



MORRISON HERSHFIELD

REPORT

Early Works Report Addendum

Bradford Bypass County Road 4 Early Works

September 6, 2022

BRADFORD BYPASS COUNTY ROAD 4 EARLY WORKS

Early Works Report Addendum

Prepared for the Ministry of Transportation by Morrison Hershfield

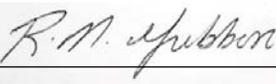
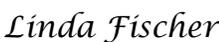
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APPENDIX A: Revised Detour Staging Drawing

1. INTRODUCTION

The Ministry of Transportation (MTO) has retained Brennan Paving & Construction Ltd. and Morrison Hershfield Limited (Brennan-MH) to construct the Simcoe County Road 4 Early Works project. The project includes a bridge over the future Bradford Bypass mainline freeway alignment, widening of Simcoe County Road 4 from two-lanes to four-lanes within the widening limits, construction of a 3.0 m wide multi-use path on the east side of County Road 4, and provisions for the future Simcoe County Road 4 and Bradford Bypass interchange. The project is located in the Town of Bradford-West Gwillimbury, within the County of Simcoe, Ontario (see Figure 1, below).

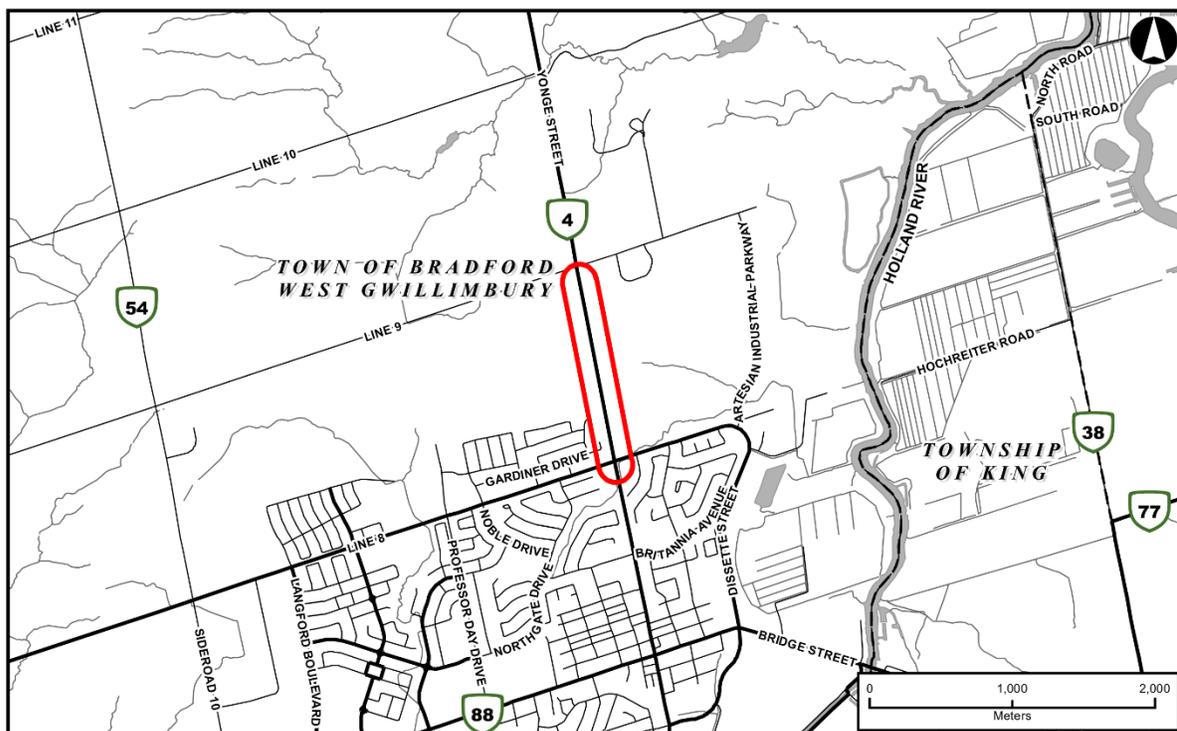


Figure 1: Key Plan

1.1 Purpose of this Addendum

Brennan-MH have proposed minor changes to the temporary detour alignment in order to accommodate changes to the construction staging layout. As a result of the proposed changes to the temporary detour alignment Brennan-MH is undertaking an addendum process per Section 29 of Ontario Regulation 697/21.

