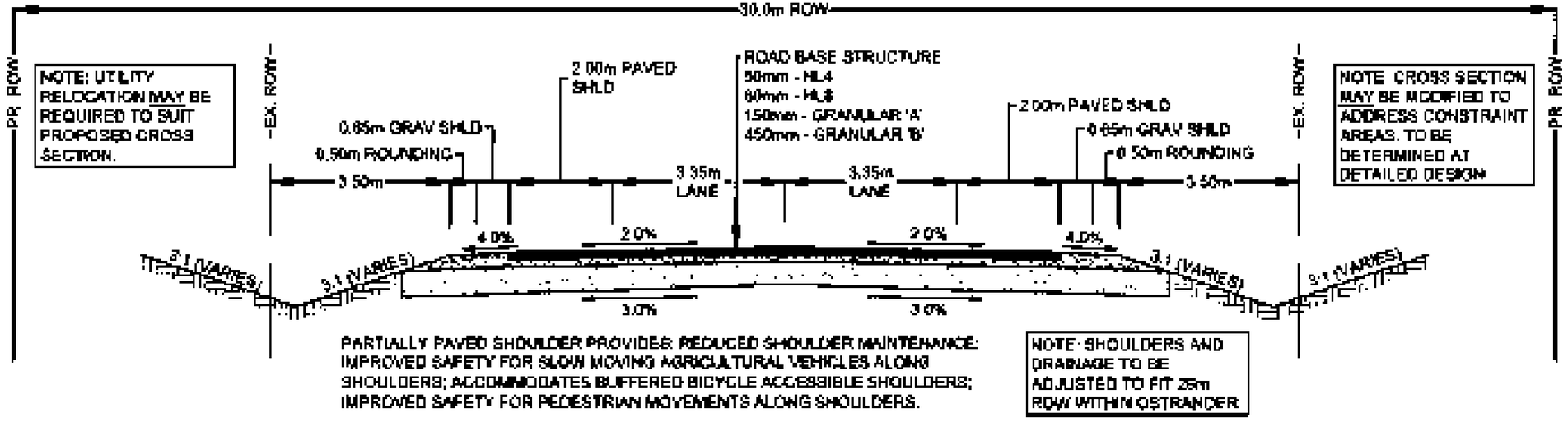
Figure 14: Alternative Design Concepts



ALTERNATIVE 1 - PARTIALLY PAVED SHOULDER - IMPROVED PAVEMENT STRUCTURE - WIDEN ROW TO MEET OFFICIAL PLAN REQUIREMENT
SCALE 1:150



ALTERNATIVE 2 - 0.15m PAVED SHOULDER - IMPROVED PAVEMENT STRUCTURE - WIDEN TO MEET OFFICIAL PLAN REQUIREMENT
SCALE 1:150



ALTERNATIVE 3 - 2.0m PAVED SHOULDER - IMPROVED PAVEMENT STRUCTURE - WIDEN ROW TO MEET OFFICIAL PLAN REQUIREMENT

SCALE 1:150

6.2 Evaluation of Alternative Design Concepts

6.2.1 Evaluation Criteria

Several criteria and sub-criteria have been established to guide the evaluation of the alternative design concepts. These criteria fall until five major areas including Natural Environment, Socio-Cultural and Economic Environment, Technical Environment, Implementation and Financial Environment.

Natural Environment

- Impacts to vegetation and terrestrial habitat
- Impacts to fisheries and aquatic habitat
- Impacts to hazard lands (erosion, slope stability, flooding)
- Impacts to designated features / species
- Impacts to surface water quality and quantity
- Impacts to groundwater quality and quantity

Socio-Cultural and Economic Environment

- Impacts to cultural heritage resources
- Impacts to archaeological resources
- Private property impacts
- Nuisance impacts (noise, traffic, visual impact)

Technical Environment

- Accommodation of various modes of transportation and vehicle types
- Improvement to road safety
- Road maintenance requirements
- Design complexity
- Impacts to utilities and drainage work / structures

Financial Environment

- Capital and operation / maintenance costs
- Property acquisition cost

6.2.2 Evaluation Results

The evaluation of the alternative design concepts was based on an assessment of potential impacts and a review of input received from the public and regulatory agencies during the study process. Figure 15 provides a summary of the evaluation of alternative design concepts. A detailed evaluation matrix is provided in Appendix G.

Figure 15: Summary of the Evaluation of Alternative Design Concepts

CRITERIA FOR EVALUATING ALTERNATIVES	Alternative 1: Moderately-wide paved shoulders	Alternative 2: Minimally-wide paved shoudlers	Alternative 3: Maximally-wide paved shoulders
NATURAL ENVIRONMENT	◕	◕	◕
SOCIO-CULTURAL ENVIRONMENT	◕	◕	◕
TECHNICAL ENVIRONMENT	◕	◔	◑
ECONOMIC ENVIRONMENT	◑	◕	◑
OVERALL SUMMARY	Most Preferred	Least Preferred	Least Preferred

ORDER OF PREFERENCE

Most Preferred	●
More Preferred	◕
Moderately Preferred	◑
Less Preferred	◔
Least Preferred	o

7.0 Description of the Preferred Design Concept

The preferred design concept is Alternative 1, with moderately wide paved shoulders. The road will be designed to include a total of 9.0 m of paved asphalt. This will include:

- Two travel lanes of 3.35 m each
- A 1.15 m paved shoulder in each direction

In addition, there will be a 1.5 m gravel shoulder on each side with 0.5 m rounding. For the purposes of establishing ROW constraints, it has been assumed that the centerline elevation of the road may be raised by approximately 0.4 m and that the ROW will be widened to 30.5 m with the exception of the segment through the village of Ostrander, where County policies permit a narrower 26 m ROW.

The preferred cross section and modified cross section for Ostrander are shown in Figure 16 and Figure 17.

For the purposes of this study, it is assumed that the road upgrades will be centered on the existing centerline of road. It is also assumed that the ROW widening will occur equally on both sides of the current centerline of road. During detailed design, the road shoulders may be constrained and / or the drainage ditches modified to minimize impacts in key locations. These locations and additional features of the preferred design concept are described in the following sections.

Figure 16: Cross-Section of the Preferred Alternative

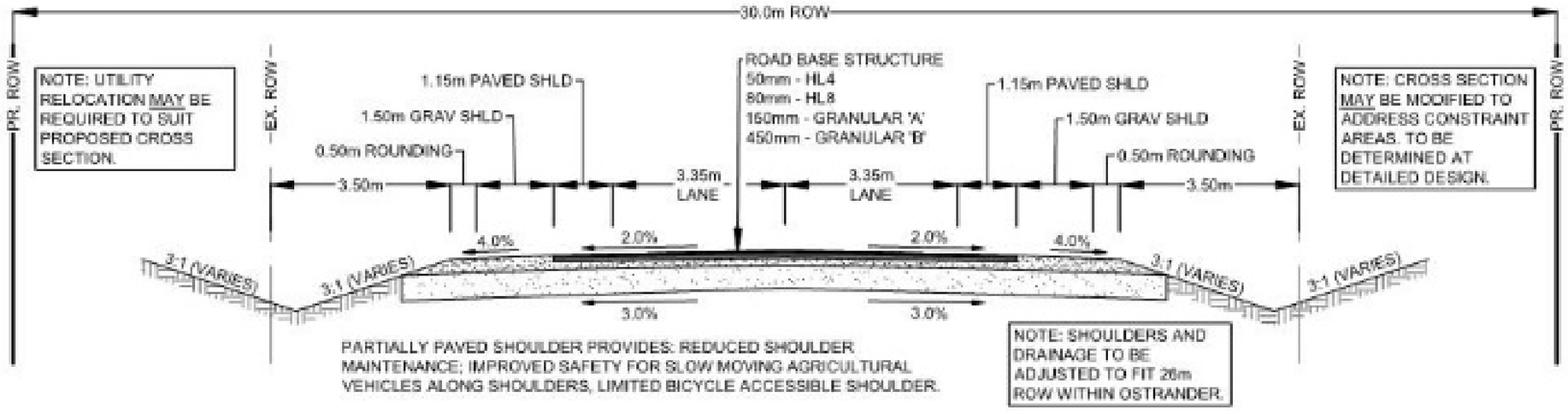
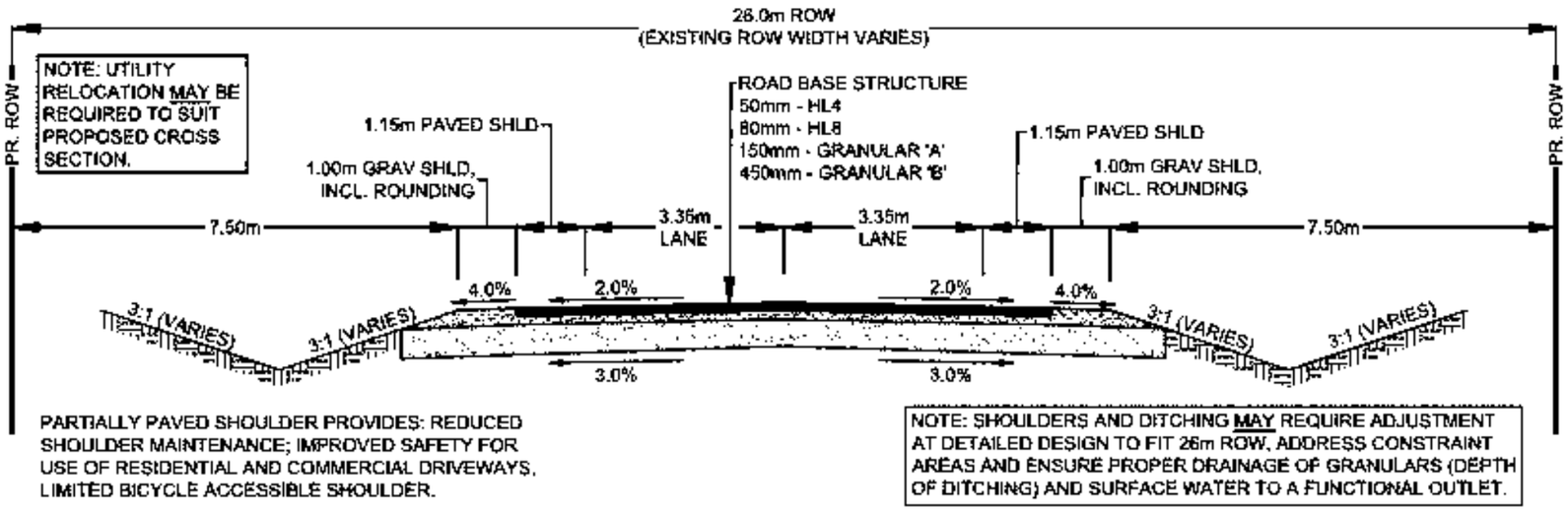


Figure 17: Modified 26 m ROW in Ostrander



7.1 Horizontal and Vertical Improvements

A topographical survey was completed to better understand any horizontal and vertical deficiencies. Where possible, a minimum stopping sight distance of 185 m should be provided for motorists along the corridor, based on an operating speed of 100 km/h (i.e., 80 km/h posted speed). Provision of this stopping sight distance is more critical at locations of potential conflict (e.g., driveways, public road intersections etc.).

Locations where vertical deficiencies (i.e., road dips, hills) result in less than the desirable sightline distance are shown in Table 13. Locations are referenced by station numbers, which are shown on Figure A-3 in Appendix A).

Table 13: Vertical Sightline Deficiencies

Station	to Station	Length of Road Impacted	Dir. Of Travel	Min. Sight Distance Achieved
Sector 1 - Ostrander to Springford				
0+125	0+150	25 m	Eastbound	175.828
3+015	3+220	205 m	Eastbound	85.615
4+565	4+600	35 m	Eastbound	170.273
5+640	5+715	75 m	Eastbound	149.23
6+240	6+350	110 m	Eastbound	99.548
3+420	3+210	-210 m	Westbound	84.81
4+800	4+760	-40 m	Westbound	166.26
5+915	5+825	-90 m	Westbound	146.872
6+545	6+425	-120 m	Westbound	94.717
Sector 2 - Springford to Otterville				
9+565	9+615	50 m	Eastbound	172.439
10+345	10+375	30 m	Eastbound	177.843
11+465	11+535	70 m	Eastbound	141.787
9+815	9+750	-65 m	Westbound	168.023
10+530	10+525	-5 m	Westbound	184.6
10+555	10+555	0 m	Westbound	184.989
11+715	11+665	-50 m	Westbound	154.835
Sector 3 - East of Otterville				
15+285	15+375	90 m	Eastbound	101.625
15+615	15+625	10 m	Eastbound	179.084
17+280	17+415	135 m	Eastbound	85.292
17+570	17+670	100 m	Eastbound	85.774
17+835	17+940	105 m	Eastbound	93.084
18+125	18+265	140 m	Eastbound	76.282
18+990	19+110	120 m	Eastbound	103.023
15+565	15+475	-90 m	Westbound	97.941

Station	to Station	Length of Road Impacted	Dir. Of Travel	Min. Sight Distance Achieved
15+825	15+800	-25 m	Westbound	164.423
17+610	17+475	-135 m	Westbound	87.086
17+865	17+750	-115 m	Westbound	81.383
18+125	18+015	-110 m	Westbound	83.961
18+455	18+315	-140 m	Westbound	72.484
19+305	19+180	-125 m	Westbound	99.527

Detailed designs should consider improving the profile in the areas noted to improve the sightlines, particularly in areas of potential conflict.

Horizontal deficiencies (i.e. curves in the road), can also limit sightlines. Several curves were reviewed, as summarized in Table 14.

Table 14: Horizontal Sightline Deficiencies

Station	to Station	Length of Curve	Approx. Existing Radius (m)	Minimum Radius to Accommodate 100 km/h Design Speed	Deficiency Identified?
3+436	3+669	233 m	4750	490	No
3+683	3+868	185 m	3500	490	No
9+635	9+689	54 m	800	490	No
9+797	9+923	126 m	1200	490	No
19+446	19+550	104 m	375	12007	Yes

Only the curve at Windham Line (between Stn 19+446 and 19+550) has a curve radius less than the recommended design radius. The desirable curve radius at this location reflects the need to accommodate safe operations in the area of the public road intersection and, therefore, is higher than at the other locations along the corridor, where the minimum radius is intended to provide safe operations of vehicles travelling through the curve at the design speed.

The curve in the area of Windham Line is at the County's boundary with Norfolk County. Consultation and coordination will be required with Norfolk County during detailed design to facilitate improvements to the curve in this area.

[7] This curve is subject to the MTO Geometric Design Standards for Ontario Highways as it is located in the area where Windham Line intersects with Oxford Road 19. Where possible the flattest practical highway horizontal curve should be used through intersections, resulting in the application of lower superelevation rates. Approach alignment should be such as to provide better than minimum stopping sight distance for each road.

7.2 Property Requirements

In order to widen the ROW, property will need to be acquired. The ROW currently varies from about 20 m to 30 m in width along the corridor. To create a 30.5 m ROW, approximately 11.5 ha of land, across 104 properties, will need to be acquired.

Acquisitions will be negotiated between the County and property owners.

7.3 Road Safety and Operational Features

The provision of wider shoulders and the partial pavement of these shoulders will improve safety for all road users (i.e., cars, trucks, agricultural equipment, horse and buggy, cyclists). The detailed designs should ensure that TAC standards are met for horizontal and vertical alignments and sight distances, considering a 100 km/h design speed (i.e., 20 km/h above the posted speed).

It is noted that illumination does not currently exist along the rural sections of Oxford Road 19. The TAC Illumination Warrants for Isolated Intersections were reviewed for the primary intersections along Oxford Road 19, with the following conclusions:

Delineation lighting is warranted for the stop-controlled intersections at Highway 19 / Oxford Road 19 and at Oxford Road 59 / Oxford Road 19.

It is recommended that detailed designs consider implementing delineation lighting at these intersections to improve the safety of traffic operations at these locations.

In 2021, the County completed a speed management and road safety review on Oxford Road 19 within in Otterville, which resulted in implementation of the following measures:

- Adjustment to the speed zone limits to align with the built environment within and Transportation Association of Canada (TAC) guidelines criteria to promote uniform traffic flow and reduce the risk of collisions
- Installation of electronic speed feedback signs (SFS) and a controlled pedestrian crossing (PXO)

In 2023, a speed management and road safety review was completed in Springford on Oxford Road 13 and Oxford Road 19. As a result, traffic calming measures on Oxford Road 19 are scheduled for implementation in Q4 2023 that will include extending the west limit of 50km/h speed on to align with the built up area, and installation of electronic SFSs.

The implementation of the preferred design concept is expected to improve safety of traffic operations along the rural areas under consideration in this EA. Detailed designs

should consider the rural / urban interface of the rural sections with the built-up areas in Otterville, Springford and Ostrander. Traffic operations within these built-up areas are beyond the study area of this current EA, however it is recommended that the County continue to monitor such operations and implement speed management and safety measures, where required.

7.4 Air Quality and Noise

The preferred design concept does not include any changes to the road capacity, i.e., there will be no increase in the number of travel lanes or width of travel lanes. The improvements will eliminate the need for seasonal load restrictions and may increase the number of transport trucks using the road during the reduced load period but likely only to the number of trucks currently using the road throughout the remainder of the year.

In addition, the population of the general region is expected to grow at a relatively minimal rate of approximately 1% per year. This is attributed to general population growth and not growth related to the changes to the road itself. Current traffic volumes are below the road's current approved design capacity. As such, any increase in traffic volume is within the range of current conditions and not expected to increase substantially.

Based on the above considerations, air quality and noise are not expected to change significantly as a result of the road improvements.

As noted previously, for the purposes of this assessment it is assumed that the ROW widening will be centered on the existing centerline of road. During detailed design, the ROW may be adjusted slightly in locations where the widened ROW is constrained by houses that are located close to the ROW. Alternatively, a modified cross-section (e.g., reduced shoulder widths and / or reduced ditch depths) could be designed to maximize the available setbacks, where possible. Some areas where this could be considered are noted on Figure A-3 in Appendix A.

Additional means to reduce noise and air quality impacts may be included in the detailed design, where warranted, including planting trees and hedgerows as a noise and wind block. This option and will be further explored during detailed design. Mitigation to reduce impacts during construction is discussed in Section 8.0.

7.5 Stormwater Management

The improvements described in preferred Alternative 1 will result in a minor increase in the impervious area of Oxford Road 19. This alternative maintains the existing rural cross-section characteristics. The change in runoff condition for the watersheds within the project area are expected to be negligible so no formal stormwater management

quality or quantity controls are proposed to address the minimal change in runoff associated with the widening.

Lane widening and shoulder paving will create an increase in the impervious area of runoff to the roadside ditch along the entire length of the project, though it is expected that this increase will have a negligible impact to the overall peak flow rates for the three watercourses that receive runoff from the project area: Spittler Creek, Plumb Creek and Big Otter Creek. For example, the contributing watershed area of Spittler Creek just east of Ostrander has an area of over 47 ha, while the increase in impervious area on Oxford Road 19 for this section is less than 1 ha. At these ratios and with the majority of stormwater being collected through a roadside ditch, the change in peak flow will be negligible. The proposed reconstruction will generally match the existing drainage patterns and no changes to the watershed boundaries are proposed.

With regards to quality control, commonly with rural linear redevelopment projects, there is not land designated for 'end of pipe' stormwater management controls and the right-of-way cross section is utilized to achieve volume reduction and stormwater treatment to a reasonable extent as possible. The proposed cross section will include vegetated roadside ditches with 3:1 maximum side slopes that will provide runoff the opportunity to infiltrate and sediment to be filtered as runoff is conveyed to the existing ditch outlets. The proposed roadside ditches and culverts within the project area will be sized to safely convey roadway runoff and no increase in flooding hazards are expected from the widening. Opportunities for ditch enhancements, such as infiltration and check dams, should be examined at the design stage.

It is expected the largest risk of sediment loading to the receiving watercourses will be during the construction phase. The required erosion and sediment control measures will be determined during detailed design to limit sediment migration and protect receiving watercourses. Erosion and sediment control measures including silt fencing, check dams and slope stabilization materials will be employed along the roadway during reconstruction as directed. For any excavation and stockpiling of material, erosion control and sediment collection measures should also be accounted for. Specific erosion and sediment controls for dewatering during any in-water works will be implemented for any culvert replacements included in the project scope.

Existing road-crossing culverts will be evaluated during detailed designs for conveyance capacity and physical condition. Of the existing culverts, four appear to be regulated by the Long Point Region Conservation Authority (LSPRCA) and will need to be assessed to satisfy LSPRCA criteria.

In summary, the preferred alternative is not anticipated to negatively affect the overall watershed runoff as long as adequate erosion and sediment control measures are installed and maintained during the construction period.

7.6 Municipal Drains

There are several municipal drains which cross Oxford Road 19. Ostrander Drain runs along the north side of Oxford Road 19 near the western extent of the Study Area. This section of the drain may require modification and detailed designs should consider whether to relocate the Drain off of the widened ROW or to match into the new side slope. Similarly, other drain crossings along the corridor may require modification. Detailed designs should confirm any approval requirements for such modifications, subject to the provisions of the Drainage Act.

7.7 Detail Design Considerations

Items that should be considered in detail design stage include the following:

- Utility relocation such as hydro poles, natural gas main, telecommunications
- Whether to relocate the Ostrander Municipal Drain off of widened right of way or match into new side slope
- Extension of bridge deck to match new asphalt width
- Adjustment of cross section to address constraint areas such as existing buildings, residential areas
- Improvements to sight lines of vertical curves
- Site specific areas adjustments to better match existing elevations (e.g., steep side slopes, natural areas, entrance to urban areas)
- Illumination requirements should be considered at the intersection of Highway 19 / Oxford Road 19 and at the intersection of Oxford Road 59 / Oxford Road 19. It is noted that MTO has jurisdiction over the Highway 19 / Oxford Road 19 intersection and that MTO approval of designs at this intersection will be required

8.0 Environmental Impacts, Mitigation Measures and Monitoring

The potential environmental impacts associated with construction, operation and maintenance of the proposed road improvements within the Study Area have been identified and are summarized in Table 15. Proposed measures to mitigate these impacts and monitoring activities to ensure that the mitigation measures are implemented effectively are also provided in the table. All mitigation measures and monitoring activities shall be reviewed during the detailed design phase of the project.

Table 15: Potential Environmental Effects, Mitigation Measures and Monitoring Activities

Environmental Component	Environmental Sub-Component	Potential Environmental Impacts	Proposed Mitigation Measures	Recommended Monitoring Activities
Natural Environment	Trees	Potential impacts to trees adjacent to road improvements construction area resulting in injury or removal of trees.	**General Mitigation** A tree inventory of all trees expected to be impacted by the proposed road improvements shall be undertaken by a qualified arborist during the detailed design phase of the project once the full extent of the grading limit for the proposed road improvements are known. Based on the results of the tree inventory, an Arborist Report including a tree preservation plan shall also be prepared. **Construction Mitigation** Clearly delineate the extent of vegetation removal for the vegetation clearing and grubbing contractor. All tree work including branch pruning, root pruning, and removal should be completed by an ISA Certified Arborist. Trees to be retained beyond the limit of clearing should be protected using tree protection fence installed at the dripline or grading limit, whichever provides the greatest setback from the trees. Residential properties that are subject to tree removal on the adjacent ROWs may require reinstatement of native woody vegetation to compliment cultural heritage aesthetics and provide privacy.	Inspection of tree protection measures by the site supervisor or environmental inspector to be coordinated with review of ESC measures throughout the construction period. All damaged, sagging or deficient measures must be fixed immediately. Any unintended or unidentified impacts to trees should be documented by a Certified Arborist. An arborist shall review all trees adjacent to the work zone and prior to opening the road for use by the general public. Branches and trunks damaged during the construction period that may cause damage or injury must be mitigated.
Natural Environment	Wildlife and Wildlife Habitat (General) – Breeding Birds	Potential for disturbance or destruction of migratory breeding birds and their habitat by the road improvements (prohibitions under the Migratory Bird Convention Act, 1994).	**General Mitigation** The footprint of the proposed disturbed area should be minimized as much as possible. To reduce the risk of contravening the Migratory Bird Convention Act, 1994, timing constraints shall be applied to avoid any limited vegetation clearing (including grubbing) and/or structure works (construction, maintenance) during the breeding bird period – broadly from April 1st to August 31st for most species (regardless of the calendar year). Active nests (nests with eggs or young birds) of protected migratory birds, including SAR protected under the Endangered Species Act (ESA), 2007, cannot be destroyed at any time of the year. The destruction of inactive nests for some species may also be prohibited.	An Avian Biologist may be required on-Site as needed should a nesting migratory bird (or SAR protected under ESA, 2007) be identified within or adjacent to the construction Site. The Avian Biologist may be required to confirm the presence and identification of an active nest and/or breeding bird prior to contacting MNDMNRF for further advice.

Environmental Component	Environmental Sub-Component	Potential Environmental Impacts	Proposed Mitigation Measures	Recommended Monitoring Activities
			Construction Mitigation If a nesting migratory bird (or SAR protected under ESA, 2007) is identified within or adjacent to the construction Site (or during operations and maintenance activities) and the activities are such that continuing works in that area would result in a contravention of the Migratory Birds Convention Act, 1994 or ESA, 2007, all activities will stop and the Contract Administrator (with assistance from an Avian Biologist) shall discuss mitigation measures with the Town. Should SAR be identified, all activities will stop and MECP will be contacted immediately to ensure compliance with the ESA. The Contract Administrator shall instruct the Contractor on how to proceed based on the mitigation measures established through discussions with the County, the MNDMNRF and/or Environment Canada.	
Natural Environment	Wildlife and Wildlife Habitat (General)	Temporary displacement of, and disturbance to, wildlife and wildlife habitat during the construction phase (i.e., vegetation removals, noise, light trespass), including SAR. Development in these habitats may limit wildlife movement and reduce useable habitat. Wildlife habitat may be removed as a result of the proposed activities. Impacted Woodlands may provide suitable habitat for a number of SCC and Endangered species including Eastern Hog-nosed Snake, Gray Rat Snake, SAR Bats, American Badger, Eastern Wood-pewee, Wood Thrush, Red-headed Woodpecker. The following SWH features may be impacted by the proposed road improvements: • Candidate Bat Maternity Colonies • Candidate Reptile Hibernacula • Candidate Marsh Breeding Bird Habitat	**General Mitigation** Impacts to Confirmed and Candidate SWH should be minimized and avoided where possible. To reduce the risk of potential impact to wildlife, including Species at Risk, vegetation clearing should not be completed between April 1 to October 31 to avoid the active period for the following: • Breeding birds – Broadly from April 1 to August 31 for most species (regardless of the calendar year). • Bat species – Considered to be between April 1 to October 31, of any calendar year. A qualified ecologist should revisit the site to determine the presence / absence of key habitat features for SAR wildlife during the detailed design phase of the project once the full extent of the grading limit for the proposed road improvements are known. Features may include hibernacula features, roost trees, or dens. If potential key features are identified, the MECP should be consulted regarding next steps. **Construction Mitigation** Daily Sweeps of the construction zone and equipment should be conducted to ensure wildlife, including SAR snakes or turtles, have not entered the work limits. In the event that an animal is encountered during construction and does not move from the construction zone, the Contract Administrator will be notified. If the	Fencing shall be inspected regularly to ensure damage is repaired in a timely manner and that additional risk to wildlife is minimized.

Environmental Component	Environmental Sub-Component	Potential Environmental Impacts	Proposed Mitigation Measures	Recommended Monitoring Activities
		• Candidate Terrestrial Crayfish • Candidate Special Concern and Rare Wildlife Species • Candidate Amphibian Movement Corridors	construction activities are such that continuing construction in the area would result in harm to wildlife, construction activities in that location will temporarily stop and the MNDMNRF shall be contacted for direction.	
Natural Environment	Woodlands (Including Significant Woodlands	Encroachment into Significant Woodlands (forested communities) may be required. There is potential for indirect environmental effects to adjacent woodland features. Potential indirect effects may include noise disturbance as a result of construction and/or operations and maintenance activities. Noise disturbance may impact breeding success of avian species, including SCC (Wood Thrush, Eastern Wood-pewee), whose habitat is considered SWH.	**General Mitigation** Tree removal within all wooded features should be minimized to the furthest extent possible. A tree inventory of all trees expected to be impacted by the proposed road improvements shall be undertaken by a qualified arborist during the detailed design phase of the project once the full extent of the grading limit for the proposed road improvements are known. Based on the results of the tree inventory, an Arborist Report including a tree preservation plan shall also be prepared. All tree removal within Significant Woodlands should be discussed with Oxford County prior to the commencement of construction. **Construction Mitigation** Clearly delineate the extent of vegetation removal for the vegetation clearing and grubbing contractor. All tree work including branch pruning, root pruning, and removal should be completed by an ISA Certified Arborist. Trees to be retained beyond the limit of clearing should be protected using tree protection fence installed at the dripline or grading limit, whichever provides the greatest setback from the trees. Residential properties that are subject to tree removal on the adjacent ROWs may require reinstatement of native woody vegetation to compliment cultural heritage aesthetics and provide privacy.	An arborist shall review all trees adjacent to the work zone and prior to opening the road for use by the general public. Branches and trunks damaged during the construction period that may cause damage or injury must be mitigated.
Natural Environment	Fish Habitat	Potential for the direct or indirect Harmful Alteration, Disruption or Destruction (HADD) of fish habitat or death of fish from the construction required to lengthen or replace any watercourse crossing structures (bridges and culverts).	**General Mitigation** Compliance with the federal Fisheries Act (2019) to ensure HADD of fish habitat and the death of fish does not occur during the construction of the preferred road design concept. DFO shall be consulted during the detailed design phase of the project with regard for the potential of works to impact fish and fish habitat, as appropriate.	An Environmental Inspector shall regularly monitor construction activities to confirm the requirements outlined in the SMP and ESC plans are followed. Workers shall report any instances of spills or impacts to surface water features.

Environmental Component	Environmental Sub-Component	Potential Environmental Impacts	Proposed Mitigation Measures	Recommended Monitoring Activities
		Alteration to fish habitat through watercourse realignments required for the widening of Eighth Line.	An Erosion and Sediment Control (ESC) Plan will be developed the during detailed design phase of the project in consultation with CVC and CH and will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specification (OPSS). **Construction Mitigation** Wet weather restrictions shall be applied during Site preparation and excavation. Work will be avoided near watercourses and headwater drainage features during periods of excessive precipitation and/or excessive snow melt. Any in-water works shall occur in isolation of flowing waters, with work zone isolation achieved by placing cofferdams constructed of clean, non-erodible materials at the upstream and downstream limits of a given work area. Stream flows must be maintained downstream of in-water work areas through by-passing flows (by-pass culvert, channel, pumping etc.). Any isolated work areas shall be de-watered, and dewatering shall be conveyed to a filtering system and flow dissipation device to mitigate sedimentation and erosion of the receiving waterbody. Any fish trapped in the isolated work area shall be captured and released outside of it prior to the commencement of in-water works. Any fish rescue shall be performed by a qualified aquatic ecologist/biologist. A License to Collect Fish (LCF) shall be obtained from the Ministry of Natural Resources and Forestry prior to any fish rescue occurring. In-water works will only be permitted to occur during the appropriate in-water works timing window (generally July 15th to September 30th). This window will be confirmed with DFO and MNRF. Disturbed roadside embankments will be restored with erosion control blankets, topsoil, approved seeding mixtures by Long Point Region Conservation Authority, and plantings where appropriate. Sediment and erosion control measures (such as silt fence barriers, etc.) shall be installed and maintained during the work phase and until the Site has been stabilized. Control measures shall be inspected daily to ensure they are functioning and are maintained as required. If control measures are not functioning properly, no further work shall occur until the problem is resolved. All temporary ESC measures shall be installed in accordance with recognized provincial standards. Extra silt	

Environmental Component	Environmental Sub-Component	Potential Environmental Impacts	Proposed Mitigation Measures	Recommended Monitoring Activities
			fence / turbidity curtain shall be stored on-Site, should additional sediment control be required. Any stockpiled material shall be stored and stabilized away from the surface water features. All materials and equipment used for the purpose of Site preparation and road construction shall be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum fuel, hydraulic fluids) from entering the environment.	
Physical Environment	Surface Water	Potential for erosion and sedimentation impacts.	**General Mitigation** The County is required to comply with the Ontario Water Resources Act, 1990, c. O.40 with respect to the quality of water discharging into natural receivers. The footprint of disturbed areas shall be minimized to the extent possible. For example, vegetated buffers shall be left in place adjacent to natural vegetation features (forested areas) to the maximum extent possible. A Soil Management Plan (SMP) will be prepared by a Qualified Professional (QP) as defined in Ontario Regulation 160/06 for managing soil materials on-Site (includes excavation, location of stockpiles, reuse and off-Site disposal). An Erosion and Sediment Control (ESC) Plan will be developed during detailed design in consultation with LPRCA and will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specification (OPSS). **Construction Mitigation** Any in-water work will be conducted in isolation of flowing water. All work zones will be clearly marked on detailed design drawings and the ESC Plan to indicate that no work should occur outside the work zone. ESC measures shall be installed and maintained during the construction phase and until all areas of the construction Site have been stabilized. ESC measures shall be inspected daily to confirm they are functioning and maintained as required. If ESC measures are not functioning properly, no further work in the affected areas will occur until the sediment and/or erosion problem is resolved. All disturbed areas of the construction Site will be stabilized and re-vegetated as soon as conditions allow.	A qualified Environmental Inspector shall regularly monitor construction activities to confirm the requirements outlined in the SMP and ESC are being followed. A qualified Environmental Inspector shall inspect, suggest and confirm the repair of ESC measures as needed.

