Havelock Wastewater Treatment Plant (WWTP) Schedule ‘C’ Municipal Class Environmental Assessment

Public Information Centre No. 2

OCWA
ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

HBM
TOWNSHIP OF
HAVELOCK · BELMONT · METHUEN
INC. 1998

Why Are We Here?

- The Township of Havelock-Belmont-Methuen and the Ontario Clean Water Agency (OCWA) are undertaking a **Municipal Class Environmental Assessment Study** to complete infrastructure upgrades at the Havelock Wastewater Treatment Plant (WWTP)
- The objectives of this **Public Information Centre** are to:

Provide an update on the project progress

Present the evaluation of design concepts and preferred solutions

Provide an opportunity for the public to get involved in the project

We Need Your Input!

Your feedback is important to this Class Environmental Assessment Study!

Please review the PIC presentation to learn about the process, the activities completed to date, and the **Preferred Solution being recommended.**

Your opinion is important to us!
Members of the project team are available to answer questions via email or telephone.

Please complete the **Online Comment Form** after reviewing the materials.

What is the Purpose of the Study?

- To plan for additional wastewater servicing capacity to support growth in the Village to 2041.
- To identify improvements required at the Havelock Wastewater Treatment Plant to increase its capacity, while minimizing impacts on the natural and socio-cultural environments and reducing its life cycle cost

Schedule ‘C’ Municipal Class EA Process and Timeline

Getting Started

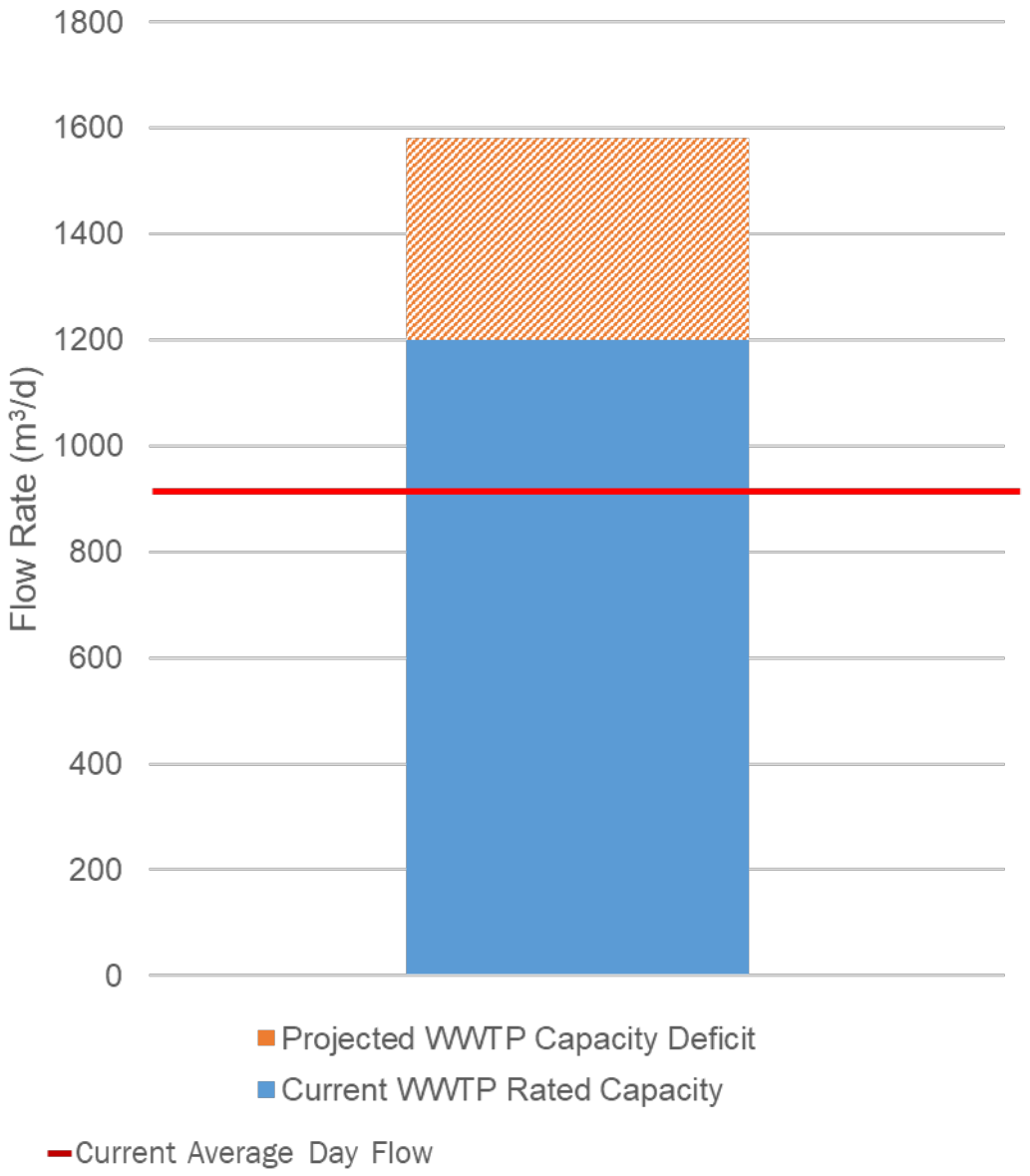
- Review available information/data
- Identify **Problem / Opportunity Statement**

NOTICE OF COMMENCEMENT

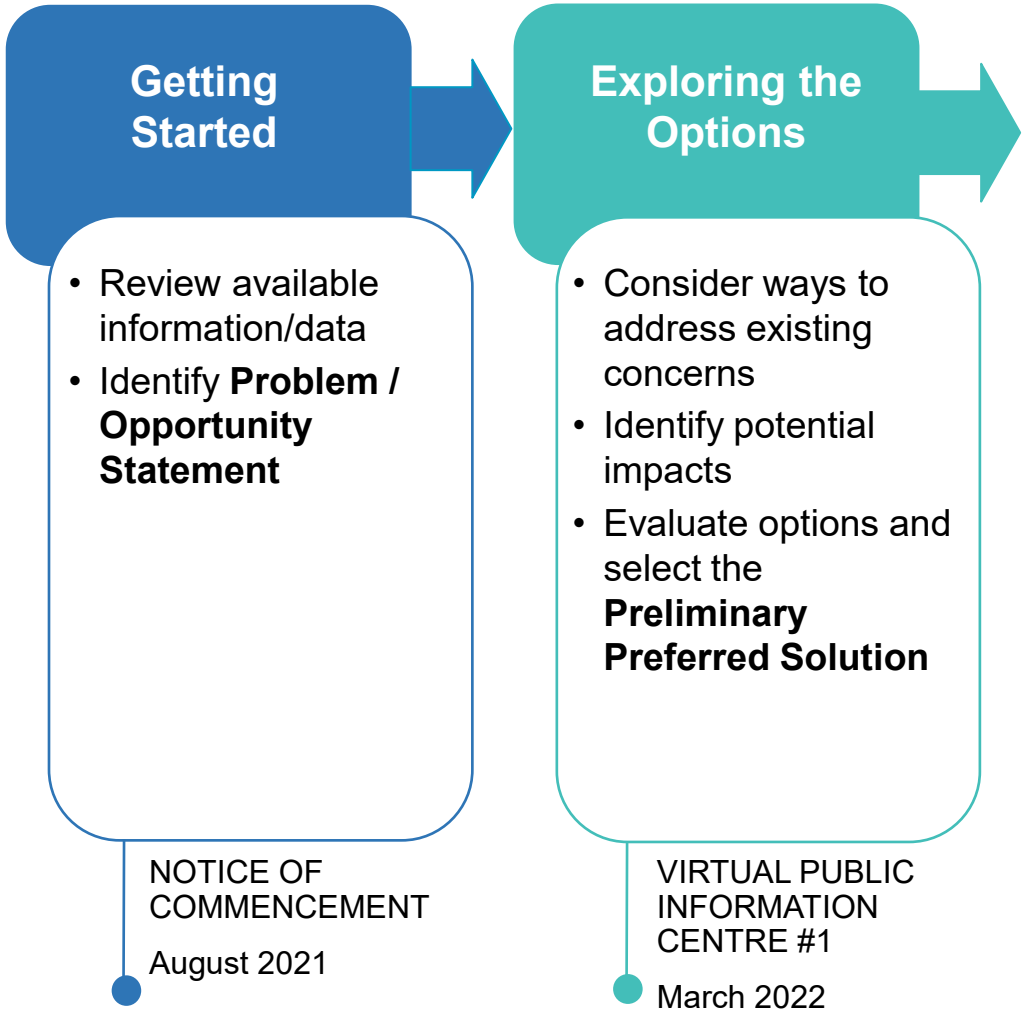
August 2021

Proposed Growth and Design Flows for the Havelock WWTP

- Planned growth in the Havelock South Development Area
  - 3 phases of residential homes
  - Peterborough Housing Development
  - Havelock Long-Term Care (LTC) Facility
- Additional anticipated growth to 2,400 people in the study area over a 20-year planning period to 2041



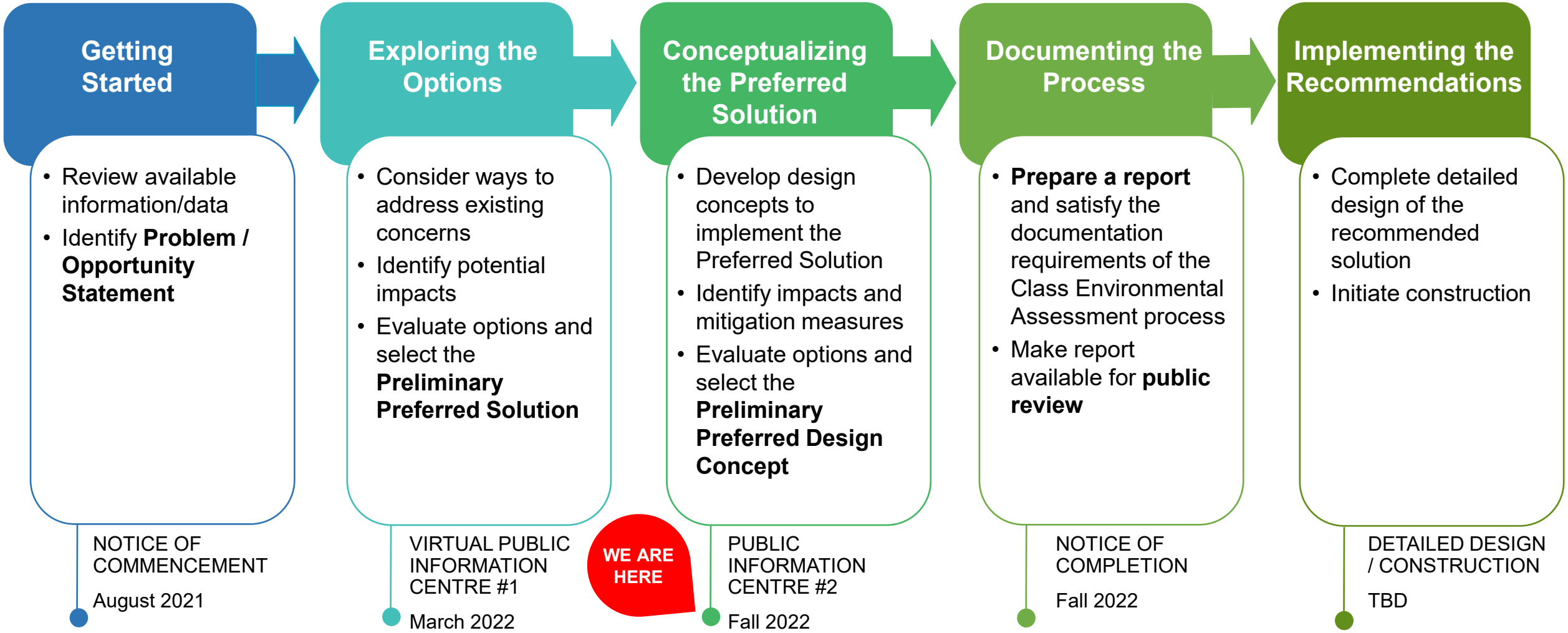
Schedule ‘C’ Municipal Class EA Process and Timeline



Review of PIC No.1
List of Alternative Solutions – Screening Results

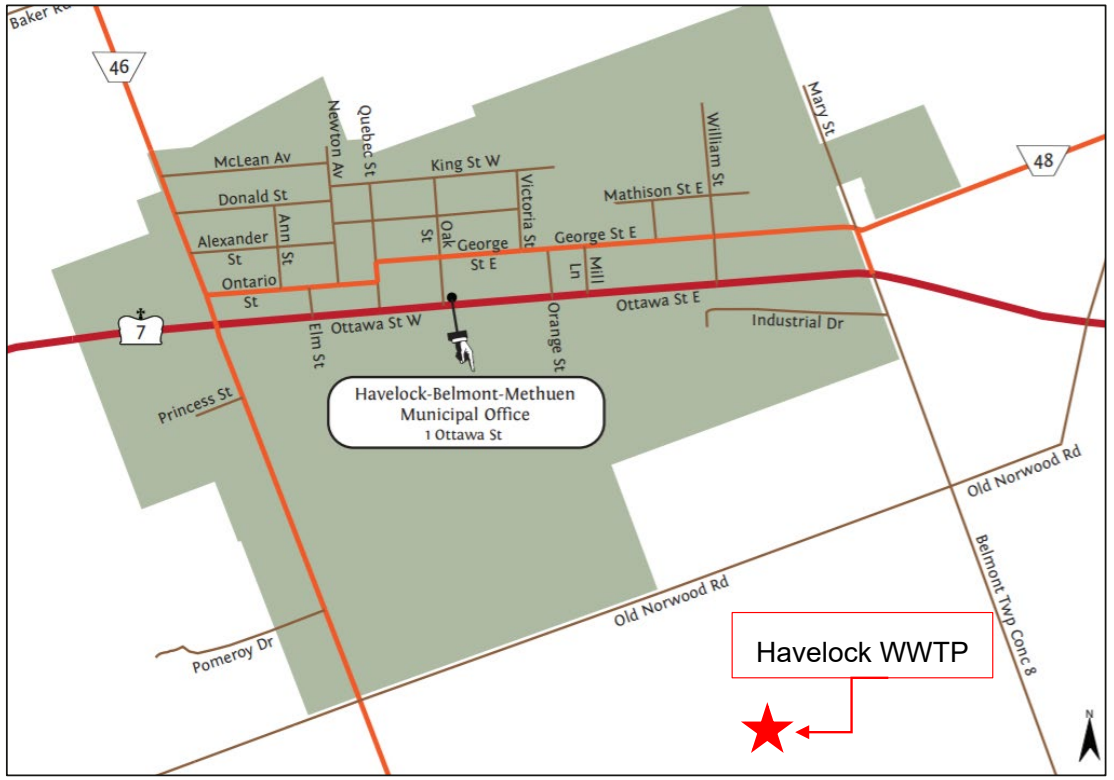
#	Alternative Solutions	Screening and Recommendation
1.	Do Nothing	**Eliminated –** alternative would lead to non-compliance and plant by-passes with an increased risk of wastewater system failure.
2.	Limit Community Growth	**Eliminated –** alternative would not allow for any additional future development beyond the capacity of the WWTP leading to non-compliance with growth objectives.
3.	Reduce Inflow and Infiltration (I/I)	**Eliminated –** I/I Control measures already in place. Not recommended as a stand-alone solution. Could be included as part of a preferred solution.
4.	Expand the Existing Havelock WWTP	**CARRIED FORWARD**
5.	Construct a New WWTP on the Existing Site	**Eliminated** – alternative addresses the need for additional wastewater servicing capacity, but it does not maximize use of existing infrastructure.
6.	Construct a New WWTP on a New Site	**Eliminated –** alternative addresses the need for additional wastewater servicing capacity, but it does not maximize use of existing infrastructure.

