



**Infrastructure Ontario and Ontario Ministry of
Transportation**

Design and Construction Report #2

Highway 3 Widening Project – Essex to Leamington

Public and Agency Review

This Detail Design and Class Environmental Assessment Study is being carried out as a Group B undertaking following the Ministry of Transportation (MTO) Class Environmental Assessment (EA) for Provincial Transportation Facilities (2000), which has been documented in this Design and Construction Report (DCR).

A copy of this document is available for review on the project website between **May 1, 2024**, and **June 1, 2024**: www.Hwy3Essex.com.

Interested persons are encouraged to review this document and provide comments by **June 1, 2024**, to any of the project Team Members identified at the addresses noted below. Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act* and the *Access to Information Act*. With the exception of personal information, all comments will become part of the public record.

Dillon Consulting Limited
Jeff Matthews, P.Eng.
Design Manager
130 Dufferin Avenue
Suite 1400
London, Ontario, N5R 5R2
519-251-3980
Hwy3Essex@Dillon.ca

Ministry of Transportation
Wayne Bell, P.Eng.
Head, Project Development & Delivery
Transportation Infrastructure
Management Division
437-775-2211
Wayne.H.Bell@Ontario.ca

If you have any accessibility requirements to participate in this study, please contact one of the individuals identified above.

Section 16 Order (Aboriginal and Treaty Rights)

In addition, a request may be made to the Minister of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e., requiring an individual or comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., 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's 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 EA), how an order may prevent, mitigate or remedy those potential adverse impacts on constitutionally protected Aboriginal and Treaty Rights, and any information in support of the statements in the request. This will ensure that the ministry is able to begin reviewing the request efficiently.

The request should be sent in writing or by email to both of the following MECP contacts, copying the project team members listed above:

Minister of the Environment, Conservation and Parks

Ministry of Environment, Conservation and Parks
777 Bay Street, Fifth Floor
Toronto Ontario, M7A 2J3
Email: minister.mecp@ontario.ca

Director, Environmental Assessment Branch

Ministry of Environment, Conservation and Parks
135 St. Clair Avenue West, First Floor
Toronto Ontario, M4V 1P5
Email: EABDirector@ontario.ca

Information collected will be used in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. If you have accessibility requirements to participate in this project, please contact one of the team members listed above.

Table of Contents

Executive Summary

1.0	Project Overview	1
1.1	Project Background.....	2
1.2	Project Description	3
1.3	Environmental Policy	4
2.0	Environmental Assessment Process	5
3.0	Consultation	7
4.0	Detailed Description of the Recommended Design	8
4.1	Site Preparation	22
4.2	Drainage Improvements	22
5.0	Environmental Impact Assessment and Mitigation Measures	25
5.1	Drainage and Stormwater Management.....	25
5.2	Excess Soil and Contaminated Material Management	26
5.2.1	Excess Soil Management.....	26
5.2.2	Contaminated Material.....	26
5.2.3	Spills Handling.....	27
5.3	Natural Environment	27
5.3.1	Terrestrial Ecosystem.....	27
5.3.2	Aquatic Ecosystem	32
5.4	Socio-Economic Environment	34
5.4.1	Construction Noise	34
5.4.2	Vibration.....	35
5.4.3	Climate Change.....	35

5.4.4	Air Quality.....	35
5.4.5	Access to Properties During Construction	36
5.5	Cultural Resources	36
5.5.1	Archaeology.....	36
6.0	Summary of Environmental Concerns and Commitments	37
<hr/>		
6.1	Environmental Clearance and Approvals.....	37
6.1.1	Review of DCR #2.....	53
6.2	Environmental Construction Inspection and Monitoring.....	53
Figures		
<hr/>		
	Figure 1: Map of the Study Limits	1
	Figure 2A to 2 M: Proposed Improvements	9
Tables		
<hr/>		
	Table 1: Municipal Drain Improvements.....	vi
	Table 2: DCR #2 Drainage Act Approvals.....	23
	Table 3: Proposed Improvements in Fish Habitat	33
	Table 4 Summary of Environmental Concerns and Commitments	38

Executive Summary

The Ontario Ministry of Transportation (MTO) and Infrastructure Ontario (IO) retained GIP HWY3 INC. to complete the Design-Build-Finance (DBF) contract for the Class Environmental Assessment (EA), Detail Design, and Construction for the Highway 3 Widening Project, from 1.2 kilometres east of Essex County Road 23 easterly to 1.1 kilometres east of Essex County Road 34, in Essex County.

The Highway 3 Widening Project is being completed as a Group 'B' undertaking following MTO's Class EA for Provincial Transportation Facilities (2000). Works will build upon the previously completed Preliminary Design as documented in the 2006 Approved Transportation Environmental Study Report (TESR) and Preliminary Design Report (PDR) (Earth Tech Canada Inc.), the 2021 TESR Addendum (GHD), as well as the 2021 Design-Build-Ready (DBR) Report (GHD). As part of the Class EA process, a DCR is required to document construction details, including the traffic management plan for the project.

As the widening of Highway 3 is a multi-year construction project, two Design and Construction Reports (DCRs) were prepared to allow separate Environmental Clearances to be issued for separate components of the project. As each DCR is completed, it will be made available for a 30-day public comment period and a 30-day MECP review prior to the start of construction. DCR #1 documented the majority of construction which was initiated in areas where permits could be obtained promptly, as discussed further in **Section 1.2**. This provided flexibility within the construction schedule to advance the majority of the works while obtaining the appropriate permits in other environmentally sensitive areas or areas that require specific permissions. DCR #1 documented all works except for culverts which required additional approval time under the Municipal *Drainage Act*. The comment period for DCR #1 was held from December 22, 2023, to January 24, 2024.

DCR #2 has been prepared to document the associated drainage works summarized in **Table 1** below. Work documented in DCR #2 will begin in July 2024 with construction completion anticipated in early 2027.

Table 1: Municipal Drain Improvements

Municipal Drain	Proposed Improvements
Gilboe Relief Drain	C2 Culvert Replacement
9th Concession Drain	C3 Culvert Extension
	SC1 Culvert Removal
	Drain Realignment Around Concession Road 9 Cul-de-Sac
8th Concession Drain and Upper Portion of 8th Concession Drain	SC3 Culvert Removal
	SC4 Culvert Extension
	Drain Realignment (Essex Road 27)
	SR2 New Culvert
	SR5 New Culvert
	Drain Realignment (Concession Road 8)
Cottam Sideroad Branch of 7th Concession Drain	SC5 New/Relocated Culvert
	Drain Realignment
	Culvert Replacement
	Drain Extension to North
No. 5 Drain	C4 Culvert Extension
	C5 Culvert Extension
	SR18 New Culvert
	SR19 New Culvert
Schiller Branch Drain	SR9 New Culvert
	Drain Realignment
	New/Relocated Private Entrance Culverts or Drain Enclosure Culvert
	Possible Watershed Boundary Changes
Tully Award Drain	SR10 New Culvert
	SR11 New Culvert
4th Concession Drain	C12 Culvert Extension
	Drain Realignment
	EC11 New/Relocated Private Entrance Culvert
	EC11A New/Relocated Private Entrance Culvert
	EC29 New/Relocated Private Entrance Culvert
	EC30 New/Relocated Private Entrance Culvert

Municipal Drain	Proposed Improvements
New Municipal Tile Drain	New drain to provide legal drainage outlet for tiled properties north of Unnamed Road
New Municipal Open Drain	New drain to provide legal drainage outlet for Unnamed Road using existing private ditch

Based on the scope of work for these drainage improvements, impacts to adjacent land uses are anticipated to be minimal. With appropriate mitigation measures implemented during construction, potential impacts can be avoided, mitigated, or minimized to the extent possible.

The project has the potential to impact terrestrial and aquatic natural features, including Species at Risk (SAR) and significant wildlife habitat (SWH). Mitigation measures will be included in the construction contract to avoid impacts to SAR and minimize potential impacts to SAR habitat and SWH. Wildlife exclusionary fencing will be installed at work locations with the potential to impact SAR species. Fish and fish habitat impacts are anticipated to be minimal with mitigation measures implemented. In addition, the Landscaping and Ecological Restoration Plan includes measures to protect, or salvage and relocate, locally rare plant species, where feasible.

Excess soils, including those impacted by Phragmites (a highly invasive species), will be managed on-site in accordance with *Ontario Regulation (O. Reg.) 406/19*.

Archaeological Assessments were completed as part of the Preliminary Design and Design-Build Ready phases, which determined that further archaeological assessment is not required.

As required by the MTO Class EA, permits, licences, approvals and agreements (PLAAs) required for the works documented in DCR #2 shall be obtained prior to Environmental Clearance – Construction Start being issued. Design related environmental approvals and permits required prior to construction of these culverts and drainage improvements include:

- Acceptance of *Drainage Act* requirements for applicable municipal drain improvements and adoption of municipal by-law(s); and
- Environmental Clearance – Construction Start following the DCR comment period and receipt of all PLAAs for works detailed in this DCR #2.

In addition, the following authorizations/licenses are required prior to handling wildlife during construction:

- A Wildlife Scientific Collector's Authorization from the Ministry of Natural Resources and Forestry (MNRF) for wildlife salvage; and
- A License to Collect Fish for Scientific Purposes from MNRF for fish salvage under the *Fish and Wildlife Conservation Act*.

To confirm the implementation and effectiveness of the environmental mitigation measures and provisions included in the construction Contract, an Environmental Management Plan (EMP) has been created for the project. The objective of the EMP is to maintain and, where possible, improve the state of the environment affected by the proposed improvements. This includes the development of appropriate mitigation measures for implementation during construction to fulfill the regulatory and contract requirements, protect the environment and meet MTO obligations.

During construction, environmental monitoring for this project will:

- Inspect and monitor pre-construction, construction, and post-construction environmental work specified in the Contract; and
- Thoroughly evaluate any changes proposed by the Contractor to ensure that changes meet the intent of the measures and provisions, as outlined in this DCR, and reflect prevailing conditions on-site.

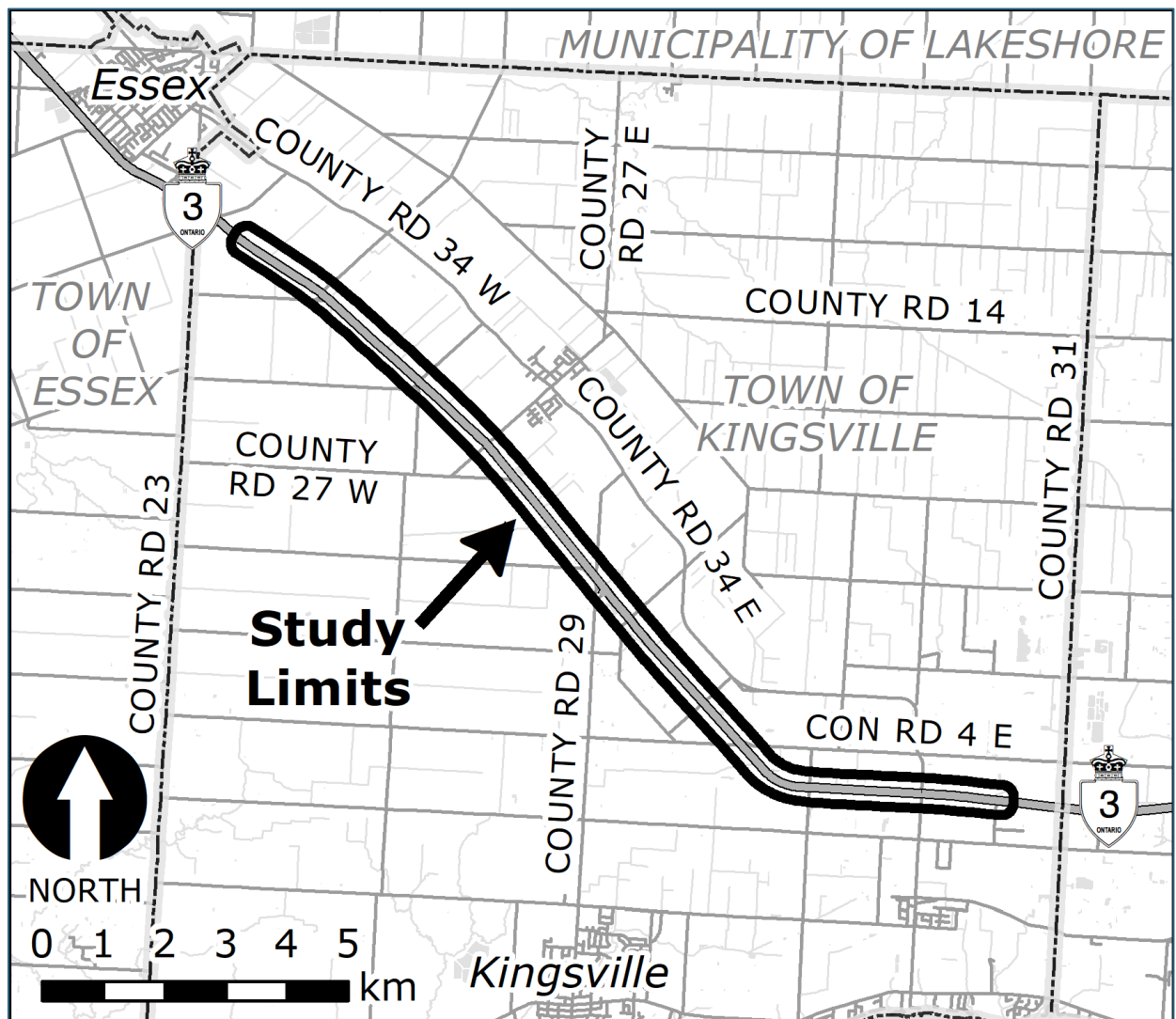
The implementation and effectiveness of the measures and provisions included in the Contract will be monitored by GIP HWY3 INC.'s Environmental Inspector(s) and documented in weekly summary reports.

1.0

Project Overview

The Ontario Ministry of Transportation (MTO) and Infrastructure Ontario (IO) retained GIP HWY3 INC. to complete the Design-Build-Finance (DBF) contract for the Class Environmental Assessment (EA), Detail Design, and Construction for the Highway 3 Widening Project, from 1.2 kilometres east of Essex Road 23 easterly to 1.1 kilometres east of Essex Road 34, in Essex (the “Project”), as illustrated in **Figure 1** below.

Figure 1: Map of the Study Limits



Project Background

In 1999, the MTO initiated a Preliminary Design and a Group B Class EA for Highway 3 from Outer Drive just east of the City of Windsor to the east junction of Union Avenue (Essex Road 34) just west of Leamington. The purpose of this study was to review existing traffic, geometry, safety, pavement conditions, drainage, structural and electrical features, and to examine the need for improvements to address current and projected traffic needs within the overall Highway 3 Windsor to Leamington Study Area. The results of this study were documented in the 2006 Transportation Environmental Study Report (TESR) (2006 Approved Plan). As the 2006 Approved Plan was older than five years, the original findings required review prior to construction.

In 2020, the study area conditions were investigated, assessed, and evaluated to determine if transportation or environmental changes had occurred that would impact the 2006 Approved Plan. These reviews identified significant changes within the corridor, resulting in modifications to the 2006 Approved Plan to develop the 2020 Recommended Plan. These changes were documented in a TESR Addendum (GHD 2021) and are summarized below:

- Closure of Cameron Side Road/Concession Road 9, March Road/Concession Road 8, Inman Side Road/South Talbot Road, and Upcott Side Road, subject to the Ontario Land Tribunal decision;
- Re-alignment of Concession Road 8 and McCain Side Road connection;
- Traffic signal replacement for the Highway 3 widening at Division Road (Essex Road 29) and Union Avenue (Essex Road 34);
- New traffic signals at the intersections of Highway 3 at Belle River Road (Essex Road 27), Essex Road 18, and Graham Side Road;
- The environmental conditions review presented changes in the regulatory environment concerning Species at Risk (SAR), and preserving the social and natural environment; and
- The installation of a noise barrier was indicated as a change from the 2006 Approved Plan. The noise barrier shall be designed and constructed as part of this project.