Environmental Component	Environmental Sub-Component	Potential Environmental Impacts	Proposed Mitigation Measures	Recommended Monitoring Activities
			Wet weather restrictions shall be applied during Site preparation and excavation.	
Physical Environment	Surface and Ground Water	Potential for localized surface water or groundwater impacts as a result of spills, discharge or dumping of materials, fluids and other wastes during construction of proposed road extension and associated surface water facilities (e.g., swales).	**Construction Mitigation** Refueling and maintenance of construction equipment should occur within designated areas only. Any hazardous materials used for construction will be handled in accordance to appropriate regulations. A Construction Emergency Response and Communications Plan shall be developed and followed throughout the construction phase (including spill response plans). The Contractor shall develop spill prevention and contingency plans for the construction of new landfill cells and general Site preparation for proposed road extension. Personnel shall be trained in how to apply the plans and the plans shall be reviewed to strengthen their effectiveness and continuous improvement. Spills or depositions into watercourses shall be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A hydrocarbon spill response kit will be on-Site at all times during the work. Spills will be reported to the Ontario Spills Action Centre at 1-800-268-6060.	A qualified Environmental Inspector shall regularly monitor construction activities to confirm the requirements outlined in the SMP and ESC are followed. Workers shall report any instances of spills to their supervisors.
Socio-Economic Environment	Air Quality	Potential air quality impacts during construction.	**General Mitigation** A complaint response protocol for nuisance impacts including dust emissions will be prepared during the detailed design phase of the project and implemented prior to construction. **Construction Mitigation** During construction, the following mitigation measures shall be used: The road shall be graded as required to remove potholes, ruts and ripples in the road surface. Efforts to prevent contamination of the road surface, such as spilling sands, silts and clays, will also help to minimize dust. If appropriate equipment is available, the roadway should be sprayed with water as required to minimize dust generation prior to paving. The construction contractor will be required to develop a Construction Management Plan (CMP) that specifically addresses dust controls, and contingency plans to mitigate dust when it occurs.	An environmental monitor shall regularly inspect construction work areas to ensure that dust suppression measures are being adequately applied and confirm the requirements outlined in the CMP are being followed. If dust suppression measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.

Environmental Component	Environmental Sub-Component	Potential Environmental Impacts	Proposed Mitigation Measures	Recommended Monitoring Activities
			Vehicles / machinery and equipment shall be in good repair, equipped with emission controls, as applicable, and operated within regulatory requirements. The contractor shall also be required to implement dust suppression measures to reduce the potential for airborne particulate matter resulting from construction activities. This should be in the form of water applications on exposed soils. Considerations shall be given to using of chemical suppressants to reduce dust, use of wind barriers and limiting exposed areas which may be a source of dust and equipment washing. The construction contractor shall develop a Construction Management Plan (CMP) that specifically addresses dust controls, and contingency plans to mitigate dust when it occurs.	
Socio-Economic Environment	Noise	Potential for noise through the use of large equipment for construction of the proposed road extension.	**General Mitigation** A complaint response protocol for nuisance impacts including construction noise shall be prepared during the detailed design phase of the project and implemented prior to construction. **Construction Mitigation** Noise control measures shall be implemented where required during the construction phase, such as restricted hours of operation and the use of appropriate machinery and mufflers. The noise produced by the equipment can be limited through proper equipment maintenance. All construction activities shall conform to the criteria set out in NPC-115 of 83 dB. The construction contractor will be required to develop a Construction Management Plan (CMP) that specifically addresses noise controls, mitigation to be implemented and frequency of equipment inspection.	An environmental monitor shall regularly monitor construction noise to ensure that noise control measures are being adequately applied and confirm the requirements outlined in the CMP are being followed. If noise control measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.
Socio-Economic Environment	Property Impacts	Property will be required to widen the ROW to 30.5 m.	**General Mitigation** Land acquisition (fee simple) will be obtained for the purposes of widening the ROW. The County is committed to making best efforts to secure property with landowners through amicable agreement. This will include compensation for the use of land. The	N/A

Environmental Component	Environmental Sub-Component	Potential Environmental Impacts	Proposed Mitigation Measures	Recommended Monitoring Activities
			County also reserves its property rights as set out in the Municipal Act, and powers outlined as part of the Act for property acquisition.	
Cultural Environment	Cultural Heritage	• Direct adverse impacts anticipated to the following properties: 225769 Otterville Road (B.H.R. 7), 224570 Ostrander Road (C.H.L. 3), 225227 Otterville Road (C.H.L. 7), 225400 Otterville Road (C.H.L. 12) • Direct impacts to C.H.L. 13 (225422 Main Street West) are anticipated to include grading and encroachment onto the northern portion of the property; no direct adverse impact on the known heritage attributes. • Direct impacts anticipated to the property at 225947 Otterville Road (C.H.L. 20), designated under Part IV of the Ontario Heritage Act and due to property acquisition, grading, encroachment onto the northern portion of the property resulting in changes to the parcel boundaries, and removal/relocation of the Ontario Heritage Trust plaque. However, encroachment is not anticipated to have a direct adverse impact on the known heritage attributes associated with this property	• Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to identified built heritage resources and cultural heritage landscapes. Avoidance measures may include, but are not limited to: erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified B.H.R.s and C.H.L.s, etc. Suitable mitigation measures including post construction rehabilitation with sympathetic plantings can also be implemented. • Given the potential cultural heritage value of the noted properties (B.H.R. 7, C.H.L. 3, C.H.L. 7, and C.H.L. 12) a resource-specific Cultural Heritage Evaluation Report (C.H.E.R.) should be conducted to determine cultural heritage value or interest (C.H.V.I.). As there are direct impacts anticipated, should the C.H.E.R. determine that the property retains C.H.V.I., a resource-specific Heritage Impact Assessment (H.I.A.) should be conducted to evaluate alternatives, assess potential impacts to the resource, and recommend appropriate mitigation measures. • A resource specific H.I.A. is required for the property at 225947 Otterville Road (C.H.L. 20). The Ontario Heritage Trust plaque should be removed prior to construction and stored in a secure facility to prevent damage. Following construction activities, this plaque should be reinstalled at its extant location, or in a similarly accessible location based on consultation with the Township of South-West Oxford and the Ontario Heritage Trust. • Baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the structure(s) will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.	A qualified heritage consultant should be contacted during detailed design to review the designs in order to confirm any impacts of the proposed works on the potential C.H.L.s at C.H.L. 15, C.H.L. 16, and C.H.L. 17. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.
Cultural Environment	Archaeology	The proposed grading limits will impact areas of archaeological potential beyond the existing disturbed right-of-way, including the Springford Community Cemetery and adjacent right-of-way recommended for construction monitoring, and lands in proximity to the Pettman Cemetery site	• Parts of the Study Area and preferred design concept exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit/pedestrian survey at five metre intervals, where appropriate. • The Pettman Cemetery boundaries and number of burials remains unknown but is in close proximity to the preferred design concepts. Further archaeological assessment is required at the detailed design. • If future works are unable to avoid the existing legal boundaries of the Springford Cemetery and archaeological fieldwork is required, detailed strategies should be formulated once the impacts are fully understood at the detailed design.	N/A

Environmental Component	Environmental Sub-Component	Potential Environmental Impacts	Proposed Mitigation Measures	Recommended Monitoring Activities
			• Any construction impacts within the Pine Street Burial Ground legal boundaries will require a Stage 3 Cemetery Investigation to be conducted to confirm the presence of burial shafts. In the event that archeological remains are found by the Contractor during subsequent construction activities, the consultant archaeologist, approval authority and the Cultural Program Unit of the Ministry of Tourism Culture and Sport shall immediately notified by the Contractor.	
Transportation and Built Environment	Human Health and Safety	Potential safety hazard from construction activities, heavy equipment and increased construction traffic.	**Construction Mitigation** The contractor shall develop a Health and Safety Plan (HASP) and have it reviewed and approved by the County prior to implementing. The HASP shall follow the Occupational Health and Safety Act, 1990 and regulatory requirements.	N/A
Transportation and Built Environment	Transportation Infrastructure	Potential safety hazard from construction activities, heavy equipment and increased construction traffic.	**General Mitigation** Operation of construction related vehicles will be done in accordance with all appropriate safety policies and procedures, and based on Canadian Standards (Transport Canada, etc.). **Construction Mitigation** All contractors will be required to complete and follow appropriate construction site training and adhere to appropriate road safety regulations during construction. Work shall be done in such a manner as to minimize disruption to the adjacent residential and commercial neighbourhood. Noise and dust emissions shall be controlled. Contract specifications shall ensure that all equipment and vehicles are compliant with noise and air emission standards for applicable equipment.	An environmental monitor shall regularly inspect construction work areas to ensure that noise control measures and dust suppression measures are being adequately applied. If noise control measures and dust suppression measures are not functioning properly, alternative measures shall be implemented immediately and prioritized above other construction activities.
Transportation and Built Environments	Transportation Infrastructure	Temporary traffic flow / access disruptions.	**Construction Mitigation** Contractor will be required to develop and implement a traffic management plan in coordination with Oxford County. Adequate signage to give advance notice of disruptions and detours is to be provided by the contractor.	N/A

9.0 Climate Change Considerations

9.1 Climate Change

Climate change is defined as any significant change in long-term weather patterns. The term can apply to any major variation in temperature, wind patterns or precipitation that occurs over time. Global warming describes the recent rise in the average global temperature caused by increased concentrations of Greenhouse gas emissions (GHG) trapped in the atmosphere. Scientists have concluded that human activity is largely responsible for recently observed changes to our climate since GHGs are mainly caused by burning fossil fuels to produce energy.

There are two types of climate change effects that can be considered. The first is the effect that a project can have on climate change. In this case, the degree to which the project can provide some climate change mitigation measures is to be assessed. The second is the effect climate change has on the project. Climate change was considered during this Class EA Study and is discussed in this Section.

9.1.1 County Climate Change Policies

Oxford County Official Plan is being amended to incorporate high level strategic initiatives related to climate change in accordance with the Provincial Policy Statement.

The Community Sustainability Plan, adopted by Oxford County Council September 9, 2015, identified goals around three major pillars: Community, Economy and Environment. With regard to transportation, a goal was identified to transition away from fossil fuels and enhance low carbon transportation.

The ongoing Official Plan Review builds on this sustainability approach by integrating a climate change lens to address climate change explicitly and meaningfully by targeting the most impactful policy areas within the OP from a GHG emission reduction standpoint and includes both mitigative and adaptive policy directions.

On June 24, 2015, Oxford County Council passed the goal of 100% renewable energy (RE) by 2050. The 100% RE Plan outlines various targets related to energy conservation, GHG reduction and renewable energy generation. The County has also drafted and released an Energy Management Plan (EMP), a Green Fleet Plan (GFP), and a Renewable Energy Action Plan (REAP) which all lay out initiatives and objectives that contribute toward the County organization’s goals and feed into the efforts to advance the 100% RE Plan.

9.1.2 Oxford County Climate Change Trend

For Oxford County, the annual average temperature has risen by approximately 0.8°C between the 1980s and 2020. With the climate data of 1986 to 2005 as reference, under a business-as-usual high emission scenario, temperatures could rise by 2.9°C in the 2050s, and 4.9°C in the 2080s (OCDP @LAMP Portal, York University).

Total annual precipitation has increased by approximately 34 mm between the 1980s and 2020. Under a business-as-usual high emission scenario, an increase of 68 mm in the 2050s, and 98 mm in the 2080s could be expected (OCDP @LAMP Portal, York University).

9.1.3 Effects of the Project on Climate Change

No new traffic is expected to be generated as a result of this project. However, some truck traffic may change their travel routes to use Oxford Road 19 once the seasonal load restriction is removed.

Oxford Road 19 is not identified as part of the primary or secondary cycling network route in the County's Cycling Master Plan. The relatively narrow paved shoulder selected as the Preferred Design will support some cycling but is unlikely to attract a significant number of vehicle users to convert to active transportation.

Existing vegetation will be retained to the extent practicable. Removals will be kept to a minimum to limit direct effects to vegetation communities and vascular flora, as well as indirect effects (e.g., soil compaction and changes to topography and drainage). Disturbed areas will be re-stabilized, incorporating revegetation using non-invasive, preferably native plantings and / or seed mix appropriate to the site conditions and adjacent vegetation communities. Seed mixes will be used in conjunction with an appropriate non-invasive cover crop as appropriate.

9.1.4 Effects on the Project from Climate Change

There is potential for the project to be affected by climate change. Climate change is usually associated with any significant change in long-term weather patterns. Changes in the composition of the atmosphere are resulting in processes that alter global temperature and precipitation, in turn affecting local weather patterns. These processes can ultimately lead to increased occurrence of extreme weather events such as floods, droughts, ice storms and heat waves.

Precipitation, whether it is rainfall, snowfall, or other forms of frozen / liquid water, is the key climate and weather-related variable of concern with respect to drainage and culvert design. As a result of climate change, storm events are predicted to become more intense, which can result in larger volumes of precipitation at one time. Other climate

variables such as temperature are major inputs to evaporation and snowmelt processes. Increases in temperature are likely to impact precipitation and snowmelt runoff volumes discharged to watercourses.

Precipitation, whether it is rainfall, snowfall, or other forms of frozen / liquid water, is the key climate and weather-related variable of concern in stormwater management (SWM). As a result of climate change, storm events are predicted to become more intense, which can result in larger volumes of precipitation at one time.

During the detailed design, all SWM-related components of the road will be designed with consideration for increased precipitation.

10.0 Detailed Design and Construction Commitments

Phase 5 of the Municipal Class EA process involves the completion of detailed design drawings, specifications and tender documents to be provided to a successful contractor for the construction of the proposed project. During the implementation phase, the County will need to adhere to several mitigation measures and monitoring plans as documented in this Environmental Study Report, some of which will need to be in place prior to and during construction.

The following list provides a preliminary set of commitments to be undertaken during the detailed design phase or construction phase of the Project to ensure that work is being completed in accordance with the Environmental Study Report. These commitments shall be revisited during the detailed design phase of the Project at which time any additional commitments shall be identified.

10.1 Detailed Design Commitments

- During detailed design, the various issues identified on Figure A-3 in Appendix A will be further reviewed and addressed
- Traffic data at the intersection of Oxford Road 19 / Oxford Road 59 was not available and therefore an updated analysis of traffic operations will be completed for this intersection as part of the detailed design
- Sight lines at the CP rail crossing have been reviewed by the County in 2020 this information will be reviewed as part of the detailed design, to ensure that Transport Canada's Grade Crossing Standards are met
- The County has also identified a number of culverts along the corridor. The condition of these culverts is currently unknown and will need to be reviewed as part of the detailed design to determine if re-use or widening is required as part of improvements to the corridor
- The proposed roadside ditches and culverts within the project area will be sized to safely convey roadway runoff and no increase in flooding hazards are expected from

the widening. Opportunities for ditch enhancements, such as infiltration and check dams should be examined at the design stage

- A tree inventory of all trees expected to be impacted by the proposed road improvements shall be undertaken by a qualified arborist. Based on the results of the tree inventory, an Arborist Report including a tree preservation plan shall also be prepared
- Plant species loss should be minimized, where possible, and compensatory planting plans established in areas of the Study Area when no clearing activities are proposed. Potential for establishing pollinator species of plants shall also be included when establishing a formal planting plan
- The County shall comply with the Ontario Water Resources Act, 1990, c. O.40 with respect to the quality of water discharging into natural receivers. The footprint of disturbed areas shall be minimized to the extent possible. For example, vegetated buffers shall be left in place adjacent to natural vegetation features (forested areas) to the maximum extent possible
- A qualified ecologist should search culverts and bridges for active nests prior to work on these structures. If active nests are observed, work should be delayed until nests are no longer active
- Regulated setbacks from the Butternut tree should be adhered to, where possible. Where not possible, MECP should be consulted regarding next steps and permitting requirements
- DFO shall be consulted during the detailed design phase of the project with regard for the potential of works to impact fish and fish habitat, as appropriate
- An Erosion and Sediment Control (ESC) Plan will be developed the during detailed design phase of the project in consultation with CVC and CH and will conform to industry best management practices and recognized standard specifications such as Ontario Provincial Standards Specification (OPSS)
- A complaint response protocol for nuisance impacts including dust emissions will be prepared during the detailed design phase of the project and implemented prior to construction
- Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit / pedestrian survey at 5-m intervals, where appropriate. Stage 2 is required prior to any proposed construction activities on these lands
- The eight registered archaeological sites within 50 m of the Study Area were identified in 1981 by Foster (1982-15). Due to the passage of time and paucity of mapping associated with the former archaeological assessment, these sites must be reassessed during any Stage 2 survey to determine cultural heritage value or interest as per the 2011 S & G
- Pettman Cemetery was identified in 1981 by Foster (1982-15) and is known from local knowledge to be a historical Black community burying ground possibly located within 50 m of the Study Area and preferred design concepts. The cemetery

boundaries and number of burials remains unknown. Further archaeological assessment is required

- Springford Community Cemetery is within the Study Area. If future works are unable to avoid the legal boundaries of the cemetery and archaeological fieldwork is required, detailed strategies should be formulated once the impacts are understood
- Pine Street Burial Ground is within the Study Area. The cemetery property must be avoided by any proposed construction. Any construction impacts within the cemetery's legal boundaries will require a Stage 3 Cemetery Investigation to be conducted to confirm the presence of burial shafts
- Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to identified built heritage resources and cultural heritage landscapes. Avoidance measures may include, but are not limited to erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified B.H.R.s and C.H.L.s, etc. Suitable mitigation measures including post construction rehabilitation with sympathetic plantings can also be implemented
- As there are direct adverse impacts anticipated to the following properties: 225769 Otterville Road (B.H.R. 7), 224570 Ostrander Road (C.H.L. 3), 225400 Otterville Road (C.H.L. 12) and given the potential cultural heritage value of those properties, a resource-specific Cultural Heritage Evaluation Report (C.H.E.R.) should be conducted to determine cultural heritage value or interest (C.H.V.I.). As there are direct impacts anticipated, should the C.H.E.R. determine that the property retains C.H.V.I., a resource-specific Heritage Impact Assessment (H.I.A.) should be conducted to evaluate alternatives, assess potential impacts to the resource, and recommend appropriate mitigation measures
- The C.H.E.R. and H.I.A. should be completed by a qualified heritage professional with recent and relevant experience as early in detailed design as possible
- Direct impacts to C.H.L. 13 (225422 Otterville Road) are anticipated to include grading and encroachment onto the northern portion of the property. However, encroachment is not anticipated to have a direct adverse impact on the known heritage attributes associated with this property. As C.H.L. 13 is designated under Part IV of the Ontario Heritage Act, and there are direct impacts anticipated, a resource-specific H.I.A. is required as per clause 3.3.2.2 of the Oxford County Official Plan (County of Oxford, 2021). Given that the proposed undertaking is not anticipated to result in direct adverse impacts to the property and no known heritage attributes are anticipated to be impacted, it is recommended that the County of Oxford should consider waiving the requirement for a H.I.A. in this case if suitable mitigation measures including post construction rehabilitation with sympathetic plantings can be implemented
- As the property at 225947 Otterville Road (C.H.L. 20) is designated under Part IV of the Ontario Heritage Act and direct impacts anticipated due to property acquisition, grading, encroachment onto the northern portion of the property resulting in changes

to the parcel boundaries, and removal / relocation of the Ontario Heritage Trust plaque, a resource specific H.I.A. is required as per clause 3.3.2.2 of the Oxford County Official Plan (County of Oxford, 2021). However, encroachment is not anticipated to have a direct adverse impact on the known heritage attributes associated with this property
  - The H.I.A. should be completed by a qualified heritage professional with recent and relevant experience as early in detailed design as possible
  - The Ontario Heritage Trust plaque should be removed prior to construction and stored in a secure facility to prevent damage. Following construction activities, this plaque should be reinstalled at its extant location, or in a similarly accessible location based on consultation with the Township of Norwich and the Ontario Heritage Trust
- To ensure the following properties are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design:
  - 224261 Ostrander Road (B.H.R. 1)
  - 224943 Otterville Road (B.H.R. 2)
  - 224948 Otterville Road (B.H.R. 3)
  - 225769 Otterville Road (B.H.R. 7)
  - 224570 Ostrander Road (C.H.L. 3)
  - 225227 Otterville Road (C.H.L. 7)
  - 225279 Otterville Road (C.H.L. 8)
  - 225413 Otterville Road (C.H.L. 11)
  - 225400 Otterville Road (C.H.L. 12)
  - 225422 Otterville Road (C.H.L. 13)
  - 225860 Otterville Road (C.H.L. 18)
  - 225877 Otterville Road (C.H.L. 19)
  - 225963 Otterville Road (C.H.L. 21)
- Should this advance monitoring assessment conclude that the structure(s) on these properties will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction
- A qualified heritage consultant should be contacted during detailed design to review the designs in order to confirm impacts of the proposed works on the potential C.H.L.s at 225227 Otterville Road (C.H.L. 7), 225659 Otterville Road (C.H.L. 15), 225688 Otterville Road (C.H.L. 16), and 225720 Otterville Road (C.H.L. 17). This would determine whether there would be any adverse impacts to the properties and any subsequent cultural heritage requirements or reporting
- Should future work require an expansion of the study area, then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources

- Indigenous communities that were included in the EA contact list shall be consulted and given an opportunity to participate in the Stage 2 Archeological Assessment reporting and monitoring process
- All Indigenous communities previously engaged shall be contacted, if there are any substantial changes to the project/process or if the Region applies for subsequent permits from the Ministry (MECP) that may be of interest or concern to communities
- A complaint response protocol for nuisance impacts including dust emissions and construction noise shall be prepared during the detailed design phase of the project and implemented prior to construction
- A Soil Management Plan (SMP) shall be prepared by a Qualified Professional (QP) as defined in Ontario Regulation 160/06 for managing excess soil materials on Site (includes excavation, location of stockpiles, reuse and off-site disposal
- The required erosion and sediment control measures will be determined during detailed design to limit sediment migration and protect receiving watercourses. All disturbed areas of the construction Site shall be stabilized and re-vegetated as soon as conditions allow

10.2 Construction Commitments

- Clearly delineate the extent of vegetation removal for the vegetation clearing and grubbing contractor. All tree work including branch pruning, root pruning, and removal should be completed by an ISA Certified Arborist
- Trees to be retained beyond the limit of clearing should be protected using tree protection fence installed at the dripline or grading limit, whichever provides the greatest setback from the trees
- Residential properties that are subject to tree removal on the adjacent ROWs may require reinstatement of native woody vegetation to compliment cultural heritage aesthetics and provide privacy
- To reduce the risk of contravening the *Migratory Bird Convention Act, 1994*, and Endangered Species Act, timing constraints shall be applied to avoid any limited vegetation clearing (including grubbing) and / or structure works (construction, maintenance) during the period between April 1 to October 31 to avoid the active period for the following:
  - Breeding birds – Broadly from April 1 to August 31 for most species (regardless of the calendar year)
  - Bat species – Considered to be between April 1 to October 31 of any calendar year
- If a nesting migratory bird (or SAR protected under *ESA, 2007*) is identified within or adjacent to the construction Site (or during operations and maintenance activities) and the activities are such that continuing works in that area would result in a contravention of the *Migratory Birds Convention Act, 1994* or *ESA, 2007*, all activities

will stop and the Contract Administrator (with assistance from an Avian Biologist) shall discuss mitigation measures with the Town

- Should SAR be identified, all activities will stop and MECP will be contacted immediately to ensure compliance with the ESA. The Contract Administrator shall instruct the Contractor on how to proceed based on the mitigation measures established through discussions with the County, the MNDMNRF and / or Environment Canada
- Daily Sweeps of the construction zone and equipment should be conducted to ensure wildlife, including SAR snakes or turtles, have not entered the work limits. In the event that an animal is encountered during construction and does not move from the construction zone, the Contract Administrator will be notified. If the construction activities are such that continuing construction in the area would result in harm to wildlife, construction activities in that location will temporarily stop and the MNDMNRF shall be contacted for direction
- Wet weather restrictions shall be applied during Site preparation and excavation. Work will be avoided near watercourses and headwater drainage features during periods of excessive precipitation and / or excessive snow melt
- Any in-water works shall occur in isolation of flowing waters, with work zone isolation achieved by placing cofferdams constructed of clean, non-erodible materials at the upstream and downstream limits of a given work area. Stream flows must be maintained downstream of in-water work areas through by-passing flows (by-pass culvert, channel, pumping etc.). Any isolated work areas shall be de-watered and dewatering shall be conveyed to a filtering system and flow dissipation device to mitigate sedimentation and erosion of the receiving waterbody
- Any fish trapped in the isolated work area shall be captured and released outside of it prior to the commencement of in-water works. Any fish rescue shall be performed by a qualified aquatic ecologist / biologist. A License to Collect Fish (LCF) shall be obtained from the Guelph District MNRF prior to any fish rescue occurring
- In-water works will only be permitted to occur during the appropriate in-water works timing window (generally July 15 to September 30). This window will be confirmed with DFO and MNRF
- Disturbed roadside embankments will be restored with erosion control blankets, topsoil, approved seeding mixtures by Long Point Region Conservation Authority, and plantings, where appropriate
- Sediment and erosion control measures (such as silt fence barriers, etc.) shall be installed and maintained during the work phase and until the Site has been stabilized. Control measures shall be inspected daily to ensure they are functioning and are maintained as required. If control measures are not functioning properly, no further work shall occur until the problem is resolved. All temporary ESC measures shall be installed in accordance with recognized provincial standards. Extra silt fence / turbidity curtain shall be stored on-Site, should additional sediment control be required

- Any stockpiled material shall be stored and stabilized away from the surface water features. All materials and equipment used for the purpose of Site preparation and road construction shall be operated and stored in a manner that prevents any deleterious substance (e.g., petroleum fuel, hydraulic fluids) from entering the environment
- Refueling and maintenance of construction equipment should occur within designated areas only. Any hazardous materials used for construction will be handled in accordance to appropriate regulations
- Should previously undocumented archaeological resources be discovered by the Contractor during subsequent construction activities, the alteration of the site shall be ceased immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage Act. In the event that archeological remains are found by the Contractor during subsequent construction activities, the consultant archaeologist, approval authority and the Heritage Planning Unit of the Ministry of Citizenship and Multiculturalism Cultural Program Unit of the Ministry of Tourism Culture and Sport will immediately be notified by the Contractor
- A Construction Emergency Response and Communications Plan shall be developed and followed throughout the construction phase (including spill response plans). The Contractor shall develop spill prevention and contingency plans for the construction of new landfill cells and general Site preparation for proposed road extension. Personnel shall be trained in how to apply the plans and the plans shall be reviewed to strengthen their effectiveness and continuous improvement. Spills or depositions into watercourses shall be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A hydrocarbon spill response kit will be on-Site at all times during the work. Spills will be reported to the Ontario Spills Action Centre at 1-800-268-6060
- The road shall be graded as required to remove potholes, ruts and ripples in the road surface. Efforts to prevent contamination of the road surface, such as spilling sands, silts and clays, will also help to minimize dust
- If appropriate equipment is available, the roadway should be sprayed with water as required to minimize dust generation prior to paving
- The construction contractor will be required to develop a Construction Management Plan (CMP) that specifically addresses dust controls, and contingency plans to mitigate dust when it occurs
- Vehicles / machinery and equipment shall be in good repair, equipped with emission controls, as applicable, and operated within regulatory requirements. The contractor shall also be required to implement dust suppression measures to reduce the potential for airborne particulate matter resulting from construction activities. This should be in the form of water applications on exposed soils

- Considerations shall be given to using of chemical suppressants to reduce dust, use of wind barriers and limiting exposed areas which may be a source of dust and equipment washing
- The construction contractor shall develop a Construction Management Plan (CMP) that specifically addresses dust controls, and contingency plans to mitigate dust when it occurs
- Noise control measures shall be implemented where required during the construction phase, such as restricted hours of operation and the use of appropriate machinery and mufflers. The noise produced by the equipment can be limited through proper equipment maintenance
- All construction activities shall conform to the criteria set out in NPC-115 of 83 dB
- The construction contractor will be required to develop a Construction Management Plan (CMP) that specifically addresses noise controls, mitigation to be implemented and frequency of equipment inspection
- The contractor shall develop a Health and Safety Plan (HASP) and have it reviewed and approved by the County prior to implementing. The HASP shall follow the Occupational Health and Safety Act, 1990, and regulatory requirements
- Operation of construction related vehicles will be done in accordance with all appropriate safety policies and procedures, and based on Canadian Standards (Transport Canada, etc.)
- Contractor will be required to develop and implement a traffic management plan in coordination with Oxford County. Adequate signage to give advance notice of disruptions and detours is to be provided by the contractor

10.3 Permit Requirements

The following list provides a preliminary set of permit requirements that will need to be undertaken by the contractor. A final list of permits shall be determined during the detailed design phase of the Project.

- Contractor will need to obtain an Occupancy Permit from the County
- A Permit to Take Water may be required should dewatering be necessary. Requirements for dewatering will be determined during the detailed design phase of the Project
- The County is required to comply with the *Ontario Water Resources Act* with respect to the quality of water discharging into natural receivers. The footprint of disturbed area will be minimized as much as possible. For example, minimizing distribution of excavated soil to minimize sedimentation to storm sewers
- An ESC Plan will be developed in consultation with the LPRCA. Implementation of the erosion and sediment control measures will conform to recognized standard specifications such as OPSS and the requirements of the LPRCA

- A permit approval will be required from LPRCA in accordance with O.Reg. 178/06 Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses for construction works in LPRCA regulated areas, including culvert extensions, drain relocations and watercourse modifications
- Work on Municipal Drains will require approval from the local drainage superintendent

11.0 Study Consultation

11.1 Notifications

Notifications were mailed or emailed to property owners within 120 m of the Study Area in addition to relevant agencies, stakeholders and Indigenous communities. A project contact list is provided in Appendix H-1.

Contacts were notified with a Notice of Commencement, Notices of Public Consultation Centre (PCC) #1 and #2 and the Notice of Completion. Copies of all project notices are provided in Appendix H-1. Additional methods of notification include:

- Newspaper Advertisements – All notices were placed in two consecutive publications of the local Oxford Review
- Oxford County Website – All notices were posted on Oxford County project website (https://www.oxfordcounty.ca/en/news/oxford-road-19-corridor-improvements-class-ea-study.aspx)

11.2 Public Consultation Centre #1

PCC#1 was held on June 9, 2022, from 5:00 p.m. to 7:00 p.m. at Springford Community Hall 429 Main St. W, Springford. PCC#1 was arranged primarily as an open house style session where participants were given the opportunity to review the display boards and representatives from the Study Team were available to answer questions and discuss the project with interested members of the public on a one-on-one basis or in small groups.

The PCC was arranged as a drop-in format with Display Boards placed around the room. Attendees were greeted upon arrival, were encouraged to sign-in, and were offered a Comment Sheet to provide comments on the project and Alternative Solutions.

Representatives from the County and its Consultant (R.J. Burnside & Associates Limited) were present to discuss the project with interested members of the public and answer questions.

A total of 20 people attended the PCC. A detailed description of the PCC is provided in Appendix H-2.

Comments received during or after the PCC are summarized in Table 16.

Table 16: Summary of Comments and Project Team Responses

Comment		Project Team Response
Comment Sheet A	Concern about access to owned buildings and businesses in Otterville, and alternative route signage for traffic.	Concerns regarding access to owned buildings and businesses have been noted and will be taken into consideration when developing a commitment to a traffic management plan by the contractor.
Comment Sheet B	Concern for blind spot created by large hill on Ostrander Road west of Zenda Line, and level hill in front of St. Charles' Church.	Concerns regarding vertical alignment deficiencies have been noted and will be taken into consideration when developing a Preferred Solution and Preferred Design.
Comment Sheet C	Resident notes that the Evaluation Table is a very good summary and should be presented with a detailed explanation allowing public to discuss and ask questions.	The efforts will be taken to present the Evaluation Table with a more detailed explanation at the next PIC allowing public to discuss and ask more detailed questions.
Comment Sheet D	Resident notes that the eastern boundary of Oxford Road 19 at connection point with Norfolk County is a very awkward portion of roadway, as it does not line-up in a straight-away but a jog. Many accidents have occurred. Resident also noted that a widening of the roadway and shoulder from Csont Line to the eastern boundary will impact a municipal drain. Runoff in the spring collects east of Csont Line into the drainage ditch on south side of road before crossing under road at Csont Line and emptying further up the concession road.	These concerns have been noted and will be taken into consideration when developing a Preferred Solution and Preferred Design.

Comment		Project Team Response
Phone call	Resident enquired whether property was within the Study Area. Resident noted that notice had been received and was planning on attending. Resident also noted that it appears that there is approximately no setback from property line to existing house.	County responded that property in question is in Study Area. Setback concerns have been noted and will be taken into consideration when developing a Preferred Solution and Preferred Design
Email 1	Requested confirmation of the availability of the PCC exhibits. Resident does not oppose making the road wider, improving the shoulders, and maybe even paving them, or any other work that will make the road safer and better. It was noted that everything the proposals are showing are great and will improve travel for everyone. The concern is the high volume of heavy truck traffic through the villages and the increase in speeding once the road is levelled. Resident would like to see these consequences minimized as much as possible so safety and betterment for some does not become worse for others.	Burnside responded that concerns regarding truck traffic and speeding have been noted and will be taken into consideration when developing a Preferred Solution and Preferred Design. In addition, it was noted that the links to the exhibits have been added to the website.
Email 2	It was noted that the presentation of the project at the PCC was very good. The Resident feels that the road should be totally reconstructed to handle heavy traffic (i.e., large trucks and farm equipment). The resident has observed the deterioration of the road, and the increasing traffic at all hours of the day. Resident feels the road does need wider shoulders, to allow pedestrians and cyclists. The Resident believes that the alignment (as Oxford Road 19 transitions into Norfolk Road 19) should be reconstructed so that the existing curve in the road be straightened allowing more visibility and a safer operation of vehicles.	These suggestions and concerns have been noted and will be taken into consideration when developing a Preferred Solution and Preferred Design.

11.3 Public Consultation Centre #2

PCC#2 was held on December 6, 2022, from 5:00 p.m. to 7:00 p.m. at Springford Community Hall 429 Main St. W, Springford. PCC#2 was arranged primarily as an open house style session where participants were given the opportunity to review the display boards and representatives from the Study Team were available to answer questions and discuss the project with interested members of the public on a one-on-one basis or in small groups.

The PCC was arranged as a drop-in format with Display Boards placed around the room. Attendees were greeted upon arrival, were encouraged to sign-in, and were offered a Comment Sheet to provide comments on the project and Alternative Solutions.

Representatives from the County and its Consultant (R.J. Burnside & Associates Limited) were present to discuss the project with interested members of the public and answer questions.

