



## Yellowstone National Park

**Rehabilitate/Replace Old Faithful Water Treatment Plant (WTP)**

**Rehabilitate/Replace Grant Wastewater Treatment System and Collection System**

**Rehabilitate Canyon Wastewater Treatment System and Collection System**

**Rehabilitate Mammoth Collection System**

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YELL 310533, 310402, 311631





# Replace/Rehabilitate Old Faithful Water Treatment Plant

## FY22 Wastewater Treatment Facilities

Estimated Price: \$85M - \$100M

Design & Construction Method:

Design / Build

Procurement Method:

Full and Open Competition

Schedule (Approximate):

Solicitation Date: 07/2022

Award Date: 09/2022

Period of Performance: (anticipated)

Design: 228 days

Construction: 915 days

Overall: 1,143 days



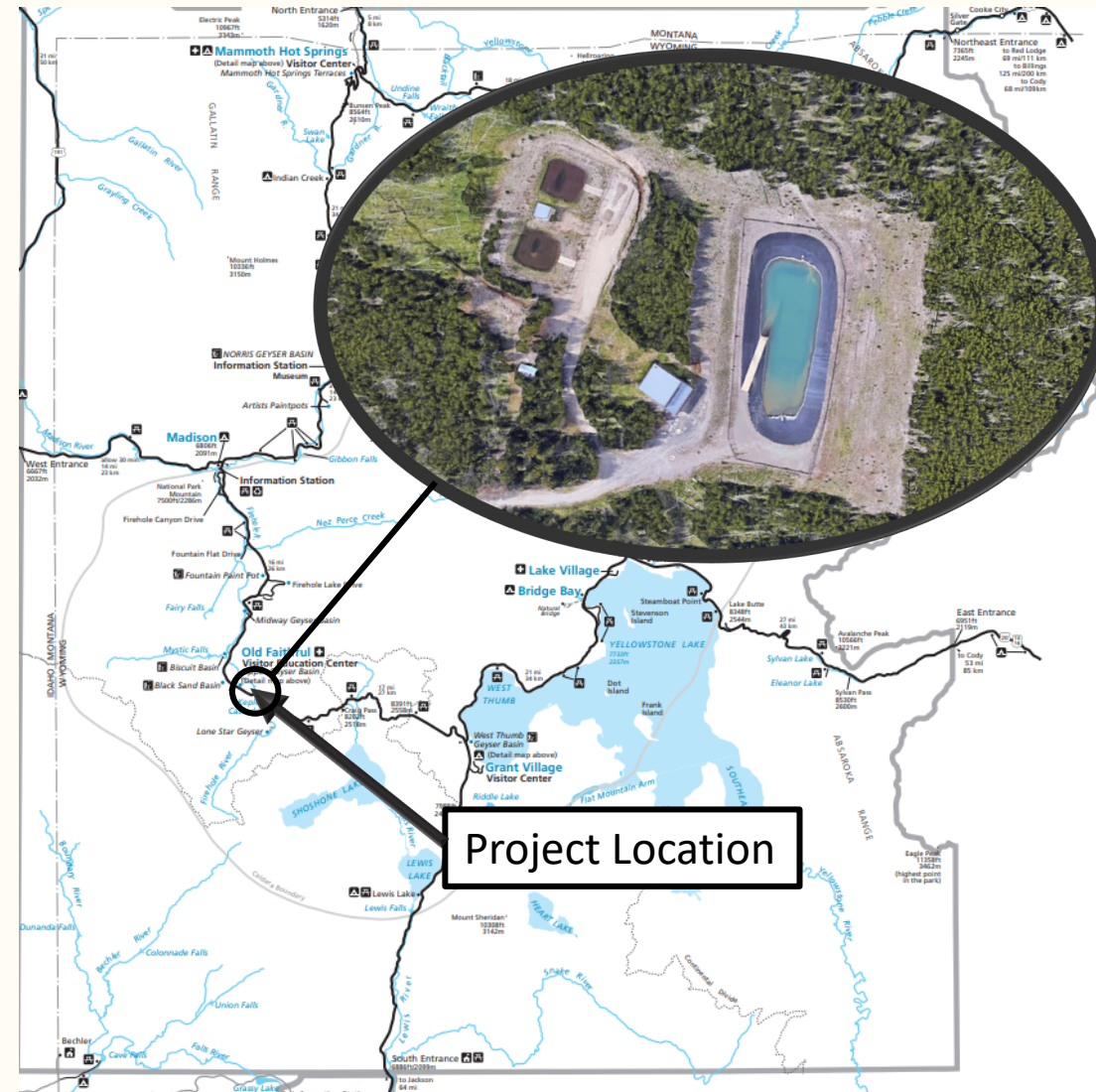


## Replace/Rehabilitate Old Faithful Water Treatment Plant

- Brief Description

The existing Old Faithful water treatment system was constructed in the early 1980s and supplies drinking water to the Old Faithful Village. A combination of aging infrastructure, new regulatory requirements, and building code deficiencies, necessitate a replacement of the water treatment plant and associated supply and distribution pipelines. Improved arsenic removal is a critical consideration.