Project Description

The Highway 3 Widening Project will be completed as a Group 'B' undertaking following MTO's Class EA for Provincial Transportation Facilities (2000). Works will build upon the previously completed Preliminary Design as documented in the 2006 Approved TESR and Preliminary Design Report (PDR) (Earth Tech Canada Inc.), the 2021 TESR Addendum (GHD), as well as the 2021 Design-Build-Ready (DBR) Report (GHD). As part of that TESR Addendum, a DCR is required to document construction details, including the traffic management plan for the project.

As documented in DCR #1, the overall Works generally include:

- Design and construction of a new four-lane cross-section of Highway 3 with a 15-metre depressed median, with two new lanes being constructed for the eastbound direction and rehabilitation of the existing lanes for the westbound direction;
- Reconfiguration of five intersections along Highway 3, including associated illumination and auxiliary lanes;
- Installation of new traffic signals at five intersections;
- Closure, construction, removal, and realignment of select side roads;
- Extension, relocation, construction, and/or removal of structural and non-structural culverts; and
- Design and construction of supporting infrastructure, including drainage, traffic signals, illumination, roadside safety, and noise barrier.

As the widening of Highway 3 is a multi-year construction project, two Design and Construction Reports (DCRs) were prepared to allow Environmental Clearances to be issued. As each DCR is completed, it will be made available for a 30-day public comment period and a 30-day MECP review prior, prior to the start of construction. DCR #1 documented the majority of construction which was initiated in areas where permits could be obtained promptly. This provided flexibility within the construction schedule to advance the majority of the works while obtaining the appropriate permits in other environmentally sensitive areas, or areas that require specific permissions. DCR #1 documented all works except for culverts which required additional approval time under the Municipal *Drainage Act*. The comment period for DCR #1 was held from December 22, 2023, to January 24, 2024.

DCR #2 has been prepared following receipt of these Municipal *Drainage Act* approvals to document the associated culvert works, as summarized in **Section 5.0**. Work documented in DCR #2 will begin in July 2024 with construction complete anticipated in early 2027.

1.3 Environmental Policy

GIP HWY3 INC.'s commitment to protecting the environment and conducting operations in an environmentally responsible manner is founded on our expectation of meeting or exceeding all applicable environmental regulatory requirements. We recognize that environmental performance is important to our stakeholders and the communities in which we work. GIP HWY3 INC. strives to continually improve our programs and put procedures in place to mitigate potential environmental impacts. These objectives are consistent with our key values of:

- Integrity and Mutual Respect;
- Complete Openness;
- Entrepreneurial Enthusiasm;
- Trust; and
- Mutual Accountability.

Environmental Assessment Process

The MTO Class EA was approved under the Ontario *Environmental Assessment Act* (OEAA) in 2000. This planning process provides a streamlined approach that allows individual projects or activities within a defined “class” to meet the requirements of the OEAA, provided the Class EA is followed. The MTO Class EA document follows a principle-based approach, and includes the following principles that shall be addressed during the course of a study:

- Transportation Engineering Principles to confirm that the project meets current engineering design standards for the safe and efficient movement of people and goods across Ontario;
- Environmental Protection Principles to protect or mitigate potential natural, socio-economic, and cultural environmental impacts through the development of mitigation measures;
- Consultation Principles to encourage meaningful engagement with stakeholders such as the public, agencies and Indigenous communities;
- Evaluation Principles to provide an evaluation of alternatives that provides a balance between engineering requirements and environmental protection that is open and transparent; and
- Documentation Principles provide stakeholders an opportunity to review the design, potential impacts and proposed mitigation measures.

As noted in **Section 1.2**, work following the EA Process is being delivered in two phases. Most of the work was previously documented in DCR #1, and was made available for a 30-day public comment period and a 30-day MECP review prior, prior to the start of construction. The comment period for DCR #1 was held from December 22, 2023 to January 24, 2024. The comment period for this DCR #2 will be held from May 1, 2024 to June 1, 2024.

In addition, during the 30-day public comment period, a request may be made to the Minister of the 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 (e.g., 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.

Following the 30-day public comment period and the 30-day MECP review period, and assuming no Section 16 Orders have been received, the works documented in each DCR will proceed to construction.

Consultation

Consultation activities for this Design-Build-Finance project were documented in detail in DCR #1 and included the following key components:

- Development of a Consultation Plan;
- Updated project Contact List;
- Preparation of a Notice of Study Commencement that was distributed to the parties included on the Contact List, including Indigenous communities, and published in two local newspapers;
- Development of a Project Website (www.hwy3essex.com) to share information and updates about the project, and provide project team contact details;
- A Project Team email (hwy3essex@dillon.ca) to receive comments and provide responses; and
- Summary of Government Authority Meetings.

DCR #1 included a summary table and mapping of the proposed improvements that are further detailed in this DCR #2. To date, no comments have been received specific to these drainage improvements.

4.0

Detailed Description of the Recommended Design

As noted in **Section 1.2**, DCR #1 documented the majority of the proposed improvements, which were initiated in areas where permits could be obtained promptly. The following sections detail the remaining drainage improvements, as summarized in **Table 2**, and the associated activities required to complete these works.

To provide a comprehensive picture of the complete Project works, **Figure 2A – 2M** below highlights improvements documented in both DCR #1 and DCR #2.

Figure 2A: Proposed Improvements

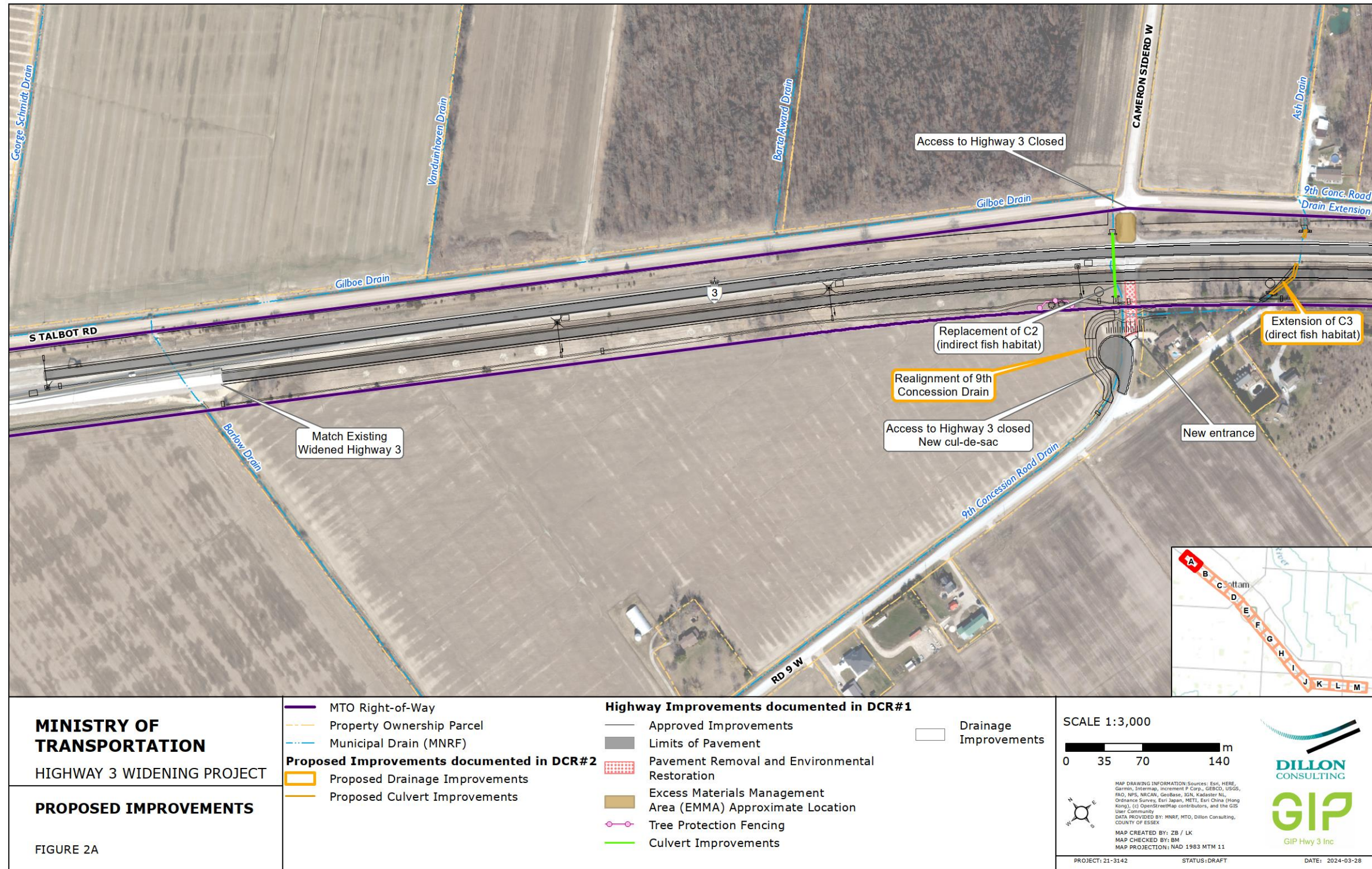
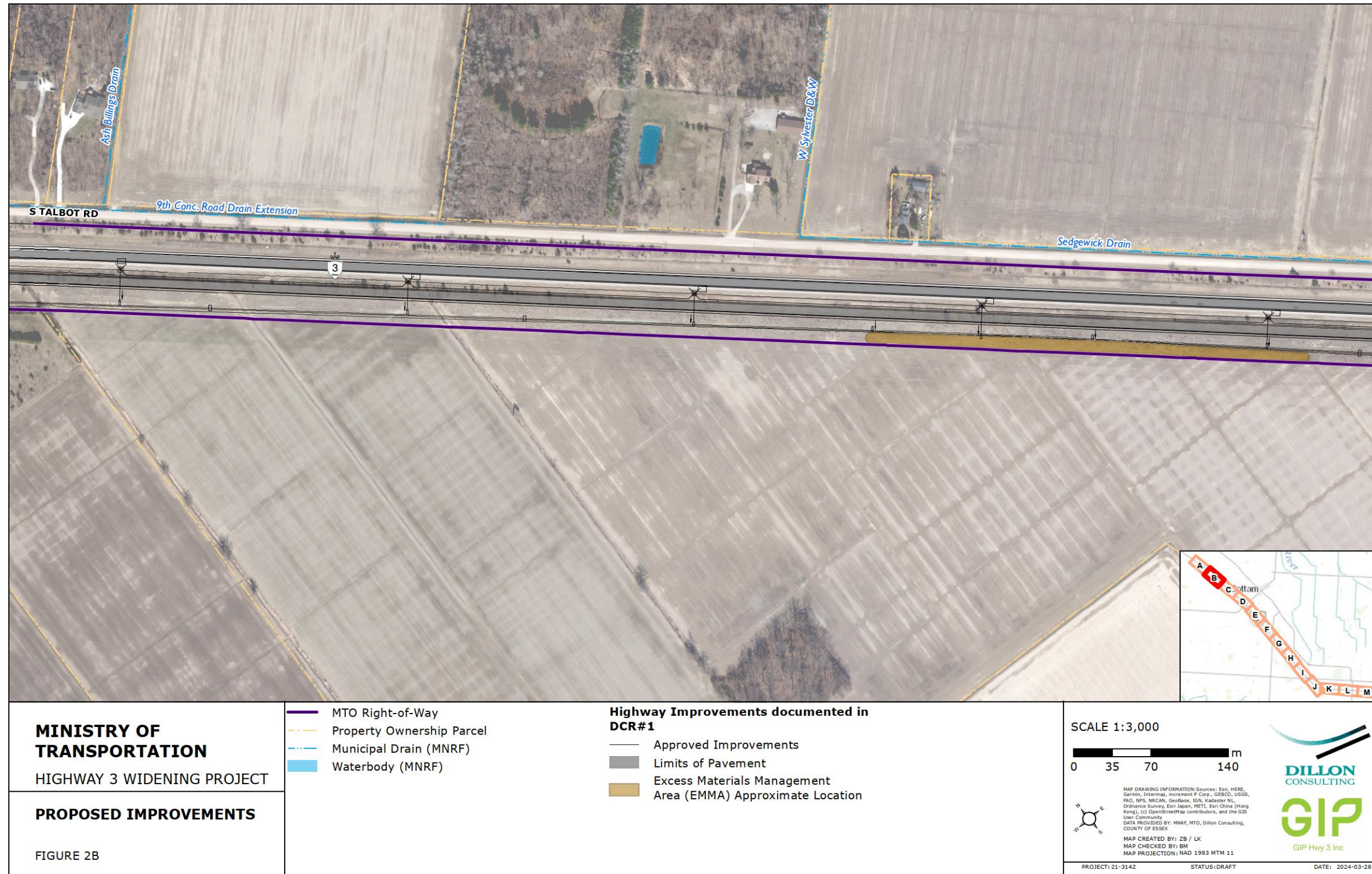


Figure 2B: Proposed Improvements



FILE LOCATION: K:\2021\213142\Product\Client\DCR 2\F2_Proposed Improvements_20240328.mxd

