



Water and Wastewater Services in the Community of Nobleton Municipal Class Environmental Assessment Study



Online Open House No. 3

**Tuesday, July 20, 2021
6:30 p.m. to 8 p.m.**

Project Background

Problem/Opportunity Statement for this Municipal Class Environmental Assessment (Class EA) Study

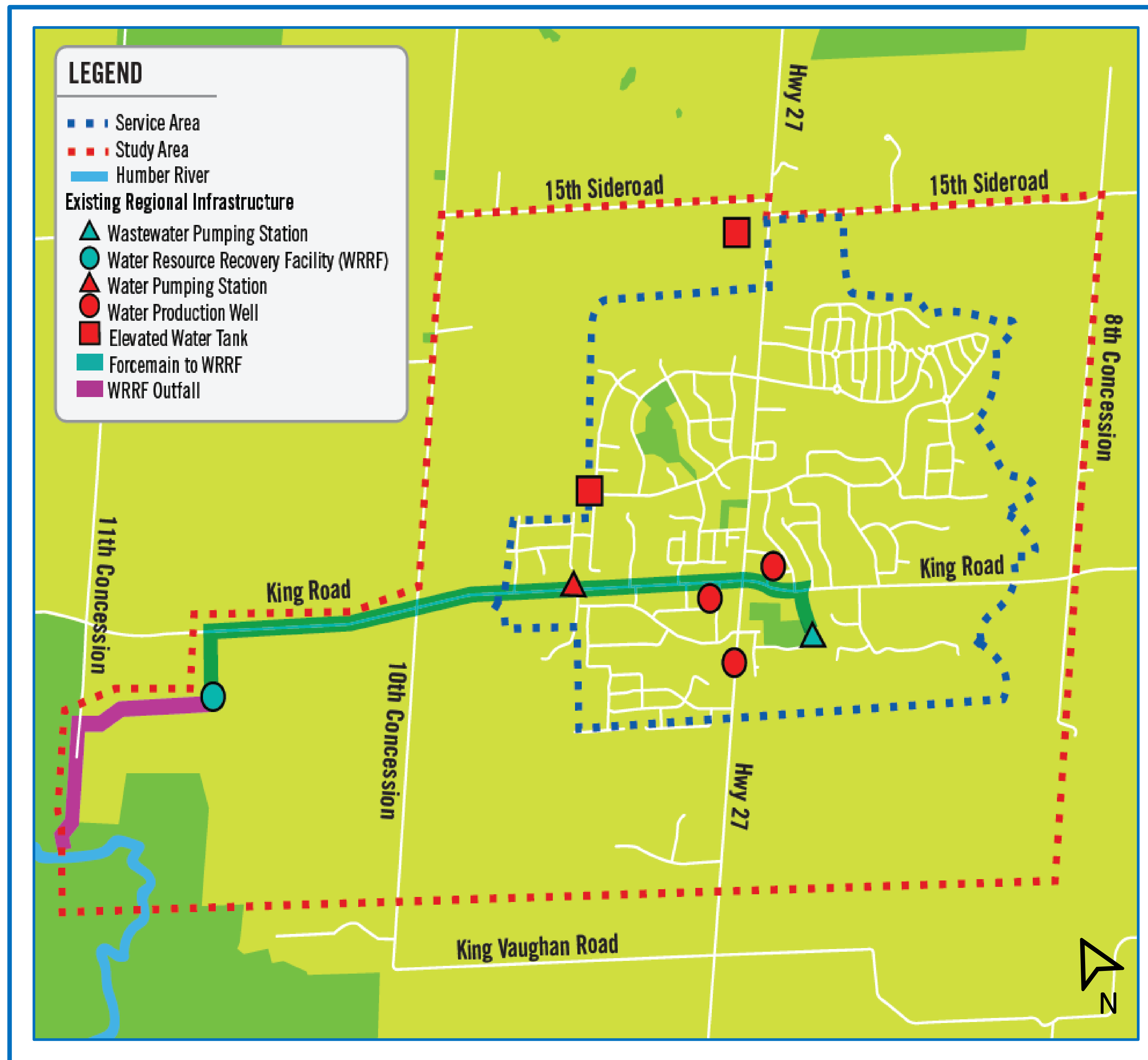
- To identify **long-term water and wastewater servicing solutions** to support forecasted growth in Nobleton to 2041 while **optimizing the use of existing Regional infrastructure**.

Purpose of this Open House

- Present the **design concepts for the preferred water and wastewater solutions**
- Share the **evaluation of design concepts**
- Share the **recommended conceptual design**
- **Obtain your input**

We want to hear from you!

Project Study and Service Area



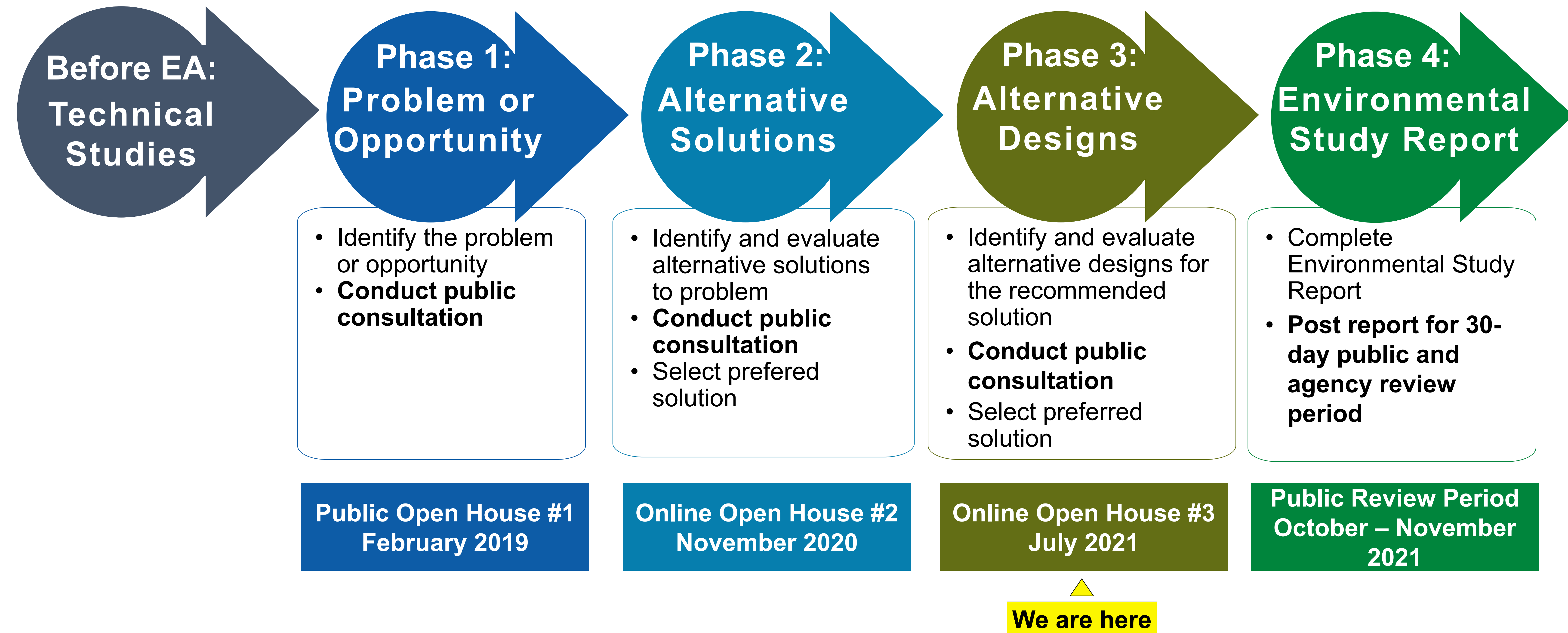
Service Area

Community of Nobleton boundary including current and planned service areas

Study Area

All serviced area plus an assessment of potentially impacted lands due to new infrastructure requirements

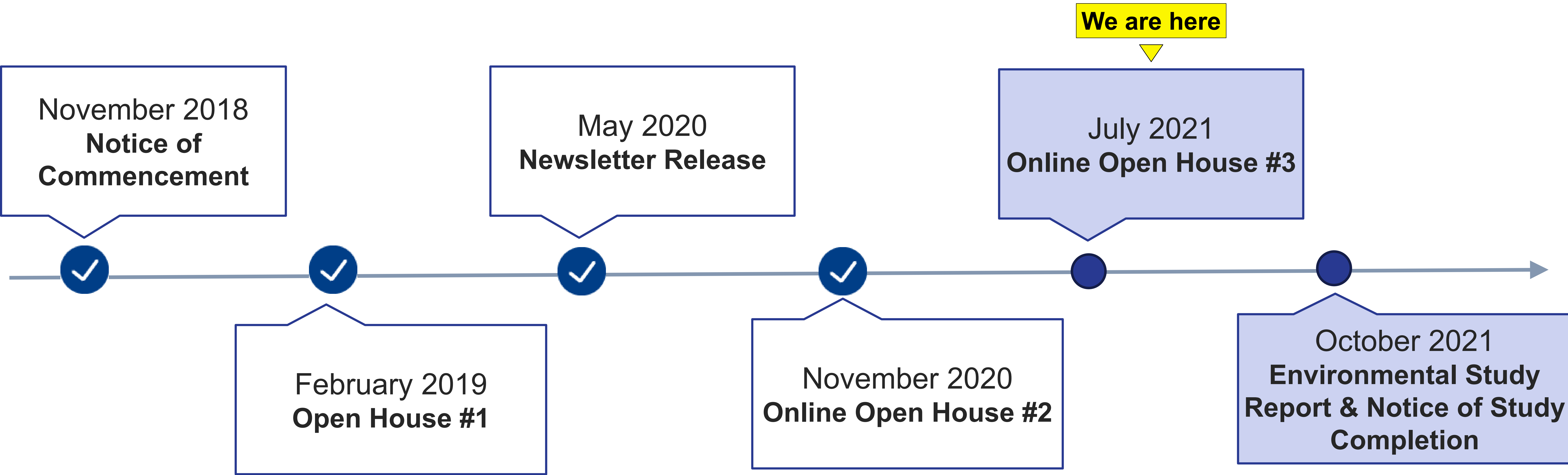
Schedule C Municipal Class Environmental Assessment Study Process



Communication Timeline



Stay informed throughout the study process by visiting the project website (www.york.ca/nobletonlea)

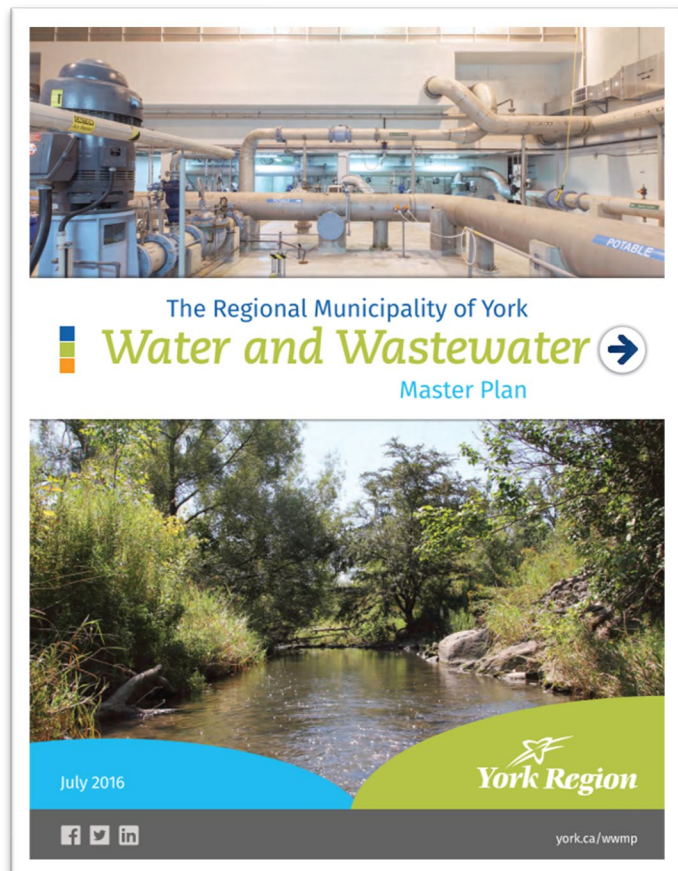


Plans for Consideration

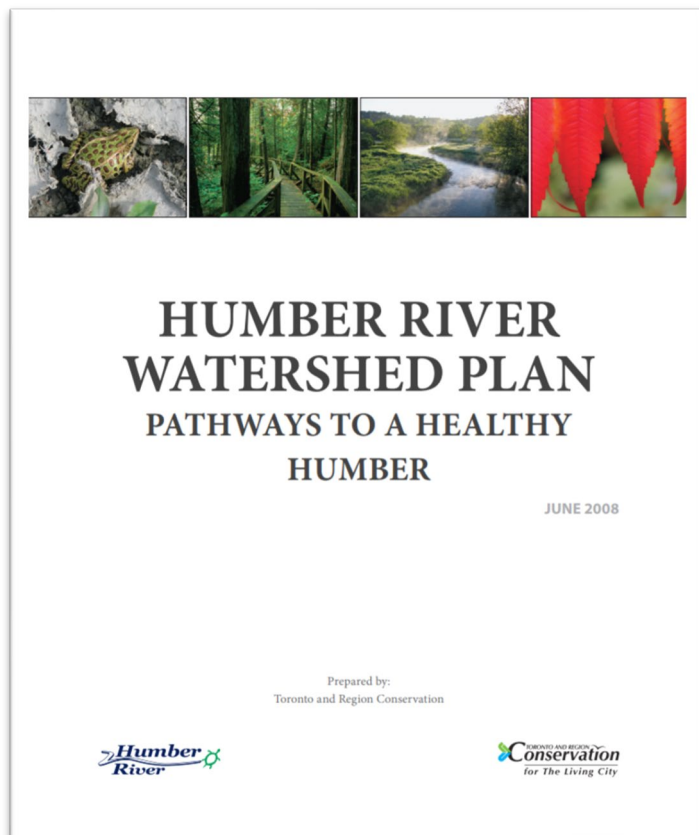
This Class EA must also consider input from various existing documents



