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EEPAC Presentation

Class Environmental Assessment for Adelaide Wastewater Treatment Plant Climate Change Resiliency

Schedule B Municipal Class Environmental Assessment

Matrix Solutions Inc.
ENVIRONMENT & ENGINEERING

PRIME STRATEGY & PLANNING
innovative planning for sustainable communities

CIMA+

Contact information

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Overview

Agenda

- Overview of Class EA
- Adelaide Wastewater Treatment Plant Environmental Impact Study:
  - Methodology
  - Natural Environment
  - Anticipated Impacts
  - Mitigation
  - Next steps
  - Questions

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Project overview

Climate Change Resiliency

- In April 2019, the City of London declared a climate emergency to deepen its commitment to protecting its economy, ecosystems, and communities from climate change through adaptation and mitigation initiatives.
- In 2021, the City initiated an EA to improve resiliency at the Adelaide WTTP during extreme flooding events.
- Matrix Solutions has prepared an EIS to characterize the local environment, identify potential impacts, and mitigate negative impacts.

Image Source: City of London

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Environmental Impact Study
Adelaide WTTP

Adelaide WTTP

Adelaide Wastewater Treatment Plant

1157 Adelaide Street North

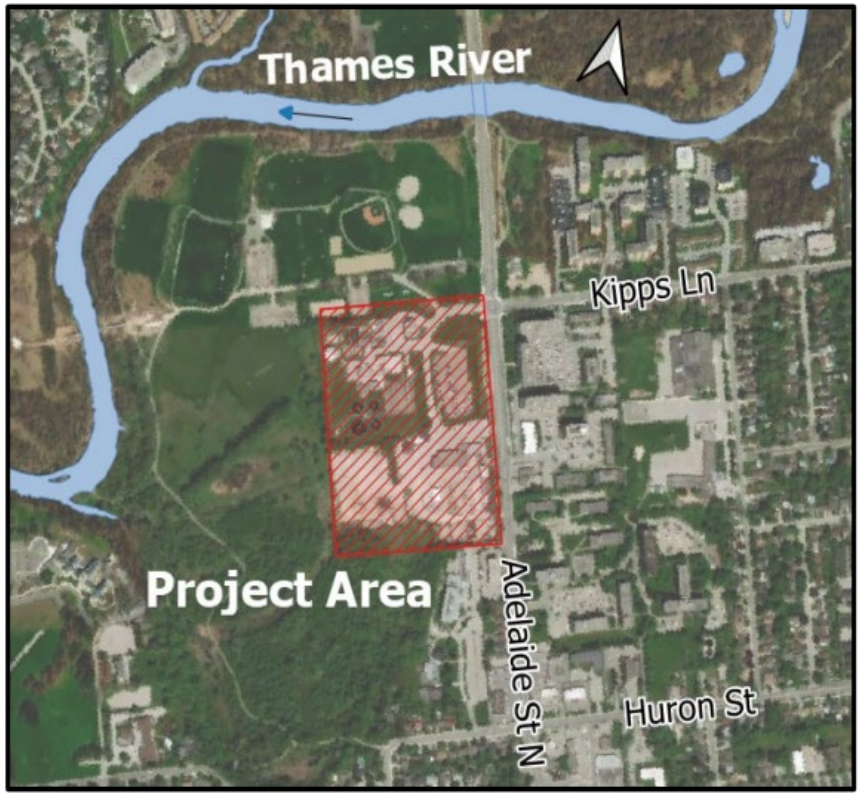


Image Source: Google Earth

Anticipated Floodzone

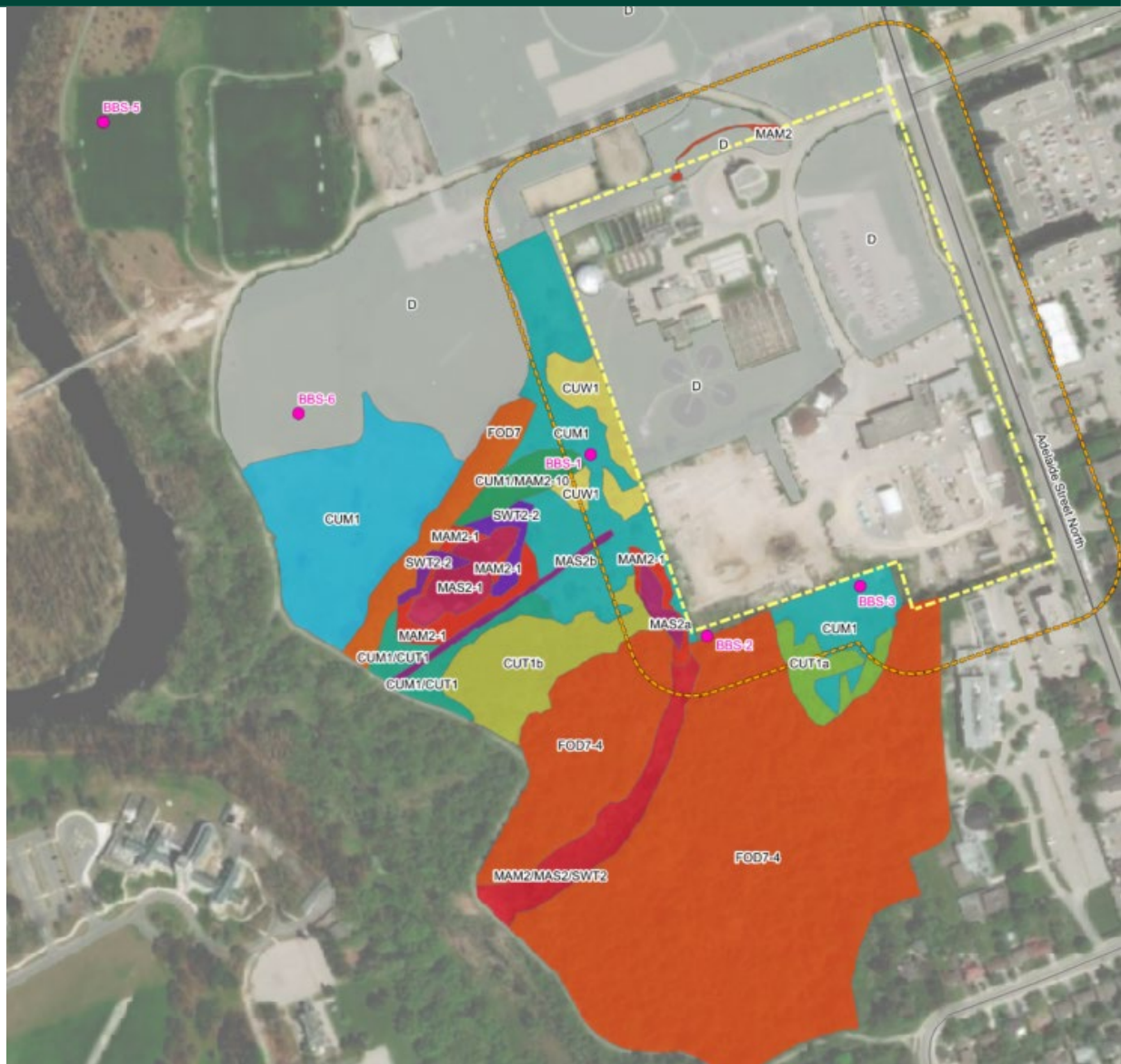
- 1:250-year regulatory flow of 1,000 m^3/s
- Typical flood depths are between 0.2 m and 0.8 m at the plant