Figure 2C: Proposed Improvements

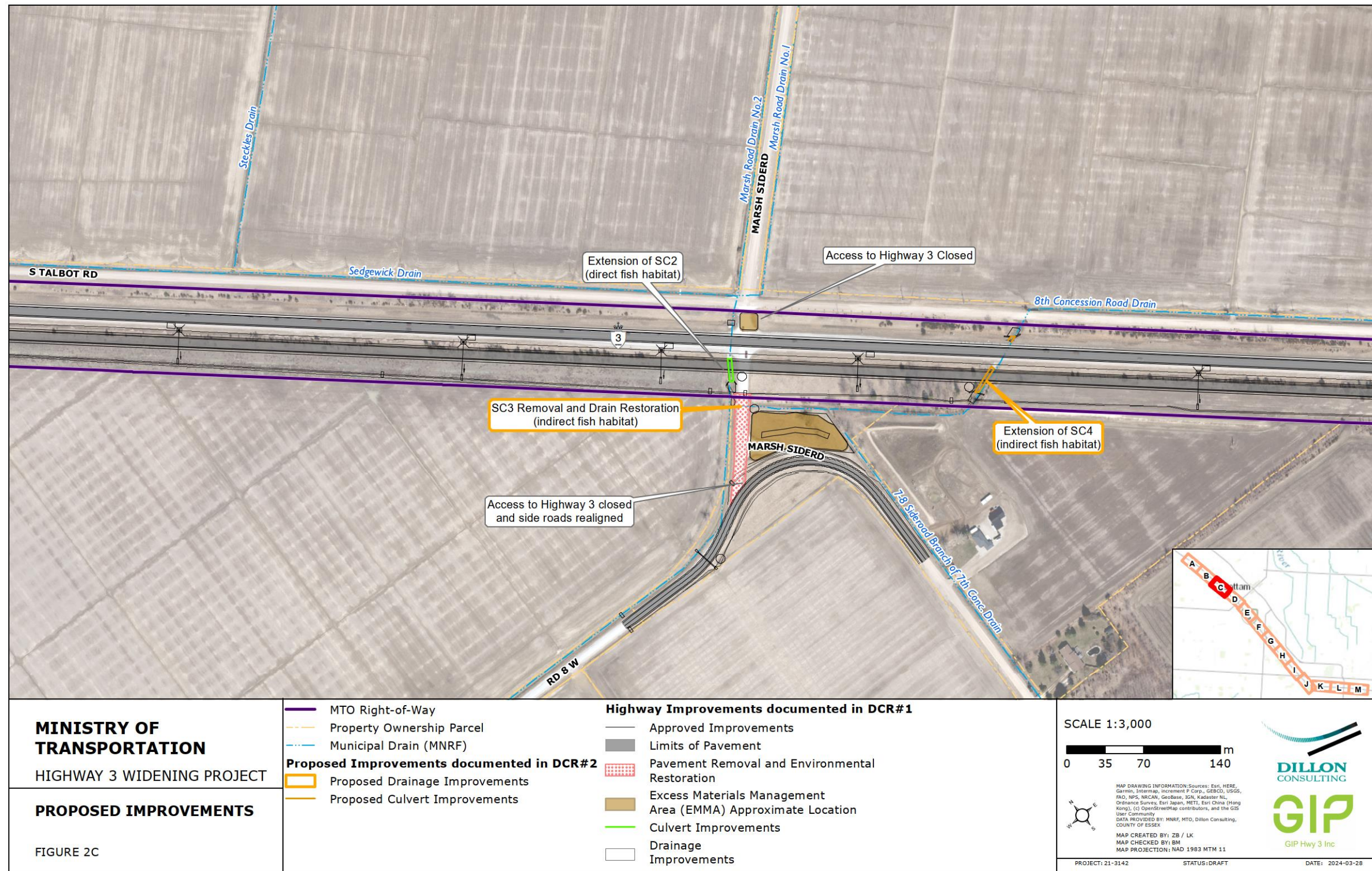


Figure 2D: Proposed Improvements

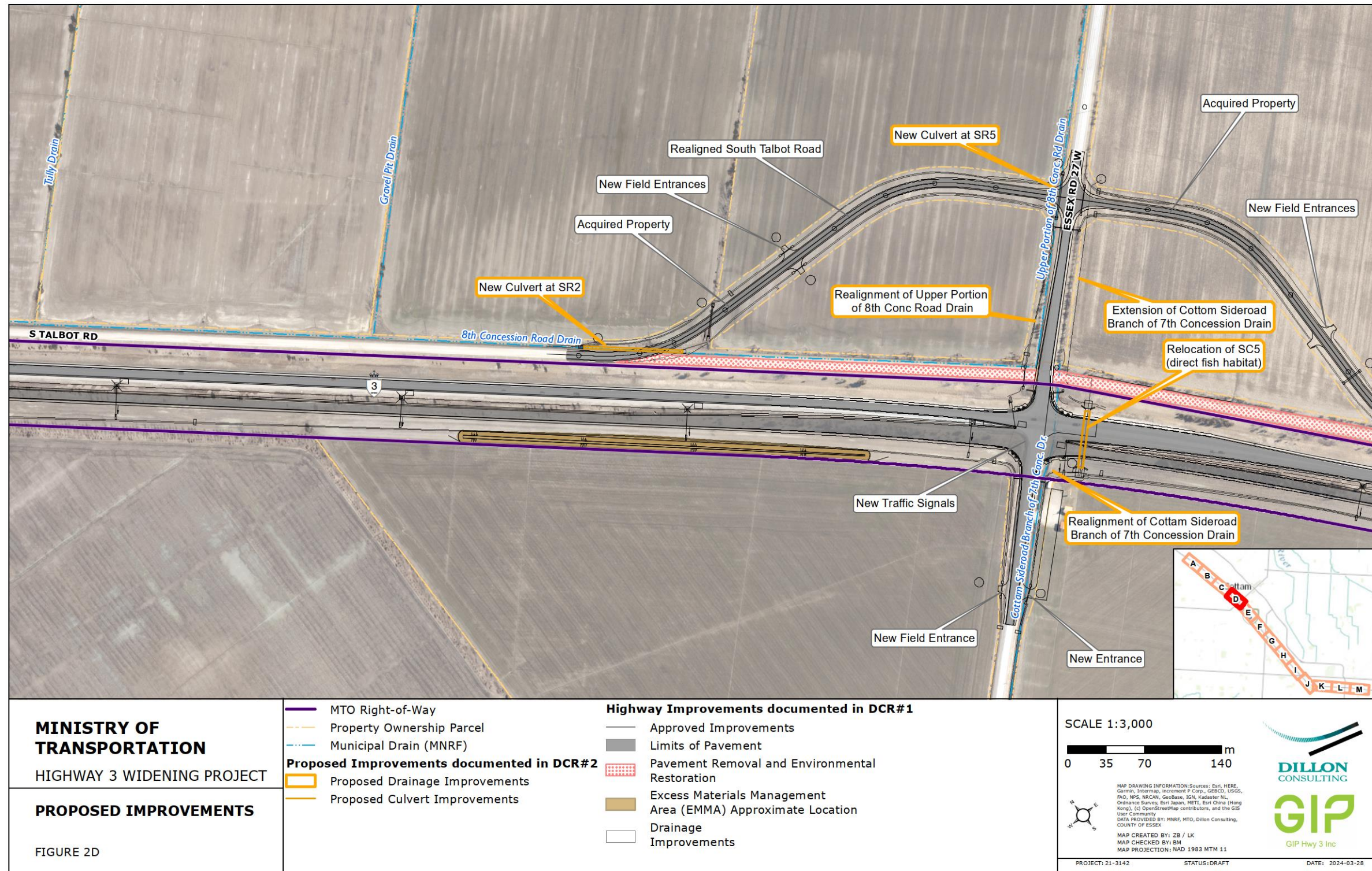


Figure 2E: Proposed Improvements

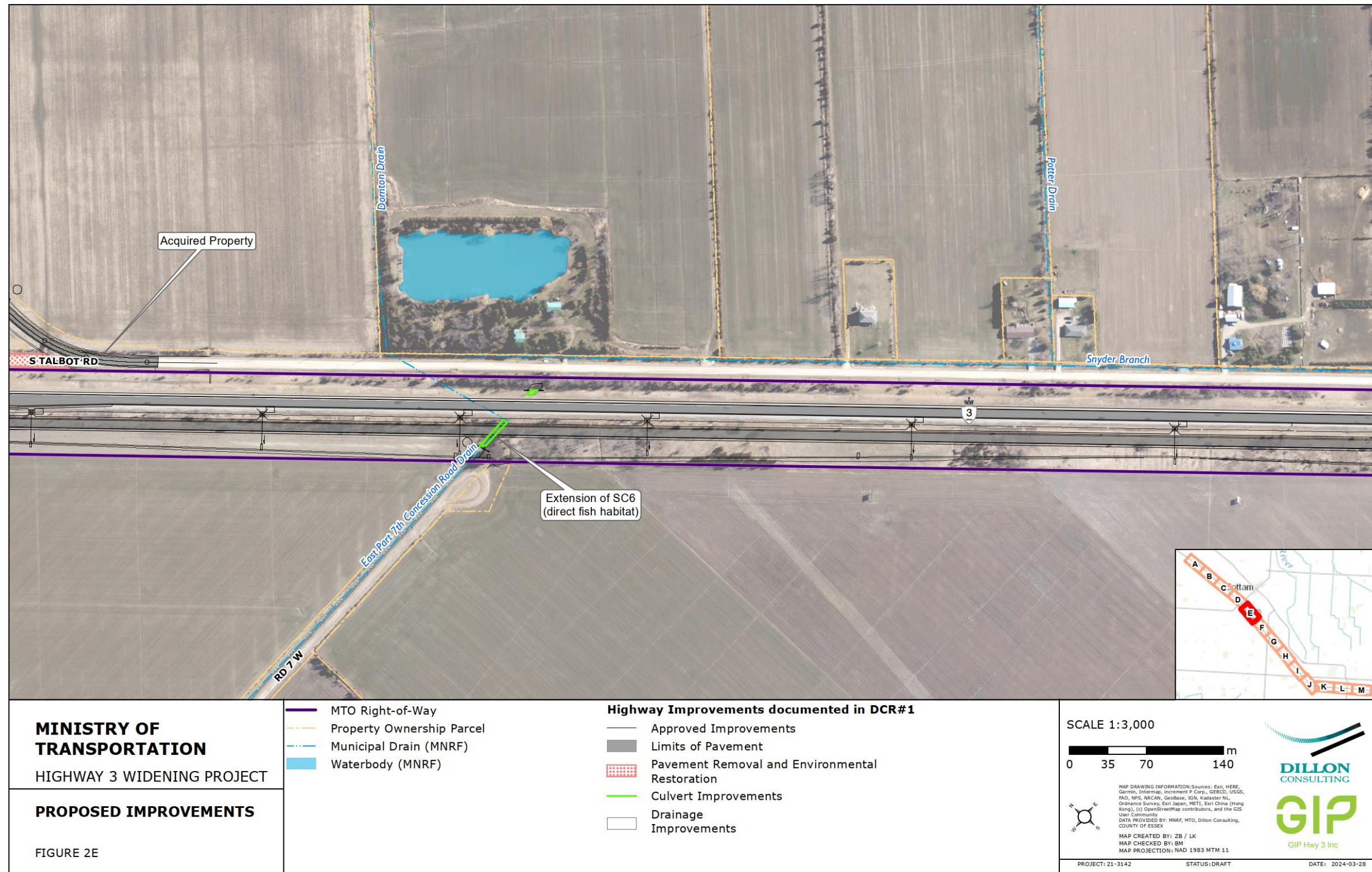


Figure 2F: Proposed Improvements

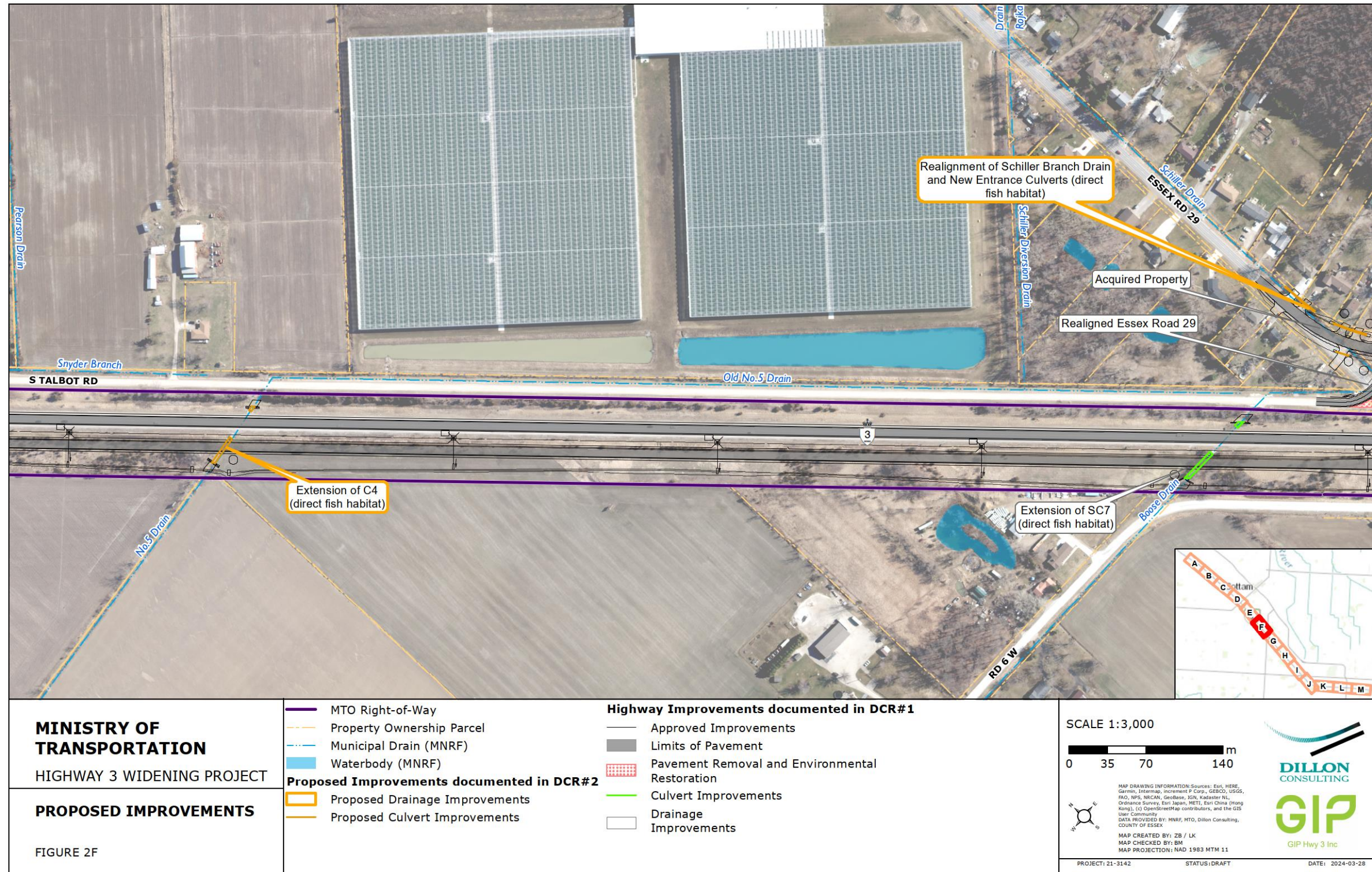


Figure 2G: Proposed Improvements