- Location: Old Faithful Area, Yellowstone National Park WY





## Replace/Rehabilitate Old Faithful Water Treatment Plant

- Performance Constraints & Other Considerations
  - Geothermal features lead to high arsenic levels in source water
  - Seasonal construction challenges due to heavy snows
  - High variability in seasonal demand



Raw water  
Intake - Firehole  
River



Old Faithful  
Geyser



Main Treatment  
Building –  
potential leaks  
leading to  
marshy ground





## Replace/Rehabilitate Old Faithful Water Treatment Plant

- Performance Constraints & Other Considerations
  - Plant must remain operational during construction with only short outages
  - Requires SCADA – no current infrastructure in place



Protection of  
wildlife and  
natural  
resources

Aging Plant  
Components



Lack of modern  
controls/SCADA



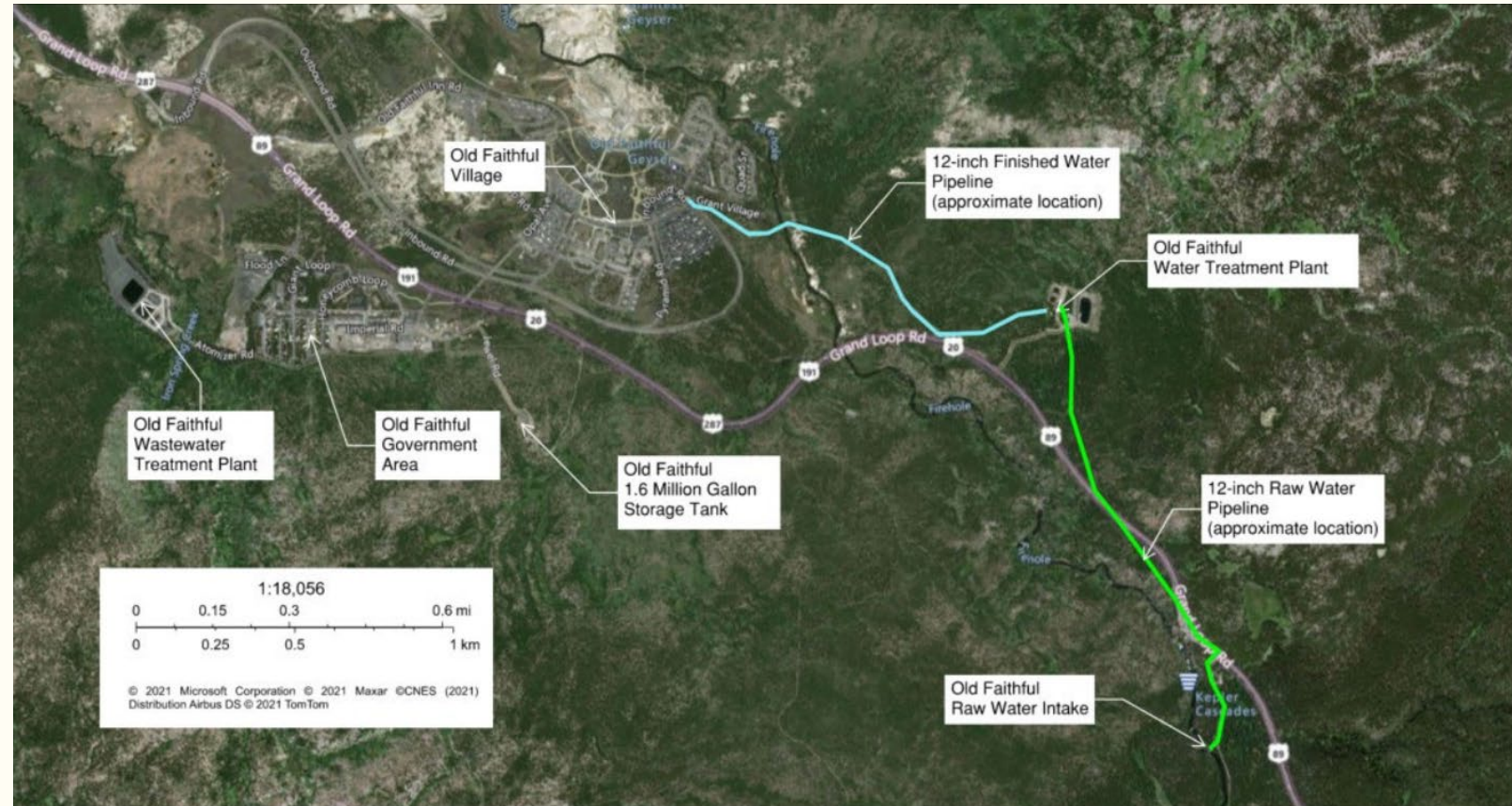


## Replace/Rehabilitate Old Faithful Water Treatment Plant

Additional Challenges: Existing raw water and finished water lines are "Techite" brand pipe. Known to be brittle and result in catastrophic failure.

Replacement will require a temporary bypass line to ensure continued potable water supply to Old Faithful Village.