A total of eight people attended PCC #2. Participants were requested to provide input to the process by completing the available Comment Sheets. If individuals wished to take Comment Sheets home to fill out later, or to download from the Oxford County website, they were requested to return their comments either via email, fax or to the mailing address provided, by January 13, 2023.

A detailed description of PCC#2 is provided in Appendix H-3, including display boards, copies of comment sheets, public correspondence received and preliminary responses provided. Commitments were made for further investigations / responses in establishing the preliminary preferred design and the future detailed design. Responses to the comments received in PCC#2 are summarized in Table 17.

Table 17: Summary of Comments and Project Team Responses

ID Code	Comment	Project Team Response
Comment Sheet 1	Residents concerned about visibility have witnessed accidents because of visibility. It was noted that houses are close to the busy road, which creates a liability. The Resident suggests that if the road was moved more to the other side up to the hydro lines, less property would be lost, thus safer for Residents and turning farm equipment. The Resident also enquired whether a calculation had been done on the amount of liquid manure travelling on road west/east of Springford, huge environmental exposure.	The preliminary design has flagged horizontal and vertical sightline issues. Additional horizontal alignment alterations will be considered at the detailed design to increase safety of travel through the corridor. The preliminary design team has considered the suggestion carefully and believe that moving the road as suggested will not impact the safety of the road. Calculations on the amount of liquid manure travelling on the road have not been done. Road upgrades are meant to reduce the risk of agricultural vehicle collisions and potential environmental exposure related to such events. These upgrades include widening of shoulders and the inclusion of a paved shoulder.
Comment Sheet 2	Resident requested why the study and assessment excluded Springford and Otterville, as Highway 19 continues through these towns, so the assumption is the traffic flow and maintenance will also be impacted; and whether this area will be covered in a future study?	Those areas have previously been reviewed with considerations to the traffic and safety and the improvement have been completed to these sections. The interfaces between the previously improved sections and the sections that are currently being studied will be reviewed at the detailed design stage.
Email 1	Resident noted they were unable to attend PCC #2 and requested whether there was an executive summary available?	Burnside responded and attached a link to the display boards which were available at PCC #2 and attached the Comment Sheet that was provided. Burnside encouraged any input they may have. It was noted that the final Environmental Study Report (ESR) will be made available for public viewing, tentatively in February/March of next year.

ID Code	Comment	Project Team Response
Email 2	Resident responded requesting whether there will be further opportunities for input regarding any impacts of this project? Resident requested whether the website regarding the PCC #2 was open now? The Resident asked whether they will be directly advised when the Report is available.	The project website is up and available for public at any time during this project (https://www.oxfordcounty.ca/en/news/oxford-road-19-corridor-improvements-class-ea-study.aspx) and we welcome any additional comments you may have. The project team encouraged the resident to visit the project website occasionally for updates as the project progresses. The Environmental Study Report will be available through the website for 30-days public review and comments. The project team will issue a 'Notice of Completion' that will be mailed/emailed to all that are on the project contact list, including public members, agencies, indigenous communities, and interested stakeholders, to inform them of the start of the 30-day review period.
Email 3	The resident was able to attend this meeting along with his wife. They do have some comments and questions. Many of these were discussed with those in attendance on December 6. They live at 224846 Otterville Road and have been here for 41 years. Environmental impact If the road is built as you suggest, this infers that the 20 (or so) trees to the east and on the south side of the road of our home will be cut down. This will have a large negative impact on the environment. Frequently, there are hawks and sometimes eagles that use these trees. Just this past week we had a red tail hawk land in our blue spruce tree on our property and fly to one of the trees alongside the road that I am referring to. We have had, this past year, red squirrels living on our property and currently there are black squirrels as well. Removing these trees would destroy part of their habitat. I believe that red squirrels are a protected species. We sometimes see	Response to Email: Burnside responded that all comments are carefully reviewed and considered as the EA study progresses. It was also noted that a PCC#2 Summary Report will be available on the project website once the PCC #2 comment period has closed; and that the Report will include a table of the comments and Project Team responses. The resident was encouraged to visit the project website to review the Report and for project updates. Response to Comments: As part of this EA study, natural environment and wildlife habitat in the Study area has been reviewed to ensure a minimal impact and mitigation measures are being recommended.

ID Code	Comment	Project Team Response
	snakes, frogs and toads in off to the side of the road where the tree line is, and their habitat would be destroyed. Many small birds' nest in these trees. Proposed Location of new road If the road were rebuilt to the north of the existing road (i.e., closer to the hydro poles and to the east of 224846 Otterville Road), these trees could be saved and the habitat for the small animals might not be disturbed. I urge you to consider this option. Liability There is also a liability exposure that if not corrected, could put the county at an increased liability risk. Rebuilding of the road allows an opportunity to fix this existing liability exposure. The exposure is the hill in front of our home. It blocks views to oncoming traffic when traffic is travelling west to east and blocks the view from our driveway to the west. Anyone visiting always comment on how treacherous it is entering or exiting our driveway, Canada Post made us move our mailbox to the east, as to minimize the potential danger which this hill created for their mail delivery. To add to the problem, the neighbours to the northwest of our property have a laneway which is affected by this hill as it blocks the view when exiting / entering the laneway. We have witnessed 2 accidents caused by farm machinery and vehicles colliding when farm machinery is turning into the laneway. Farm machinery was travelling east and turning north into the laneway. Traffic behind the farm machinery is unable to see any laneway, and then attempt to pass the farm machinery, causing the accidents. Taking out the hill to improve the line of vision would be a possible solution. Also moving the road to the north as mentioned above would also assist. Please note that I am an insurance broker, having owned and sold an insurance	The concern was that unnecessary trees and land were to be taken from the front of their property. Consideration will be given to minimize tree removal with a focus on drainage and road requirements. Required land is equal distance from the existing centerline of the road, in an effort to best use the existing road base and be fair to landowners. The preliminary design has flagged horizontal and vertical sightline issues. Further investigation & design consideration to be taken during detailed design to improve sightlines.

ID Code	Comment	Project Team Response
	brokerage in Tillsonburg. One company which I worked with for 40 years was Frank Cowan, an insurer of Schools, Counties and Hospitals.	

11.4 Consultation with Indigenous Communities

Indigenous communities with Treaty Rights, Aboriginal Rights or a perceived interest in the project were consulted. Communities were identified through correspondence and direction provided by the MECP (correspondence: Mark Badali, Regional Environmental Planner, MECP, dated December 15, 2021, and March 2, 2022). A copy of correspondence is provided in Appendix H-4. The following communities were identified:

- Aamjiwnaang First Nation
- Caldwell First Nation
- Chippewas of the Thames First Nation
- Delaware Nation (Moravian of the Thames)
- Chippewas of Kettle and Stony Point
- Mississaugas of the Credit Frist Nation
- Munsee-Delaware First Nation
- Oneida Nation of the Thames
- Bkejwanong (Walpole Island First Nation)
- Six Nations of the Grand River (Elected Council and Haudenosaunee Confederacy Chiefs Council, represented by the Haudenosaunee Development Institute)

Each community / organization received a copy of the Notice of Commencement and Notices of PCC#1 and #2. Follow-up phone calls were made to identified Indigenous communities following the issuance of study notices to:

- Confirm receipt of each notice;
- Confirm the community's preferred methods to communicate project information via email / mail;
- Ensure the appropriate contact has been identified;
- Ensure the community is aware of the project and the opportunity to participate; and,
- Determine the community's level and type of interest in the project and their wish for further engagement.

The Chippewas of the Thames First Nation and Delaware Nation requested to be removed from the mailing list and indicated that they did not require further consultation on the project.

Review of Reports

That Stage 1 Archaeological Assessment was submitted to all communities for review, with the exception of the Delaware Nation, as they had indicated that they no longer needed to be consulted. The Chippewas of the Thames Frist Nation requested to be removed from the mailing list after the Archaeological Assessment was submitted to them.

Staff from Munsee-Delaware First Nation, Chippewas of the Thames First Nation and Mississaugas of the Credit First Nation responded and indicated that they had no comments on the report.

The Caldwell First Nation and Haudenosaunee Development Institute requested funding to review reports. The County responded that they are not able to provide funding. Offers to meet with each community were made. To date, neither community has responded to the offer for a meeting.

Multiple phone calls and follow-up emails were issued to the remaining communities. Correspondence and a phone call log is provided in Appendix H-4.

The draft Natural Environment Report and Environmental Study Report (ESR) will be sent to each community for review prior to issuing the Notice of Completion. In addition, a plain language summary of the ESR will also be circulated for review.

Comments Received

In response to the Notices and phone calls, communication was received from:

- Bkejwanong Territory (Walpole Island First Nation);
- Caldwell First Nation;
- Chippewas of the Thames First Nation;
- Delaware Nation (Moravian of the Thames);
- Chippewas of Kettle and Stony Point;
- Mississaugas of the Credit Frist Nation;
- Munsee-Delaware First Nation; and
- Haudenosaunee Development Institute (HDI);

A summary of comments from these communities is provided in Table 18. Copies of the comments received and responses sent are provided in Appendix H-4.

Table 18: Summary of Correspondence with Indigenous Communities

Indigenous Community	Comment Received	Study Team Response
Bkejwanong Territory (Walpole Island First Nation)	Thank you for the notification. We have no comment at this time.	WIFN will continue to receive all notifications and draft reports for review.
Caldwell First Nation	Requested that the proponent submit documents via the	Documents uploaded to the consultation portal.

Indigenous Community	Comment Received	Study Team Response
	community's consultation portal. Requested additional information about habitat or flight paths, endangered species permits, a landscape agreement and archaeological assessment. Requested funds to cover review expenses.	The Stage 1 Archaeological Assessment was circulated through the portal. No comments have been received to date. Funds for review are not available but the team will meet to discuss the project. A plain language executive summary will be circulated with draft documents for review.
Chippewas of the Thames	Screening identified no concerns with the project. Please contact us if the project changes. Requested copy of the Stage 1 Archaeological Assessment. Subsequently asked to be removed from the project mailing list.	Removed from project mailing list.
Delaware Nation	We are located in Orford Township in Chatham-Kent, a fair distance from Oxford Road 19. We will not be commenting on this project.	Noted. Community removed form project contact list.
Chippewas of Kettle and Stony Point	Please provide documentation regarding environmental Impact and archaeological studies.	The Stage 1 Archaeological Assessment was circulated for review. No comments have been received to date. A plain language executive summary will be circulated with draft documents for review.

Indigenous Community	Comment Received	Study Team Response
Mississaugas of the Credit First Nation	MCFN DOCA has no comments or concerns regarding this project. Please provide details of the environmental and archaeological work. Reviewed the Stage 1 Archaeological Assessment and indicated that they had no comments on the report.	The Stage 1 Archaeological Assessment was circulated for review. A plain language executive summary will be circulated with draft documents for review.
HDI	Please submit an application form and application fee. HDI will provide comments upon receipt.	The County will not be submitting an application but will provide all reports for review along with a high-level summary. The County is available for a meeting if required. The Stage 1 Archaeological Assessment was circulated for review. No comments have been received to date. A plain language executive summary will be circulated with draft documents for review.
Munsee-Delaware First Nation	Reviewed the Stage 1 Archaeological Assessment and indicated that they had no comments on the report.	A plain language executive summary will be circulated with draft documents for review.

11.5 Agency Involvement

The contact list provided in Appendix H-1 lists the agencies contacted during the MCEA. Correspondence is provided in Appendix H-5. Several agencies responded with standard response letters, as follows:

- MECP responded to the Notice of Commencement with a letter indicating the Ministry's expectation for EAs, including Ministry requirements for consultation and Ministry areas of interest including, provincial planning and policy, source water protection, climate change, air quality, noise and dust, ecosystem protection, species at risk, surface water, groundwater, excess materials and contaminated sites, among others.
- MHSTCI (Now MCM), responded with a standard letter outlining the Ministry's expectations with regard to cultural heritage and archaeological studies.
- MNRF responded with a standard letter outlining expectations and resources for obtaining information about natural heritage, petroleum wells, oil, gas and salt resources and work on public lands or rivers.

Internal Technical Advisory Committee

The Project Team established and participated in an Internal Technical Advisory Committee (In-TAC) for this Study. Representatives from County's key departments were invited to participate (i.e., Transportation, Engineering, and Development Planning). This was an internal County group only and intended to support the Project Team.

Study findings were presented and technical input was solicited during one In-TAC workshop. Members of the committee provided valuable insight to project information as it became available and helped tailor the information for external stakeholders. Copies of the minutes of meeting are provided in Appendix H-5.

11.5.1 External Technical Advisory Committee

An External Technical Advisory Committee (Ex-TAC) was formed to engage in proactive consultation with regulatory MECP, LPRCA, MTO, and Utilities.

Two Ex-TAC meetings were held to gather input to the project, discuss issues / concerns, and inform members of the technical details at various decision-making points throughout the EA process. Ex-TAC meetings were scheduled in advance of the PCCs to obtain participants input on the project information. Copies of the meeting minutes are provided in Appendix H-5.

11.6 Study Completion

11.6.1 Notice of Study Completion

A Notice of Study Completion of this Municipal Class EA will be prepared and published in the local Oxford Review. The Notice will also be mailed / emailed to all agencies and stakeholders that had expressed an interest in the project.

11.6.2 Section 16 Order

A request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study (i.e., requiring an individual / comprehensive EA approval before being able to proceed), or that conditions be imposed (i.e., require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the requester contact information and full name for the Ministry.

Requests should specify what kind of order is being requested (request for additional conditions or a request for an individual / comprehensive environmental assessment), how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. This will ensure that the ministry is able to efficiently begin reviewing the request.

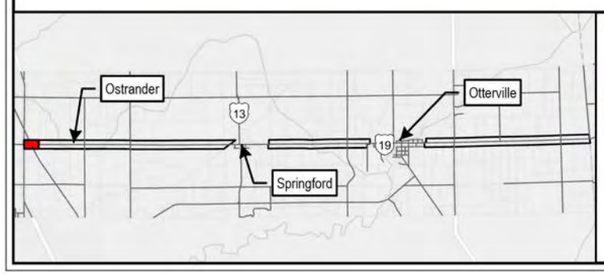
If no order request is received, the project will proceed to design and construction as outlined in the planning documentation. Please visit the Ministry's website for more information on requests for orders under section 16 of the Environmental Assessment Act at: https://www.ontario.ca/page/class-environmental-assessments-section-16-order.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Figures



Vegetation Communities

- Agricultural
- Thickets
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Municipal Drain: Open
- Municipal Drain: Closed
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client: **COUNTY OF OXFORD**

0 25 50 75 100
Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

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Vegetation Communities

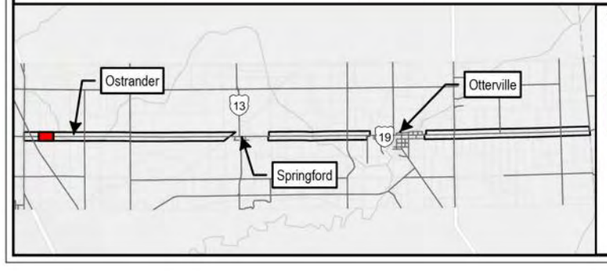
CVR_4 - Rural Property

OAGM1 - Agriculture

TAGM5 - Fencerow

THDM2-1 - Sumach Deciduous Shrub Thicket Type

THDM2-3 - Chokecherry Deciduous Shrub Thicket Type



Vegetation Communities

- Agricultural
- Thickets
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Municipal Drain: Open
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

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Metres

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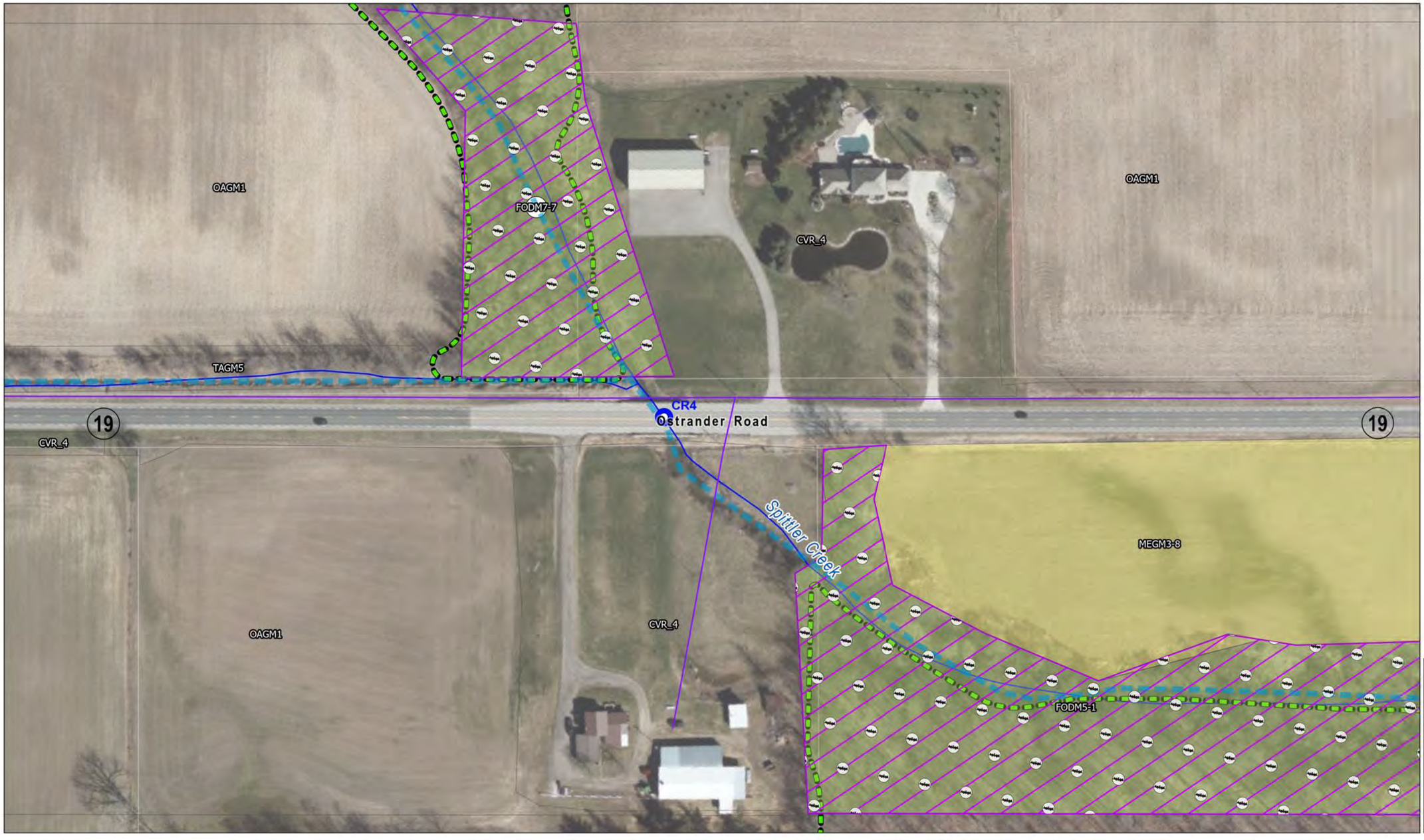

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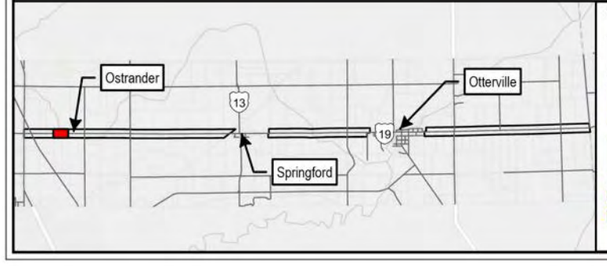
Vegetation Communities

- CVR_4 - Rural Property
- FODM5-1 - Dry - Fresh Sugar Maple Deciduous Forest Type
- FODM7-7 - Fresh Moist Manitoba Maple Lowland Deciduous Forest Type
- MEGM3-8 - Reed Canary Grass Graminoid Meadow Type
- OAGM1 - Agriculture
- TAGM5 - Fencerow



Vegetation Communities

- Agricultural
- Meadows
- Woodlands
- Ecologically Important Woodlands (Draft ONHSS)

- Aquatic Study Locations
- Bat Maternity Colony Habitat

Habitat for Special Concern and Rare Wildlife:

- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush

- Municipal Drain: Open
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

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Vegetation Communities

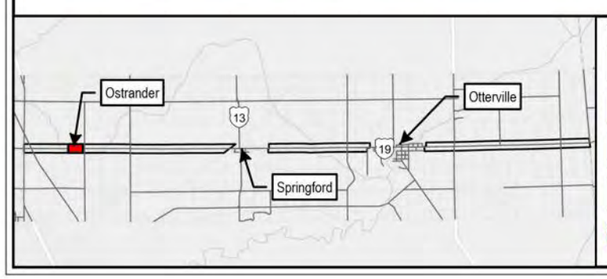
FODM5-1 - Dry - Fresh Sugar Maple Deciduous Forest Type

MEGM3-8 - Reed Canary Grass Graminoid Meadow Type

OAGM1 - Agriculture

OAGM1 - Open Agriculture

OAO - Open Water



Vegetation Communities

- Agricultural
- Meadows
- Wetlands
- Woodlands
- Ecologically Important Woodlands (Draft ONHSS)

- Turtle Wintering Area
- Aquatic Study Locations
- Bat Maternity Colony Habitat

Habitat for Special Concern and Rare Wildlife:

- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush

- Municipal Drain: Open
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

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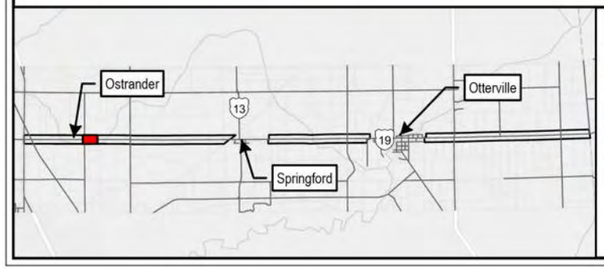
Vegetation Communities

- CVR_4 - Rural Property
- FODM5-1 - Dry - Fresh Sugar Maple Deciduous Forest Type
- FODM7-7 - Fresh Moist Manitoba Maple Lowland Deciduous Forest Type
- MEGM3 - Dry - Fresh Graminoid Meadow Ecosite
- OAGM1 - Agriculture
- OAGM1 - Open Agriculture
- OAO - Open Water
- THDM2-1 - Sumach Deciduous Shrub Thicket Type



Vegetation Communities

- Agricultural
- Meadows
- Thickets
- Wetlands
- Woodlands
- Ecologically Important Woodlands (Draft ONHSS)
- Turtle Wintering Area
- Aquatic Study Locations
- Bat Maternity Colony Habitat

Habitat for Special Concern and Rare Wildlife:

- Canada Warbler
- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Golden-winged Warbler
- Municipal Drain: Open
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)

BURNSIDE

Client

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Metres

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Vegetation Communities

CVR_4 - Rural Property

FODM5-1 - Dry - Fresh Sugar Maple Deciduous Forest Type

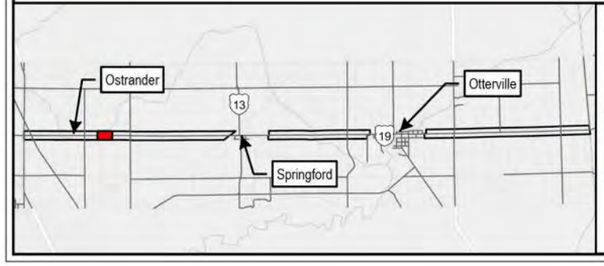
FODM7-7 - Fresh Moist Manitoba Maple Lowland Deciduous Forest Type

MEGM3 - Dry - Fresh Graminoid Meadow Ecosite

OAGM1 - Agriculture

OAGM4 - Open Pasture

THDM2-1 - Sumach Deciduous Shrub Thicket Type



Vegetation Communities
- Agricultural
- Meadows
- Thickets
- Woodlands

- Ecologically Important Woodlands (Draft ONHSS)
- Aquatic Study Locations
- Bat Maternity Colony Habitat

Habitat for Special Concern and Rare Wildlife:
- Canada Warbler
- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Golden-winged Warbler

- Municipal Drain: Open
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

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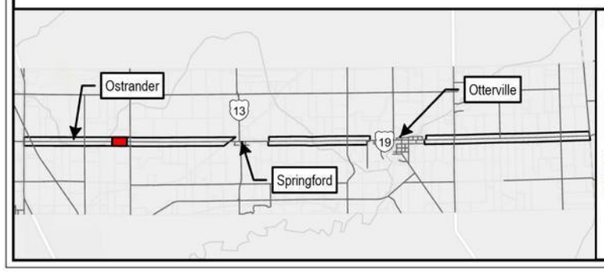
Vegetation Communities
- CGL - Greenlands
- CVR_4 - Rural Property
- FODM5-1 - Dry - Fresh Sugar Maple Deciduous Forest Type
- OAGM1 - Agriculture
- OAGM3 - Specialty Crops
- TAGM5 - Fencerow



Vegetation Communities
- Agricultural
- Woodlands
- Ecologically Important Woodlands (Draft ONHSS)

- Aquatic Study Locations
- Bat Maternity Colony Habitat

Habitat for Special Concern and Rare Wildlife:
- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush

- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

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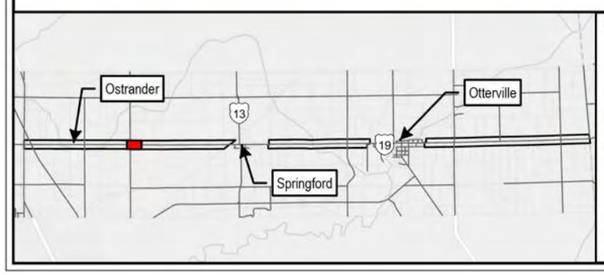
Vegetation Communities

- CVR_4 - Rural Property
- MAM - Meadow Marsh
- MAMM1-3 - Reed-canary Grass Graminoid Mineral Meadow Marsh Type
- OAGM1 - Agriculture
- OAGM1 - Open Agriculture
- OAGM3 - Specialty Crops
- OAO - Open Water



Vegetation Communities

- Agricultural
- Wetlands
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 8/32
Scale		Project No.	
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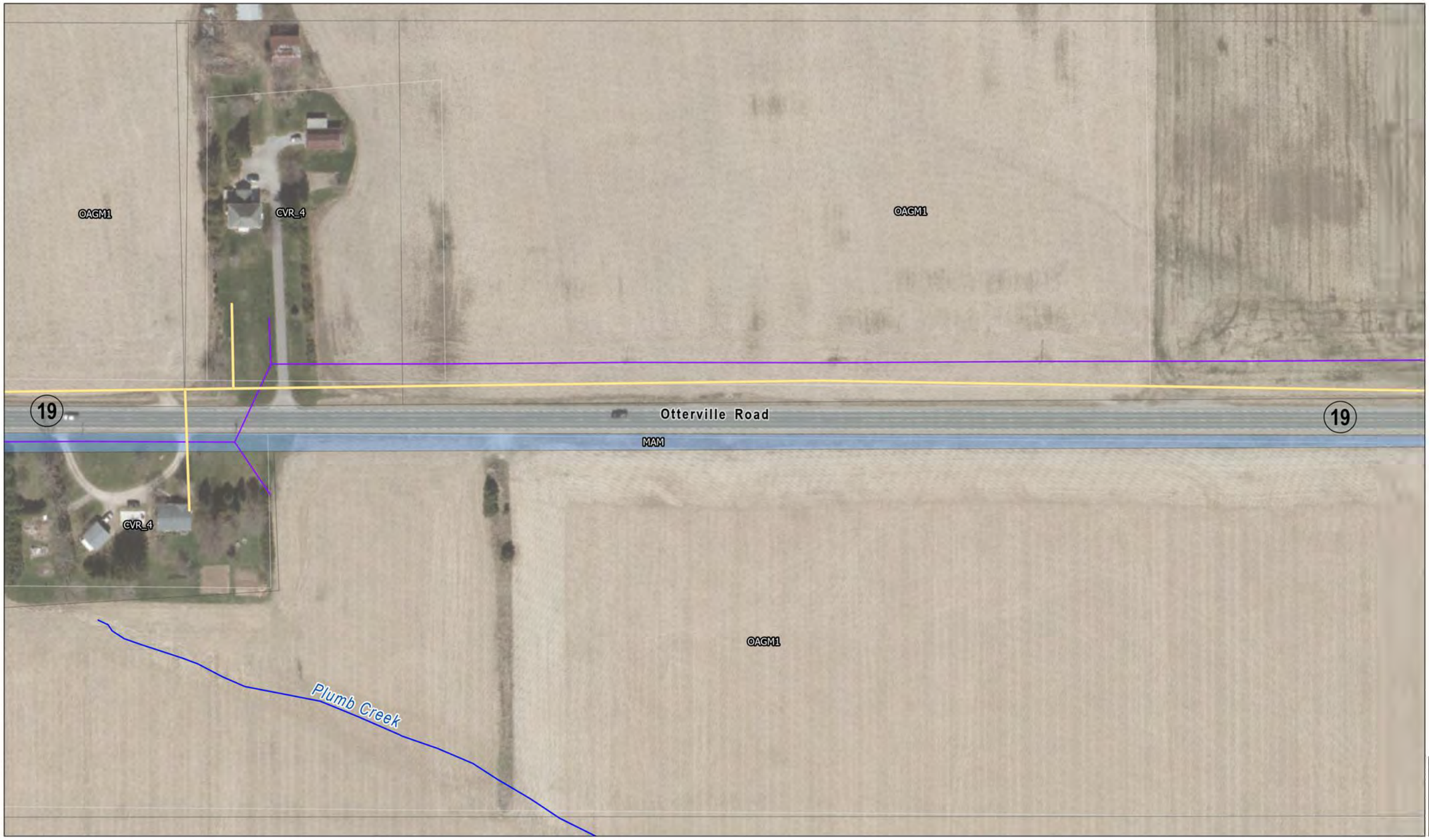

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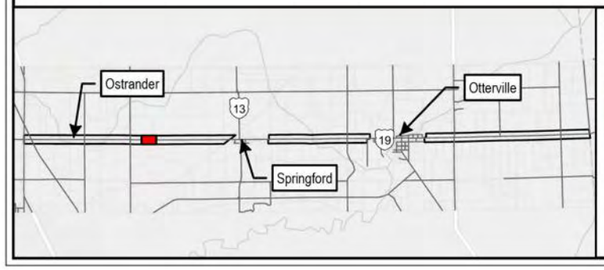
Vegetation Communities
CVR_4 - Rural Property
MAM - Meadow Marsh
OAGM1 - Open Agriculture



Vegetation Communities
- Agricultural
- Wetlands
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 9/32
Scale		Project No.	
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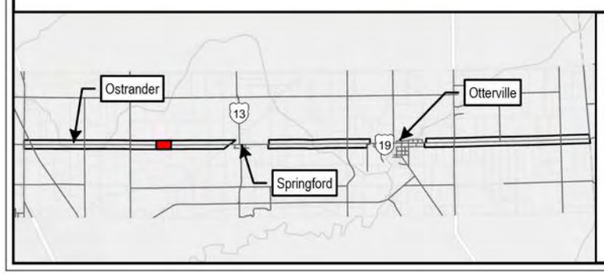
Vegetation Communities
CVR_4 - Rural Property
MAM - Meadow Marsh
OAGM1 - Open Agriculture



Vegetation Communities
- Agricultural
- Wetlands
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 10/32
Scale		Project No.	
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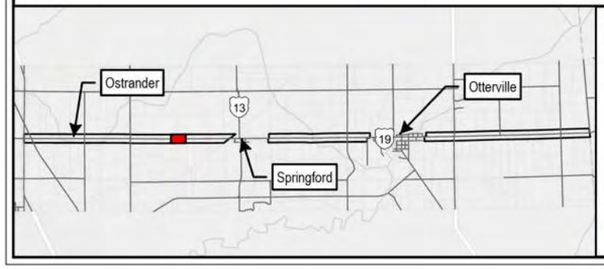
Vegetation Communities
CVR_4 - Rural Property
IAGM1 - Agricultural Buildings
OAGM1 - Open Agriculture



Vegetation Communities
- Agricultural
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 11/32
Scale		Project No.	
H 1:1,500		300053425	

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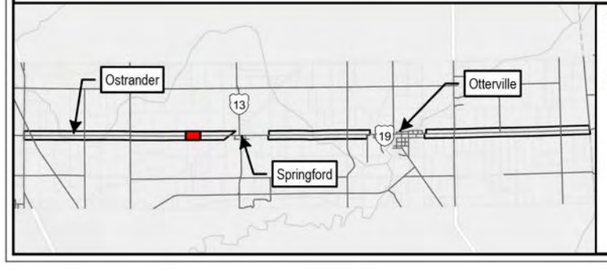
Vegetation Communities
- CVR_4 - Rural Property
- IAGM1 - Agricultural Buildings
- OAGM1 - Agriculture
- OAGM1 - Open Agriculture



Vegetation Communities
- Agricultural
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 12/32
Scale		Project No.	
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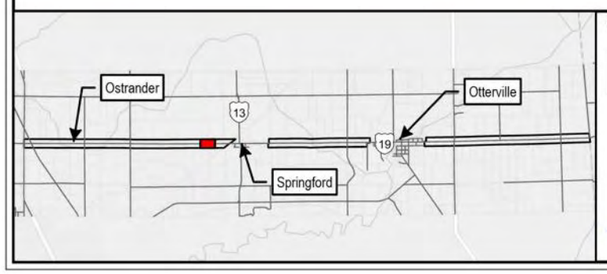
Vegetation Communities
CVR_4 - Rural Property
OAGM1 - Agriculture
OAGM1 - Open Agriculture



Vegetation Communities
- Agricultural
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 13/32
Scale		Project No.	
H 1:1,500		300053425	

File Path: \\elmo\gis\Project\300\053425 (Oxford Rd 19 EA)\053425 aprx Print Date: 2023/09/08 Time: 12:56 PM