Methodology

- 50 m study area
- Background Review
- Field Studies
  - ELC
  - Botanical Survey
  - Breeding Birds
  - Bat Maternity Habitat
- Analysis
  - Terrestrial Habitat
  - Aquatic Habitat
- Significant Habitat Features
  - Significant Woodlands
  - Wetlands
  - Significant Wildlife Habitat
  - Fish Habitat
  - Linkages and Corridors
  - Species at Risk

Natural Environment

- Heavily disturbed/modified to the north and east
- West of WTTP a mix of habitat fragments
  - Adjacent habitat predominantly cultural
- Large area of Black Walnut Lowland Forest south of plant.
- Wetland areas present west and south
  - Small *Phragmites*-dominated shallow marsh at SW corner.
  - Outlet channel linear shallow marsh
- Thames River approximately 350 m west of WTTP



Key Natural Heritage Features

- Significant Woodland
  - FOD7-4
- Wetlands
- Significant Wildlife Habitat
- Fish and Fish Habitat
  - (MAS2b)
- Linkages and Corridors
  - Thames River Riparian Corridor
- Species at Risk (potential)

Key Natural Heritage Features

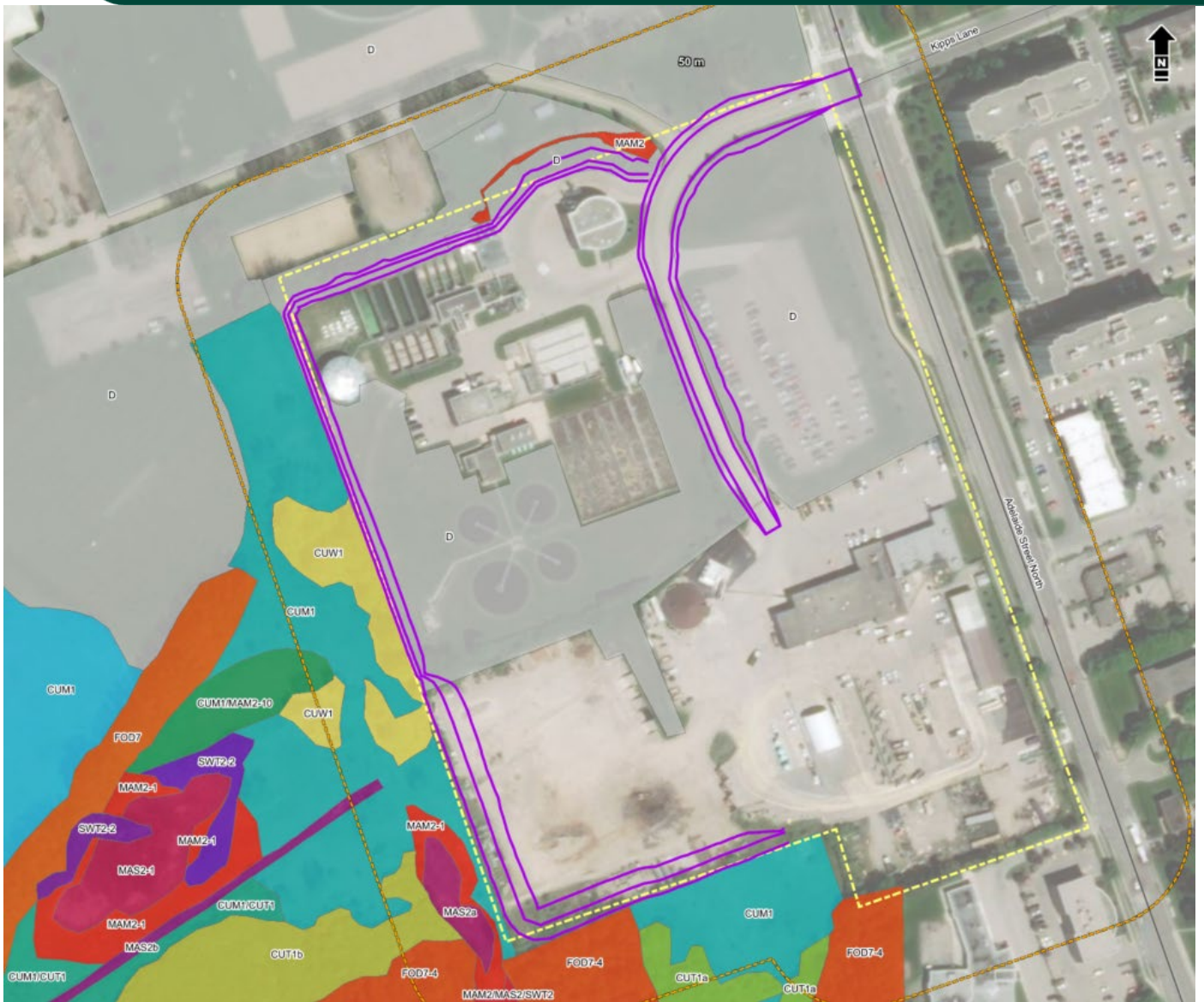
Significant Wildlife Habitat

Category	Wildlife Habitat	Adelaide Wastewater Treatment Plant
Seasonal Concentration Areas of Animals	Waterfowl Stopover and Staging Areas (Terrestrial)	Candidate - Open areas subject to sheet-water flooding
	Waterfowl Stopover and Staging Areas (Aquatic)	Candidate - MAS2 ecosite present west of study area
	Turtle Wintering Areas	Candidate - MAS2 ecosite present west of study area
Rare Vegetation Communities and Specialized Habitat for Wildlife	Waterfowl Nesting Area	Candidate - Wetland complex west of study area
	Amphibian Breeding Habitat (Woodland)	Candidate - FOD7-4 Significant Woodland
	Amphibian Breeding Habitat (Wetland)	Candidate - All MAS ecosites
Habitat for Species of Conservation Concern	Special Concern and Rare Wildlife Species	Candidate • Eastern Wood Pewee (woodlands) • Grasshopper Sparrow (open area meadows) • Snapping Turtle (open aquatic) • Hackberry Emperor (woodlands with *A. celtis*) • Monarch (open area meadows)
	Marsh Breeding Bird Habitat	Candidate - MAS ecosites with open water
	Terrestrial Crayfish	Candidate - cultural meadows adjacent to MAM2, MAS2, or SWT ecosites
Animal Movement Corridors	Amphibian Movement Corridor	Candidate - all natural areas associated with the Thames River riparian corridor