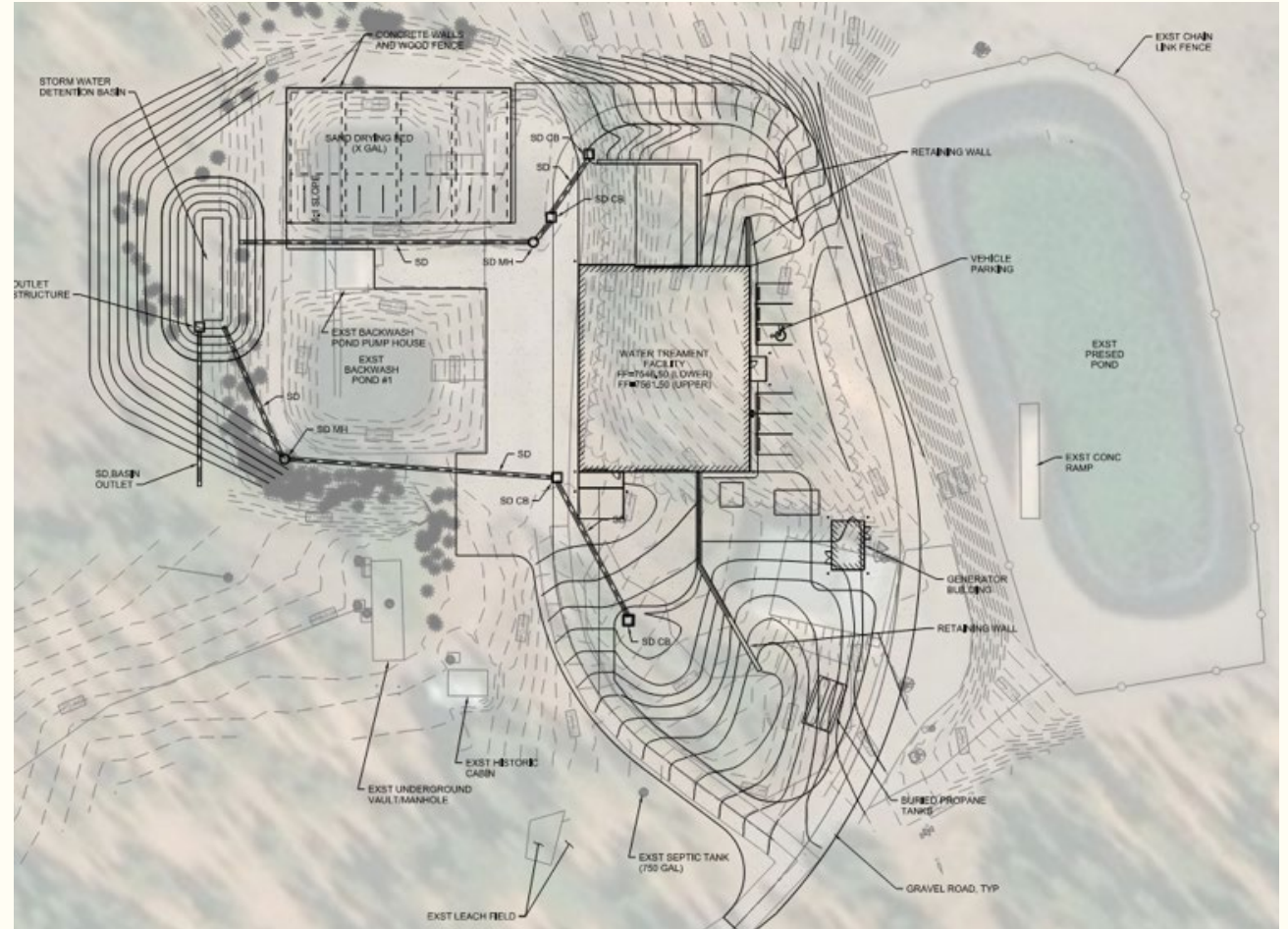
Raw Water Intake Structure will be rehabilitated





## Replace/Rehabilitate Old Faithful Water Treatment Plant

- Rehabilitate Pre-sedimentation system
- New WTP Building
- New SCADA, improved plant automation
- New Solids Drying Beds
- New backup generator
- Demolish existing WTP Building



