



City of Mississauga

# Cooksville Creek Erosion Control Project at Camilla Road

Online Public Information Centre (PIC)



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# Study Purpose

- The Cooksville Creek Erosion Project at Camilla Road is being completed as a Schedule B Municipal Class Environmental Assessment (EA) Study.
- This study will identify and evaluate a range of design options for upgrading the existing channel to address erosion issues and provide opportunity to naturalize the site.
- The purpose of this Public Information Centre (PIC) is to:
  - Present study background information and proposed alternatives for the restoration of Cooksville Creek;
  - Outline how each alternative was evaluated;
  - Recommend a preferred alternative;
  - Provide a timeline of upcoming steps; and
  - Provide the public an opportunity to submit comments.





# Study Area

- Cooksville Creek originates in the industrial lands north of Highway 403 before flowing through the study area at Camilla Road and ultimately discharging to Lake Ontario at Helen Molasy Park.
- This section of Cooksville Creek spans 200 metres and consists of an engineered channel constructed approximately 30 to 40 years ago with areas of stone-filled Gabion basket walls and concrete-lined channel.



Upstream of Camilla Road  
Trapezoidal concrete channel  
*(Looking Upstream facing West)*



Bridge at Camilla Road  
3-cell culvert  
*(Looking Downstream facing East)*



Downstream of Camilla Road  
Channel banks transition from concrete  
vertical wall to Gabion baskets  
*(Looking Downstream facing East)*





# Problem or Opportunity Statement

## Problem

The City has identified this section of Cooksville Creek as a high priority site in need of rehabilitation. This section of the creek is entirely channelized via a trapezoidal concrete structure or lined with concrete and Gabion baskets. These Gabion baskets have failed, and the channel walls are slumping and undermined. The concrete-lined channel has a fractured bed and banks, and there is a significant amount of accumulated sediment, debris, and vegetation growth obstructing the channel, further reducing its ability to properly drain surface water to Lake Ontario. The deteriorating channel poses a potential risk to infrastructure, private property, and the environment.

## Opportunity

There is an opportunity to rehabilitate or replace the channel to mitigate potential risks. Project objectives include:

- Providing long term erosion protection compatible with the creek;
- Maintaining the hydraulic capacity of the creek;
- Replacing the hardened creek bed and banks with more “natural” forms of erosion and grade control;
- Providing environmental enhancements and improving fish habitat and fish passage;
- Decreasing risk of property and infrastructure loss; and
- Reducing the City’s maintenance costs.

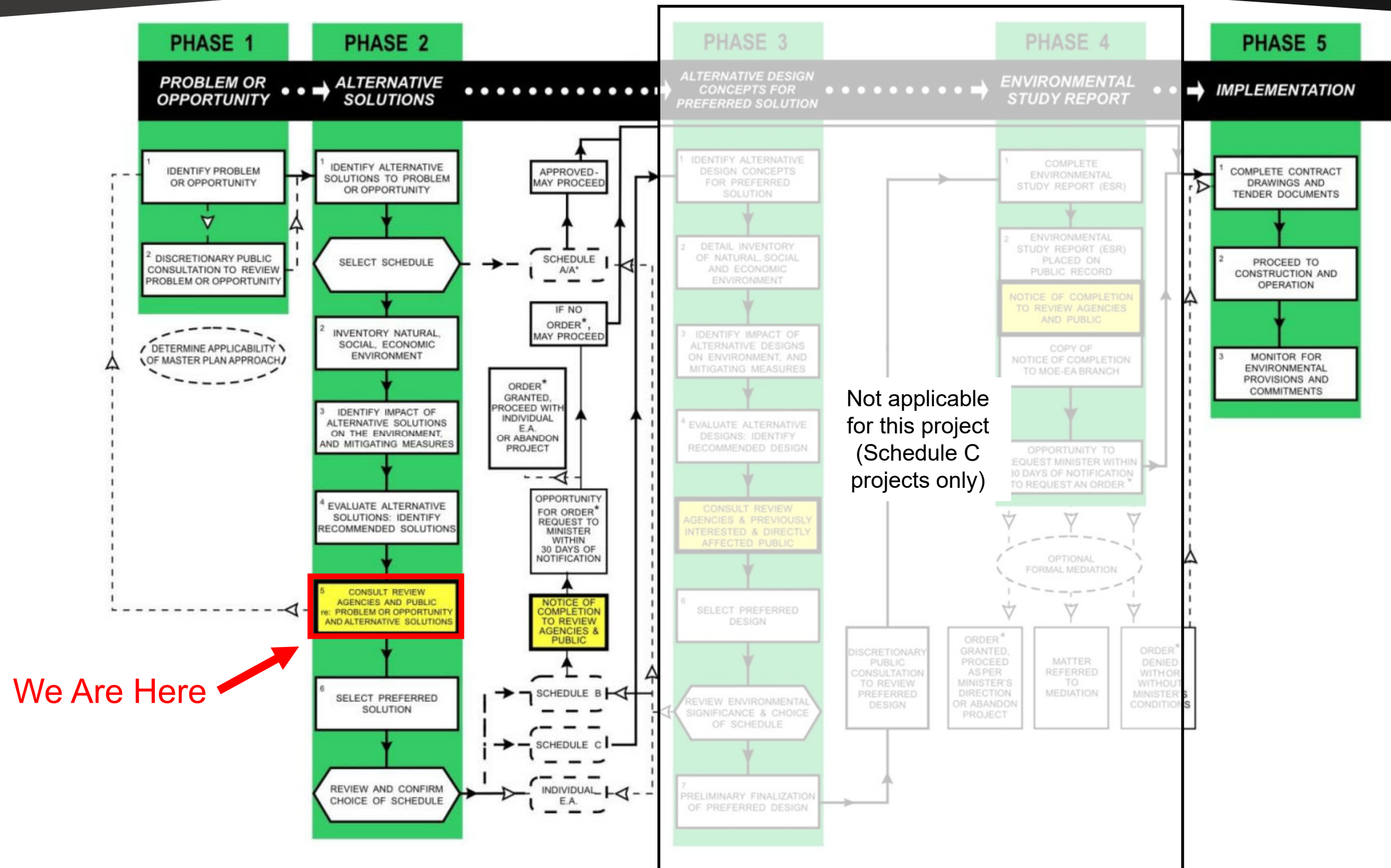




# Municipal Class EA Overview

- The Municipal Class EA process is a decision-making and planning process that ensures that potential effects of a project are identified and managed prior to implementation.
- The Class EA process applies to routine public sector projects that have predictable and manageable environmental effects, such as municipal road, water and wastewater projects.
- The process requires the identification and evaluation of possible alternative solutions and design concepts, and recommends the best approach based on evaluation.
- The Class EA study is undertaken in accordance with the requirements of the Ontario *Environmental Assessment Act*, as prescribed by the Municipal Engineers Association Municipal Class EA document (2000, as amended in 2007, 2011 and 2015).
- This study will address the requirements of Phases 1 and 2 of a Schedule 'B' project under the Municipal Class EA process.