Places to Grow



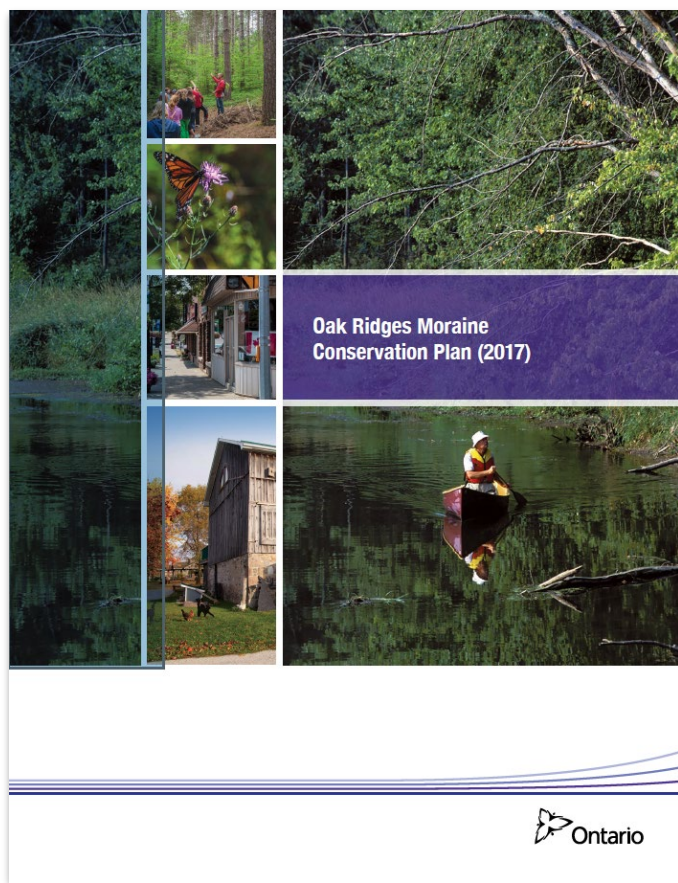
York Region's 2016 Water and Wastewater Master Plan



Humber River Watershed Plan



King Township (Our King) Official Plan, 2019



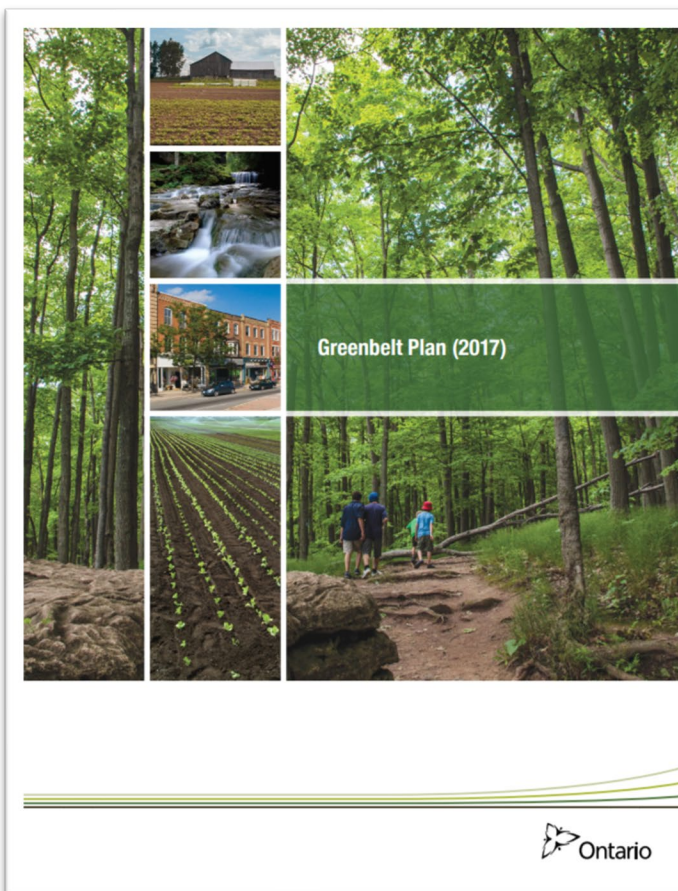
Oak Ridges Moraine Conservation Plan



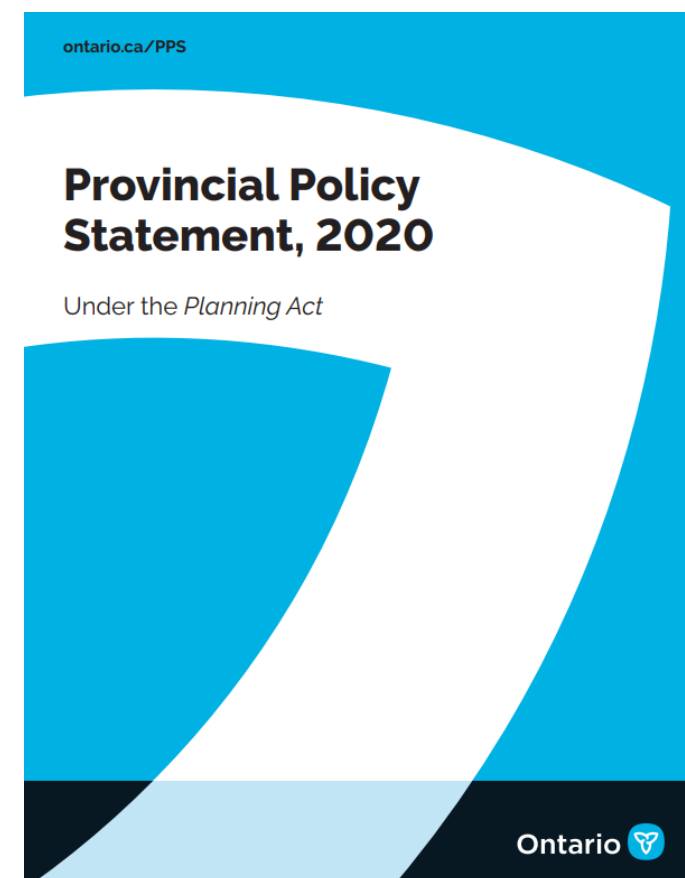
Clean Water Act / Source Protection Plan



York Region's 2010 Official Plan



Greenbelt Plan



Provincial Policy Statement

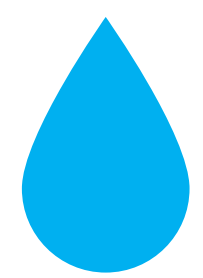


Technical Studies



Natural Environment Impact Assessment

- Identification of natural features (wetlands, forests, species at risk, etc.)



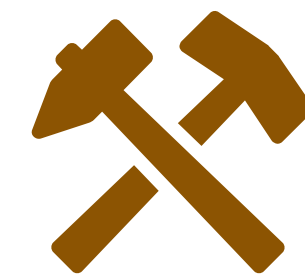
Hydrogeological Assessment

- Review of groundwater conditions in the Study Area (existing wells, groundwater levels, etc.)



Cultural Heritage Resource Assessment

- Review of cultural heritage resources in the Study Area



Archaeological Assessment

- Review of potential archaeological resources in the Study Area



Geotechnical Assessment

- Assessment of subsurface soil conditions



Air, Noise and Odour Assessment

- Assessment of short-term and long-term impacts related to air contaminants, odour and noise



Assimilative Capacity Study

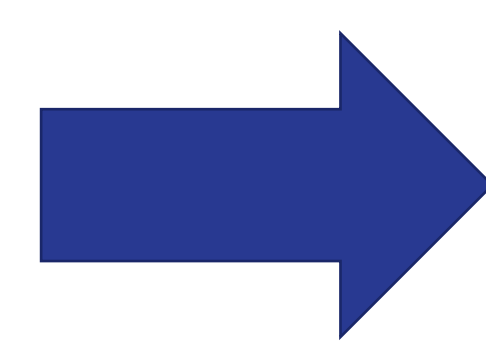
- Investigate effects of Nobleton Water Resource Recovery Facility (WRRF) discharge and recommend effluent limits

Nobleton Water System

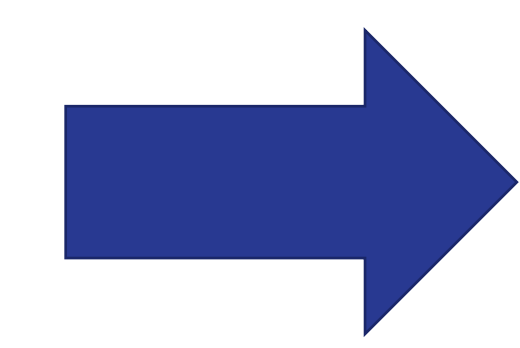


STORAGE

Current:
3,860 m³



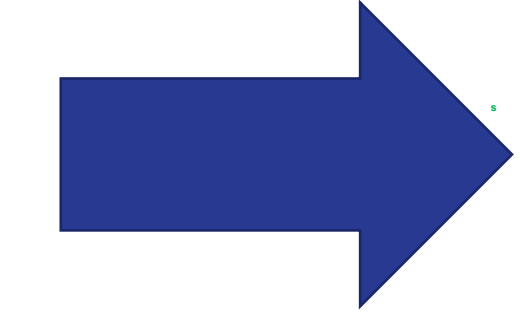
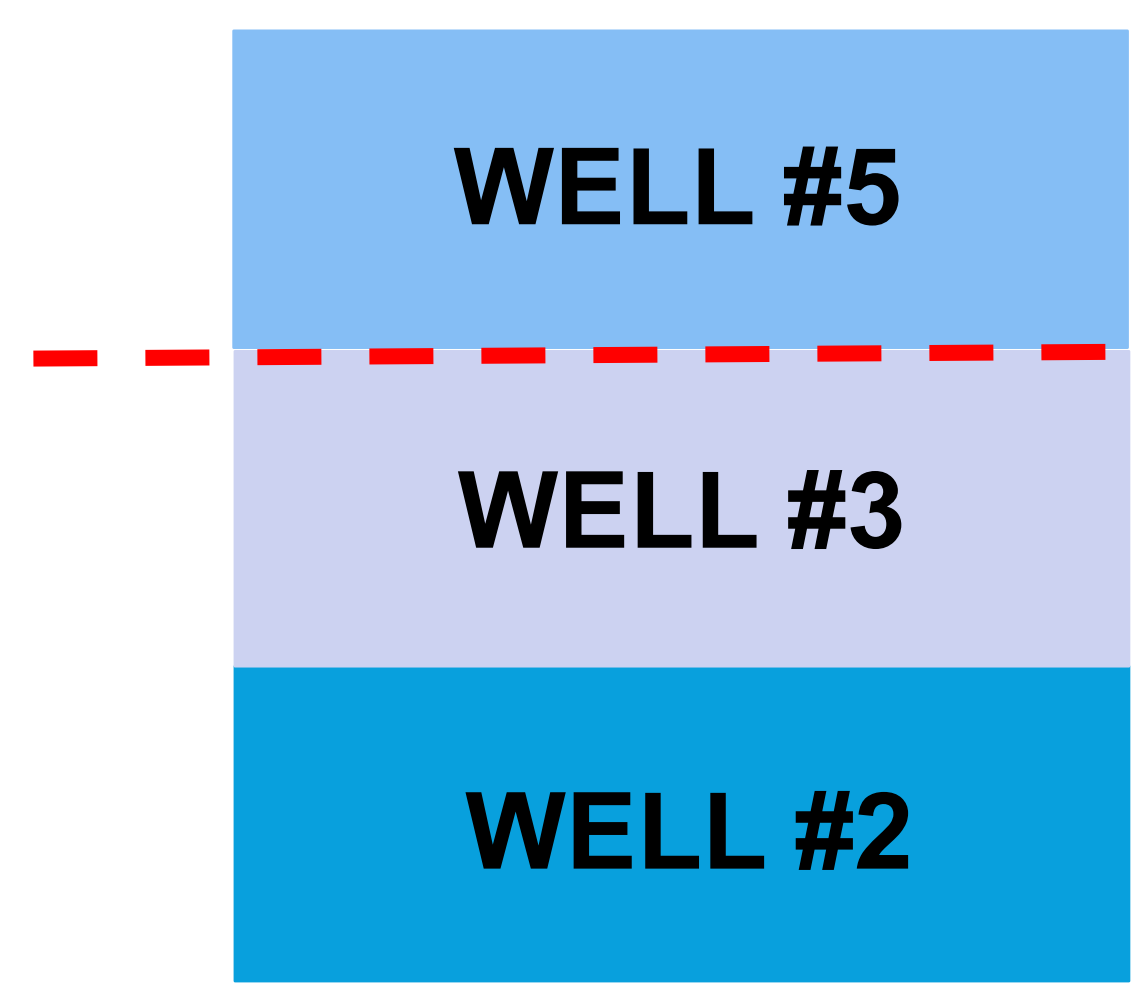
Target:
3,916 m³



