

Final (100%) Design Summary Kerr-McGee Chemical Corporation Superfund Site Jacksonville, Florida

December 14, 2022

Community Update Meeting

12:30 p.m. – 1:30 p.m.

5:30 p.m. – 6:30 p.m.



Welcome

- Please mute yourself during the presentation.
 - Zoom: use microphone icon
 - Phone: press *6
- Please unmute yourself to ask a question or to comment.
 - Zoom: use microphone icon
 - Phone: press *6
- Questions: please reserve questions until after the presentation.
 - State your name when asking questions.
- On Zoom, you may type questions or comments into the chat box.
- The meeting sessions will be recorded.
 - By participating, you consent to be recorded.
- Please email ca@g-etg.com that you attended unless you RSVP'd.



Community Update Overview

- Background and Overview
- Construction Phase 1 (Completed)
- Remedial Design Summary
- Construction Phase 2
- OU2 Investigation
- Schedule
- Questions and Discussion

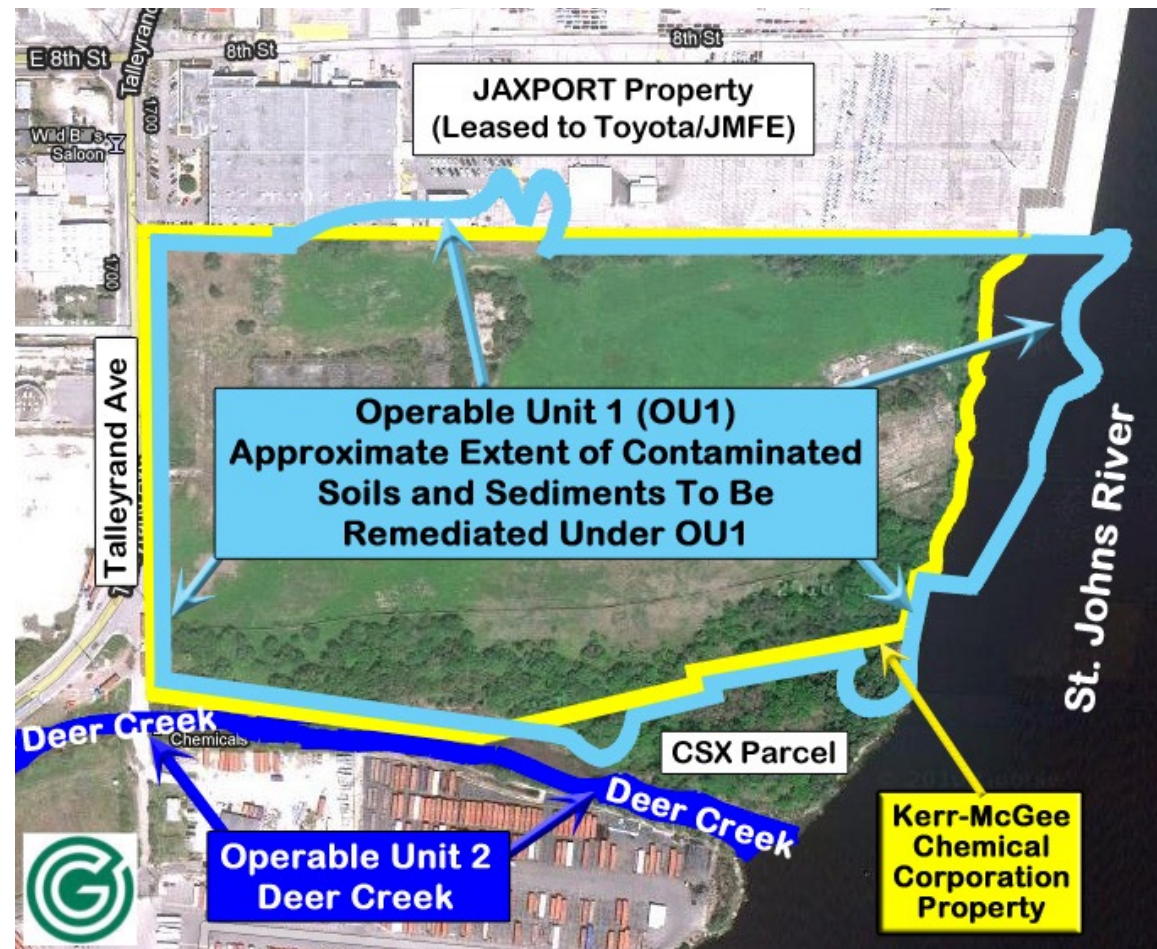


Site Background

- Remedial Investigation OU1 – 2006
- Risk Assessments OU1 – 2014 to 2016
- Feasibility Study OU1 – 2016
- Proposed Plan and OU1 Record of Decision – 2016
- Remedial Design and Design Investigations
 - Design Investigations – 2017 to 2019
 - Remedial Design – 2019 to 2022
- Remedial Construction – 2023 to 2025
- Deer Creek Investigation
 - Remedial Investigation Work Plan – 2021
 - Remedial Investigation – 2023 to 2024