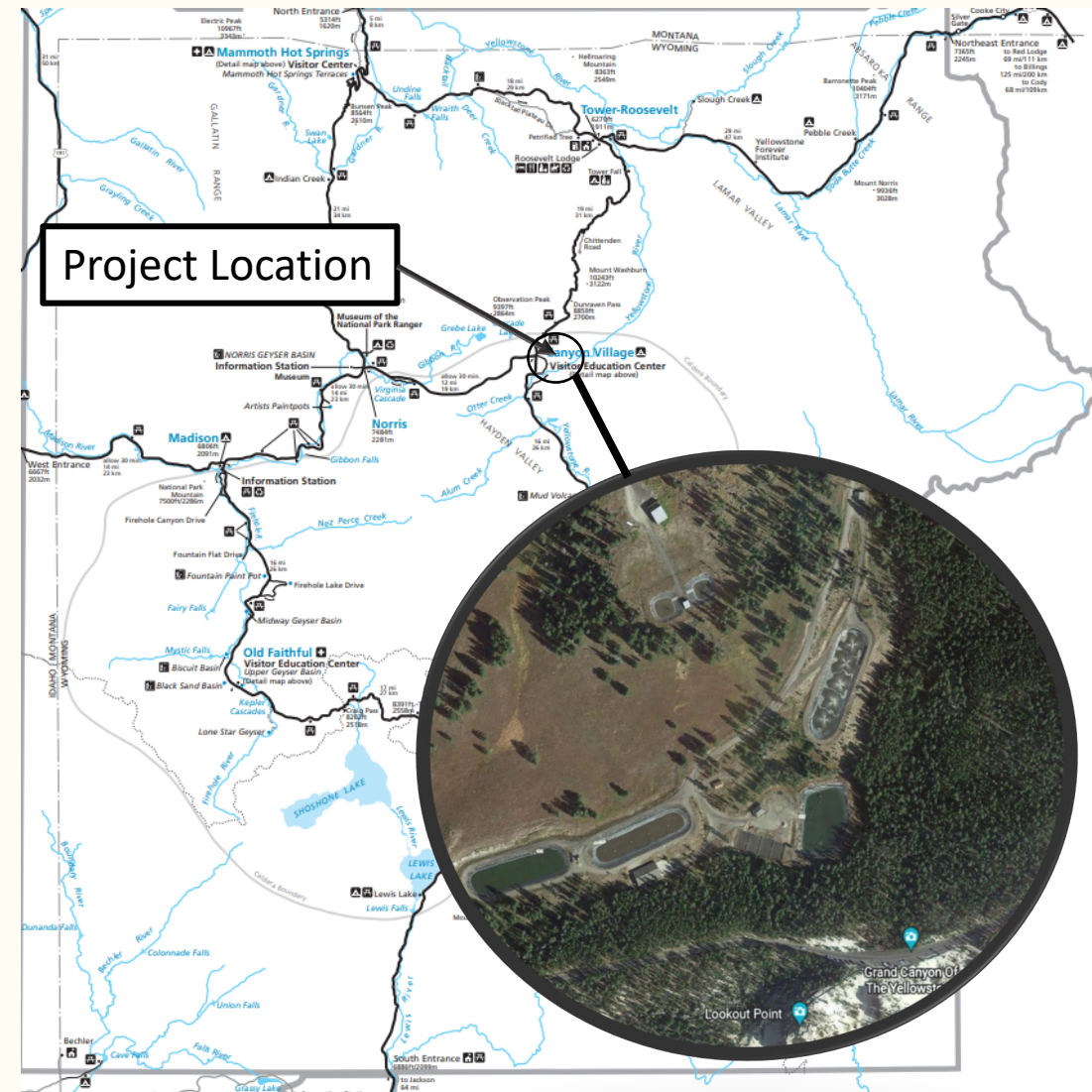


## Replace/Rehabilitate Canyon Village Wastewater Treatment Plant & Collection System (Phase 1)

- Brief Description

The existing Canyon Village Wastewater system treats all wastewater from the Canyon Village. Aging infrastructure and code deficiencies, necessitate the rehabilitation of the collection system and wastewater treatment plant. Due to funding limitations this will be accomplished in a phased program. Phase 1 will include rehab of two lift stations, rehab of the collections system to reduce I&I, and a full replacement of the headworks/septage receiving as well as component rehabilitation to ensure operability for the planning horizon.

- Location: Canyon Village, Yellowstone National Park (YELL), WY





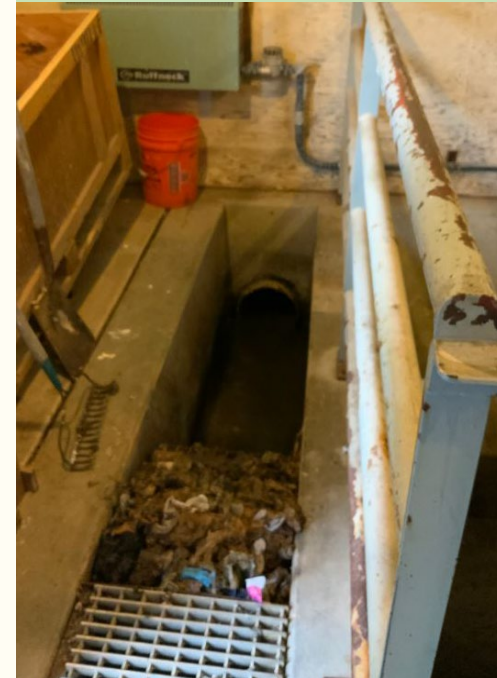
## Replace/Rehabilitate: Canyon WWT System, Grant WWT System, & Mammoth Collection System

- Performance Constraints & Other Considerations
  - Effluent discharges to Yellowstone River – a designated blue-ribbon river
  - Seasonal construction challenges due to heavy snows
  - High variability in seasonal flows



Aging Collection System components

Headworks facilities:  
Inadequately sized, poor ventilation, require modern pre-treatment technology



Necessary to Protect Yellowstone's pristine waters





## Replace/Rehabilitate Canyon Village Wastewater Treatment Plant & Collection System

- Performance Constraints & Other Considerations
  - Plant must remain operational during construction
  - Requires SCADA – no current infrastructure in place
  - Off-road travel limited due to natural resource protection



Canyon Headworks/  
Septage Receiving  
requires  
full replacement

Lower Falls: Grand  
Canyon of the  
Yellowstone – Plant  
discharges to the  
Yellowstone River  
above the lower falls