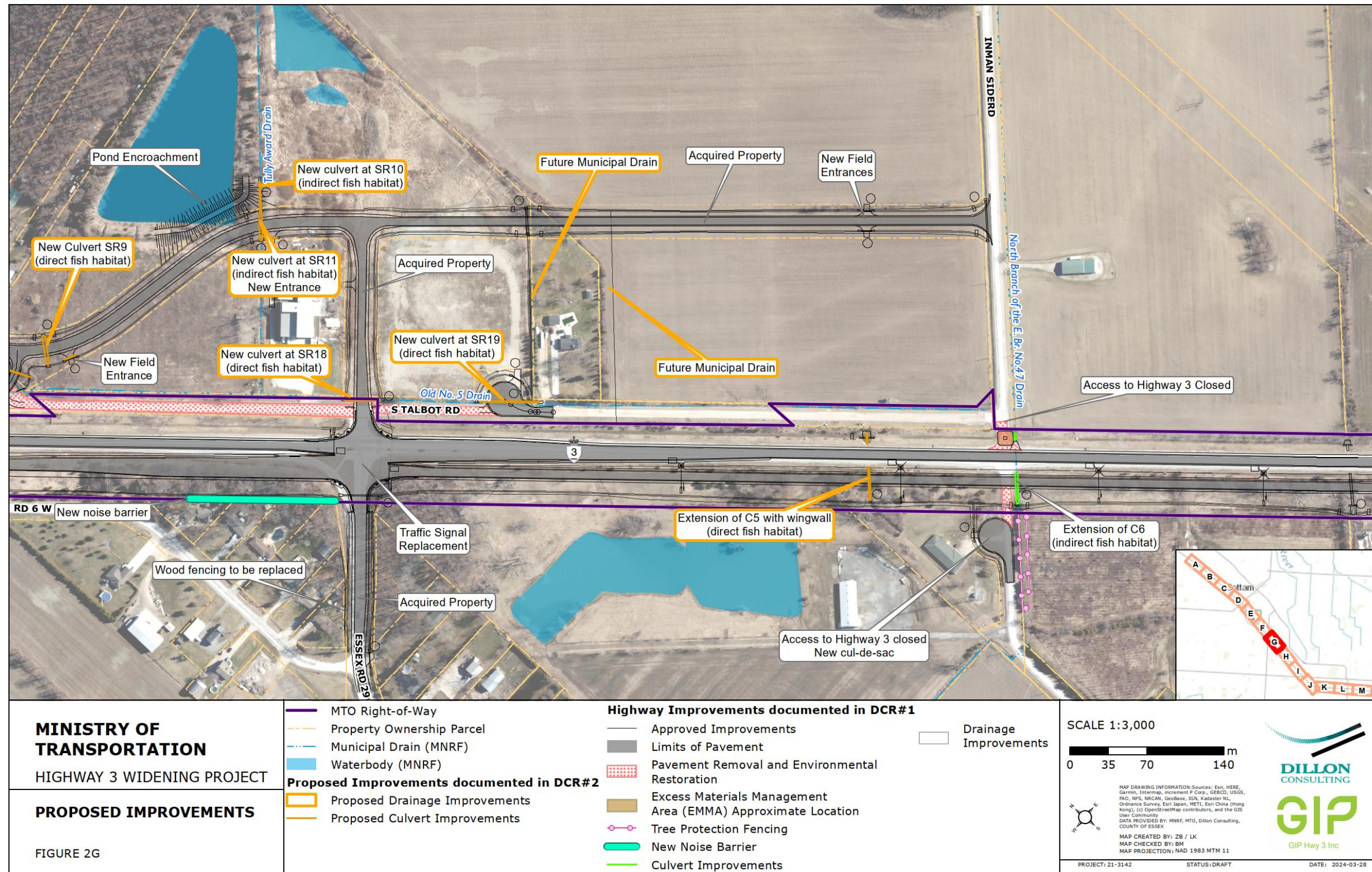


Figure 2H: Proposed Improvements

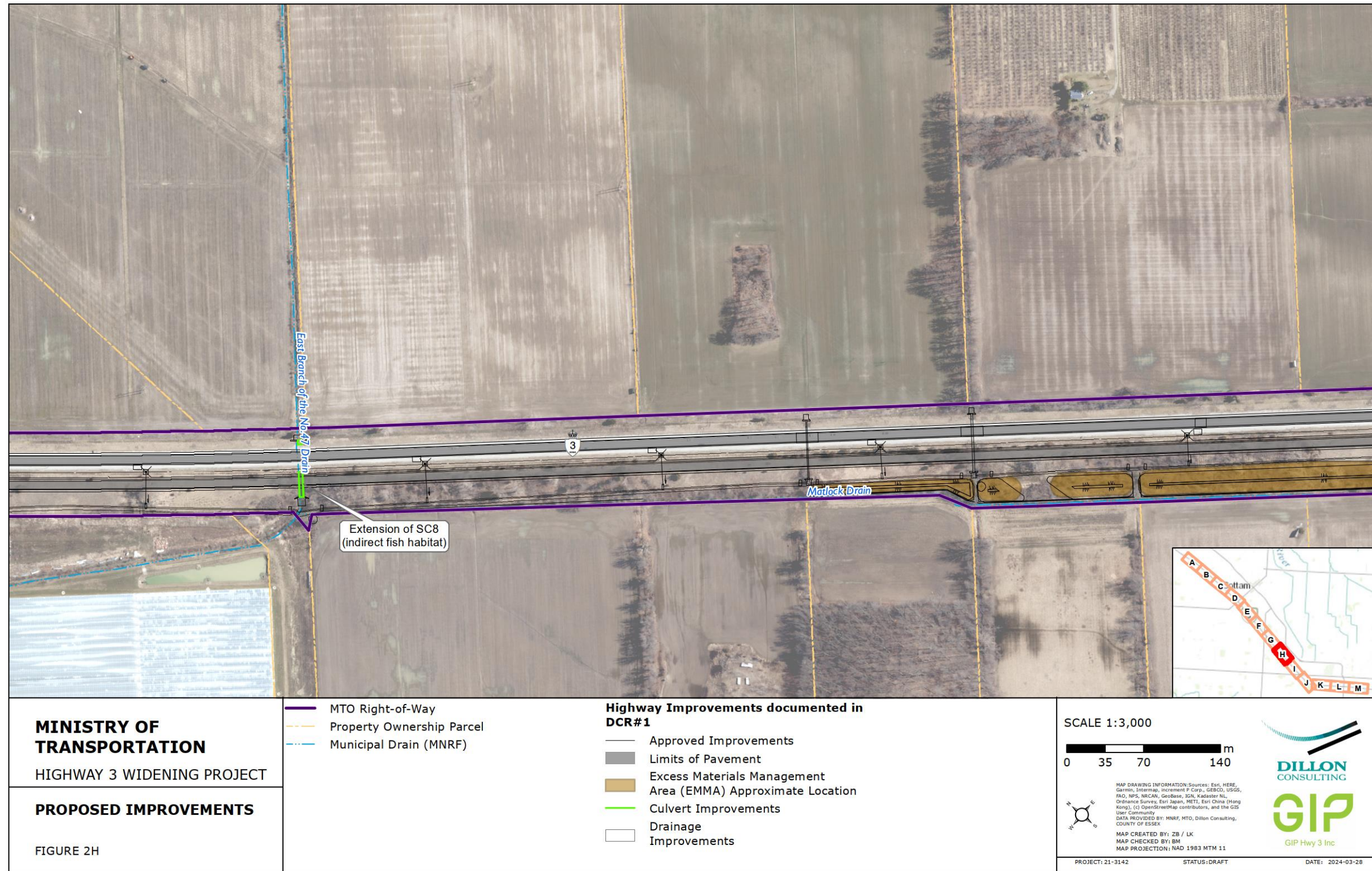


Figure 21: Proposed Improvements

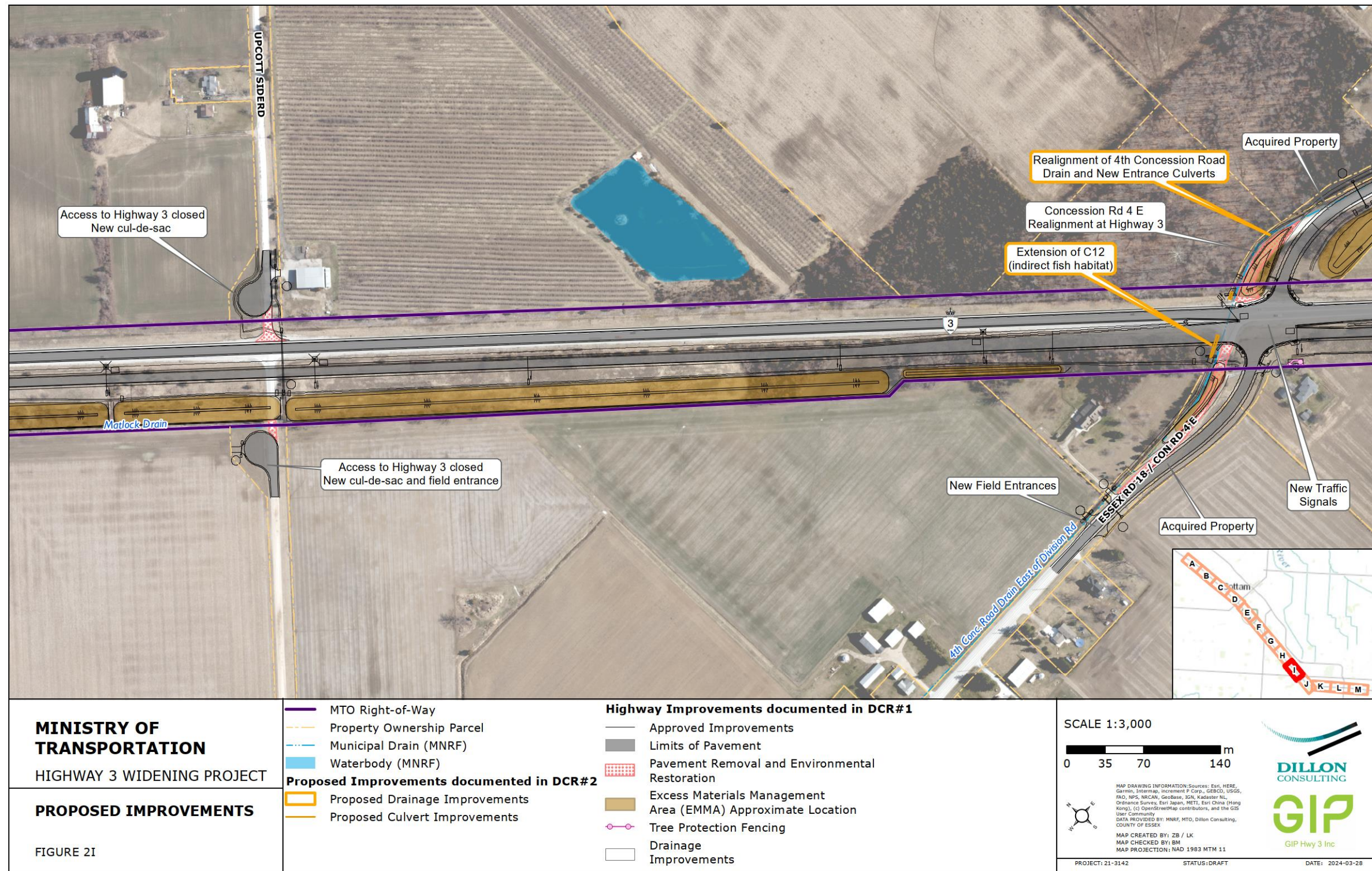


Figure 2J: Proposed Improvements

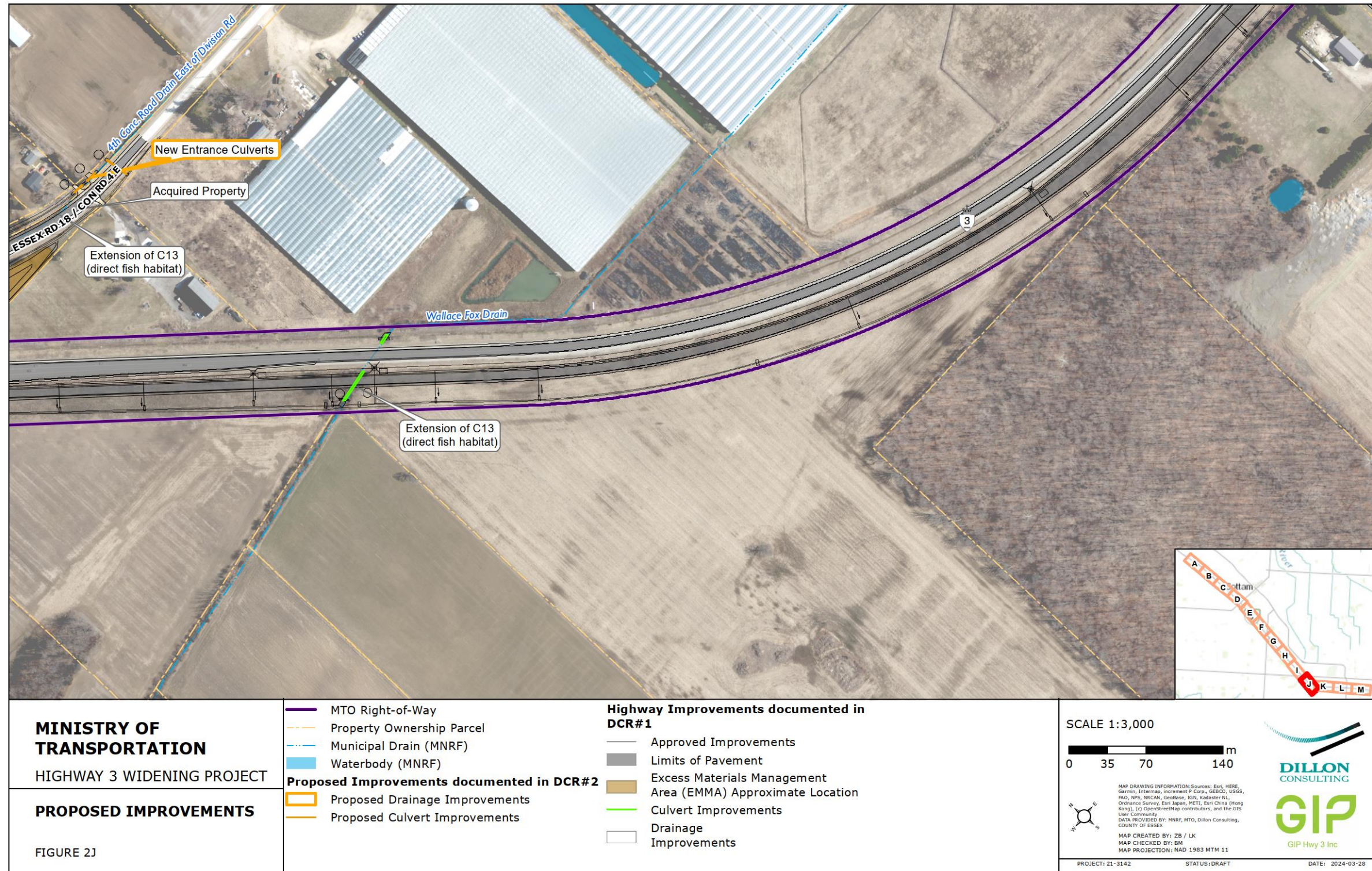
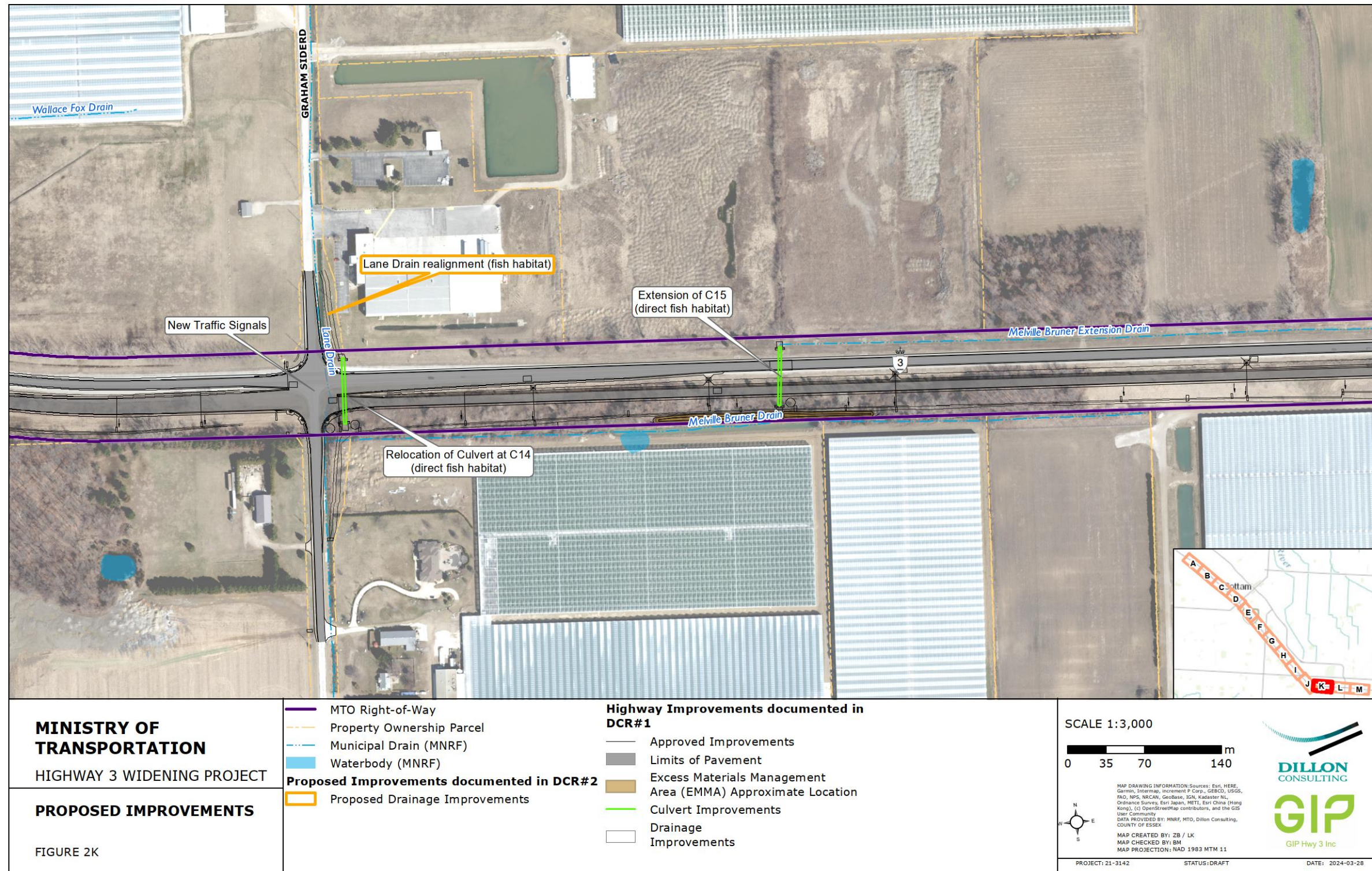
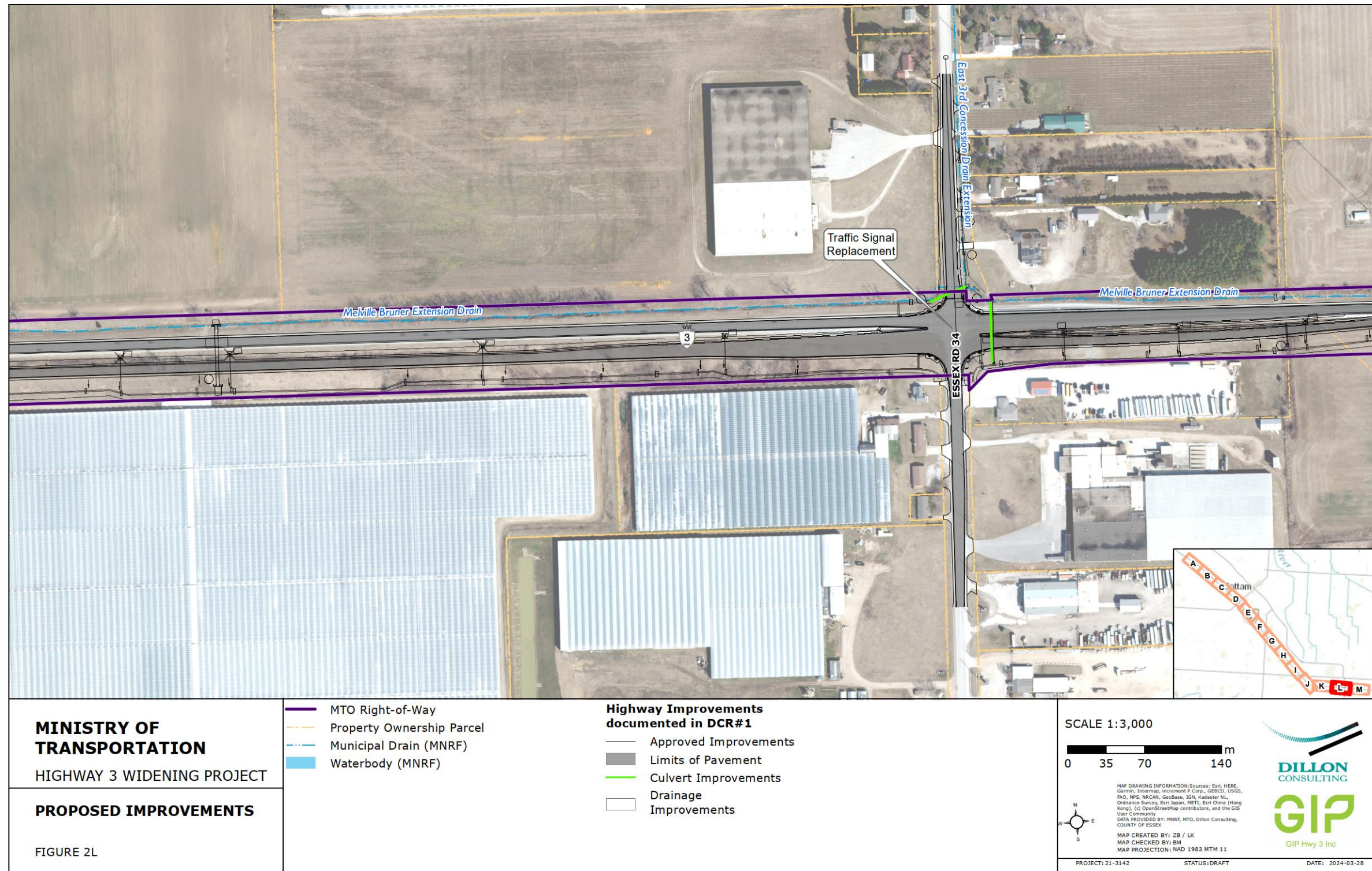