Schedule ‘C’ Municipal Class EA Process and Timeline



Overview of Existing Havelock Wastewater Treatment Plant (WWTP)

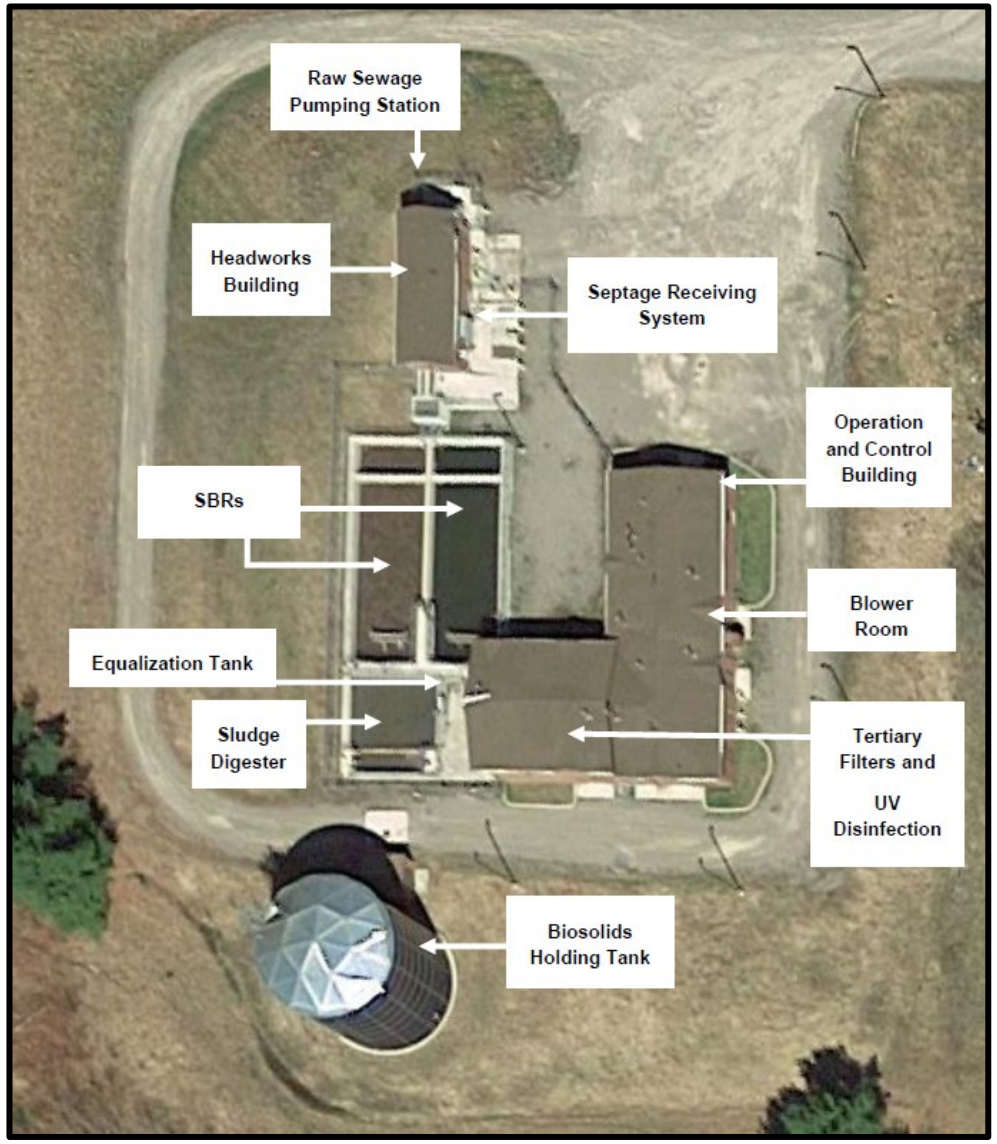
- **Location:** 719 Old Norwood Road
- **Rated Capacity:** 1,200 m^3/d
- **Year of Construction:**
- 2009



Key Process Components of the Havelock WWTP

Plant Processes

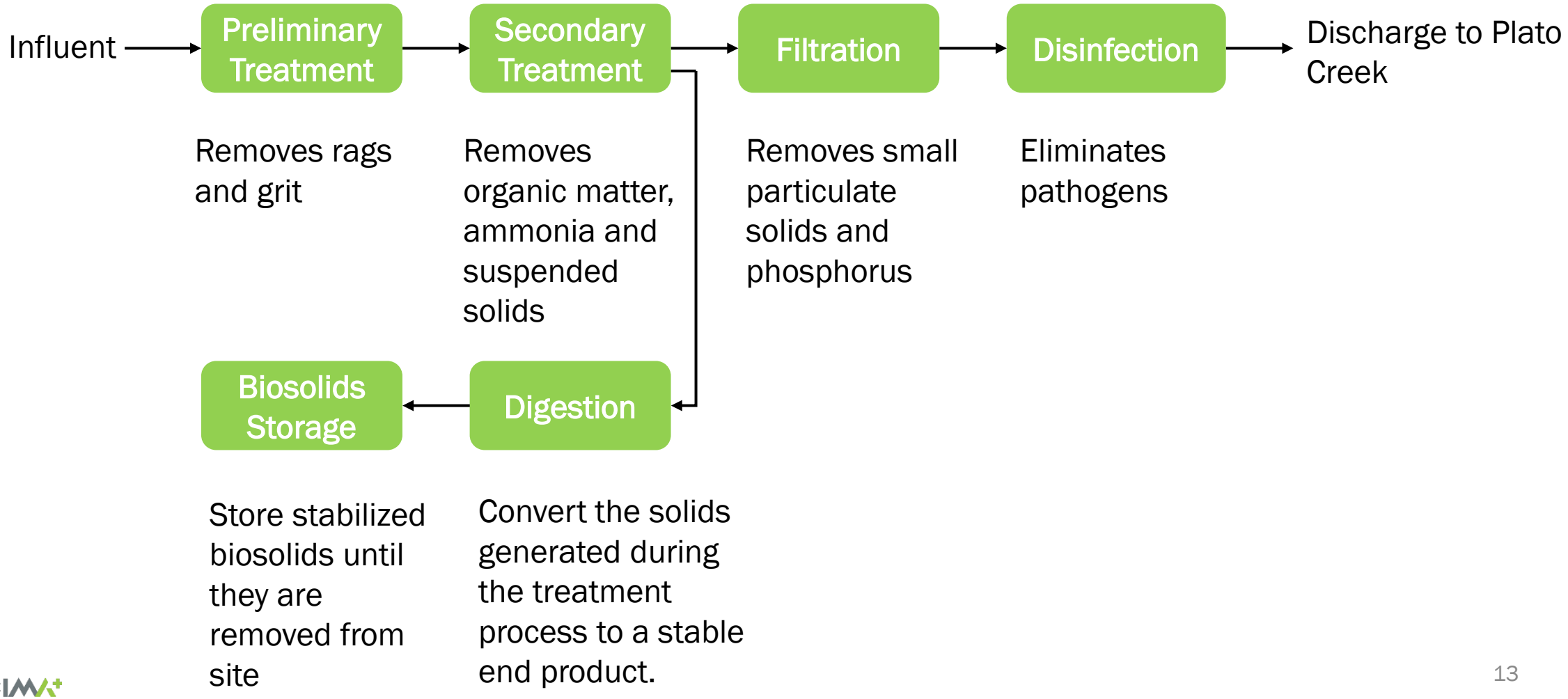
- Raw Sewage Pumping Station
- Septage and Hauled Waste Receiving Facility
- Headworks
- Sequencing Batch Reactor (SBR) Treatment Tanks
- Equalization Tank
- Up-flow Sand Filters
- Chemical Addition for phosphorus removal
- UV Disinfection
- Sludge Treatment
- Outfall pipe to Plato Creek
- Existing lagoons – abandoned



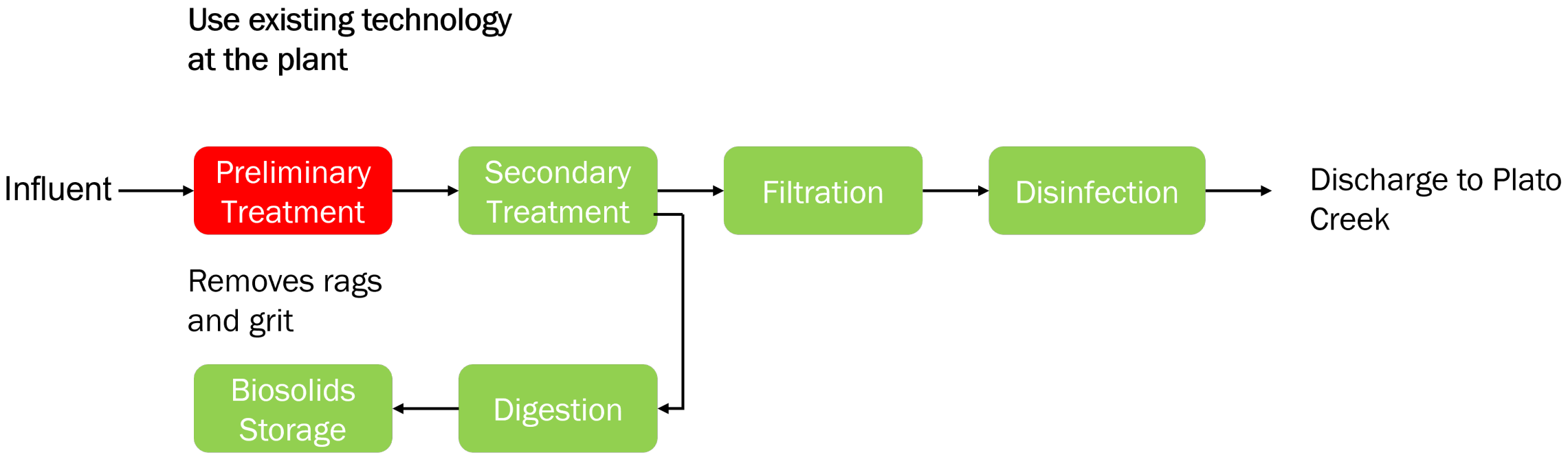
Existing Lagoons Havelock WWTP

Overview of Wastewater Treatment Process

Process Flowchart



Overview of Wastewater Treatment Process



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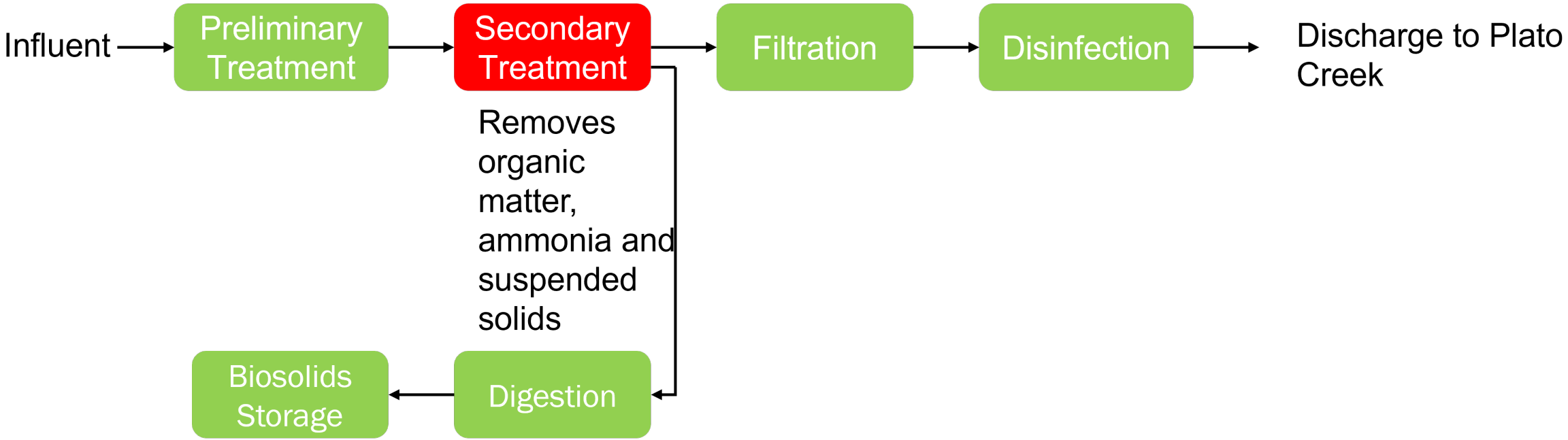
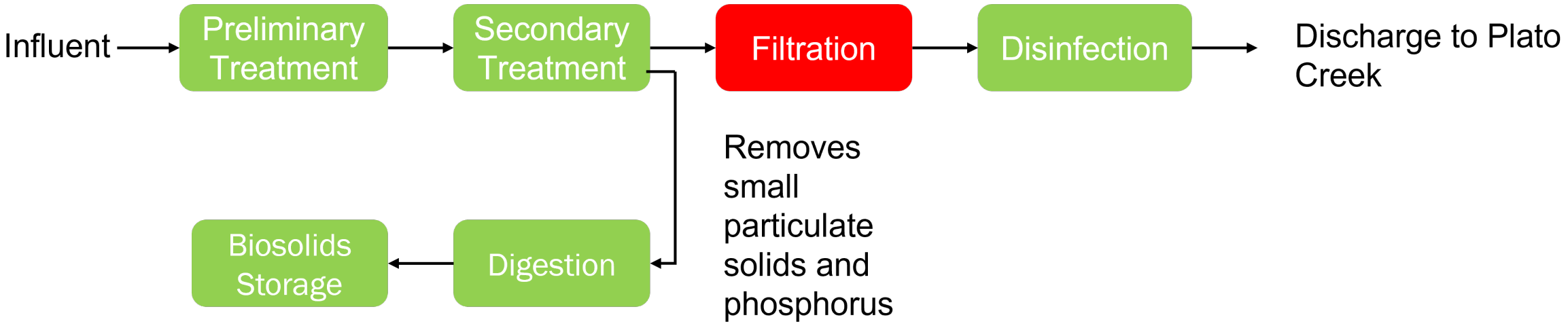