Pursuant to Section 29, this addendum documents the details of the change, the reason for the change, what, if any, impacts the change will have and how those impacts will be mitigated and monitored. Finally, the document provides a statement regarding the significance of the change and a consultation record.

2. DESCRIPTION OF THE PROPOSED CHANGE

To facilitate construction of the bridge, a detour was planned to be constructed directly adjacent to the west of the existing County Road 4 alignment. The detour location and alignment were documented in the 2022 Early Works Report by AECOM Canada Ltd. (AECOM, 2022).

The original detour was designed in close proximity to the bridge work area and required temporary supporting walls, known as shoring, to facilitate the construction. Brennan-MH is proposing to shift the detour 16 meters to the west (at its farthest) from its planned location shown in the Early Works Report. By shifting the detour away from the bridge work area, the need for shoring is avoided, simplifying construction and reducing construction related noise from driving piles, required for the shoring walls, into the ground.

The design speed and posted speed limit for the detour will not be changed and it will continue to provide a single lane of traffic in each direction. Similar to the original detour temporary lighting will be installed and the detour will be removed at the end of construction. New property is not required as the detour can be accommodated within the existing property limits.

There are no changes to the permanent works detailed in the Early Works report.



Figure 2: Original Detour vs. New Detour Locations

2.1 Alternatives Assessment

The above noted change is a refinement to the staging design that was selected during the evaluation of alternatives completed during the Early Works Report process. The Early Works Report looked at several different staging alternatives and selected a two-lane detour route, west of the existing alignment as the preferred alternative. Given the change is only a slight modification to this alternative for constructability purposes, additional assessment of alternatives is not required.

3. IMPACT ASSESSMENT

The minor shift in detour alignment will have no changes to the impacts and mitigation measures proposed in the Early Works Report for Fish and Fish Habitat, Groundwater and Hydrogeology, Fluvial Geomorphology, Land Use, Air Quality/Climate Change, Landscaping, Waste and Excess Material, Snow Drift, Human Health or Built Heritage and Cultural Heritage Landscapes.

The Early Works Report can be reviewed at <https://www.bradfordbypass.ca/>.

The following sections update the assessment of the detour for Terrestrial Ecosystems, Noise, and Archaeology.

3.1 Terrestrial Ecosystems

No additional terrestrial field investigations were required as the area of impact from the minor shift of the detour alignment is within the broader study area of the Early Works Report. The shift will result in impacts to the cultural vegetation communities located adjacent to County Road 4, however these cultural vegetation communities do not contain any significant terrestrial features and mitigation measures to address potential impacts to these communities are documented in the Early Works Report and summarized in Section 3.1.1 below.

Table 1: Additional Vegetation Removals

| Ecological Land Classification Code | Ecological Land Classification Description | Additional Area (ha) within the Limits of Work |
|-------------------------------------|--|--|
| CUM1-1 | Dry-Moist Old Field Meadow Type | 0.47 |
| CUT1 | Mineral Cultural Thicket Ecosite | 0.16 |

No impacts to Species at Risk are anticipated to result from these additional impact areas.

3.1.1 Commitments and Recommended Mitigation Measures

The mitigation measures for the vegetation impacts pertaining to the shifted detour alignment remain the same as those for the original detour alignment documented in the Early Works Report. Vegetation removals should occur outside of the migratory bird nesting period of April 1st to August 31st to avoid impacts to breeding migratory birds.