Figure 2K: Proposed Improvements



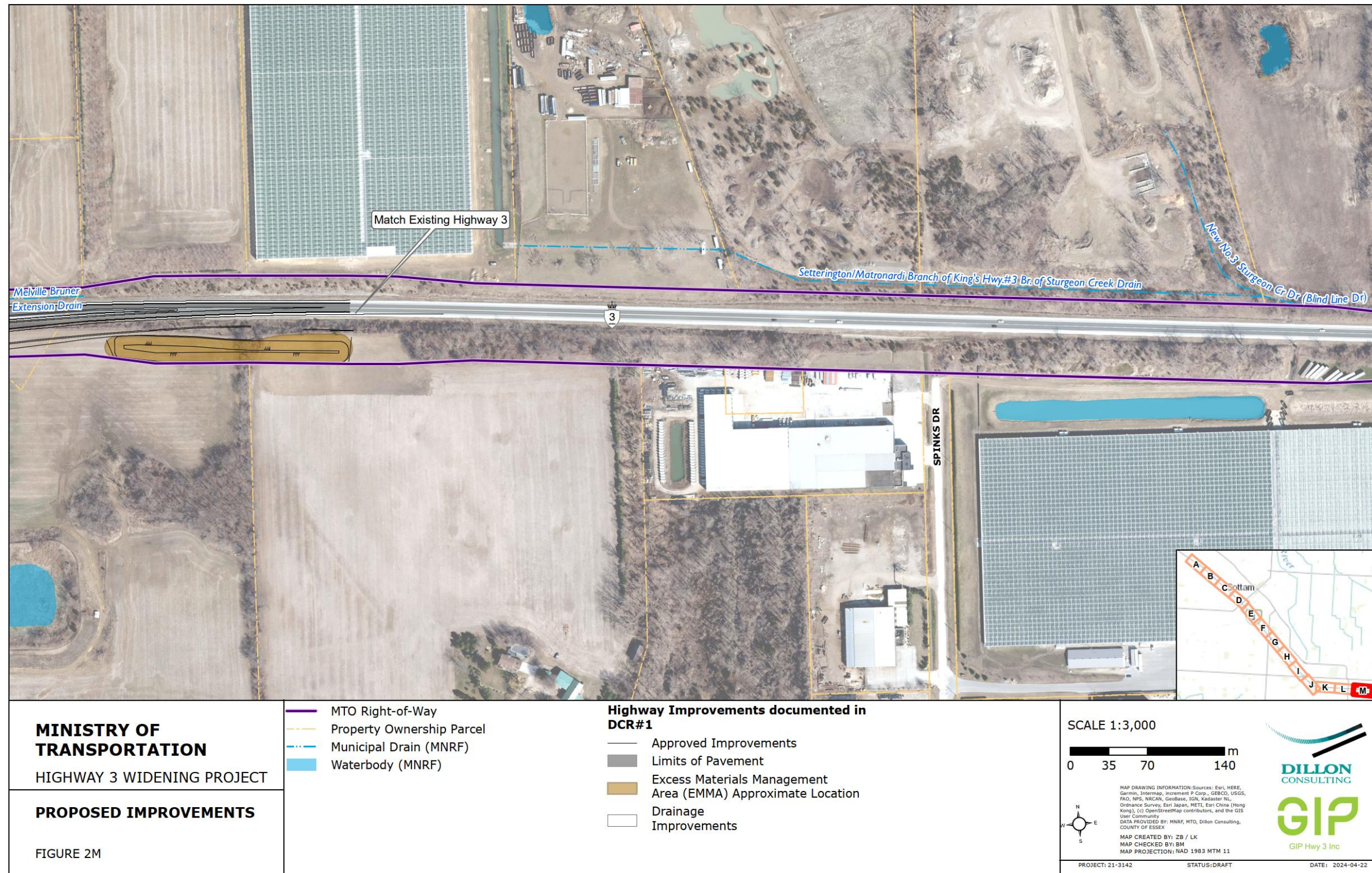
FILE LOCATION: K:\2021\213142\Product\Client\DCR 2\F2_Proposed Improvements_20240328.mxd

Figure 2L: Proposed Improvements



FILE LOCATION: K:\2021\213142\Product\Client\DCR 2\F2_Proposed Improvements_20240328.mxd

Figure 2M: Proposed Improvements



4.1 Site Preparation

Prior to construction, erosion and sediment control (ESC) measures shall be installed to isolate the drainage improvement work areas, with site-specific plans being implemented at fish-bearing drainage features, in accordance with the Erosion and Sediment Control Plan (ESCP). The ESCP was prepared to detail the ESC measures implemented for the project and associated maintenance and monitoring requirements.

Wildlife exclusionary fencing shall be installed along work areas adjacent to SAR snake habitat to isolate the work areas and prevent incidental harm to these species, in accordance with the Wildlife Fence Plan.

Vegetation removals have been minimized to the extent feasible, and rare plants shall be identified for salvage and relocation, where feasible, in consultation with interested agencies and Indigenous communities. Vegetation shall be removed within the right-of-way (ROW) in accordance with the Clearing and Grubbing Plan. Prior to any tree clearing, advance notification of 10 business days shall be provided to adjacent property owners/occupants and to municipalities for trees to be removed within municipal ROW.

4.2 Drainage Improvements

The proposed improvements will have a number of direct and indirect impacts to the existing drainage infrastructure, which includes storm sewers, ditches and crossing culverts, which are documented in the Drainage Hydrology, Hydraulics and Stormwater Management Plan prepared by GIP HWY3 INC.

The Project is located within an area of low topographic relief with relatively poor draining clayey soils. The surrounding lands are predominantly agricultural, and drainage is achieved through a network of municipal drains. The existing drainage system for the Project area consists of open ditches and culverts, which convey surface runoff to one of many municipal drains.

The requirements under the *Drainage Act* for the Project works were determined through a review of available drainage reports and discussions with the Town of Kingsville.

The majority of the proposed drainage improvements are documented in DCR #1.

A summary of the *Drainage Act* requirements associated with the proposed works documented in DCR #2 is provided in **Table 2** below.

Table 2: DCR #2 Drainage Act Approvals

Municipal Drain	Proposed Improvements	Drainage Act Requirement(s)
Gilboe Relief Drain	C2 Culvert Replacement	Section 78(1) Major Improvement Report
9th Concession Drain	C3 Culvert Extension	Section 78(5) Minor Improvement Report
	SC1 Culvert Removal	
	Drain Realignment Around Concession Road 9 Cul-de-Sac	
8th Concession Drain and Upper Portion of 8th Concession Drain	SC3 Culvert Removal	Section 78(1) Major Improvement Report
	SC4 Culvert Extension	
	Drain Realignment (Essex Road 27)	
	SR2 New Culvert	
	SR5 New Culvert	
Cottam Sideroad Branch of 7th Concession Drain	SC5 New/Relocated Culvert	Section 78(1) Major Improvement Report
	Drain Realignment	
	Culvert Replacement	
	Drain Extension to North	
No. 5 Drain	C4 Culvert Extension	Section 78(1) Major Improvement Report
	C5 Culvert Extension	
	SR18 New Culvert	
	SR19 New Culvert	
Schiller Branch Drain	SR9 New Culvert	Section 78(1) Major Improvement Report
	Drain Realignment	
	New/Relocated Private Entrance Culverts or Drain Enclosure Culvert	
	Possible Watershed Boundary Changes	Section 76 Report (as part of S78(1))
Tully Award Drain	SR10 New Culvert	Section 78(1) Major Improvement Report
	SR11 New Culvert	

Municipal Drain	Proposed Improvements	Drainage Act Requirement(s)
4th Concession Drain	C12 Culvert Extension	Section 78(1) Major Improvement Report
	Drain Realignment	
	EC11 New/Relocated Private Entrance Culvert	
	EC11A New/Relocated Private Entrance Culvert	
	EC29 New/Relocated Private Entrance Culvert	
New Municipal Tile Drain	New drain to provide legal drainage outlet for tiled properties north of Unnamed Road	Section 4 report
New Municipal Open Drain	New drain to provide legal drainage outlet for Unnamed Road using existing private ditch	Section 4 report

5.0

Environmental Impact Assessment and Mitigation Measures

During the Design-Build-Ready phase, and as documented in the 2021 TESR Addendum, GHD completed the five-year TESR review and reviewed the potential for direct and indirect environmental impacts as a result of the proposed improvements to Highway 3. The TESR Addendum identified measures to best mitigate these impacts. As part of the current Design-Build-Finance phase, the impact assessment and mitigation measures developed were reviewed and refined to address specific environmental concerns during construction.

The proposed drainage improvements documented in DCR #2 are anticipated to begin in July 2024, subject to approvals. Work will be completed within MTO and municipal-owned lands and the existing ROW. With appropriate mitigation measures implemented during construction, potential impacts can be avoided, mitigated or minimized to the greatest extent possible.

The following sections outline the potential natural, socio-economic, and cultural environmental impacts anticipated for the construction of the proposed drainage improvements. Environmental protection measures, mitigation measures, monitoring and contingency measures have been incorporated into the construction Contract and are summarized in **Table 4** in **Section 6.0**.

5.1

Drainage and Stormwater Management

Detailed hydrology and hydraulic analyses have been undertaken to evaluate the performance of the proposed drainage improvements. The analysis included an assessment of existing and proposed conditions such that impacts to flow and water level conditions can be evaluated. The results of the analysis indicate that impacts related to the proposed drainage improvements included in DCR #2 will be minimal, and drainage systems will be maintained throughout construction.

5.2 Excess Soil and Contaminated Material Management

5.2.1 Excess Soil Management

Any surplus earth material generated by the proposed drainage improvements shall be managed in compliance with the On-Site and Excess Soil Management Regulation (*O. Reg. 406/19*). As per the Earth Management Plan, all surplus soil generated by this Project is expected to be managed on-site and therefore is not considered excess soil as defined by *O. Reg. 406/19*. Placement of surplus soil shall be undertaken in consideration of adjacent land uses, soil concentrations, and potential receptors to minimize any potential adverse effects.

Excess Earth Management Areas (EMMAs) have been identified within the Highway 3 ROW where surplus soil is anticipated to be placed. Following final grading, these areas shall be vegetated with a native seed mix.

5.2.2 Contaminated Material

A Waste and Contamination Management Plan was prepared for this project, which identified areas with minor arsenic concentrations in the soil. Management of arsenic-impacted soils shall be undertaken in consideration of adjacent land uses, soil concentrations, and potential receptors to minimize any potential adverse effects. As such, this soil may be managed on-site EMMAs where it will be located 30 metres from a waterbody and buried a minimum of 0.5 metres or placed under a paved surface. ESC measures shall be maintained and monitored until exposed soil is stabilized, in accordance with the Erosion and Sediment Control Plan.

There is potential to encounter contaminated soils during construction which was not previously identified. If unknown contamination is discovered, the Waste and Contamination Management Plan outlines the procedure to be followed. Any contaminated soils leaving the Project shall be removed from the Contract Limits in accordance with *O. Reg. 406/19*, *Reg. 347 (General – Waste Management)*, and *O. Reg. 351/12 (Waste Management Systems)* under the *Environmental Protection Act (EPA)*. The soils shall be transported to an appropriate receiver as confirmed by a Qualified Person (QP).

5.2.3 Spills Handling

A Spill Management Plan has been developed for this project which identifies roles and responsibilities, including notification requirements, to follow in the event of a spill. In addition, the construction contract shall include provisions for the handling of spills during construction (MTO General Conditions of Contract). As required for MTO construction contracts, the General Conditions specify incident management under several pieces of legislation, for protecting the environment and natural features. Relevant legislation includes the *Environmental Protection Act*, the *Fisheries Act*, the *Gasoline Handling Act*, *Ontario Pesticides Act*, the *Ontario Water Resources Act* and *Transportation of Dangerous Goods Act*.

5.3 Natural Environment

5.3.1 Terrestrial Ecosystem

Natural environment investigations were initially completed during the Preliminary Design phase in 2001 and documented in the 2006 TESR, however, due to the age of the surveys, required updating. In 2020, the terrestrial ecosystem existing conditions for the Study Area were assessed by GHD and documented in a Terrestrial Ecosystems Assessment Report (GHD 2021) and the 2021 TESR Addendum. MTO subsequently prepared a Terrestrial Ecosystems Framework (September 2022) which summarized relevant vegetation, wildlife and SAR information from the Terrestrial Ecosystems Assessment Report (GHD 2021) to provide context for the impact assessment and mitigation recommendations.

The following section provides an overview of the natural environment in the Study Area and additional surveys that were completed by GIP HWY3 INC. Overall, impacts to wildlife and natural features were determined to be minimal and temporary in duration with the mitigation measures developed in place.

5.3.1.1 Vegetation Removals

Tree and vegetation removals and earth works will be required as part of the proposed drainage improvements. The anticipated tree/vegetation removals are not expected to impact natural features beyond the existing ROW and MTO and municipal owned lands. Most of the vegetation present within the ROW is low-sensitivity, disturbed habitat, but some small to medium-sized woodlands occur. Locally rare species are discussed in further detail below.

