

# Memorandum

Date: May 24, 2024

Project #: 2006601

To: Simpson Road Landowners Group  
C/O: Helen Mihailidi

From: Tatiana Hrytsak, M.Sc., Joel Davey, M.ES. and Robin McKillop, M.Sc., P.Geo., CAN-CISEC

Re: Simpson Road Extension and Tributary to West Rainbow Creek – Scoped Fluvial  
Geomorphology Assessment, Aquatic Habitat Review and Evaluation of Alternative Flow  
Conveyance Options

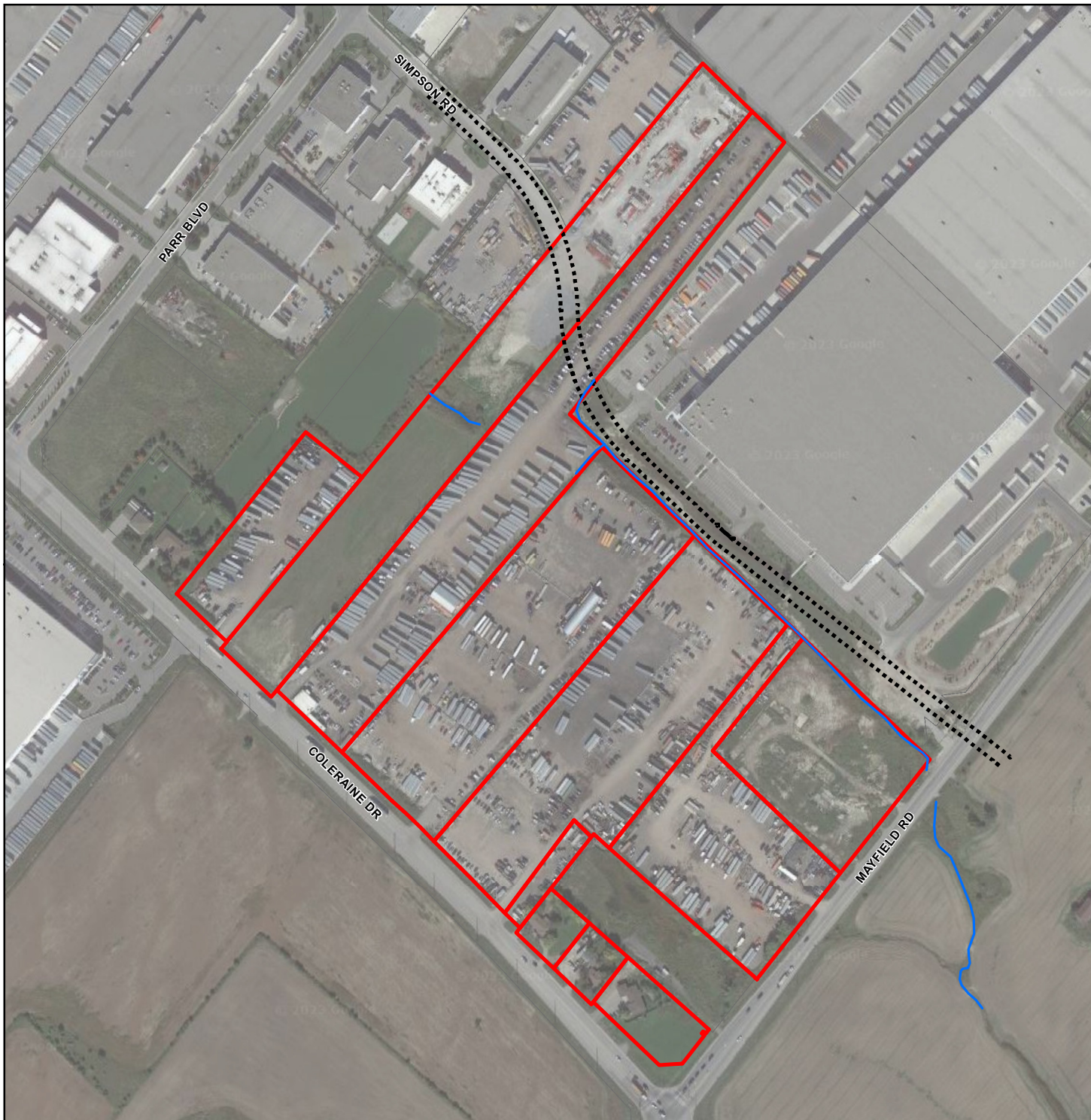
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## 1. Introduction




Palmer is pleased to provide the Simpson Road Landowners Group Inc. (“the Landowners Group”) with our technical memorandum characterizing historical and existing conditions along a tributary to West Rainbow Creek, adjacent to the proposed Simpson Road extension, in Bolton, Ontario. Previously, a natural channel design was proposed for the tributary as part of the Municipal Class Environmental Assessment (AMEC, 2012). Building on the results of a scoped fluvial geomorphological assessment and a review of existing aquatic habitat, this memorandum identifies and evaluates three main design alternatives for conveyance of flows from an existing stormwater pond to Mayfield Road, adjacent to the proposed Simpson Road extension. Palmer has reviewed the previous natural channel design and evaluated three potential design alternatives in collaboration with Greck and Associates Ltd. (Greck), which is completing the water resources engineering for the tributary, GEI Consultants (GEI), which is completing the Simpson Road Master Environmental Servicing Plan (MESP) update, and Weston Consulting, which is the planner for the project.


## 2. Background

The Town of Caledon completed a Schedule “C” Municipal Class Environmental Assessment (EA) Study for the planned completion of Simpson Road in 2012 to expedite development of vacant land parcels south of Parr Boulevard, in Bolton. In 2008, the Town of Caledon enacted a By-law preventing new accesses to future developments on existing properties with frontage on Coleraine Drive from being approved. The extension of Simpson Road is needed to address the imposed access restrictions to facilitate development of the existing vacant parcels (**Figure 1**) (AMEC, 2012). The Simpson Road Completion EA referenced baseline environmental characterization data from the previously completed Master Environmental Servicing Plan (MESP) for the Bolton South Industrial Lands (Burnside, 2000).



**LEGEND**

-  Channel Alignment (2022)
-  Proposed Road Alignment
-  Study Area

**Key Map**


Bolton

The Gore Rd

Nashville Rd

Site Location

0 2 km

0 25 50 100 150 200 250

METRE SCALE


  

North American Datum 1983  
 Universal Transverse Mercator Projection Zone 17

Scale: 1:5,000  
 Page Size: Letter (8.5 x 11 inches)

Drawn: SM  
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 Date: Jun 2, 2023

Source Notes:  
 Imagery (2021) provided by Google Satellite map service. Contains information licensed under the Open Government Licence – Ontario.