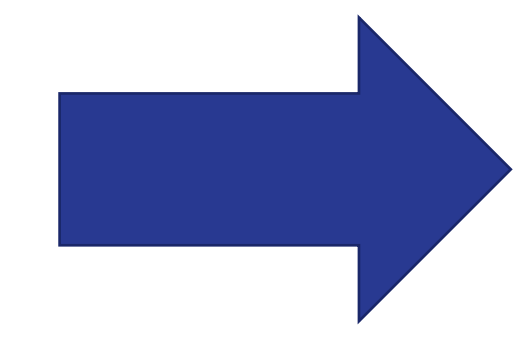
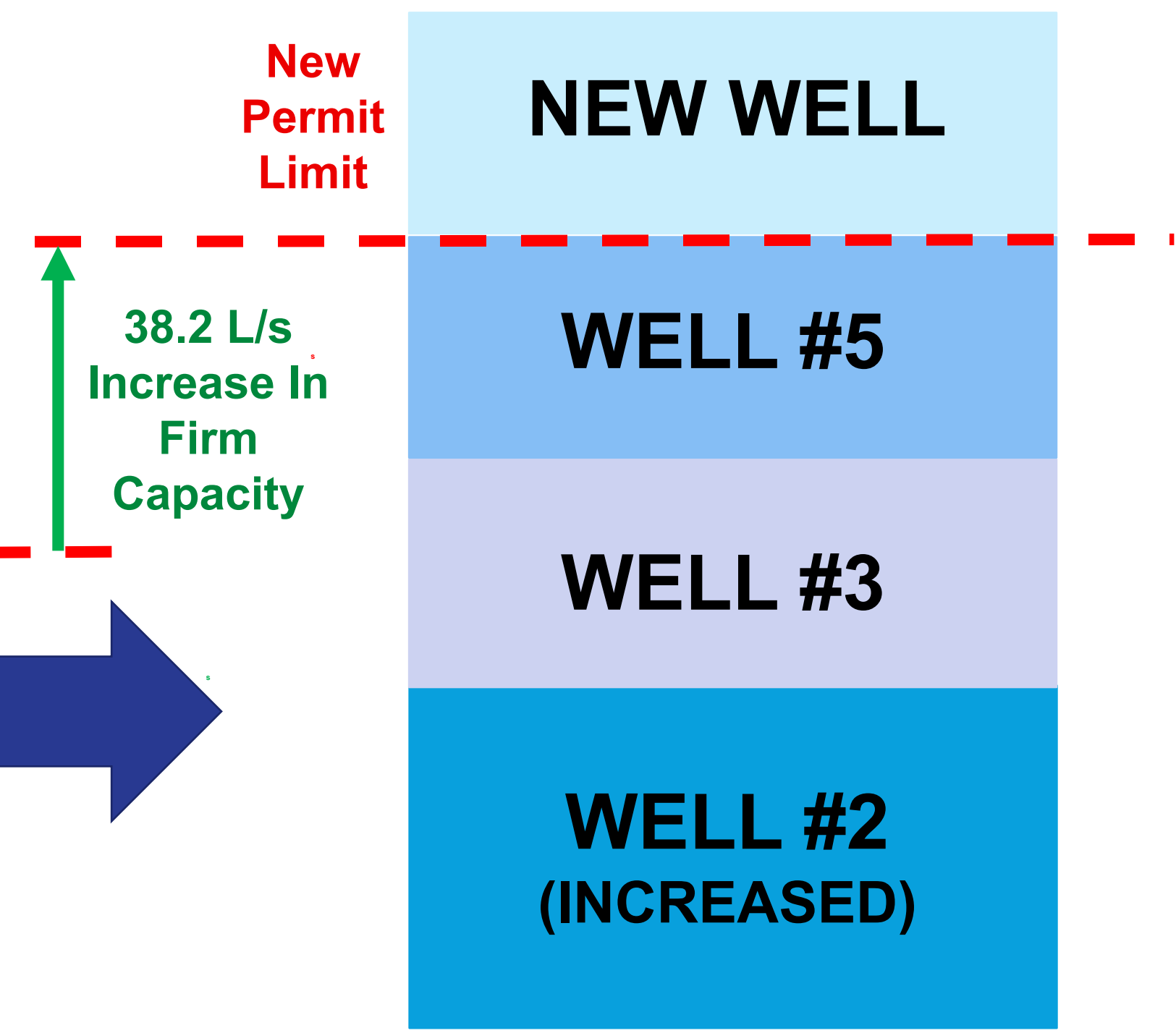
Solution:
Offset storage deficit with
additional supply

SUPPLY

Current:
51.6 L/s



Target:
89.8 L/s

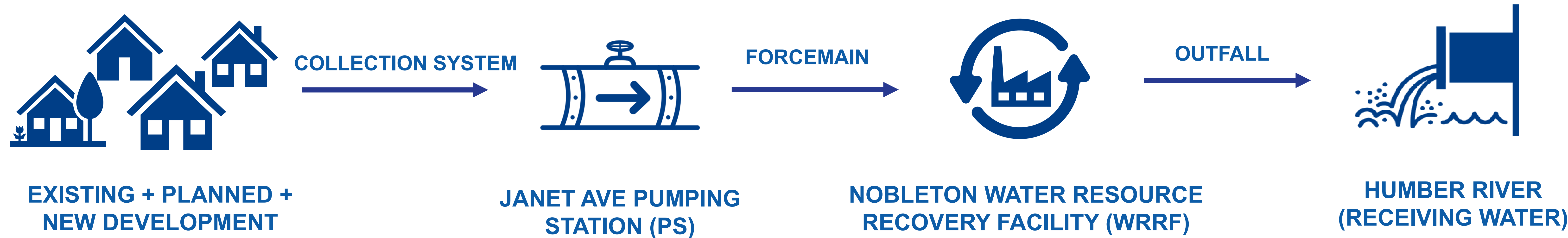


Solution:
Increase Capacity of Well #2
+ New Production Well at
Site H
(Located on same property as Well #5)

m³: cubic meters
L/s: liters per second

(Permit Limit is calculated assuming largest pump is not in service)

Nobleton Wastewater System



Current Flow Rates

Average Daily Flow:
2,925 m³/d

Peak Flow:
9,177 m³/d

Target Flow Rates

Average Daily Flow:
3,996 m³/d

Peak Flow:
25,174 m³/d

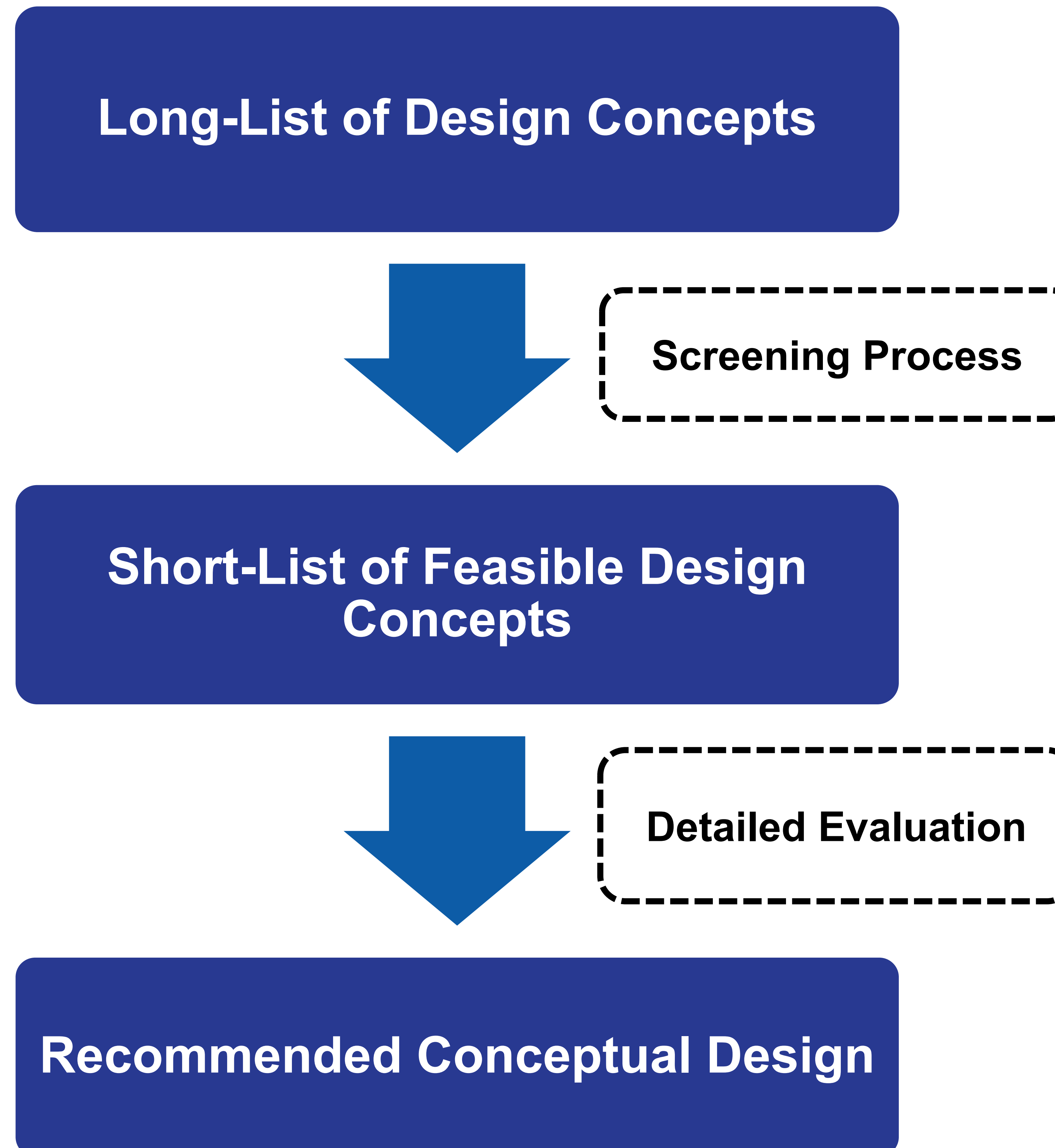
Solution

Some or all of the following servicing facilities will be expanded and/or upgraded:

- Janet Ave PS
- Forcemain
- Nobleton WRRF
- Outfall

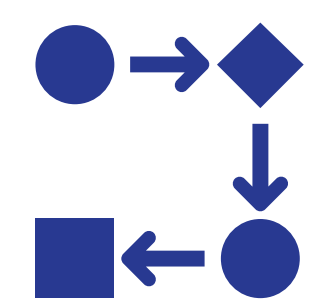
m³/d: cubic meters per day

Design Concepts Evaluation Process



Design Concepts Screening Process

Long-list of design concepts were screened under six categories



Compatibility with Existing Servicing Infrastructure

- Integration with existing infrastructure in terms of hydraulics, available space and operations



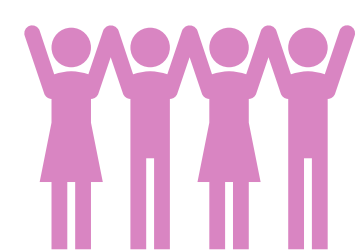
Proven Technology

- Use of technology proven to be in operation in North America for at least five years



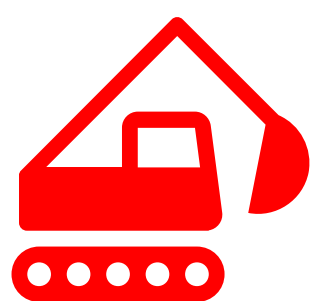
Performance Robustness and Reliability

- Robustness and reliability of performance to meet project objectives, water quality, effluent requirements, and performance requirements



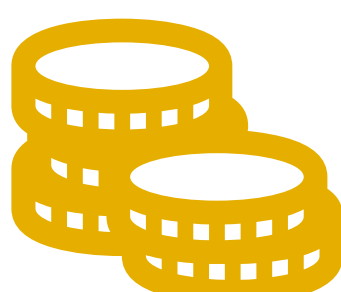
Stakeholder Acceptance

- Mitigation of potential impacts to satisfy local and regulatory stakeholders



Construction Impacts

- Minimal construction impacts to the natural environment and adjacent landowners/users



Cost

- Acceptable capital and operating costs based on high-level assumptions

Design Concepts Evaluation Process

Short-list of design concepts were evaluated against five criteria



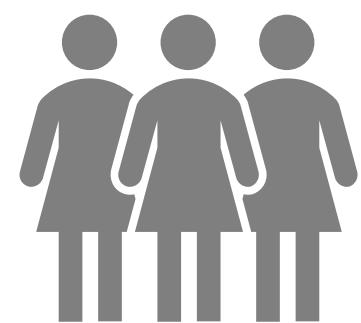
Technical

- Evaluation of: Constructability, redundancy of supply/service, resilience to climate change, operation and maintenance requirements, adaptability to existing infrastructure, maximizing use of existing infrastructure



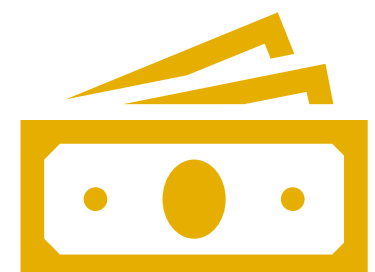
Natural Environment

- Evaluation of: Aquatic vegetation and wildlife, terrestrial vegetation and wildlife, groundwater resources, surface water resources, greenhouse gas emissions



Socio-economic Environment

- Evaluation of: Short-term community impacts, long-term community impacts, archaeological sites, cultural/heritage features



Financial

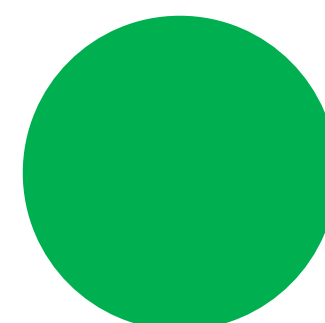
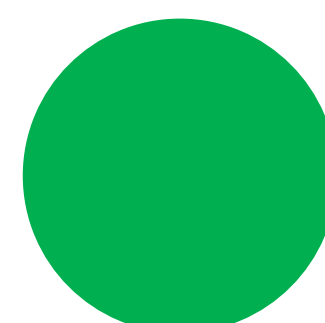
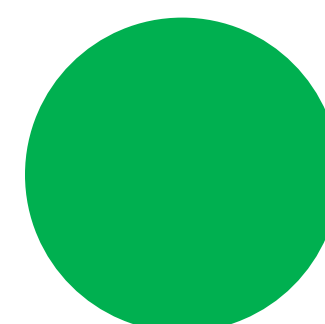
- Evaluation of: Land acquisition cost, capital cost, lifecycle cost