Species at Risk

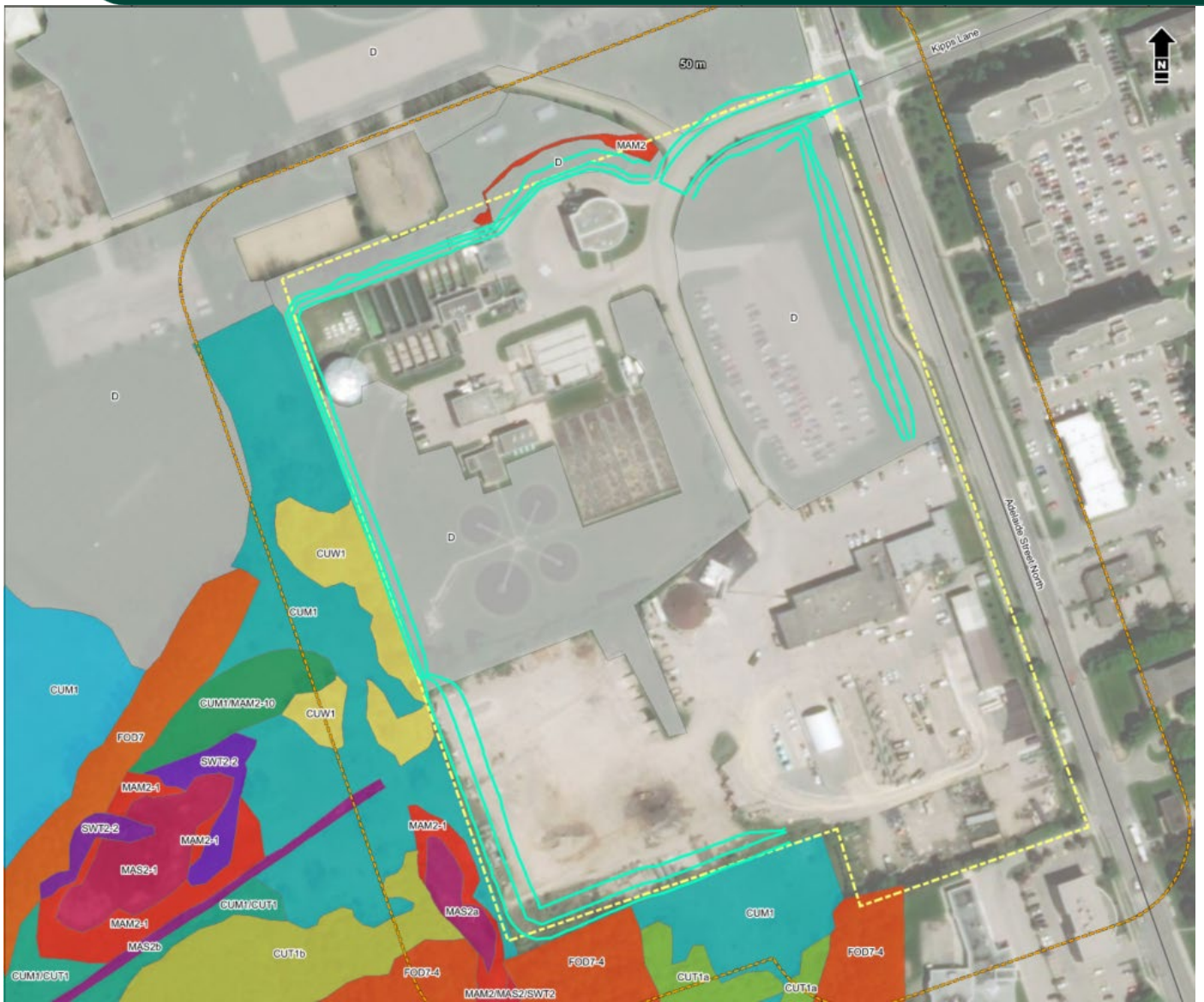
Species	ESA	SARA	Adelaide Wastewater Treatment Plant
Butternut	END	END	Potential
Kentucky Coffee-tree	THR	THR	Potential
Bobolink	THR	THR	Potential
Chimney Swift	THR	THR	Confirmed
Eastern Meadowlark	THR	THR	Potential
Redheaded Woodpecker	SC	THR	Potential
Little Brown Myotis	END	END	Potential
Northern Myotis	END	END	Potential
Tricoloured Bat	END	END	Potential

Anticipated Impacts – Option 1



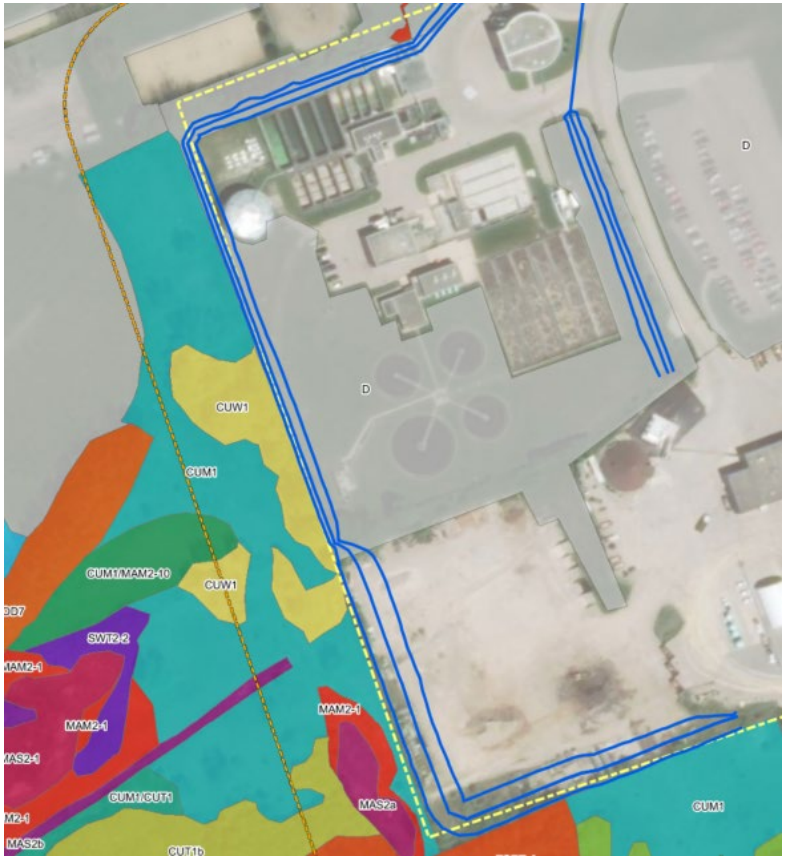
Anticipated Impacts – Option 2

Anticipated Impacts – Option 3



Potential Impacts

- No direct habitat loss anticipated
- Potential indirect impacts
  - Temporary loss of habitat
  - Construction impacts outside of project footprint
  - Damages to edge trees
  - Changes to moisture regime
  - Changes to structure and composition of vegetation communities (introduction of invasive species)
  - Spills
  - Erosion and sedimentation
  - Habitat disturbance
  - Injury or incidental take of wildlife



Flood protection exclusively within existing WTTP footprint for all options

Impact Mitigation

Timing windows

- Tree removal outside breeding bird window – April 10 – August 15
- Additional timing windows will apply if SAR/SWH or fish habitat impacts are anticipated

Construction Best Practices

- Maintenance, stockpiling, storage, refueling of all construction materials and equipment at least 30 m away from the watercourse and all natural heritage features
- Develop a stormwater management plan
- Implement clean equipment protocol to prevent invasive species introduction
- Construction to be monitored by a qualified environmental professional

Prevention of Wildlife Mortality and Disturbance

- Install, maintain, and monitor wildlife exclusion fencing to isolate all construction areas
- Inspect construction area for wildlife each morning prior to works commencing
- Educate workers on potential wildlife occurrences and on best practices to avoid injury or incidental take

Prevention of Terrestrial Disturbances

- Identify and demarcate natural area setbacks
- Retain an arborist to complete a tree preservation plan
- Construction areas to remain outside the dripline of significant woodlands
- Develop a restoration plan to describe restoration of disturbed areas following construction.