  
NORTH

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CLIENT

Simpson Road LO Group

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PROJECT


Simpson Road Channel Design Review

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TITLE

**Study Area**

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	REF. NO. 2006601-1-1
<b>Figure 1</b>	

The Bolton South Industrial Lands MESP was completed to establish preferred management options for the protection and/or enhancement of environmental features and their functions within the study area, including development of a preferred stormwater management plan (Burnside, 2000). The study included existing conditions characterization of the West Rainbow Creek tributary (known as “Tributary D”) adjacent to the proposed Simpson Road extension. At the time of the study, Tributary D drained approximately 91 ha through agricultural swales and drainage ditches that were straightened through past agricultural activities and were generally ill-defined. Tributary D is considered a “small riverine warmwater system”. Small riverine warmwater systems, as described in the Humber River Fisheries Management Plan (MNR and TRCA, 2005), are first- and second-order tributaries draining from the Peel Plain. Due to the dominance of clay soils and high runoff potential, these tributaries experience significant fluctuations in temperature and stream flow, drying up or attaining high temperatures during summer months. In the Bolton South Industrial Lands (that encompass the study area), the 2000 MESP identifies Tributary D as being highly intermittent and not supporting direct fish habitat, only contributing to downstream habitat. Water quality degradation is apparent due to land clearing for agriculture and increased runoff of agricultural inputs such as fertilizers, pesticides, and manure.

The Simpson Road Completion EA (2012) identified that realignment and channelization of the West Rainbow Creek tributary adjacent to the Simpson Road extension is necessary to improve fluvial geomorphic function and fisheries habitat. The need for crossings to access the undeveloped properties was noted, but not evaluated for potential impacts to the realigned tributary:

*“Ultimately, watercourse crossings will be required from Simpson Road to the individual properties fronting on Coleraine. The exact number, location and configuration of these crossings is unknown at this time.”*

An alternative alignment of Simpson Road that would allow direct access to the undeveloped properties by realigning the tributary to the east side of road (requiring only a single crossing of the tributary beneath Simpson Road) was not evaluated.

The preferred alignment of Simpson Road to Mayfield Road was advanced to detailed design through the Region of Peel and Town of Caledon by Wood (2020). A detailed natural channel design for the tributary was included in the road design (Aqualogic, 2014, revised 2015 & 2019). The goal of the proposed channel design is to restore channel function to pre-agricultural disturbance conditions, replicating headwater run-pool morphology mixed with linear wetlands and wet meadows. To accommodate flood storage requirements, the proposed top width of the corridor was 45 m and the bottom width was 39 m. Within the corridor, a 2 m wide, 0.5 m deep bankfull channel would convey a bankfull flow of approximately 0.58 m<sup>3</sup>/s. The narrow cross-section would mimic natural headwater conditions of a low gradient channel controlled by vegetation. The design, issued for review in 2020, showed five potential crossing locations over the 560 m design length (**Appendix A**). Spacing between the crossings varied from 20 to 100 m.

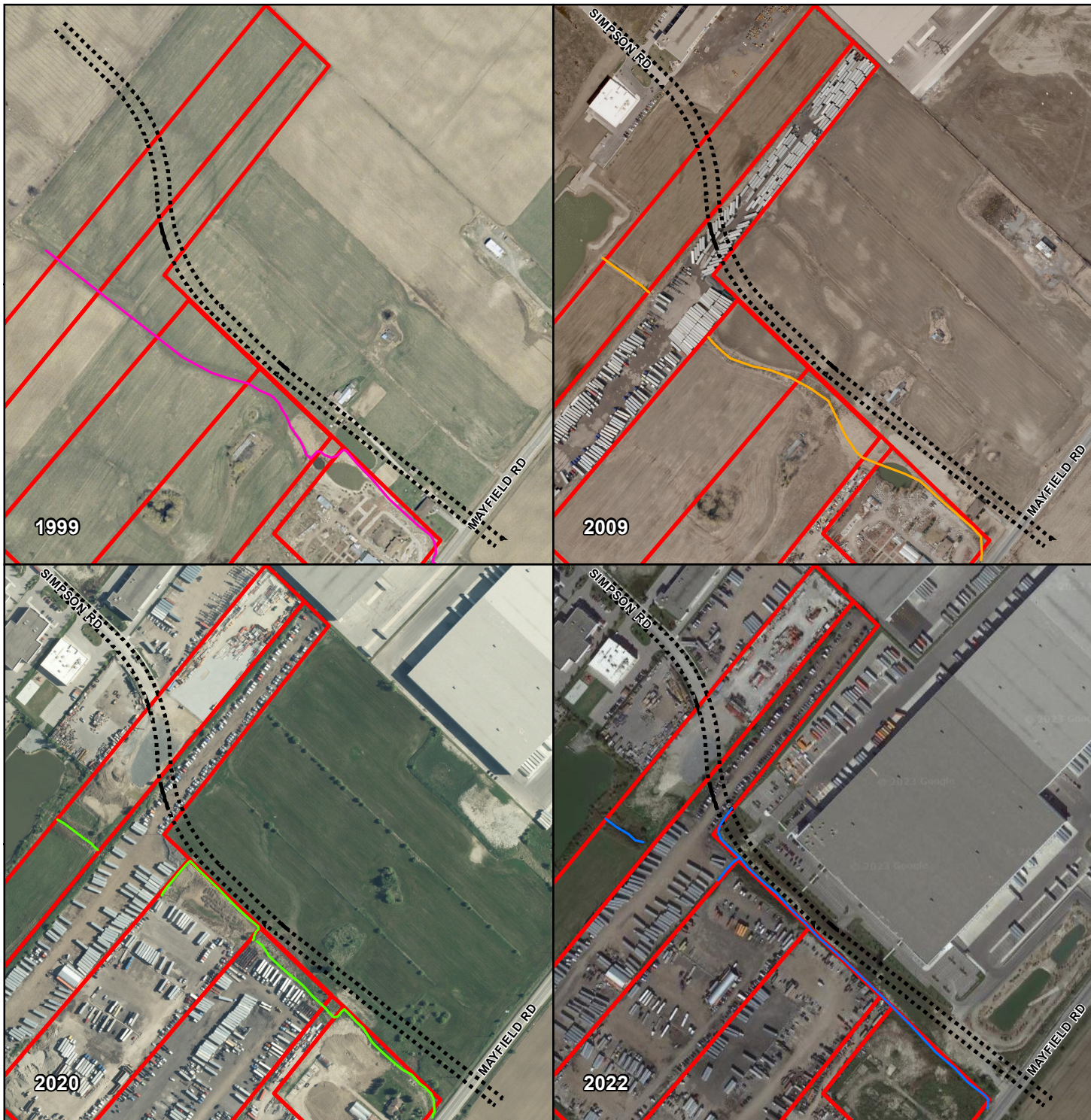
### 3. West Rainbow Creek Tributary

#### 3.1 Fluvial Geomorphic Characterization

To update and refine the understanding of existing and historical conditions of the West Rainbow Creek tributary, Palmer completed a scoped historical analysis and field reconnaissance. Orthophotography from 1999, 2009, and 2018-2022 was accessed through the Peel Region online webserver (<https://gisprd.peelregion.ca/arcgis/rest/services/AerialImagery>). The tributary centreline was delineated to document channel alterations during the time period. Field reconnaissance was completed on May 9, 2023 by Palmer's fluvial processes specialist, to document existing conditions following the initial characterizations by Aqualogic (2014) and Burnside (2000). Minimal antecedent rainfall resulted in near-baseflow conditions during the field reconnaissance.