Potential impacts from tree and vegetation removal and earth works include:

- Increased erosion and sedimentation of lands adjacent to the construction area;
- Increased vulnerability of the areas cleared of vegetation to invasion by non-native species;
- Decreased shade and cover for fish and wildlife;
- Localized temporary displacement of wildlife due to disturbance associated with construction activity;
- Potential for imported materials (e.g., gravel) to be released to adjacent riparian habitat and displace native substrates;
- Social/aesthetic impacts;
- Decrease in natural diversity; and
- Decrease in ecosystem services, such as air quality regulation, greenhouse gas mitigation and stormwater control.

To mitigate potential impacts to vegetation adjacent to the proposed drainage improvements, erosion and sediment control measures shall be in place prior to vegetation removals.

Where feasible, vegetation removal shall occur during winter months or outside of sensitive wildlife periods.

Clusters of Swamp Rose-Mallow (Special Concern in Ontario), naturally occurring areas of native junipers (less than 1 m high) and locally rare plants will be offered to local interest groups and Indigenous communities for salvage and relocation.

A Landscape and Ecological Restoration Plan has been developed to provide compensation plantings for the trees being removed. This plan also requires that disturbed areas be re-stabilized and re-vegetated as soon as possible following disturbance using a native seed mix.

5.3.1.2

Invasive Species

Stands of Phragmites (*Phragmites australis ssp. australis*) can be found in some locations of the proposed drainage improvements. Phragmites is an invasive perennial grass native to Europe, which has invaded low-lying areas across southern Ontario in recent years. Phragmites grow at a rapid pace through the warmer spring and summer

months. The species spreads both by seed propagation, as well as through the spreading of rhizomes, allowing it to colonize new areas very quickly making it difficult to eradicate.

With the proposed drainage improvements, there is potential for additional spread of the species, and the opportunity to implement control measures is available. In 2020 and 2021, GHD conducted terrestrial field surveys and identified the general locations of Phragmites patches within the Study Area that were subsequently mapped in detail by MTO in 2022. Under the Ontario *Invasive Species Act* (ISA, 2015), vegetation and topsoil removed from these Phragmites areas shall be disposed of in a manner to prevent spreading.

In October 2023, GIP HWY3 INC. undertook confirmatory reviews to confirm the presence of invasive species. With the exception of Phragmites, all vegetation species observed were common roadside species, including weeds, and no specific eradication treatment for invasive species is recommended beyond the mitigation protocol for Phragmites.

Vegetation removals will include the removal of existing colonies of Phragmites. Removal of this species is considered a benefit to surrounding communities. To minimize potential spread of Phragmites as a result of disturbance, a Phragmites Mitigation Plan has been developed for implementation during construction and incorporated into the Earth Management Plan. In general, it is anticipated that Phragmites and Phragmites-impacted soils removed as part of earth excavation activities shall be buried 1 m deep on-site in the EMMAs as part of the earth excavation works. The remaining stands of Phragmites within the Highway 3 ROW will be mechanically and chemically treated in accordance with the Phragmites Mitigation Plan.

Mechanical removal of the plant in tandem with the earth excavation for the widening works will effectively remove the species from this area. Due to the ability of invasive species to easily spread through seed, the Contractor shall implement best management practices to prevent the introduction or spread of Phragmites, including proper soil management and equipment cleaning protocols, including the practices outlined in the Clean Equipment Protocol for Industry from the Ontario Invasive Plant Council (Halloran, J, *et al.*, 2013).

GIP HWY3 INC.'s Landscape Architect shall conduct vegetation monitoring site visits during the spring, summer and fall seasons each year for the three years of construction, to confirm the methods used were successful in eradicating the Phragmites from the site and to inspect for any visual evidence of Phragmites.

5.3.1.3

Wildlife and Wildlife Habitat

The background review completed by GHD in 2020 identified suitable habitat (watercourses and riparian vegetation) to support three herptile species of conservation concern; one turtle species, one frog species and one snake species. The mitigation measures included for Eastern Foxsnake (documented in **Section 5.3.1.4** of this report under Species at Risk) shall also serve to protect these herptiles.

During construction, the following temporary impacts to wildlife and wildlife habitat are anticipated:

- Disruption to wildlife movement and wildlife avoidance during active construction;
- Disturbance to herptiles that could be traveling through or utilizing riparian habitats within and adjacent to the construction area; and
- Permanent removal of riparian vegetation in the median with the potential to provide wildlife habitat.

The Contractor shall conduct daily visual inspections for wildlife in the active work areas, and if wildlife is encountered in the construction area, the Contractor shall be required to temporarily suspend work until the animal is out of harm's way. If the species persists in the work area, a person qualified to handle wildlife shall be contacted to relocate the animal.

5.3.1.4

Species at Risk

Since the 2021 Terrestrial Report was prepared by GHD, there have been legislative changes affecting two of the SAR species with potential to occur within the Study Area. Red-headed Woodpecker (*Melanerpes erythrocephalus*), listed as Special Concern under the ESA in the 2021 report, is now up-listed to Endangered (END) under both the ESA and SARA. While this species was not observed during field surveys, it has low potential to occur in the Study Area as there is suitable habitat of open, deciduous woodlands or forest clearings present.

Barn Swallow (*Hirundo rustica*) was listed in the 2021 Terrestrial Report as Threatened (THR) under both the ESA and SARA. This species has since been down-listed to Special Concern (SC) under the ESA. Barn Swallow and their nests were observed in the Study Area during field surveys. While no longer protected under the *Endangered Species Act* (ESA), they are still afforded protection under the *Migratory Bird Convention Act*.

The following sections detail the potential impacts to SAR with the potential to occur adjacent to culvert works, and proposed mitigation measures. In addition, SAR Awareness Training will be provided to site staff for the following species.

Eastern Foxsnake

The Eastern Foxsnake is listed as Endangered under the ESA and known generally to occur in Essex County where suitable habitat exists. No Eastern Foxsnake were observed during field surveys conducted by GHD as documented in the 2021 TESR Addendum. Previous consultation with MECP indicated that potential hibernacula habitat should be considered present and that the snakes may occur throughout the Study Area.

During construction, the following impacts to Eastern Foxsnake and its habitat are possible:

- Disruption to snake movement and avoidance during active construction;
- Disturbance to snakes that could be traveling through or utilizing riparian habitats within and adjacent to the construction area; and
- Permanent removal of riparian vegetation that provides suitable habitat.

The potential risk of impact to Eastern Foxsnake can be managed entirely through mitigation measures. This includes visual inspection of work areas and equipment for the presence of snakes during the active period (**April 1 to October 31**) and installation of exclusionary fencing prior to **April 1** to isolate work areas adjacent to Eastern Foxsnake Habitat.

SAR Bats

There is potential for SAR bats to be present within suitable roosting trees that may be proposed for removal. To mitigate potential impacts, tree removals shall occur outside of the bat maternity roosting period (**April 1 to September 30**).

5.3.1.5

Migratory Birds

A breeding bird survey was conducted by GHD in 2020. During this survey and other field surveys, a variety of common birds were observed. Eastern wood pewee, listed as Special Concern under the ESA and SARA, was also detected.

Trees and vegetation adjacent to the culvert works have the potential to provide suitable habitat for migratory bird nesting. During construction, the following temporary impacts to migratory birds are anticipated:

- Potential destruction of nests, eggs or young during construction; and
- Disturbance to migratory birds that could be utilizing the forests adjacent to the construction area.

Destruction and disturbance of active nests (with eggs or young birds), as well as wounding and/or killing protected species, is prohibited under the federal *Migratory Birds Convention Act* (MBCA, 1994). Potential impacts to migratory birds will be mitigated through the use of vegetation clearing windows to avoid the active nesting season (**April 1 to August 31**) and implementation of bird nesting preventative measures during the active nesting season.

5.3.2

Aquatic Ecosystem

GHD completed a Fish and Fish Habitat Existing Conditions and Impact Assessment Report (2021) as part of the 2021 TESR Addendum in accordance with the requirements of the Interim 2020 *MTO/DFO/MNDMNRF Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings, Version 4* (Fisheries Protocol) and the guidance provided in MTO's (2020) *Interim Environmental Guide for Fish and Fish Habitat* (Fish Guide). This assessment was undertaken to identify the impacts of the approved improvements to fish and fish habitat within the Study Area.

Table 3 provides additional details on the proposed drainage improvements included in DCR #2 and associated fish habitat information.

Table 3: Proposed Improvements in Fish Habitat

Municipal Drain	Proposed Improvements	Fish Habitat
Gilboe Relief Drain	C2 Culvert Replacement	Indirect
9th Concession Drain	C3 Culvert Extension	Direct
	SC1 Culvert Removal	
	Drain Realignment Around Cul-de-Sac	
8th Concession Drain and Upper Portion of 8th Concession Drain	SC3 Culvert Removal	Indirect
	SC4 Culvert Extension	Indirect
	Drain Realignment (Concession Road 8)	Direct
Cottam Sideroad Branch of 7th Concession Drain	SC5 New/Relocated Culvert	Direct
No. 5 Drain	C4 Culvert Extension	Direct
	C5 Culvert Extension	Direct
	SR18 New Culvert	Indirect
	SR19 New Culvert	Indirect
Schiller Branch Drain	SR9 New Culvert	Direct
Tully Award Drain	SR10 New Culvert	Indirect
	SR11 New Culvert	Indirect
4th Concession Drain	C12 Culvert Extension	Indirect
	EC11 New/Relocated Private Entrance Culvert	Indirect
	EC11A New/Relocated Private Entrance Culvert	Indirect
	EC29 New/Relocated Private Entrance Culvert	Indirect
	EC30 New/Relocated Private Entrance Culvert	Indirect

It was determined that these proposed drainage improvements are not likely to result in the death of fish or harmful alteration, disruption or destruction (HADD) of fish habitat if the proposed mitigation measures are implemented. In-water works shall occur from **July 16 to March 14** for all of the proposed drainage improvements identified in **Table 3**. Additional mitigation measures were identified for culverts SC1, C3, SC5, SR9, C12, SR16 and SR16A in Letters of Advice from Fisheries and Oceans Canada (DFO) which shall be incorporated into the construction contract. In accordance with the Letters of Advice, DFO shall be notified 10 days in advance of in-water work at these culverts.

As a result of riparian vegetation removal associated with these proposed drainage improvements, erosion and sediment transport are anticipated impacts of the project. An Erosion and Sediment Control Plan, including site-specific plans at these culvert locations, has been developed and shall be implemented during construction. Key measures are discussed in **Section 5.3.1.1** of this report.

5.4 Socio-Economic Environment

5.4.1 Construction Noise

Construction activities will vary temporally and spatially as the project progresses. Noise levels from construction at a given receptor location will also vary over time, as different activities take place and as activities change location within the ROW.

Temporary or short-term construction-related noise could impact receptors in the vicinity of the planned improvements based on the Construction Noise and Vibration Plan carried out for the various construction stages. Therefore, there is the potential for noise complaints from area residents based on the predicted noise impacts.

To reduce potential noise impacts, the Contractor shall implement a variety of site-specific best management practices during construction.

The following municipal by-law stipulate times of day during which construction may occur:

- **Town of Kingsville Noise By-Law (By-Law 28-2006):** Noise from construction or the operation of construction equipment in residential areas is exempt from general prohibitions of the by-law between the hours of 11:00 am to 4:00 pm on Sundays and between the hours of 7:00 am to 9:00 pm every other day.

A Municipal Noise By-Law exemption is not required for Provincial undertakings as stated in the Ontario *Legislation Act* (2006). However, it is recommended that additional mitigation measures be considered and implemented during construction work adjacent to residential areas if it is determined that there is a need to further reduce noise impacts (e.g., if persistent complaints arise). Any noise complaints raised during construction shall be addressed following processes outlined in the Project's Communications Plan, which includes the following:

- Document the noise/vibration complaint, including the date and time of the complaint and contact information of the complainant. The specific location, duration, time, and character of noise and/or vibration heard shall be included in the complaint to assist in the investigation and mitigation process;
- Investigate the noise/vibration complaint to identify the source of the noise and/or vibration issue;
- Conduct sound level measurements to determine the severity of the noise/vibration impacts at the affected area. If noise levels are confirmed to be excessive, then implement best practice noise/vibration control measures to minimize or eliminate the source of the complaint. Document the mitigation measures in a log; and
- Follow up with the complainant providing results of the noise complaint investigation, including steps/actions taken to mitigate or limit future incidents.

5.4.2 **Vibration**

No representative receptors were identified as having the potential to experience vibration impacts higher than the 5.08 millimeters per second vibration criterion for structural safety set by the Federal Transit Administration (FTA). Best management practices shall be implemented during construction to minimize potential vibration impacts on nearby sensitive receptors.

5.4.3 **Climate Change**

To support the MTO's mandate to develop sustainable infrastructure that accounts for climate change, the Drainage Team completed the hydrologic assessment considering MTO Highway Standards Branch Engineering Memorandum #2016-14 "Implementation of the Ministry's Climate Change Consideration in the Design of Highway Drainage Infrastructure". As well, the hydraulic analysis of the crossings was completed using methods and software acceptable to MTO technical design standards, including the Highway Drainage Design Standards (2008) and the MTO Drainage Manual.

5.4.4 **Air Quality**

Localized air quality may be adversely affected during construction due to dust generation from construction activities and equipment movements. Fugitive dust and air quality impacts on adjoining land uses are anticipated to be minimal and short in

duration. Fugitive dust impacts to the travelling public on Highway 3 from construction activities are anticipated to be negligible.

Provisions to minimize potential air quality-related impacts during construction include the use of best management practices for dust and other emissions.

The Contractor shall follow the Best Management Practices Plan (BMPP) for Fugitive Dust included in the Construction Management Plan to manage fugitive dust emissions. Any dust complaints raised during construction shall be addressed following processes outlined in the Communications Plan, and outlined in **Section 5.4.1** above.

5.4.5 Access to Properties During Construction

Access to residential, industrial and commercial properties within the Project Area shall be maintained throughout construction.

5.5 Cultural Resources

5.5.1 Archaeology

Archaeological Assessments (AA) were previously conducted as part of the TESR Review stage. Several Stage 2, 3 and 4 AA Reports were submitted to MCM and have been accepted into the Ontario Public Register of Archaeological Reports. As a result of these assessments, sites with archaeological potential within the Project Limits have been excavated and documented to the extent required under the *Standards and Guidelines for Consultant Archaeologists* (MTC, 2011) and no further assessment is required.

Should unassessed buried archaeological resources be uncovered during construction, these may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario *Heritage Act*. Upon discovering the archaeological resources, the Contractor shall immediately cease alteration of the local site area and notify the Contract Administrator, who shall engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario *Heritage Act*.

Any person discovering human remains shall immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services. Notification to the project Environmental Manager and MTO Environmental Planner shall occur so the MTO Regional Archaeologist can be informed.

6.0 Summary of Environmental Concerns and Commitments

The environmental mitigation measures recommended in the 2006 TESR and the 2021 TESR Addendum were reviewed and revised based on the final Detail Design. The proposed drainage improvements are not anticipated to have significant impacts on the natural, cultural, or socio-economic environment in close proximity to the Project Area. To the extent possible, adverse impacts can be avoided or mitigated by the measures and provisions outlined in **Table 4** that shall be carried forward into the construction contract.

6.1 Environmental Clearance and Approvals

As required by the MTO Class EA, all permits, approvals, and exemptions required for the Project shall be obtained prior to Environmental Clearance – Construction Start being issued. Design-related environmental approvals and permits required prior to construction include:

- Acceptance of *Drainage Act* requirements listed in **Table 2** for applicable proposed drainage improvements and adoption of municipal by-law(s); and
- Environmental Clearance – Construction Start following the DCR comment period and receipt of all PLAAs for works detailed in this DCR #2.

In addition, the following authorizations/licenses are required prior to handling wildlife during construction:

- Obtain a Wildlife Scientific Collector's Authorization from the Ministry of Natural Resources and Forestry (MNRF) for wildlife salvage; and
- Obtain a License to Collect Fish for Scientific Purposes from MNRF for fish salvage under the *Fish and Wildlife Conservation Act*.