Erosion and Sediment Control

- Develop an ESC plan
- Install ESC measures prior to ground-breaking, and regularly monitor all measures during construction
- Avoid construction during high volume rain or significant snowmelt events

Next Steps

Confirm vegetation removal

- If required, removed trees are to be replaced at a ratio of 3:1

Confirm preferred solution

- If direct impacts to natural areas are anticipated, impacts to SAR, SWH, and other significant features must be reassessed

Permitting

- UTRCA permit under Ontario Regulation 157/06
- City of London Tree Bylaw Permit – if tree removal is anticipated
- City of London Park Occupancy Permit – if construction impacts to the adjacent park will be required

In the event of altered project scope or footprint

- Conduct a tree inventory for impacted areas and buffers to confirm no SAR trees present. If SAR trees are identified, consultation with MECP will be required
- Formal OWES evaluation may be required if detailed design results in impacts to adjacent wetland areas
- Confirm significant woodland boundary and buffer/setback
- If impacts to candidate SAR bat habitat trees are anticipated, consultation with MECP will be required
- Confirm project footprint does not extend into candidate SAR or SWH habitat during detailed design
- Update screening during detailed design to account for updates to species listings or habitat regulations under the ESA

Adelaide - Questions

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EEPAC Presentation

Class Environmental Assessment for Greenway Wastewater Treatment Plant Climate Change Resiliency

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  - Natural Environment
  - Anticipated Impacts
  - Mitigation
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  - Questions

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Project overview

Climate Change Resiliency

- In April 2019, the City of London declared a climate emergency to deepen its commitment to protecting its economy, ecosystems, and communities from climate change through adaptation and mitigation initiatives.
- In 2021, the City initiated an EA to improve resiliency at the Greenway WTTP during extreme flooding events.
- Matrix Solutions has prepared an EIS to characterize the local environment, identify potential impacts, and mitigate negative impacts.

Image Source: City of London

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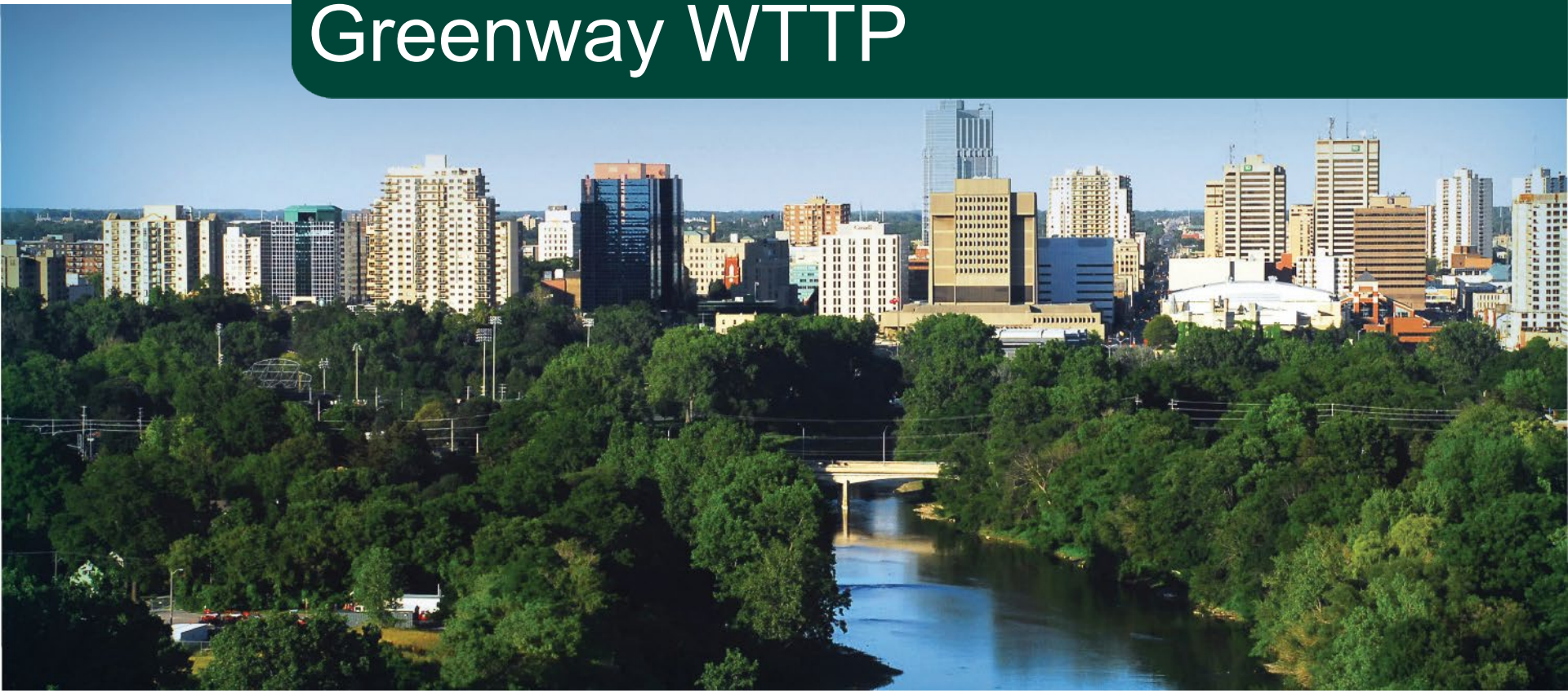
Environmental Impact Study
Greenway WTTP