Prior to 2000, as documented by Burnside, the tributary drained approximately 91 ha through agricultural fields and two on-line ponds supporting irrigation for a tree nursery along Mayfield Road. The MESP recommended two stormwater management (SWM) ponds along the tributary to manage runoff from the development of the Bolton South Industrial Lands. The northern SWM pond (which is currently the upstream end of the tributary) was constructed prior to 2005, enlarged prior to 2009, and captures the upper 55 ha of the tributary's drainage (Aqualogic, 2014). Between 2009 and 2022, the properties surrounding the tributary have transitioned from agricultural to industrial uses, primarily truck parking. As these uses have expanded, particularly between 2018 and 2022 (**Figure 2**), the tributary has been straightened and realigned in association with current uses of the property. The current alignment of the tributary is coincident with the property line between the western properties and the Home Depot Innovation Centre to the east.

The existing condition in the tributary reflects the ongoing industrial land use activities and recent channel alterations. At the upstream end, the tributary outlets from the existing SWM pond to an undeveloped property flowing through a 20-25 m wide riparian corridor. It is unclear how flow is conveyed beneath the subsequent property as water and evidence of flow was found in a number of areas (**Figure 1**). Through the remainder of the study area, the tributary flows in a north-south direction along the eastern property boundaries. There is limited to no riparian vegetation, frequent garbage/debris, and asphalt and fill frequently abut the western bank (**Photos 1-3**). The bankfull cross-section is approximately 1.9 to 3.5 m wide and 0.40 to 0.60 m deep.



**LEGEND**

**Channel Planform Year**

- 1999
- 2009
- 2020
- 2022
- Proposed Road Alignment
- Study Area

**Key Map**

0 25 50 100 150 200 250  
METRE SCALE

North American Datum 1983  
Universal Transverse Mercator Projection Zone 17

Scale: 1:6,500  
Page Size: Letter (8.5 x 11 inches)

Drawn: SM  
Checked: TH  
Date: Jun 2, 2023

**NORTH**

Source Notes:  
Historic Imagery (1999, 2009, 2020) provided by Peel Region GIS services,  
2022 imagery provided by Google Satellite map service. Contains information  
licensed under the Open Government Licence – Ontario.

<b>CLIENT</b>	Simpson Road LO Group
<b>PROJECT</b>	Simpson Road Channel Design Review
<b>TITLE</b>	<b>Historic Imagery Comparison</b>
<small>REF. NO.</small>	2006601-2-1
<b>Figure 2</b>	

**Memorandum**

Page 6 | May 24, 2024

Simpson Road Extension and Tributary to West Rainbow Creek – Scoped Fluvial Geomorphology Assessment, Aquatic Habitat Review and Evaluation of Alternative Flow Conveyance Options



***Photo 1. Concrete, fill and truck parking along the top of the west bank (photo taken facing upstream, north).***



***Photo 2. Fill and garbage along west bank, dense vegetation in the channel along east bank (photo taken facing upstream, north).***



**Photo 3. Typical channel cross-section with in-stream vegetation and evidence of channel maintenance.**

### 3.2 Aquatic Habitat Characterization

The historical significance and sensitivity of the aquatic habitat in Tributary D was established within the 2000 MESP, indicating that the subject watercourse, along with many other watercourses in the area, were highly intermittent and did not support direct fish habitat (Burnside, 2000).

As depicted in Photos 2 and 3 above, the current aquatic habitat along the Rainbow Creek tributary appears limited, and no direct fish habitat has been identified through more recent studies (Aqualogic, 2019). Conversely, fish community sampling completed by GEI Consultants in June 2023 found that limited numbers of several fish species were utilizing portions of the Tributary D channel including Creek Chub (*Semotilus atromaculatus*), Fathead Minnow (*Pimephales promelas*), Brook Stickleback (*Culaea inconstans*), and Pumpkinseed (*Lepomis gibbosus*) (**Figure 3**). These species are all considered intermediately tolerant to tolerant of environmental perturbations including changes to temperature and pollution levels (Ontario Fishes, 2023).

In its current state, the majority of the channel area is straight and lacks defined habitat features such as pools or riffle areas that would help to support a diverse warmwater fish community. Additionally, potential fish habitat barriers also exist in the form of dense in-stream vegetation (i.e., *Phragmites*) (see **Photo 3**), intermittent debris jams, and legacy culvert structures that are undersized or improperly installed. These fish barriers likely minimize the ability for fish to utilize the entirety of the channel area, which is consistent with GEI's documentation of fish in only two segments of the tributary.



LEGEND

**Electrofishing Site <sup>1</sup>**

- SWMP Outlet Channel - *Creek Chub* (1)
- Downstream Channel - *Fathead Minnow* (1); *Brook Stickleback* (6)
- Downstream Road Allowance - *Fathead Minnow* (15); *Pumpkinseed* (2)
- ~ Channel Alignment (2022)
- ..... Proposed Road Alignment
- ▭ Study Area

1 - GEI (June 14, 2023)



North American Datum 1983  
Universal Transverse Mercator Projection Zone 17

Scale: 1:5,000  
Page Size: Letter (8.5 x 11 inches)

Drawn: SM  
Checked: TH  
Date: Oct 25, 2023

Source Notes:  
Imagery (2021) provided by Google Satellite map service. Contains information licensed under the Open Government Licence – Ontario.



CLIENT	Simpson Road LO Group
PROJECT	Simpson Road Channel Design Review
TITLE	<b>Fisheries Sampling Data (Sampled by GEI June 14, 2023)</b>
REF. NO.	2006601-3-1
<b>Palmer™</b>	
<b>Figure 3</b>	



## Memorandum

Page 9 | May 24, 2024

Simpson Road Extension and Tributary to West Rainbow Creek – Scoped Fluvial Geomorphology Assessment, Aquatic Habitat Review and Evaluation of Alternative Flow Conveyance Options



*Photo 4. In-channel debris jam*

In terms of water quality, the 2000 MESP highlighted that water quality degradation was already apparent throughout the general area, including the subject watercourse (Burnside, 2000). This historical decline in water quality was primarily due to land clearing and other agricultural activities resulting in increased overland runoff and diminished base flows, exposed to agricultural inputs such as fertilizers, pesticides, and manure (AMEC, 2012).