# Existing Infrastructure

- The channel includes a 3-cell culvert at Camilla Road, with an overflow cell along the south bank. The culvert appears to be in good condition, but sediment and debris has begun to accumulate within the structure.
- Cooksville Creek upstream (west) of Camilla Road consists of a trapezoidal concrete structure in poor condition.
- Downstream (east) of Camilla Road, the creek has banks that transition from a concrete vertical wall to a Gabion basket wall. The Gabion baskets have either failed or are at risk of failure due to undermining along the bank.
- The nearby Hydro One corridor is outside the study area.



1. View inside Camilla Road culvert
2. Trapezoidal concrete channel (looking downstream)
3. Concrete wall along creek bank
4. Failed Gabion baskets along creek bank





# Existing Natural Conditions

- Cooksville Creek outlets into Lake Ontario at Port Credit. It is a warmwater watercourse that may provide limited fish habitat, though no fish were observed during surveys and fish habitat is limited due to channel design.
- Treed vegetation within the study area is dominated by dead or dying Ash trees (*Fraxinus spp.*), as well as Willows (*Salix spp.*), Manitoba Maple (*Acer negundo*) and Norway Maple (*Acer platanoides*). Invasive species include European Buckthorn (*Rhamnus cathartica*), Garlic Mustard (*Alliaria petiolata*), European Common Reed (*Phragmites australis ssp. australis*), and Japanese Knotweed (*Reynoutria japonica*).
- No Species at Risk were observed in the study area during field investigations, though some are known to be present in the general area.
- No confirmed Significant Wildlife Habitat is known from the study area.

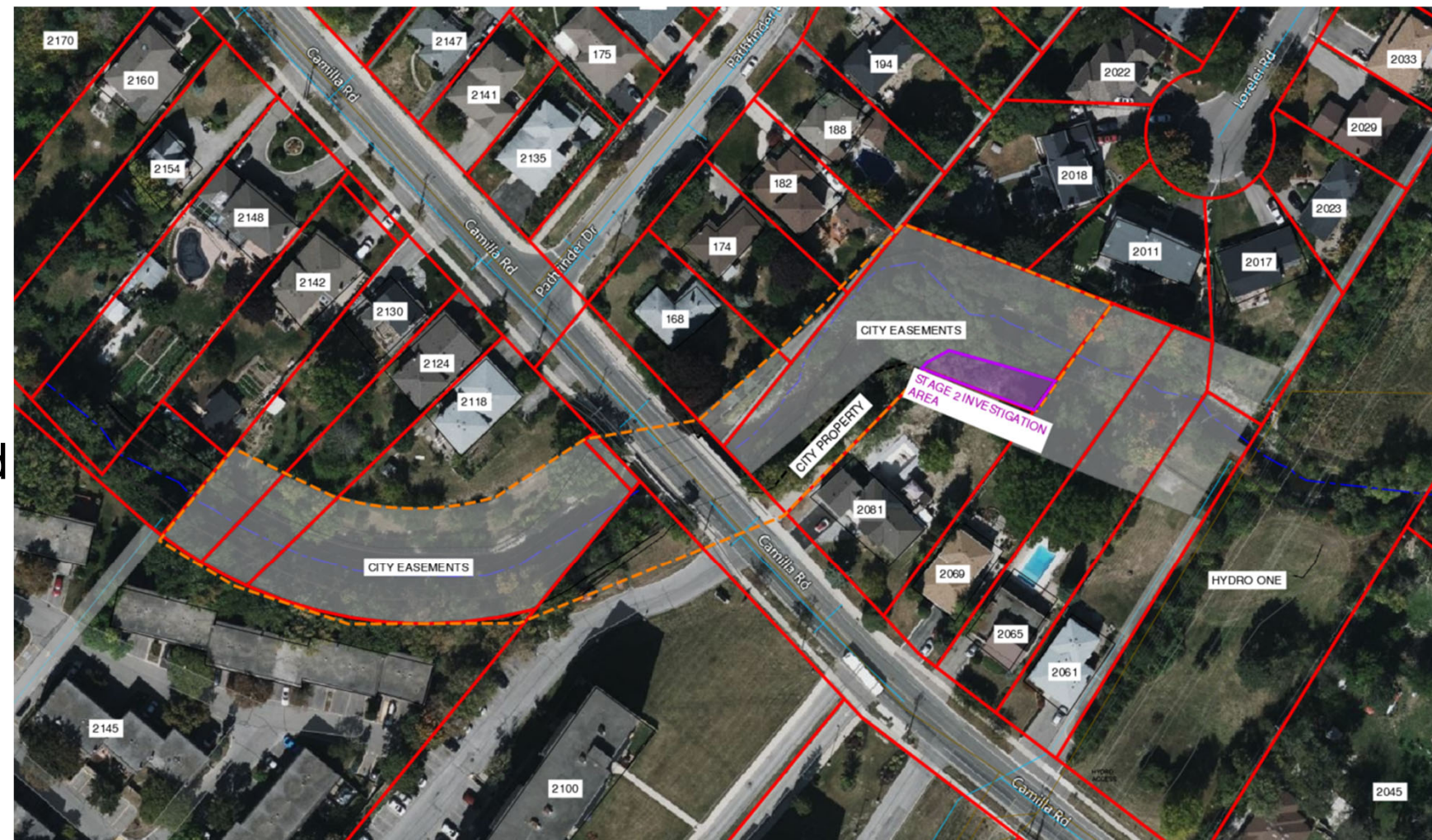






# Existing Socio-Cultural Conditions

- This 200-metre section of Cooksville Creek backs onto low, medium, and high-density residential areas east and west of Camilla Road. The majority of the channel is located on lands owned by the City or have City easements for creek improvement purposes.
- Camilla Road is a minor collector road with dedicated bicycle lanes identified by signs and pavement markings.
- The preliminary archaeological assessment determined that a small part of the study area east of Camilla Road retains archaeological *potential* and requires a Stage 2 Investigation. Test-pitting (by hand) will be required to confirm no archaeological resources exist.