Table 4 Summary of Environmental Concerns and Commitments

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
1. Drainage and Stormwater Management	1.1. Surface water quality and quantity	Potential impacts to quantity and quality of surface water to receiving watercourses.	MECP, MNRF, ERCA, County of Essex, Town of Kingsville	<ul style="list-style-type: none"> • An Erosion and Sediment Control Plan (ESCP) shall be included in the construction Contract to mitigate temporary and long-term impacts to natural areas. Site-specific ESC measures have been developed for fish-bearing drainage features. • ESC measures shall be installed prior to construction works adjacent to natural features and remain in place until final vegetation becomes established. • ESC measures shall be installed within the drainage network to mitigate impacts to existing culvert locations and locations where drainage networks leave the construction limits.
2. Excess Soil and Contaminated Material Management	2.1. Excess Soil Management	Potential impacts to adjacent natural features from placement of excess earth materials.	Ministry of the Environment, Conservation and Parks (MECP), ERCA, County of Essex, Town of Essex, Town of Kingsville	<ul style="list-style-type: none"> • All surplus soil generated by this Project is anticipated to be managed on-site in Excess Material Management Areas (EMMAs) and therefore is not considered excess soil as defined by O. Reg. 406/19. • EMMAs shall have ESC measures in place to prevent sediment release to surrounding lands. • Soil placement activities shall be undertaken in consideration of adjacent land uses, soil concentrations, and potential receptors to minimize any potential adverse effects. • Placement of surplus soils shall be done in a manner/location so as not to affect current or future surface water drainage. • Following final grading, areas where excess soils have been placed shall be vegetated with a native seed mix.
	2.2. Contaminated Material	Potential to encounter contaminated soils during construction which was not previously identified.	MECP, Ministry of Natural Resources and Forestry (MNRF), ERCA, County of Essex, Town of Essex, Town of Kingsville	<ul style="list-style-type: none"> • Management of arsenic-impacted soils shall be undertaken in consideration of adjacent land uses, soil concentrations, and potential receptors to minimize any potential adverse effects. • Soil in areas with minor arsenic concentrations may be managed on-site and reused under pavement or within the EMMAs buried at a depth of 0.5 metres. ESC measures shall be maintained and monitored until exposed soil is stabilized. • Any unknown contaminated soils, or soil contaminated as a result of a spill shall be removed from the Contract Limits in accordance with O. Reg. 406/19, Reg. 347, and OPSS 180 as applicable. The soils shall be transported to an appropriate receiver as confirmed by a Qualified Person (QP). • Prior to soil leaving the Contract Limits, the QP shall determine if a project area notice needs to be filed on the Excess Soils Registry. • If soils leave the Contract Limits, they shall be accompanied by a hauling record that meets the requirements of O. Reg 406/19 and the Environmental Protection Act.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
	2.3. Spills Handling	Potential adverse impacts of spills on environment and natural features including release of deleterious substances.	MECP, Ministry of Natural Resources and Forestry (MNRF), ERCA, County of Essex, Town of Essex, Town of Kingsville	<ul style="list-style-type: none"> • Hazardous soils that exceed Reg. 347 Schedule 4 are considered subject waste and shall be managed in accordance with OPSS 180.07.07 and Reg. 347 including registration of the waste. • Spills shall be managed in accordance with the Spill Management Plan. • The spill kit on site shall contain a supply of absorbent products such as booms, pads and socks. • MTO General Conditions of Contract specifies incident management requirements following relevant legislation including, Environmental Protection Act, Fisheries Act, Gasoline Handling Act, Ontario Pesticides Act, Ontario Water Resources Act and Transportation of Dangerous Goods Act.
3. Natural Features	3.1. Vegetation Removals	<p>Increased erosion and sedimentation of lands adjacent to the construction area.</p> <p>Increased vulnerability of the areas cleared of vegetation to invasion by non-native species.</p> <p>Decreased shade and cover for fish and wildlife.</p> <p>Localized temporary displacement of wildlife due to disturbance associated with construction activity.</p> <p>Potential for imported materials (e.g., gravel) to be released to adjacent riparian habitat and displace native substrates.</p> <p>Social/aesthetic impacts.</p> <p>Decrease in natural diversity.</p>	MNRF, ERCA, County of Essex, Town of Essex, Town of Kingsville	<ul style="list-style-type: none"> • Clearly demarcate work limits at outset of construction and minimize unnecessary vegetation clearing. • Identify naturally occurring areas of select plants within the highway corridor; primarily locally rare plants, native junipers (less than 1m high) and Swamp Rose-Mallow (provincially listed as Special Concern). Efforts shall be made to salvage and relocate these select plants. • Vegetation near areas where swamp rose mallow was observed to occur shall be avoided where feasible, and disturbance limited. Wherever possible the health and integrity of the landscape surrounding these clusters (at culvert C4) shall be maintained. • Where feasible, vegetation removal shall occur during winter months or outside of sensitive wildlife periods. • Appropriate vegetation clearing techniques shall be used (e.g., felling trees away from retained natural areas and watercourses) in accordance with the Clearing and Grubbing Plan; • Avoid working underneath the canopy of existing trees to be retained. Where equipment shall operate in close proximity to trees to be retained, prune branches using best management practices to mitigate impacts to trees. • For trees within the municipal ROW, GIP HWY3 INC. shall notify municipalities prior to the removal of existing trees ten days prior to the removal. • Existing trees scheduled for removal shall be compensated for with replacement trees. Replacement trees shall be planted in accordance with the Landscape and Ecological Restoration Plan. • Where excavation is required in close proximity to trees, tree roots are to be cut/pruned to the face of the excavation with a clean and sharp handsaw or loppers. Pruning cuts shall result in a clean cut with root bark securely attached at either side of the cut.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
		Decrease in ecosystem services, such as air quality regulation, greenhouse gas mitigation and stormwater control.		<ul style="list-style-type: none"> • In dust-sensitive areas (e.g., near the watercourses, etc.) control dust using water and not chemical suppressants. • Conduct equipment maintenance and refueling at the designated and properly contained maintenance areas in the works yard or at commercial garages located well away from watercourses outside retained vegetation areas. The Contractor shall have a Spills Management Plan and required materials on site at all times in accordance with OPSS 100. • Ensure that all construction machinery is cleaned and maintained prior to arrival on-site to prevent the introduction of pollutants or exotic invasive species. • Temporarily stockpiled soil, debris or other excess materials, and construction-related materials, shall be properly contained (e.g., inside silt fencing) in areas separated at least 30 metres from the watercourses in accordance with OPSS 180. Construction materials and debris shall be removed and appropriately disposed of following construction. Cut and grubbed material shall be disposed of through chipping or other appropriate means, in accordance with OPSS 180. • Re-stabilize and re-vegetate exposed surfaces as soon as possible following disturbance, per OPSS 804 using native seed identified in the Landscape and Ecological Restoration Plan. • All ESC measures shall be in place prior to the start of construction and remain in place until restoration is complete and disturbed areas are stabilized against erosion. • Inspect ESC measures weekly and following rainfall events, and repair as required. • Mesh or netting-type stabilization material shall not be used on site. • ESC measures shall be monitored weekly and/or after every 10 millimetres or greater rainfall event, as they could require periodic cleaning, maintenance and/or reconstruction. If deficiencies are found, they shall be repaired and/or replaced promptly. • Grading, placement of topsoil and seeding specifications to be implemented to decrease erosion potential and promote suitable native vegetation regeneration. • Disturbed areas along drains shall be re-vegetated with species native to the area to minimize invasion and colonization by non-native species and increase shade/cover for wildlife. • Restore all disturbed areas to pre-construction conditions with native seed mix and stabilize within 45 days to prevent erosion. • Final cover, including seeding and erosion control blanket, shall be completed by November 1 of any given year.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
				<ul style="list-style-type: none"> An inspection log shall be maintained by GIP HWY3 INC. and kept up to date and made available for review by applicable authorities.
	3.2. Invasive Species	Potential spread of Phragmites.	MNRF, MECP, ERCA, County of Essex, Town of Essex, Town of Kingsville	<p>A Phragmites Mitigation Plan has been developed for implementation during construction, and incorporated into the Earth Management Plan. General mitigation measures include:</p> <ul style="list-style-type: none"> Phragmites and Phragmites-impacted soils are anticipated to be buried 1 metre deep on-site in the EMMAs as part of the earth excavation works. Mechanical removal of the plant shall be undertaken in tandem with the earth excavation. In accordance with OPSS 206, the Contractor shall implement best management practices to prevent the introduction or spread of Phragmites, including proper soil management and equipment cleaning protocols, including the practices outlined in the Clean Equipment Protocol for Industry from the Ontario Invasive Plant Council (Halloran, J, et al., 2013). GIP HWY3 INC.'s Landscape Architect shall conduct vegetation monitoring site visits during the spring, summer and fall seasons each year for the three years of construction, to confirm the methods used were successful in eradicating the Phragmites from the site and to inspect for any visual evidence of Phragmites. Care shall be taken to prevent the release of Phragmites seeds and rhizome fragments during transport. All plant materials and infested soils shall be loaded into an enclosed container, or secured in trucks with a cover/tarp to prevent the release of seeds along other roadways during the transportation process. Special care shall be taken to ensure the tarps are securely fastened and functioning to contain all plant materials and soil when high winds and/or rain is present as this may increase the potential for plant material spread.
	3.3. Wildlife and Wildlife Habitat	Disturbance to migratory bird nesting and/or bat maternity roosting areas. Disruption to wildlife movement and wildlife avoidance during active construction.	MNRF, ERCA, County of Essex, Town of Essex, Town of Kingsville	<ul style="list-style-type: none"> Where feasible, vegetation removal shall occur outside of the migratory bird nesting window (April 1 to August 31) and trees outside of the bat maternity roosting season (April 1 to September 30). Conduct visual inspections for wildlife prior to the start of construction each day and regularly throughout the day during the active season. This shall include a thorough walk-through of the work area and searching any vegetation, brush piles, logs or rock piles and equipment. If wildlife are observed, work shall be temporarily suspended until the species is out of harm's way.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
		Disturbance to herptiles that could be traveling through or utilizing riparian habitats within and adjacent to the construction area. Permanent removal of vegetation with the potential to provide wildlife habitat.		<ul style="list-style-type: none"> Immediately upon observation of an actively nesting female turtle, personnel and vehicles shall clear the area within the turtle’s line of sight as much as possible to allow the female to finish laying. Startling a nesting female could lead to abandonment of the partially laid nest before the eggs are concealed. A Qualified Biologist shall be consulted immediately to discuss mitigation options, including measures to take if relocation of hatchlings or egg salvage is needed. If a turtle or snake nest or overwintering site is discovered, work shall be temporarily suspended and a Qualified Biologist shall be contacted. All injured wildlife (SAR or non-SAR) shall be transported to an authorized wildlife rehabilitator by a representative of Hwy 3 GIP Inc. Euthanasia of injured wildlife is not permitted unless conducted by an authorized wildlife rehabilitator. If an animal is unable or unwilling to flee from human presence, it is likely injured. Signs of wildlife injury include obvious wounds, broken limbs, lethargy, lameness, and difficulty standing or breathing. Injured wildlife experience high levels of stress and pain, and their behaviour is usually unpredictable and defensive, posing an increased risk to handlers. Always use extreme caution when handling injured wildlife, wear thick gloves, and limit handling as much as possible. Avoid aggravating any obvious injuries such as wounds or broken bones. Transport injured wildlife in a dark container where possible. Construction activities shall be limited to the work area, and if necessary, sensitive features shall be demarcated if they are located immediately adjacent to the work zone.
	3.4. Species at Risk	Potential to impact Eastern Foxsnake and SAR Bats within Study Area.	MNRF, ERCA, County of Essex, Town of Essex, Town of Kingsville	<p>SAR Awareness Training will be provided to site staff for Eastern Foxsnake and Bats.</p> <p>Eastern Foxsnake:</p> <ul style="list-style-type: none"> Contractors shall be vigilant and complete a visual inspection of work areas, machinery and equipment each day prior to commencement or when moving to new locations, throughout the active period for Eastern Foxsnake (April 1 to October 31). This shall include a thorough walkthrough of the work area and searching any brush piles, logs or rock piles. Measures shall be put in place to prevent Eastern Foxsnake from entering construction areas. These measures shall include the installation of temporary fencing prior to April 1 to exclude Eastern Foxsnake and contain the work area in proximity to drainage features and other potential natural habitats. Exclusion fences shall be included in the Contract drawings and specifications. Fencing shall be inspected daily during active construction to check for breaches of instability and shall be maintained from April 1 to October 31.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
				<ul style="list-style-type: none"> • Exclusion fencing shall be installed according to GIP HWY3 INC.'s Wildlife Fence Plan and to the guidelines detailed in the Species at Risk Branch Best Practices Technical Note on Reptile and Amphibian Exclusion Fencing (MNRF 2013). No synthetic plastic ESC netting or fencing shall be used in Eastern Foxsnake habitat due to the risk of entanglement/injury/ death of reptiles. At these locations, alternatives such as Curlex Netfree© blanked or rip rap over geotextile fabric shall be used for erosion control to prevent entanglement of Eastern Foxsnake. <ul style="list-style-type: none"> ○ Inspect wildlife exclusion fences periodically for damages that may affect the integrity of the fence or allow passage of wildlife through it. Inspections shall occur following spring melt and heavy rain fall events, similar to inspections to ESC controls; ○ In order to prevent wildlife from encroaching into designated work areas, exclusion fences shall be designed specifically to deter Eastern Foxsnake, with a smooth material to prevent these snakes from climbing, and stakes shall be on the activity side; and ○ Temporary exclusion fencing shall be installed in locations that have been identified to provide preferred suitable habitat to Eastern Foxsnake. Eastern Foxsnake in the Carolinian region prefer to inhabit cultural meadow, thickets, wetlands and drain communities as movement and foraging corridors. Eastern Foxsnake tends to avoid inhabiting agricultural lands as they lack vegetation for cover and are easily susceptible to predation. • If Eastern Foxsnake are encountered in the construction area, work shall be suspended until the animal is out of harm's way. If the species persists in the work area, a person qualified to handle Eastern Foxsnake shall be contacted to relocate the animal. • Disturbance to brush piles/logs shall be avoided wherever possible during the active season. If a brush/log pile shall be moved or disturbed outside this window, it shall be carefully inspected for snakes. If eggs or hatchlings are present, work shall cease and a qualified terrestrial biologist and MECP shall be contacted to discuss mitigation options. • Work occurring between September to late May has the potential to discover hibernacula, particularly in areas where there are animal burrows, rock crevices, gabion baskets or foundations are present. If Eastern Foxsnake is discovered, work in this area shall halt and a qualified terrestrial biologist shall be contacted to discuss mitigation options. • GIP HWY3 INC. shall retain a qualified terrestrial biologist experienced in the verification and relocation of SAR snakes and other wildlife.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
				<ul style="list-style-type: none"> Construction equipment that is left idle for over one hour or is parked overnight in the active period shall be inspected for the presence of Eastern Foxsnake before (re)ignition. This visual examination shall include all lower components of the machinery, including operational extensions and running gear. <p>SAR Bats:</p> <ul style="list-style-type: none"> Tree removals shall occur during winter months or outside of the bat maternity roosting season (April 1 to September 30).
	3.5. Migratory Birds	Potential removal, disturbance or destruction of avian nests, eggs or young prior to and during construction. Disturbance to migratory birds that could be utilizing the forests adjacent to the construction area.	MNRF, Environment and Climate Change Canada	<p>To protect birds and comply with the <i>Migratory Birds Convention Act</i> (1994), the following measures shall be incorporated into the construction contract:</p> <ul style="list-style-type: none"> Install and maintain bird nesting preventative measures at concrete culverts that have potential to provide suitable nesting habitat during the active nesting period (April 1 to August 31). Ensure that no bird nests shall be removed or disturbed in accordance with the MBCA, SARA, and ESA during structure work. Where wildlife or wildlife nests are encountered, a qualified terrestrial biologist shall be consulted on appropriate next steps. Avoid vegetation clearing during the breeding bird season (April 1 to August 31). If vegetation removal cannot be avoided during this time frame, then a nest sweep survey shall be conducted to assess if the habitat provides any nesting structures for avian species. Vegetation clearing shall take place within 48 hours of the inspection. If active nests are observed, a buffer will be identified for the nest and removals cannot occur until fledglings have left the nest, as confirmed by a qualified biologist. Workers shall be vigilant and check works areas for the presence of breeding birds and nest containing eggs and young. If breeding birds and/or nests are encountered, work shall not continue until after August 31 or as soon as it has been determined that the young have left the nest.
	3.6. Aquatic Ecosystems	Potential impacts to water temperature and increased erosion potential with the removal of riparian vegetation.	MNRF, ERCA, DFO	<ul style="list-style-type: none"> In accordance with the Letters of Advice, DFO shall be notified 10 days in advance of in-water work at culverts SC1, C3, SC5, SR9, C12, SR16 and SR16A. Implementation of in-water works within direct and indirect fish habitat from July 16 to March 14 of any given year (no in-water works between March 15 to July 15), to protect sensitive life stages/processes of fish.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
		<p>Potential impediment of fish passage during unwatering. Potential impacts as a result of a release of deleterious materials (e.g., oil, fuel, debris, grease) into the drains and any heavy equipment entering a waterbody.</p>		<ul style="list-style-type: none"> • Where possible, in-water works shall be conducted in-the-dry during low flows or when flows are non-existent. • Work shall be scheduled to avoid wet, windy and rainy periods to control erosion and sedimentation. • Design and implement isolation/containment system to delineate temporary in-water work zones and to maintain clean flow downstream/around the work zone at all times. • When temporary flow control shall be undertaken for the work it shall be according to the Contract Documents as per OPSS 182 and 517 and relevant permits and supported by all appropriate erosion and sediment control measures to isolate the temporary instream construction zones required for the works. • When using a pump, the intake shall be controlled to prevent entry of fish and other aquatic wildlife (screen any water intakes or outlet pipes to prevent entrainment or impingement of fish). • Limit access to banks to protect riparian vegetation and minimize bank erosion. • Only clean materials free of fine particulate matter shall be placed in the water for temporary construction measures (e.g., coffer dams shall be constructed of ‘pea gravel’ bags, geotextile fabric, sheet pile or other clean material). • Unless specified in the Contract Documents, vehicles and equipment shall not enter or be operated in the municipal drains or on waterbody banks or in riparian vegetation areas. • Vehicular and equipment maintenance and refueling shall be conducted as far away from waterbodies, waterbody banks and riparian vegetation areas as possible and practical (minimum 30 metres away), and shall be controlled to prevent any discharge of equipment fuels and fluids onto the ground or into waterbodies. • Ensure that machinery arrives on site in a clean condition and maintained free of fluid leaks, invasive species and noxious weeds. • Operate, store and maintain all equipment and associated materials in a manner that prevents the entry of any deleterious substance to the waterbody. • All stockpiled materials, including but not limited to excavated overburden and topsoil, excess materials, construction debris and containers shall be stored and stabilized in a manner that prevents them from entering any waterbody. • All construction debris and litter shall be removed frequently. • All materials used to provide environmental protection shall not contain deleterious substances.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
				<ul style="list-style-type: none"> • All exposed soils or disturbed areas that drain into a drain/watercourse shall be treated with seed and cover according to OPSS 804 immediately after exposure or upon completion of the work in or around the drain/watercourse or on the drain/watercourse bank. • All excess material shall be managed in accordance with the Earth Management Plan. • The Spill Management Plan shall be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site. • As a general condition of the contract, the Contractor shall be responsible for the control of dust for all road works. • Construction of pools in waterbody beds, shall be according to OPSS 821. • Implement the Erosion and Sediment Control Plan to mitigate impacts to fish and fish habitat. • Install appropriate ESC measures (e.g., silt fence, filter rolls, check dams) prior to clearing and grading. • ESC measures shall remain in place until disturbed soils have stabilized naturally or covered with rock, where proposed on drawings. • Watercourse embankments shall be restored and stabilized immediately before removing all site isolation measures. • Stockpiled organic material and soils shall be placed away from all watercourses and protected (i.e., temporarily stabilized). • Excavated bank material shall be temporarily stored within the ROW and reused. Any extra material shall be managed in accordance with the Earth Management Plan. • Any fish confined or trapped within the isolated areas shall be removed by a qualified biologist under a licence from the MNRF prior to dewatering. Only clean materials (i.e., free of particulate matter) shall be used for cofferdams. • Municipal drains shall not be diverted or blocked. • Replacement of an existing culvert shall be designed in a manner not to impede fish passage; • The Environmental Inspector shall monitor construction activities in and around the municipal drains and ensure all related mitigation measures are properly installed and maintained, and are functioning effectively.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
				<ul style="list-style-type: none"> • All ESC measures shall be integrated with the construction operation schedule. Operations near or in municipal drains shall not commence until temporary ESC measures have been installed. In the event that the Contract Administrator determines that controls are unacceptable or ineffective, the Contractor shall cease the offending operations and operations shall remain suspended until otherwise directed by the Contract Administrator in writing. • The Contractor shall not take such measures and provide protection systems to ensure that any materials resulting from construction: <ul style="list-style-type: none"> ○ Do not fall into or enter the waterbody; and ○ Minimize the escape of dust such that no visible dust reaches the waterbody. • Where riparian vegetation has been removed, re-establish bank vegetation with native species suitable for the site. • Where riparian vegetation shall be re-established, the proponent shall plant or seed vegetation when at least four weeks remain in the growing season. • Whenever possible, operate machinery on land above the high-water mark and in a manner that minimizes disturbances to the banks and bed of the municipal drain. • New concrete box culverts constructed in watercourses with direct fish habitat shall be embedded to accommodate 400 millimetres of suitable sized substrate.
		Impacts from erosion and sediment release.	ERCA, MECP	<p>An Erosion and Sediment Control Plan has been developed and shall be implemented during construction, including the following key measures:</p> <ul style="list-style-type: none"> • All erosion and sediment control measures shall be in place prior to the start of construction and remain in place until restoration is complete and disturbed areas are stabilized against erosion. • Routinely inspect erosion and sediment control measures, including following storms, and repair as required. • Mesh or netting-type stabilization material shall not be used on site. • ESC measures shall be monitored regularly and/or after every 10 millimetres or greater rainfall event, as they could require periodic cleaning, maintenance and/or reconstruction. If deficiencies are found, they shall be repaired and/or replaced promptly. • Grading, placement of topsoil and seeding specifications to be implemented to decrease erosion potential and promote suitable native vegetation regeneration. • Disturbed areas along drains shall be re-vegetated with species native to the area to minimize invasion and colonization by non-native species and increase shade/cover for wildlife.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
				<ul style="list-style-type: none"> Restore all disturbed areas to pre-construction conditions with roadside seed mix and stabilize within 45 days to prevent erosion. Final cover, including seeding and erosion control blanket, shall be completed by November 1 of any given year. An inspection log shall be maintained by GIP HWY3 INC. and kept up to date and made available for review by applicable authorities.
		Impacts from dewatering.	ERCA, MECP, MNRF	<p>A Water Taking Report has been prepared in support of an Environmental Activity and Sector Registry (EASR) for water taking. The control of water from dewatering operations is to be conducted in accordance with OPSS 518, 517 and 182 which include:</p> <ul style="list-style-type: none"> Where dewatering is required, appropriate energy dissipation and settling/filtration measures shall be used for discharge of dewatering water to ensure no erosion or sediment release occurs in the drain/watercourse in accordance with OPSS 517 and 182; Dewatering operations shall be directed to a sediment control device or natural attenuation area prior to discharge to drain/watercourses. If a natural attenuation area is used, a minimum 30-metre setback shall be maintained from the receiving drain/watercourse; When water is discharged to a drain/watercourse, it shall be done in a manner that does not cause erosion or other damage to adjacent lands; and Any fish stranded within the temporary work zones isolated for the in-water works shall be rescued using appropriate techniques by qualified individuals and released downstream of/away from the temporary work zones. Fish salvage and relocation shall occur prior to and/or during the de-watering activities, depending on the depth of water in the isolated work area. Fish shall be collected using methods approved under the Licence to Collect Fish for Scientific Purposes and they shall be identified to species (where possible), enumerated and relocated downstream, beyond the construction work area. In the event that the temporary work area isolation barriers fail, additional fish rescues shall be conducted to remove all fish from the work area prior to resuming construction. All collections and sampling shall be performed in compliance with the Best Management Practices (BMPs) identified in the Fisheries Policy Section Technical Bulletin.