Site Overview



- Former Agricultural Chemical (Pesticide) Manufacturing and Formulation Plant
- Period of operation: 1893 to 1978
- Uplands: 31.8 acres
- OU1: Uplands, 3 acres of St. Johns River sediments, off-site impacts (JAXPORT and CSX)
- OU2: Deer Creek sediments and surface water



Remedial Construction (Phase 1)

- Started Phase 1 Construction in November 2020
- Completed Phase 1 Construction in March 2021:
 - Installation of stormwater control measures
 - Abandonment of monitoring wells
 - Installation of truck wash and administration area
 - Demolition of concrete foundations
 - Clearing and grubbing of the majority of the site
 - Consolidated off-site contamination onto former KMCC property



Construction Entrance



Asphalt entrance road



Water fill station and truck wash pad



Concrete Foundation Demolition

Concrete foundations that interfere with the remedy were removed or demolished in place



Remedial Design Components

- Groundwater Source Remedy
 - Soil Stabilization
 - To treat groundwater source area
- Sediment Remedy
 - Sediment Dredging and Bulkhead
 - To consolidate and contain contaminated sediments
- Soil Remedy
 - Soil Cap
 - On-Site Consolidation of Off-site Soil
 - To limit rainwater and prevent exposure
- Groundwater Remedy
 - Groundwater Containment System
 - To prevent discharge of contaminated groundwater to surface water bodies