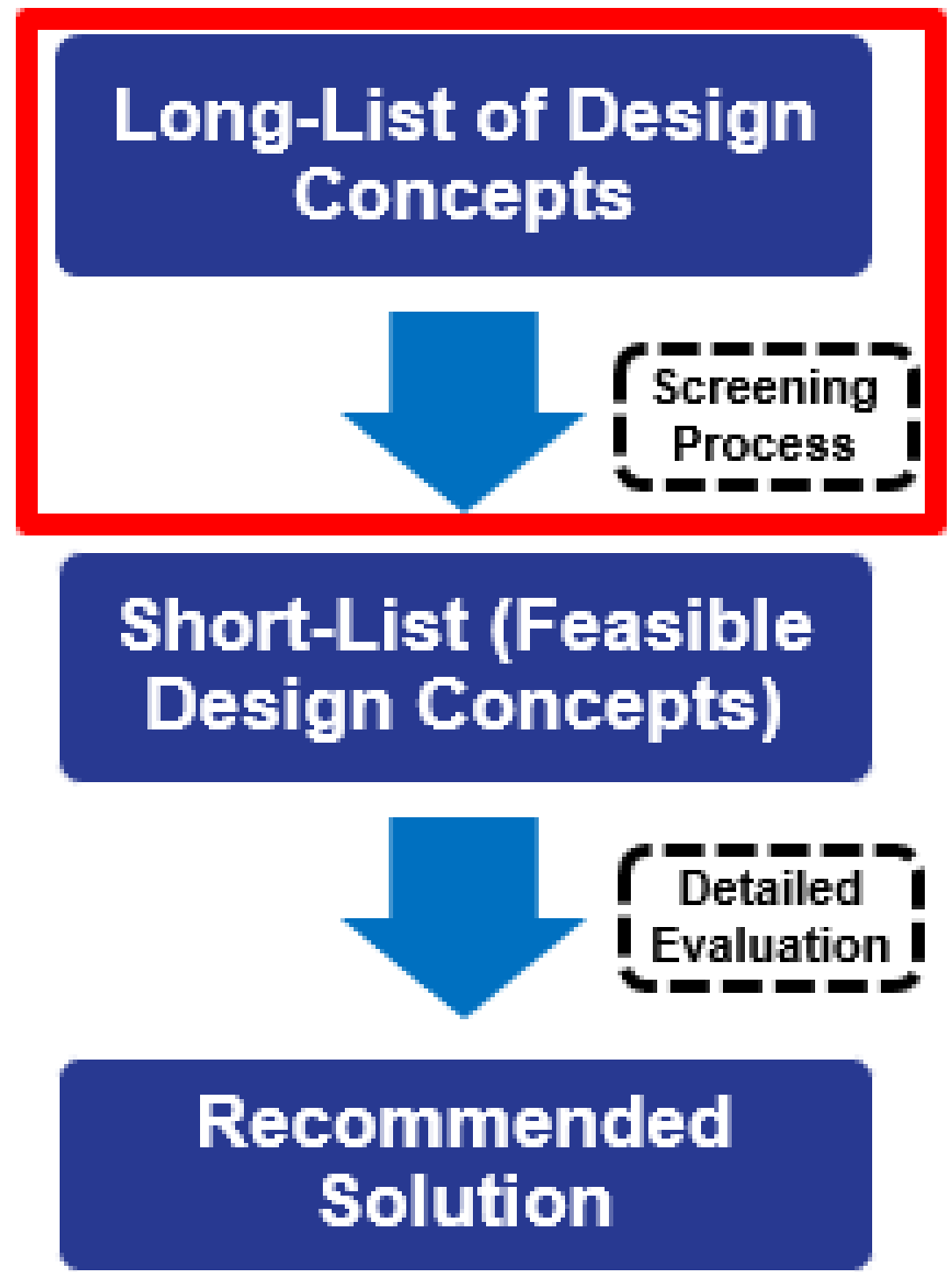
Jurisdictional/Regulatory

- Evaluation of: Land requirements, ability to accommodate potential future regulatory changes, permits and approvals

Water Servicing Design Concepts Screening

Solutions Considered to Address Water Supply Needs	Long-List of Water Supply Design Concepts Screening Summary	Screening Status
1. Expand Well Site #2	- Facility can handle proposed capacity expansion - No major modifications required besides equipment upgrades	 Pass
2.A New Well: Expand existing treatment process of Well Site #5 to include water from new Well Site H	- Major infrastructure/process adjustments will be needed to treat combined flows from Well Site #5 and Well Site H - Other criteria met by continuing to use existing facility	 Pass
2.B New Well: Add an independent dedicated treatment train from Well Site H	- New treatment train will be similar to the existing facility for Well Site #5; compatibility, proven technology, and performance criteria has been met - Site #5 and Site H are on the same land; stakeholder and constructability impacts would be minimal	 Pass

Evaluation Process



Short-List of Design Concepts: Water Servicing Solutions



All design concepts passed the screening process and were selected for detailed evaluation:

Design Concept 1

- Expand Well Site #2

Design Concept 2.A

- Expand existing treatment process of Well Site #5 to include water from new Well Site H

Design Concept 2.B

- Add an independent dedicated treatment train from Well Site H

Evaluation Process

Long-List of Design Concepts



Screening Process

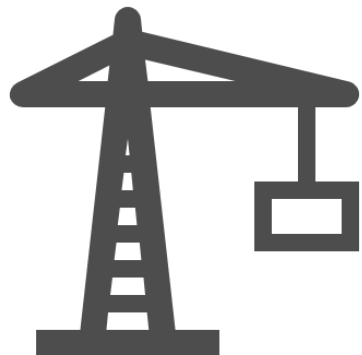
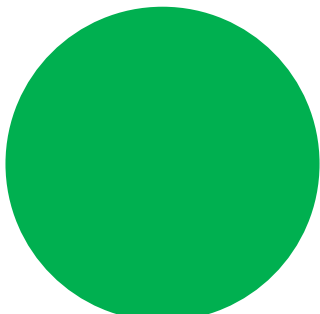
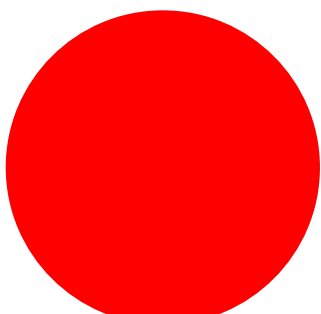
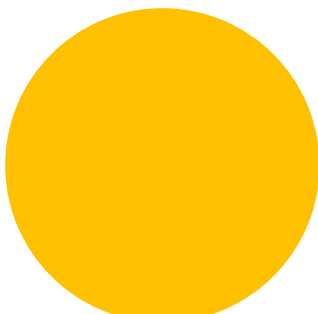
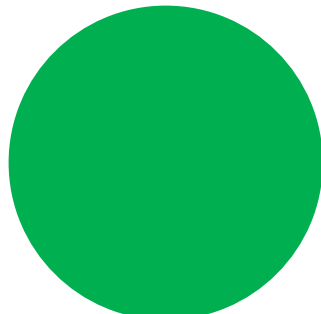
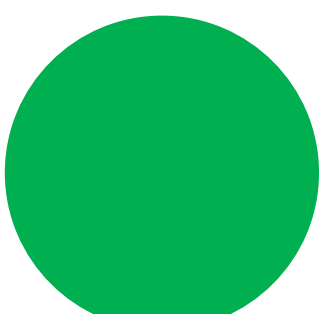
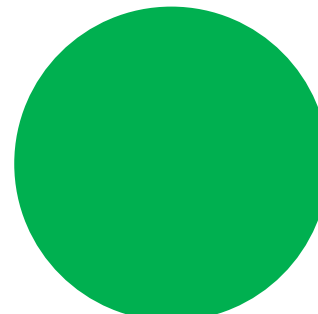
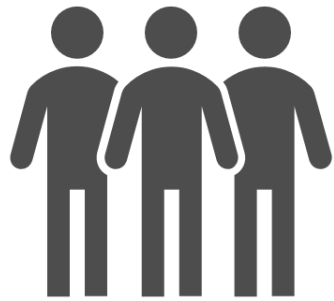
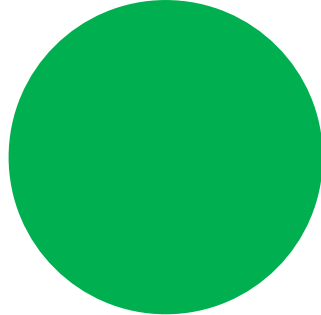
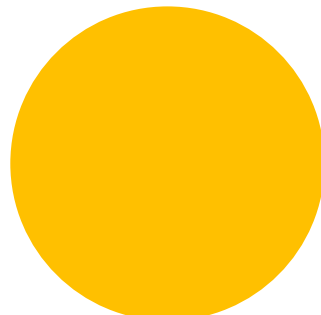
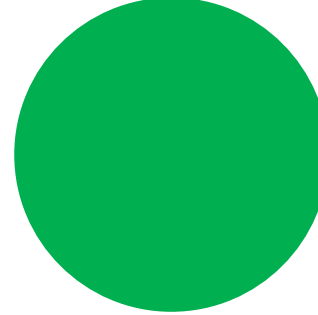
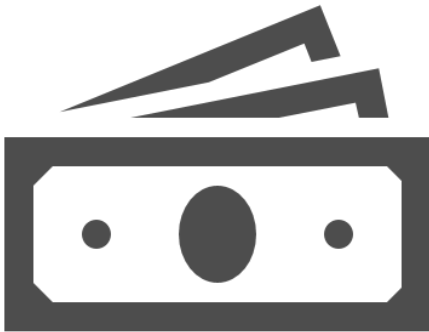
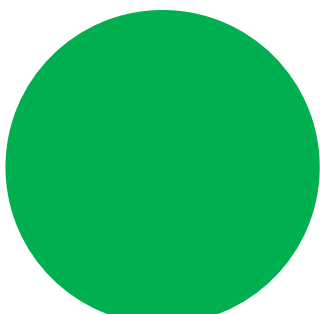
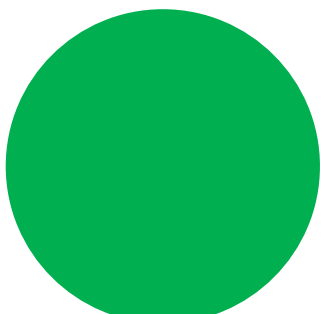
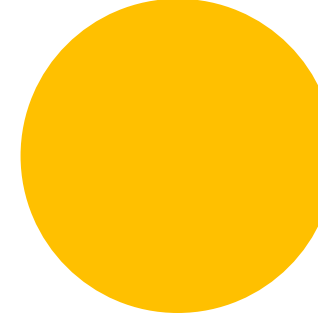
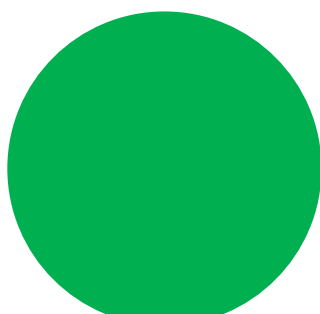
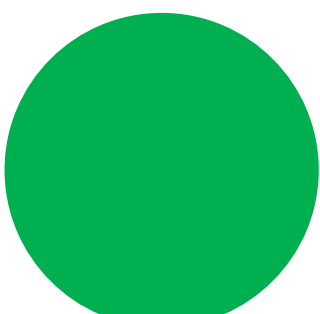
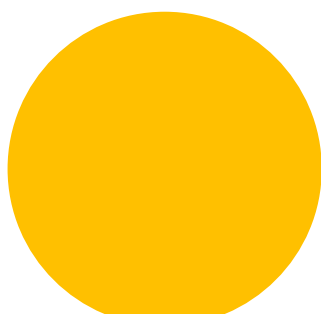
Short-List (Feasible Design Concepts)