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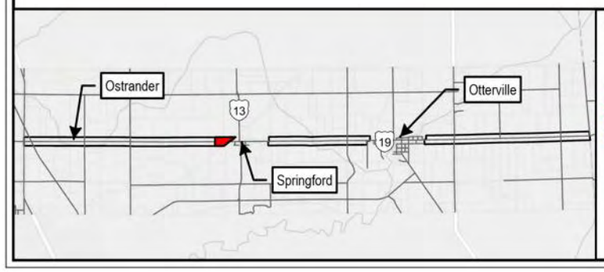
Vegetation Communities
- CVR_4 - Rural Property
- OAGM1 - Agriculture
- OAGM1 - Open Agriculture
- TAGM5 - Fencerow



Vegetation Communities
- Agricultural
- Ecologically Important Woodlands (Draft ONHSS)
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Municipal Drain: Closed
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 14/32
Scale		Project No.	
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File Path: \\elmo\gis\Project\300\053425 (Oxford Rd 19 EA)\053425.aprx Print Date: 2023/09/08 Time: 12:56 PM

N

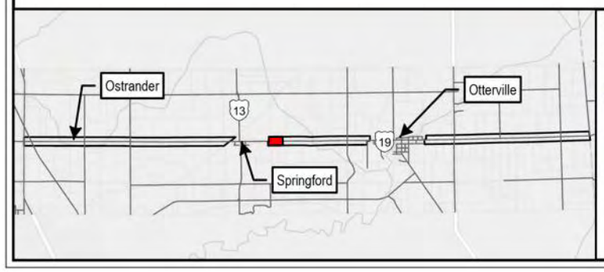
Vegetation Communities

CVR_4 - Rural Property

MEGM3 - Dry-Fresh Graminoid Meadow Ecosite

OAGM1 - Open Agriculture

TAGM5 - Fencerow



Vegetation Communities

- Agricultural
- Meadows
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Municipal Drain: Closed
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 15/32
Scale		Project No.	
H 1:1,500		300053425	

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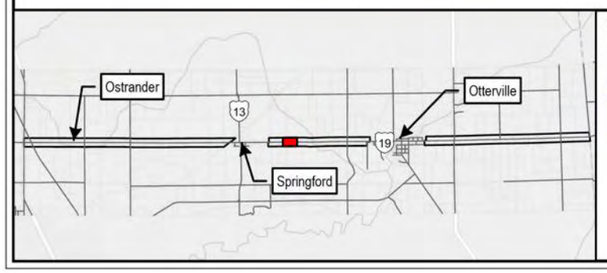
Vegetation Communities
- CVR_4 - Rural Property
- IAGM1 - Agricultural Buildings
- MEGM3 - Dry-Fresh Graminoid Meadow Ecosite
- OAGM1 - Open Agriculture
- TAGM5 - Fencerow



Vegetation Communities
- Agricultural
- Meadows
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Municipal Drain: Open
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client: **COUNTY OF OXFORD**

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 16/32
Scale		Project No.	
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File Path: \\elmo\gis\Project\300\053425 (Oxford Rd 19 EA)\053425.aprx Print Date: 2023/09/08 Time: 12:56 PM

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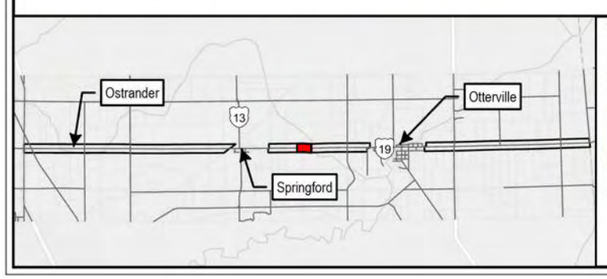
Vegetation Communities

- CGL - Greenlands
- CVR_4 - Rural Property
- FODM8-3 - Fresh - Moist Cottonwood Deciduous Forest Type
- IAGM1 - Agricultural Buildings
- MEGM3 - Dry-Fresh Graminoid Meadow Ecosite
- OAGM1 - Open Agriculture
- OAO - Open Water
- TAGM5 - Fencerow



Vegetation Communities

- Agricultural
- Meadows
- Wetlands
- Woodlands

- Ecologically Important Woodlands (Draft ONHSS)
- Amphibian Breeding Habitat (Woodland)
- Turtle Wintering Area
- Aquatic Study Locations
- Bat Maternity Colony Habitat

Habitat for Special Concern and Rare Wildlife:

- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Snapping Turtle
- Municipal Drain: Open
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 17/32
Scale		Project No.	
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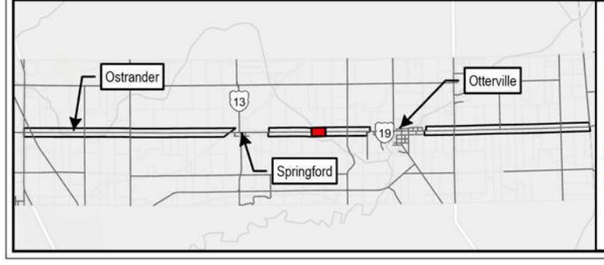

Vegetation Communities
- Agricultural
- Wetlands
- Woodlands
- Ecologically Important Woodlands (Draft ONHSS)

- Amphibian Breeding Habitat (Woodland)
- Turtle Wintering Area
- Aquatic Study Locations
- Bat Maternity Colony Habitat

Habitat for Special Concern and Rare Wildlife:
- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Snapping Turtle
- Watercourse
- Watermain

- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 18/32
Scale		Project No.	
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File Path: \\elmo\gis\Project\300\053425 (Oxford Rd 19 EA)\053425.aprx Print Date: 2023/09/08 Time: 12:57 PM

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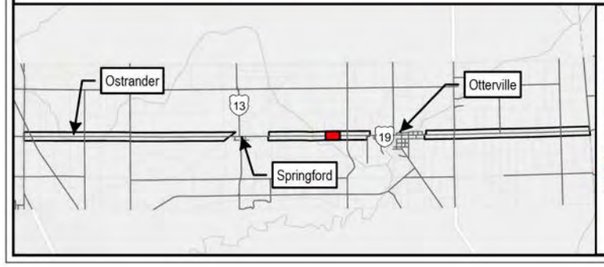
Vegetation Communities
- CVR_4 - Rural Property
- FODM - Deciuous Forest
- IAGM1 - Agricultural Buildings
- OAGM1 - Open Agriculture
- OAGM3 - Specialty Crops
- TAGM1 - Coniferous Plantation



Vegetation Communities
- Agricultural
- Woodlands
- Ecologically Important Woodlands (Draft ONHSS)
- Aquatic Study Locations

- Bat Maternity Colony Habitat

Habitat for Special Concern and Rare Wildlife:
- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 19/32
Scale		Project No.	
H 1:1,500		300053425	

File Path: \\elmo\gis\Project\300053425 (Oxford Rd 19 EA)\053425.aprx Print Date: 2023/09/08 Time: 12:57 PM

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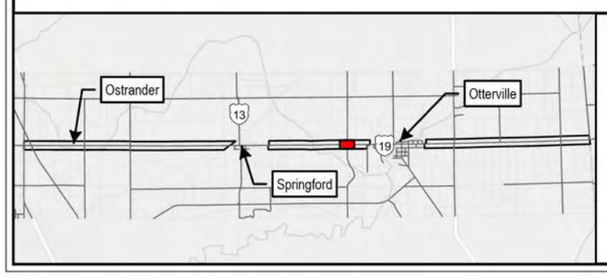
Vegetation Communities
- CVR_4 - Rural Property
- IAGM1 - Agricultural Buildings
- OAGM1 - Open Agriculture
- TAGM5 - Fencerow



Vegetation Communities
- Agricultural
- Aquatic Study Locations
- Bat Maternity Colony Habitat

- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 20/32
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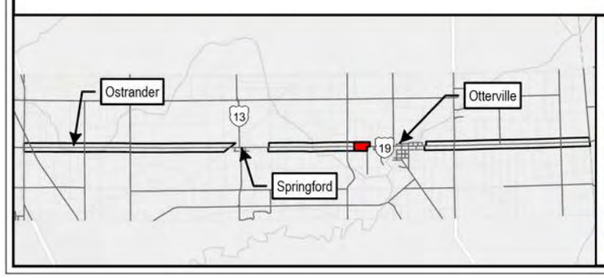
File Path: \\elmo\gis\Project\300053425 (Oxford Rd 19 EA)\053425.aprx Print Date: 2023/09/08 Time: 12:57 PM

Vegetation Communities

- CGL - Greenlands
- CVR_4 - Rural Property
- FODM7-4 - Fresh – Moist Black Walnut Lowland Deciduous Forest Type
- FOMM - Mixed Forest
- IAGM1 - Agricultural Buildings
- MA - Marsh
- MAM3 - Mixed Forb Organic Meadow Marsh Type
- OAGM1 - Open Agriculture
- OAO - Open Water
- SAF_1-3 - Duckweed Floating-leaved Shallow Aquatic Type



- Otterville Provincially Significant Wetland Complex BOC7
- Ecologically Important Woodlands (Draft ONHSS)
- Bat Maternity Colony Habitat

Vegetation Communities

- Agricultural
- Wetlands
- Woodlands
- Rare Vegetation Community (FODM7-4)

Habitat for Special Concern and Rare Wildlife:

- Amphibian Breeding Habitat (Woodland)
- Turtle Wintering Area
- Aquatic Study Locations
- Butternut 50m Buffer
- Butternut
- Canada Warbler
- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Snapping Turtle

- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 21/32
Scale		Project No.	
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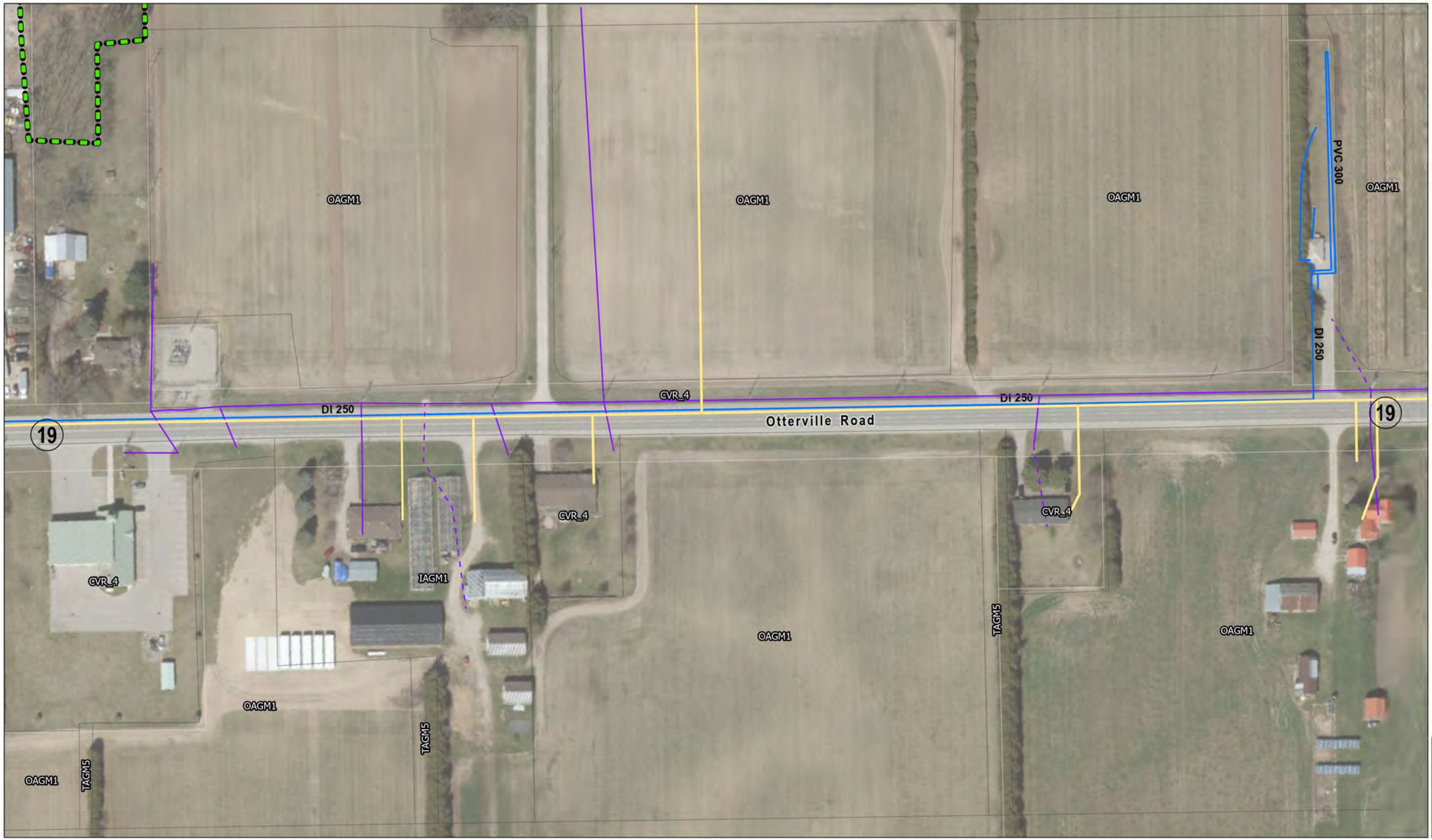

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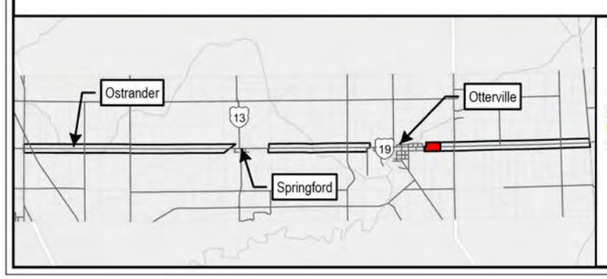
Vegetation Communities
- CVR_4 - Rural Property
- IAGM1 - Agricultural Buildings
- OAGM1 - Agriculture
- TAGM5 - Fencerow



Vegetation Communities
- Agricultural
- Ecologically Important Woodlands (Draft ONHSS)
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 22/32
Scale		Project No.	
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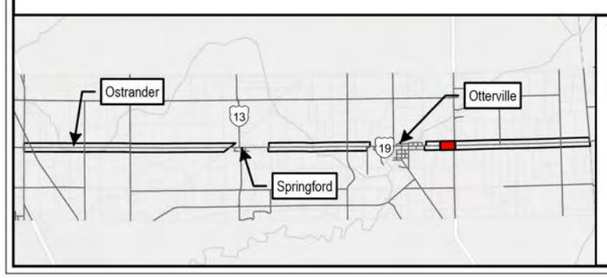
File Path: \\elmo\gis\Project300\053425 (Oxford Rd 19 EA)\053425 aprx Print Date: 2023/09/08 Time: 12:57 PM

Vegetation Communities
- CVR_4 - Rural Property
- OAGM1 - Agriculture
- OAGM1 - Open Agriculture
- TAGM5 - Fencerow



Vegetation Communities
- Agricultural
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client: COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 23/32
Scale		Project No.	
H 1:1,500		300053425	

File Path: \\elmo\gis\Project300\053425 (Oxford Rd 19 EA)\053425 aprx Print Date: 2023/09/08 Time: 12:57 PM

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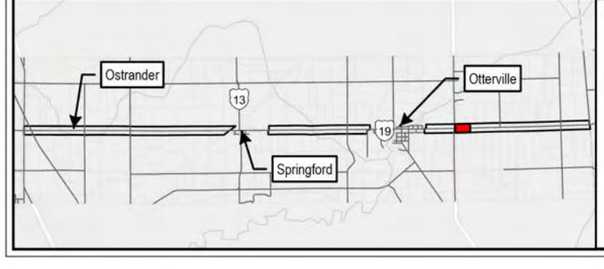
Vegetation Communities
- CVR_4 - Rural Property
- FODM - Deciuous Forest
- OAGM1 - Agriculture
- OAGM1 - Open Agriculture
- OAGM2 - Perennial Cover Crops
- TAGM5 - Fencerow



Vegetation Communities
- Agricultural
- Woodlands
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client: COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 24/32
Scale		Project No.	
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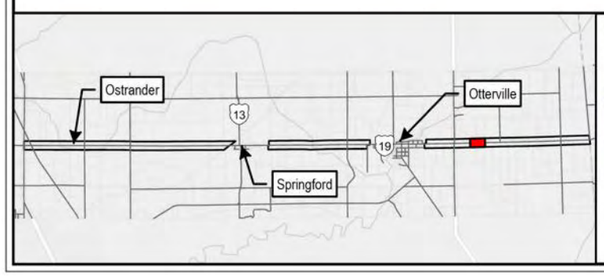
Vegetation Communities

- CVR_4 - Rural Property
- MEGM3-5 - Smooth Brome Graminoid Meadow Type
- OAGM1 - Agriculture
- OAGM1 - Open Agriculture
- OAGM2 - Perennial Cover Crops
- SAGM1 - Vineyard
- TAGM5 - Fencerow



Vegetation Communities

- Agricultural
- Meadows
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 25/32
Scale		Project No.	
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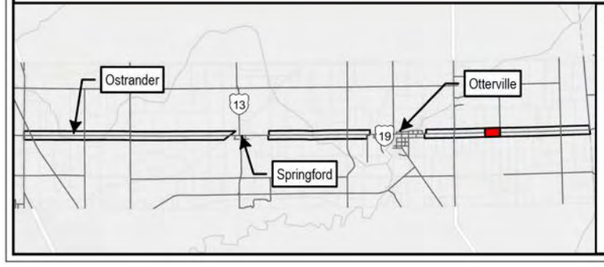
Vegetation Communities

- CVR_4 - Rural Property
- IAGM1 - Agricultural Buildings
- MEGM3-5 - Smooth Brome Graminoid Meadow Type
- OAGM1 - Open Agriculture
- SAGM1 - Vineyard
- TAGM5 - Fencerow



Vegetation Communities

- Agricultural
- Meadows
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 26/32
Scale		Project No.	
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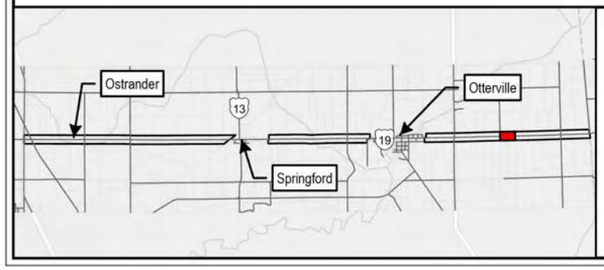


Vegetation Communities

- Agricultural
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

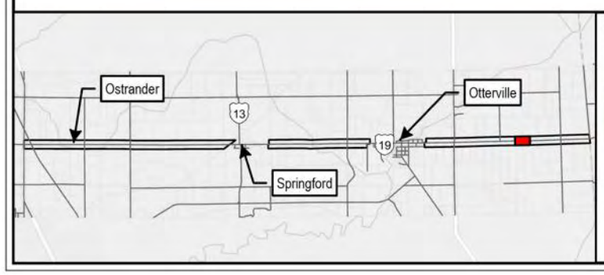
Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 27/32
Scale		Project No.	
H 1:1,500		300053425	

File Path: \\elmo\gis\Project\300\053425 (Oxford Rd 19 EA)\053425 aprx Print Date: 2023/09/08 Time: 12:58 PM

N

Vegetation Communities

- CVR_4 - Rural Property
- MAMM1-3 - Reed-canary Grass Graminoid Mineral Meadow Marsh Type
- OAGM1 - Open Agriculture
- OAGM4 - Open Pasture
- SAGM4 - Plantation
- TAGM5 - Fencerow



Vegetation Communities

- Agricultural
- Wetlands
- Aquatic Study Locations
- Barn Swallow Sighting
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
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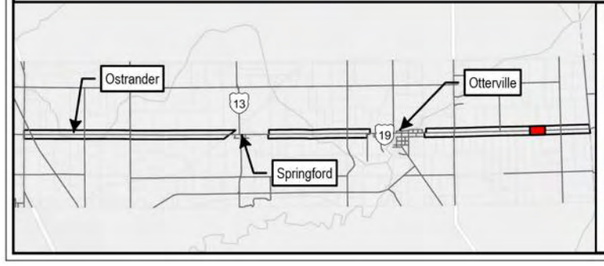

Vegetation Communities

- Agricultural
- Meadows
- Thickets
- Wetlands

- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Municipal Drain: Open
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
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N

Vegetation Communities

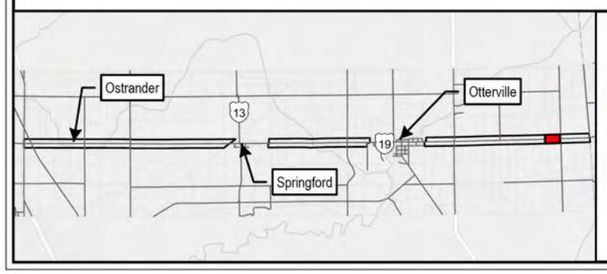
CVR_4 - Rural Property

MEGM3-5 - Smooth Brome Graminoid Meadow Type

OAGM1 - Open Agriculture

TAGM5 - Fencerow

THDM2-1 - Sumach Deciduous Thicket Type



Vegetation Communities

- Agricultural
- Meadows
- Thickets

- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Municipal Drain: Open
- Watercourse
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
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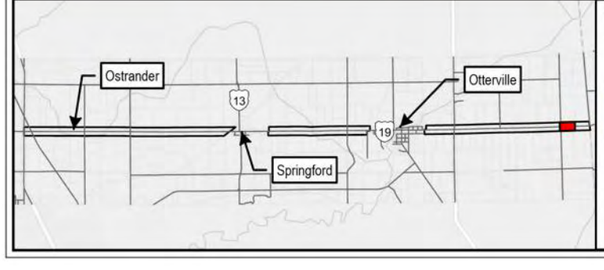
N

Vegetation Communities

- CVR_4 - Rural Property
- IAGM1 - Agricultural Buildings
- MEGM3-5 - Smooth Brome Graminoid Meadow Type
- MEMM4 - Fresh - Moist Mixed Meadow Ecosite
- OAGM1 - Open Agriculture
- OAGM2 - Perennial Cover Crops
- TAGM5 - Fencerow



Vegetation Communities

- Agricultural
- Meadows
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 31/32
Scale		Project No.	
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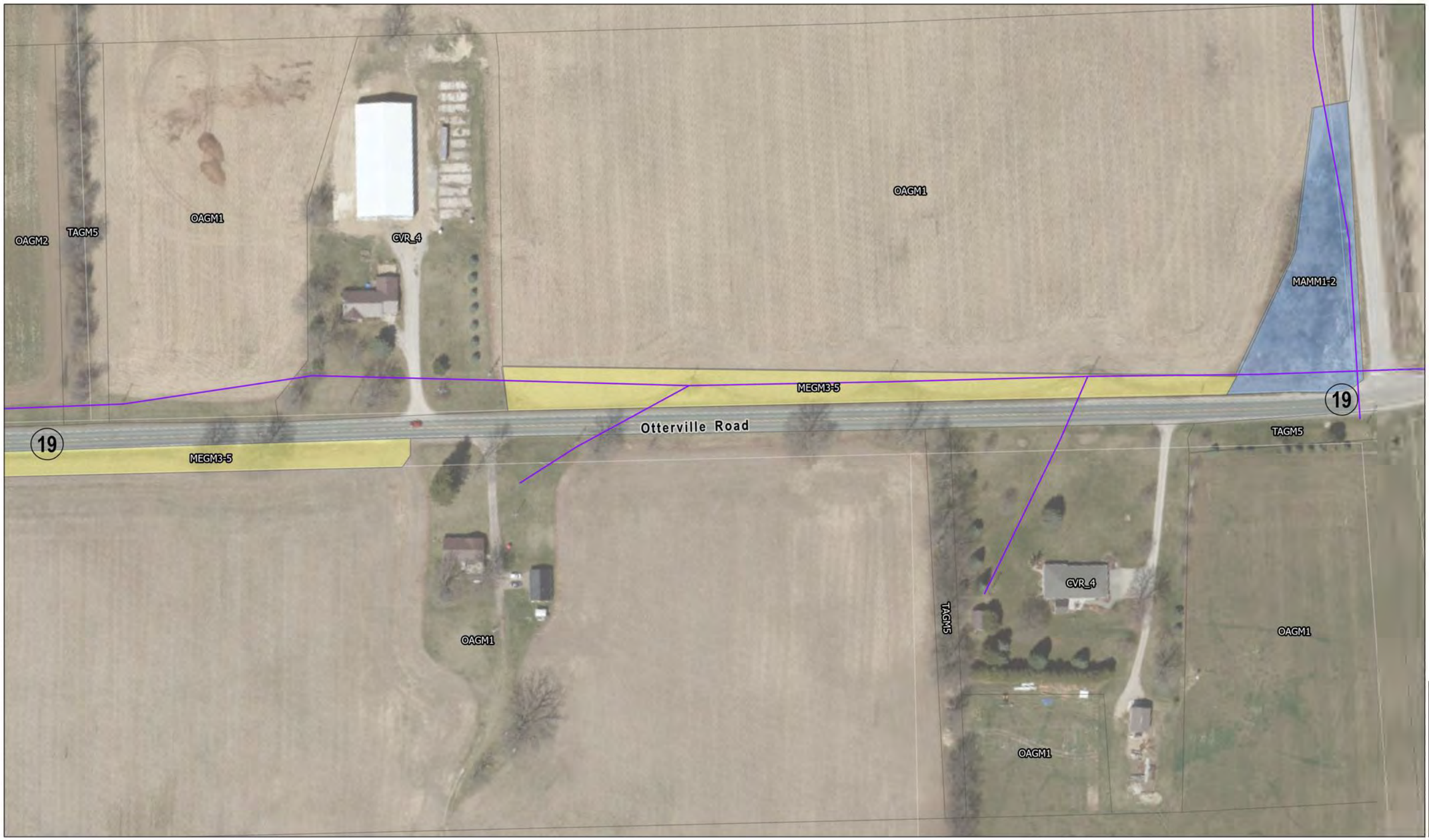
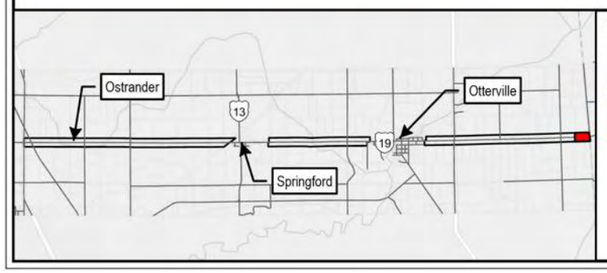


N

Vegetation Communities

- CVR_4 - Rural Property
- MAMM1-2 - Cattail Graminoid Mineral Meadow Marsh Type
- MEGM3-5 - Smooth Brome Graminoid Meadow Type
- OAGM1 - Open Agriculture
- OAGM2 - Perennial Cover Crops
- TAGM5 - Fencerow



Vegetation Communities

- Agricultural
- Meadows
- Wetlands
- Aquatic Study Locations
- Bat Maternity Colony Habitat
- Watermain
- Water Gravity Main
- Overhead HydroOne Line (Approximate)

BURNSIDE

Client: COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title

OXFORD ROAD 19 CLASS EA

NATURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-1 32/32
Scale		Project No.	
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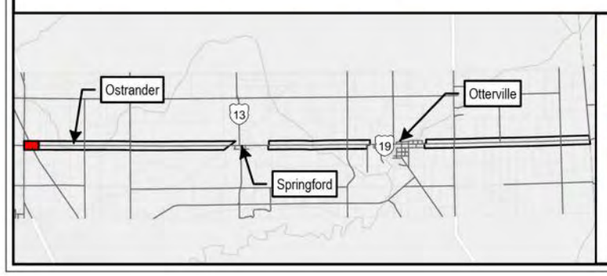

Watercourse

Stage 1 Archaeology Results

- CEM - Cemetery Property
- DIST - Disturbed, No Potential
- MONITOR - Construction Monitoring Required
- PS - Pedestrian Survey Required
- STG2_3_reqd - Possible Pettman Cemetery Requires Stage 2 and 3 Survey
- TP - Test Pit Survey Required

Cultural Heritage

- WET - Wet – No Potential
- BHR - Built Heritage Resource
- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
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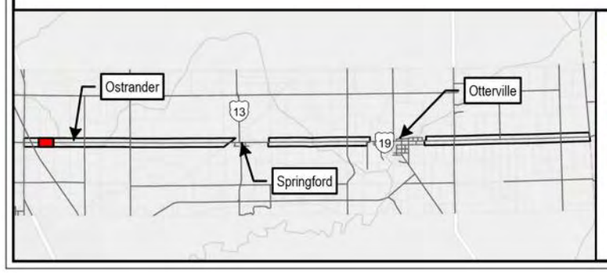

Watercourse

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Cultural Heritage

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- BHR - Built Heritage Resource
- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 2/32
Scale		Project No.	
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TP

TP

TP

STG2_3_reqd

19

Ostrander Road

DIST

19

PS

TP

PS

TP

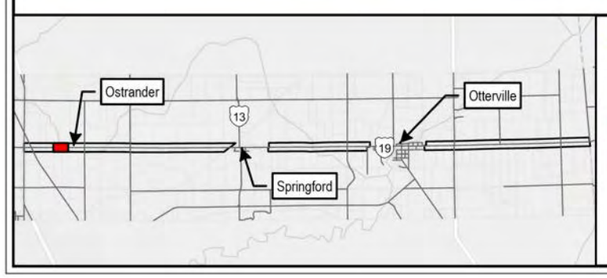
TP

PS

TP

STG2_3_reqd

Spittler Creek



Watercourse

Stage 1 Archaeology Results

CEM - Cemetery Property

DIST - Disturbed, No Potential

MONITOR - Construction Monitoring Required

PS - Pedestrian Survey Required

STG2_3_reqd - Possible Pettman Cemetery Requires Stage 2 and 3 Survey

TP - Test Pit Survey Required

WET - Wet – No Potential

Cultural Heritage

BHR - Built Heritage Resource

CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 3/32
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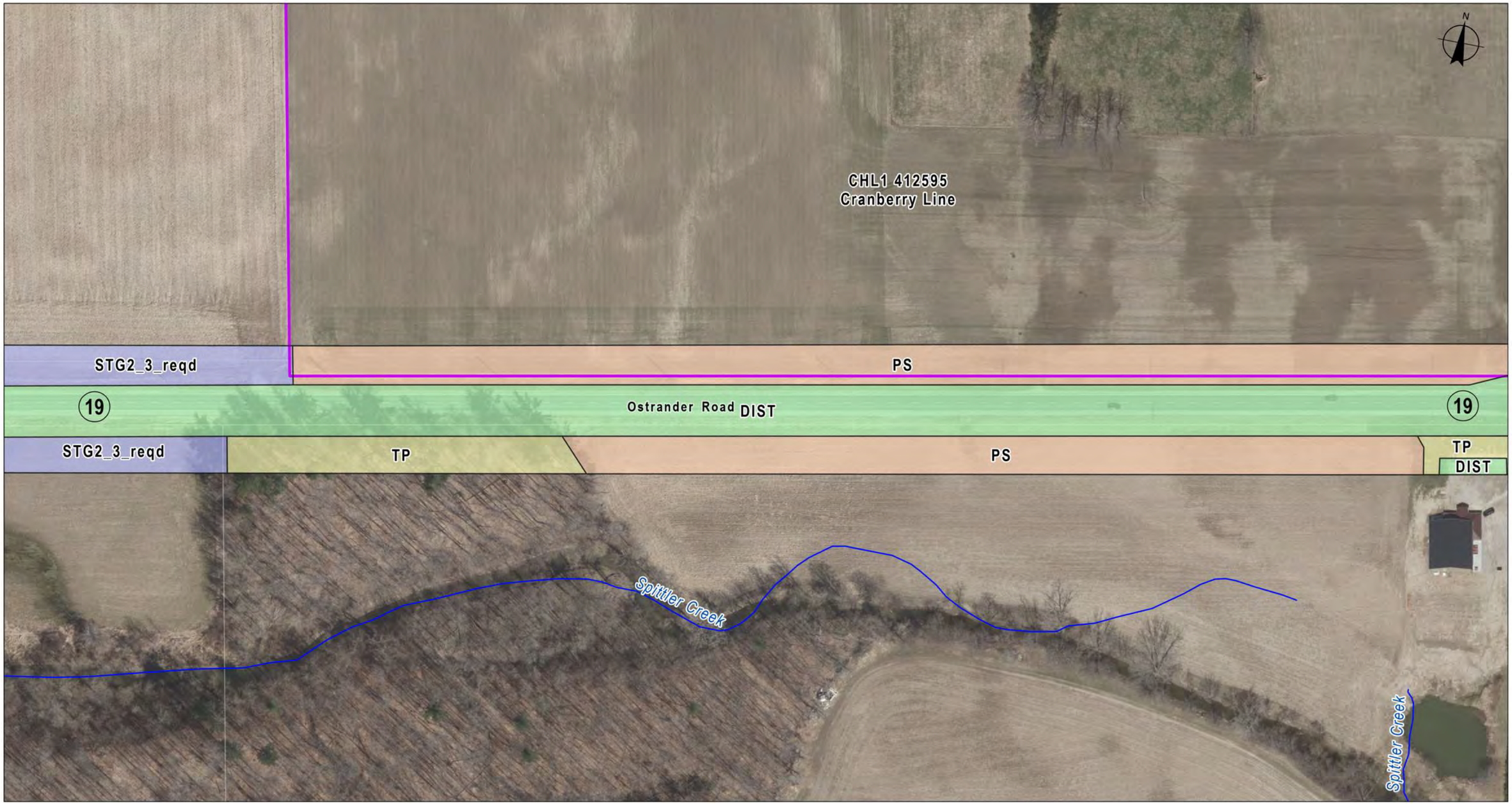