# Indigenous Community Notification

The Ontario Ministry of Environment, Conservation and Parks (MECP) has notified the City that this proposed project ***may*** have the potential to affect Aboriginal or treaty rights protected under Canada's *Constitution Act* (1982). The following communities have been identified as potentially affected:

- Haudenosaunee Confederacy Chiefs Council
- Huron-Wendat Nation
- Mississaugas of the Credit First Nation
- Six Nations of the Grand River

These communities have been notified of this project.

To date, correspondence has been received from the Huron-Wendat Nation and the Mississaugas of the Credit First Nation. Both wish to be involved, including in future archaeological investigations.

Recent amendments to Ontario's *Environmental Assessment Act* note that a Part II Order or “bump-up” request will only be considered by the MECP if the project impacts constitutionally protected Aboriginal or treaty rights. Requests on other grounds will not be considered.





# Alternatives Solutions

The following alternatives were developed and evaluated in accordance with Phase 2 of the Municipal Class EA process:

1. Do Nothing
2. Local Improvements
3. Reach Scale Improvements
4. Natural Channel Restoration

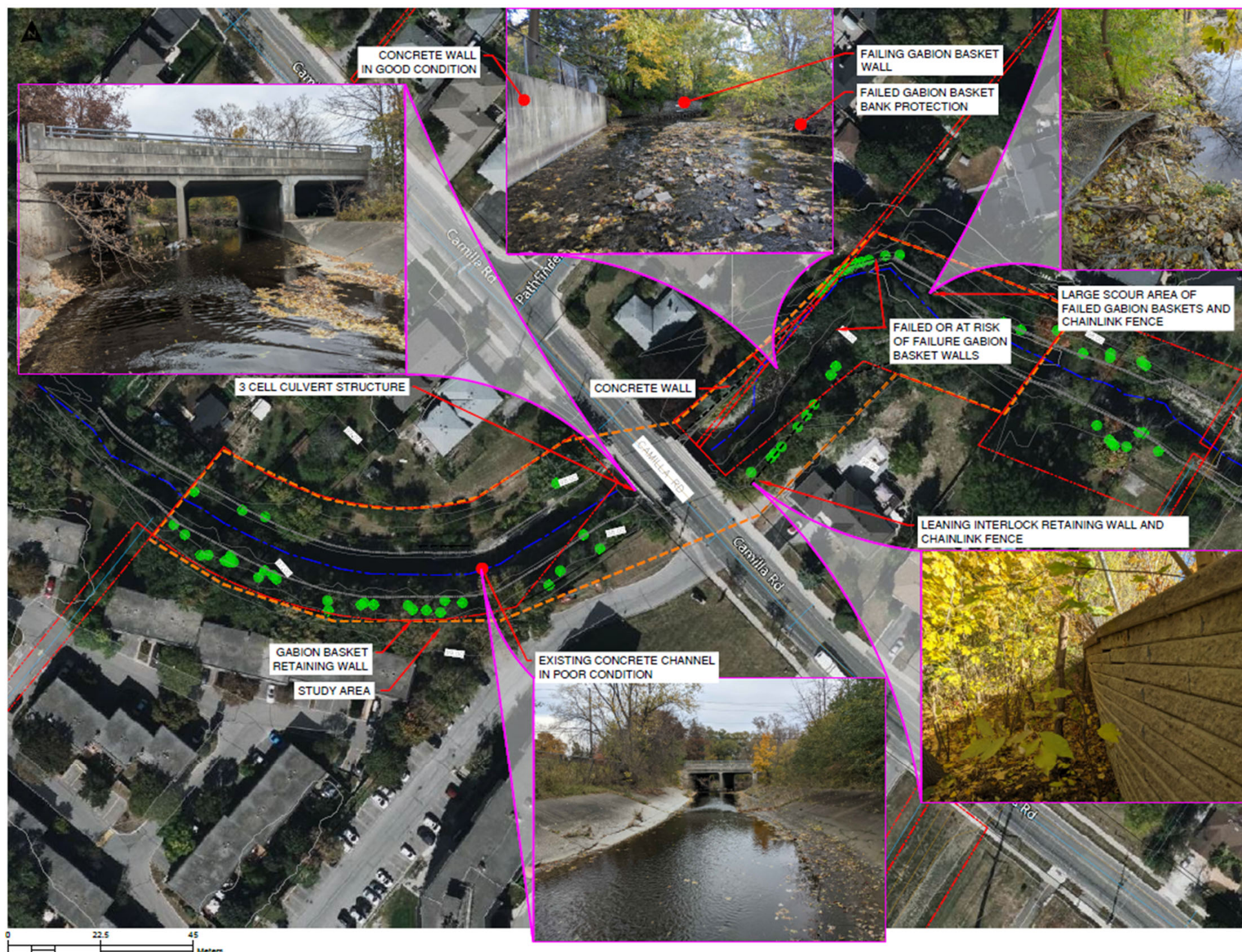




# Alternative #1

## 'Do Nothing'

- No changes to the existing channel.
- This alternative is used for comparison purposes when evaluating the other alternatives.
- Required as per the Municipal Class EA process.
- Failing channel structures will continue to degrade and increase risk to property and infrastructure.
- No environmental benefit is provided.