Greenway WTTP

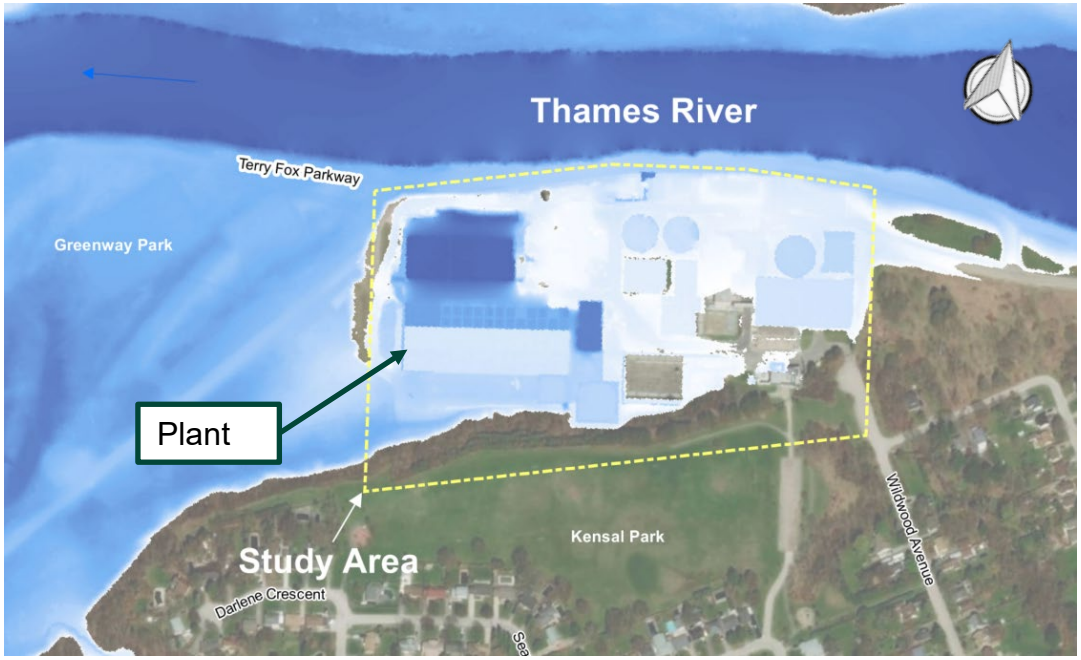
Greenway Wastewater Treatment Plant

109 Greenside Avenue, London

Image Source: Google Earth

Anticipated Flood Extent

- 1:250-year regulatory event of 1,900 m^3/s
- Typical flood depths are between 0.2 m and 1.1 m at the plant



Methodology

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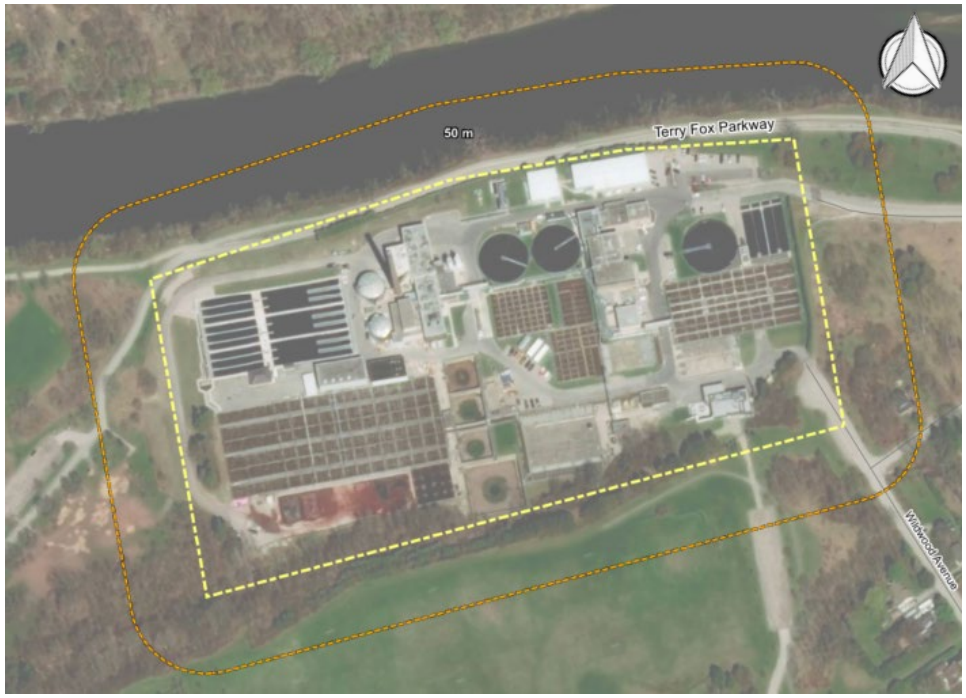
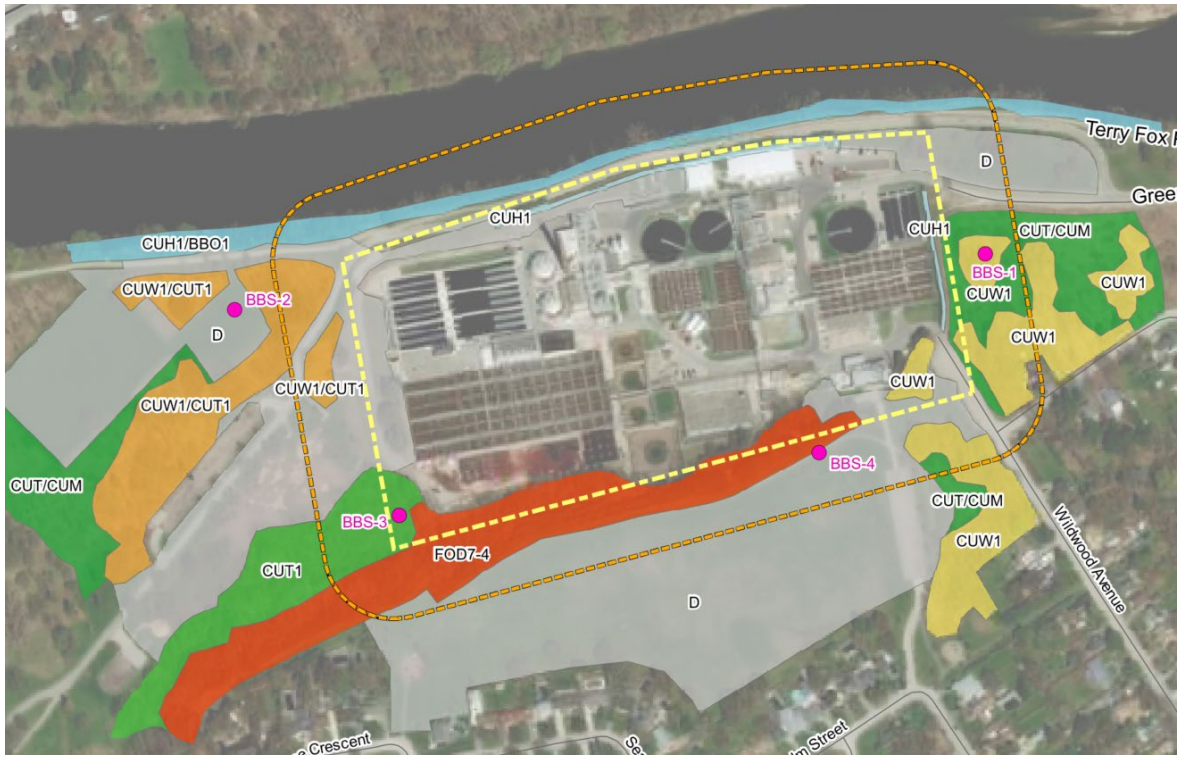
  - Botanical Survey
  - Breeding Birds
  - Bat Maternity Habitat
- Analysis
  - Terrestrial Habitat
  - Aquatic Habitat
- Significant Habitat Features
  - Significant Valleylands
  - Significant Wildlife Habitat
  - Fish Habitat
  - Linkages and Corridors
  - Species at Risk