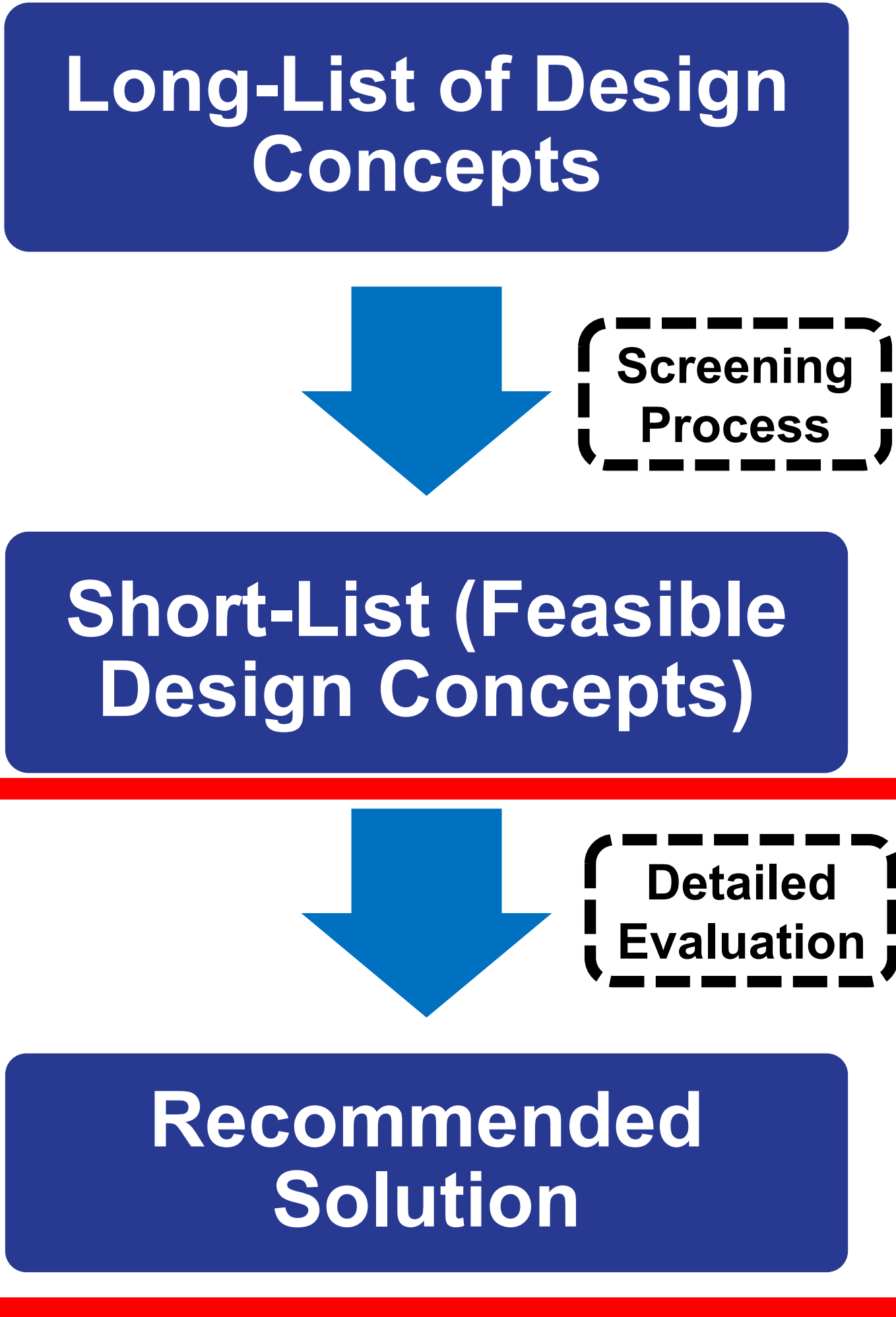
Detailed Evaluation

Recommended Solution

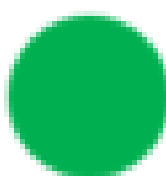
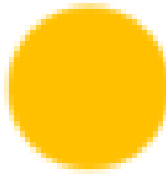
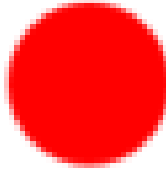
Water Servicing Design Concepts Detailed Evaluation

Design Concept		Design Concept 1: Expand Well Site #2	Design Concept 2.A: Expand Existing Treatment Process of Well Site #5 to include Water from New Well Site H	Design Concept 2.B: Add an Independent Dedicated Treatment Train from Well Site H
Technical				
Natural Environment				
Socio-economic Environment				
Financial				
Jurisdictional/ Regulatory				

Evaluation Process



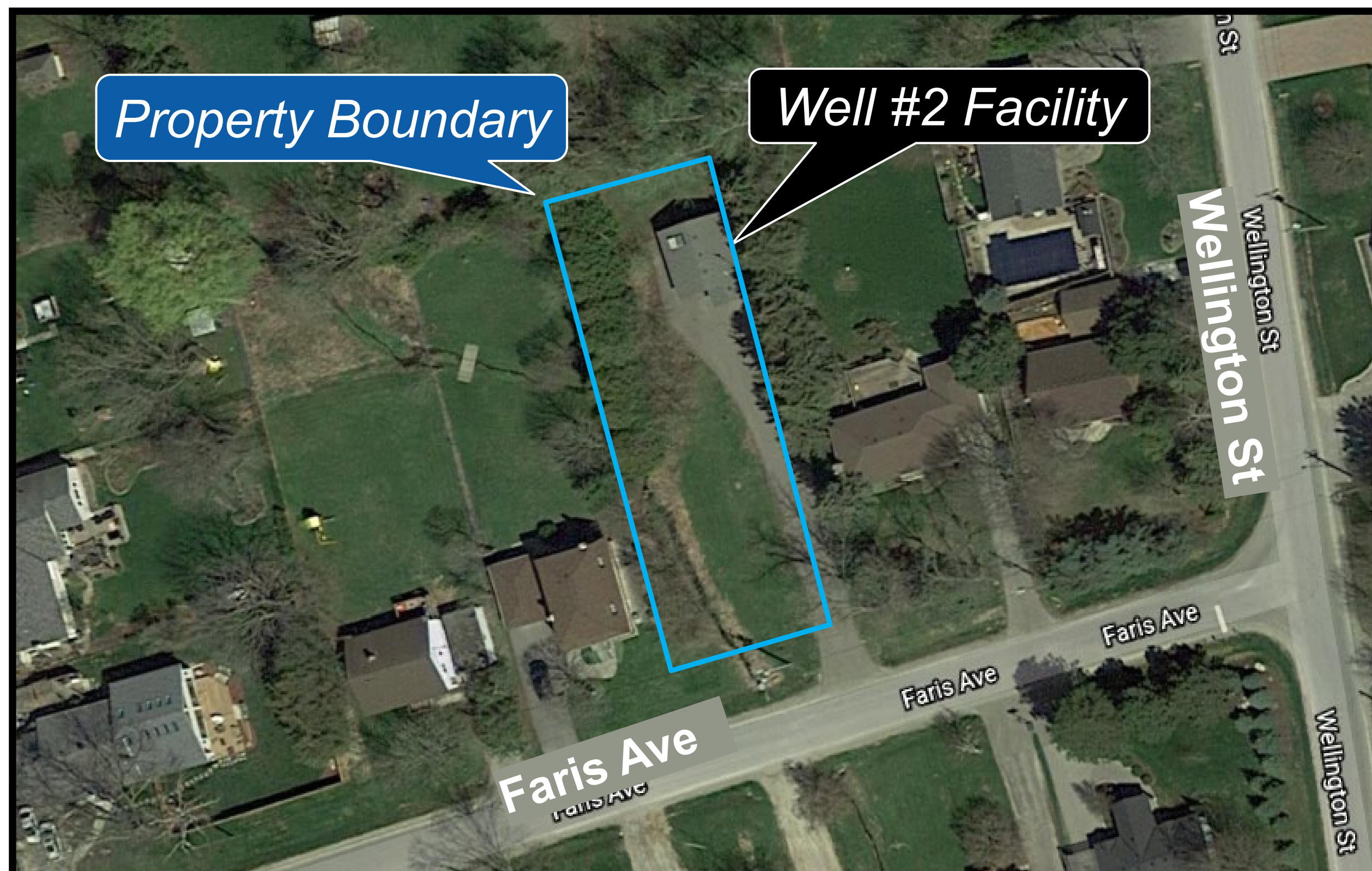
Scoring Description

-  Low Impact/
Most Preferred
-  Moderate Impact
-  High Impact

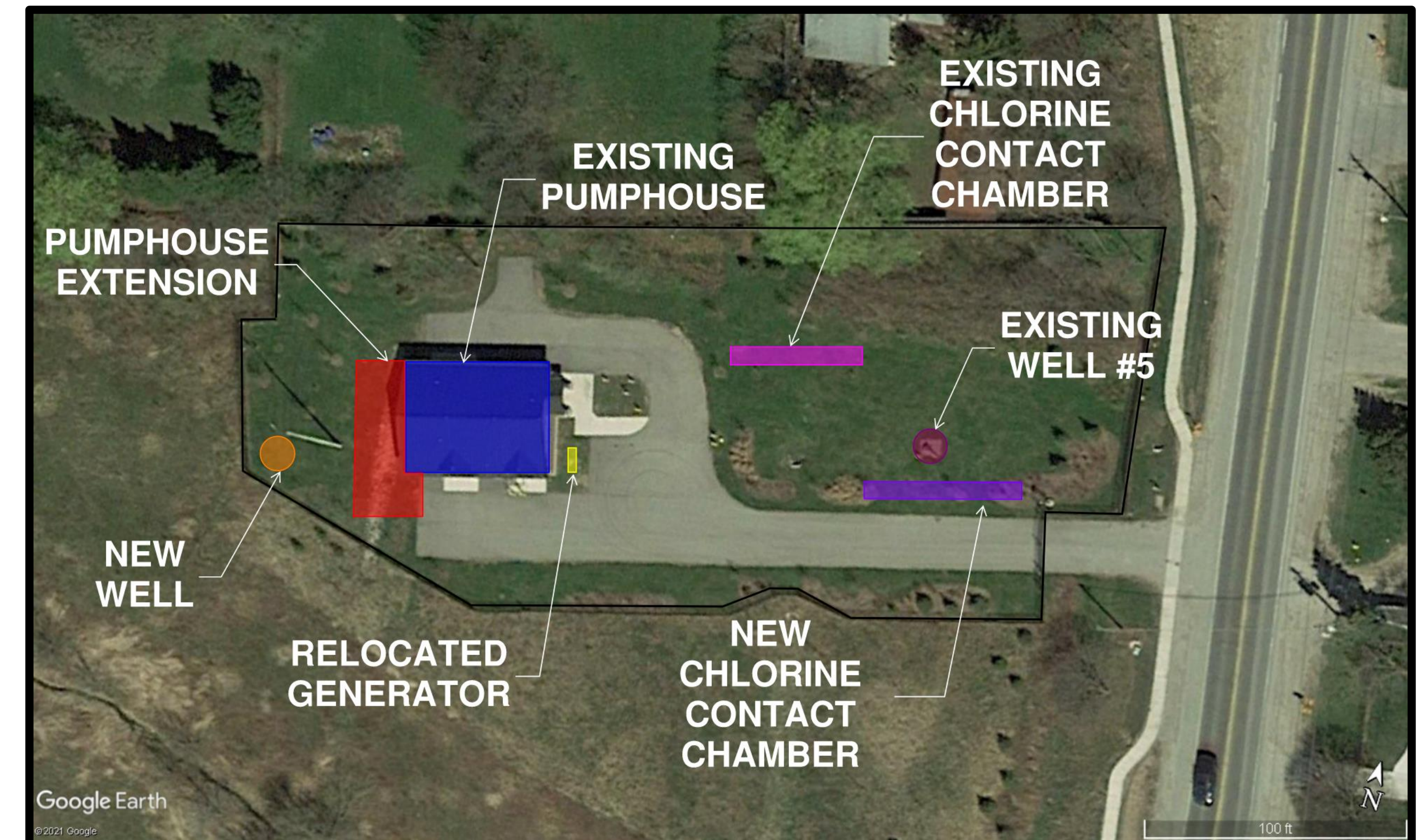
Water Servicing Recommended Design Concept: Expansion of Well #2 and Addition of an Independent Dedicated Treatment Train for Well Site H



Expand Well Site #2



Add an Independent Dedicated Treatment Train from Well Site H



Technical

- No challenges

Natural Environment

- No impacts beyond current Well #2 Facility impacts

Socio-Economic

- Minimal community impacts during construction

Financial

- No major cost besides minor equipment upgrades

Jurisdictional/Regulatory

- Minor additional permitting

Technical

- No challenges; no impact on current water supply

Natural Environment

- Minor vegetation impact during construction

Socio-Economic

- Minor impacts during construction and future operation

Financial

- Moderate cost due to new facility construction

Jurisdictional/Regulatory

- Additional permits required

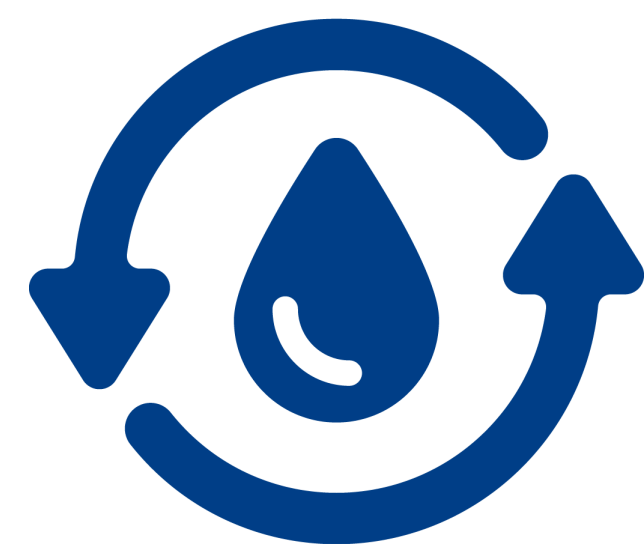
Wastewater Servicing Solutions

Solutions focused on two different parts of the wastewater system:



Pumping and Flow Attenuation

- Design concepts focused on reducing high peak flows through attenuation at Janet Avenue Pumping Station and/or Nobleton Water Resource Recovery Facility



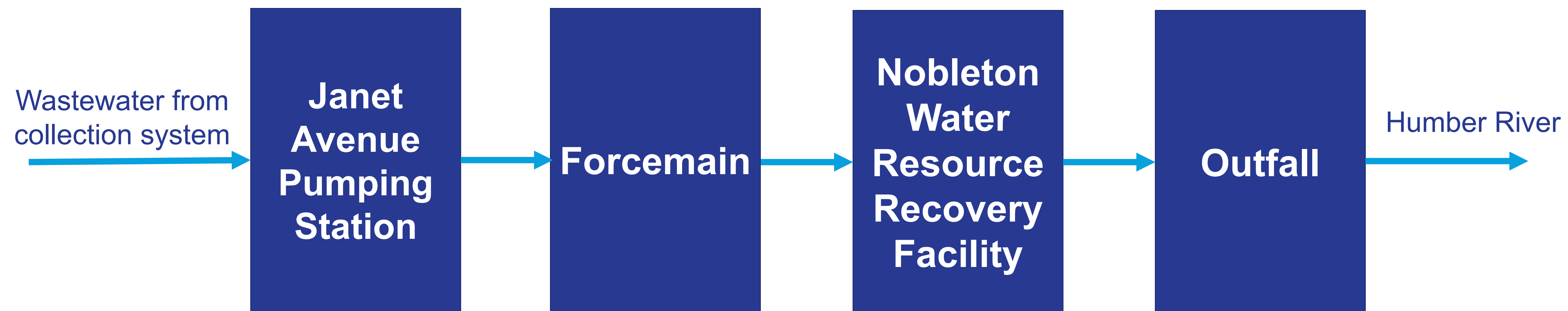
Nobleton Water Resource Recovery Facility (WRRF)