Canyon Village  
WWTP Lagoon -  
surface aeration  
system





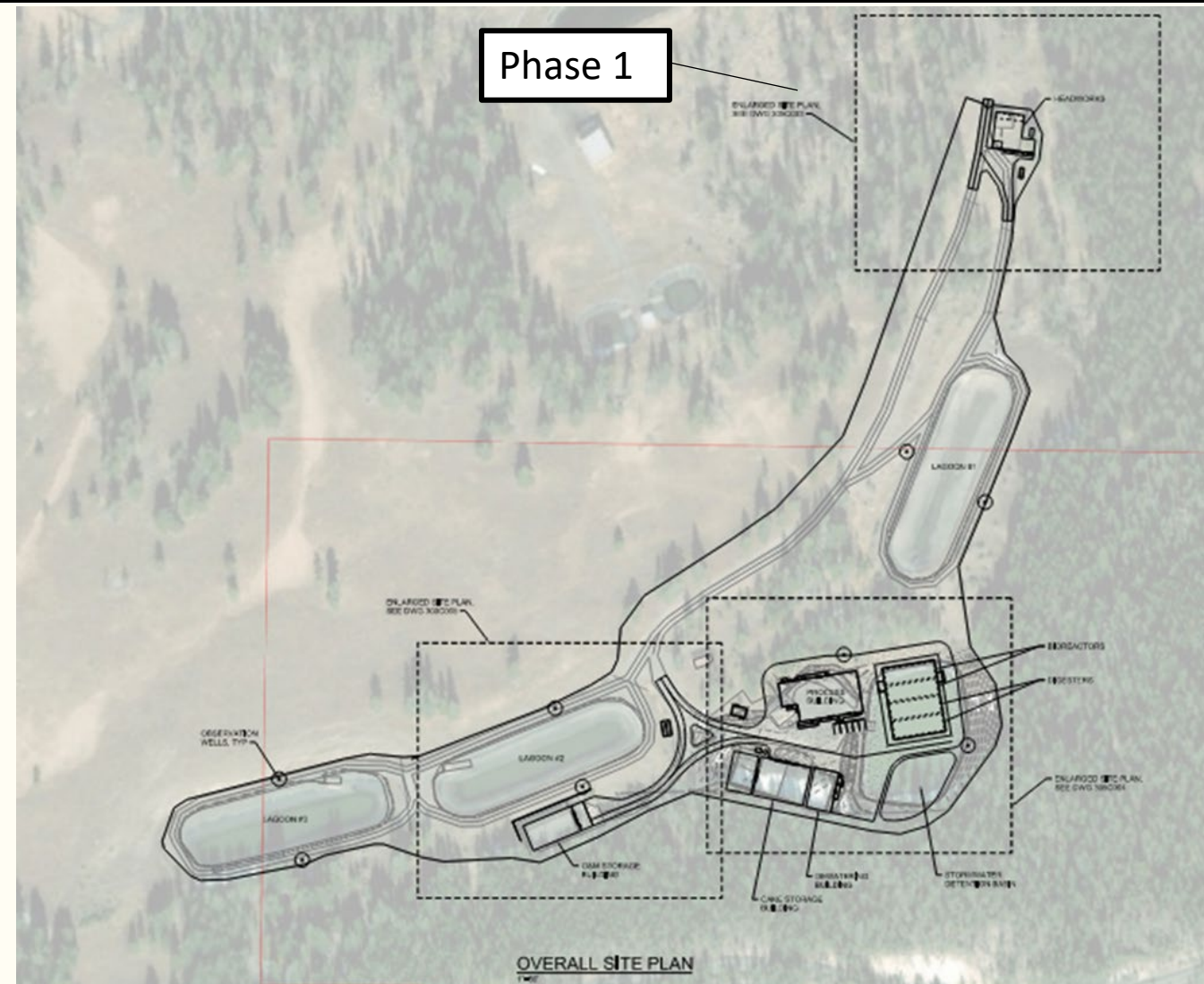
## Replace/Rehabilitate Cayon Village Wastewater Treatment Plant & Collection System

### Phase 1 (FY22 Project)

- Replace Headworks
- Replace/Rehabilitate Collection System and Upper Brink and Government Area lift stations
- Rehabilitate/replace solids pond decant lift station