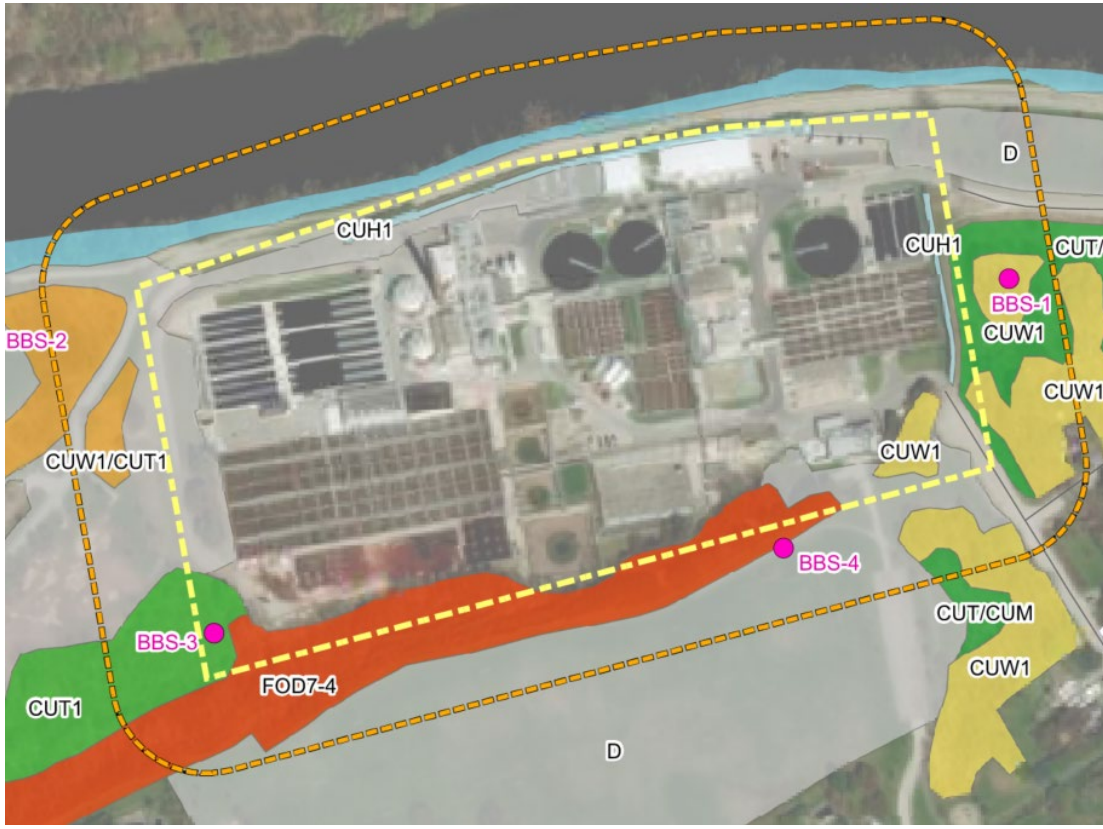
Natural Environment

- Disturbed/modified in open recreational areas
- East of WTTP cultural open and wooded ecosites
- South of plant a steep wooded ravine slope
- No wetland habitats present
- Thames River approximately 25 m north of WTTP



Key Natural Heritage Features

- Significant Valleylands
  - Thames River
- Significant Wildlife Habitat
- Fish and Fish Habitat
  - Thames River
- Linkages and Corridors
  - Thames River Riparian Corridor
- Species at Risk (potential and confirmed)



Key Natural Heritage Features

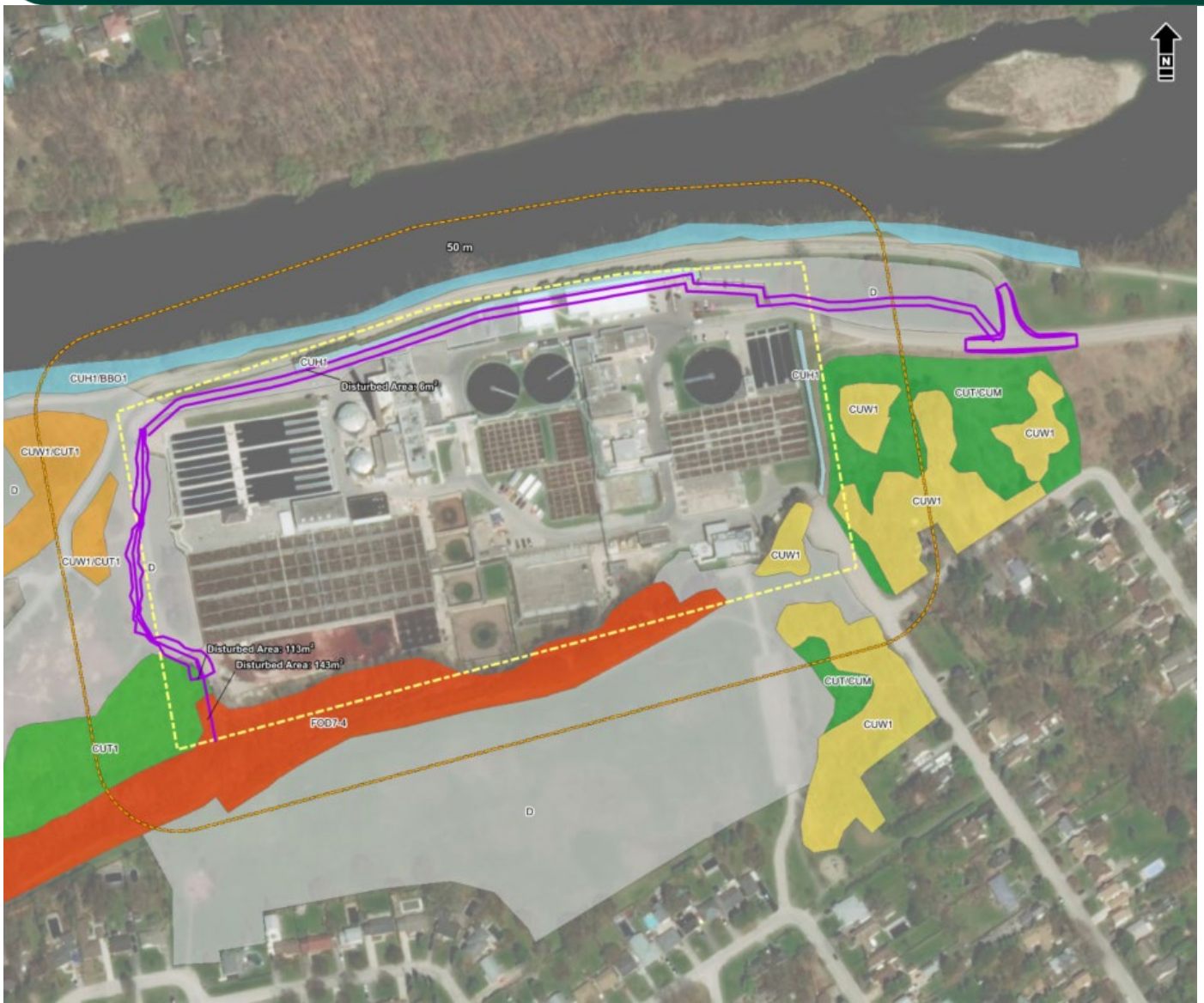
Significant Wildlife Habitat

Category	Wildlife Habitat	Greenway Wastewater Treatment Plant
Seasonal Concentration Areas of Animals	Shorebird Migratory Stopover Area	Candidate - Patchy BBO1 ecosites are present adjacent to the Thames River
	Turtle Wintering Areas	Candidate - Thames River contains open water areas with deep pools
Rare Vegetation Communities and Specialized Habitat for Wildlife	Turtle Nesting Habitat	Candidate - The Thames River shoreline within the study area contains sand and gravel soil for nesting.
Habitat for Species of Conservation Concern	Special Concern and Rare Wildlife Species	Candidate • Eastern Wood Pewee (Woodlands) • Eastern Ribbonsnake (Thames River and associated low-lying areas) • Hackberry Emperor (Woodlands with *A. celtis*) • Monarch (Open Area Meadows • Spotted Sucker (Thames River) • Black Sandshell (Thames River) • Mucket (Thames River) • Eastern Stiff-leaved Goldenrod (Open natural meadow) • Hairy Fruited Sedge (Thames River and associated low-lying areas) Confirmed • Northern Map Turtle (Thames River and associated low-lying areas) • Snapping Turtle (Thames River and associated low-lying areas)
Animal Movement Corridors	Amphibian Movement Corridor	Candidate - natural areas adjacent or within the contiguous natural corridor of the Thames River should be considered potential amphibian movement corridors