Today, due to current adjacent lands uses (i.e., industrial), allochthonous material supply to downstream reaches of Rainbow Creek is likely negated by poor water quality and potential contamination inputs from vehicle parking, maintenance, erosion around obstructions, and parking lot runoff. As previously referenced in Section 2 of this report, the watercourse catchment is underlain predominantly by clay-rich soils, which lead to high runoff and significant fluctuations in temperature and stream flow, resulting in prolonged dry conditions and high temperatures during summer months (**Photo 5** and **6**).

## Memorandum

Page 10 | May 24, 2024

Simpson Road Extension and Tributary to West Rainbow Creek – Scoped Fluvial Geomorphology Assessment, Aquatic Habitat Review and Evaluation of Alternative Flow Conveyance Options



***Photo 5. Dense in-channel vegetation during late spring (photo from GEI)***



***Photo 6. Dense in-channel vegetation and limited water depth (photo from GEI)***

Overall, historical reporting and onsite review indicate the Tributary D feature offers limited fish habitat along its length. Through a combination of deteriorated habitat quality and poor water quality, Tributary D is unable to support a diverse fish community. Despite this, recent fish sampling (June 2023) indicates that disturbance-tolerant fish species at least opportunistically use certain segments, particularly those segments immediately downstream of the existing storm pond, and adjacent to Mayfield Road.

## 4. Evaluation of Alternative Flow Conveyance Options

The Simpson Road LO group has explored three alternative approaches to convey flow and benefit ecology in association with construction of the Simpson Road extension and development of the adjacent land parcels. Two open channel options (fully open/partially piped) were reviewed that include an updated corridor modelled by Greck (2021). Finally, a fully piped alternative is discussed. An options evaluation matrix was completed based on consideration of several overarching objectives: natural environment, technical criteria, financial criteria, constructability, public safety, and land use planning (**Table 1**). The evaluation of each alternative consists of an overall ranking that considers the combination of expected impact or effect of each objective and associated criteria. For consistency and transparency, overall ranks were determined by summing numeric scores corresponding to rank values (**Table 1**). The three alternatives are depicted in figures in **Appendix A**.

### 4.1 Option 1 – Fully Open

As previously outlined in the MESP (AMEC, 2012), the intended goal for the tributary was to both preserve an open channel and to restore channel function to pre-agricultural disturbance conditions. The previously proposed design (Aqualogic, 2019) included a bankfull cross-section 2 m wide and 0.5 m deep, situated in a 45 m-wide corridor to accommodate flood storage. Greck (2021) completed an updated modelling analysis that determined a 33 m-wide corridor would be sufficient to convey the regulatory events for the proposed channel design. The proposed channel includes a low flow (bankfull) channel width of 4.0 m and bankfull depth of 0.41 m, based on conveyance of the 1.5-year flow event. These dimensions are considered suitable from a geomorphic perspective based on the 2023 field visit.

A key challenge of advancing the fully open alternative is the need to accommodate several tributary driveway crossings to facilitate industrial property access. The previously proposed channel design (Aqualogic, 2019) was detailed without documentation of any evaluation of the implications of numerous, closely spaced channel crossings required to access the properties to the west of Simpson Road.

Greck (2024) estimated that the industrial driveways (to meet OPSD) would encompass 39 m of channel length per crossing (including the driveway, grading and required property setbacks). With four potential crossings, approximately 156 m of channel length would be *directly* impacted by crossing structures – that is 27% of the design channel length (560 m). The spacing between these crossings in the proposed design (2020) varied from 20 to 100 m. Flows could be safely conveyed through 1.5 m high by 2.4 m wide box culverts, for example, without overtopping Simpson Road (Greck, 2024). *Indirect* impacts, as described below, would be more extensive.

Morphologically, stone lining is generally required through crossings, and at inlet and outlet areas, to mitigate the risk of lateral and vertical erosion. Shading from crossing structures inhibit growth of riparian vegetation that would otherwise stabilize the channel banks. It is typical for a channel to be wider through a crossing structure and for some distance downstream before it will regain 'natural' form and function. The number of crossings and reduced spacing between crossings along Simpson Road is anticipated to result in a segmented, disjointed channel with limited opportunity to restore functional morphological processes.

Runoff from the adjacent industrial land use may reduce water quality in the channel and increase risk of formation and failure of urban debris jams, further limiting potential for fulsome habitat restoration.

From a planning perspective, if the tributary remains fully open, parcels of land on the two northernmost properties (properties 1 and 2 in **Appendix A**) become isolated and undevelopable between the tributary and the Simpson Road extension.

Option 1 scored 32 through the alternative evaluation and is the least preferable option (**Table 1**). While preservation of an open channel preserves existing habitat, there is limited opportunity for enhancement and recovery based on the required crossings and surrounding land use. There is likely to be greater benefits elsewhere in the local watershed that may be achieved through appropriate compensation. The Town of Caledon has also expressed concern about maintenance requirements, given potential for debris blockages and erosion, associated with numerous crossings.

#### 4.2 Option 2 – Partially Piped

The partially piped alternative avoids isolating a land parcel on the northernmost properties, by piping approximately 140 m of the tributary (**Appendix A**). The majority of the tributary would remain open, employing the same open channel design corridor outlined in Option 1. It is anticipated that the partial piping of the tributary would require local/off-site habitat compensation and enhancement to offset the loss of channel length and associated environmental benefits it provides. The compensation may allow for realization of greater overall benefit to the Rainbow Creek watershed.

Option 2 scored 37, preferred to Option 1, as it reduces the overall number of crossings needed and allows for development of otherwise isolated parcels on the northernmost properties (**Table 1**).

#### 4.3 Option 3 – Fully Piped

As described above, the multiple, closely spaced (20-100 m apart) driveway crossings over the tributary that would be required to access the five properties from the planned extension of Simpson Road would result in a variety of unavoidable impacts to channel form and function. They would also severely limit the extent and quality of aquatic/riparian habitat that could possibly be restored between the crossings and their associated erosion protection. The numerous crossings would also predispose the channel to debris jams and the flood, erosion and habitat risks they pose. As such, an alternative approach that involves piping of the channel from its existing origin at the upstream SWM pond downstream to a natural, vegetated bend in the channel just upstream of Mayfield Road is proposed (Greck, 2024). Conveyance of upstream and local stormwater through a pipe would allow for on-site water quality controls to be used to deliver clean, treated water to the downstream end of the site, where channel form, function and habitat values become better defined. It is understood that such an approach is not standard and that a comprehensive evaluation of alternatives that ensures ultimate habitat benefits outweigh impacts will need to be undertaken in consultation with TRCA and reviewed by Fisheries and Oceans Canada (DFO). A discussion of the feasibility of piping the channel and demonstrating appropriate flood conveyance is presented in Greck (2024).