### Phase 2 (Future Project)

- New activated sludge MBR w/ nutrient removal
- Digesters
- Dewatering

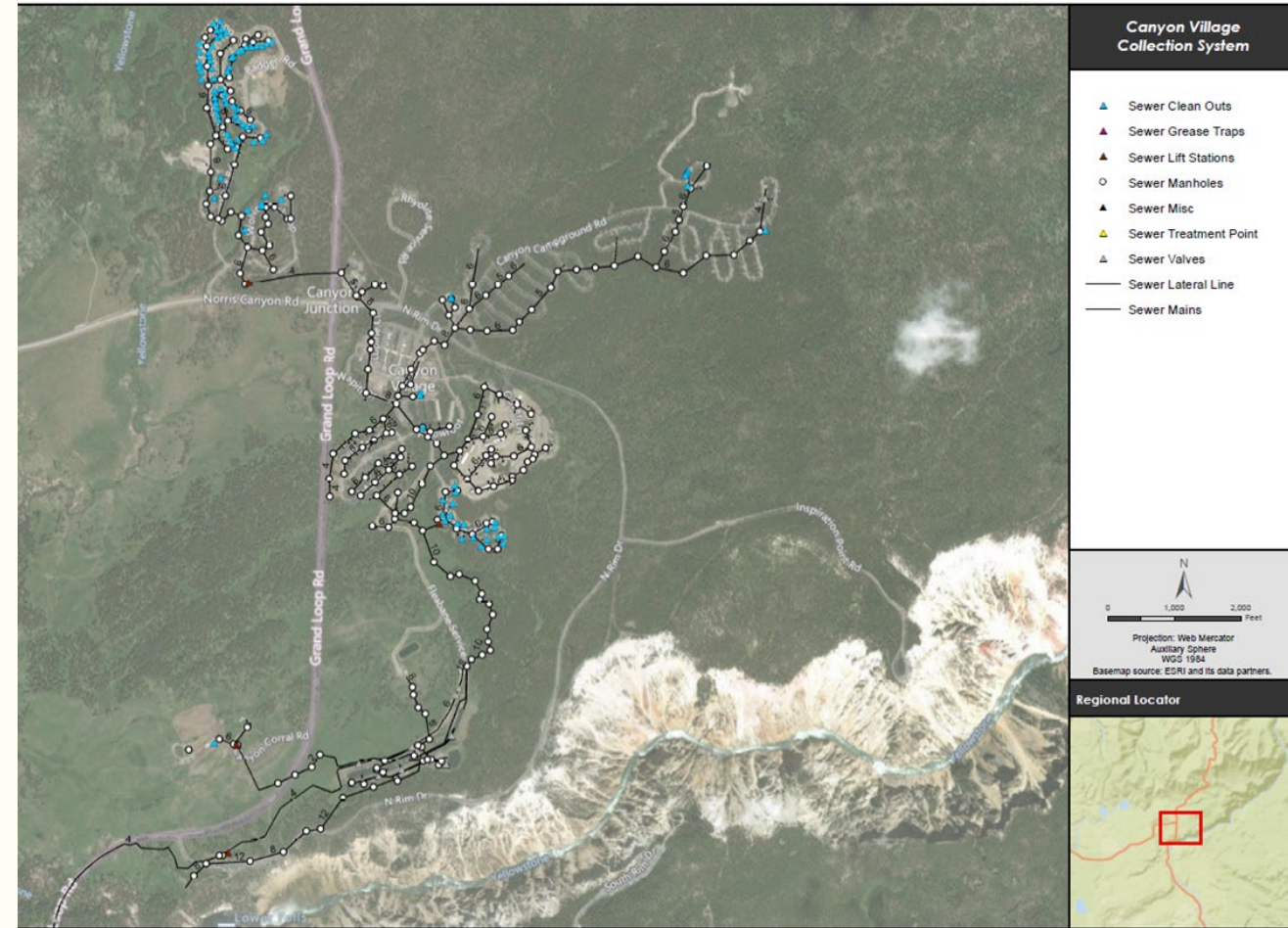




## Replace/Rehabilitate Canyon Village Wastewater Treatment Plant & Collection System

Collection system rehabilitation through trenched and trenchless methods

- Approx. **9.4** miles of sewer **mains**
- Approx. **2.6** mile of sewer **laterals**
- CCTV and condition assessment is ongoing to evaluate the existing system
- Data from the condition assessment will be provided to develop an appropriate trenched/trenchless rehabilitation methods
- The project will rehabilitate the highest priority sewer lines to the extent of available budget