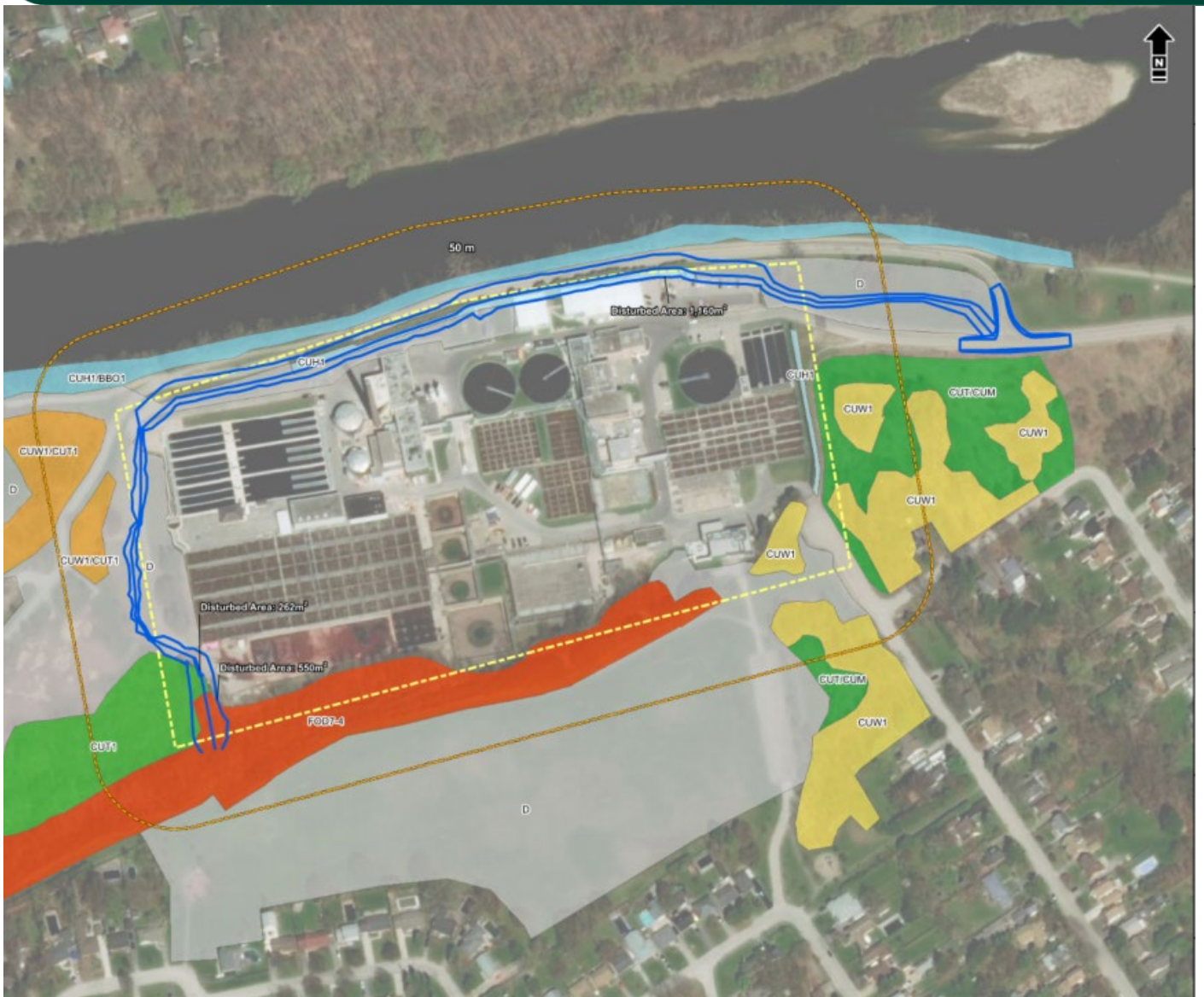
Species at Risk

Species	ESA	SARA	Greenway Wastewater Treatment Plant
Butternut	END	END	Potential
Kentucky Coffee-tree	THR	THR	Confirmed
Bank Swallow	THR	THR	Confirmed
Barn Swallow	THR	THR	Confirmed
Bobolink	THR	THR	Potential
Chimney Swift	THR	THR	Confirmed
Eastern Meadowlark	THR	THR	Potential
Eastern Spiny Softshell	END	THR	Confirmed
Eastern Foxsnake	END	END	Potential
Little Brown Myotis	END	END	Potential
Northern Myotis	END	END	Potential
Tricoloured Bat	END	END	Potential
Black Redhorse	THR	NAR	Confirmed
Silver Shiner	THR	THR	Confirmed
Rayed Bean	END	END	Potential
Round Pigtoe	END	END	Potential
Wavvy-rayed Lampmussel	THR	SC	Potential