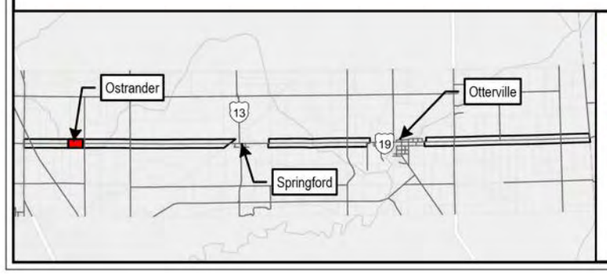

Watercourse

Stage 1 Archaeology Results

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Cultural Heritage

- WET - Wet – No Potential
- BHR - Built Heritage Resource
- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
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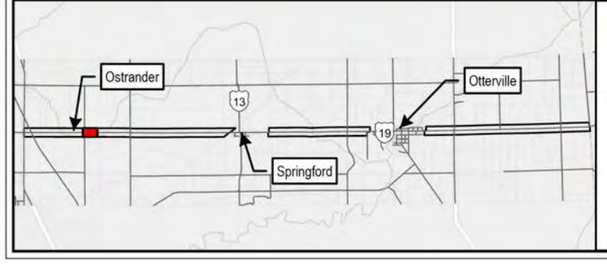

Watercourse

Stage 1 Archaeology Results

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Cultural Heritage

- WET - Wet – No Potential
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- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
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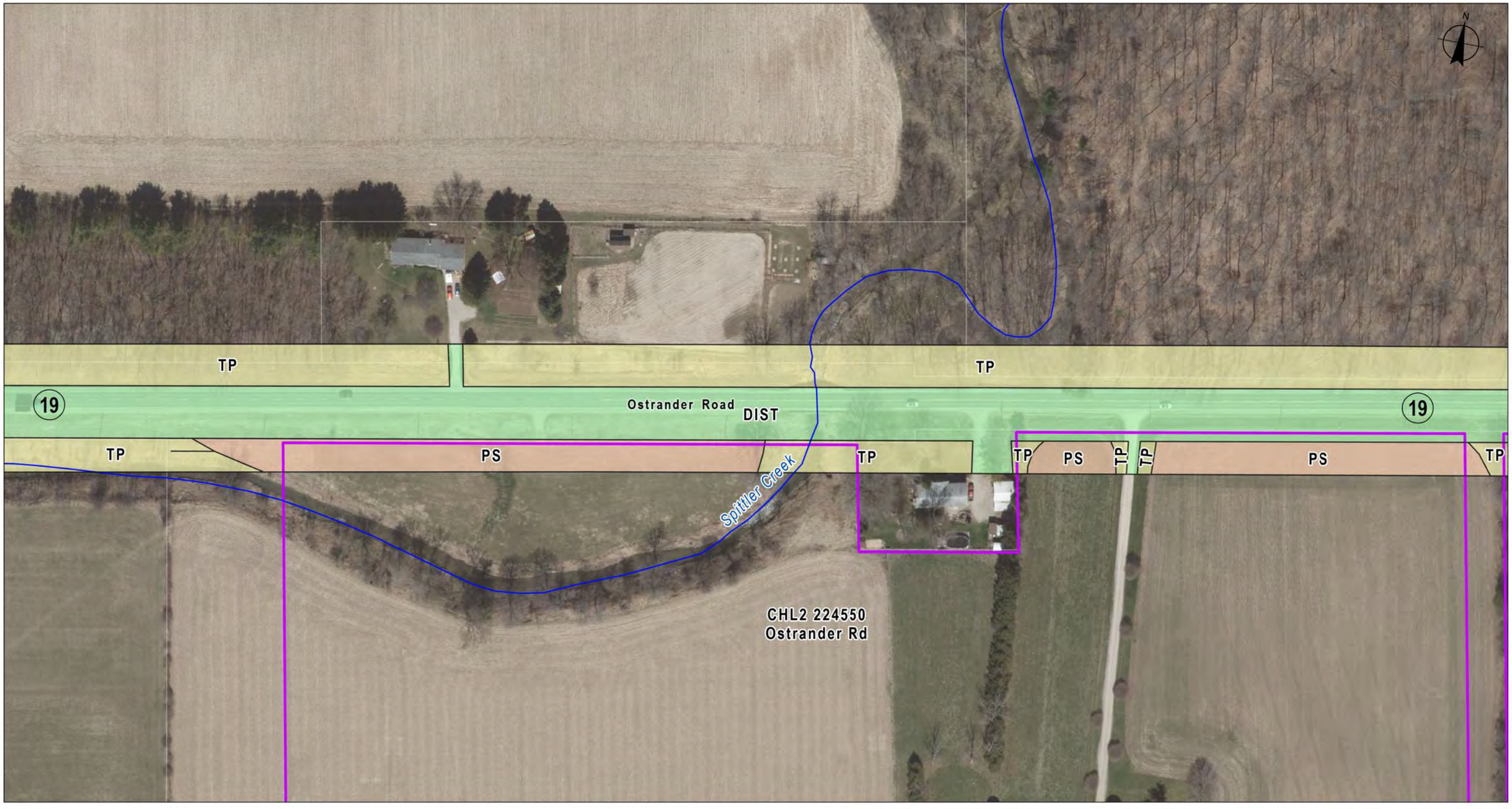

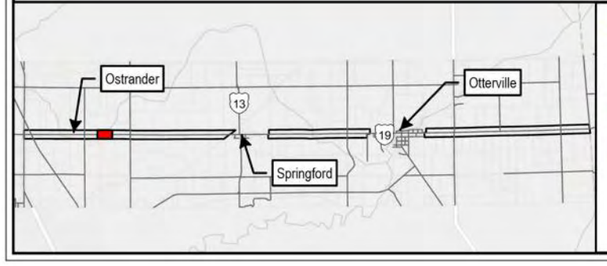

Watercourse

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BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 6/32
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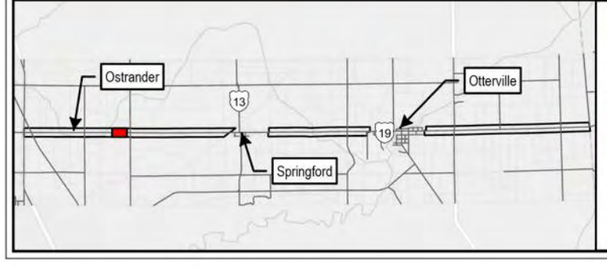

Watercourse

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Cultural Heritage

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- BHR - Built Heritage Resource
- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 7/32
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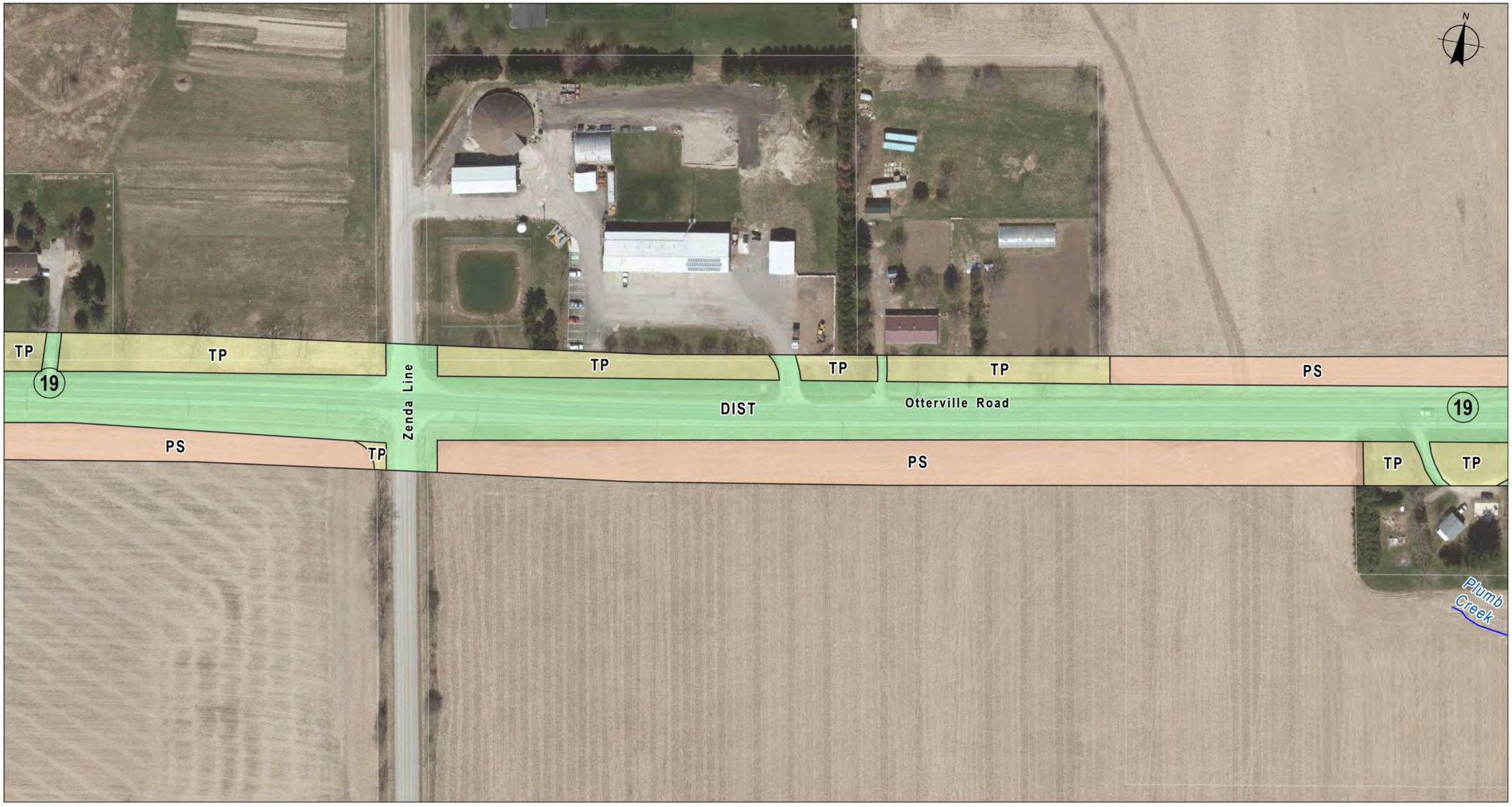

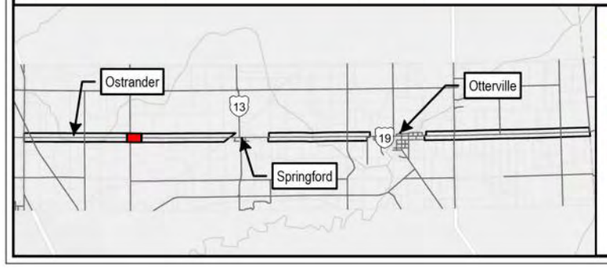

Watercourse

Stage 1 Archaeology Results

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- DIST - Disturbed, No Potential
- MONITOR - Construction Monitoring Required
- PS - Pedestrian Survey Required
- STG2_3_reqd - Possible Pettman Cemetery Requires Stage 2 and 3 Survey
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Cultural Heritage

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BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
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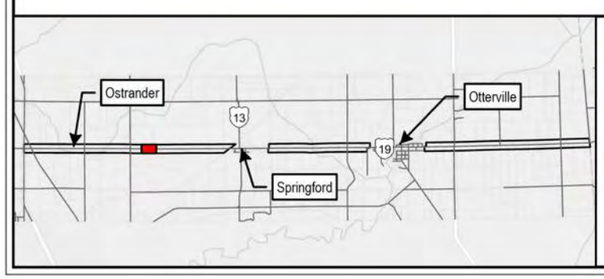

Watercourse

Stage 1 Archaeology Results

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Cultural Heritage

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BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 9/32
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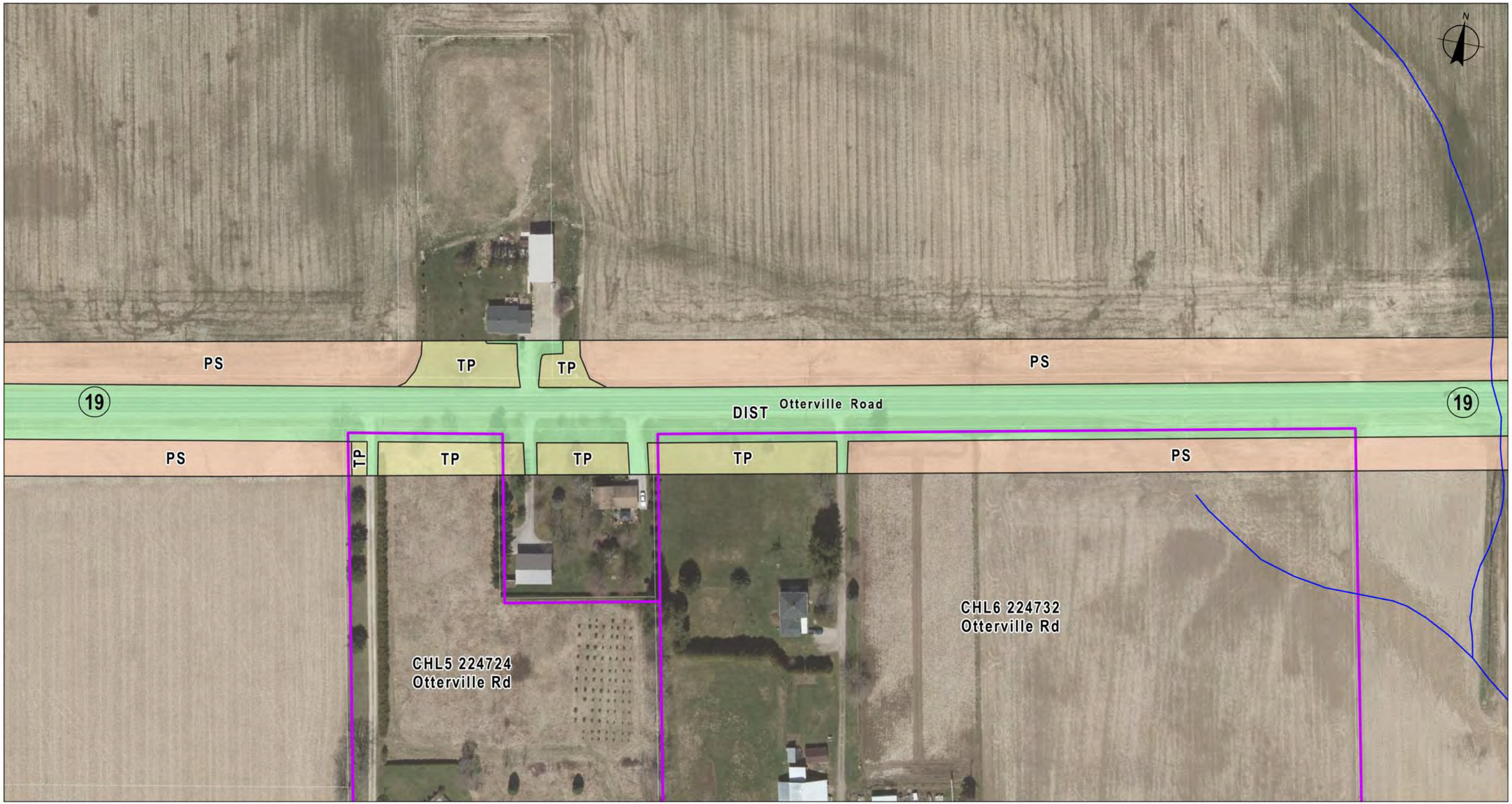

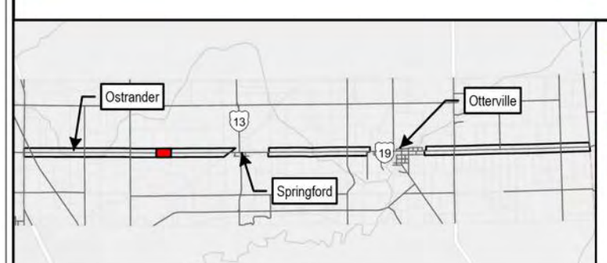

Watercourse

Stage 1 Archaeology Results

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BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
Scale		Project No.	10/32
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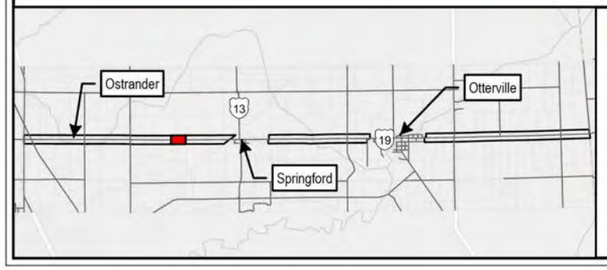

Watercourse

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COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 11/32
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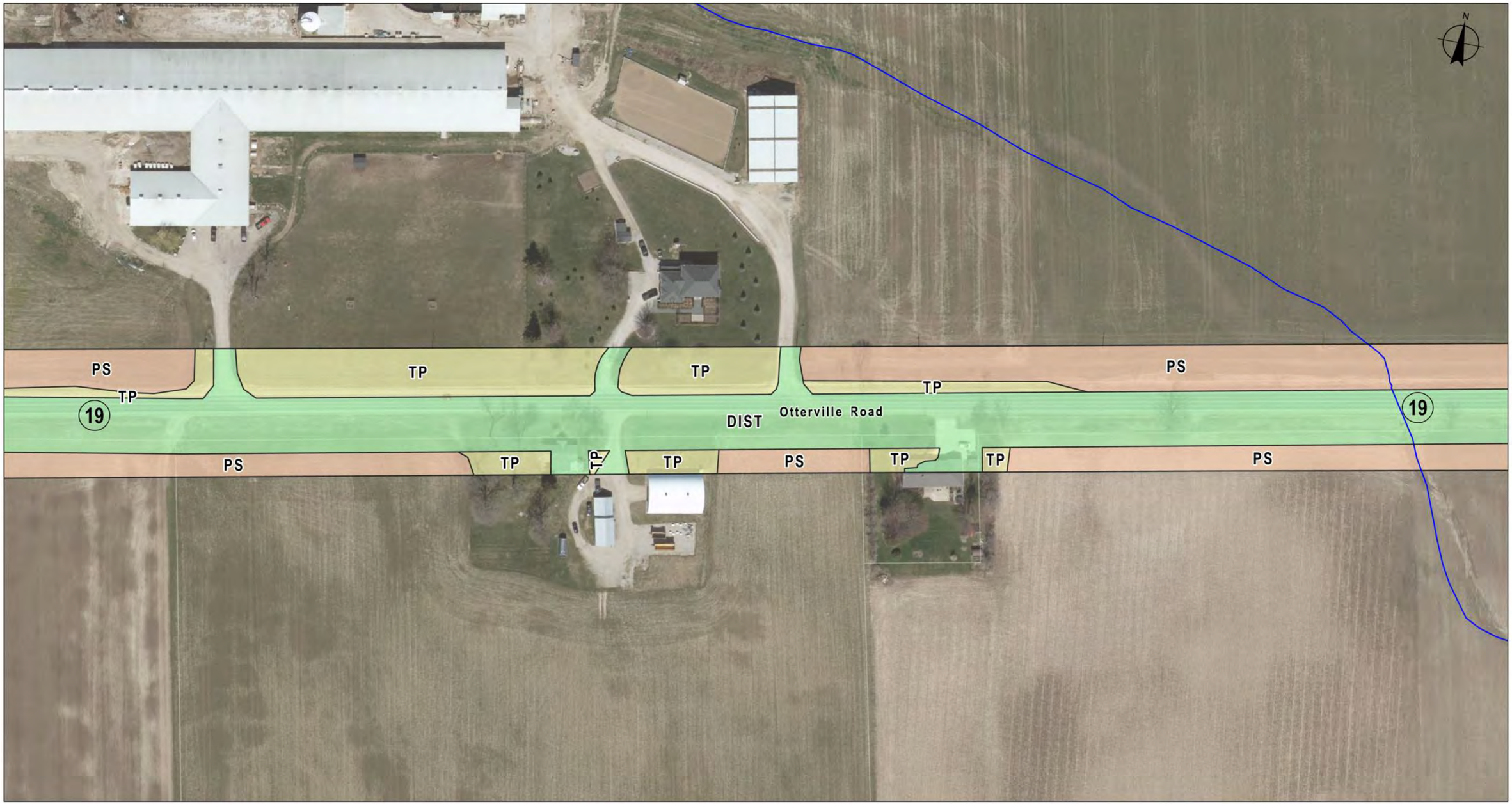

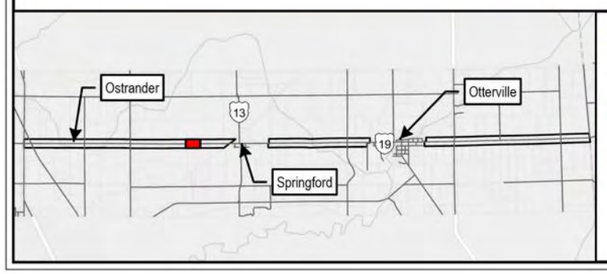

Watercourse

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Cultural Heritage

- WET - Wet – No Potential
- BHR - Built Heritage Resource
- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 12/32
Scale		Project No.	
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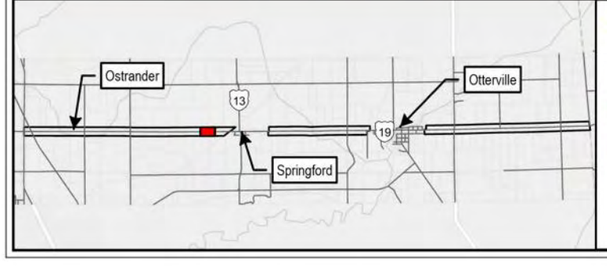

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COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
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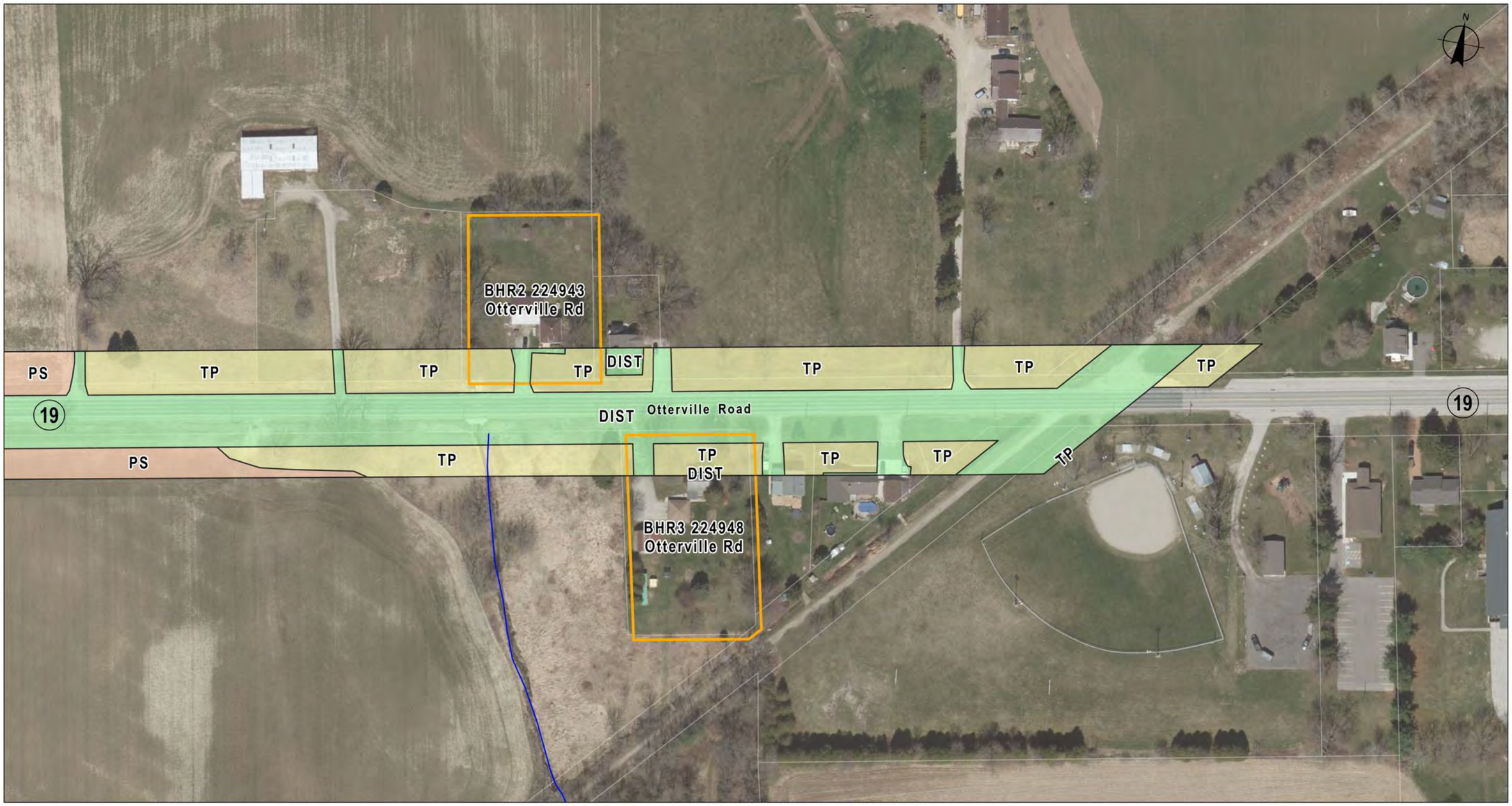

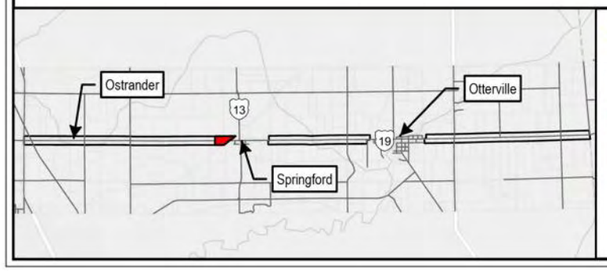

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Metres

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OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
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Scale		Project No.	14/32
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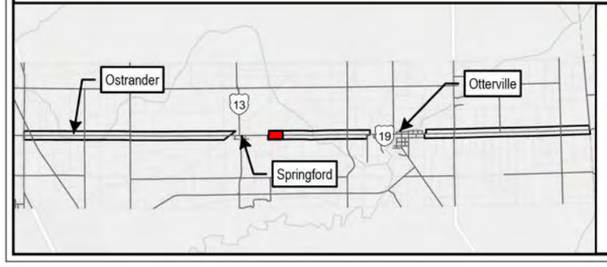
BHR4 530
Main St E

PS
TP
DIST
Otterville Road
19



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Metres

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OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 15/32
Scale		Project No.	
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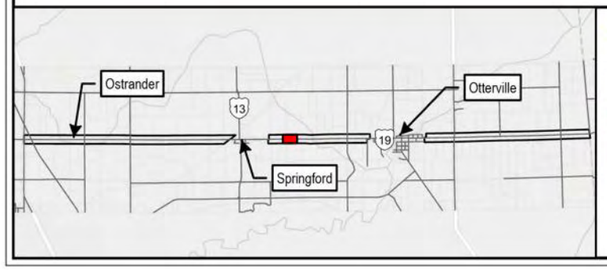

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ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

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Scale		Project No.	
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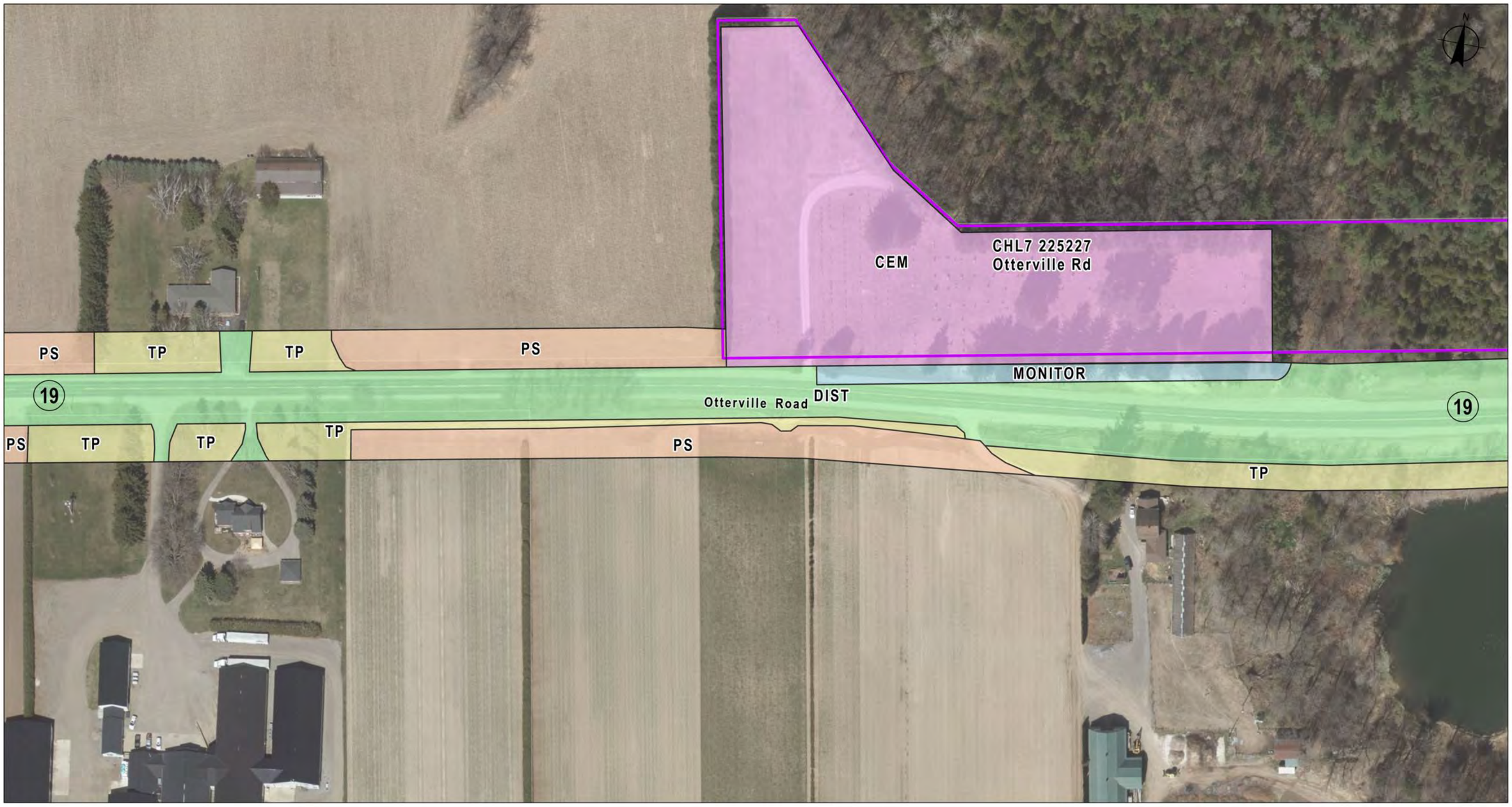

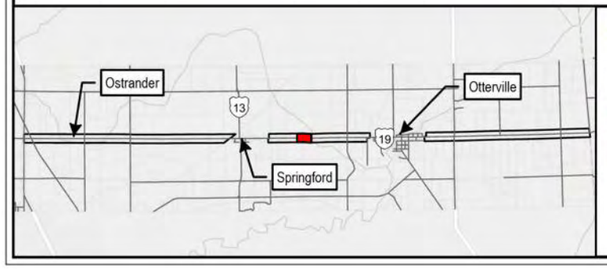

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Scale		Project No.	
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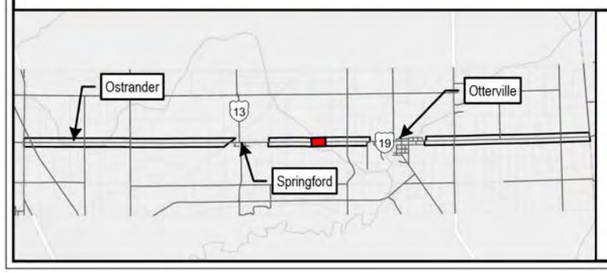

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Metres

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OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
Scale		Project No.	18/32
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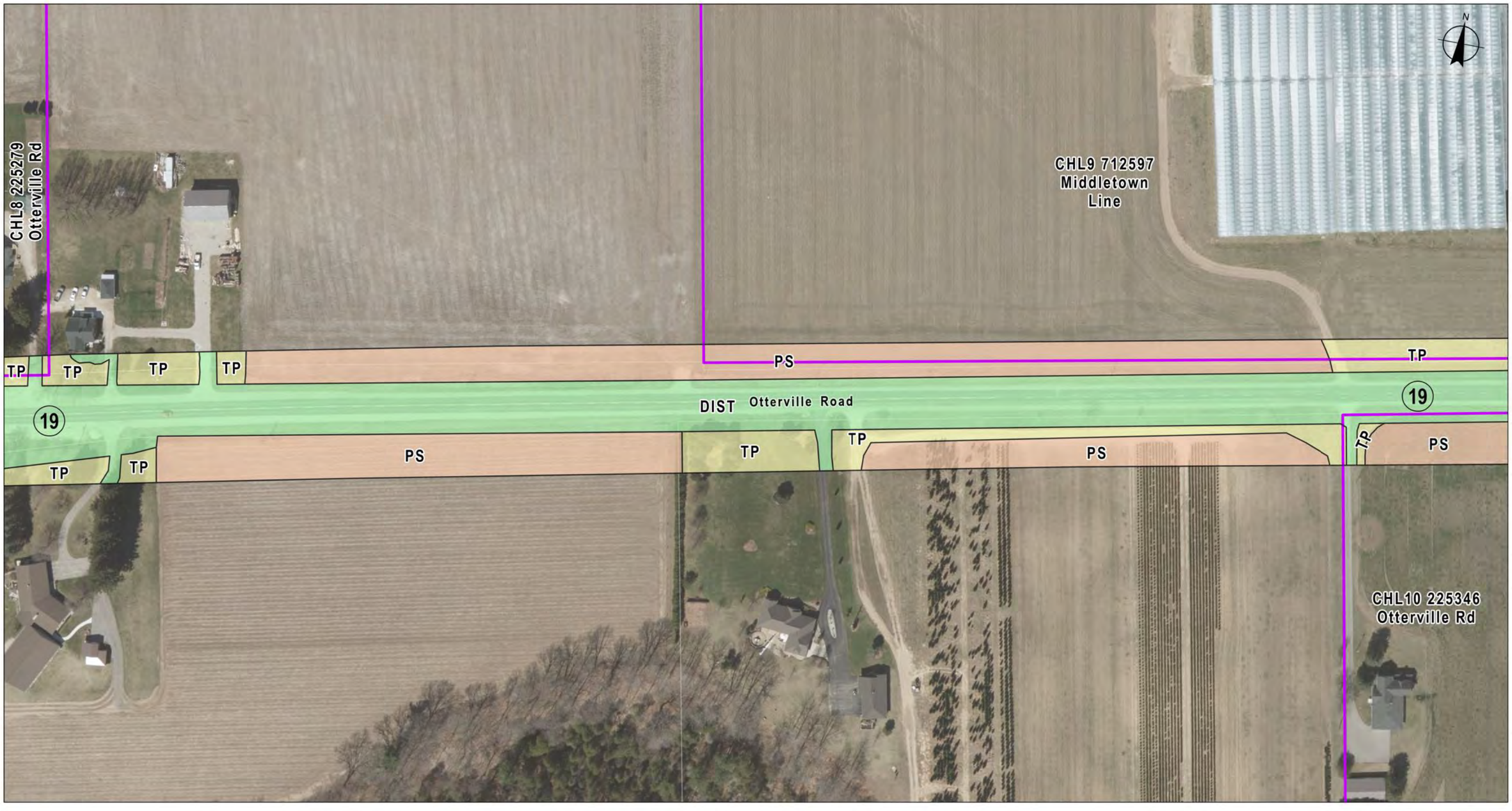