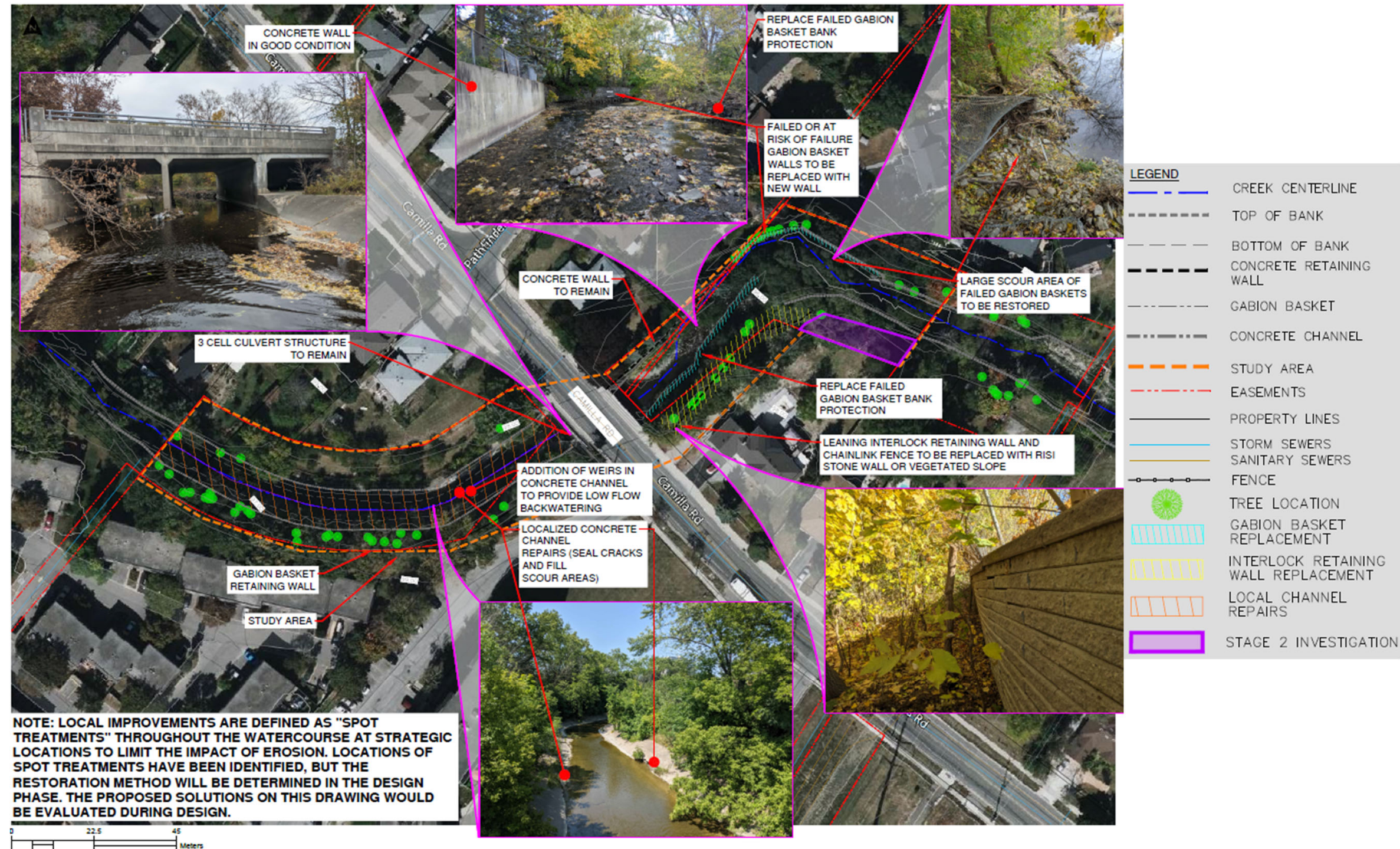




# Alternative #2

## Local Improvements

- Includes “spot treatments” along the channel at strategic locations to limit the impact of erosion.
- Includes filling/repairing cracks and scours in the concrete, replacement of the failed Gabion walls and bank protection with new erosion protection and replacing the leaning interlocking wall with a new protected slope or wall.



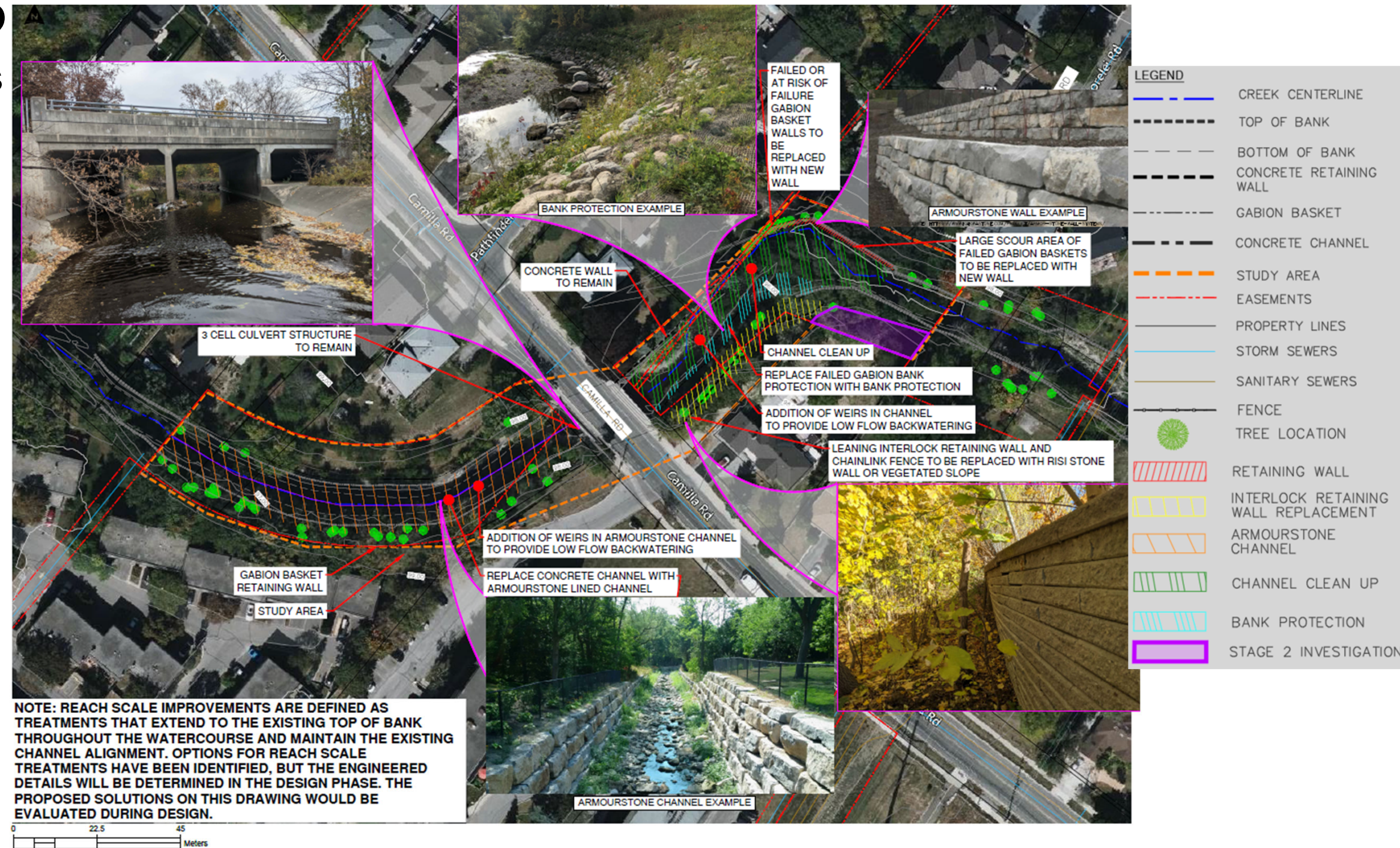




# Alternative #3

## Reach Scale Improvements

- Includes treatments that extend to the existing top of bank and maintain the existing channel alignment.
- Includes replacement of the concrete channel with an armourstone-lined channel west of Camilla Road and channel improvements east of Camilla Road.
- Includes replacement of the failed Gabion walls and bank protection with new erosion protection and replacing the leaning interlocking wall with a new protected slope or wall.