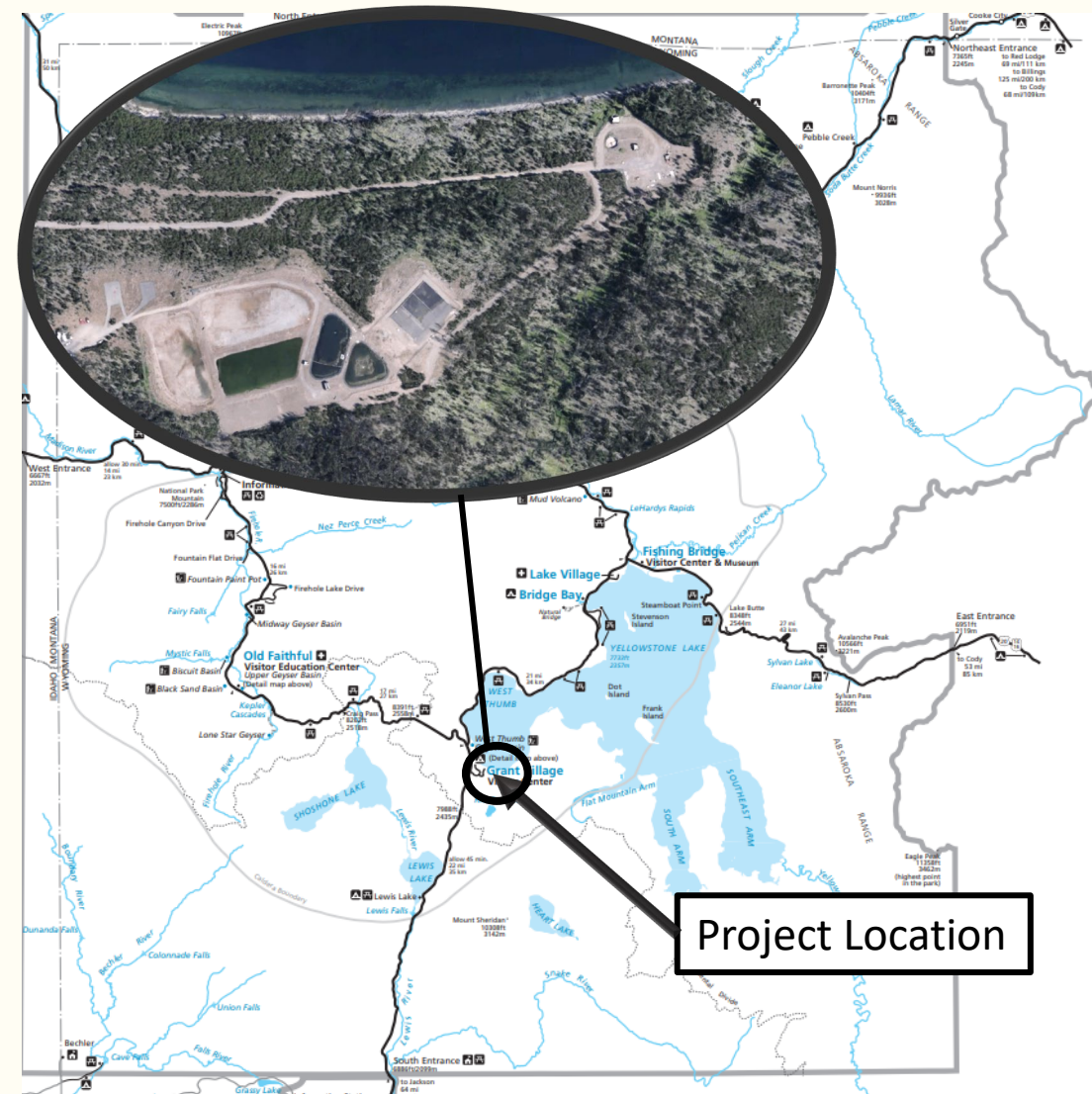


## Replace/Rehabilitate Grant Village Wastewater Treatment Plant & Collection System

- Brief Description

The existing Grant Village Wastewater system treats all wastewater from the Grant Village. A combination of aging infrastructure, new regulatory/permitting requirements, and code deficiencies necessitate the replacement of the wastewater treatment plant. Grant collection system also experience high seasonal I&I and the system requires significant rehabilitation through both trenchless and trenched construction. Previous issues with nitrate discharge has resulted in past algae blooms in Yellowstone Lake.

- Location: Grant Village, Yellowstone National Park (YELL), WY





## Replace/Rehabilitate Grant Village Wastewater Treatment Plant & Collection System

- Performance Constraints & Other Considerations
  - Site abuts Yellowstone Lake
  - Seasonal construction challenges due to heavy snows
  - High variability in seasonal flows
  - Plant must remain operational during construction with only short outages
  - Requires SCADA – no current infrastructure in place
  - Off-road travel limited due to natural resource protection



Yellowstone Lake:  
Grant WWTP is on  
the shores of the 132  
square mile lake

Percolation  
Pond: Inadequate  
treatment has led to  
high nitrates  
percolating into the  
Groundwater leading  
to concerns of  
contamination in  
Yellowstone lake



Grant  
Headworks Lift  
Station with  
Yellowstone  
Lake behind





## Replace/Rehabilitate Grant Village Wastewater Treatment Plant & Collection System

Collection system rehabilitation through  
trenched and trenchless methods

- Approx. **6.1** miles of sewer **mains**
- Approx. **1.0** mile of sewer **laterals**
- CCTV and condition assessment is ongoing to evaluate the existing system
- Data from the condition assessment will be provided to DB Contractor to develop appropriate trenched/trenchless rehabilitation methods
- The project will rehabilitate the highest priority sewer lines to the extent of available budget





# Replace/Rehabilitate Grant Village Wastewater Treatment Plant & Collection System

- Replace Headworks w/ Lakeside Lift Station
- Collection System rehab
- New plant, activated sludge MBR w/ nutrient removal to meet WYDEQ requirements
- Lagoon inspections/rehabilitations
- New Mechanical Dewatering
- New SCADA and telemetry