In addition, avoiding vegetation removal within the monarch breeding period (May 25th to August 15th) will protect monarch eggs and larvae that may be present on milkweed plants within the study area. Milkweed will be included in seed mixes to restore disturbed areas within the Limits of Work.

3.2 Noise

A noise analysis has been undertaken on the refined detour alignment to update the previous noise assessment that was completed for the County Road 4 early works (Traffic Noise Report, AECOM, 2021).



The traffic volume (2024 Annual Average Daily Traffic [AADT] of 21900 with day/night distribution of 90%/10%) for County Road 4 and the associated Noise Sensitive Areas (NSAs) are projected to remain the same as projected in the 2021 AECOM report as there have been no significant changes to existing conditions since the 2021 analysis was completed.

As documented in the Final Early Works Report, County Road 4 has private homes along the west side of the street, which are considered as NSAs as shown in three main highlighted areas in Figure 3 (Courtesy of AECOM Dec 2021 Report). No Special Land Use NSAs were identified in the three considered NSAs. Some homes have been removed as indicated in the image below. The locations of all modelled worst-case noise-sensitive receivers are also shown in Figure 3. The receivers are modelled at a height of 1.5 m above local grade as per the MTO guidance.

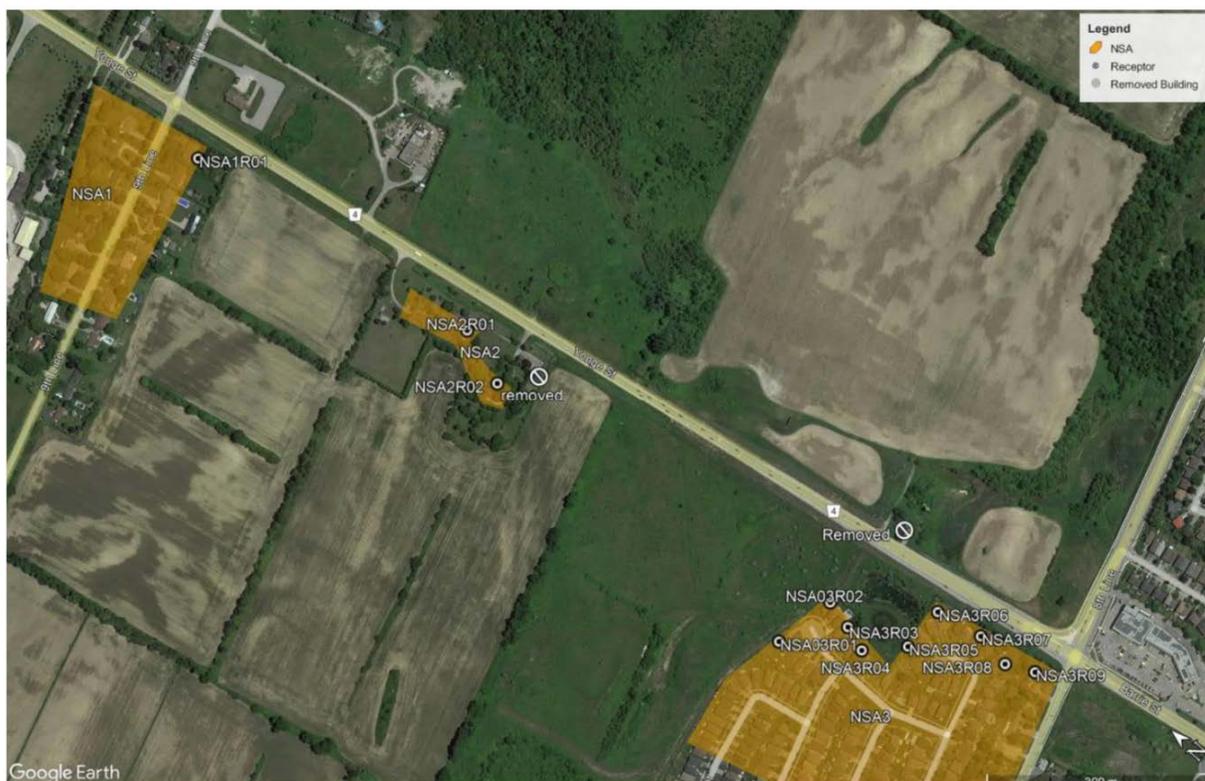


Figure 3: Noise Sensitive Areas and Receivers (AECOM 2021)