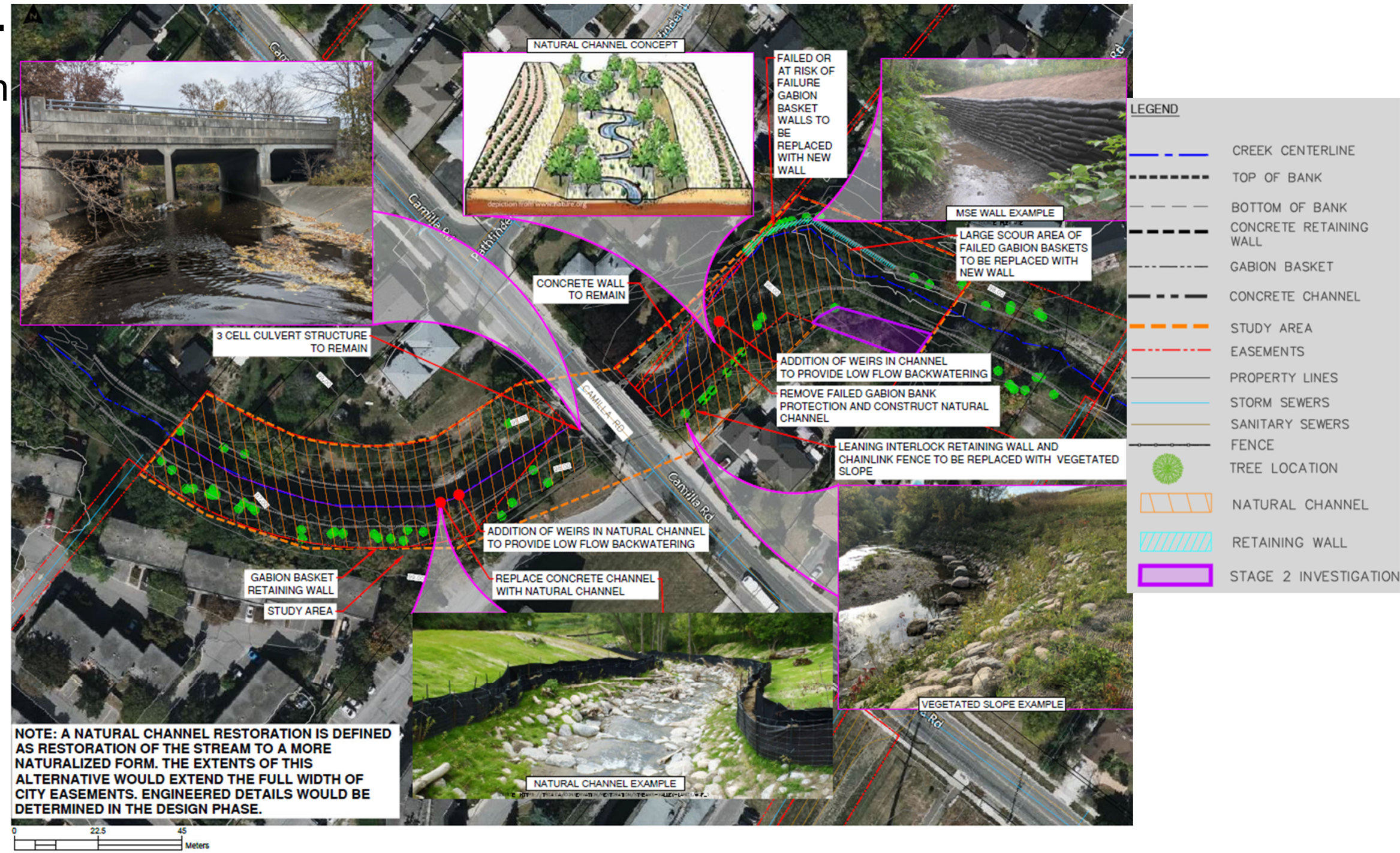




# Alternative #4

## Natural Channel Restoration

- Stream restoration to a naturalized form.
- Includes watercourse expansion on both sides of Camilla Road to incorporate channel meander and bank protection.
- Failed Gabion walls would be replaced with new sloping walls, extending the full width of the City's easement.







# Evaluation Criteria

## **Technical/Engineering**

- Ability to Maintain Hydraulic Capacity (Convey Water)
- Erosion Mitigation
- Constructability
- Site Access

## **Natural Environment**

- Aquatic Habitat Impact/Opportunities
- Terrestrial Habitat Impact/Opportunities
- Sensitive Species Impact/Opportunities
- Water Quality

## **Economic**

- Capital Costs
- Operation and Maintenance Costs

## **Social/Cultural Environment**

- Archaeological and Cultural Heritage Resources Impact/Opportunities
- Adjacent Property Impact/Opportunities
- Indigenous Community Impact
- Temporary Traffic, Noise, Dust Impacts During Construction
- Aesthetics