Secondary Treatment Technology Review

Secondary Treatment

- Conventional Activated Sludge (CAS)
- Ballasted Activated Sludge
- Biological Phosphorus Removal – Using CAS
- Membrane Bioreactor
- Membrane Aerated Biofilm Reactor (MABR)
- Integrated Fixed-Film Activated Sludge / Moving Bed Bioreactor
- **Sequencing Batch Reactor (SBR)** ★
- Aerobic Granular Sludge
- Biological Aerated Filter

Overview of Wastewater Treatment Process



Filtration Design Criteria

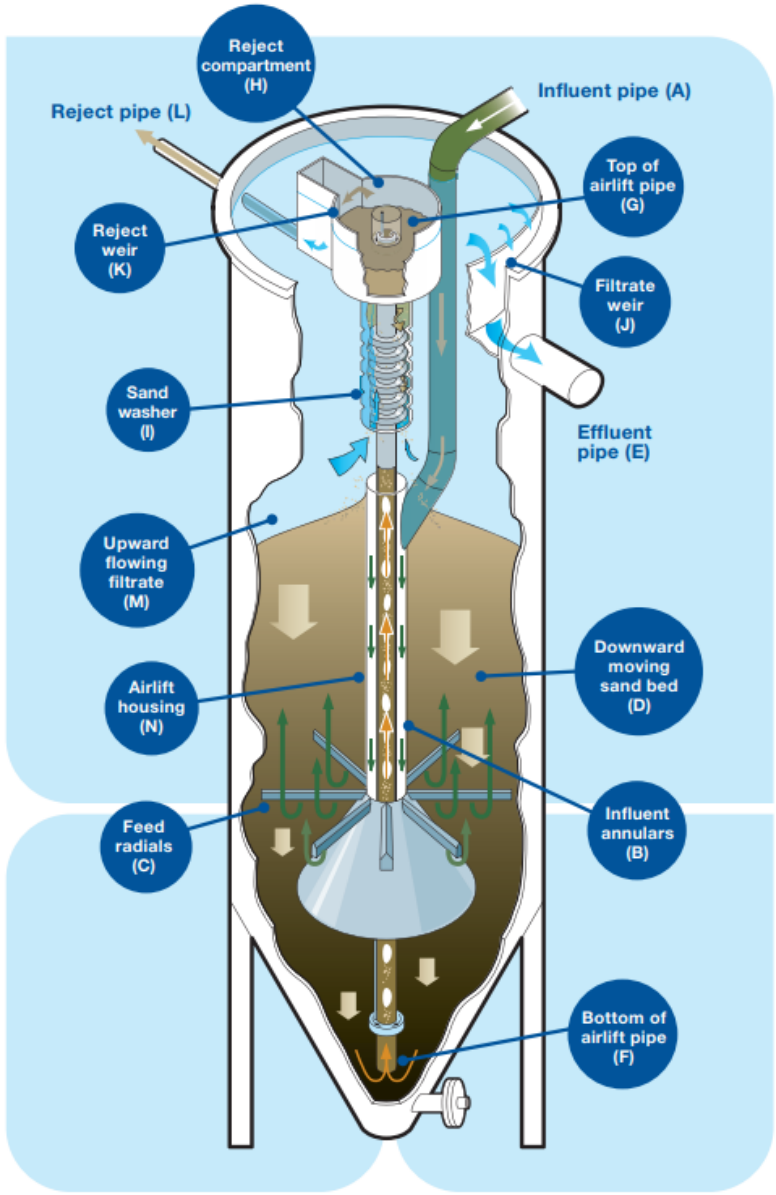
- Assimilative Capacity Study completed
  - Plato Creek sensitive to phosphorus in the effluent during low flow conditions

- Two WWTP discharge scenarios were considered:
  - **Continuous discharge** – requires very strict effluent objectives for total phosphorus
  - **Seasonal effluent equalization/storage** – requires less stringent effluent objectives for total phosphorus

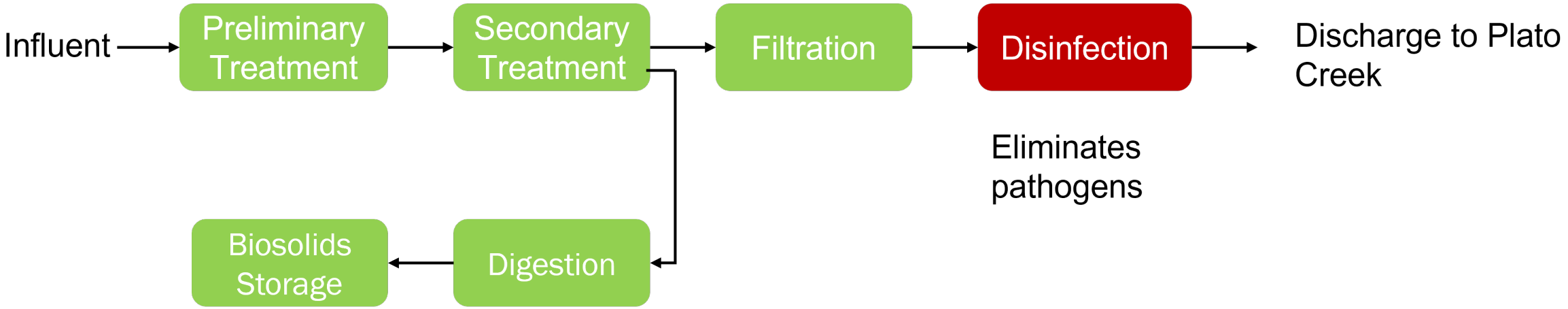
Filtration Technology Review

Filtration

- **Deep Bed Filter** ★
- Disc Filter
- Membrane Bioreactor (MBR)
- Membrane Filtration
- **Two-stage Filtration** ★



Overview of Wastewater Treatment Process

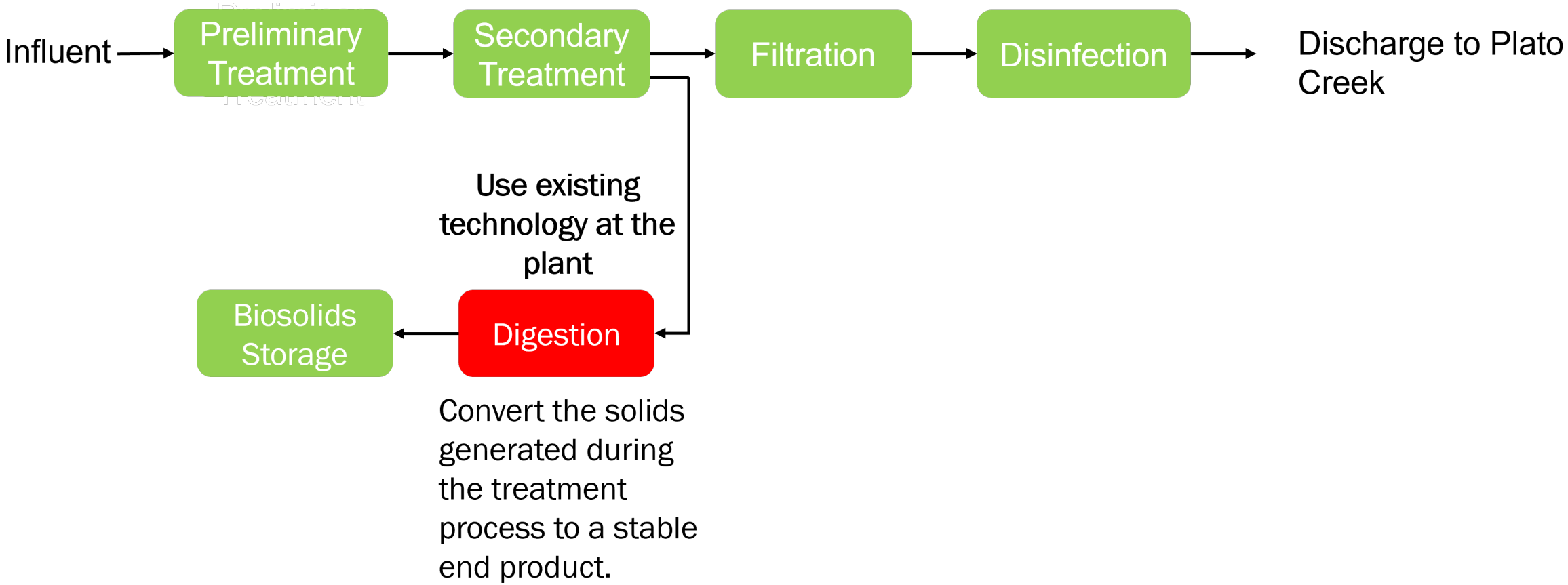


Disinfection Technology Review

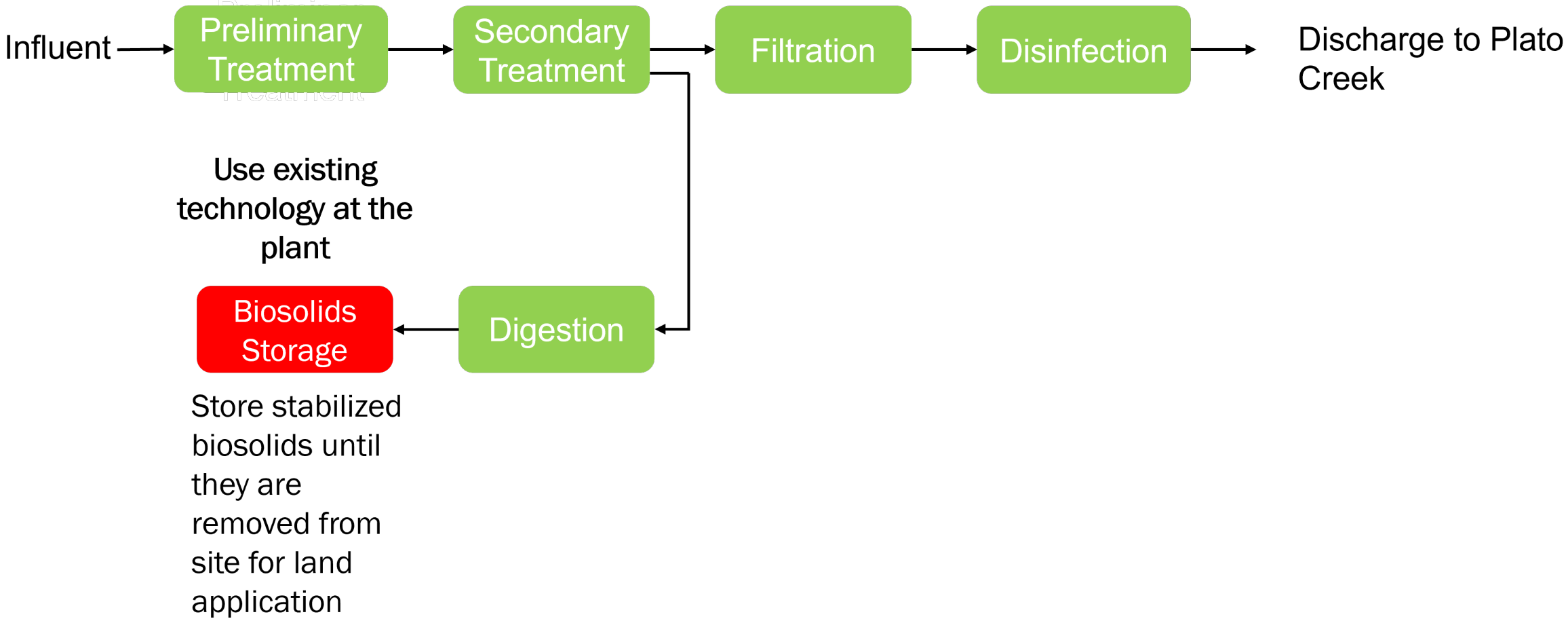
Disinfection

- **Ultraviolet (UV) Disinfection**
- Ozone
- Peracetic Acid (PAA)

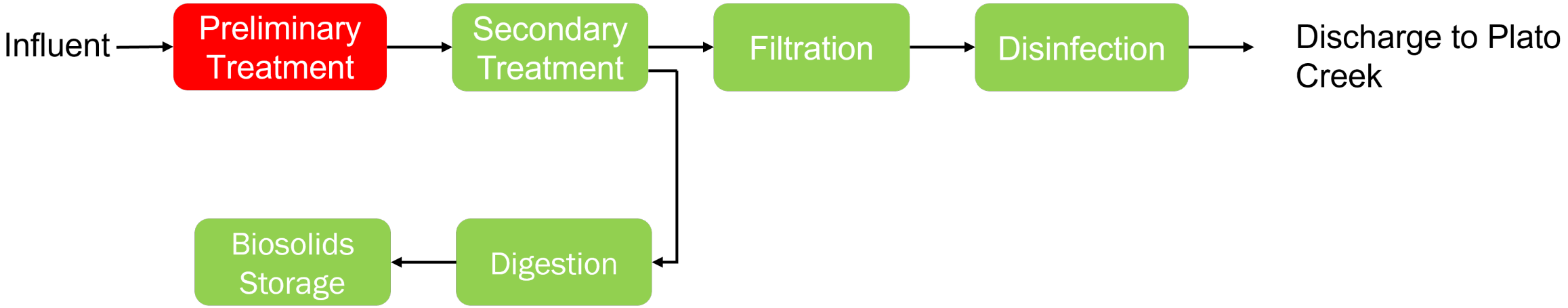
Overview of Wastewater Treatment Process