## Memorandum

Page 13 | May 24, 2024

Simpson Road Extension and Tributary to West Rainbow Creek – Scoped Fluvial  
Geomorphology Assessment, Aquatic Habitat Review and Evaluation of Alternative Flow  
Conveyance Options



Option 3 scored 47 and provides the greatest potential overall benefit when the opportunity for off-site compensatory habitat improvements is considered against the limitations of on-site attempts at restoration between closely spaced driveway crossings.

**Table 1. Flow Conveyance Options Evaluation Matrix**

Note: For each option, the criteria are evaluated such that higher scores are related to varying degrees of positive effect that an option, for the defined criteria, would have on the outcome. In general, the following scoring was used – 1 = unfavourable, 3 = acceptable and 5 = favourable – such that the sum of criteria can be scored for each option, with the highest score deemed to be preferred.

Objective	Criteria	Comment	Option 1 Open Channel (approximately 5 vehicular access crossings required)	Option 2 Partly Piped (N end only; approximately 3 vehicular access crossings required) (with corresponding local/off-site habitat compensation works)	Option 3 Fully Piped (no crossings required; with corresponding local/off-site habitat compensation works)	Notes
Physical and Natural Environment	Flooding	Impact on surface drainage, flooding; meet legislated criteria for flooding and water	3	3	3	All engineered options offer an acceptable solution to address flood hazard and local drainage with minimal impacts to others and an overall improvement to existing drainage conditions.
	Erosion	Impacts on soils, geology, rate of erosion	2	3	4	Option 3 fully eliminates erosion risk alongside Simpson Road associated with open channel flow, and Option 2 partly eliminates erosion risk at necessary vehicular crossings. Options 1 and 2 will likely require localized stabilization works at crossings, necessitating long-term maintenance.
	Terrestrial Habitat	Impact on connectivity, diversity and sustainability	3	4	5	Options 2 and 3 provide an opportunity to implement local/off-site habitat compensation works where benefits are greater. Options 1 and 2 maintain and/or enhance existing riparian buffer (where open).
	Aquatic Habitat	Impact on connectivity, spawning and sustainability	3	3	3	The reach currently provides limited to no fish habitat. GEI Consultants sampled target areas of the tributary in June 2023 and found Creek Chub (1), Fathead Minnow (1), Brook Stickleback (6). In the downstream road allowance GEI (2023) documented Fathead Minnow (15) and Pumpkinseed (2). Option 1 maintains and affords an opportunity for some restoration of the existing ditch-like fish habitat, but Options 2 and 3 provide an opportunity for the creation, restoration and/or enhancement of fish habitat where of much greater ecological benefit.
Technical Criteria	Regulatory Agency Acceptance	Satisfy CLOCA, DFO, MNRF and MECP mandates	5	3	1	Regulatory agencies will likely prefer to maintain and restore the existing open channel. A Request for Review will need to be submitted to DFO, which will in turn determine if a Fisheries Act Authorization is required for either piped approach (unlikely, assuming compensation is proposed elsewhere).
	Impact on Infrastructure	Protection or potential exposure of infrastructure (sanitary sewer, maintenance hole)	2	3	5	Option 3 will avoid risks associated with flooding (e.g. debris build-up) and erosion (e.g. inlet/outlet scour) at the vehicular crossings necessary to access each portion of the subject property. Option 2 will have an intermediate exposure to flooding and erosion risk at crossings. Option 1 will have maximum exposure to flooding and erosion risk at crossings.
	Maintenance Requirements	Requirement for regular, irregular or no maintenance activities, such as structural maintenance or vegetation maintenance	1	3	5	Option 3 reduces municipal maintenance requirements through the avoidance of vehicular crossings and opportunities for localized flooding (e.g. debris build-up) or erosion (e.g. inlet/outlet scour). Options 1 and 2 require several crossing structures and associated erosion protection to be inspected and maintained over the long-term.
Financial Criteria	Capital Costs	Rough Order of Magnitude (ROM) capital costs for the detailed design, permitting and installation of proposed concept	5	3	3	Construction costs are generally the same. A fully piped solution will not require multiple culvert channel crossings which tend to be more expensive per linear meter.
	Maintenance Costs	Rough Order of Magnitude (ROM) costs to maintain the proposed structure	3	3	3	Maintenance is generally the same. Maintenance is typically required when there is a major inlet device (clogging) and structural integrity of hard solutions. This is present in options 2 and 3. For option 1, crossing structures need to be maintained and inspected for erosion and structural integrity.
Constructability	Complexity of Treatment	Requirement for specialized services to design or install unique or proprietary specifications that must be completed by a certified contractor/consultant	3	3	5	Piping the reach offers a simple design approach that does not require construction firm experienced in natural channel design.
Public Safety	Potential Risks public users	Impact on safety and requirement for safety features (e.g. safety fences)	1	3	5	The removal of an open channel (e.g., road side ditch) reduces the potential for vehicle and/or commercial truck driving accidents

**Memorandum**

Page 15 | May 24, 2024

Simpson Road Extension and Tributary to West Rainbow Creek – Scoped Fluvial Geomorphology Assessment, Aquatic Habitat Review and Evaluation of Alternative Flow Conveyance Options

Objective	Criteria	Comment	Option 1 Open Channel (approximately 5 vehicular access crossings required)	Option 2 Partly Piped (N end only; approximately 3 vehicular access crossings required) (with corresponding local/off-site habitat compensation works)	Option 3 Fully Piped (no crossings required; with corresponding local/off-site habitat compensation works)	Notes
Land Use Planning	Complexity of development	Feasibility of parcel development	1	3	5	Preserving the channel in its current alignment results in an isolated parcel of land on the two northern properties that is undevelopable. The partial piping option allows for a continuous block of developable land. The full piping option removes the need for several crossings and simplifies driveway access to the properties.
<b>Total Score:</b>			<b>32</b>	<b>37</b>	<b>47</b>	
<b>Combined Rank:</b>			<b>3</b>	<b>2</b>	<b>1</b>	

**Memorandum**

Page 16 | May 24, 2024

Simpson Road Extension and Tributary to West Rainbow Creek – Scoped Fluvial  
Geomorphology Assessment, Aquatic Habitat Review and Evaluation of Alternative Flow  
Conveyance Options

## 5. Certification

This memorandum was prepared, reviewed and approved by the undersigned.