# Evaluation Matrix

Slide 1 of 3

Evaluation Criteria	Alternative Solutions			
	Alternative #1 'Do Nothing'	Alternative #2 Local Improvements	Alternative #3 Reach Scale Improvements	Alternative #4 Natural Channel Restoration
<b>Technical/Engineering</b>				
Ability to Maintain Hydraulic Capacity (Convey Water)	Hydraulic performance will continue to decline due to failure of Gabion banks (stones and chain-link fence framing) and walls and on-going degradation of concrete channel. Existing debris and sediment to continue to accumulate, further obstructing flow within the channel.	Moderate improvement of hydraulic capacity within channel where failing Gabion baskets and leaning interlocking wall obstructs flows. Debris and sediment will continue to create some reduction of hydraulic capacity. Opportunity to restore low flow backwatering effects with weir installation within channelized portion of reach.	Increase in hydraulic performance due to channel restoration/naturalization and debris removal. Opportunity to restore low flow backwatering effects with weir installation within channelized portion of reach.	Full restoration of hydraulic function within stream channel up to top of bank. Opportunity to restore low flow backwatering effects with weir installation within channelized portion of reach.
Erosion Mitigation	Existing Gabion baskets, interlocking wall, and concrete channel will continue to deteriorate, resulting in further erosion of channel banks and sediment release into the watercourse.	Removal of most imminent erosion risks. Potential for continued erosion and scour of concrete channel.	Removal of erosion risks. Long-term stability provided.	Removal of erosion risks. Long-term stability provided.
Constructability	No construction required.	Construction repairs would be completed with relatively small machinery and minor flow diversion would be required. Shortest construction duration.	Construction would require large equipment access and a flow diversion plan. Replacement of concrete channel with an armourstone lined channel would require extensive demolition and material handling. Moderate construction duration.	Most complex and intrusive works required to replace concrete channel with natural channel and interlocking retaining walls with vegetated slope. Longest construction duration.
Site Access	No site access required.	Site would be accessed through City owned property and easements.	Site would be accessed through City owned property and easements.	Site would be accessed through City owned property and easements. May require access through private properties to access top of bank areas outside of City easements.
<b>Natural Environment</b>				
Aquatic Habitat Opportunities	No improvements.	Removal of the failed Gabion baskets which have fallen into the channel would result in a minor improvement to fish habitat and fish passage.	Removal of debris and sedimentation from the channel would result in a moderate improvement to fish habitat and fish passage. Removal and replacement of the concrete bed west of Camilla Road with a natural substrate would result in a moderate improvement to aquatic habitat. Installation of weirs will also improve aquatic habitat.	Natural channel design would result in the greatest improvement to aquatic habitat. Meanders would increase the total length of aquatic habitat, reduce flow velocity, and mitigate ongoing erosion. A natural substrate would create habitat for a variety of aquatic species and provide features and functions such as rest stops for fish, fish spawning areas, fish foraging areas, and habitat for aquatic invertebrates.
Aquatic Habitat Impact	No in-water or near-water works required.	Some in-water and near-water works required. Disturbance can be mitigated.	In-water and near-water works required, more than Alternative #2 but less than Alternative #4. Disturbance can be mitigated.	In-water and near-water works required (more than Alternative #3). Disturbance can be mitigated.
Terrestrial Habitat Opportunities	No improvements. No removal of terrestrial invasive species.	No improvements. No removal of terrestrial invasive species.	Replacing a portion of the Gabion baskets with a natural form of bank protection would result in a minor increase in terrestrial habitat. Replacement of the concrete channel with an armourstone lined channel would also provide an increase to habitat.	Vegetation clearing would result in invasive species removal. Restoration would involve native tree plantings and seedlings, which would result in improved species diversity and habitat use. A naturalized channel provides the highest benefit to terrestrial and aquatic wildlife.

	More Preferred
	Moderately Preferred
	Least Preferred





# Evaluation Matrix

Slide 2 of 3

Evaluation Criteria	Alternative Solutions			
	Alternative #1 'Do Nothing'	Alternative #2 Local Improvements	Alternative #3 Reach Scale Improvements	Alternative #4 Natural Channel Restoration
Terrestrial Habitat Impact	No tree removals or other vegetation removals required.	Some tree and other vegetation removals anticipated to be required.	Tree and other vegetation removals anticipated to be required, more than Alternative #2. Replacement of sloped concrete banks with armourstone west of Camilla Road may be a barrier to terrestrial wildlife accessing the creek and aquatic wildlife accessing terrestrial habitat (e.g., turtles accessing potential nesting sites).	Tree and other vegetation removals anticipated to be required, more than Alternative #3. Long-term improvements outweigh short-term impacts.
Sensitive Species Opportunities	No improvements.	Minor improvements for aquatic species (e.g., fish, turtles).	Moderate improvements for aquatic species (e.g., fish, turtles). Removal of partial terrestrial invasive species and installation of native plantings and seedlings will improve habitat for terrestrial species (e.g., plants, birds, insects).	Highest level of improvements for aquatic species (e.g., fish, turtles) by creating suitable habitat. Removal of terrestrial invasive species and installation of native plantings and seedlings will improve habitat for terrestrial species (e.g., plants, birds, insects).
Sensitive Species Impact	No impacts.	Tree removals could impact potential terrestrial Species at Risk (e.g., certain species of bats, birds). Impact can be mitigated.	Tree removals could impact potential terrestrial Species at Risk (e.g., certain species of bats, birds). Impact can be mitigated.	Tree removals could impact potential terrestrial Species at Risk (e.g., certain species of bats, birds). Impact can be mitigated.
Water Quality	Further accumulation of debris and sediment in the channel leading to a reduction of water quality over time.	Removal of failed gabion baskets that have fallen into the channel would eliminate locations where debris and sediment accumulate, resulting in a minor improvement to water quality.	Removal of debris and sedimentation from the channel would result in a moderate improvement to water quality.	Natural channel design and restoration plantings and seedlings would result in the greatest improvement to water quality. Restoration plantings and seedlings will control overland runoff and regulate water temperature. In-channel plants trap sediment and filter pollutants.
Social/Cultural Environment				
Archaeological and Cultural Heritage Resources Impact/Opportunities	No potential impact to cultural heritage resources or potential archaeological resources.	No potential impact to cultural heritage resources. Low potential impact to <i>potential</i> archaeological resources, to be confirmed through Stage 2 Archaeological Assessment.	No potential impact to cultural heritage resources. Low potential impact to <i>potential</i> archaeological resources, to be confirmed through Stage 2 Archaeological Assessment.	No potential impact to cultural heritage resources. Low potential impact to <i>potential</i> archaeological resources, to be confirmed through Stage 2 Archaeological Assessment.
Adjacent Property Impact/Opportunities	Risk of further channel deterioration could result in private property loss.	No loss to adjacent properties. Long-term stability of private property may not be provided as the solution is only for "spot treatments."	No loss to adjacent properties. Long-term erosion protection provided.	Loss of private property/table land within City easements, although long-term erosion protection provided.
Indigenous Community Impact	No potential impacts to Indigenous communities, rights, and interests.	Low potential for impacts to Indigenous communities, rights, and interests. To be confirmed.	Low potential for impacts to Indigenous communities, rights, and interests. To be confirmed.	Low potential for impacts to Indigenous communities, rights, and interests. To be confirmed.
Temporary Traffic, Noise, Dust Impacts During Construction	No temporary nuisances or impacts due to no construction.	Possible minor traffic disturbances along Camilla Road to facilitate limited material transport and truck loading. Possible noise/dust impacts can be mitigated. Shortest construction duration.	Possible traffic disturbances along Camilla Road to facilitate material transport and truck loading. Possible noise/dust impacts can be mitigated. Moderate construction duration.	Traffic disturbances along Camilla Road to facilitate material transport and truck loading. Possible noise/dust impacts can be mitigated. Longest construction duration and associated nuisances.