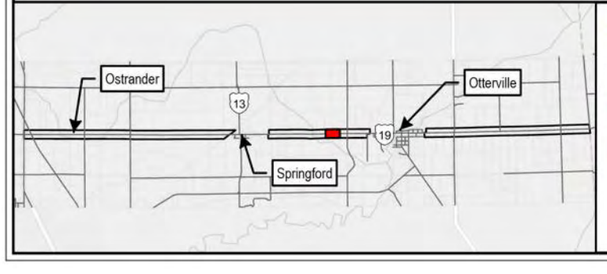

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ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 19/32
Scale		Project No.	
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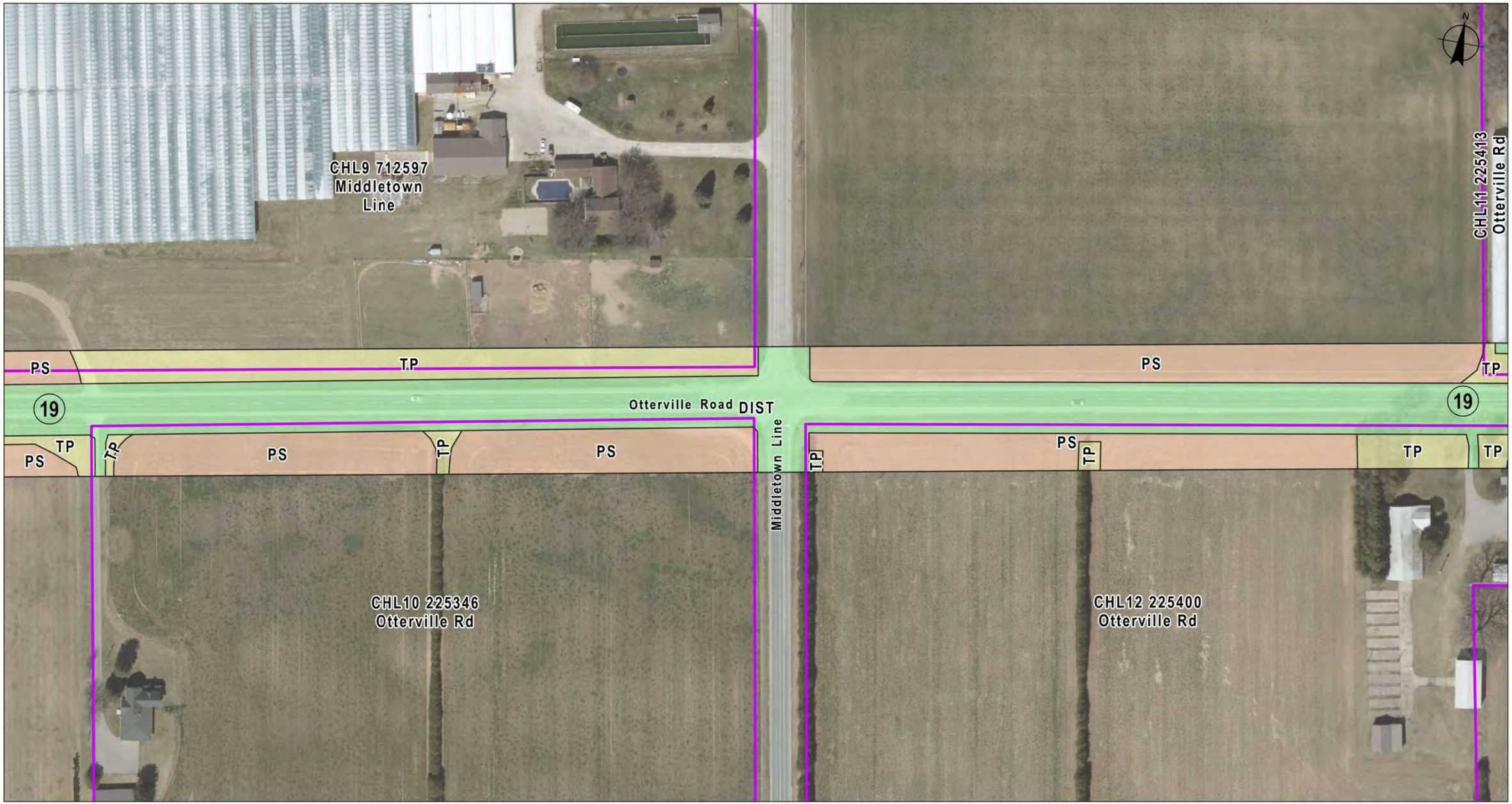

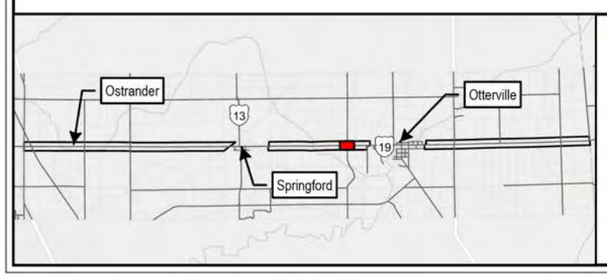

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Metres

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OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
Scale		Project No.	20/32
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CHL11 225413
Otterville Rd

PS
TP
TP
TP
TP
TP
TP
WET
TP
PS
TP

19
Otterville Road
DIST
19

PS
TP
DIST
TP
PS
TP
TP
TP
WET
TP
DIST
TP
TP

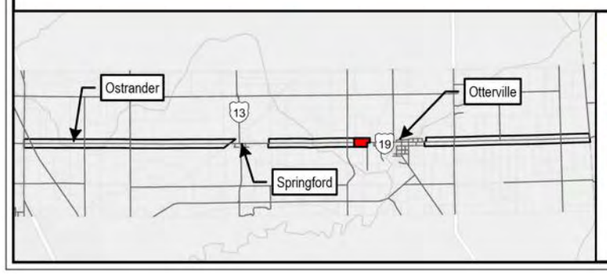
CHL12 225400
Otterville Rd

CHL13 225422
Main St W CEM

CEM

CHL14 74
James St

BHR5 343
Main St W



Watercourse

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COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
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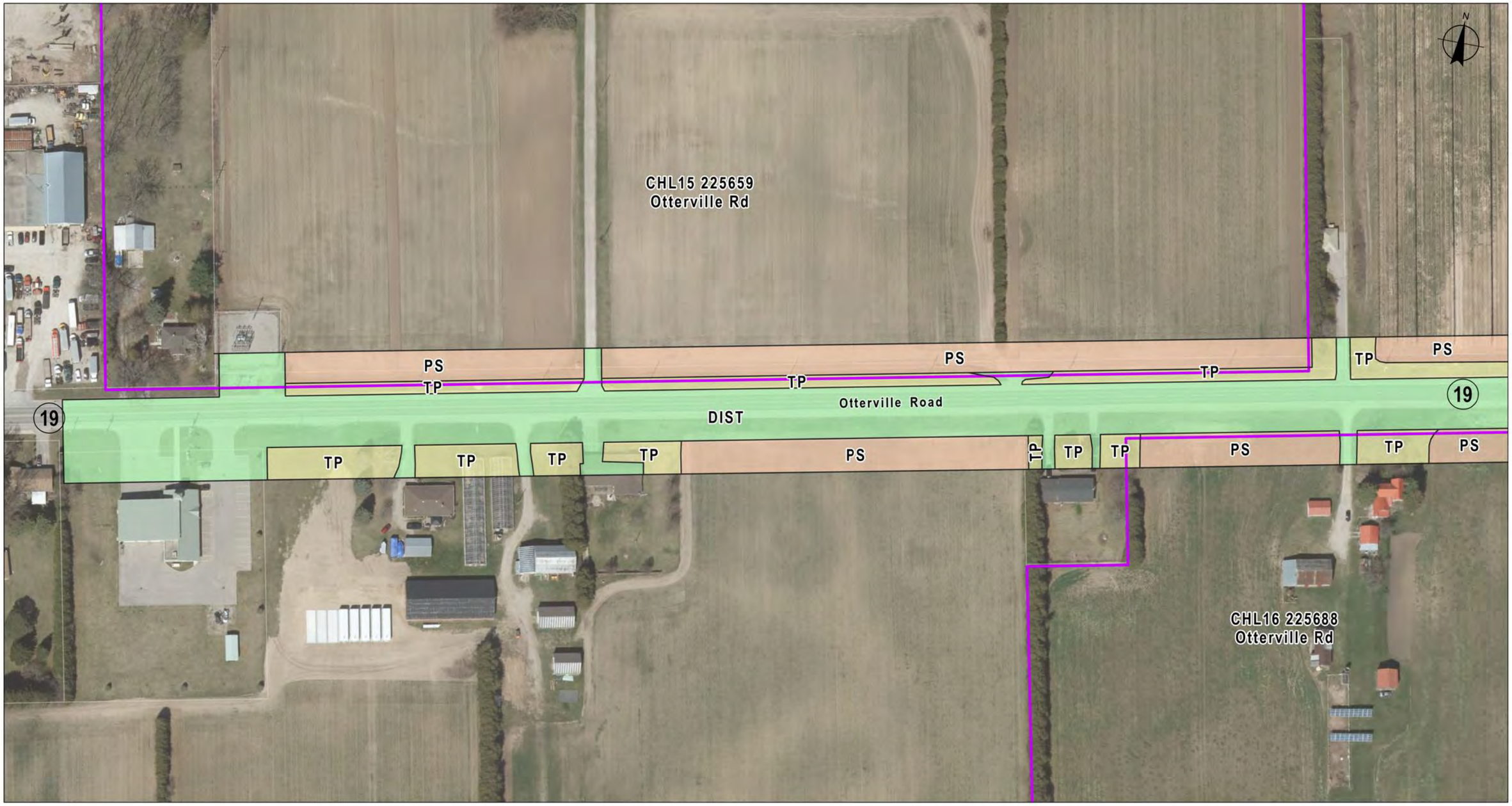

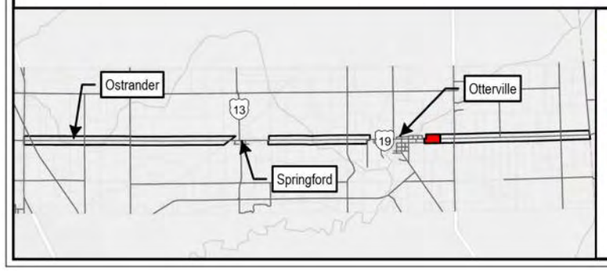

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BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
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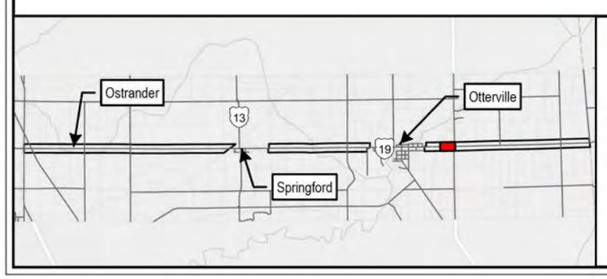

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BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

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OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
Scale		Project No.	23/32
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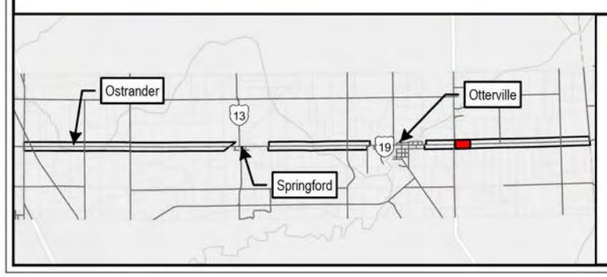

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COUNTY OF OXFORD

0 25 50 75 100

Metres

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OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
Scale		Project No.	24/32
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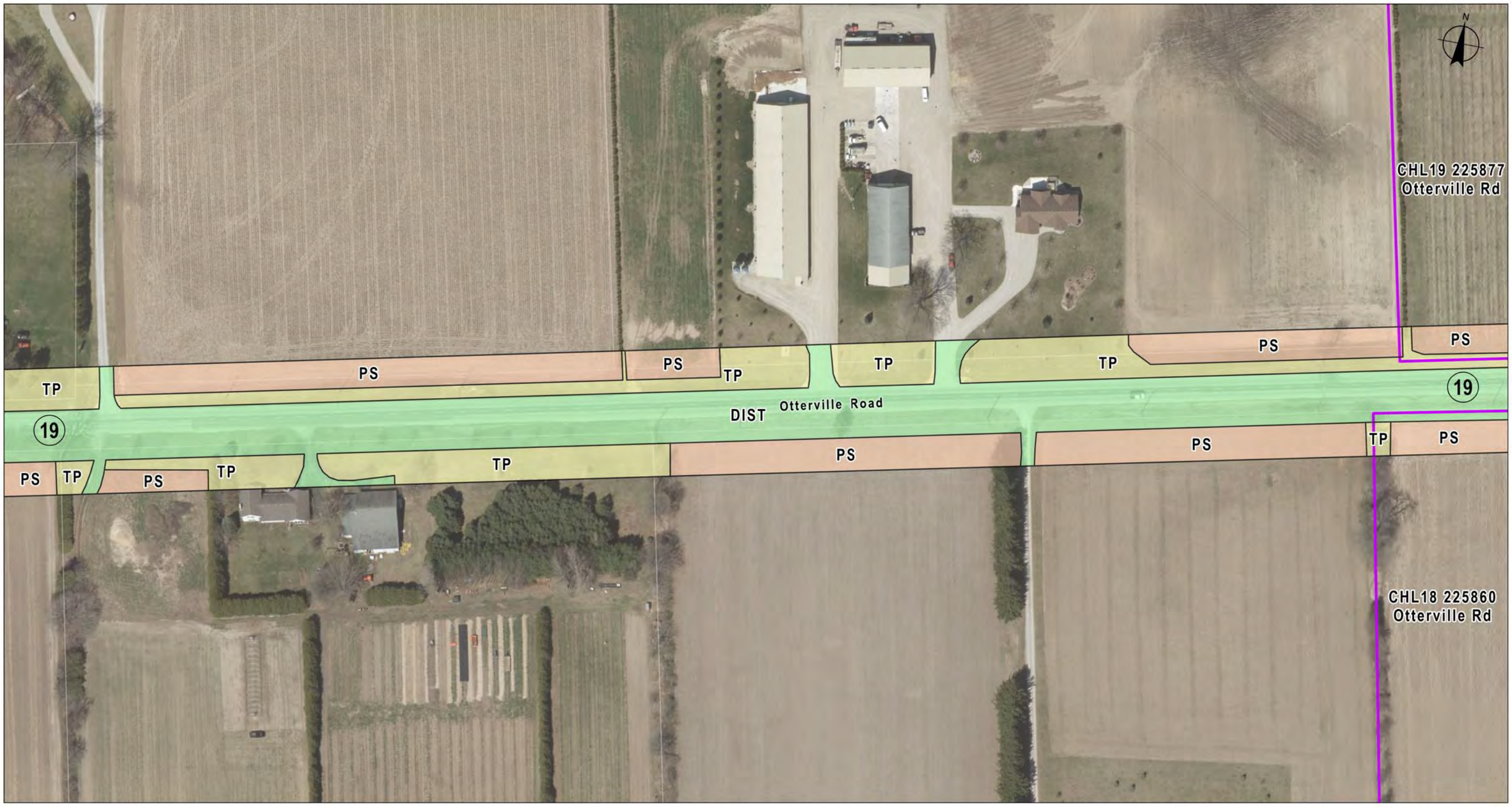

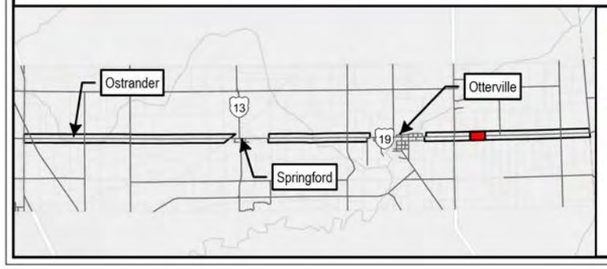

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BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
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Scale		Project No.	25/32
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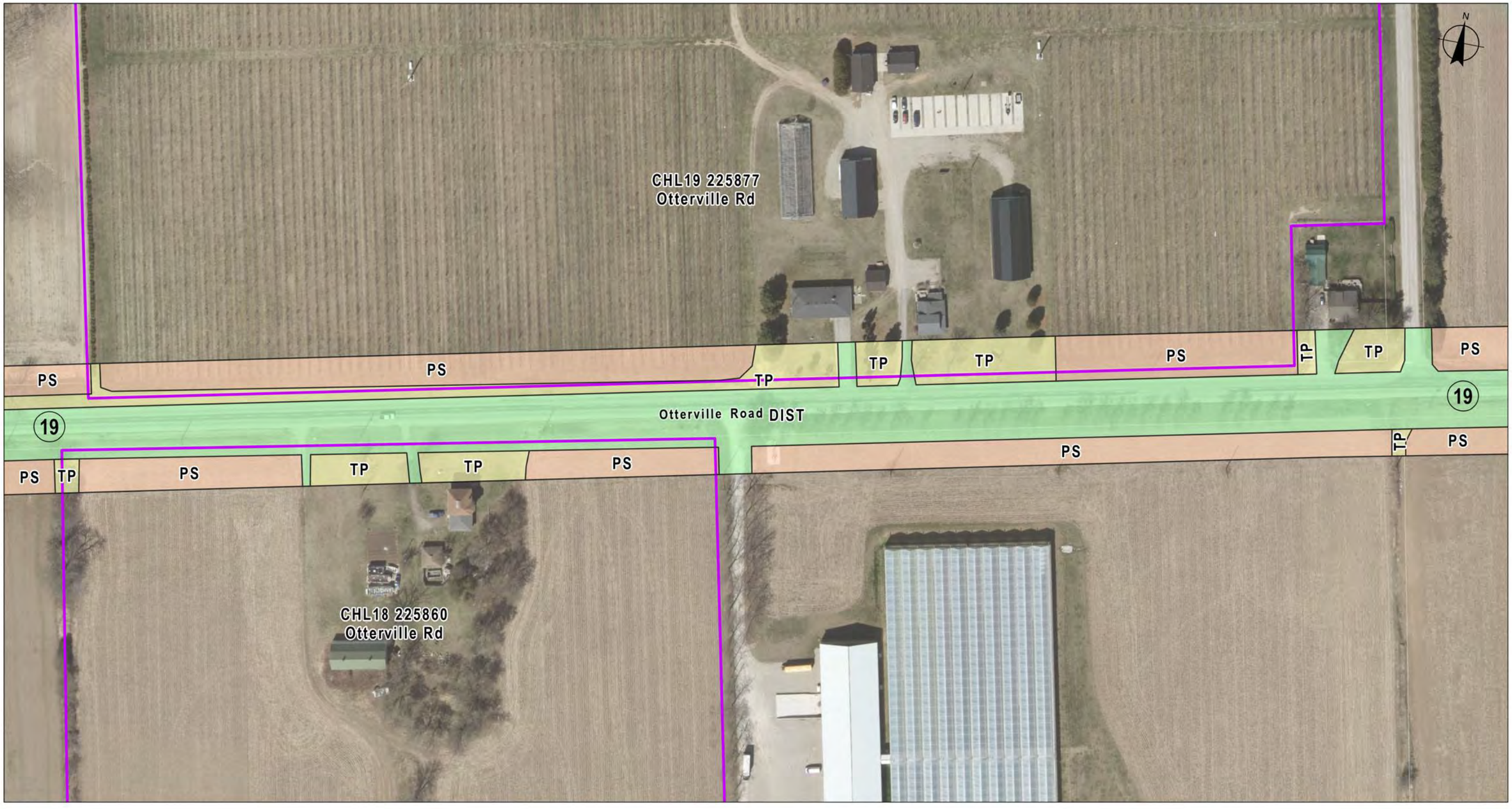

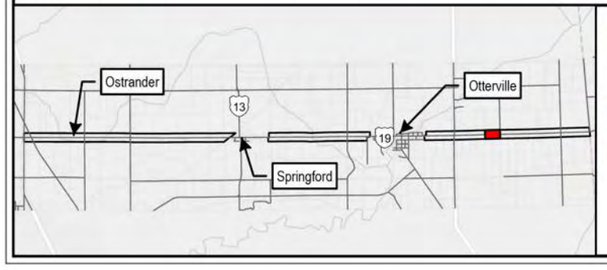

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OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
Scale		Project No.	26/32
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CHL19 225877 Otterville Rd

CHL21 225963 Otterville Rd

PS

TP

19

DIST Otterville Road

19

PS

TP

PS

PS

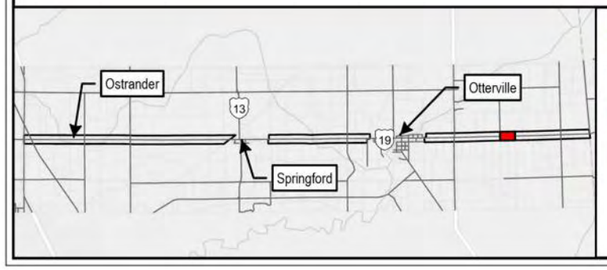
TP

PS

PS

CHL20 225947 Otterville Rd

CHL22 225964 Otterville Rd



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ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 27/32
Scale		Project No.	
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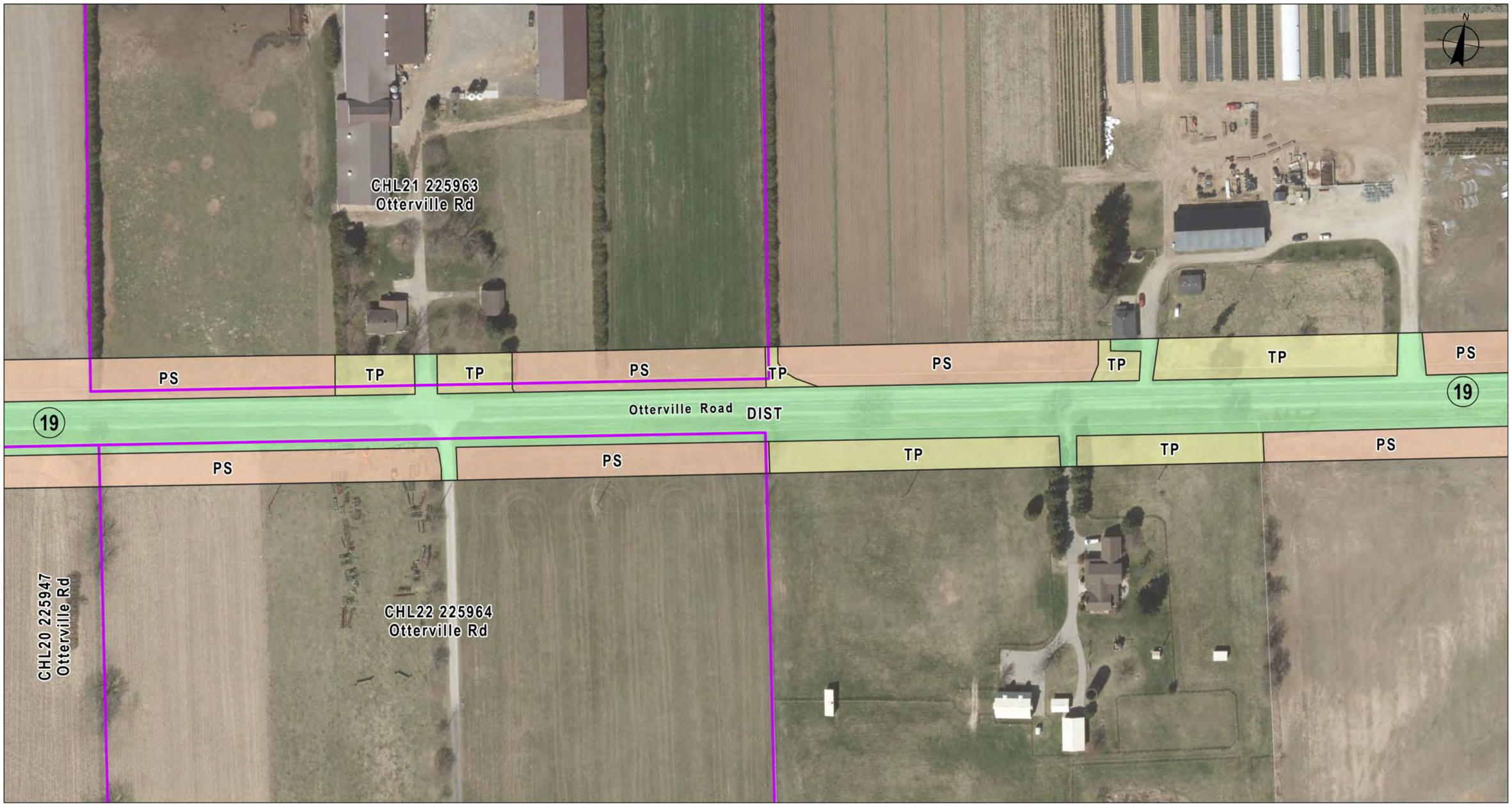

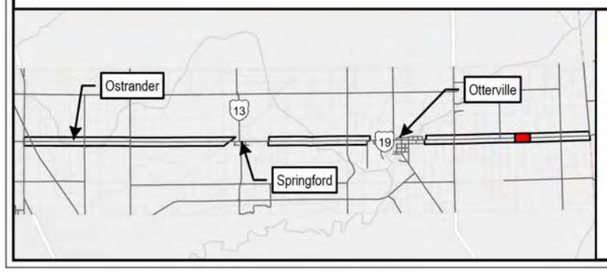

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- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
Scale		Project No.	28/32
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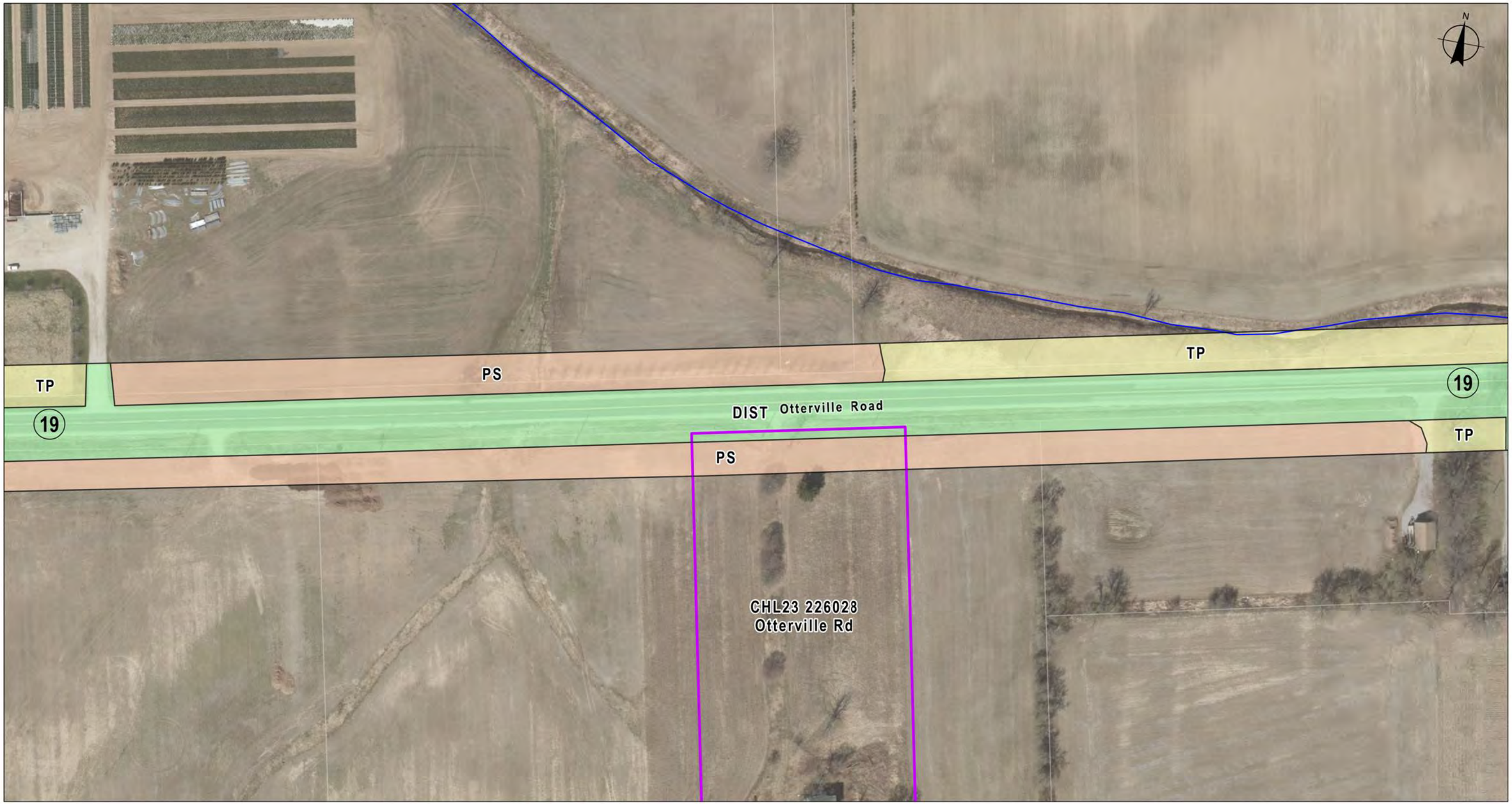

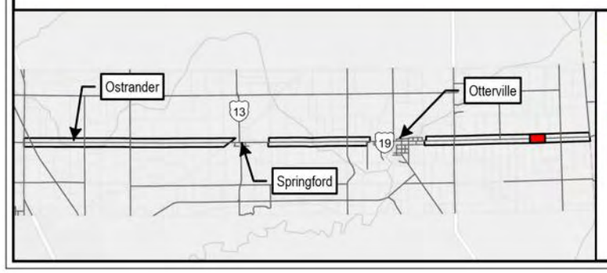

Watercourse

Stage 1 Archaeology Results

- CEM - Cemetery Property
- DIST - Disturbed, No Potential
- MONITOR - Construction Monitoring Required
- PS - Pedestrian Survey Required
- STG2_3_reqd - Possible Pettman Cemetery Requires Stage 2 and 3 Survey
- TP - Test Pit Survey Required

Cultural Heritage

- WET - Wet – No Potential
- BHR - Built Heritage Resource
- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
Scale		Project No.	29/32
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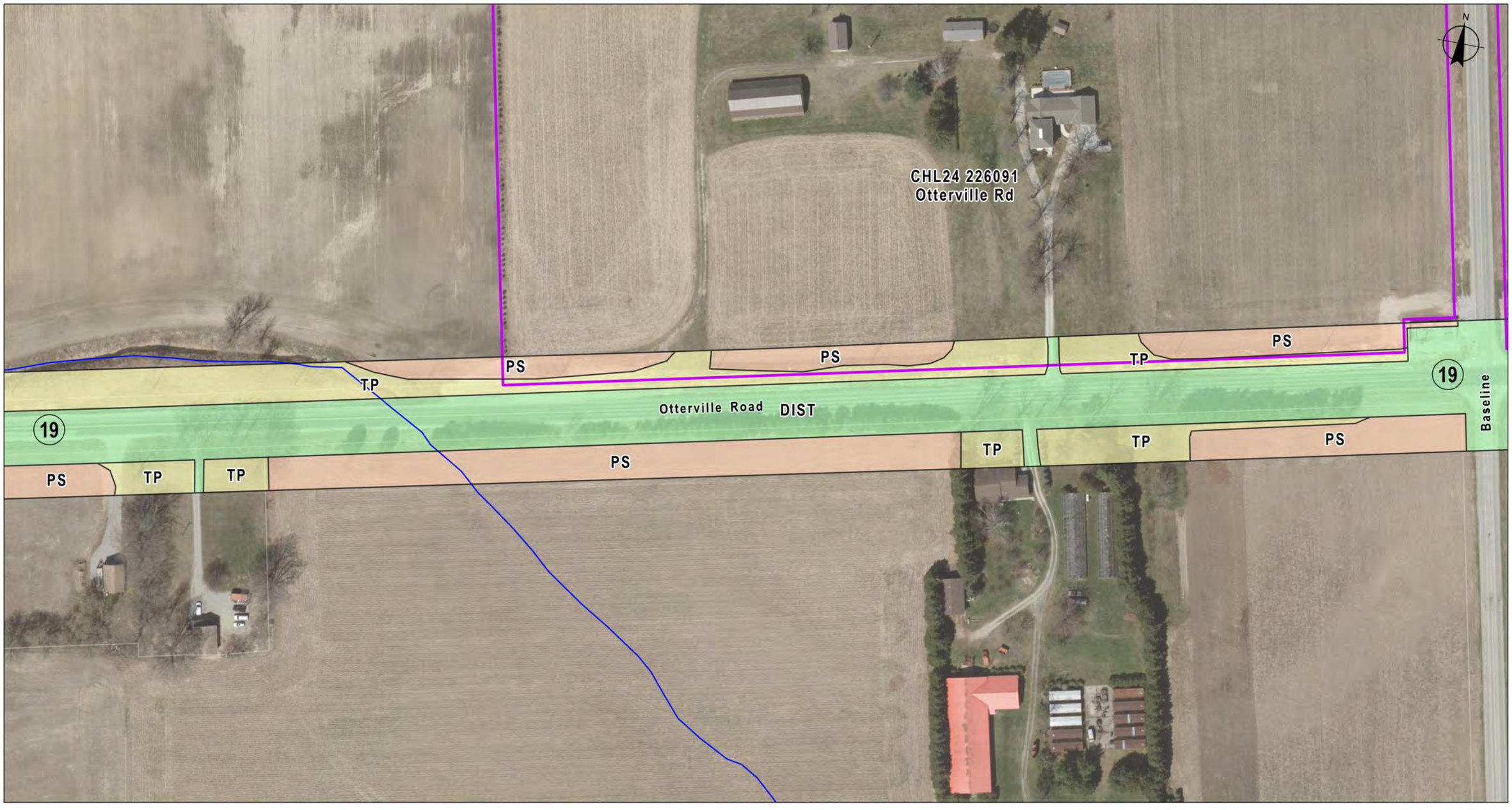