**Prepared By:**



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Tatiana Hrytsak, M.Sc.  
Senior Fluvial Processes Specialist

**Prepared &  
Reviewed By:**



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Joel Davey, B.BRM., M.E.S., CAN-CISEC  
Senior Aquatic Ecologist

**Reviewed &  
Approved By:**



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Robin McKillop, M.Sc., P.Geo., CAN-CISEC  
Vice President, Principal Geomorphologist



## Memorandum

Page 17 | May 24, 2024

Simpson Road Extension and Tributary to West Rainbow Creek – Scoped Fluvial Geomorphology Assessment, Aquatic Habitat Review and Evaluation of Alternative Flow Conveyance Options

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### References

AMEC (2012). *Municipal Class Environmental Assessment Completion of Simpson Road in the Town of Caledon – Environmental Study Report Final*. Town of Caledon. Submitted: December 2012.

Aqualogic (2019). *Natural Channel Design West Rainbow Creek Simpson Road Extension, Bolton Industrial Park Town of Caledon*. Town of Caledon. Submitted: February 2019.

Burnside Development Services (2000). *Bolton South Industrial Lands Master Environmental Servicing Plan*. Town of Caledon. Submitted: December 2000.

Greck and Associates Ltd. (2021). *West Rainbow Creek and Simpson Road Channel Re-Alignment, City of Caledon, Preliminary Floor Hazard Assessment and Natural Channel Design*. Anatolia Capital Corp. Submitted: April 2021.

Greck and Associates Ltd. (2024). *Simpson Road Extension and Rainbow Creek Culvert Feasibility Study*. Simpson Road Landowners Group. Submitted: May 2024.

Ministry of Natural Resources and Forestry and Toronto and Region Conservation Authority (MNRF and TRCA). 2005. Humber River Fisheries Management Plan. Cited online: <http://trca.on.ca/dotAsset/25855.pdf>. Accessed December 2016.

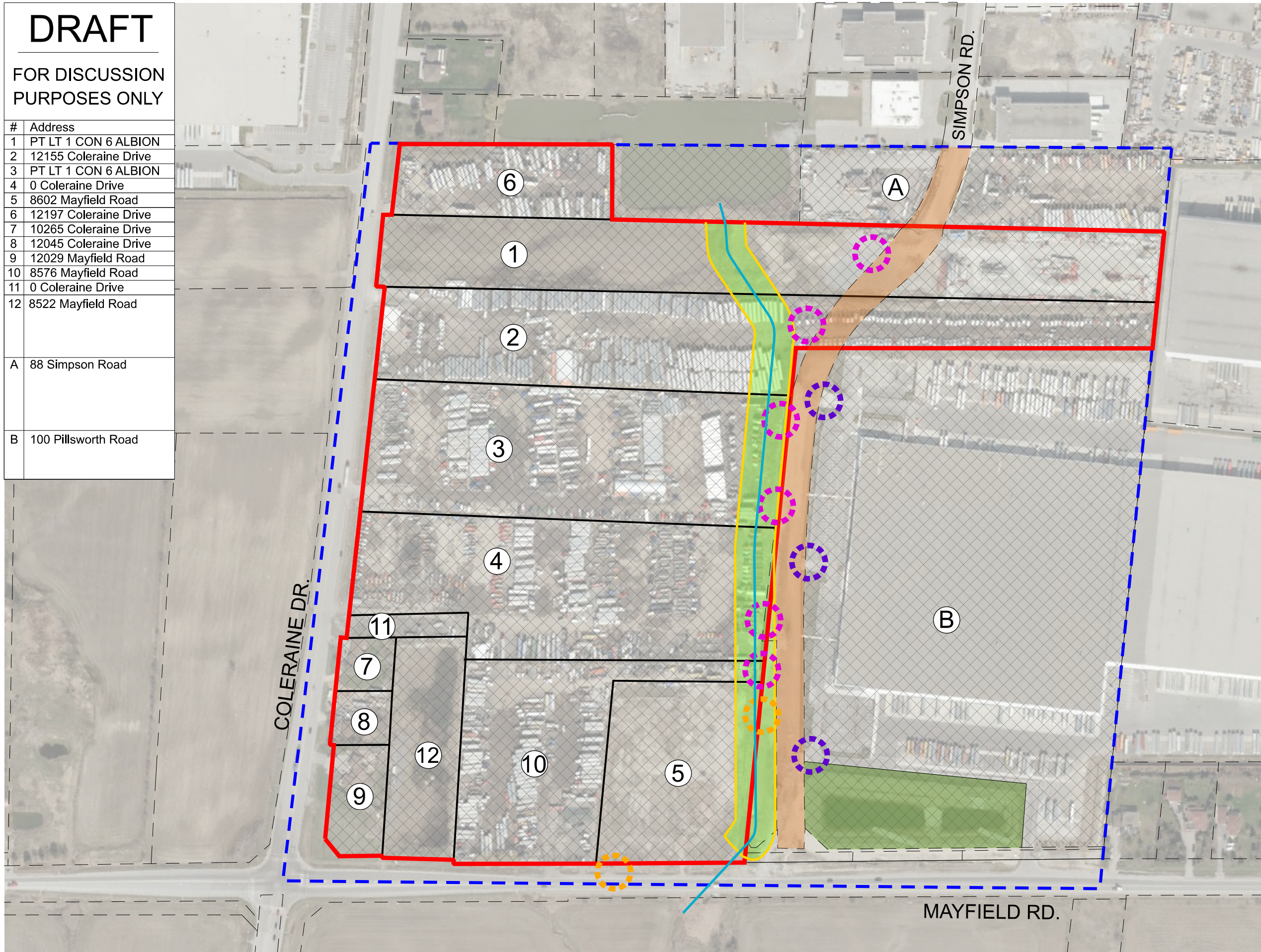
# Appendix A

**Flow Conveyance Option  
Figures (provided by Weston  
Consulting)**

# DRAFT

FOR DISCUSSION  
PURPOSES ONLY

#	Address
1	PT LT 1 CON 6 ALBION
2	12155 Coleraine Drive
3	PT LT 1 CON 6 ALBION
4	0 Coleraine Drive
5	8602 Mayfield Road
6	12197 Coleraine Drive
7	10265 Coleraine Drive
8	12045 Coleraine Drive
9	12029 Mayfield Road
10	8576 Mayfield Road
11	0 Coleraine Drive
12	8522 Mayfield Road
A	88 Simpson Road
B	100 Pillsworth Road