Operational noise relating to road traffic associated with the temporary detour is of primary importance for the current assessment. A full traffic noise study was conducted by AECOM for the project and dated December 21, 2021. The main focus of this study was to address the revised detour design with a slight shift to the west, shown in Figure 2. The summary of traffic data for County Road 4 during the detour is presented in Table 2 based on the AECOM study.

Table 2: Summary of Road Traffic Volumes (RWDI, 2022)

| Roadway | Segment | Detour AADT (2024) | Day/Night Split | Day Volume for $L_{eq,16h}$ | Speed Limit (km/h) | % Medium Trucks | % Heavy Trucks |
|---------------|---|--------------------|-----------------|-----------------------------|--------------------|-----------------|----------------|
| County Road 4 | Between 8 th Line and 9 th Line | 21900 | 90%/10% | 19710 | 80 ^[1] | 1.5% | 2.5% |

NOTE: [1] The speed limit reduces to 50 km/h for the segment approximately 430 m north of 8th Line. The speed reduction has been applied for both the future detour and future no-built scenarios.

Environmental noise propagation was modelled using the FHWA Traffic Noise Model TNM version 2.5 (FHWA, 1998), which is an approved modeling software by MTO. The summary of predicted sound levels at the worst-case noise-sensitive receivers is presented in Table 3 while comparing with the sound objectives of MTO guidance.

Table 3: Predicted Road Traffic Sound Levels with the Temporary Detour at Noise-Sensitive Receivers and Comparison with Sound Objectives of MTO

| NSA | Receiver ID | Future No Built (FNB) | Future Temporary Detour (FTD) | "FTD" Increase Over "FNB" | ≥ 65 dBA ^[1] | Significant Relative Future Increase ^[2] |
|-------|-------------|-----------------------|-------------------------------|---------------------------|-------------------------|---|
| NSA 1 | R01 | 61 | 61 | 0 | No | No |
| NSA 2 | R_01 | 60 | 58 | -2 | No | No |
| | R_02 | 54 | 53 | -1 | No | No |
| NSA 3 | R_01 | 49 | 48 | -1 | No | No |
| | R_02 | 54 | 54 | 0 | No | No |
| | R_03 | 52 | 51 | -1 | No | No |
| | R_04 | 50 | 49 | -1 | No | No |
| | R_05 | 51 | 50 | -1 | No | No |
| | R_06 | 58 | 59 | 1 | No | No |
| | R_07 | 58 | 58 | 0 | No | No |
| | R_08 | 52 | 52 | 0 | No | No |
| | R_09 | 56 | 56 | 0 | No | No |

NOTE: [1] MTO absolute future sound level objective of 65 dBA.

[2] MTO relative criteria considering the sound levels increase in the future built scenario as compared to the future no built scenario (i.e. without the proposed undertaking). Significant increase being 5 dB or higher.

Based on the analysis above, the temporary detour, with the new alignment, is still anticipated to cause no significant increase in operational sound levels which are predicted to be within provincial guidelines being less than 65 dBA and therefore, no noise mitigation is required for the operational noise of the temporary detour.

3.2.1 Commitments and Recommended Mitigation Measures

Neither the above analysis nor the original 2021 AECOM Traffic Noise assessment recommended any mitigation measures related to the operational noise of the roadway or the detour. As such, no further action is required.