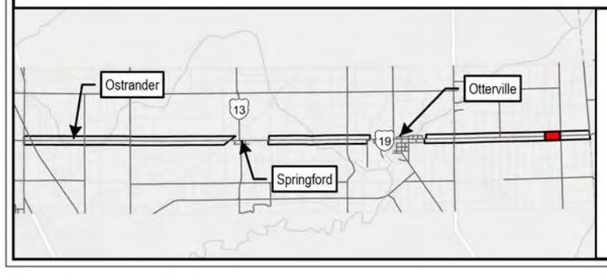

Watercourse

Stage 1 Archaeology Results

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- MONITOR - Construction Monitoring Required
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Cultural Heritage

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- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2 30/32
Scale		Project No.	
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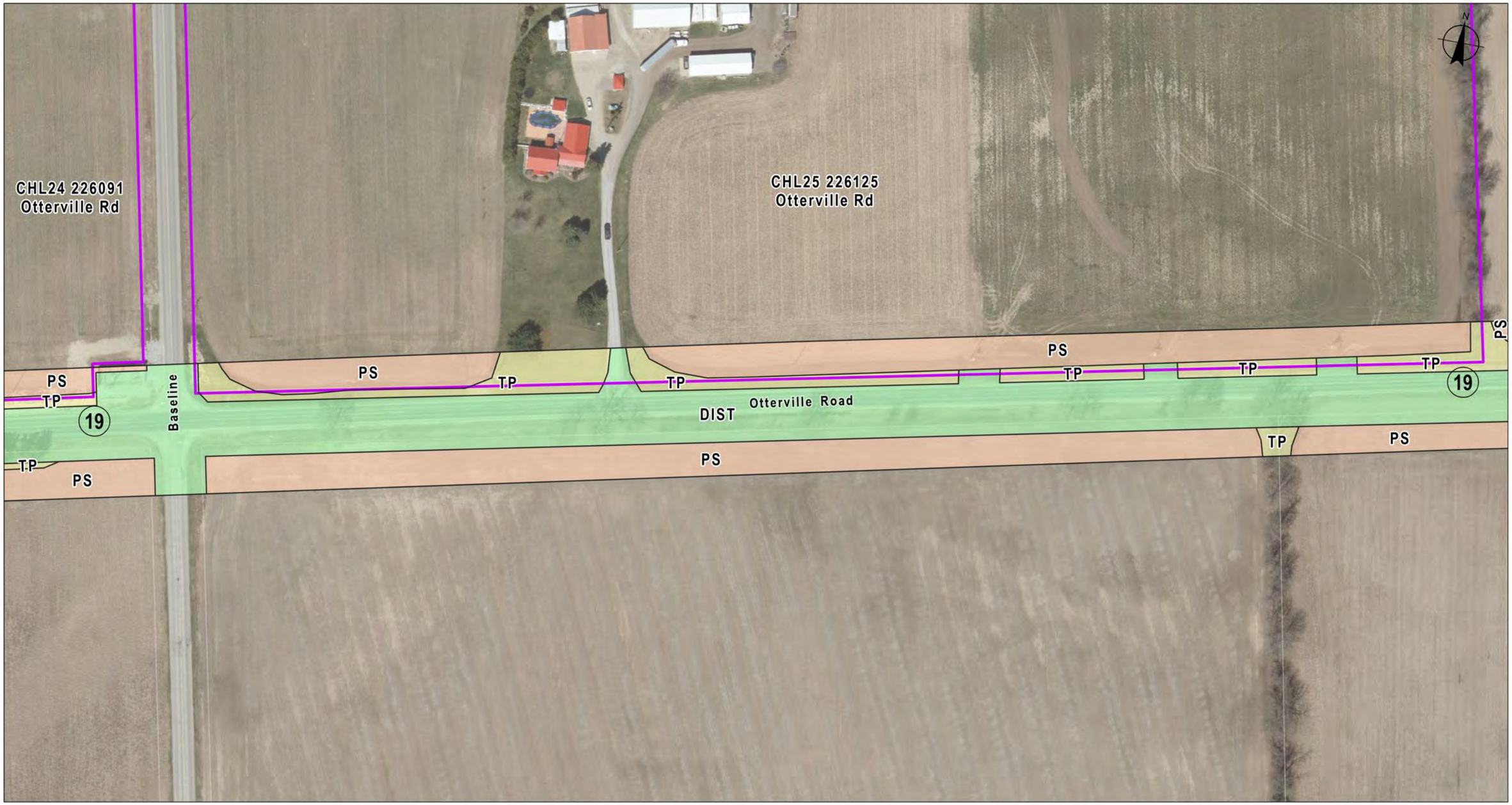

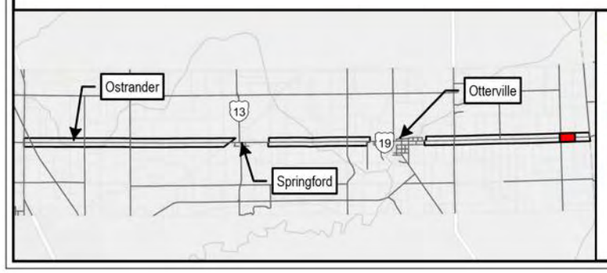

Watercourse

Stage 1 Archaeology Results

- CEM - Cemetery Property
- DIST - Disturbed, No Potential
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Cultural Heritage

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BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-2
Scale		Project No.	31/32
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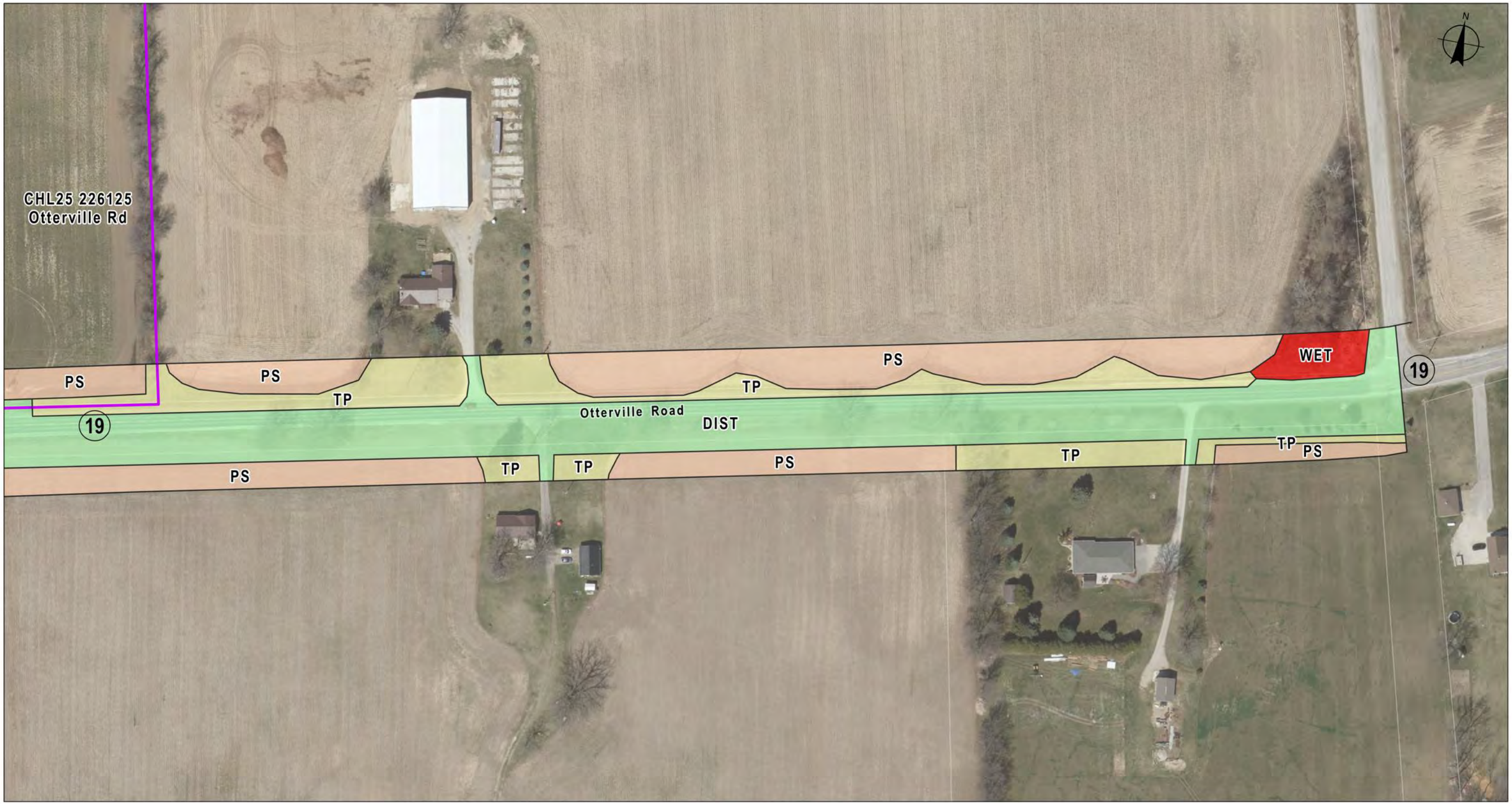

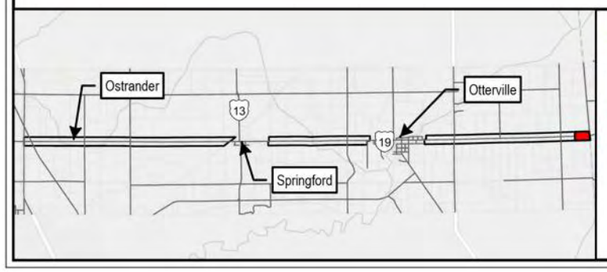

Watercourse

Stage 1 Archaeology Results

- CEM - Cemetery Property
- DIST - Disturbed, No Potential
- MONITOR - Construction Monitoring Required
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- STG2_3_reqd - Possible Pettman Cemetery Requires Stage 2 and 3 Survey
- TP - Test Pit Survey Required

Cultural Heritage

- WET - Wet – No Potential
- BHR - Built Heritage Resource
- CHL - Cultural Heritage Landscape

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

ARCHAEOLOGY AND CULTURAL HERITAGE FEATURES

Drawn	Checked	Date	Figure No.
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Scale		Project No.	32/32
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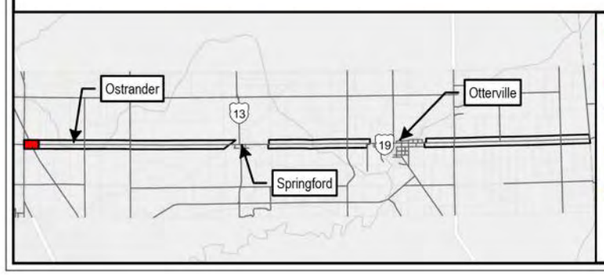

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Municipal Drain: Open
- Municipal Drain: Closed
- Watercourse
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Thickets
- RJB_Survey_Notes_p

- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 1/32
Scale		Project No.	
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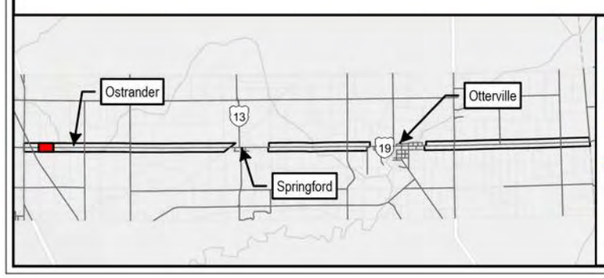

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Municipal Drain: Open
- Watercourse
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Thickets
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 2/32
Scale		Project No.	
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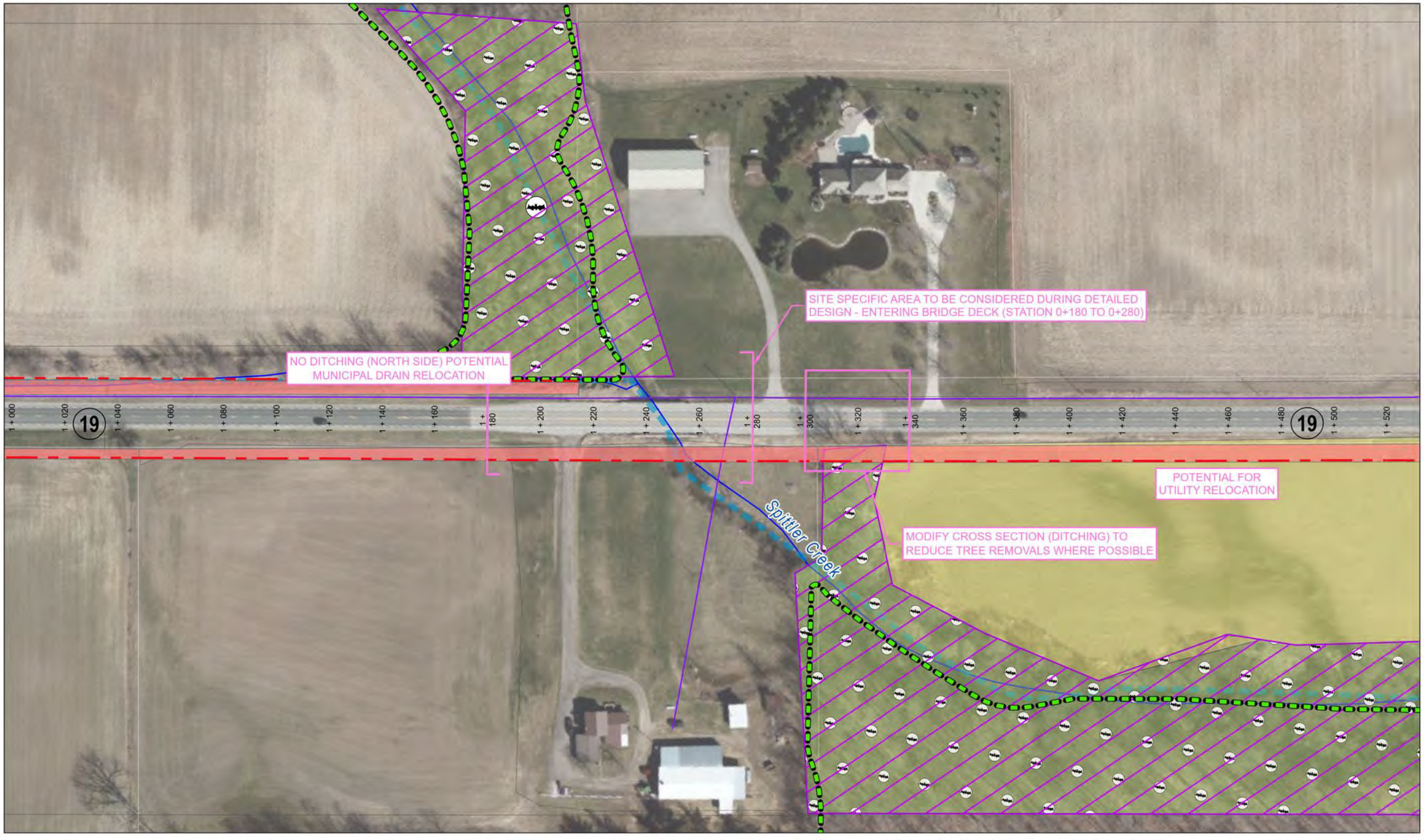

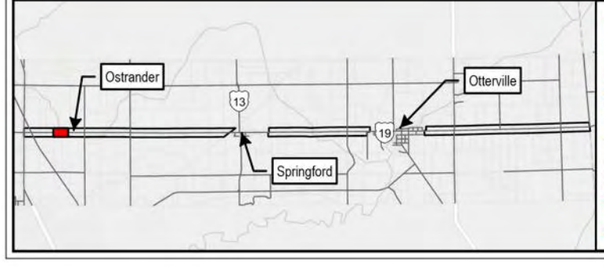

Proposed Right of Way

Proposed Property Aquisition

Ecologically Important Woodlands (Draft ONHSS)

Overhead HydroOne Line (Approximate)

Habitat for Special Concern and Rare Wildlife:

Crooked Stem Aster, Eastern Wood-pewee and Wood thrush

Bat Maternity Colony Habitat

Municipal Drain: Open

Watercourse

Property Parcel

Type

Bat Maternity Colony

Watermain

Water Gravity Main

Vegetation Communities

Agricultural

Meadows

Woodlands

RJB_Survey_Notes_p

RJB_Survey_Notes_p

baseRoad_Centerline [B]

limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 3/32
Scale		Project No.	
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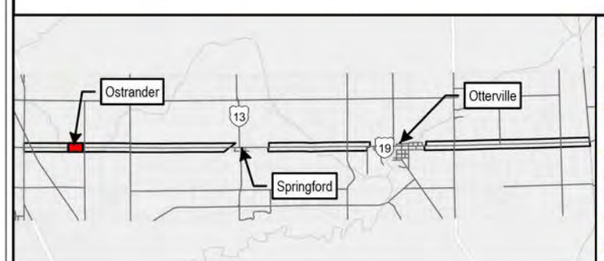

- Proposed Right of Way
- Proposed Property Aquisition
- Ecologically Important Woodlands (Draft ONHSS)
- Overhead HydroOne Line (Approximate)

Habitat for Special Concern and Rare Wildlife:
- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush

- Bat Maternity Colony Habitat
- Municipal Drain: Open
- Watercourse
- Property Parcel

Type
- Bat Maternity Colony

Significant Wildlife Habitat:
- Turtle Wintering Area
- Watermain
- Water Gravity Main

Vegetation Communities
- Agricultural
- Meadows
- Wetlands
- Woodlands
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 4/32
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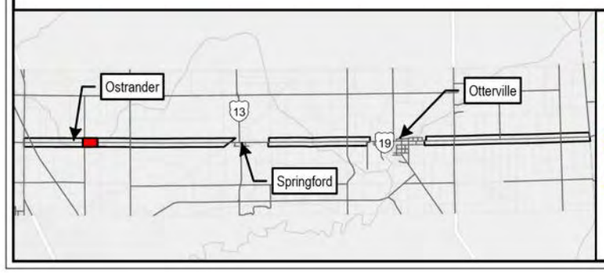

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Ecologically Important Woodlands (Draft ONHSS)
- Overhead HydroOne Line (Approximate)

Habitat for Special Concern and Rare Wildlife:

- Canada Warbler
- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Golden-winged Warbler
- Bat Maternity Colony Habitat

Type

- Municipal Drain: Open
- Watercourse
- Property Parcel
- Bat Maternity Colony

Significant Wildlife Habitat:

- Turtle Wintering Area
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Meadows
- Thickets
- Wetlands

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 5/32
Scale		Project No.	
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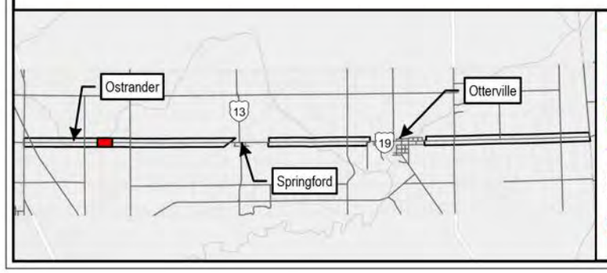

- Proposed Right of Way
- Proposed Property Aquisition
- Ecologically Important Woodlands (Draft ONHSS)
- Overhead HydroOne Line (Approximate)

Habitat for Special Concern and Rare Wildlife:

- Canada Warbler
- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Golden-winged Warbler
- Bat Maternity Colony Habitat
- Municipal Drain: Open
- Watercourse
- Property Parcel

Type

- Bat Maternity Colony
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Meadows
- Thickets
- Woodlands
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
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Scale		Project No.	
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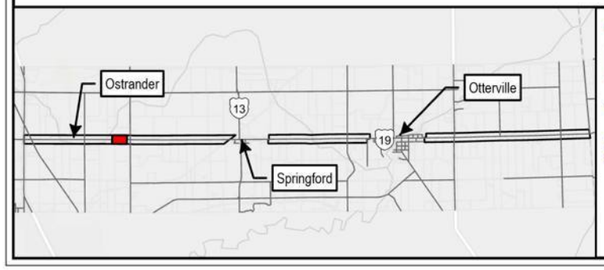

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Ecologically Important Woodlands (Draft ONHSS)
- Overhead HydroOne Line (Approximate)

Habitat for Special Concern and Rare Wildlife:

- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Bat Maternity Colony Habitat
- Property Parcel

Type

- Bat Maternity Colony
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Woodlands
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client: **COUNTY OF OXFORD**

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 7/32
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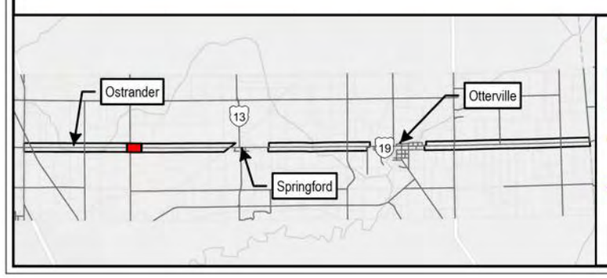

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Wetlands

- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 8/32
Scale		Project No.	
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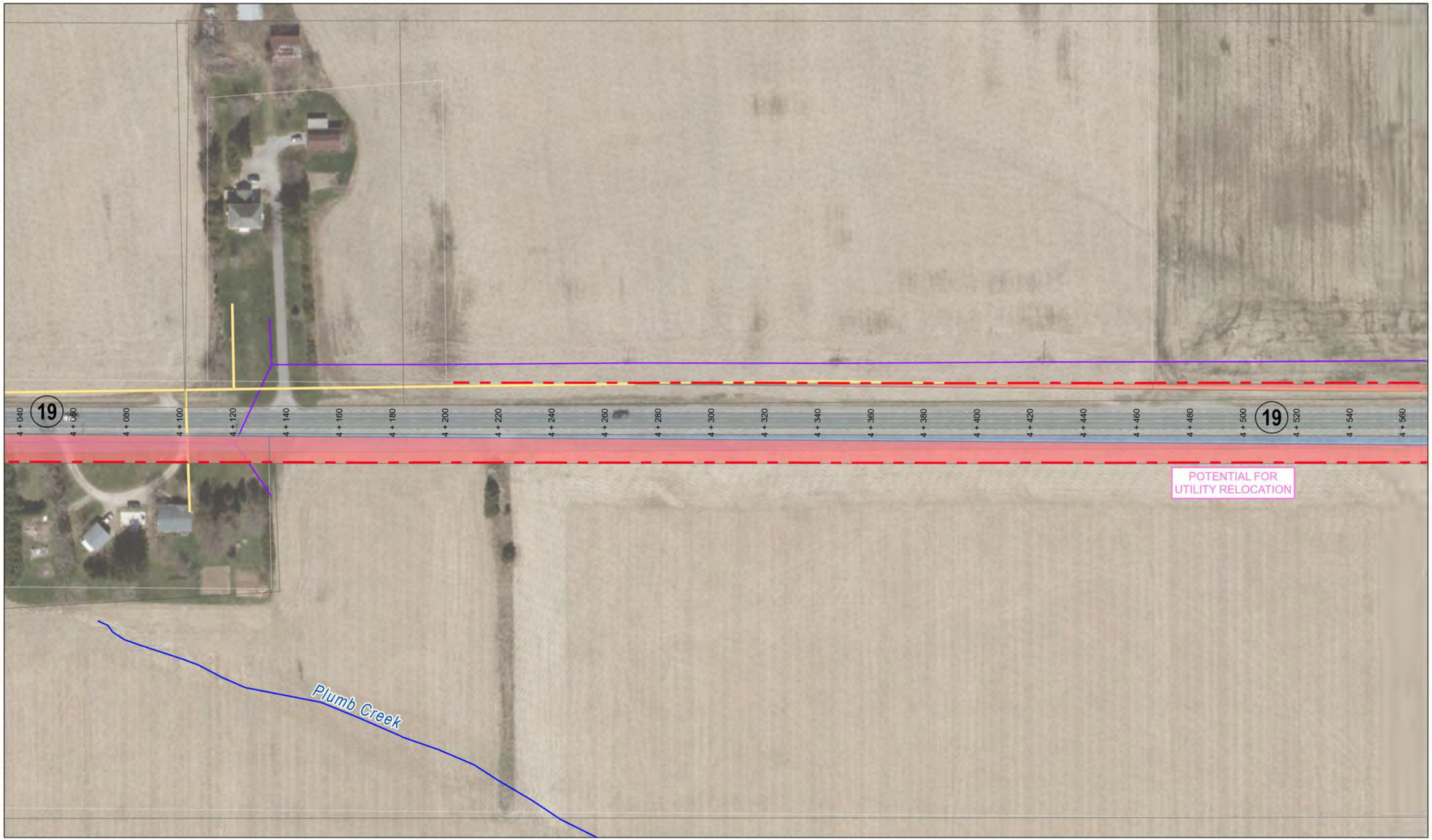

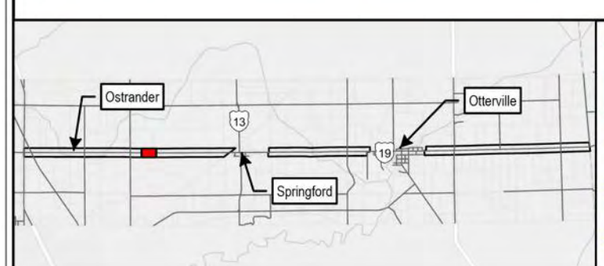

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Watercourse
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Wetlands
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 9/32
Scale		Project No.	
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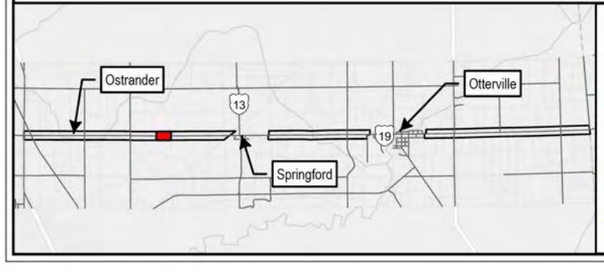

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Watercourse
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Wetlands
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 10/32
Scale		Project No.	
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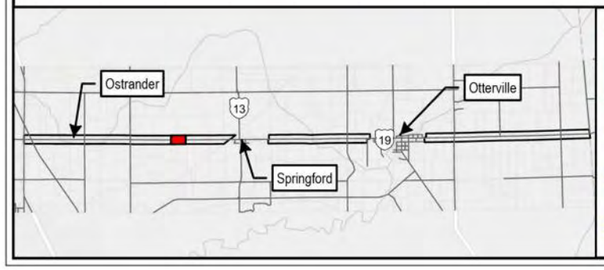

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Watercourse
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 11/32
Scale		Project No.	
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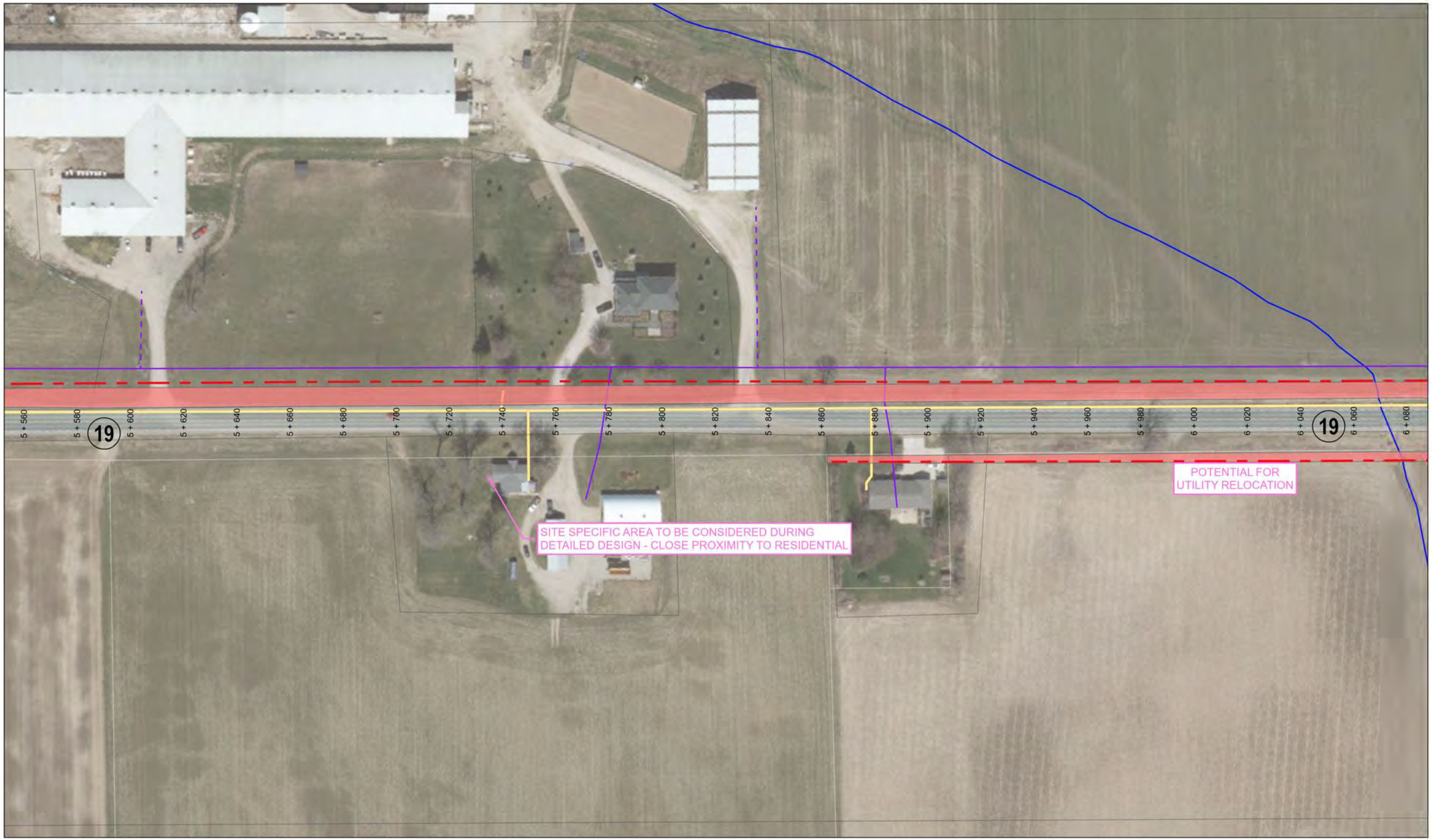

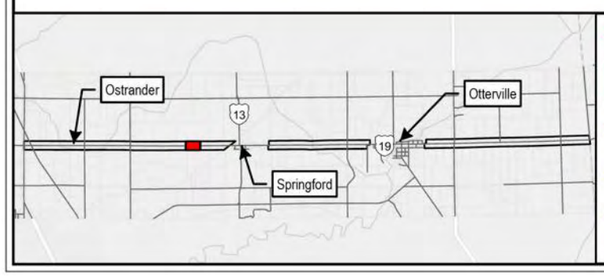

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Watercourse
- Property Parcel
- Watermain
- Water Gravity Main
- Vegetation Communities
- Agricultural
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 12/32
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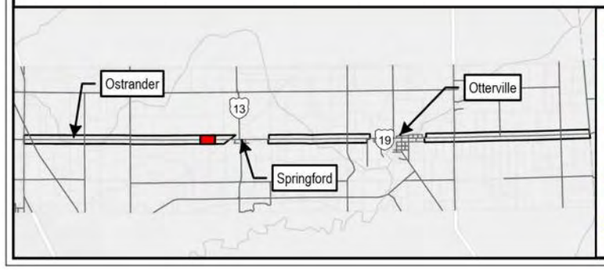

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Watercourse
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 13/32
Scale		Project No.	
H 1:1,500		300053425	