Overview of Wastewater Treatment Process

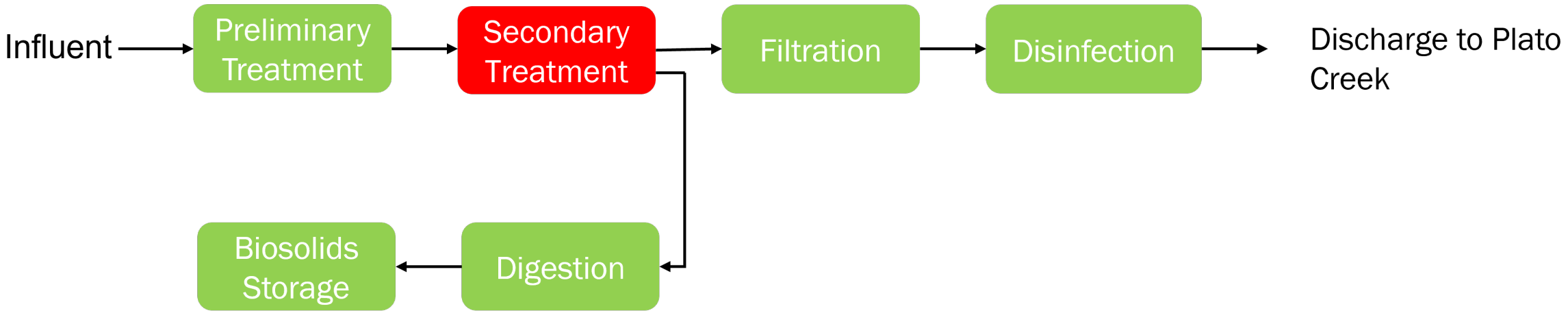


Design Concept 1
Expand Mechanical Plant Without use of Lagoons



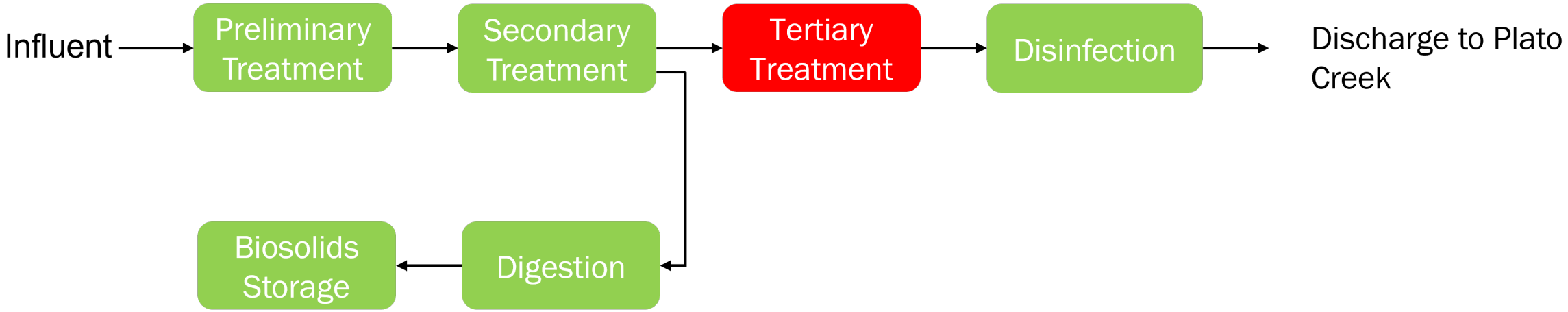
- **Preliminary Treatment**
  - Increase raw sewage pump capacity
  - Increase screening capacity

Design Concept 1
Expand Mechanical Plant Without use of Lagoons



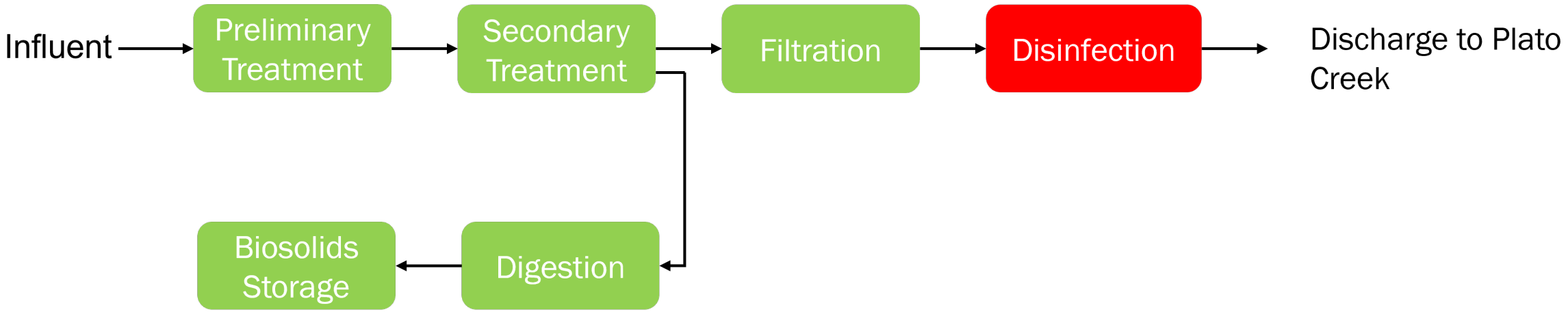
- **Secondary Treatment**
  - Increase capacity by adding new SBR tank

Design Concept 1
Expand Mechanical Plant without use of Lagoons



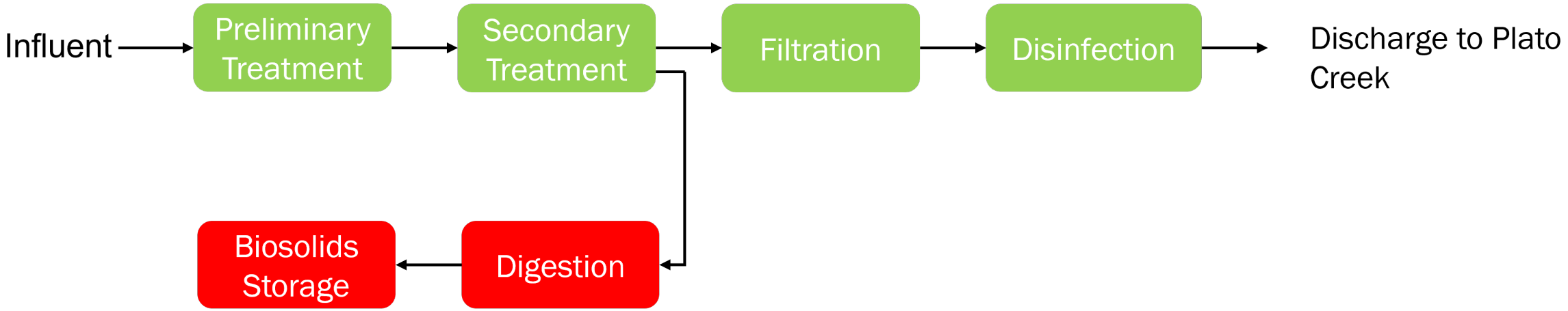
- **Filtration**
  - Increase capacity of existing filtration system
  - Add second filtration stage to meet low phosphorus requirements

Design Concept 1
Expand Mechanical Plant Without use of Lagoons



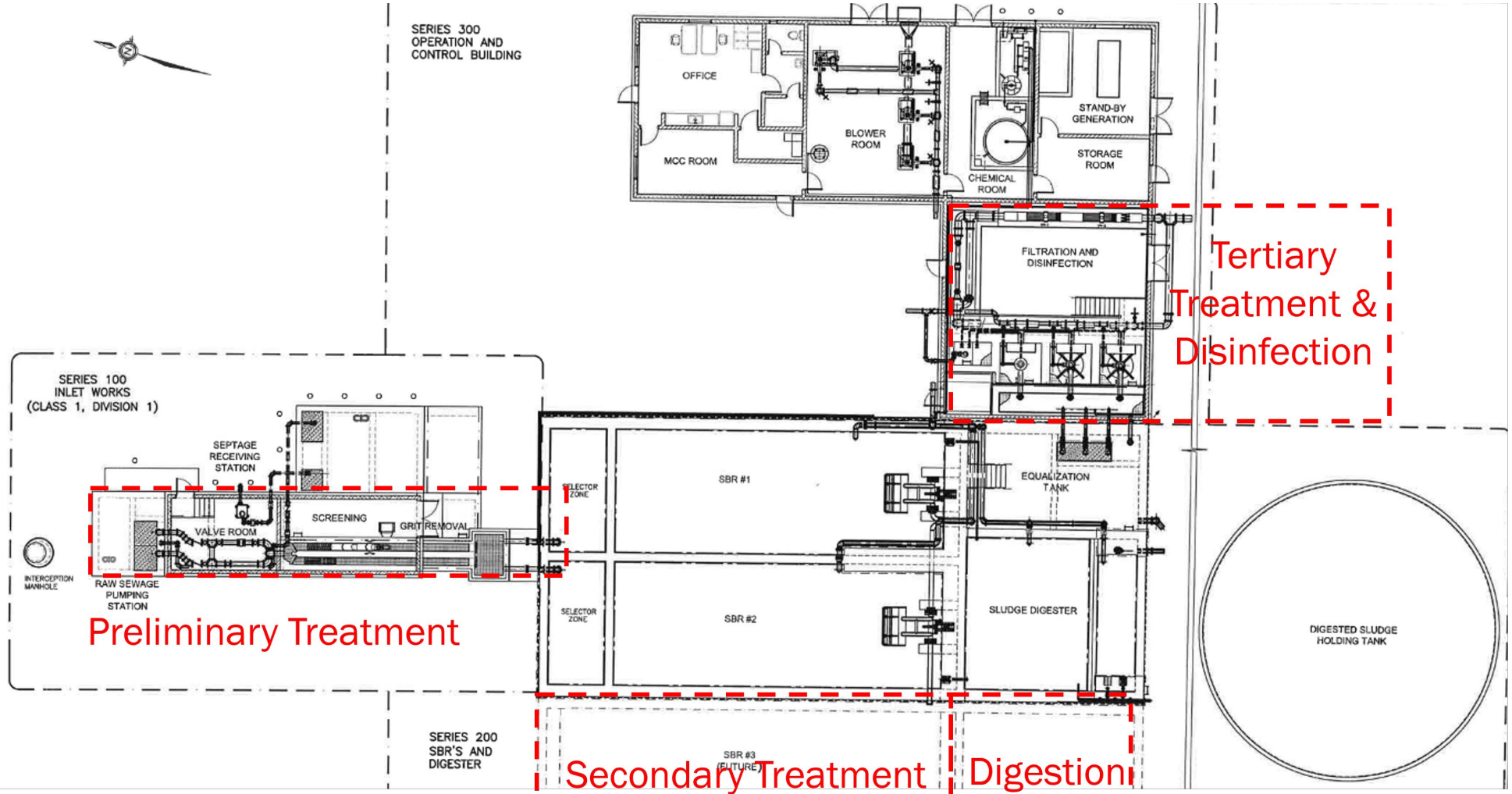
- **Disinfection:**
  - Increase capacity of existing UV system

Design Concept 1
Expand Mechanical Plant Without use of Lagoons

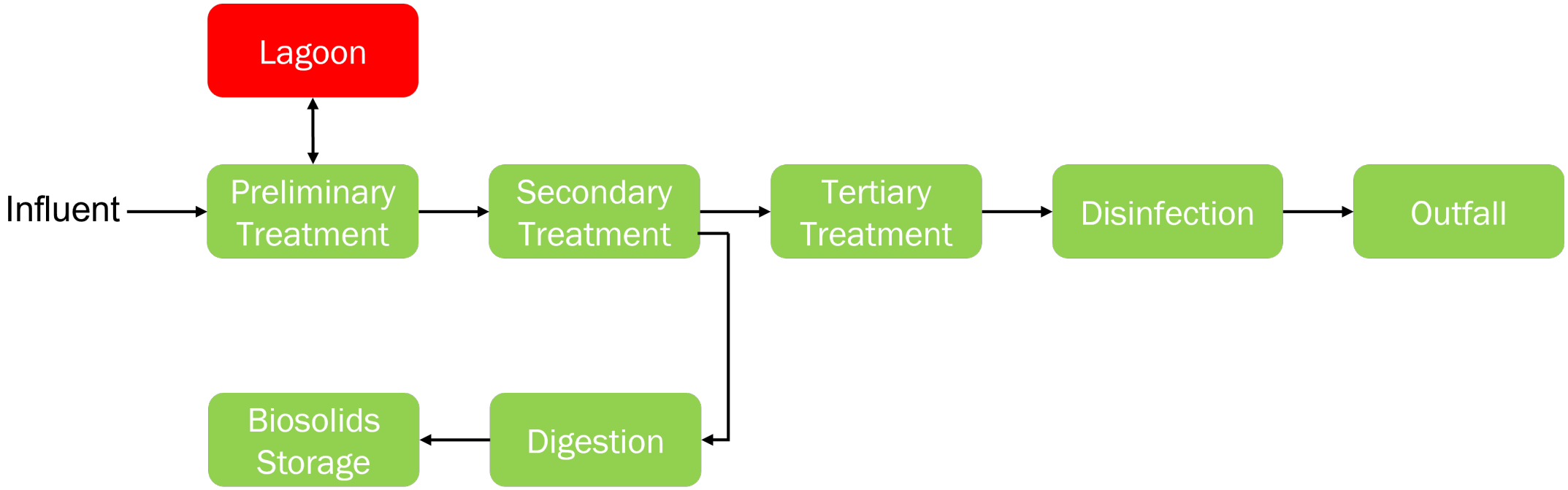


- **Biosolids:**
  - Additional aerobic digester
  - Additional biosolids storage tank