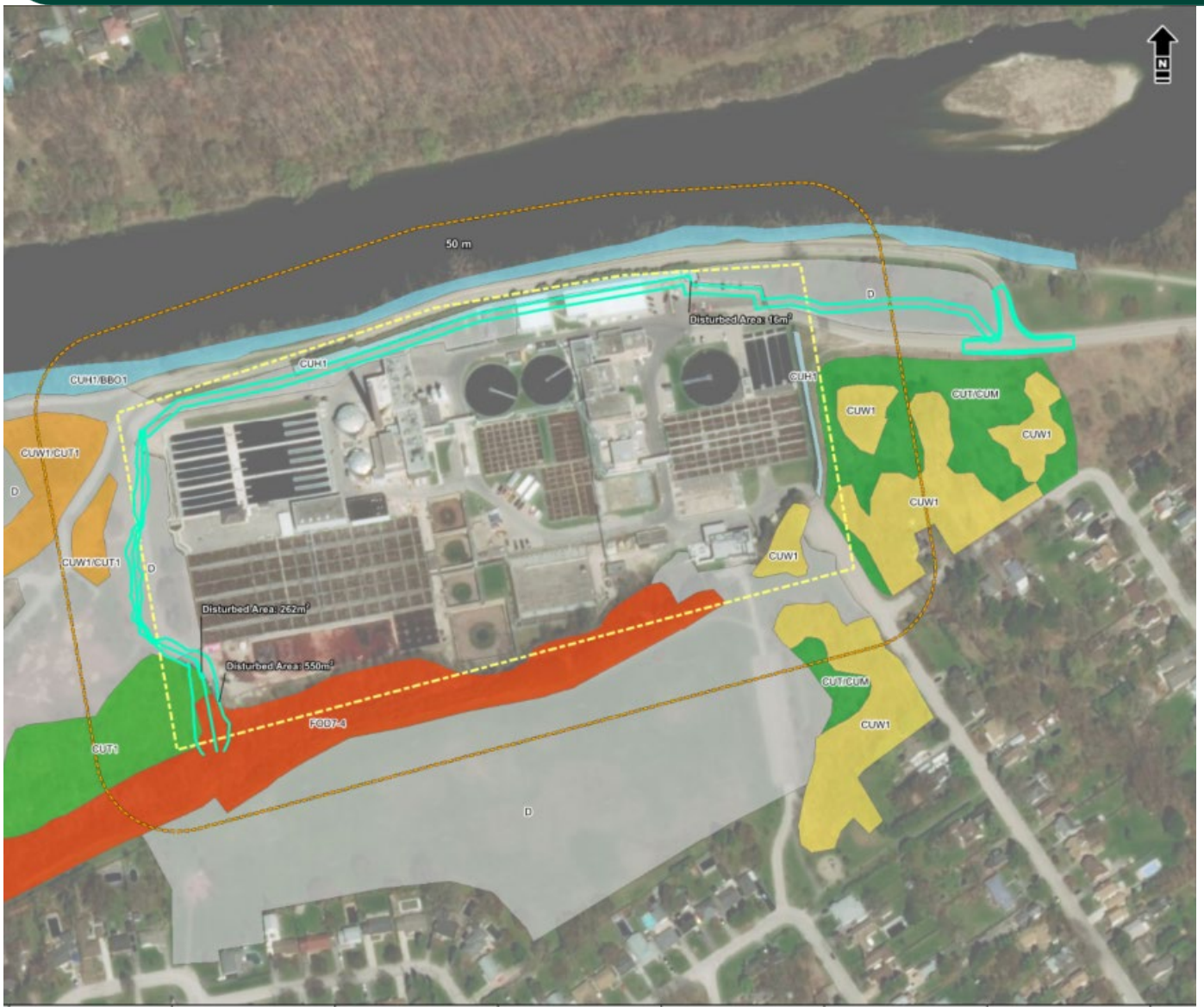
Anticipated Impacts – Option 1



Anticipated Impacts – Option 2

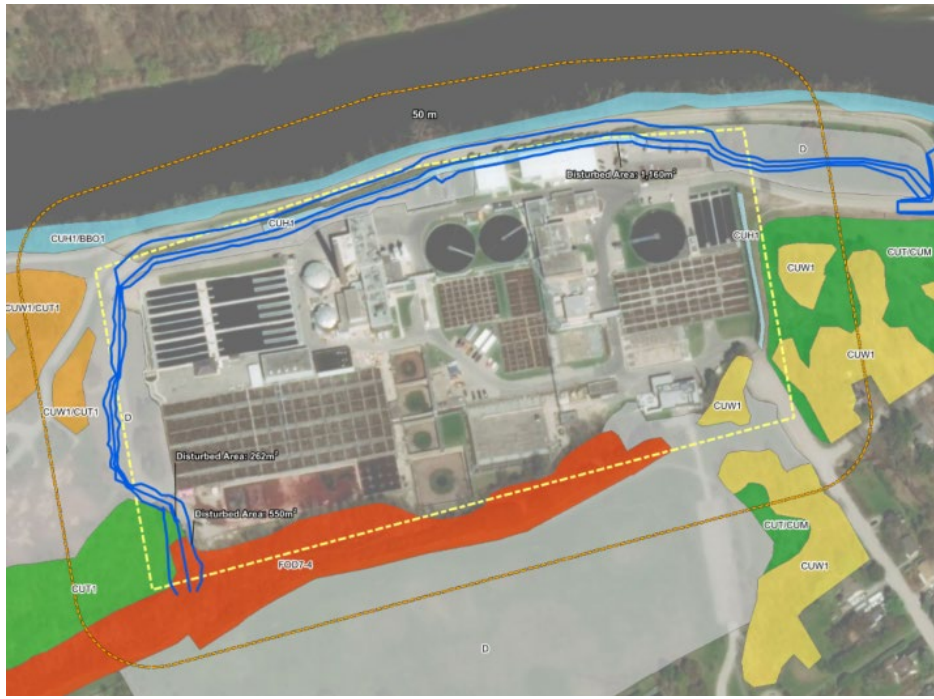


Anticipated Impacts – Option 3



Potential Impacts

- Limited habitat loss of FOD7-4 and CUT1 at southwestern WTTP extent
- Potential impacts to natural areas
  - Temporary loss of habitat
  - Construction impacts outside of project footprint
  - Damages to edge trees
  - Changes to moisture regime
  - Changes to structure and composition of vegetation communities (introduction of invasive species)
  - Spills
  - Erosion and sedimentation
  - Habitat disturbance
  - Injury or incidental take of wildlife



Limited impact to woodland slope for all options

Impact Mitigation

Timing windows

- Tree removal outside breeding bird window – April 10 – August 15
- Additional timing windows will apply if SAR/SWH or fish habitat impacts are anticipated

Construction Best Practices

- Maintenance, stockpiling, storage, refueling of all construction materials and equipment at least 30 m away from the watercourse and all natural heritage features
- Develop a stormwater management plan
- Implement clean equipment protocol to prevent invasive species introduction
- Construction to be monitored by a qualified environmental professional

Prevention of Wildlife Mortality and Disturbance

- Install, maintain, and monitor wildlife exclusion fencing to isolate all construction areas
- Inspect construction area for wildlife each morning prior to works commencing
- Educate workers on potential wildlife occurrences and on best practices to avoid injury or incidental take

Prevention of Terrestrial Disturbances

- Identify and demarcate natural area setbacks
- Retain an arborist to complete a tree preservation plan
- Provide tree protection fencing when working near woodland areas
- Develop a restoration plan to describe restoration of disturbed areas following construction.

Erosion and Sediment Control

- Develop an ESC plan
- Install ESC measures prior to ground-breaking, and regularly monitor all measures during construction
- Avoid construction during high volume rain or significant snowmelt events

Next Steps

Confirm vegetation removal

- If required, removed trees are to be replaced at a ratio of 3:1

Confirm preferred alternative

- When extent of works southwest of WTTP are confirmed, impacts to SAR and SWH must be reassessed

Permitting

- UTRCA permit under Ontario Regulation 157/06
- City of London Tree Bylaw Permit – where tree removal is anticipated
- City of London Park Occupancy Permit – if construction impacts to the adjacent park will be required

To be addressed at detailed design

- Conduct a tree inventory for impacted areas and buffers to confirm no SAR trees present within impact areas. If SAR trees are identified, consultation with MECP will be required
- If impacts to candidate SAR bat habitat trees are anticipated, consultation with MECP will be required
- Confirm project footprint does not extend into SAR or SWH habitat during detailed design. Impact mitigation to SAR or SWH must be discussed with MECP and/or UTRCA
- Update screening during detailed design to account for updates to species listings or habitat regulations under the ESA

Greenway - Questions