	More Preferred
	Moderately Preferred
	Least Preferred





# Evaluation Matrix

Slide 3 of 3

Evaluation Criteria	Alternative Solutions			
	Alternative #1 'Do Nothing'	Alternative #2 Local Improvements	Alternative #3 Reach Scale Improvements	Alternative #4 Natural Channel Restoration
Aesthetics	Appearance of channel will continue to decline due to deterioration of channel infrastructure and further accumulation of debris and sediment.	Minor upgrade to channel appearance in areas with observable structure deterioration.	Channel west of Camilla Road would be greatly improved due to replacement of deteriorating concrete channel with armourstone and a naturalized bottom. Channel naturalization east of Camilla Road would have significant value-added components due to revegetation and habitat creation. Would provide consistency with the watercourse both up and downstream of the site.	Channel on either side of Camilla Road would be greatly improved due to naturalization of deteriorating existing channel. However, a fully naturalized channel could look out of place and would not blend with the watercourse both up and downstream of the site.
Economic				
Capital Costs	No capital costs.	Low capital costs. Interlocking wall and weir installation would require increased equipment and staging costs. <b>Lowest Cost</b>	Moderate capital costs. Concrete channel replacement would require significant materials and disposal costs. <b>Moderate Cost</b>	High capital costs. Restoration would require significant equipment, materials, and disposal costs. <b>Highest Cost</b>
Operation and Maintenance Costs	High costs for future repair of failing structures and possible loss of infrastructure / property damage.	Moderate costs for ongoing monitoring and maintenance of repaired infrastructure. Ongoing concrete patching and Gabion basket repairs would be required as structures undergo erosion forces. Considered a short-term solution.	Low costs for on-going monitoring and maintenance of replaced infrastructure. Some temporary erosion controls required until vegetation is fully established. Considered a long-term solution.	Lowest costs for on-going monitoring and maintenance of replaced infrastructure. Some temporary erosion controls required until vegetation is fully established. Considered a long-term solution.
SUMMARY				
	Failing channel structures will continue to degrade over time and increase local erosion and risk to property and infrastructure. No environmental benefit is provided.	Critical failing infrastructure would be addressed in the short-term. Minimal disturbance and costs associated with "spot treatments". However, does not achieve naturalization of channel and provides minimal environmental benefit.	Replacement of failing infrastructure would provide protection for nearby properties from deteriorating banks. Cleanup and naturalization of channel would provide environmental and aesthetic benefits.	Full restoration of channel to "natural" structure and function would provide long-term sustainability of banks and resilience to major flood events/erosion. However, construction would be long and very disruptive and private property would be lost. Results would not "match" watercourse conditions both up and downstream.
	<b>Least Preferred</b>	<b>Moderately Preferred</b>	<b>Most Preferred</b>	<b>Moderately Preferred</b>

	More Preferred
	Moderately Preferred
	Least Preferred



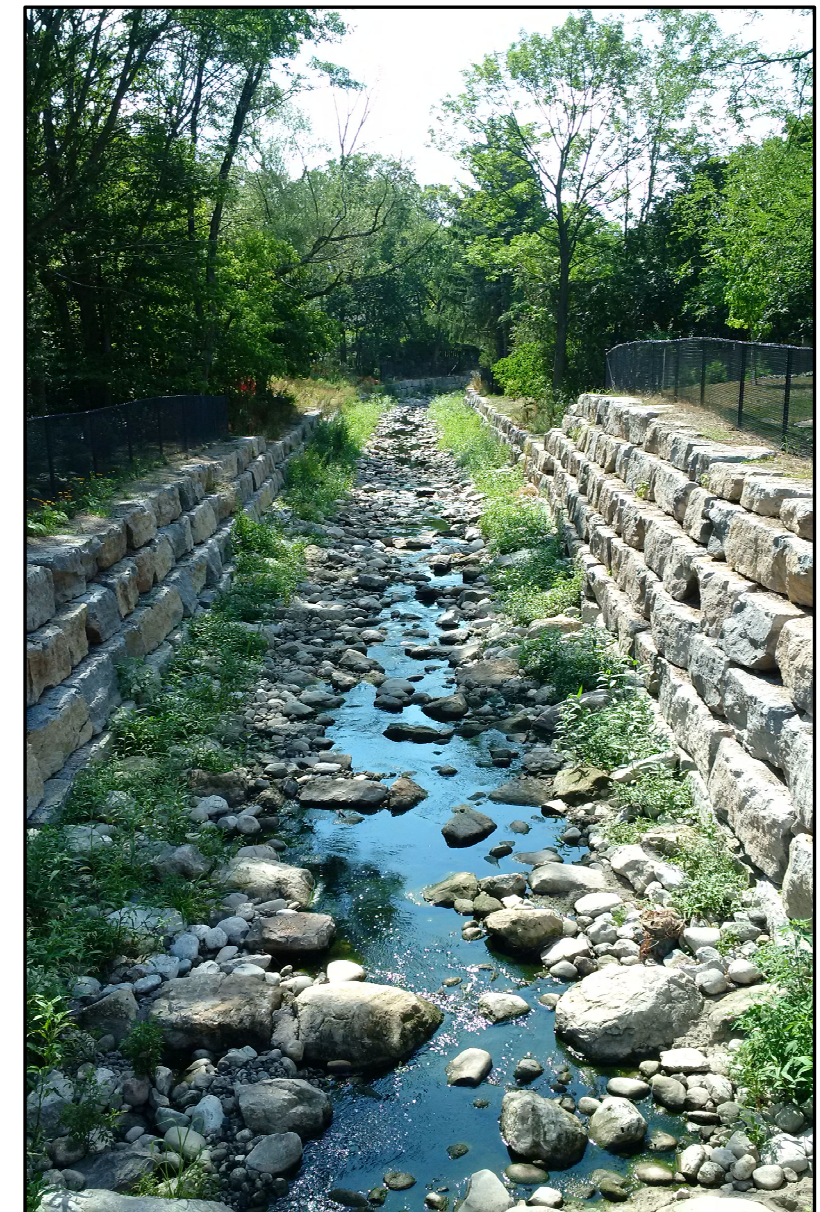


# Preferred Alternative Slide 1 of 2

Based on the results of the evaluation, **Alternative #3 – Reach Scale Improvements** best satisfies the Problem or Opportunity Statement and provides the best long-term solution for the City of Mississauga.