Design Concept 1
Expand Mechanical Plant Without use of Lagoons

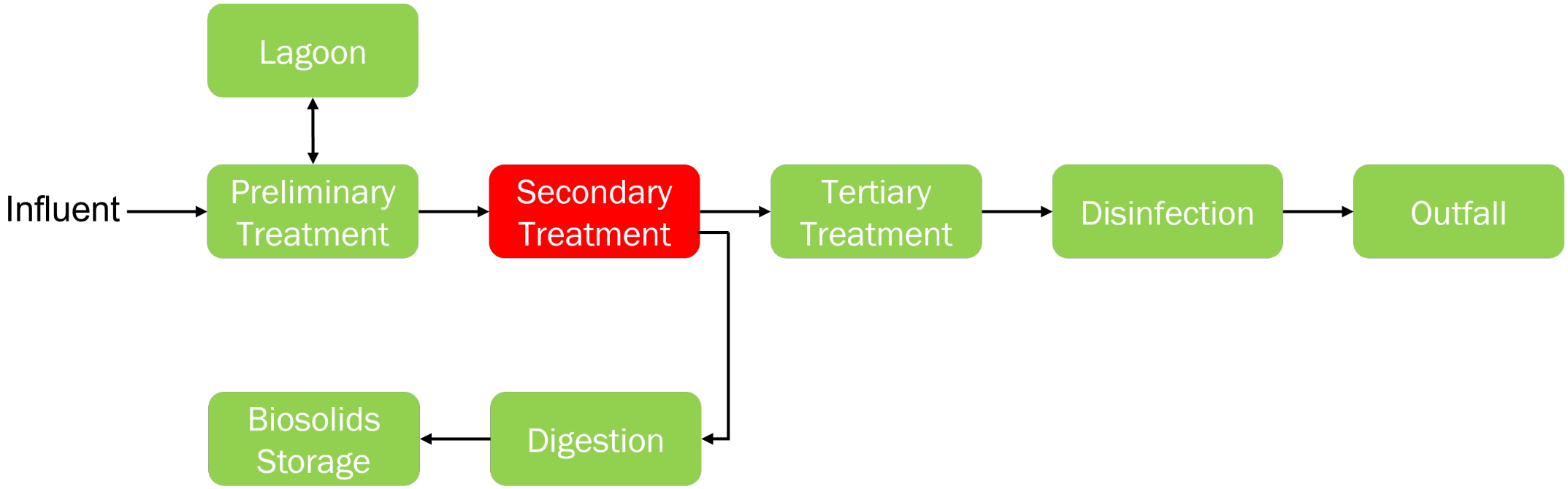


Design Concept 2
Use Existing Lagoon for Influent Equalization



- **Lagoon Modifications**
  - Drain/clean/repair decommissioned lagoons
  - New pump station

Design Concept 2
Use Existing Lagoon for Influent Equalization



- **Secondary Treatment**
  - Additional SBR train

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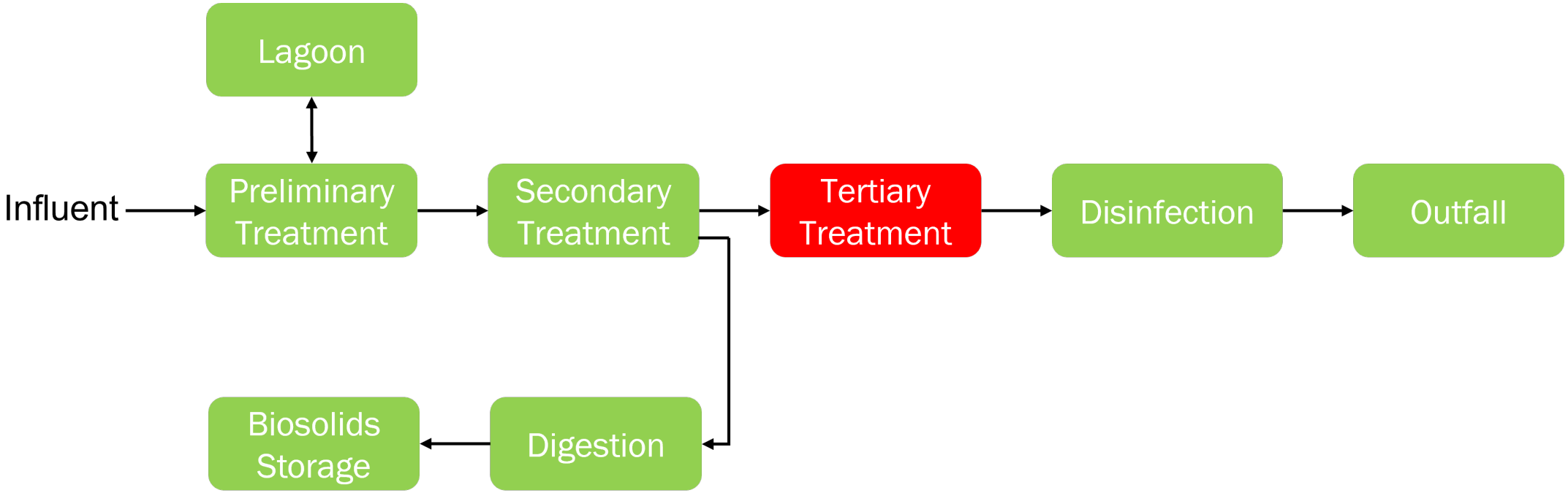

- **Tertiary Filtration**
  - Install dual stage filtration

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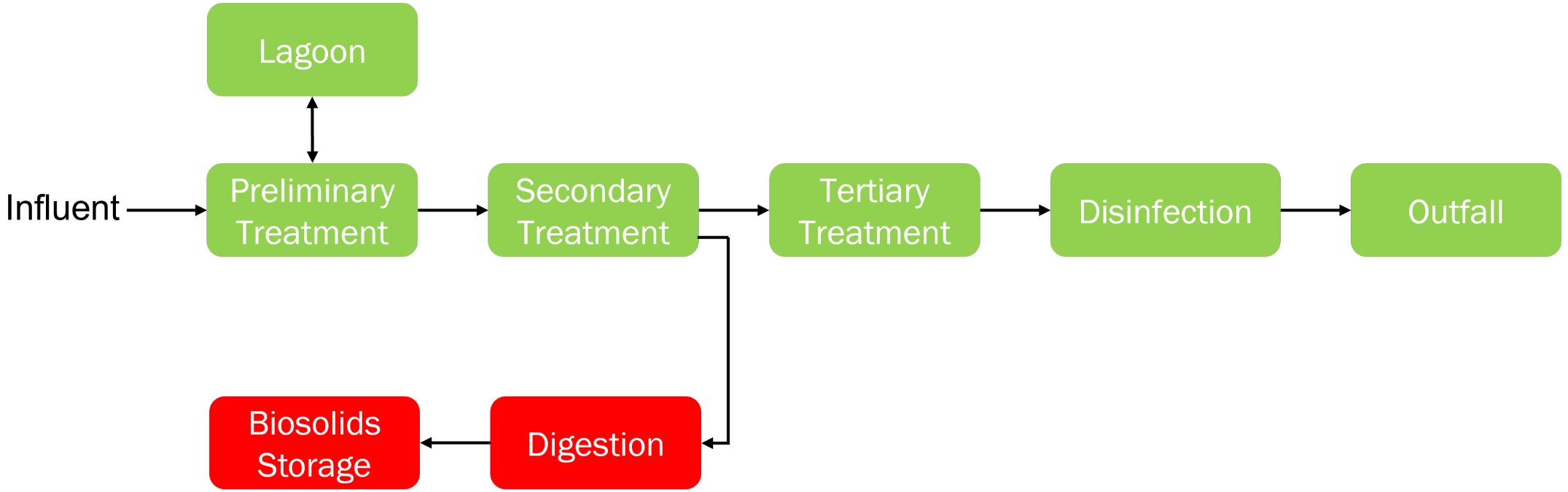

- **Biosolids:**
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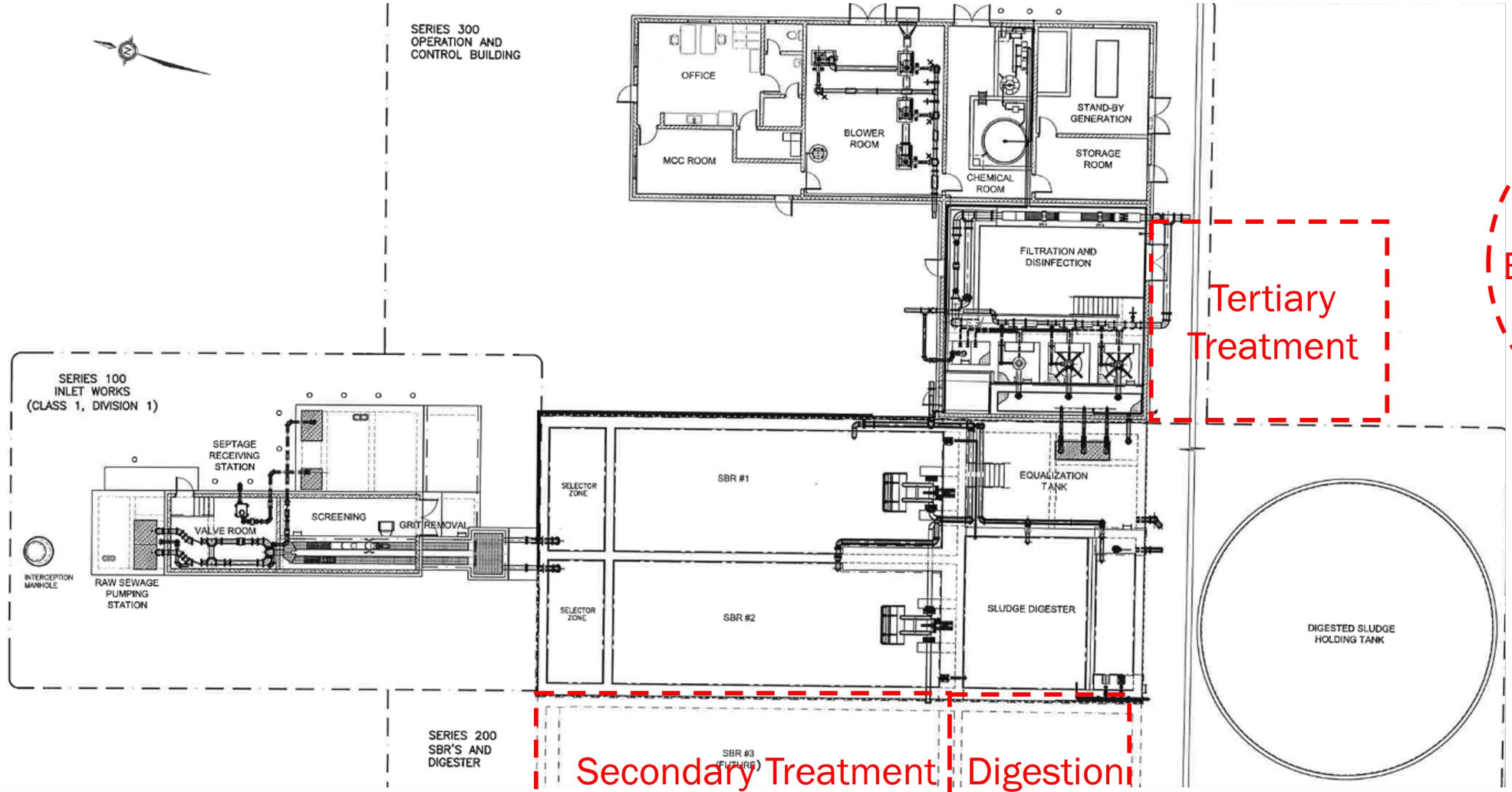
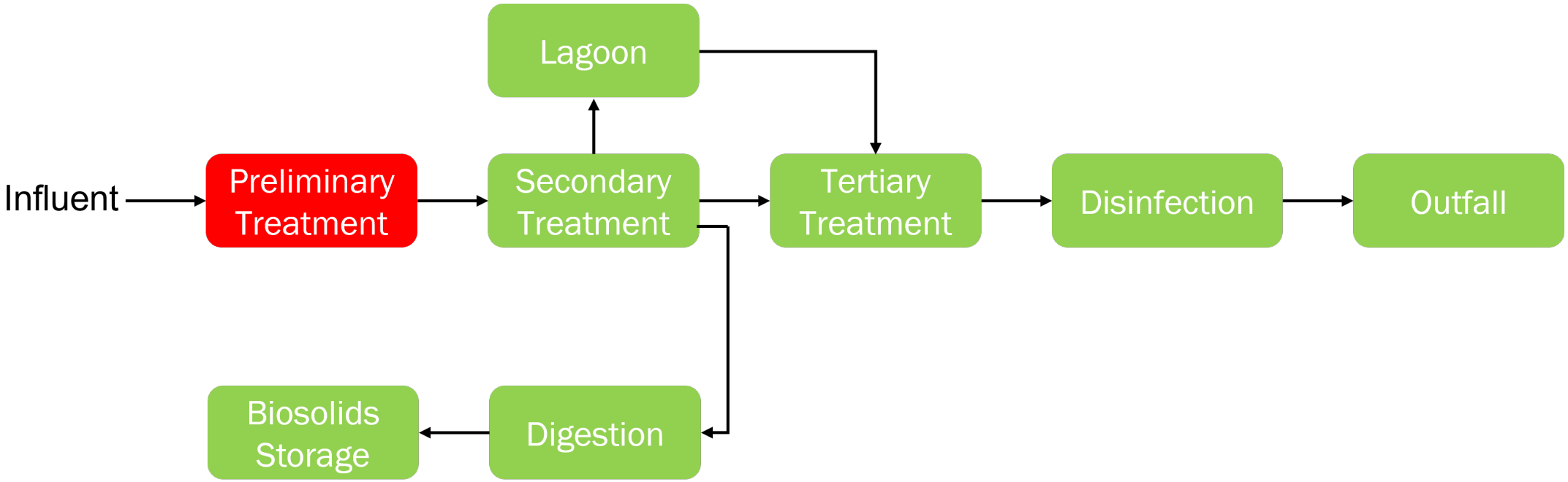
Expand Mechanical Plant Using Lagoon for Influent Equalization



Design Concept 3
Use Existing Lagoons for Secondary Effluent Storage



- **Preliminary Treatment**
  - Increase raw sewage pump capacity
  - Increase screening capacity