Construction Noise is discussed in the Final Early Works Report available online at www.bradfordbypass.ca. The report includes mitigation measures and actions related to construction noise which will be implemented. These include but are not limited to following applicable sound emission standards for equipment, submission of Notice of Works to the Town, maintaining equipment, and reducing idling.

The Contract Administrator will also be required to set up a noise complaint process in accordance with MECP Noise Guide and investigate and address noise complaints.

3.3 Archaeology

The additional area impacted by the revised detour plan has already undergone an Archaeological Assessment. There were no archaeological resources found within the shifted detour area and therefore mitigation measures are the same as those documented in the Early Works Report.

If archaeological materials are encountered during construction, they may constitute a new site and are therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the material must cease work immediately and a provincially licensed consultant archaeologist must assess the material's cultural heritage value or interest in accordance with Section 48 (1) of the Ontario Heritage Act.

4. MONITORING

The project is being administered by an Environmental Manager and Inspector as part of the project's Environmental Management System (EMS) that covers all activities, products and services related to the design and construction of the project. It enables the identification, management and monitoring of environmental aspects associated with the project's activities, products and services during design and construction. The EMS focuses on environmental protection and continuous improvement of environmental performance and provides a means to demonstrate ongoing environmental compliance. As such, environmental monitoring will occur throughout the construction of the project to ensure that mitigation measures are effective.

On-site Environmental Monitoring shall be completed in accordance with the Construction Administrator Inspection Task (CAIT) manual by the Design-Builders Environmental Monitor, to ensure compliance with the environmental mitigation and protection measures outlined in this document, the Early Works Report (AECOM, 2022) and provided within the design and contract documentation. Monitoring measures includes the following:

- Inspection of mitigation measures to confirm that they were constructed according to approved designs, contract constraints and provisions. Where measures or designs were not in compliance with the Contract specifications, deficiencies will be noted and recommendations for remediation will be provided.
- Inspection of the project area to identify areas where environmental impacts are evident and remedial measures are required. These impacts may or may not have been anticipated prior to construction and mitigation may or may not have been prescribed during construction. Where environmental impacts are identified, the extent of the impacts will be noted and recommendations for remediation will be provided.
- Review as-built drawings and correspondence during construction to verify changes in environmental mitigation designs were approved and constructed in compliance with approved changes.
- Inspection of mitigation measures to assess their effectiveness and to identify deficiencies in the operation or expected results of these measures. Where deficiencies are identified, recommendations for remedial measures or modifications to the measures are corrected in an effective and timely manner.
- Inspection of all construction requirements that formed a term or condition of a project approval to document compliance or non-compliance with the approval(s).
- Inspection of requirements under approvals, permits, and registration as noted in this document or in permit documentation.

5. SIGNIFICANCE STATEMENT

Based on the above analysis, the change to the construction staging layout is not considered significant to the Early Works project. The overall impact to the natural environment only amounts to an increase in impacted area of 0.63ha within low sensitivity cultural vegetation communities, there are no additional impacts to archaeological resources, and the shifted detour will not increase noise impacts to adjacent sensitive receptors. Therefore, this change has resulted in easily mitigable, reversible, or negligible impacts.

6. CONSULTATION RECORD

As per O.Reg. 697/21 Section 29(1)9 this consultation record has been included to documents actions undertaken involving Indigenous Communities and other interested persons regarding the addendum and posting to the Bradford Bypass project website.

6.1 Municipalities

Letters were sent in advance of the publishing of this Addendum to staff at the Town of Bradford West Gwillimbury and the County of Simcoe.

6.2 Indigenous Communities

Letters documenting the updates to the detour, and associated impact assessment and mitigation were sent in advance of the publishing of this Addendum to Indigenous Communities. Throughout the Early Works process, consultation activities have been undertaken with the following Indigenous Communities in accordance with the Early Works Indigenous Consultation Plan:

- Alderville First Nation.
- Beausoleil First Nation.
- Chippewas of Georgina Island First Nation.
- Curve Lake First Nation.
- Chippewas of Rama First Nation.
- Hiawatha First Nation.
- Kawartha Nishnawbe First Nation.
- Mississaugas of Scugog Island First Nation.
- Huron Wendat Nation.
- Metis Nation of Ontario – Georgian Bay Metis Council.