Key features of this alternative include:

- Provides a moderately natural and “green” solution
- Minimizes disturbance area and vegetation removal
- Reduces erosion risks
- Promotes removal of debris in the channel
- Improves fish habitat and passage through the watercourse
- No loss to private property table land
- Moderate capital costs and low future maintenance costs
- Blends with existing erosion protection surrounding the site



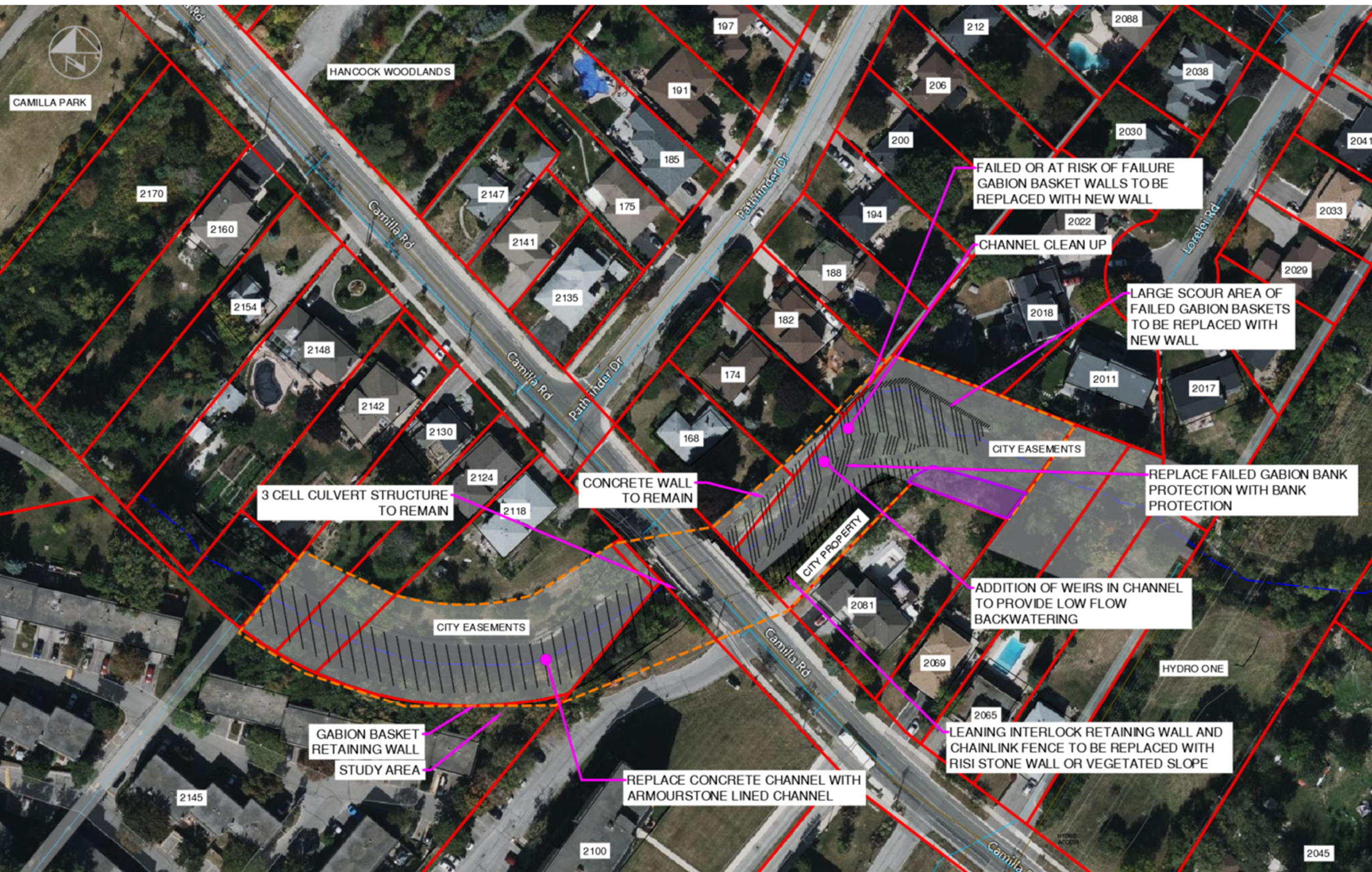
Channel with Armourstone Example





# Preferred Alternative

Slide 2 of 2



LEGEND	
	CREEK CENTERLINE
	EASEMENT
	TOP OF BANK
	CONCRETE RETAINING WALL
	CONCRETE CHANNEL
	PROPERTY LINES
	STORM SEWERS
	SANITARY SEWERS
	FENCE
	STUDY AREA
2061	LOT NUMBER
	STAGE 2 INVESTIGATION
	RETAINING WALL
	INTERLOCK RETAINING WALL REPLACEMENT
	ARMOURSTONE CHANNEL
	CHANNEL CLEAN UP
	BANK PROTECTION





# Next Steps

Following this online PIC, we will:

- Review and consider all comments received
- Confirm the preferred alternative and finalize the preliminary design
- Consider opportunities for phasing of the project to maximize existing infrastructure life cycles
- Complete the Project File Report, which documents the Municipal Class EA planning process followed and the consultation results
- Complete Stage 2 archaeological investigations
- Publish a Notice of Study Completion to advise where and when the Project File Report will be made available for a 30-day public review period

Construction is tentatively scheduled for 2024.





# Your Involvement

How can you remain involved in the study?

- Complete a comment form on the project website
- Request that your name/e-mail is added to the project mailing list.
- E-mail questions or comments to the City's representative or Consultant (contact information on next slide).
- Check the City's project website for updates:  
[www.mississauga.ca/cooksvillecamillastudy](http://www.mississauga.ca/cooksvillecamillastudy)
- **Deadline for questions and comments is May 4<sup>th</sup>**

**Thank you for your participation.**

*All information is collected in accordance with the Freedom of Information and Protection of Privacy Act and, with the exception of personal information, will become part of the public record.*





# For more information please contact:

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