Design Concept 3
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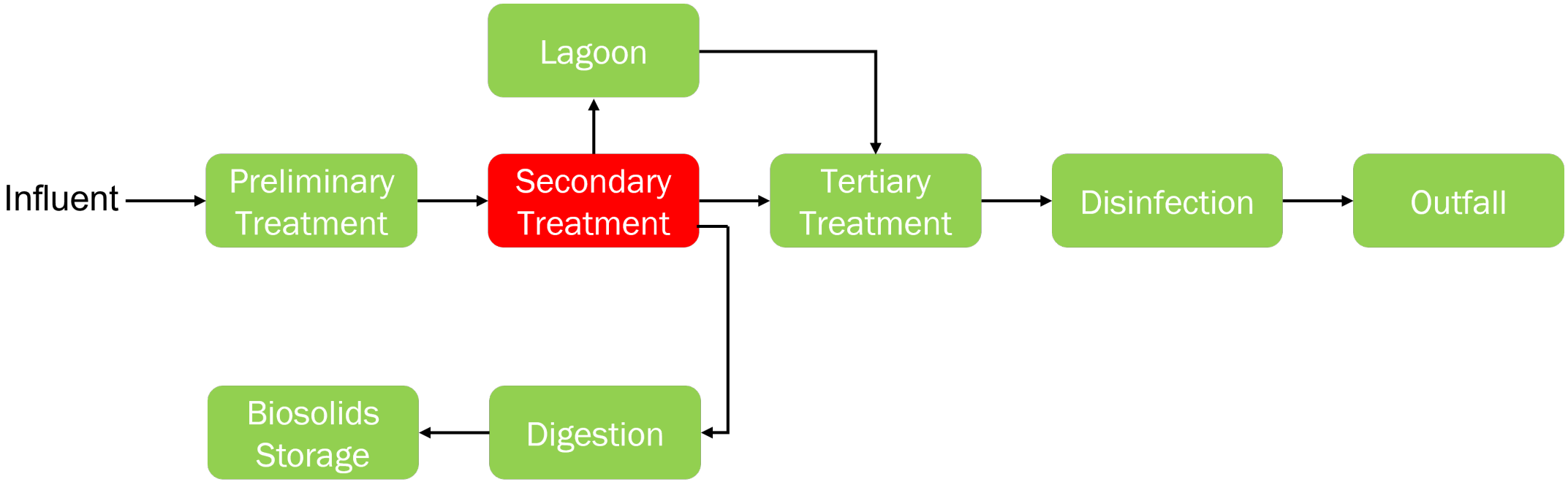

- **Secondary Treatment**
  - Additional SBR train

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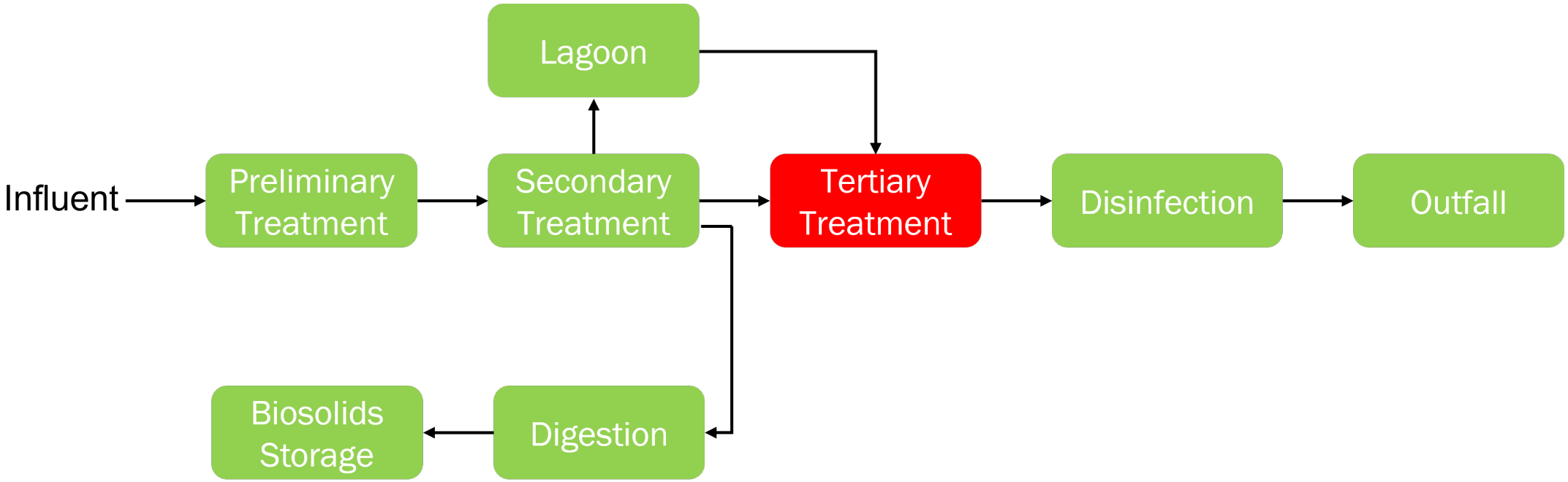

- **Tertiary Filtration**
  - Increase filtration capacity

Design Concept 3
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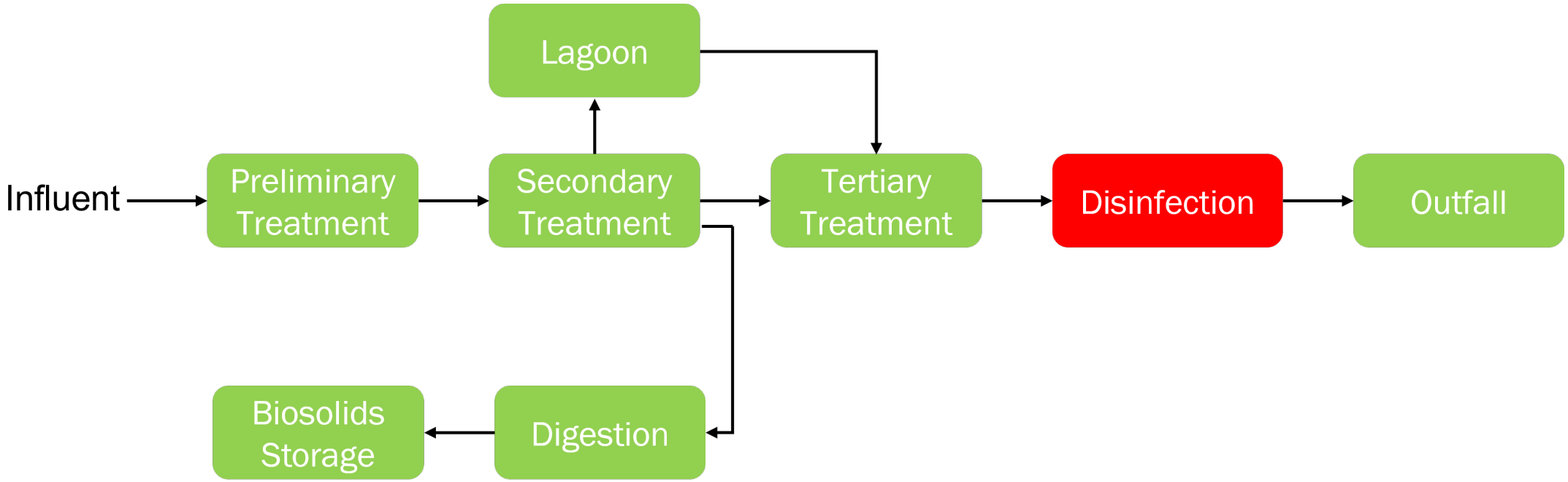
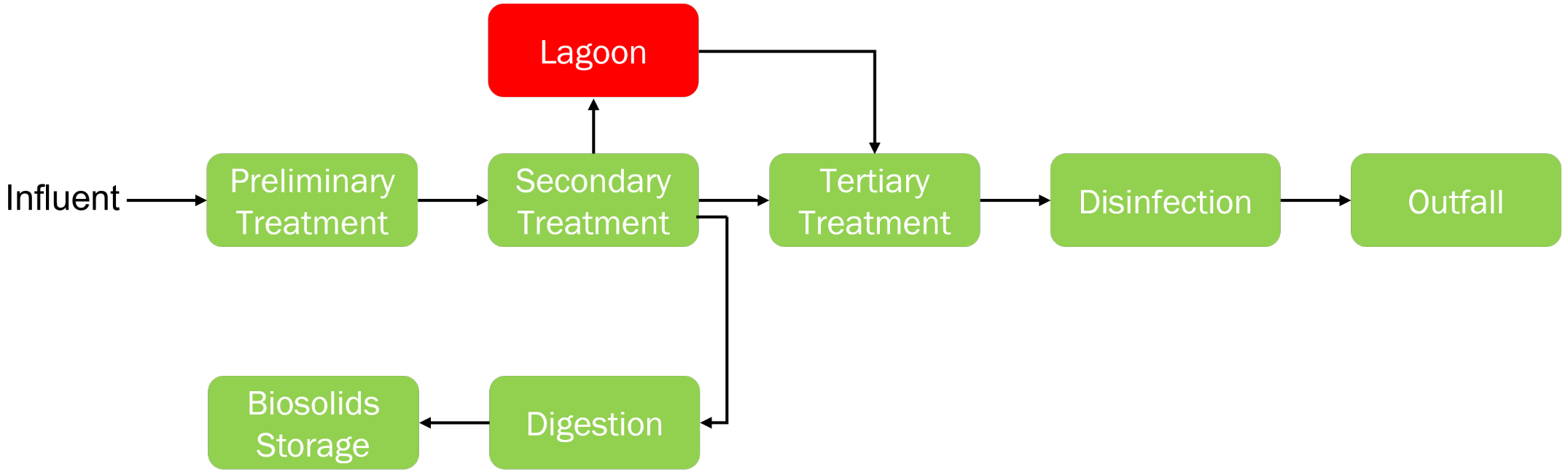


- **Disinfection**
  - Increase UV disinfection capacity

Design Concept 3
Use Existing Lagoons for Secondary Effluent Storage



- **Lagoon Modifications**
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  - New pump station

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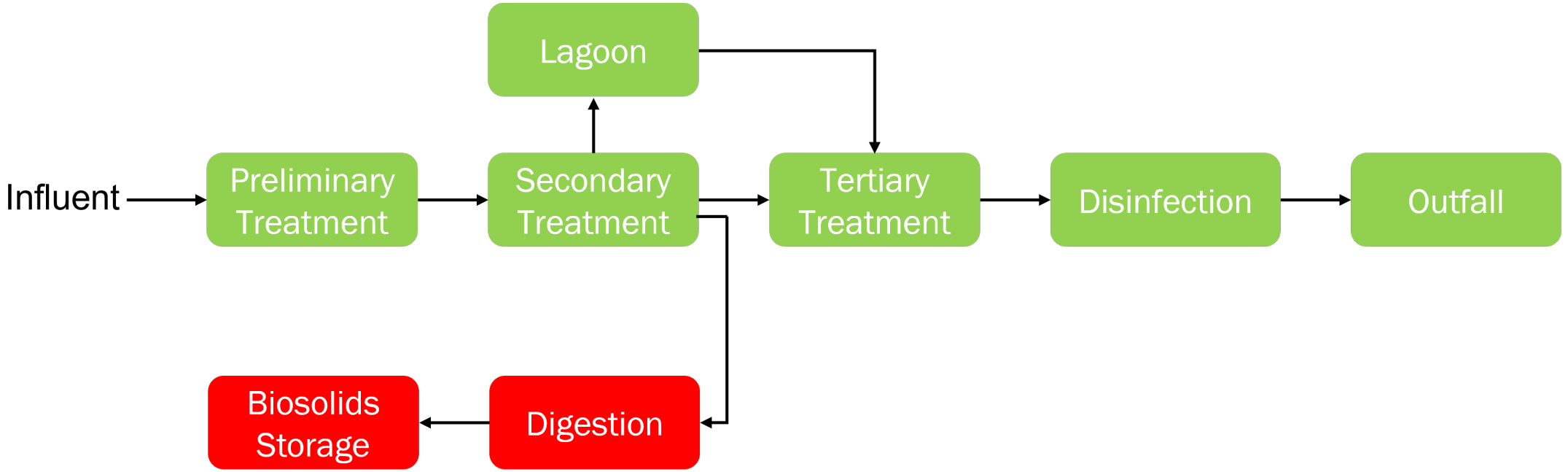