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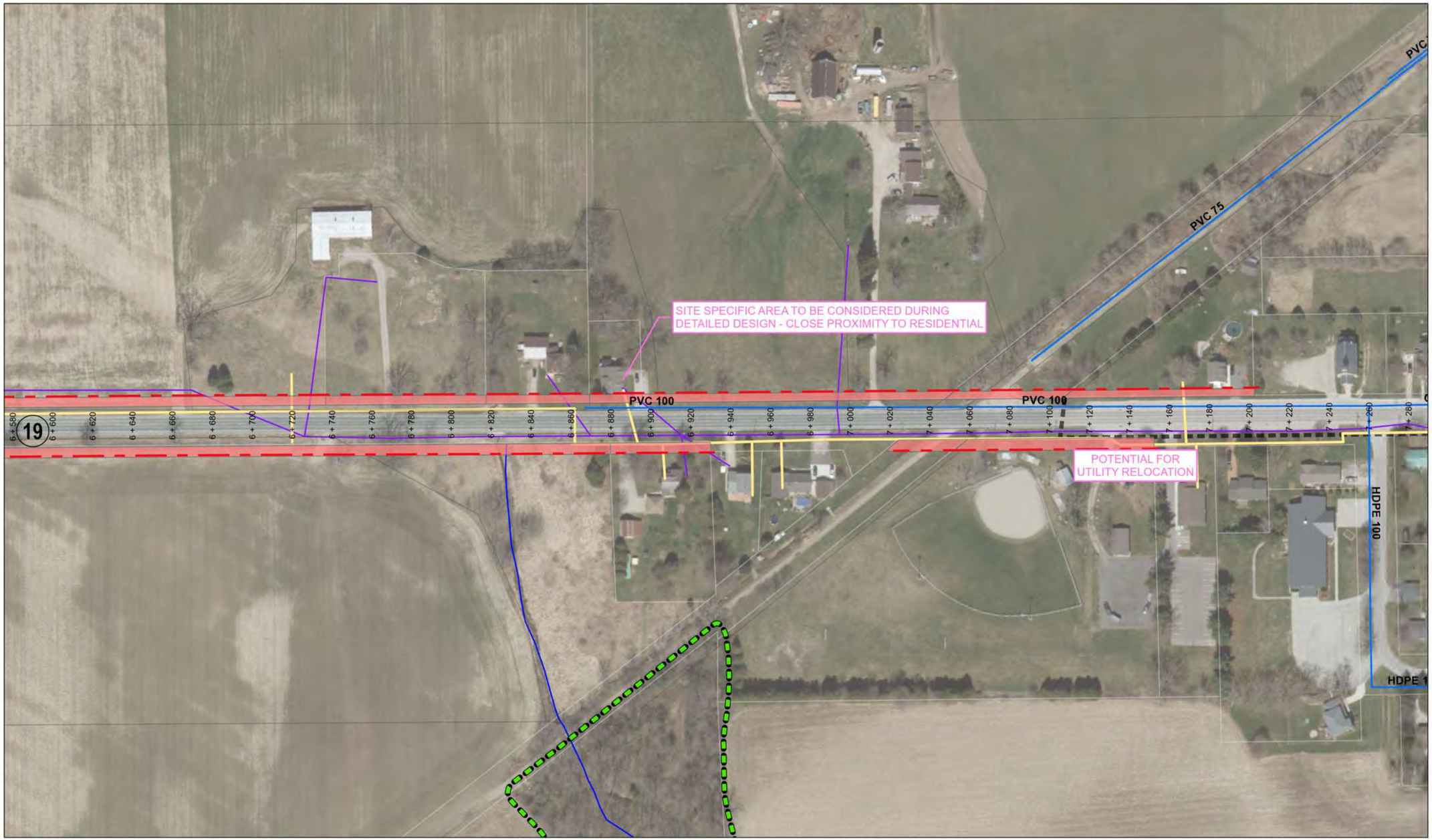

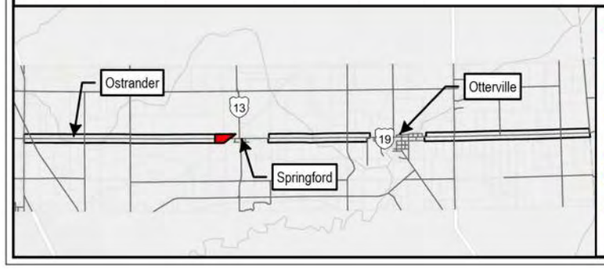

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Ecologically Important Woodlands (Draft ONHSS)
- Overhead HydroOne Line (Approximate)
- Municipal Drain: Closed
- Watercourse
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
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Scale		Project No.	
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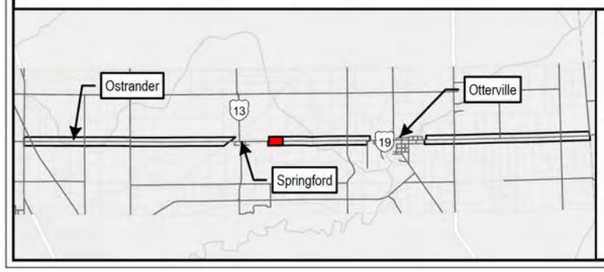

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Municipal Drain: Closed
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Meadows
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 15/32
Scale		Project No.	
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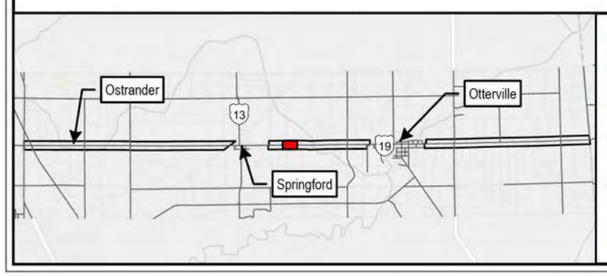

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Municipal Drain: Open
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Meadows
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 16/32
Scale		Project No.	
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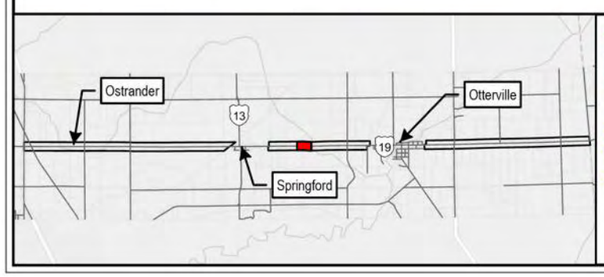

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Ecologically Important Woodlands (Draft ONHSS)
- Overhead HydroOne Line (Approximate)

Habitat for Special Concern and Rare Wildlife:

- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Snapping Turtle
- Municipal Drain: Open
- Property Parcel

Type

- Bat Maternity Colony

Significant Wildlife Habitat:

- Amphibian Breeding Habitat (Woodland)
- Turtle Wintering Area
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Meadows
- Wetlands
- Woodlands
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 17/32
Scale		Project No.	
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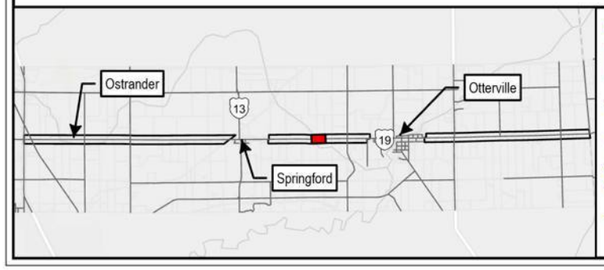

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)
- Ecologically Important Woodlands (Draft ONHSS)
- Overhead HydroOne Line (Approximate)

Habitat for Special Concern and Rare Wildlife:

- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Snapping Turtle
- Bat Maternity Colony Habitat
- Watercourse
- Property Parcel

Type

- Bat Maternity Colony

Significant Wildlife Habitat:

- Amphibian Breeding Habitat (Woodland)
- Turtle Wintering Area
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Wetlands
- Woodlands
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [8]

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3
Scale		Project No.	18/32
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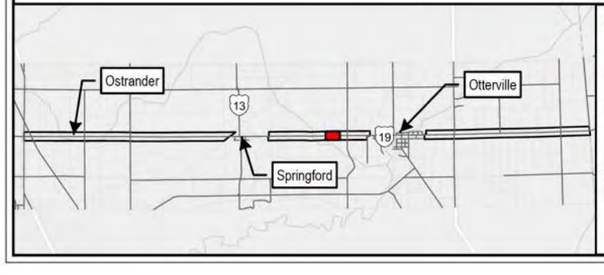

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)
- Ecologically Important Woodlands (Draft ONHSS)
- Overhead HydroOne Line (Approximate)

Habitat for Special Concern and Rare Wildlife:

- Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
- Bat Maternity Colony Habitat
- Property Parcel

Type

- Bat Maternity Colony
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Woodlands
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 19/32
Scale		Project No.	
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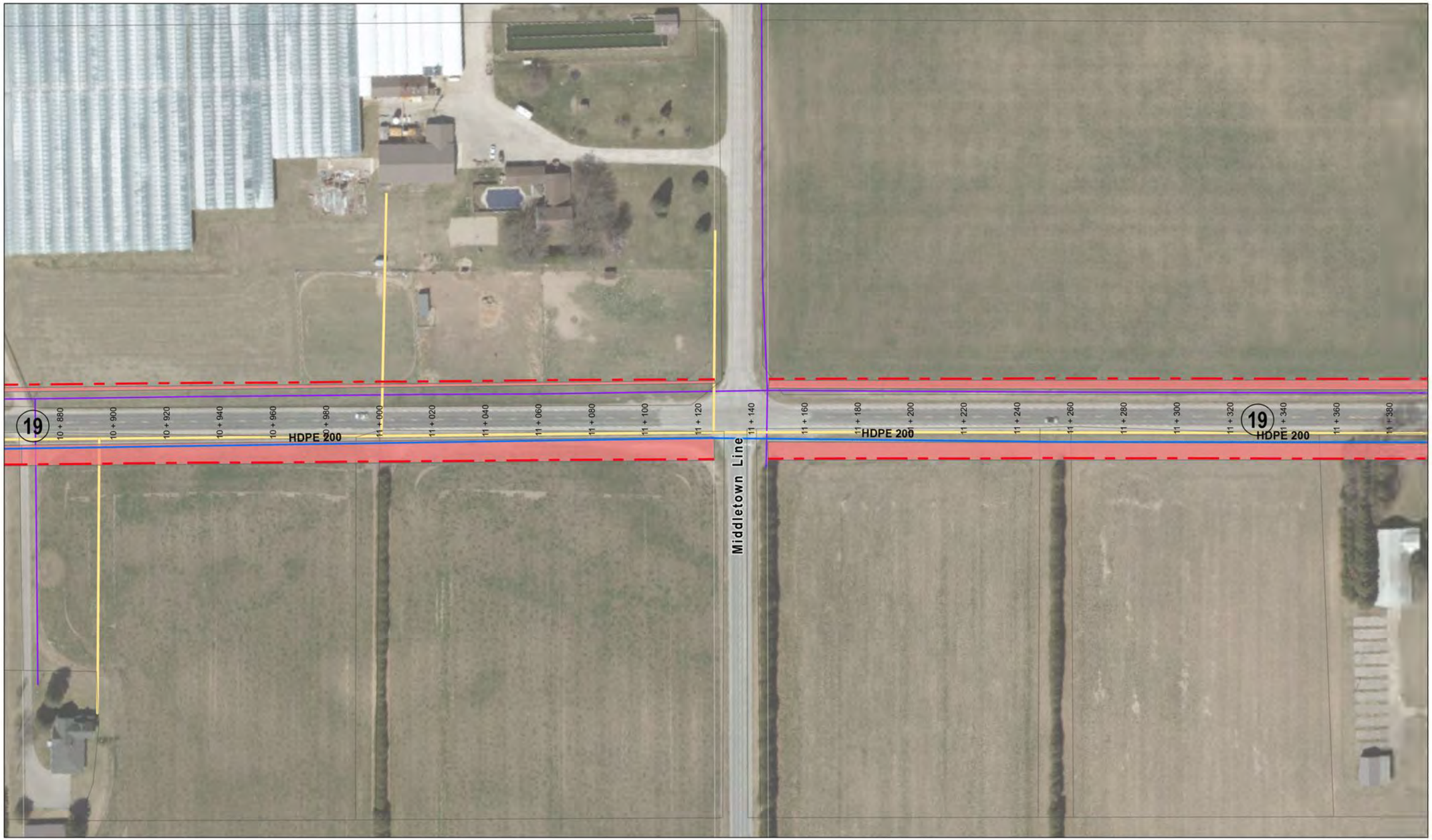

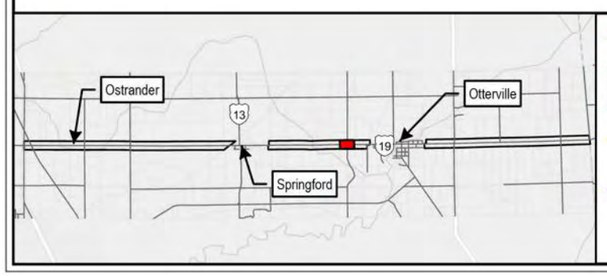

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 20/32
Scale		Project No.	
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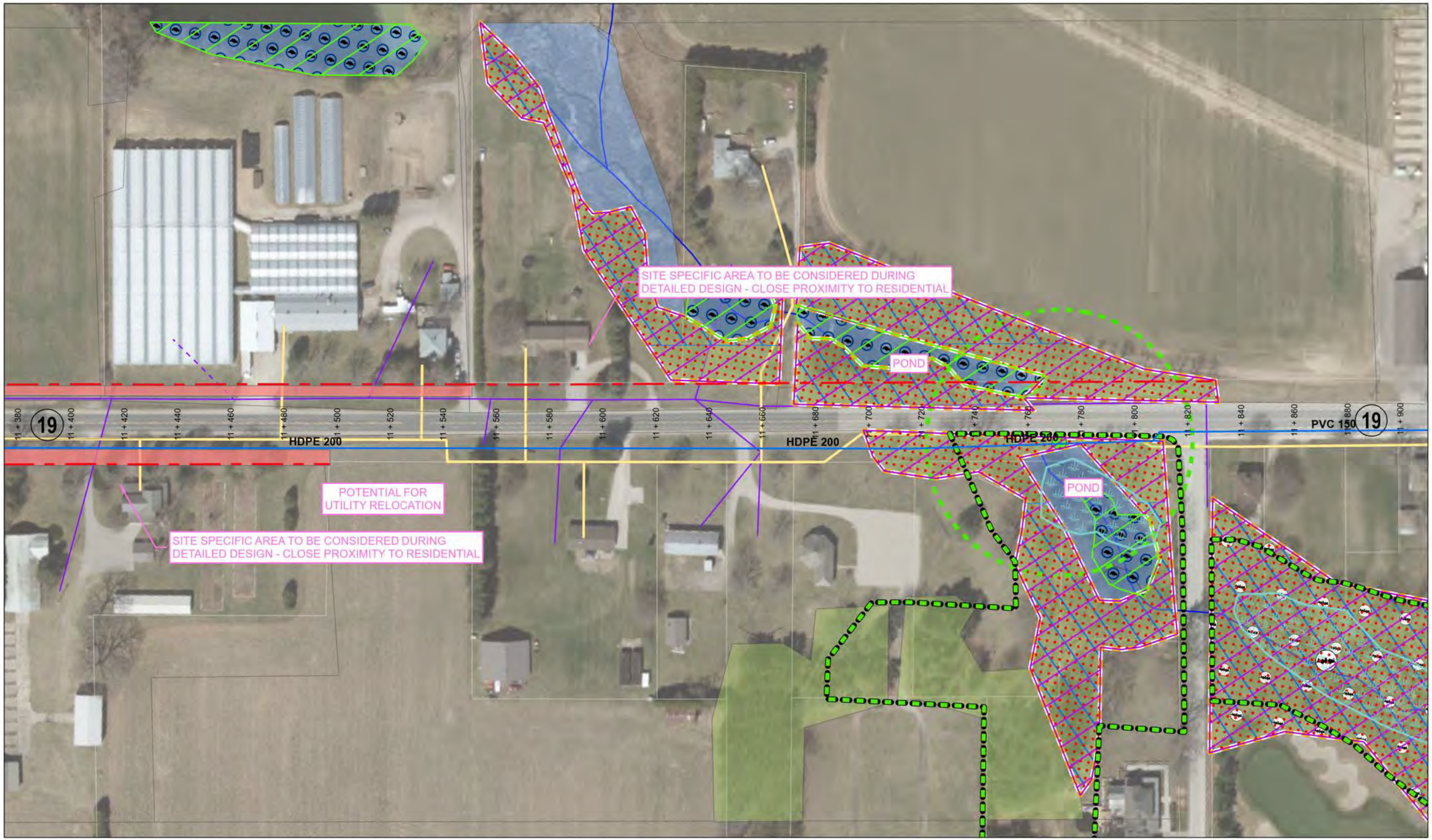

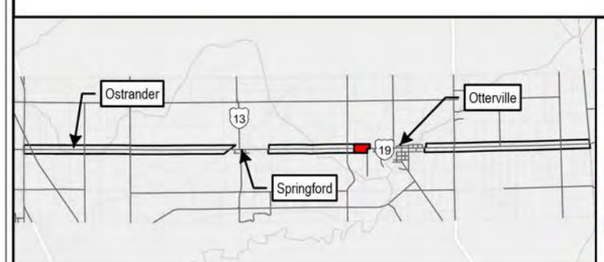

Proposed Right of Way
Proposed Property Aquisition
Underground HydroOne Line (Approximate)
Enbridge Gas Line (Approximate)
• Otterville Provincially Significant Wetland Complex BOC7
Ecologically Important Woodlands (Draft ONHSS)
Overhead HydroOne Line (Approximate)

Habitat for Special Concern and Rare Wildlife:
Canada Warbler
Crooked Stem Aster, Eastern Wood-pewee and Wood thrush
Snapping Turtle
Butternut

Butternut 50m Buffer
Bat Maternity Colony Habitat
Rare Vegetation Community (FODM7-4)
Watercourse
Property Parcel

Type / Veget
Bat Maternity Colony
Significant Wildlife Habitat:
Amphibian Breeding Habitat (Woodland)
Turtle Wintering Area
Watermain
Water Gravity Main

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 21/32
Scale		Project No.	
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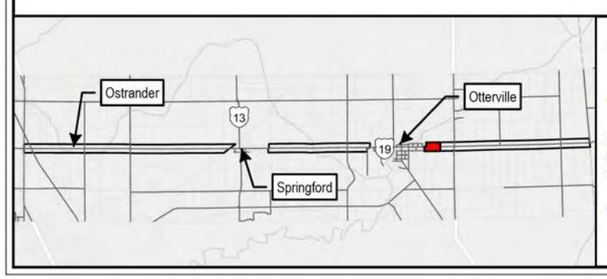

Underground HydroOne Line (Approximate)

Enbridge Gas Line (Approximate)

Ecologically Important Woodlands (Draft ONHSS)

Overhead HydroOne Line (Approximate)

Property Parcel

Watermain

Water Gravity Main

Vegetation Communities

Agricultural

RJB_Survey_Notes_p

RJB_Survey_Notes_p

baseRoad_Centerline [B]

limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
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Scale		Project No.	
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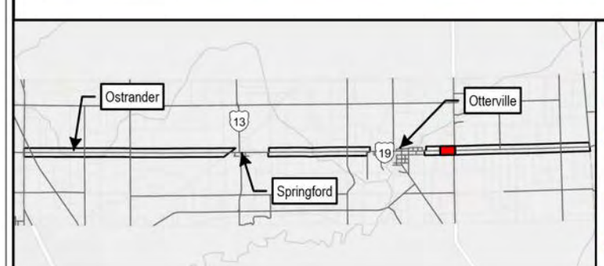

Proposed Right of Way
Proposed Property Aquisition
Underground HydroOne Line (Approximate)
Enbridge Gas Line (Approximate)
Overhead HydroOne Line (Approximate)
Property Parcel
Watermain
Water Gravity Main
Vegetation Communities
Agricultural
RJB_Survey_Notes_p
RJB_Survey_Notes_p
baseRoad_Centerline [B]
limits_polygon

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 23/32
Scale		Project No.	
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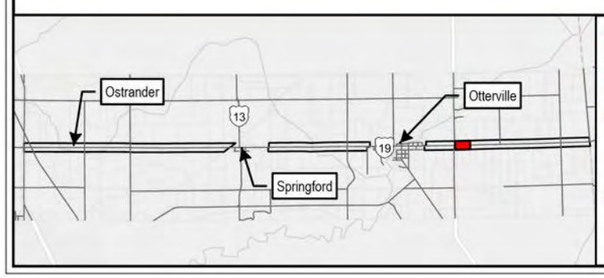

Proposed Right of Way
Proposed Property Aquisition
Underground HydroOne Line (Approximate)
Enbridge Gas Line (Approximate)
Overhead HydroOne Line (Approximate)
Property Parcel

Type
Bat Maternity Colony
Watermain
Water Gravity Main

Vegetation Communities
Agricultural

Woodlands
RJB_Survey_Notes_p
RJB_Survey_Notes_p
baseRoad_Centerline [B]
limits_polygon

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 24/32
Scale		Project No.	
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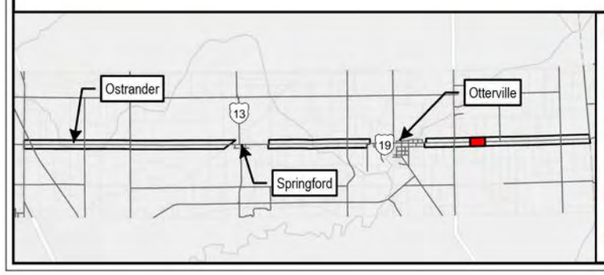

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Meadows
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 25/32
Scale		Project No.	
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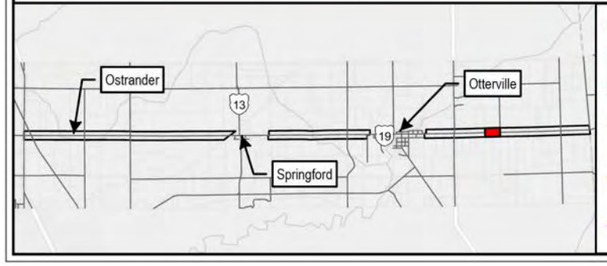

Proposed Right of Way

Proposed Property Aquisition

Underground HydroOne Line (Approximate)

Enbridge Gas Line (Approximate)

Overhead HydroOne Line (Approximate)

Property Parcel

Watermain

Water Gravity Main

Vegetation Communities

Agricultural

Meadows

RJB_Survey_Notes_p

RJB_Survey_Notes_p

baseRoad_Centerline [B]

limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 26/32
Scale		Project No.	
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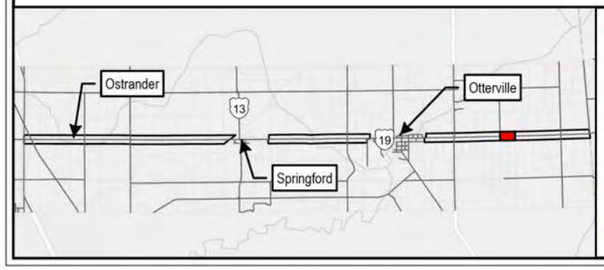

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 27/32
Scale		Project No.	
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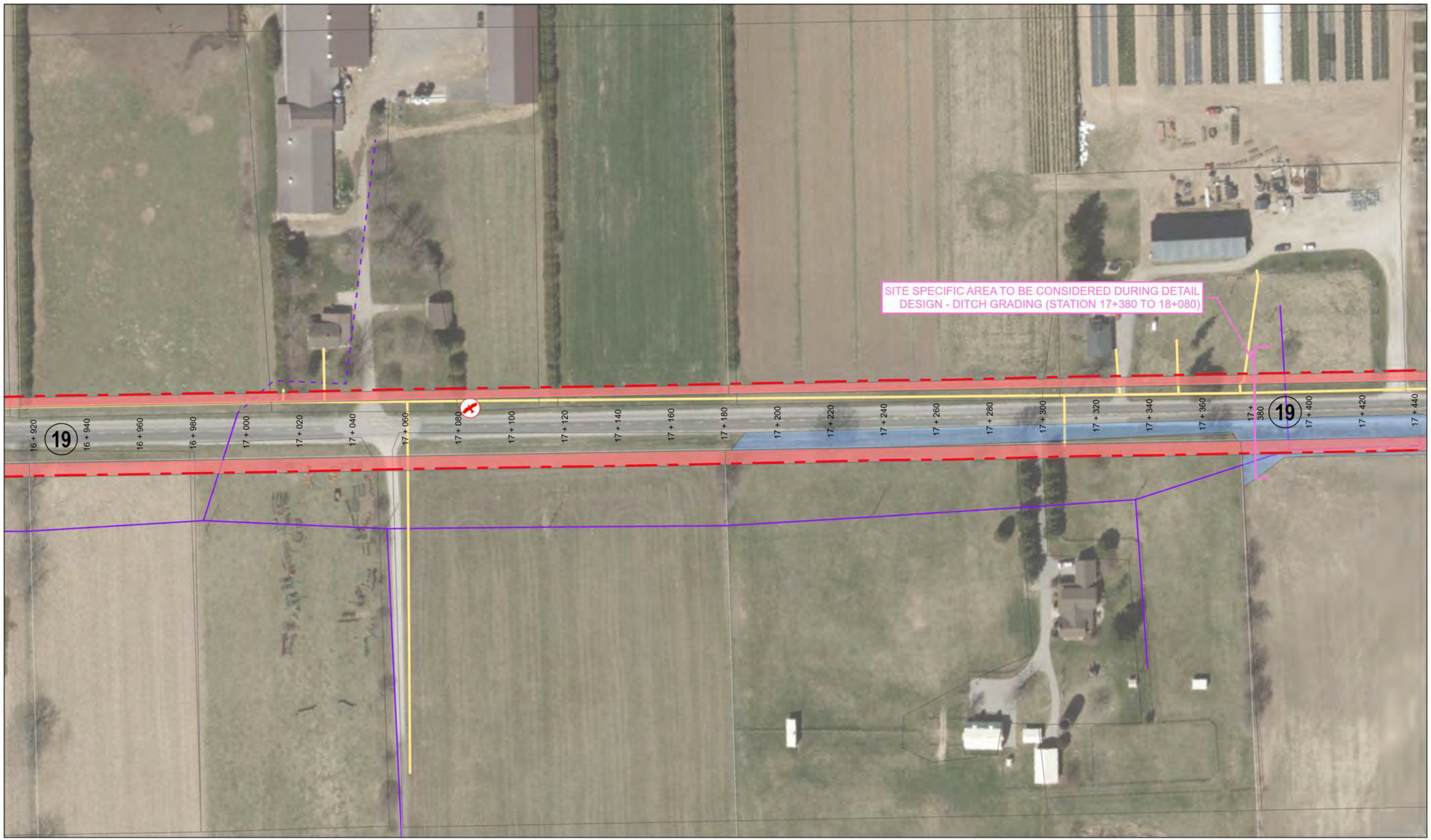

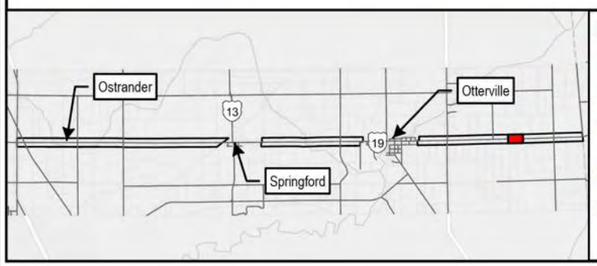

- Proposed Right of Way
- Proposed Property Aquisition
- Underground HydroOne Line (Approximate)
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Barn Swallow Sighting
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Wetlands
- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 28/32
Scale		Project No.	
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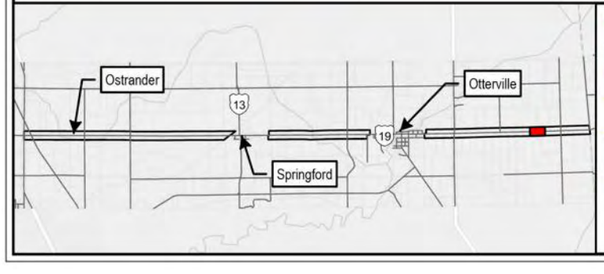

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Municipal Drain: Open
- Watercourse
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Meadows
- Thickets
- Wetlands

- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 29/32
Scale		Project No.	
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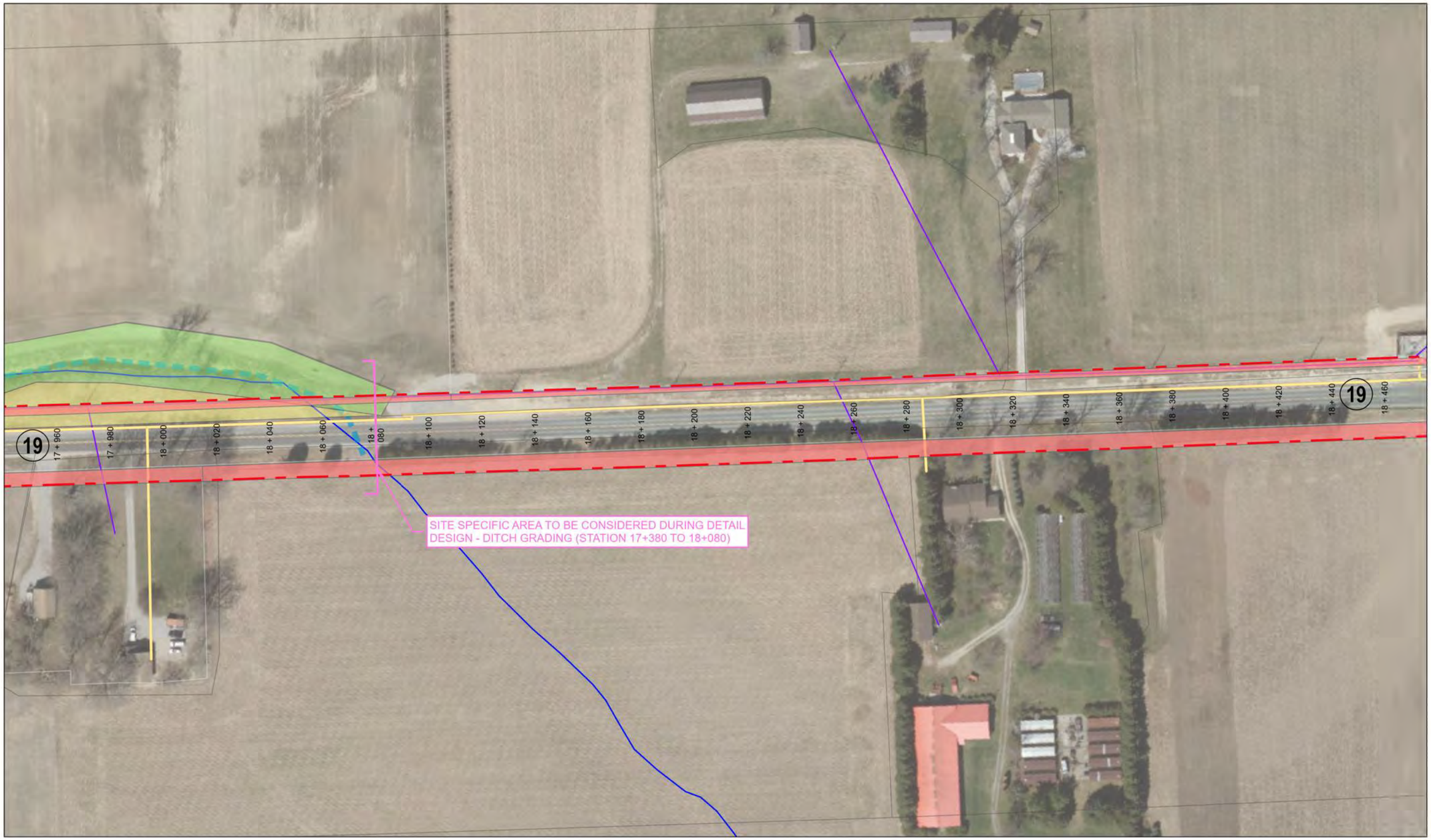

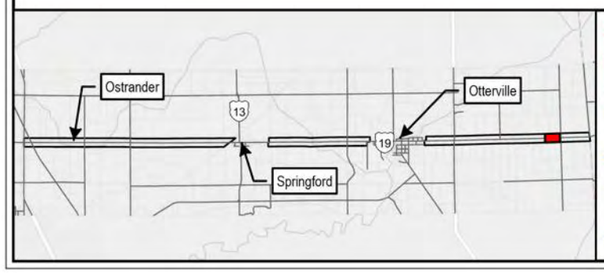

Proposed Right of Way
Proposed Property Aquisition
Enbridge Gas Line (Approximate)
Overhead HydroOne Line (Approximate)
Municipal Drain: Open
Watercourse
Property Parcel
Watermain
Water Gravity Main
Vegetation Communities
Agricultural
Meadows
Thickets
RJB_Survey_Notes_p
RJB_Survey_Notes_p
baseRoad_Centerline [B]
limits_polygon

BURNSIDE

Client
COUNTY OF OXFORD

0 25 50 75 100
Metres

Figure Title
OXFORD ROAD 19 CLASS EA
PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 30/32
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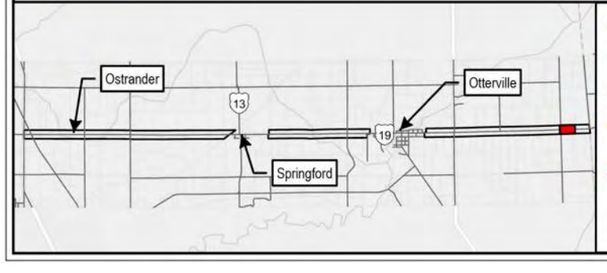

- Proposed Right of Way
- Proposed Property Aquisition
- Enbridge Gas Line (Approximate)
- Overhead HydroOne Line (Approximate)
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Meadows

- RJB_Survey_Notes_p
- RJB_Survey_Notes_p
- baseRoad_Centerline [B]
- limits_polygon

BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

Drawn	Checked	Date	Figure No.
HN	TR	2023/09/08	A-3 31/32
Scale		Project No.	
H 1:1,500		300053425	

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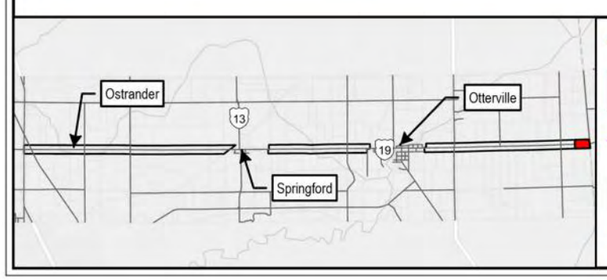

- Proposed Right of Way
- Proposed Property Aquisition
- Overhead HydroOne Line (Approximate)
- Property Parcel
- Watermain
- Water Gravity Main

Vegetation Communities

- Agricultural
- Meadows
- Wetlands

- RJB_Survey_Notes_p
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BURNSIDE

Client

COUNTY OF OXFORD

0 25 50 75 100

Metres

Figure Title

OXFORD ROAD 19 CLASS EA

PREFERRED DESIGN CONCEPT

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HN	TR	2023/09/08	A-3 32/32
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