Comments from Indigenous Communities are accepted at any time throughout the project.

7. REFERENCES

AECOM Canada Ltd., 2022. Early Works Report County Road 4 Early Works.

AECOM Canada Ltd., 2021. Traffic Noise Report County Road 4 Early Works.

Ontario Ministry of Transportation (MTO), 2022, Environmental Guide for Noise. Version 2.0.

TNM - FHWA Federal Highway Administration Model (<http://www.trafficnoise-model.org>)
TNM Version 2.5, McTrans Center University of Florida, 2088 Northeast Waldo Road,
Gainesville, FL 32609, <http://mctrans.ce.ufl.edu>.

RWDI AIR Inc., 2022. Environmental Noise Assessment – Temporary Detour New Design –
Bradford Bypass Early Works.

APPENDIX A: Revised Detour Staging Drawing

Ontario Ministry of Transportation

CONT DB 2021-2124
 WP 2008-21-01

STA 90+175 TO STA 90+525
 Survey _____ Revised _____

JB BRENNAN **MH MORRISON HERSHFIELD**

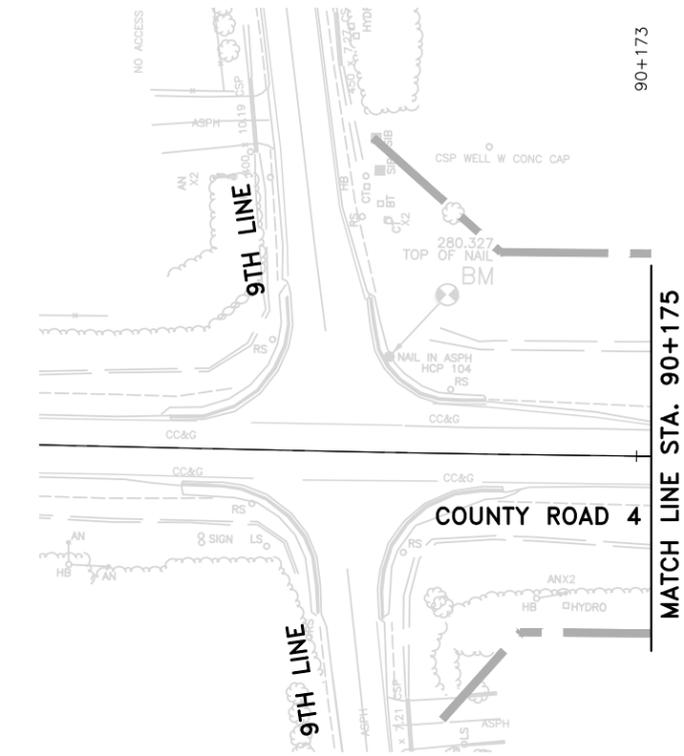
LEGEND

| | |
|------------------------|-----------------------|
| 1 | SOLID YELLOW,10cm |
| 5 | SOLID WHITE,10cm |
| 6 | 333 BROKEN WHITE,10cm |
| 7 | 363 BROKEN WHITE,10cm |
| 8 | 393 BROKEN WHITE,10cm |
| 9 | SOLID WHITE,20cm |
| 10 | 111 BROKEN WHITE,20cm |
| 11 | 333 BROKEN WHITE,20cm |
| 15 | SOLID WHITE,60cm |
| 20 | SYMBOLS |
|] [LIMITS OF MARKINGS | |