- **Biosolids:**
  - Additional aerobic digester
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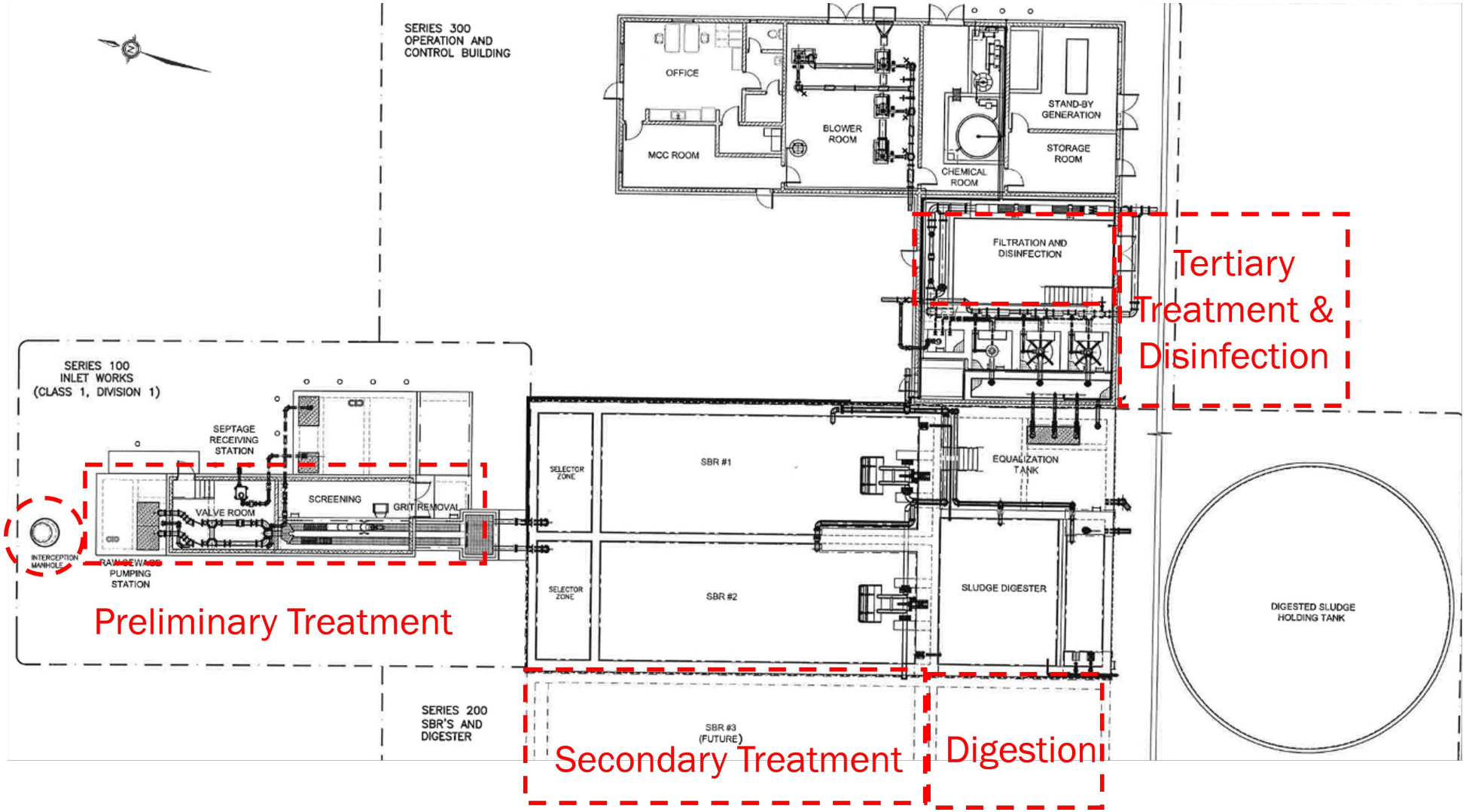
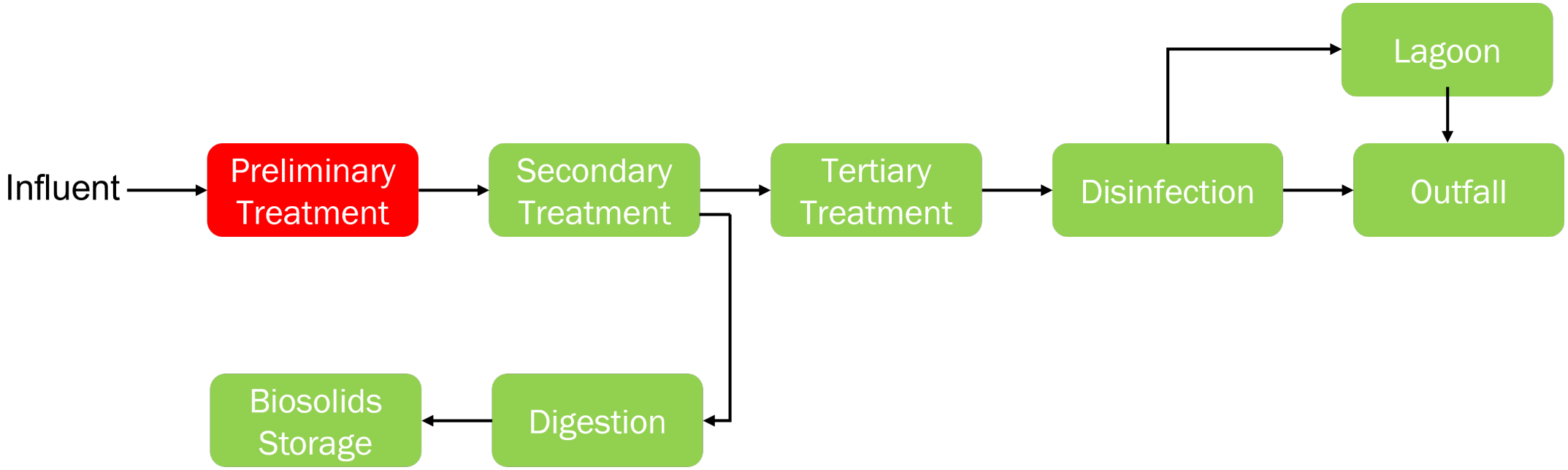
Use Existing Lagoons for Secondary Effluent Storage

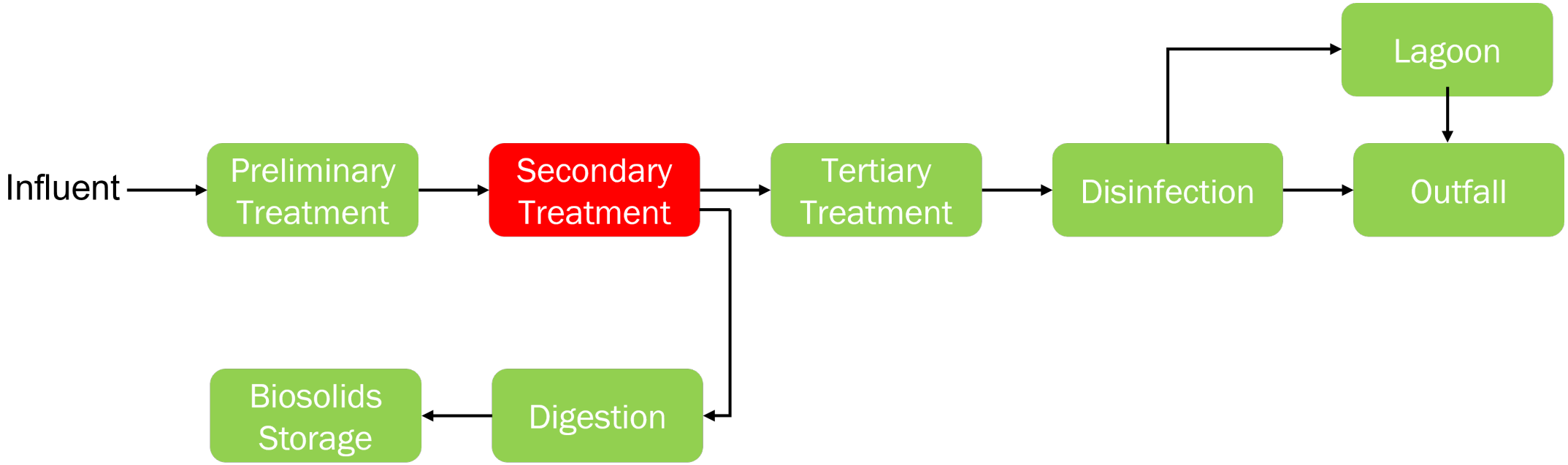


Design Concept 4
Use Existing Lagoons for Filtered Effluent Storage



- **Preliminary Treatment**
  - Increase raw sewage pump capacity
  - Increase screening capacity

Design Concept 4
Use Existing Lagoons for Filtered Effluent Storage



- **Secondary Treatment**
  - Additional SBR train

Design Concept 4
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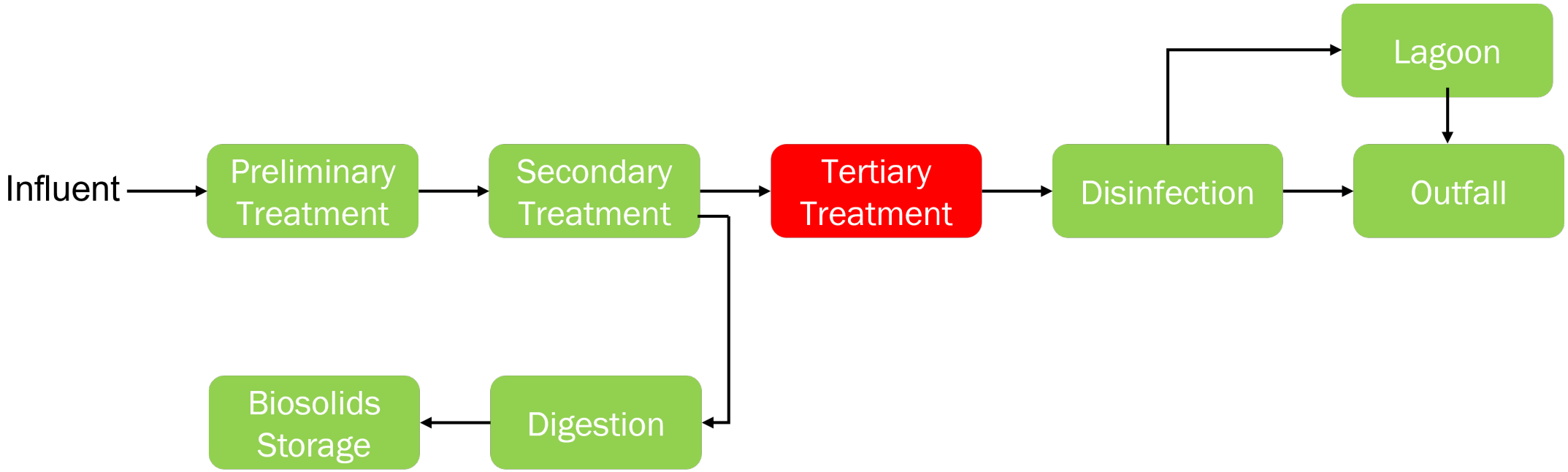
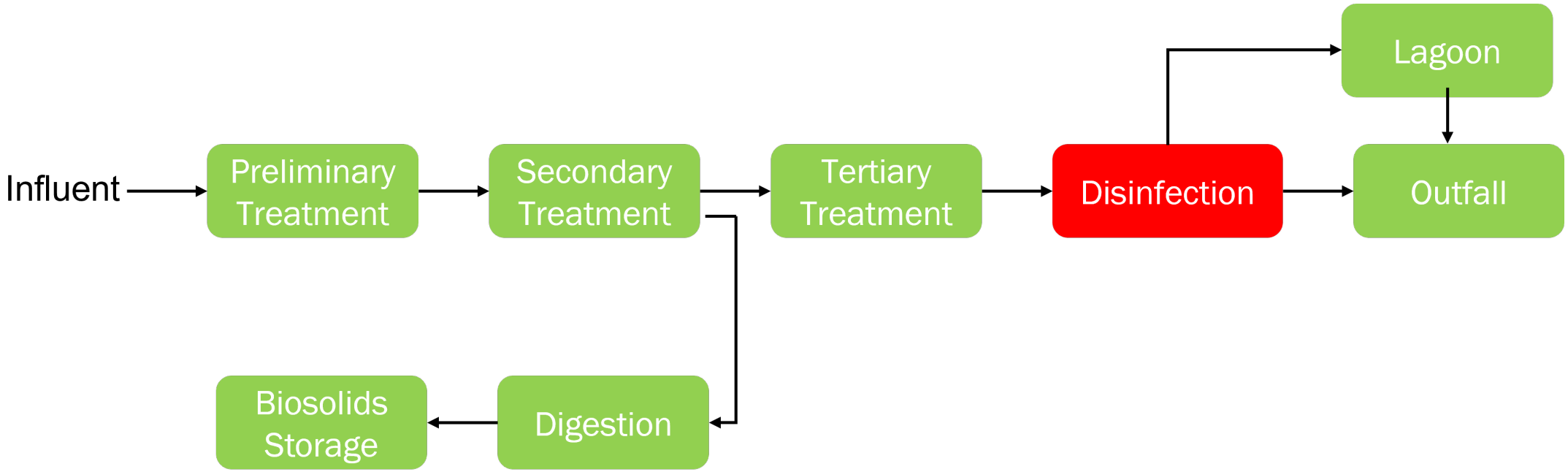


- **Tertiary Filtration**
  - Increase filtration capacity

Design Concept 4
Use Existing Lagoons for Filtered Effluent Storage



- **Disinfection**
  - Increase UV disinfection capacity

Design Concept 4
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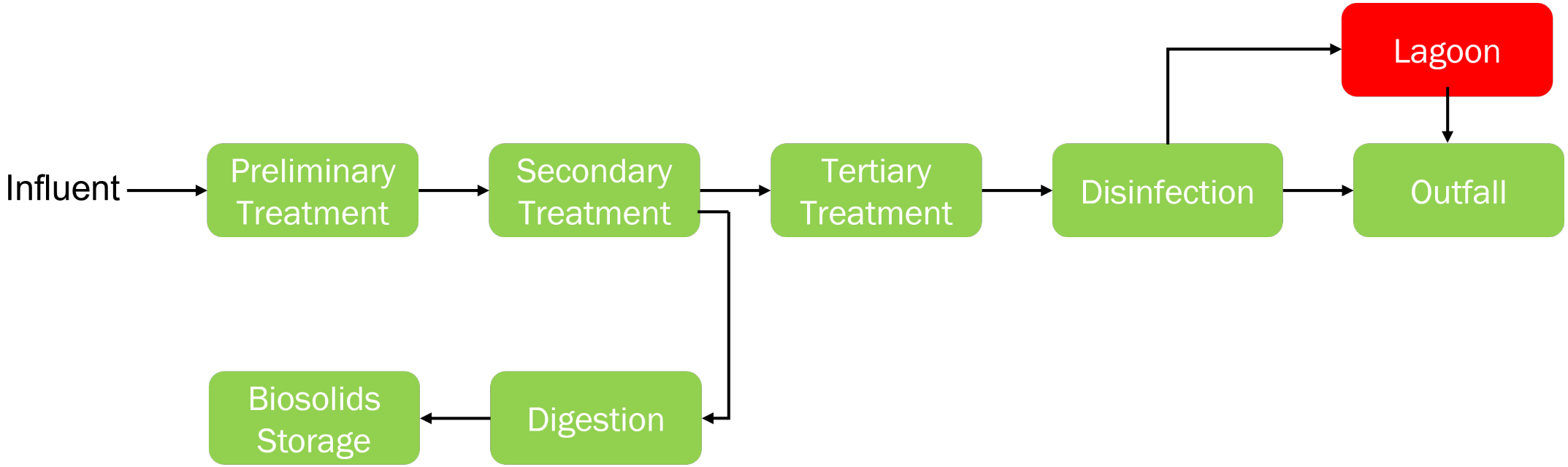