- Design concepts focused on upgrades and expansions in the treatment plant to meet future flows and effluent quality requirements



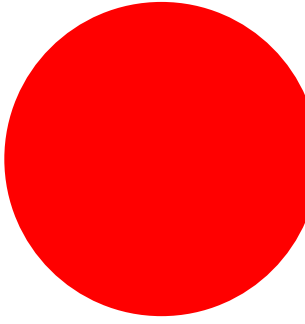
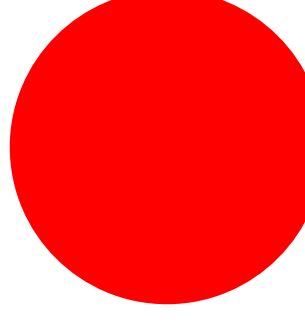
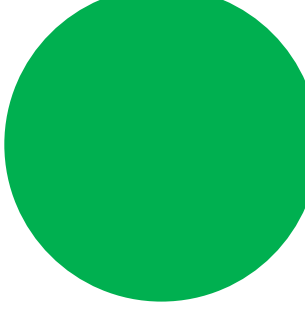
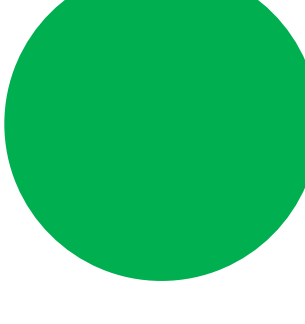


Nobleton Wastewater System

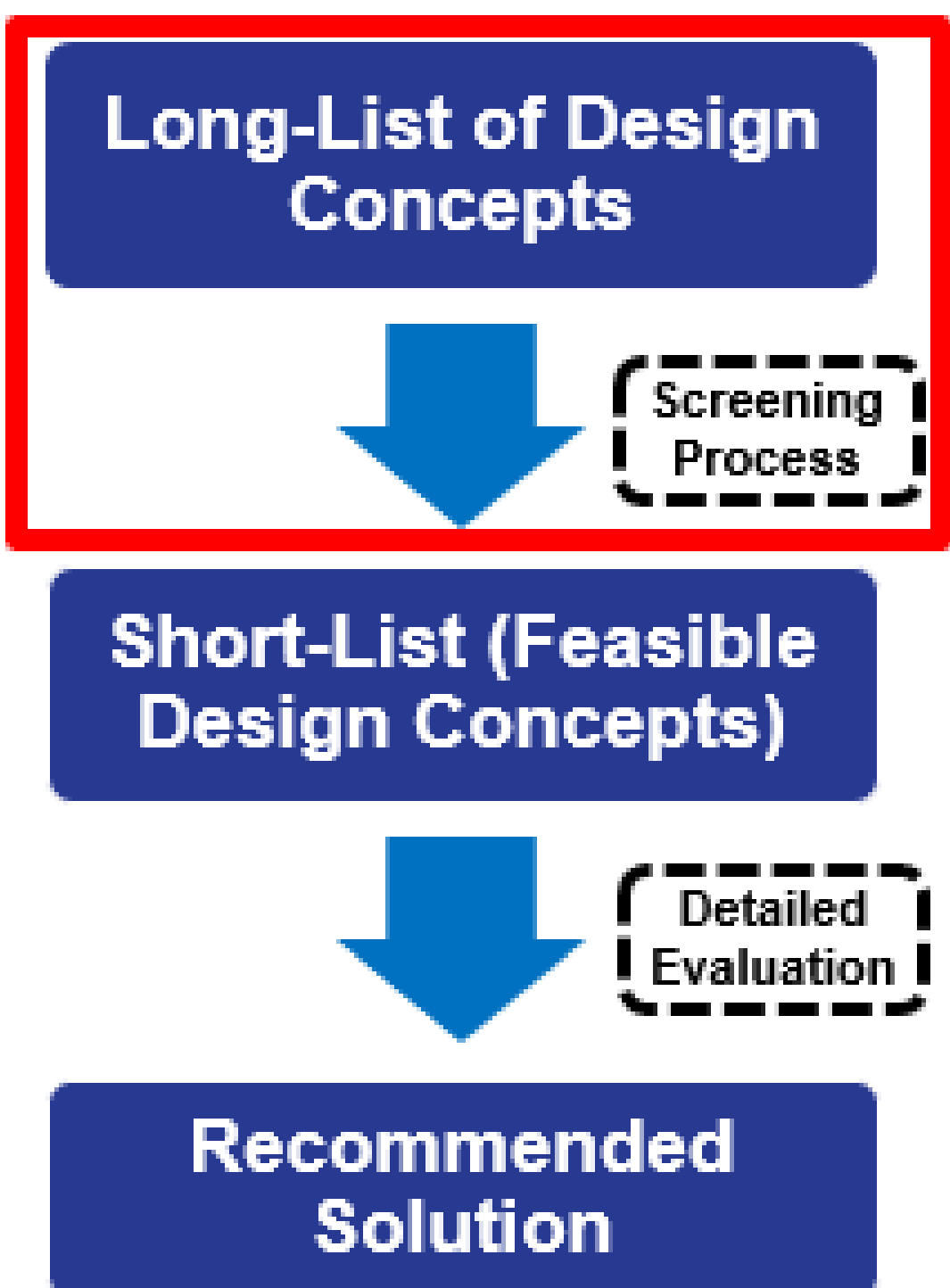




Wastewater Pumping and Attenuation Design Concepts Screening

Design Concepts for Wastewater Pumping and Attenuation	Long-List of Design Concepts Wastewater Pumping and Attenuation Screening Summary	Screening Status
1. No flow attenuation: expand Janet Avenue Pumping Station, twin existing forcemain, expand Nobleton Water Resource Recovery Facility (WRRF), twin outfall	- Requires expansion of entire wastewater system - Results in oversized pump station and forcemain that will remain underutilized - Expensive due to major construction required	 Fail
2. Flow attenuation at Nobleton WRRF: expand Janet Avenue Pumping Station, twin existing forcemain, expand Nobleton WRRF, provide equalization tank at Nobleton WRRF	- Expanded pump station, twinned forcemain, and Water Resource Recovery Facility will remain underutilized except during large storm events - High cost due to additional pump station required for equalization tank	 Fail
3. A Flow attenuation at Janet Avenue Pumping Station with a Below Grade Storage Tank: expand Janet Avenue Pumping Station, provide equalization tank/pipe at pumping station, expand Nobleton WRRF	- Alternative eliminates twinning of 4.5 km of forcemain and 670 meters of outfall - Requires the least civil and structural work upgrades	 Pass
3. B Flow attenuation at Janet Avenue Pumping Station with a Gravity Pipe: expand Janet Avenue Pumping Station, provide equalization tank/pipe at pumping station, expand Nobleton WRRF	- Alternative eliminates twinning of 4.5 km of forcemain and 670 meters of outfall - Requires the least civil and structural work upgrades	 Pass

Evaluation Process





Short-List of Design Concepts: Wastewater Pumping and Attenuation Solutions

One alternative, with two design concepts, passed the screening process and was selected for detailed evaluation:

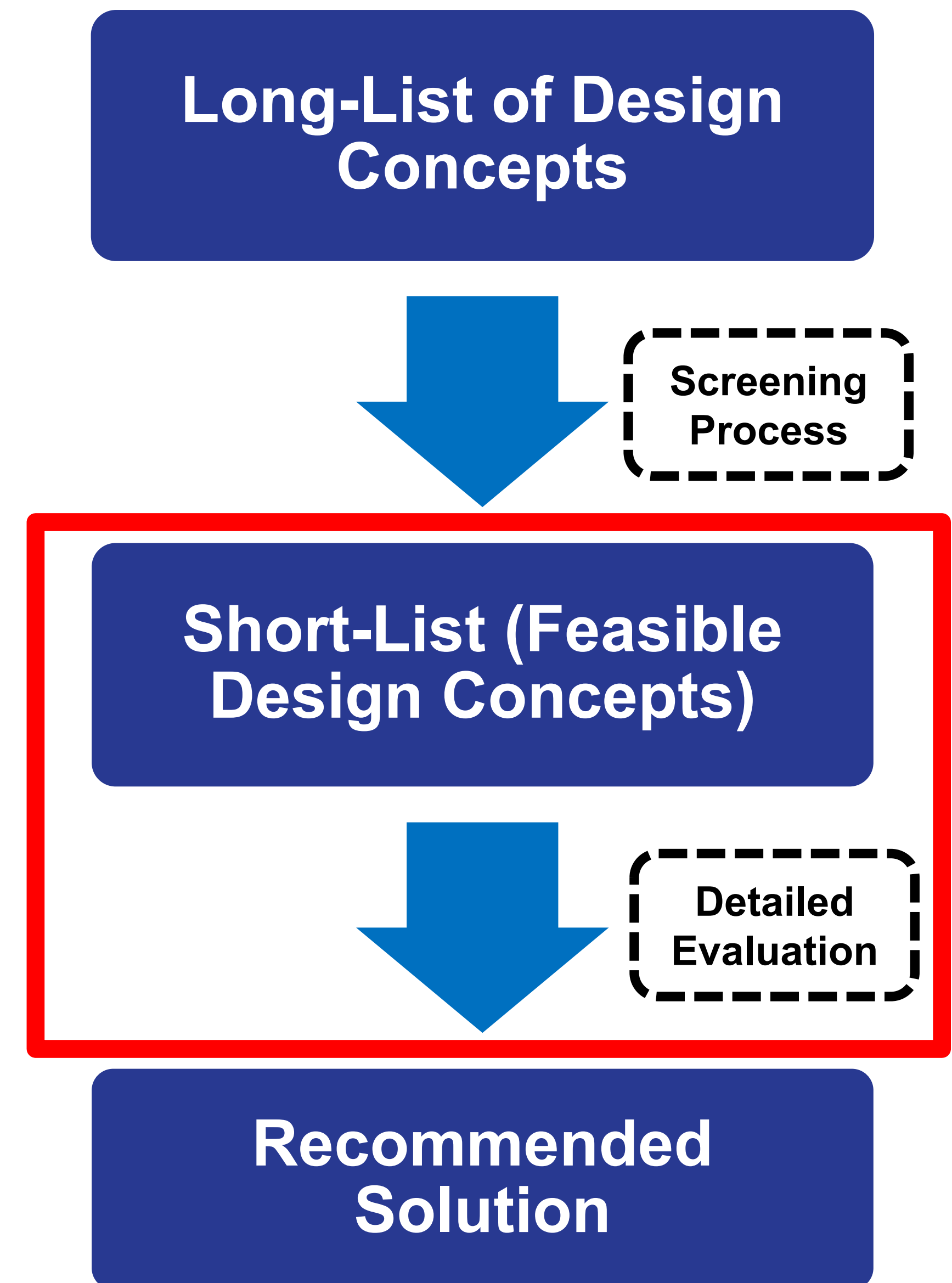
Design Concept 3.A

- Flow attenuation at Janet Avenue Pumping Station with a below grade storage tank

Design Concept 3.B

- Flow attenuation at Janet Avenue Pumping Station with a gravity pipe

Evaluation Process



Wastewater Pumping and Attenuation Design Concepts

Detailed Evaluation



		Design Concept 3.A: Flow attenuation at Janet Avenue Pumping Station with a below grade storage tank	Design Concept 3.B: Flow attenuation at Janet Avenue Pumping Station with a gravity pipe
Technical			
Natural Environment			
Socio-economic Environment			
Financial			
Jurisdictional/ Regulatory			

Although both design concepts ranked equally during evaluation, design concept 3.B has a higher impact during construction because gravity pipe will be installed within the site access roadway. As a result of this, the access roadway will not be available, and an alternate site entrance will be needed.