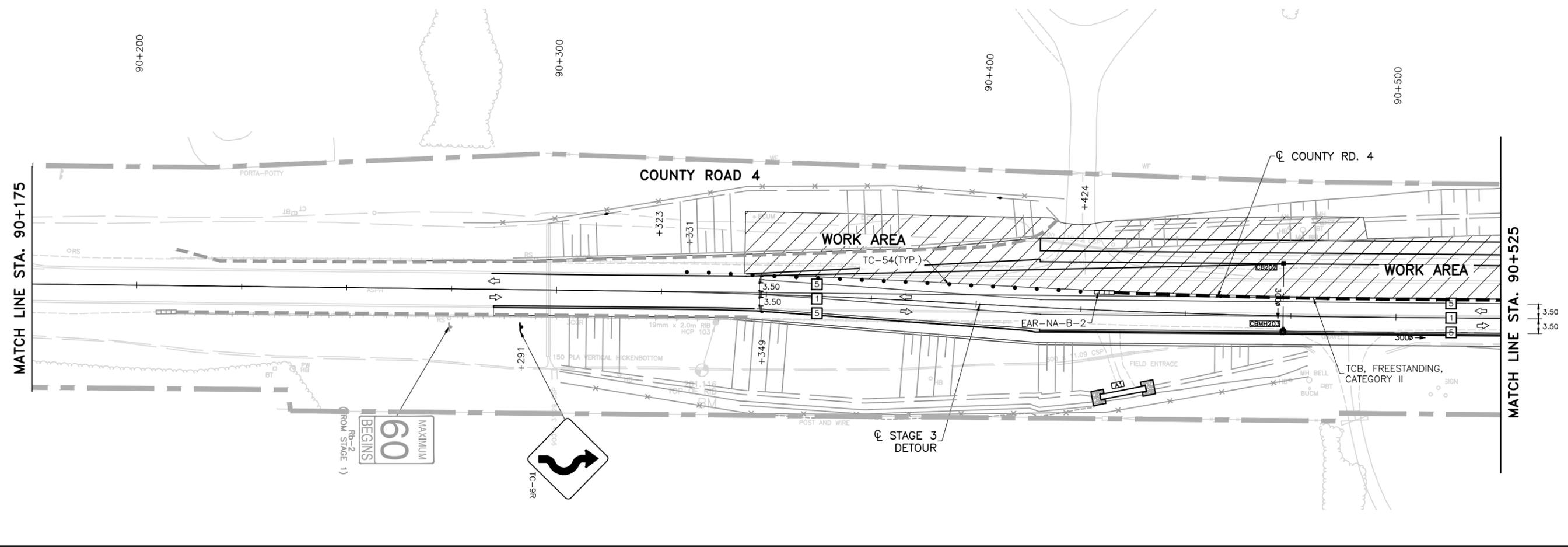
SUPPLEMENTARY LEGEND

- DIRECTION OF TRAFFIC / NUMBER OF LANES
- TEMPORARY CONCRETE BARRIER

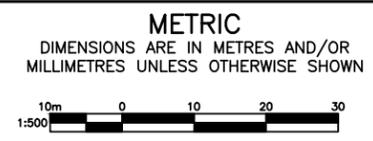
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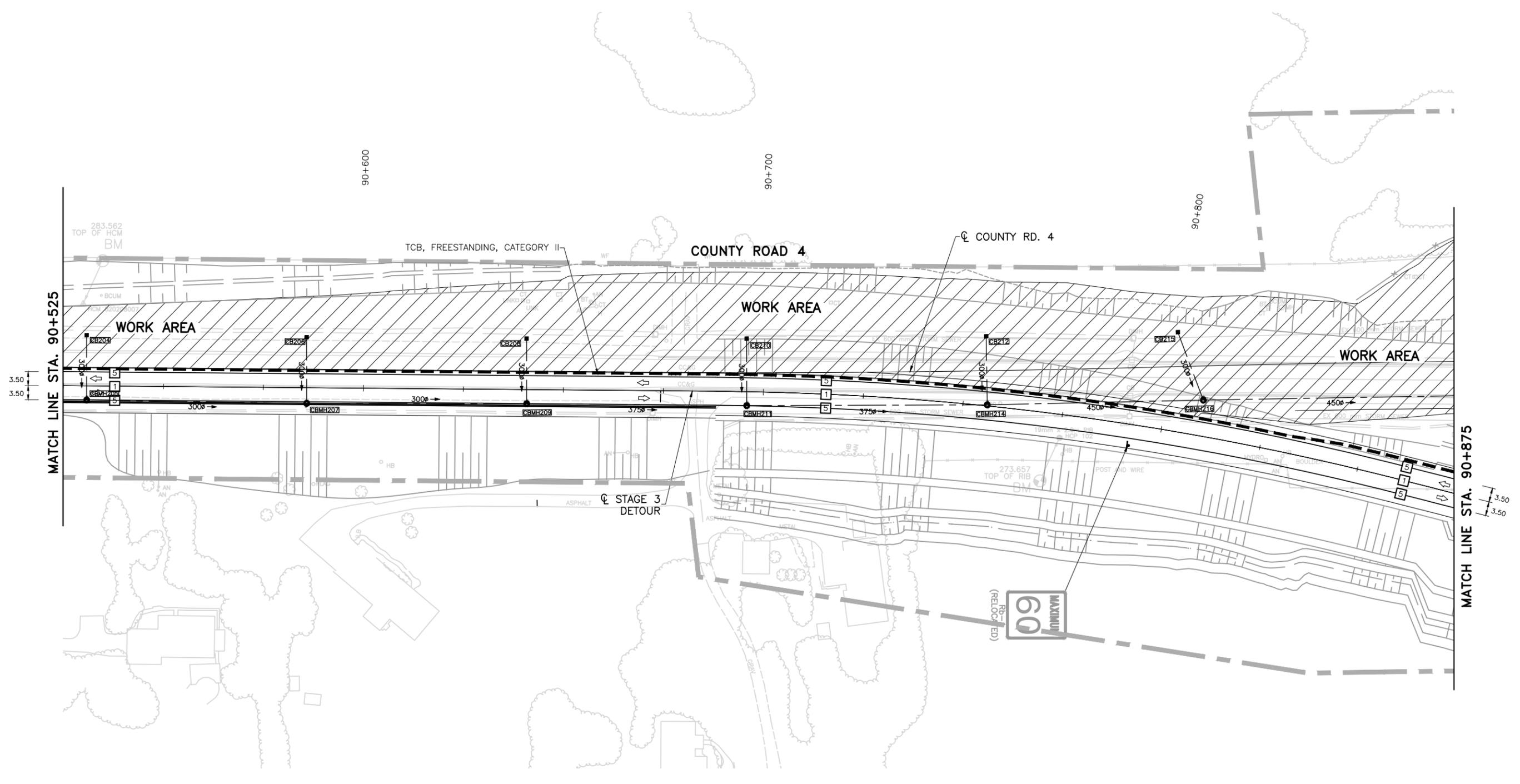
| STAGE 3B | |
|--|---|
| CONSTRUCTION | TRAFFIC |
| 1. CONSTRUCT COUNTY ROAD 4 UNDERPASS STRUCTURE. | • SHIFT NORTH BOUND AND SOUTH BOUND TRAFFIC ONTO STAGE 3 DETOUR |
| 2. CONSTRUCT AND COMPLETE REMAINING PORTIONS OF COUNTY ROAD 4 PAVEMENT AND STORM SYSTEM. | |



3.50
3.50



| | | |
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| | | |
| CONT DB 2021-2124 WP 2008-21-01 | | |
| STA 90+525 TO STA 90+875 Survey _____ Revised _____ | | |
| | | |



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MINISTRY OF TRANSPORTATION, ONTARIO

METRIC
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MILLIMETRES UNLESS OTHERWISE SHOWN



Ontario Ministry of Transportation



CONT DB 2021-2124
WP 2008-21-01

STA 90+875 TO STA 91+225
Survey _____ Revised _____