**LEGEND**

- Surrounding Parcel Fabric
- Block Plan Area
- Lot Subdivision
- Phase 2 Secondary Plan Area
- Employment Designated Areas Within Block Plan
- Top of Channel
- Centreline of Channel
- Vegetated Valley Corridor
- Proposed Access Points
- Potential Access Points
- Existing Approved Access Points at 100 Pillsworth Road
- Potential Road Extension
- Stormwater Management Pond

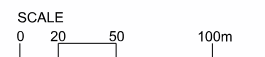
**Notes:**

- Parcel fabric, Block plan Area and lot subdivision are approximate and subject to confirmation by a survey.
- Areas are approximate and subject to confirmation by a survey.
- Phase 2 Secondary Plan Area is sourced from Schedule C-5 from the South Simpson Industrial Secondary Plan (Town of Caledon OP).
- The potential extension of Simpson Road and Channel alignment are drawn based on the Rainbow Creek Channel Re-alignment Plan prepared by Greck, April 2022.
- The approved access points from Simpson Road at 100 Pillsworth Road is based on the Site Plan prepared by Ware Malcomb.
- Air Photo is from First Base Solutions, dated 2022.

**DRAWN / REVISED**

30 APR 2024	Fourth Draft
30 JAN 2024	Third Draft (CAD File Export)
24 JAN 2024	Second Draft
21 DEC 2023	First Draft

**BLOCK PLAN  
OPEN CHANNEL ALIGNMENT  
NORTHEAST CORNER OF  
COLERAINE DR. AND MAYFIELD RD.  
TOWN OF CALEDON  
REGIONAL MUNICIPALITY OF PEEL**



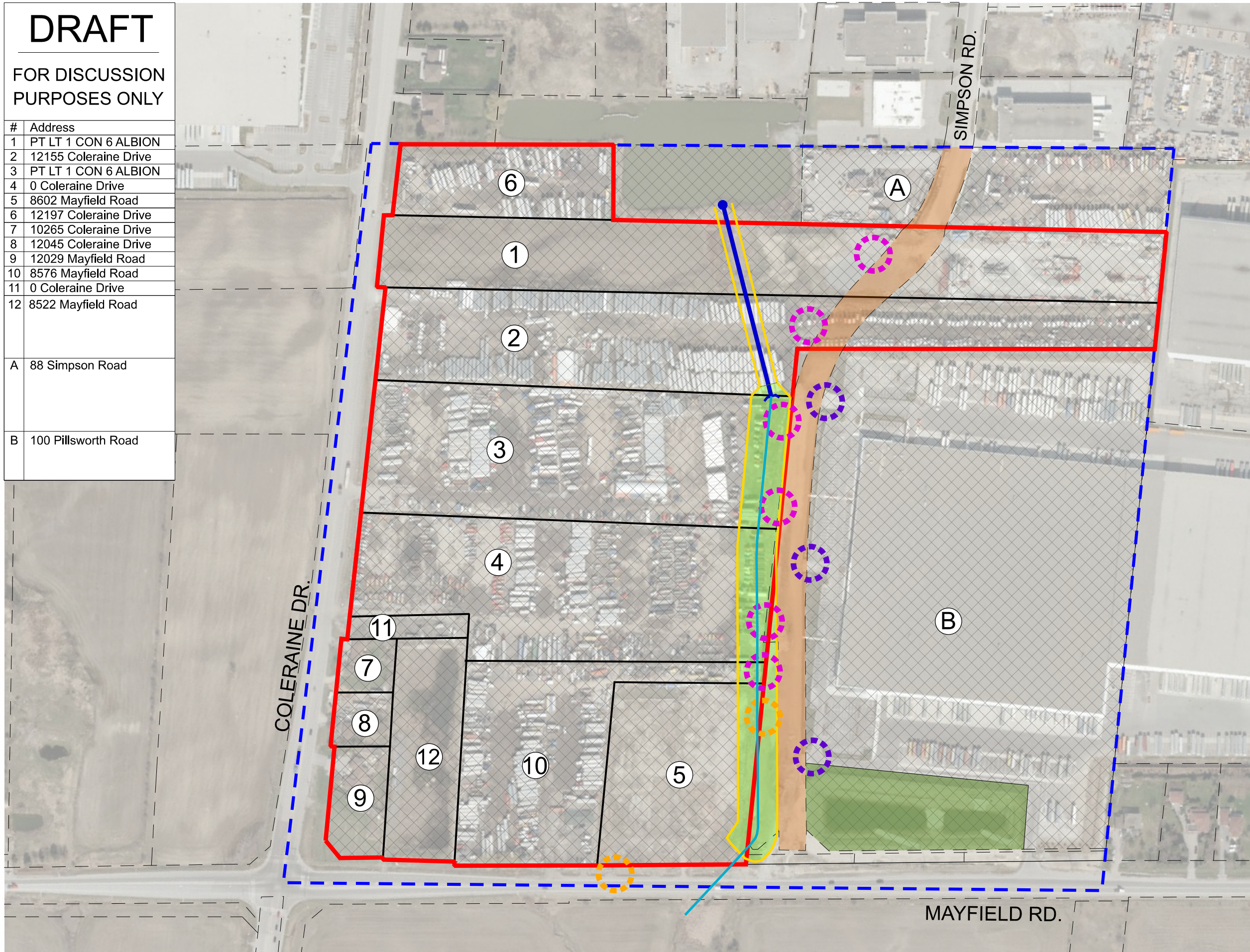
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Drawing  
**BP**

# DRAFT

FOR DISCUSSION  
PURPOSES ONLY

#	Address
1	PT LT 1 CON 6 ALBION
2	12155 Coleraine Drive
3	PT LT 1 CON 6 ALBION
4	0 Coleraine Drive
5	8602 Mayfield Road
6	12197 Coleraine Drive
7	10265 Coleraine Drive
8	12045 Coleraine Drive
9	12029 Mayfield Road
10	8576 Mayfield Road
11	0 Coleraine Drive
12	8522 Mayfield Road
A	88 Simpson Road
B	100 Pillsworth Road



### LEGEND

- Surrounding Parcel Fabric
- Block Plan Area
- Lot Subdivision
- Phase 2 Secondary Plan Area
- Employment Designated Areas Within Block Plan
- Top of Channel
- Centreline of Channel
- Proposed Concrete Pipe
- Vegetated Valley Corridor
- Proposed Access Points
- Potential Access Points
- Existing Approved Access Points at 100 Pillsworth Road
- Potential Road Extension
- Stormwater Management Pond

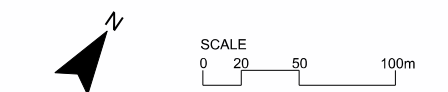
### Notes:

- Parcel fabric, Block plan Area and lot subdivision are approximate and subject to confirmation by a survey.
- Areas are approximate and subject to confirmation by a survey.
- Phase 2 Secondary Plan Area is sourced from Schedule C-5 from the South Simpson Industrial Secondary Plan (Town of Caledon OP).
- The potential extension of Simpson Road and Channel alignment are drawn based on the Rainbow Creek Channel Re-alignment Plan prepared by Greck, April 2022.
- The approved access points from Simpson Road at 100 Pillsworth Road is based on the Site Plan prepared by Ware Malcomb.
- Air Photo is from First Base Solutions, dated 2022.