Evaluation Process

Long-List of Design
Concepts



Screening
Process

Short-List (Feasible
Design Concepts)



Detailed
Evaluation

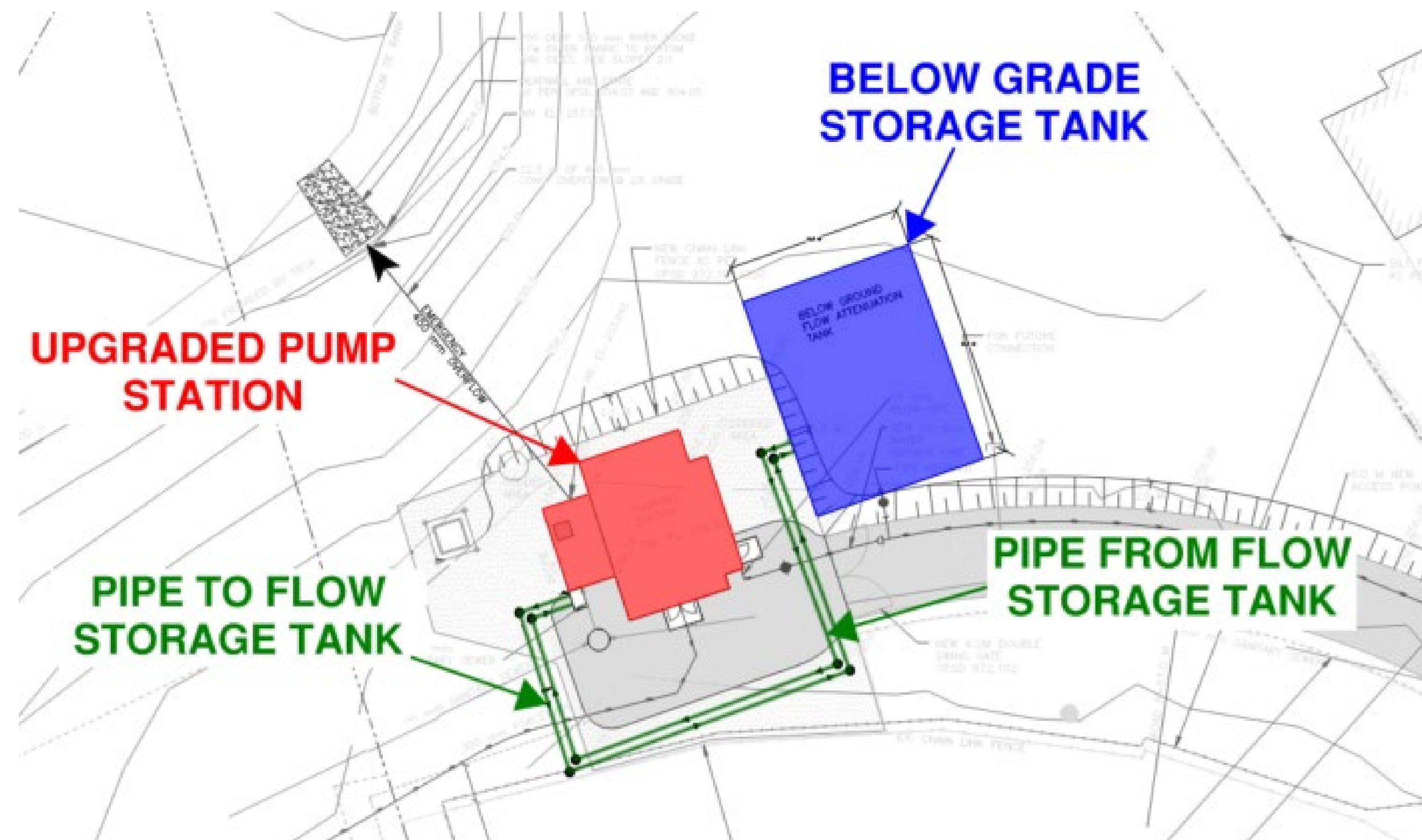
Recommended
Solution

Scoring Description

- Low Impact/
Most Preferred
- Moderate Impact
- High Impact

Wastewater Pumping and Attenuation Recommended Design

Concept: Storage Tank at Janet Avenue Pumping Station



Technical

- No challenges or impacts during construction
- No interruption to access roadway during construction

Natural Environment

- Minor impact on vegetation, water resources, and wildlife
- Moderate increase in greenhouse gas emissions due to higher energy requirement for pumping

Socio-Economic

- No anticipated community impacts

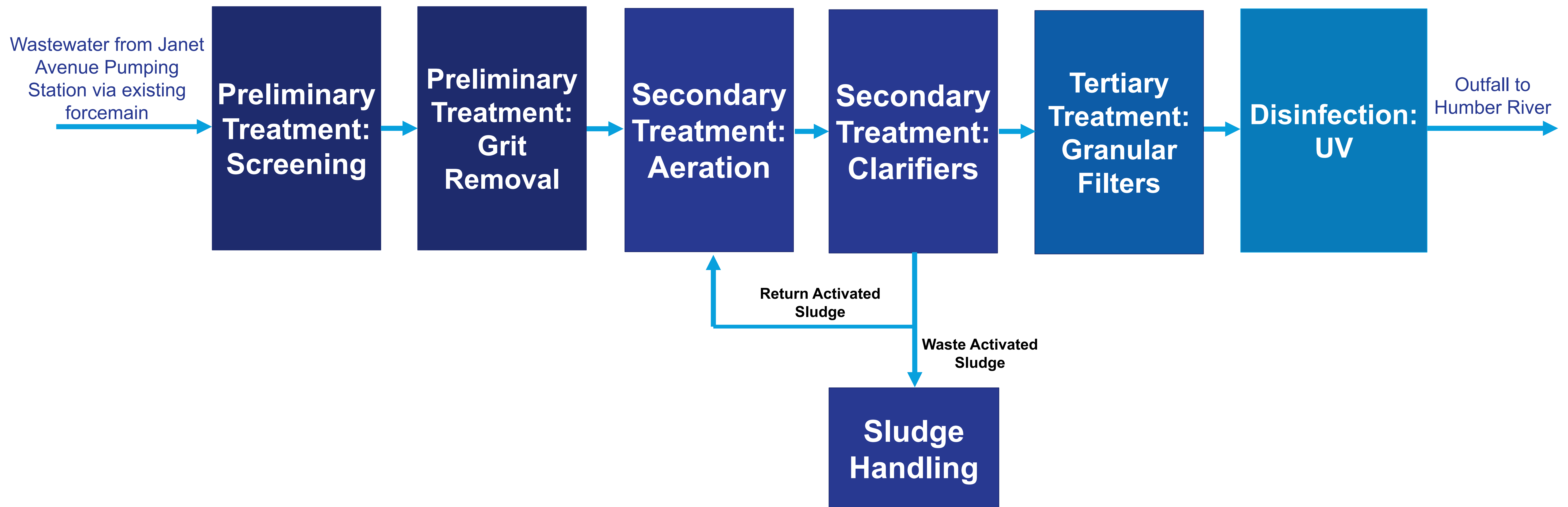
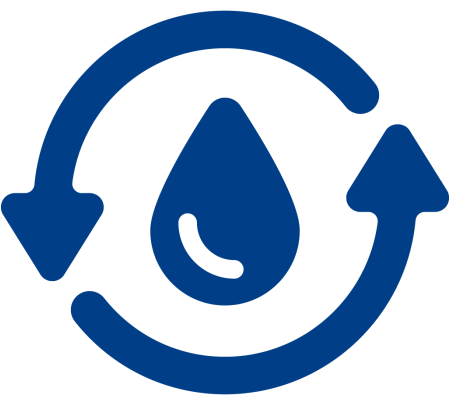
Financial

- Most economical capital investment and lifecycle cost

Jurisdictional/Regulatory

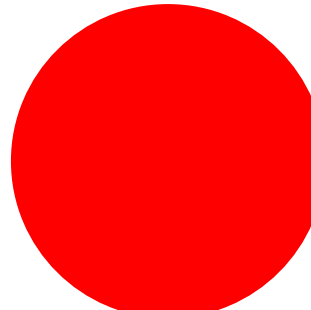
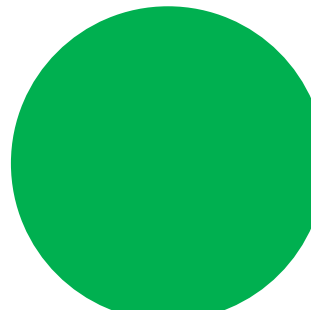
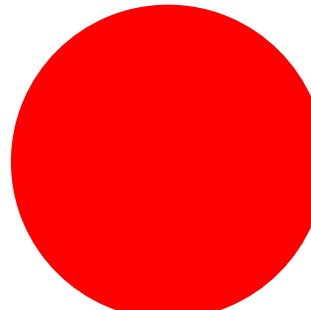
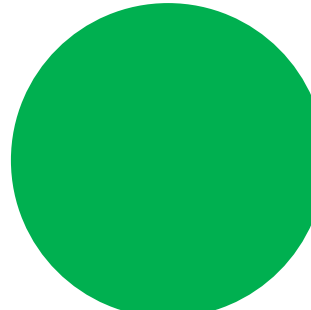
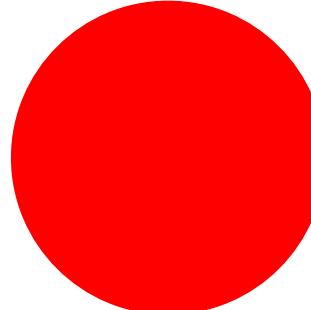
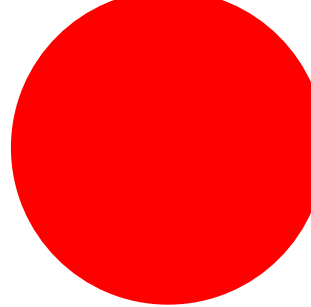
- Amendments to existing permits

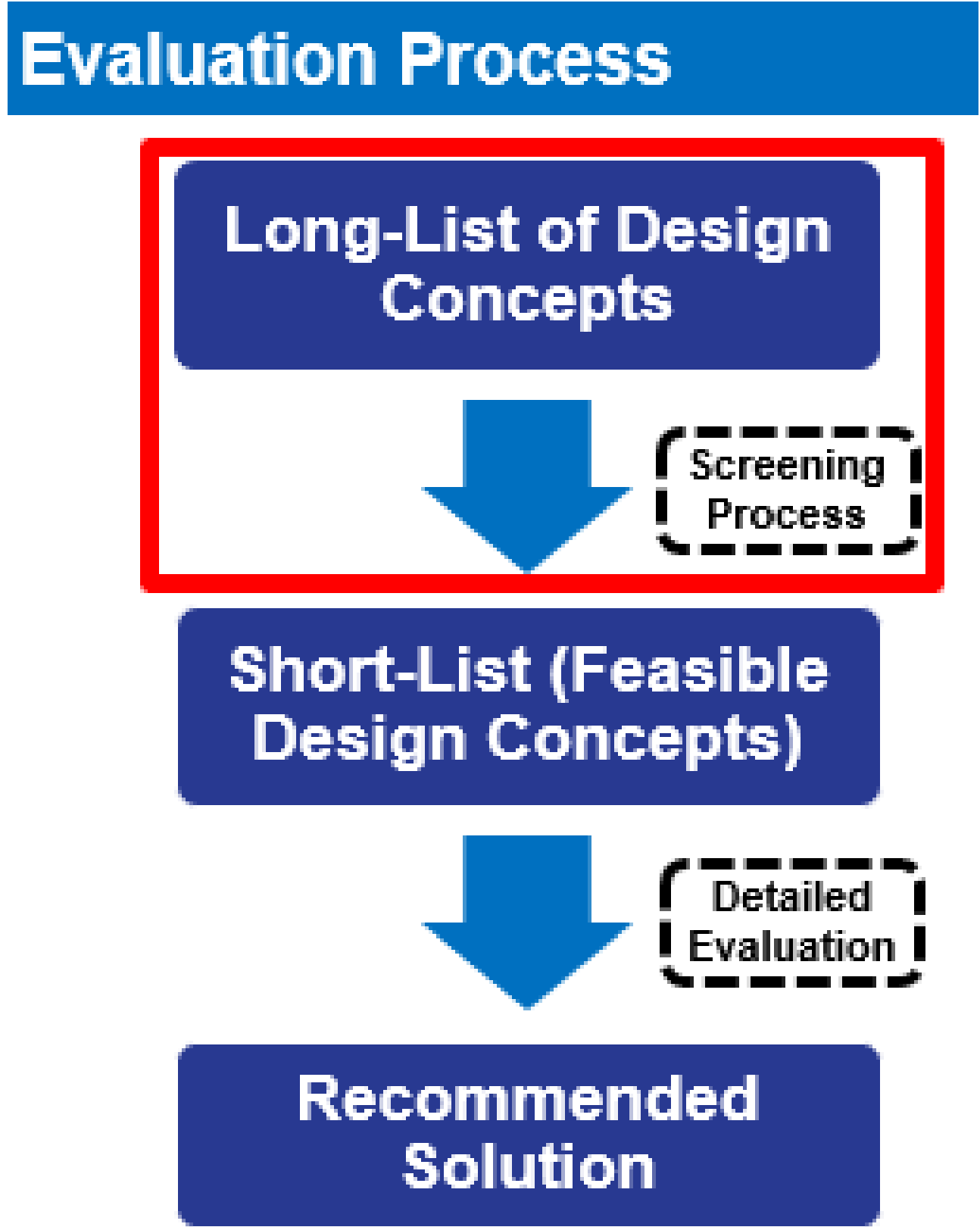
Nobleton Water Resource Recovery Facility (WRRF) Processes Overview





Nobleton WRRF Upgrades Design Concepts Screening

Design Concepts for Wastewater Servicing Solution	Long-List of Design Concepts Wastewater Solutions Screening Summary	Screening Status
0. No Flow Attenuation	With no upstream flow attenuation, there is a significant construction cost and impact in the collection system and Nobleton WRRF	 Fail
1.A Expand Existing Secondary Biological Treatment: Enlarge Existing Aeration Tanks	- Minimal construction impacts and capital/operating costs - Technology is compatible, performs robustly and satisfied stakeholders	 Pass
1.B Expand Existing Secondary Biological Treatment: Add Primary Treatment	- Incompatibility with existing operation and hydraulics - Additional facilities will be required for effluent pumping and sludge handling	 Fail
2. Intensify Secondary Biological Treatment System: Membrane Aerated Bioreactor	- Minimal construction impacts and capital/operating costs - Technology is compatible, performs robustly and satisfied stakeholders	 Pass
3. Add Secondary Biological Treatment Train	- Incompatibility with existing operation and hydraulics - Additional process facilities will be required for effluent pumping and sludge handling	 Fail
4. Expand Existing Biological Treatment with Equalization Expansion	- Requires new process and pumping station - Did not pass resiliency criteria because peak treatment capacity would not be increased	 Fail



Short-List of Design Concepts: Nobleton WRRF Upgrade Solutions



Two alternatives passed the screening process and were selected for detailed evaluation:

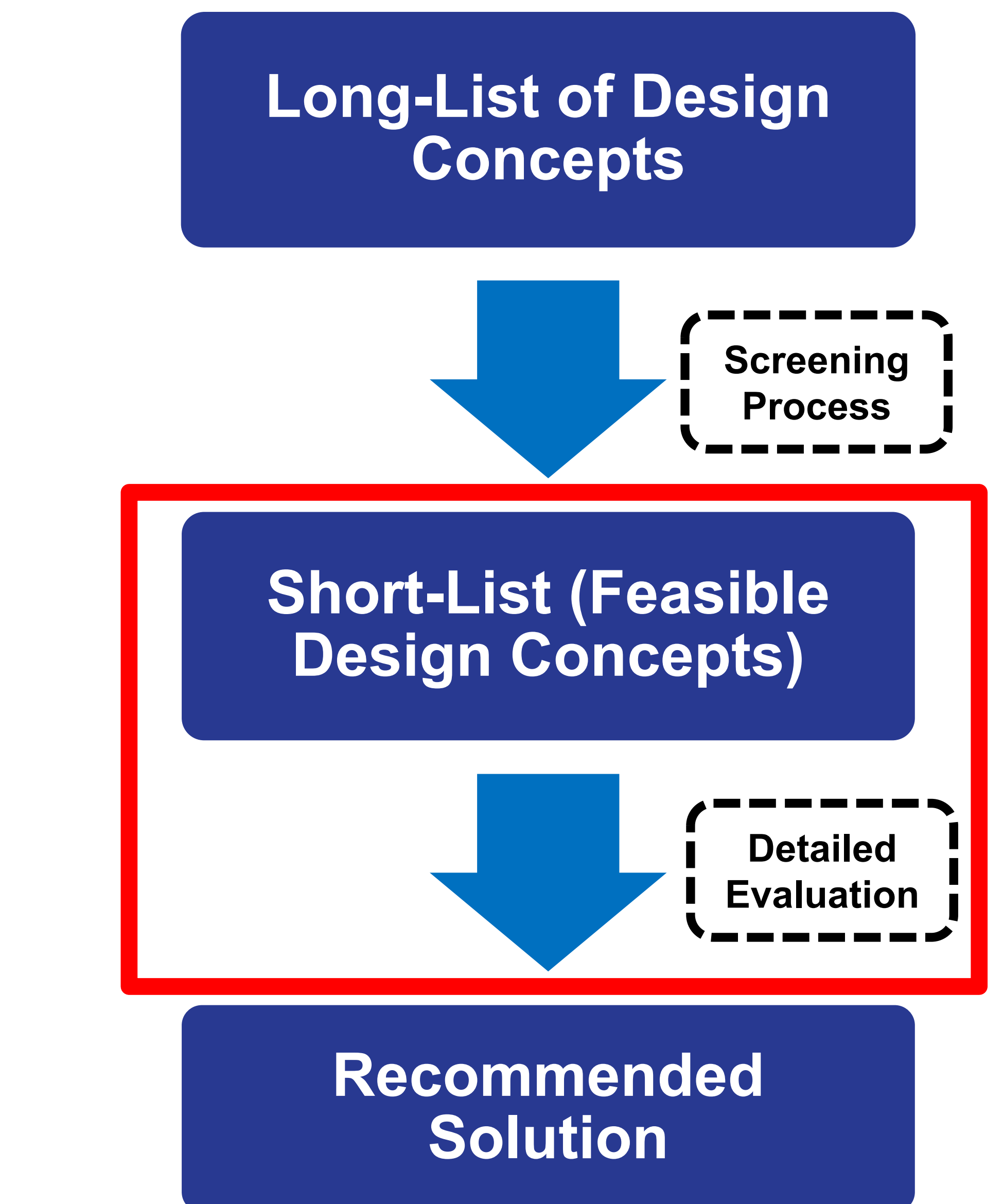
Design Concept 1.A

- Expand existing secondary biological treatment: Enlarge existing aeration tanks

Design Concept 2

- Intensify secondary biological treatment system: Membrane aerated bioreactor

Evaluation Process

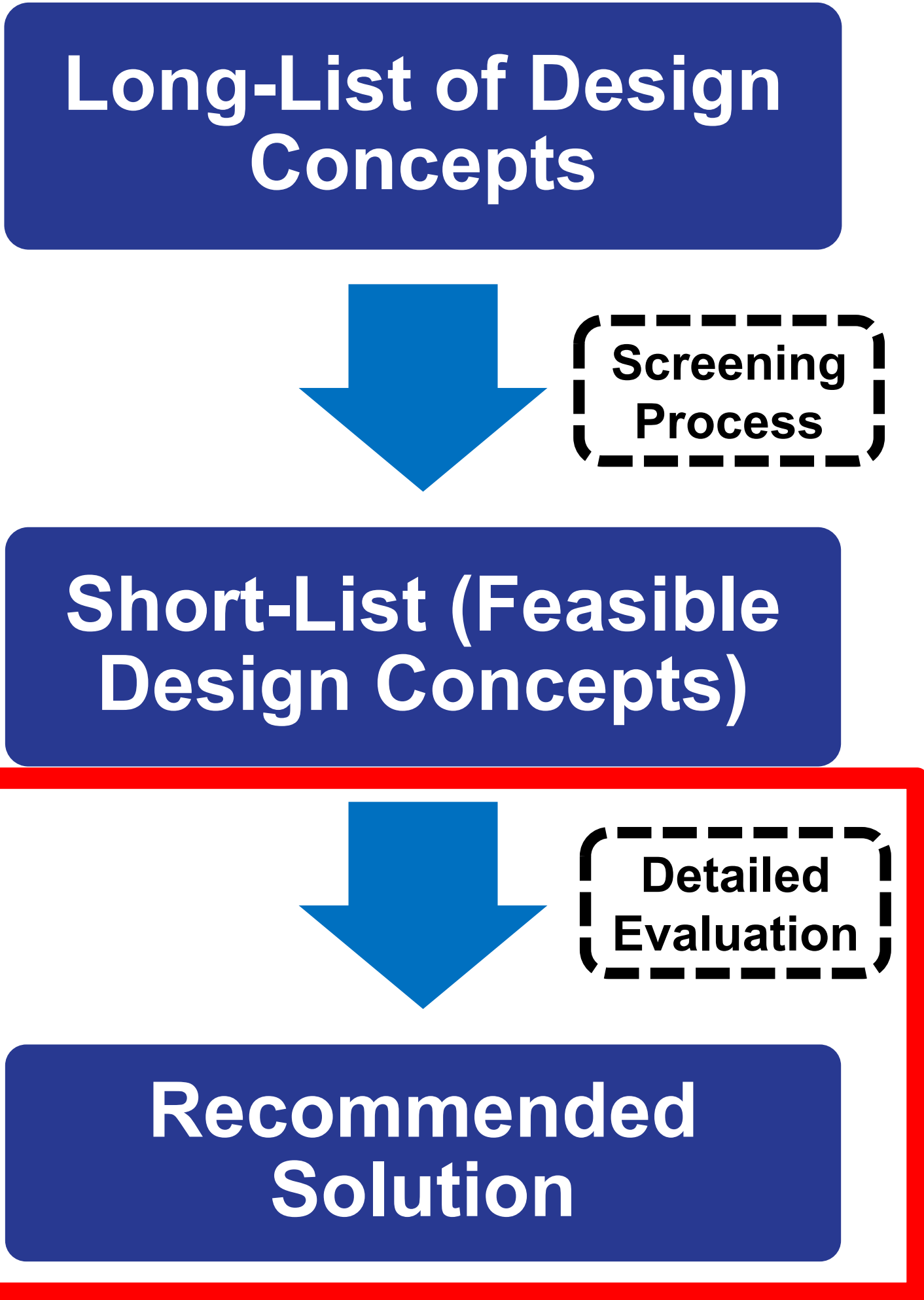


Nobleton WRRF Upgrade Design Concepts Detailed Evaluation



		Design Concept 1.A: Expand Existing Secondary Biological Treatment: Enlarge Existing Aeration Tanks	Design Concept 2: Intensify Secondary Biological Treatment System: Membrane Aerated Bioreactor
Technical			
Natural Environment			
Socio-economic Environment			
Financial			
Jurisdictional/ Regulatory			

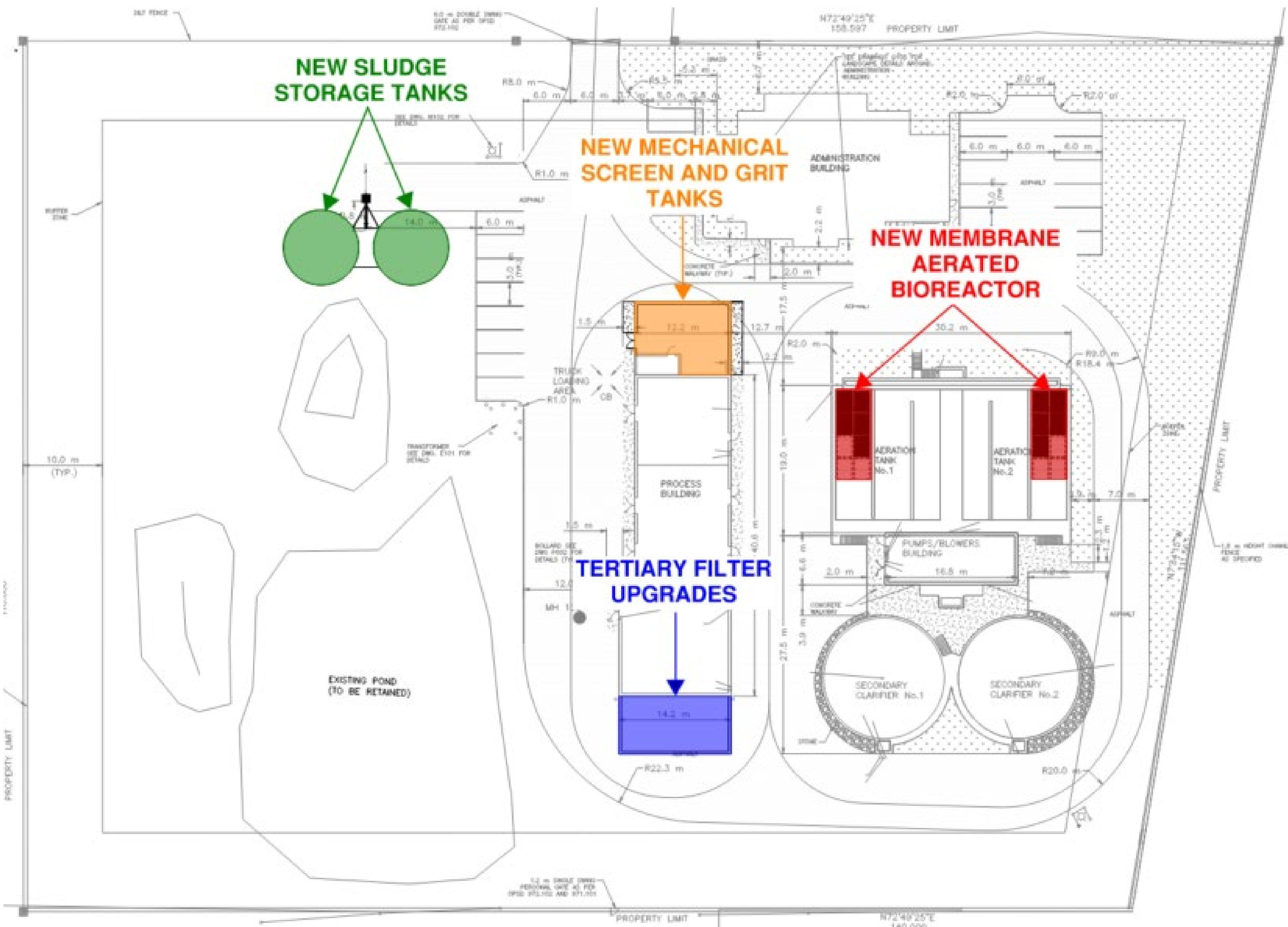
Evaluation Process



Scoring Description

- Low Impact/
Most Preferred
- Moderate Impact
- High Impact

Nobleton WRRF Upgrade Recommended Design Concept: Intensify Secondary Biological System – Membrane Aerated Bioreactor (MABR)



Technical

- Existing facilities will need to be modified to accommodate intensification processes

Natural Environment

- No impact on vegetation, water resources, and wildlife

Socio-Economic

- No anticipated community impacts

Financial

- Lowest cost alternative

Jurisdictional/Regulatory

- Additional permits required due to lack of full-scale Membrane Aerated Bioreactor (MABR) processes

Summary of Recommended Design Concepts

Water Servicing



Expand Well #2 and add an independent dedicated treatment train for Well Site H

Wastewater: Pumping and Flow Attenuation



Expand Janet Avenue Pumping Station and add flow attenuation with an underground storage tank

Wastewater: Nobleton WRRF Upgrades



Intensify secondary biological treatment system with membrane aerated bioreactors

Share your thoughts – we're listening.

Please contact us if you are unable to access the online survey.

- To provide your feedback, complete the survey. Survey can be accessed at **york.ca/nobletonea**
- Please complete the survey by **August 3, 2021**

Afshin Naseri, P. Eng.
Senior Project Manager
Environmental Services
The Regional Municipality of York
17250 Yonge Street
Newmarket, Ontario L3Y 6Z1
afshin.naseri@york.ca
1-877-464-9675 ext. 75062
Fax 905-830-6927

What's Next?

- Document input and compile studies and reports prepared as part of the Class EA process into an **Environmental Study Report**
- Environmental Study Report will be tabled for a mandatory period of 30 days
- You can continue to stay informed about the project, or sign up for updates by visiting the project webpage at **york.ca/nobletonlea**

Thank you for joining us!

THANK YOU