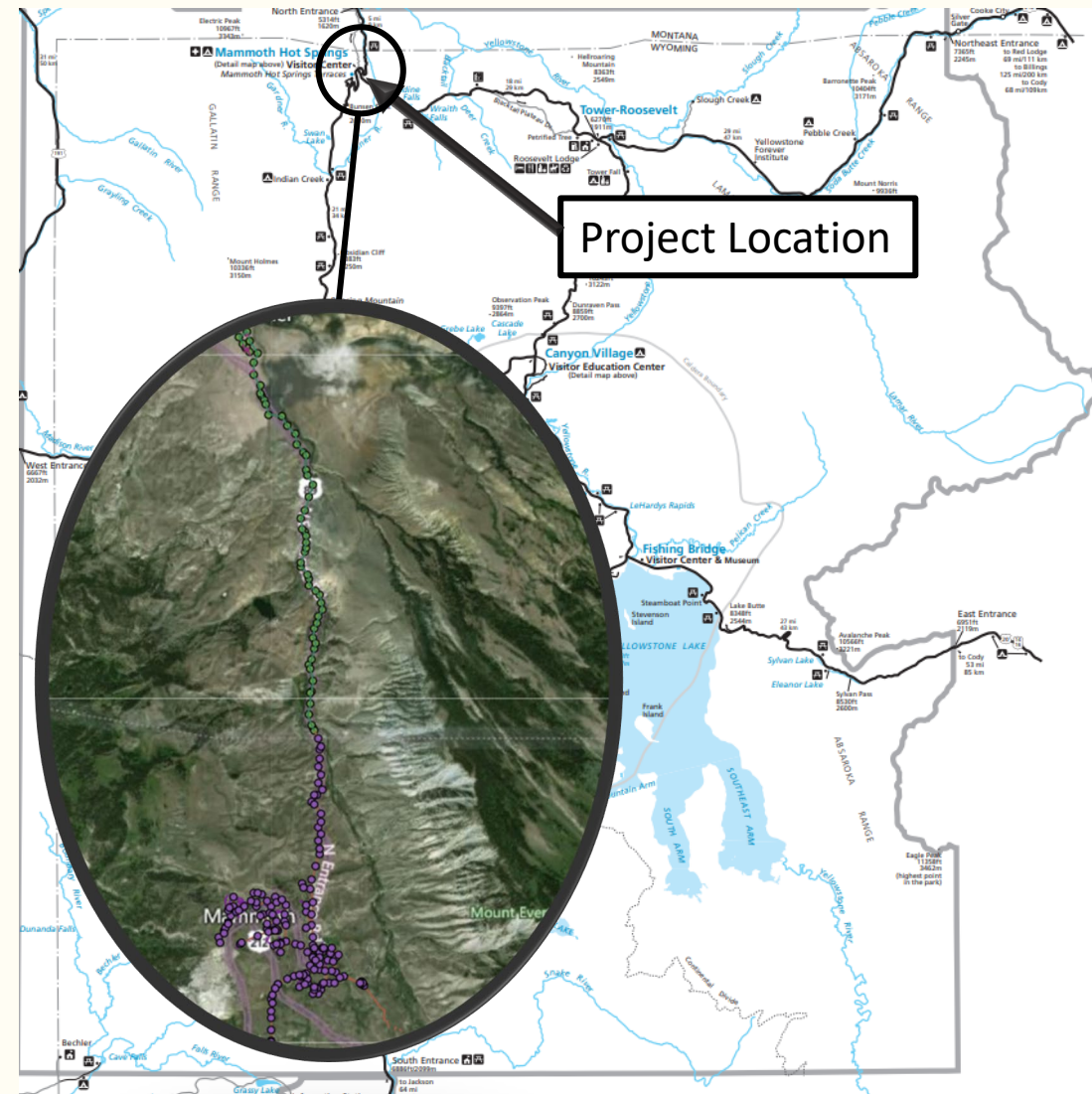


## Replace/Rehabilitate Mammoth Collections System

- Brief Description

The Mammoth Collection System is original infrastructure from the 1950s. It transports all Mammoth Village sewage to Gardiner, MT for treatment. Deterioration of the system has led to high I&I. Due to high levels of arsenic in the groundwater from hydrothermal features, infiltration of arsenic resulted in a lawsuit settled in 2019 and instigated spot repairs of the collections system. This project will focus on full rehabilitation of the system using both trenchless and open trench technologies.

- Location: Yellowstone National Park (YELL), WY, MT





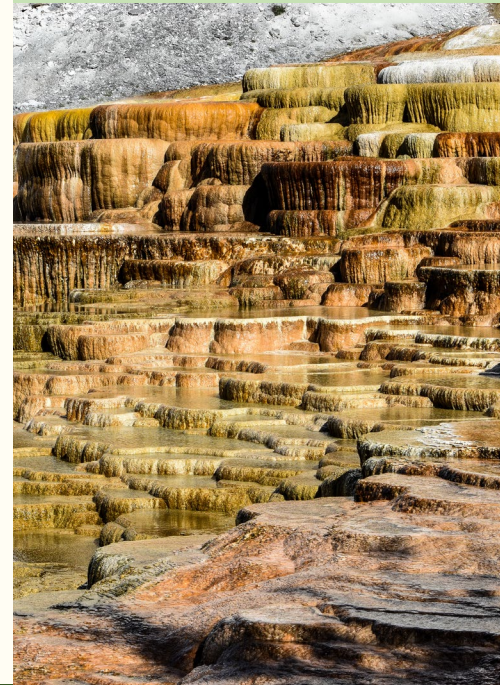
## Rehabilitate Mammoth Wastewater Collections System

- Performance Constraints & Other Considerations
  - Sewer Main is under the two-lane highway from Gardiner to Mammoth Village. Main entrance road must remain open during construction.
  - Off-road travel limited due to natural resource protection
  - Trenchless technologies preferred to protect natural resources
  - Limited storage capacity in Mammoth. The system must remain operational during construction. Max outages <30 minutes.



Elk and other wildlife frequent the area, particularly during the fall rut

Mammoth Hot Springs: High Geothermal Activity in the area



Yellowstone North Entrance Road must remain open



## Rehabilitate Mammoth Wastewater Collection System

- CCTV and condition assessment (including manhole assessment) is ongoing to evaluate the existing system
- Data from the condition assessment will be provided to DB Contractor to develop appropriate trenched/trenchless rehabilitation methods
- The project will rehabilitate the highest priority sewer lines to the extent of available budget