### DRAWN / REVISED

30 APR 2024	Fourth Draft
30 JAN 2024	Third Draft (CAD File Export)
24 JAN 2024	Second Draft
21 DEC 2023	First Draft

## BLOCK PLAN PARTIALLY-PIPED ALIGNMENT NORTHEAST CORNER OF COLERAINE DR. AND MAYFIELD RD. TOWN OF CALEDON REGIONAL MUNICIPALITY OF PEEL



**WESTON**  
CONSULTING

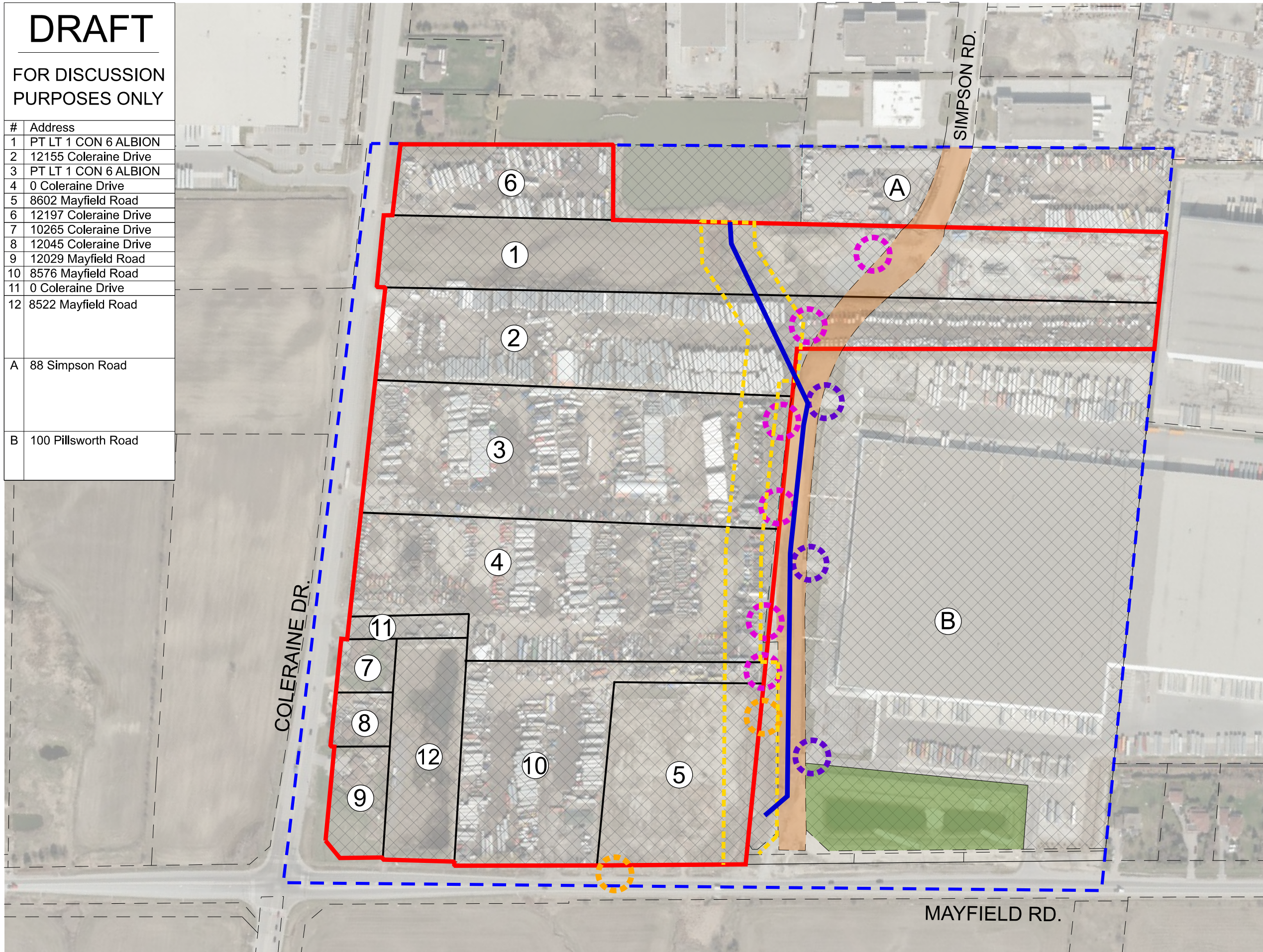
File Number: 10846  
Date: 2024-04-30  
Drawn By: GA  
Planner: PT  
CAD: 10846\_Block Plan\_2024-04-30.dgn

Drawing  
**BP**

# DRAFT

FOR DISCUSSION  
PURPOSES ONLY

#	Address
1	PT LT 1 CON 6 ALBION
2	12155 Coleraine Drive
3	PT LT 1 CON 6 ALBION
4	0 Coleraine Drive
5	8602 Mayfield Road
6	12197 Coleraine Drive
7	10265 Coleraine Drive
8	12045 Coleraine Drive
9	12029 Mayfield Road
10	8576 Mayfield Road
11	0 Coleraine Drive
12	8522 Mayfield Road
A	88 Simpson Road
B	100 Pillsworth Road



**LEGEND**

- Surrounding Parcel Fabric
- Block Plan Area
- Lot Subdivision
- Phase 2 Secondary Plan Area
- Employment Designated Areas Within Block Plan
- Existing Natural Channel Easement Per Secondary Plan
- Proposed Storm Sewer
- Proposed Access Points
- Potential Access Points
- Existing Approved Access Points at 100 Pillsworth Road
- Potential Road Extension
- Stormwater Management Pond

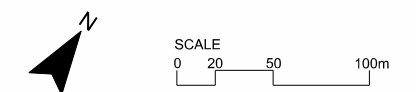
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**BLOCK PLAN  
FULLY-PIPED ALIGNMENT  
NORTHEAST CORNER OF  
COLERAINE DR. AND MAYFIELD RD.  
TOWN OF CALEDON  
REGIONAL MUNICIPALITY OF PEEL**



File Number: 10846  
Date: 2024-04-30  
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**BP**