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
4. Socio-Economic Environment	4.1. Construction Noise	Potential noise impacts during construction.	Area residents, County of Essex, Town of Essex, Town of Kingsville, MECP	<ul style="list-style-type: none"> • Limit noise-generating construction activities to within the hours permitted by the municipalities’ noise control by-laws: <ul style="list-style-type: none"> ○ If any work must be scheduled between 9:00 pm and 7:00 am, or before 11:00 am or after 4:00 pm on a Sunday, GIP HWY3 INC. shall notify in writing nearby residents of the work at least 24 hours in advance to minimize disruption. • For construction work with the potential to generate significant noise where mitigation is not feasible, GIP HWY3 INC. shall notify nearby residents of the work at least 24 hours in advance to minimize disruption; • Schedule work to minimize cumulative noise impacts (i.e., machinery operating simultaneously) where possible, especially within the potential problem areas identified in Figure 2; • Avoid using unnecessarily large or noisy equipment. Ensure equipment is fitted with standard noise-damping devices or better; • Ensure construction equipment and muffling devices are maintained in proper working order according to manufacturers’ recommendations to comply with the equipment noise level specifications of MECP guideline NPC-115; • Avoid unnecessary idling of equipment; • Inform employees of noise impacts and mitigation/control measures by requiring all on-site staff to participate in environmental awareness training specific to the Construction Noise and Vibration Plan; • Avoid using the areas in close proximity to noise-sensitive receptors (identified in Figure 2) as laydown areas; • Minimize drop heights of materials and avoid uncontrolled tailgate banging; • Ensure equipment operators are well-trained and experienced; • Route heavily-loaded trucks on main roads and away from noise-sensitive areas where possible; • Investigate quieter alternative construction equipment/processes for the required work, including but not limited to: <ul style="list-style-type: none"> ○ Equipping heavy machinery with broadband backup alarms; and ○ Avoiding the simultaneous undertaking of particularly noisy tasks; ○ Use high-capacity compressed air storage to minimize air compressor operation; and ○ Implement the noise and vibration complaint management program established in the CNVP (see Section 9.0).

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
				<p>GIP HWY3 INC. shall follow procedures discussed in the Construction Noise and Vibration Plan to address noise complaints. To support potential noise complaint resolution activities, GIP HWY3 INC. shall consider determining baseline noise levels at nearby sensitive receptors identified in the noise assessment to mitigate potential claims against the Project. Based on the surrounding area, baseline noise levels could be reasonably predicted through a traffic noise assessment.</p> <ul style="list-style-type: none"> Any monitoring of baseline or active construction noise monitoring should occur on the property line of the noise-sensitive area closest to the work area. <p>If noise complaints persist during construction, GIP HWY3 INC. shall consider installing and maintaining additional noise mitigation measures on and around the work area where feasible, including but not limited to:</p> <ul style="list-style-type: none"> Acoustic barriers; Echo barriers tied to site fencing; and Enclosures for stationary equipment.
	4.2. Vibration	Potential to experience vibration impacts higher than the 5.08 millimetres per second vibration criterion for structural safety.	Area residents, County of Essex, Town of Essex, Town of Kingsville, MECP	<p>The following best management practices shall be implemented during construction to minimize potential vibration impacts on nearby sensitive receptors:</p> <ul style="list-style-type: none"> Avoid using unnecessarily large equipment; Where possible locate equipment/processes with significant ground vibration in areas that maximize distance from Points of Reception; Keep all equipment in good working order and used only as intended; Route heavily-loaded trucks away from vibration-sensitive locations where feasible; and Ensure truck travel routes are well graded and without potholes and bumps.
	4.3. Air Quality	Potential fugitive dust, air quality impacts caused by construction and construction traffic.	Area residents, County of Essex, Town of Essex, Town of Kingsville, MECP	<p>Provisions to minimize potential air quality-related impacts during construction include the following best management practices for dust and other emissions:</p> <ul style="list-style-type: none"> Clean construction sites and paved roadway regularly to remove construction-caused debris and dust; Employ covered loads when hauling fine-grained materials; Use tire washes and other methods to prevent trucks and other vehicles from tracking soil, mud or dust onto the paved roadway; Cover soil and aggregate stockpiles as necessary, within 45 days;

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
				<ul style="list-style-type: none"> • Enforce compliance with posted speed limits and, as appropriate, implement further reductions in speeds when approaching work zone; • Restore disturbed areas and re-establish removed vegetation including tree plantings as soon as practically possible; • Use well-maintained equipment and machinery and comply with operating specifications; • Minimize operation and idling of gas-powered equipment and vehicles, especially during smog advisories; • Minimize vehicular traffic on exposed soils and stabilize high traffic areas with suitable cover material; • Avoid excavation and other construction activities with potential to release airborne particulates during windy and prolonged dry periods; and, • Cover or otherwise contain loose construction materials with potential to release airborne particulates during transport, installation, or removal. <p>The Contractor shall follow the Best Management Practices Plan (BMPP) for Fugitive Dust included in the Construction Management Plan to manage fugitive dust emissions.</p>
	4.4. Source Water Protection	Potential for impacts to local groundwater quality.	MECP, County of Essex, Town of Essex, Town of Kingsville	<ul style="list-style-type: none"> • All equipment maintenance and refueling shall be conducted at least 30 metres away from waterbodies/water sources. • The Contractor shall implement the Spill Management Plan during construction and the spill kit on-site shall contain a supply of absorbent products, such as booms, pads and socks. • All works shall be undertaken in accordance with the Essex Region Source Protection Plan. • Apply current best management practices (i.e., MTO’s Salt Management Plan). • To handle spills and contaminated materials, the Contract General Conditions shall include incident management requirements following relevant legislation, including the Environmental Protection Act, Fisheries Act, Gasoline Handling Act, Ontario Pesticides Act, Ontario Water Resources Act and Transportation of Dangerous Goods Act.
5. Cultural Resources	5.1. Deeply buried cultural deposits and unmarked human remains	Potential destruction/disturbance during construction.	Ministry of Citizenship and Multiculturalism (MCM)	<ul style="list-style-type: none"> • Archaeological Monitors will be present during works within the 10 m construction monitoring buffer to the Crow Site. • Should unassessed buried archaeological resources be uncovered during construction, these may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. Upon discovering the archaeological resources, the Contractor shall cease alteration of the local site area

I.D. #	I.D. # Sub-Issues	Potential Impacts/ Concerns	Potentially Concerned Agencies/Stakeholders	Mitigation/Protection/Monitoring
				<p>immediately and notify the Contract Administrator who shall engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the Ontario Heritage Act.</p> <ul style="list-style-type: none"> Any person discovering human remains shall immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services. Notification to the project Environmental Manager and MTO Environmental Planner shall occur so that the MTO Regional Archaeologist can be informed.

6.1.1 Review of DCR #2

A Notice of Completion for this DCR #2 shall be sent to the Project Contact List. The DCR #2 shall be available on the project website (www.hwy3essex.com) for a 30-day public and agency comment period followed by a subsequent 30-day MECP review period. Following the MECP review period, assuming no Section 16 Order Requests have been received, and once applicable permits and approvals have been obtained, works included in DCR #2 can proceed to construction.

6.2 Environmental Construction Inspection and Monitoring

To confirm the implementation and effectiveness of the environmental mitigation measures and provisions included in the construction Contract, an Environmental Management Plan (EMP) has been developed for the project. The objective of the EMP is to maintain and, where possible, improve the state of the environment affected by the proposed improvements. This includes the development of appropriate mitigation measures for implementation during construction to fulfill the regulatory and contract requirements, protect the environment and meet MTO obligations.

During construction, environmental monitoring for this project shall:

- Inspect and monitor pre-construction, construction, and post-construction environmental work specified in the Contract; and
- Evaluate any changes proposed by the Contractor to ensure that changes meet the intent of the measures and provisions, as outlined in this DCR, and reflect prevailing conditions on-site.

GIP HWY3 INC.'s Environmental Inspector(s) shall conduct daily inspections of planned works focusing on higher environmental risk works with observations and findings recorded as appropriate. Once satisfactory environmental controls have been achieved, periodic random bi-weekly inspections will be carried out until construction is complete. Observations requiring actions can be corrected immediately by communicating with workers and/or escalated as appropriate through the environmental incident or nonconformity processes. Summary reports shall be prepared on a weekly basis.