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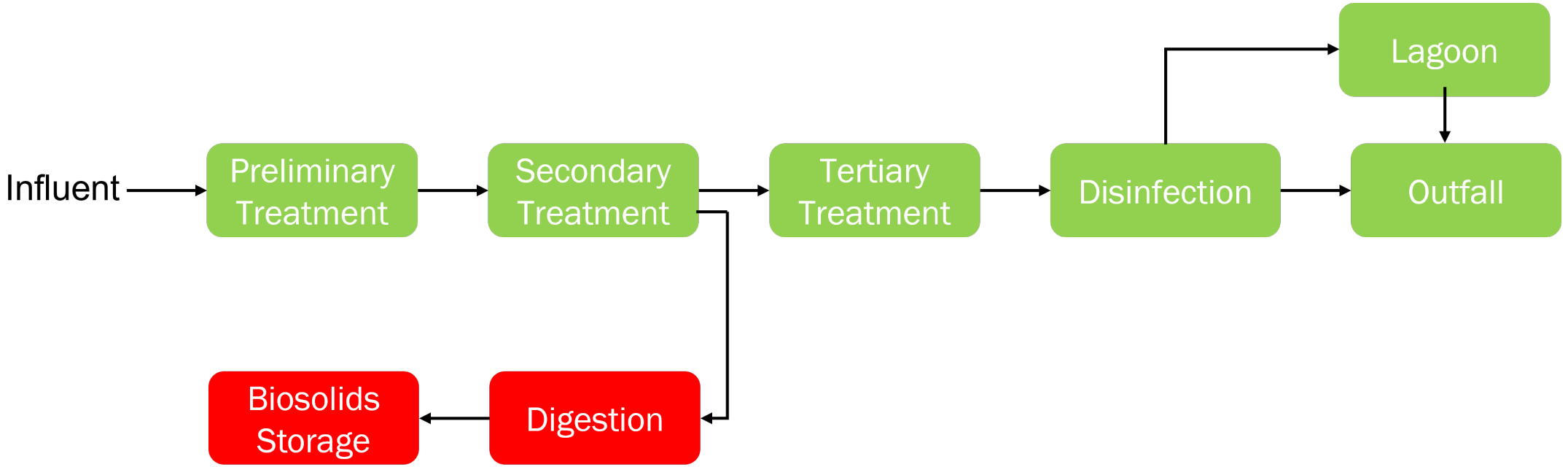

- **Biosolids:**
  - Additional aerobic digester
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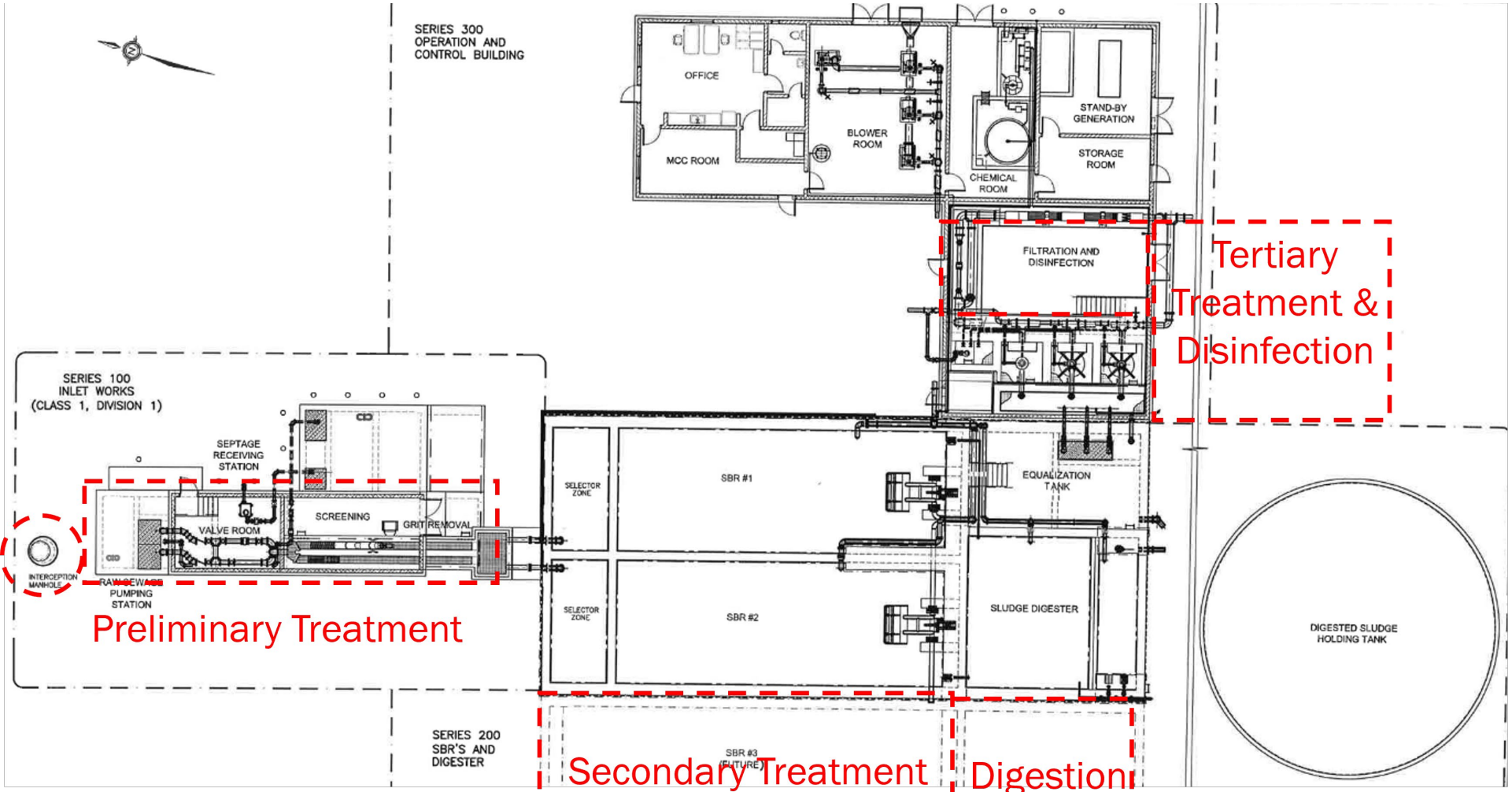
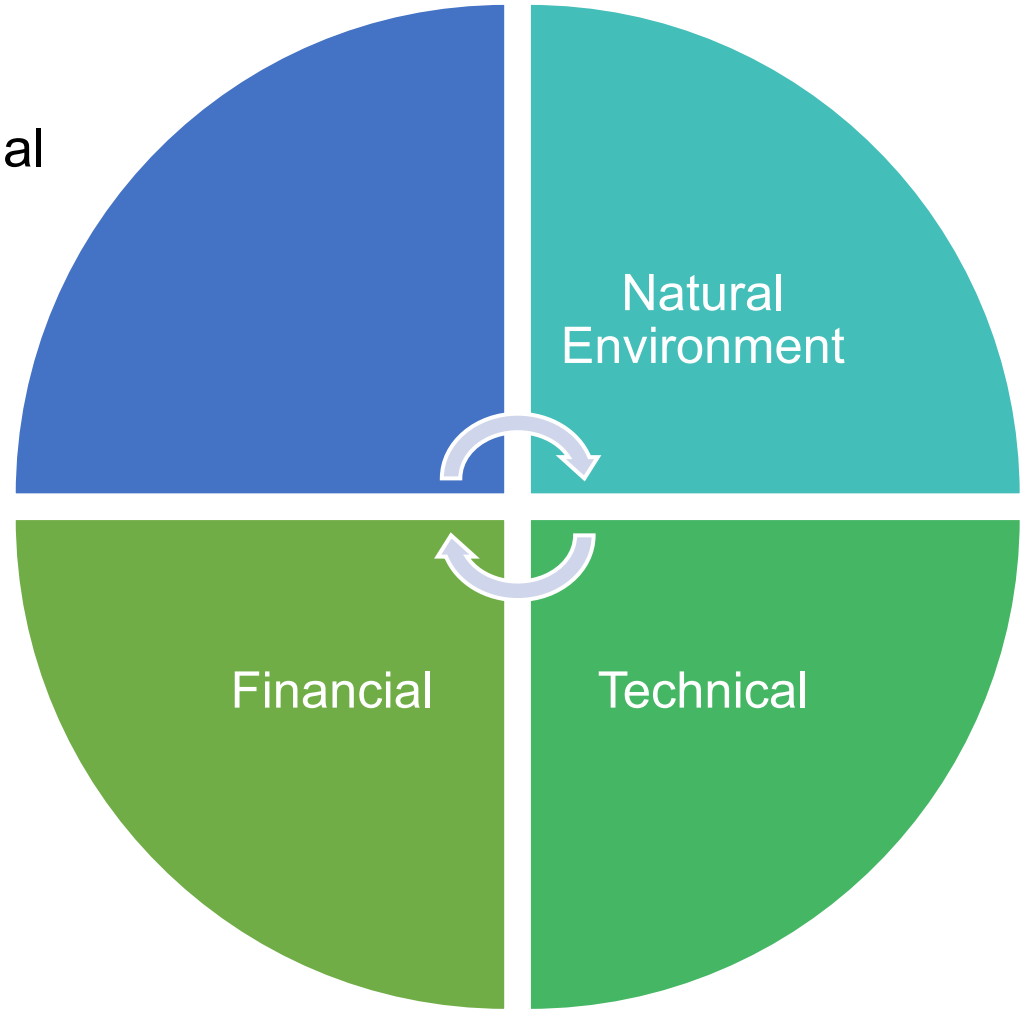


Detailed Evaluation Criteria

- Public and Operator Health and Safety
- Aesthetic and Operational Impacts
- Construction Impacts
- Archaeological/ Cultural Heritage Features



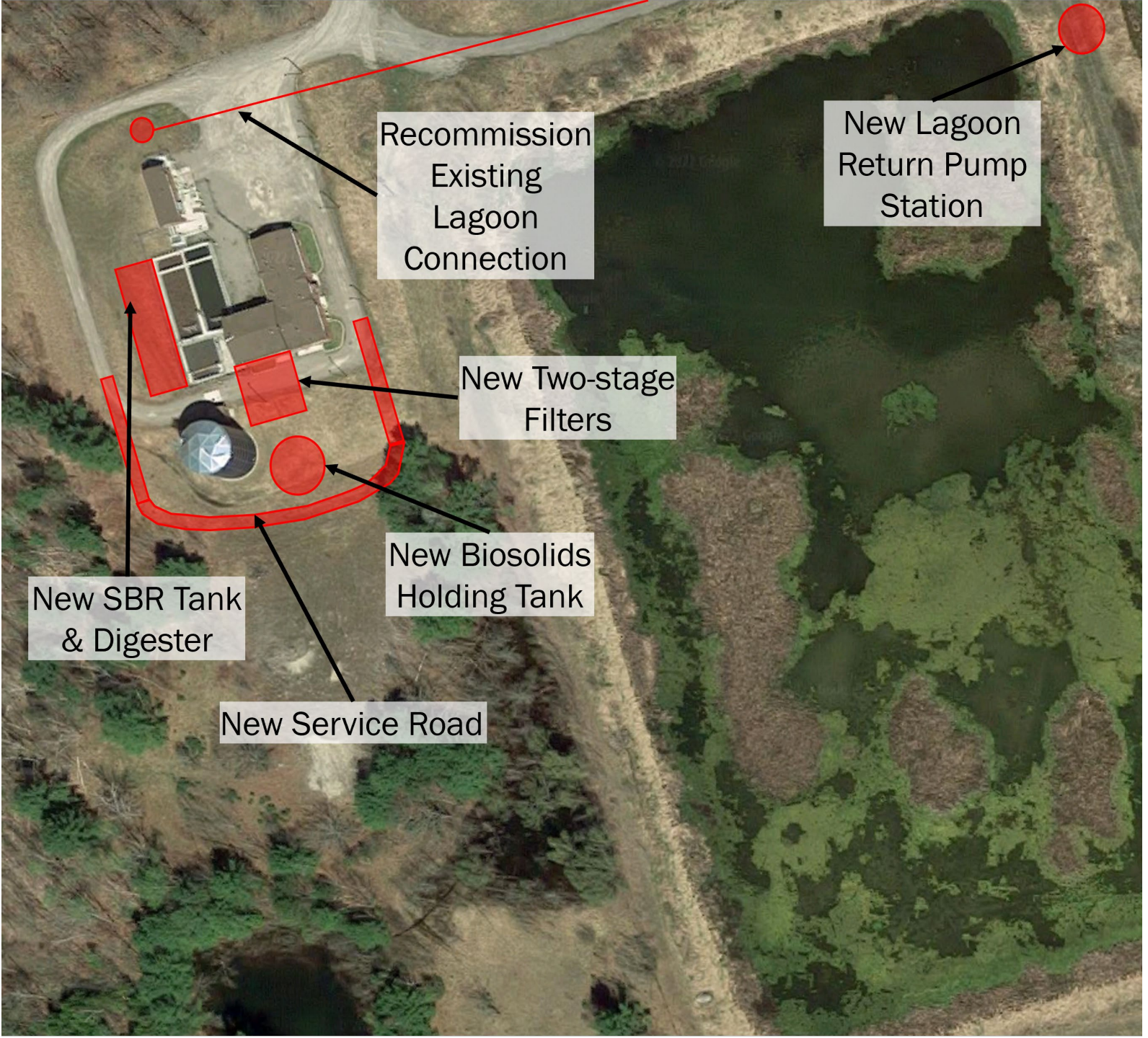
- Effluent Receiving Water Body Assessment
- Sensitive Natural Features and Regulated Areas
- Climate Change

- Life-cycle Capital and O&M Cost

- Operational Complexity
- Ease of Implementation
- Redundancy and Flexibility
- Energy efficiency
- Constructability
- Regulatory Approvals

Preliminary Evaluation of Design Concepts

Evaluation Criteria	Design Concept 1	Design Concept 2	Design Concept 3	Design Concept 4
Socio-Cultural Criteria				
Public and Operator Health and Safety	●	●	●	●
Aesthetic and Operational Impacts	●	◑	◑	◕
Archaeological/ Cultural Heritage Features	●	●	●	●
Construction Impacts	●	●	◕	◕
Natural Environmental Criteria				
Effluent Receiving Water Body Assessment	●	◕	◕	◑
Sensitive Features and Regulated Areas	●	◑	◑	◑
Climate Change	◑	●	●	◕
Technical Considerations				
Operational Complexity	◕	●	◑	◕
Ease of Implementation	◕	●	◑	◕
Redundancy and Flexibility	◑	●	◕	◕
Energy Efficiency	◕	●	◑	◑
Constructability	◑	●	◔	◑
Economic Considerations				
Capital	◕	●	◔	◑
O&M Cost	●	◔	◕	◑



Design Concept 2

Use Existing Lagoon for Influent Equalization

- Rehabilitated equalization lagoon
- New lagoon return pump station
- New third SBR train
- New dual staged filters
- No expansion of preliminary treatment and disinfection system required
- Expand biosolids storage
- Other Upgrades (Civil, Mechanical, Electrical, etc.)
- Capital cost **$14 Million**

What are the Next Steps?

- Determine staging and phasing of upgrade and expansion
- Prepare the Environmental Study Report documenting project information and the decision-making process
- Environmental Study Report available for ***30-day review period for public and agency comment*.**

Thank you for Participating! Please Stay Engaged

Please provide your comments by November 22, 2022.

Should you have any questions about this presentation or the project, please contact:

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