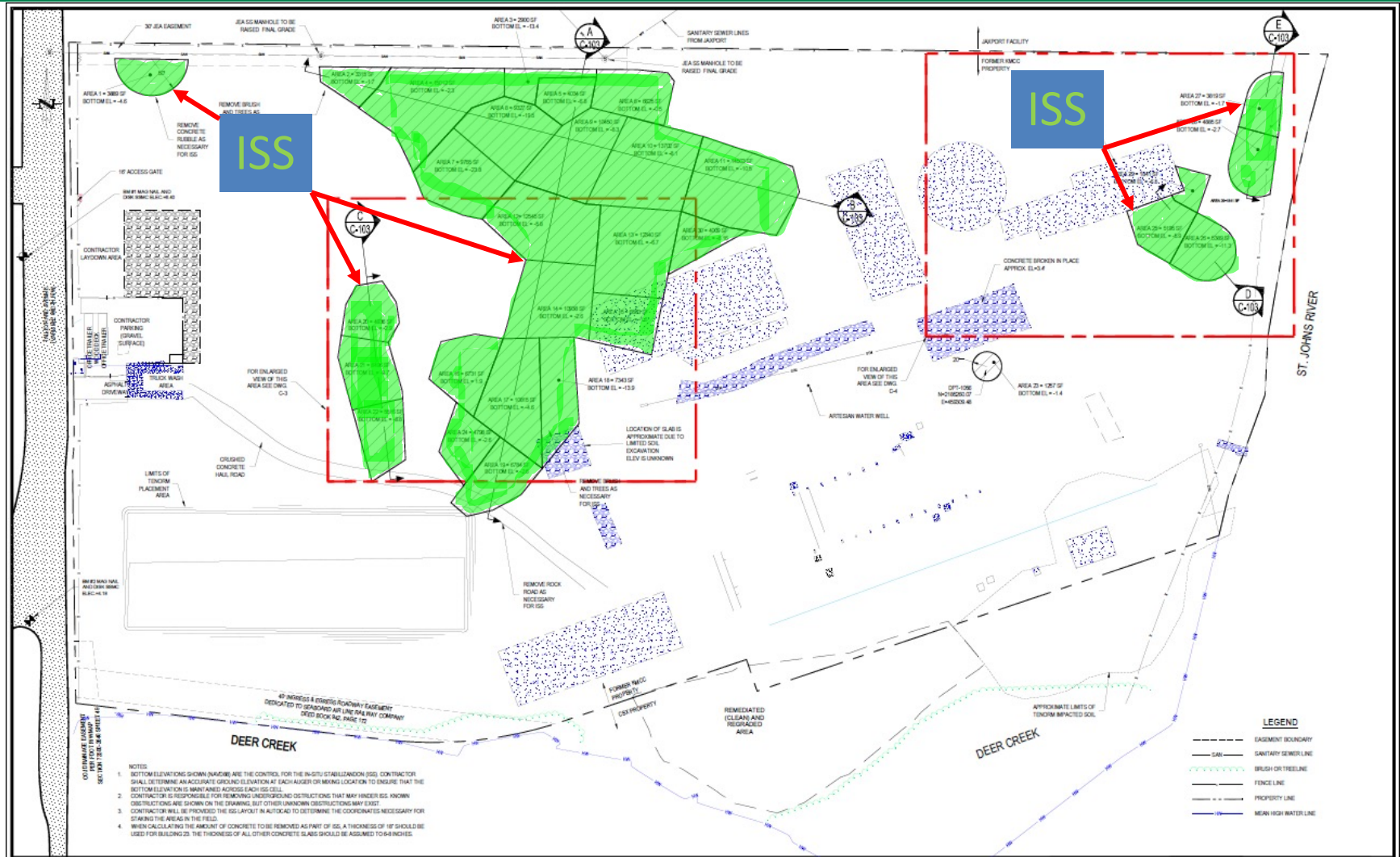


Groundwater Source Remedy

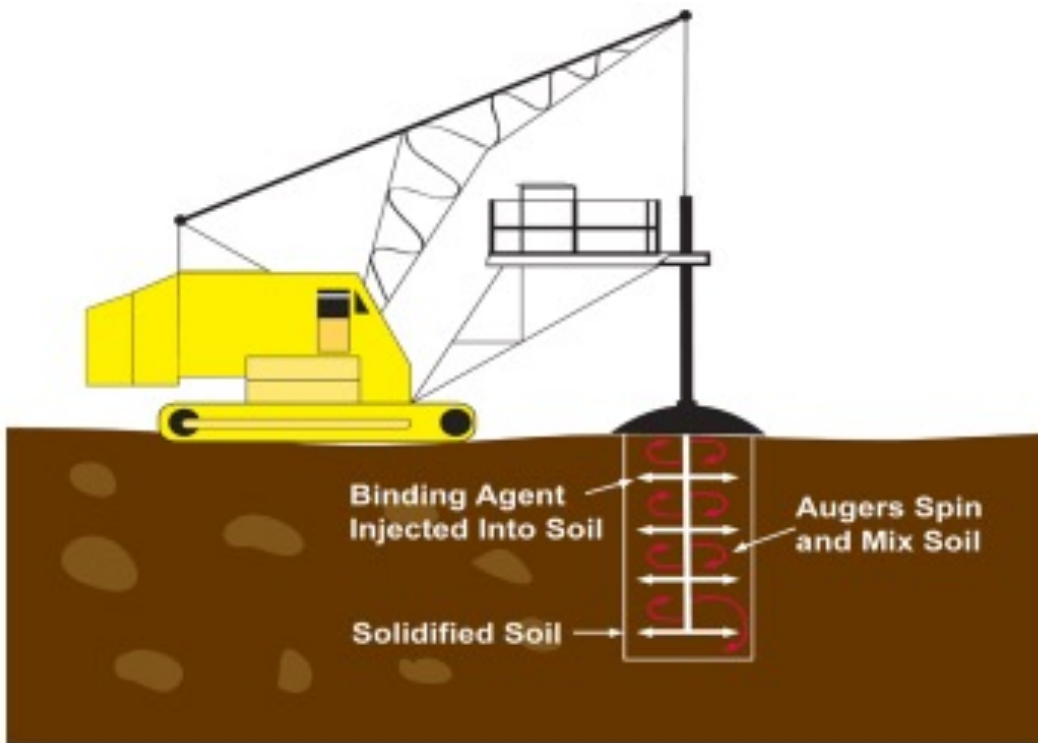
- **Remedy Objective:** in-situ soil stabilization (ISS) of contaminated soil (known as *source areas*) that could feed groundwater plumes
 - Cement will be mixed with equipment to solidify the source areas so that groundwater plumes shrink (maximum hydraulic conductivity of 10^{-6} centimeters per second)
 - Soil concentration-based approach was used for ISS design, with FDEP input and EPA concurrence
 - Total treatment volume is 109,171 cubic yards
 - Estimated areal extent is 5 acres



In-situ Soil Stabilization – 100% Design



ISS – Implementation



A crane holds up a soil-mixing auger as it's used to treat contaminated soil and solidify it in place at another site.

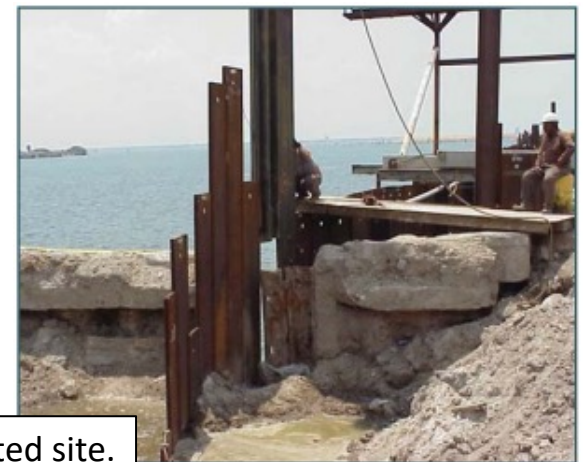


Sediment Remedy

- **Remedy Objective:** installation of environmental bulkhead to contain contaminated sediment in the St. Johns River
 - Provide structural support for backfill materials
 - Reduce migration of groundwater with chemical of concern concentrations above levels that are protective of ecological receptors in the St. Johns River



An environmental bulkhead is installed at an unrelated site.

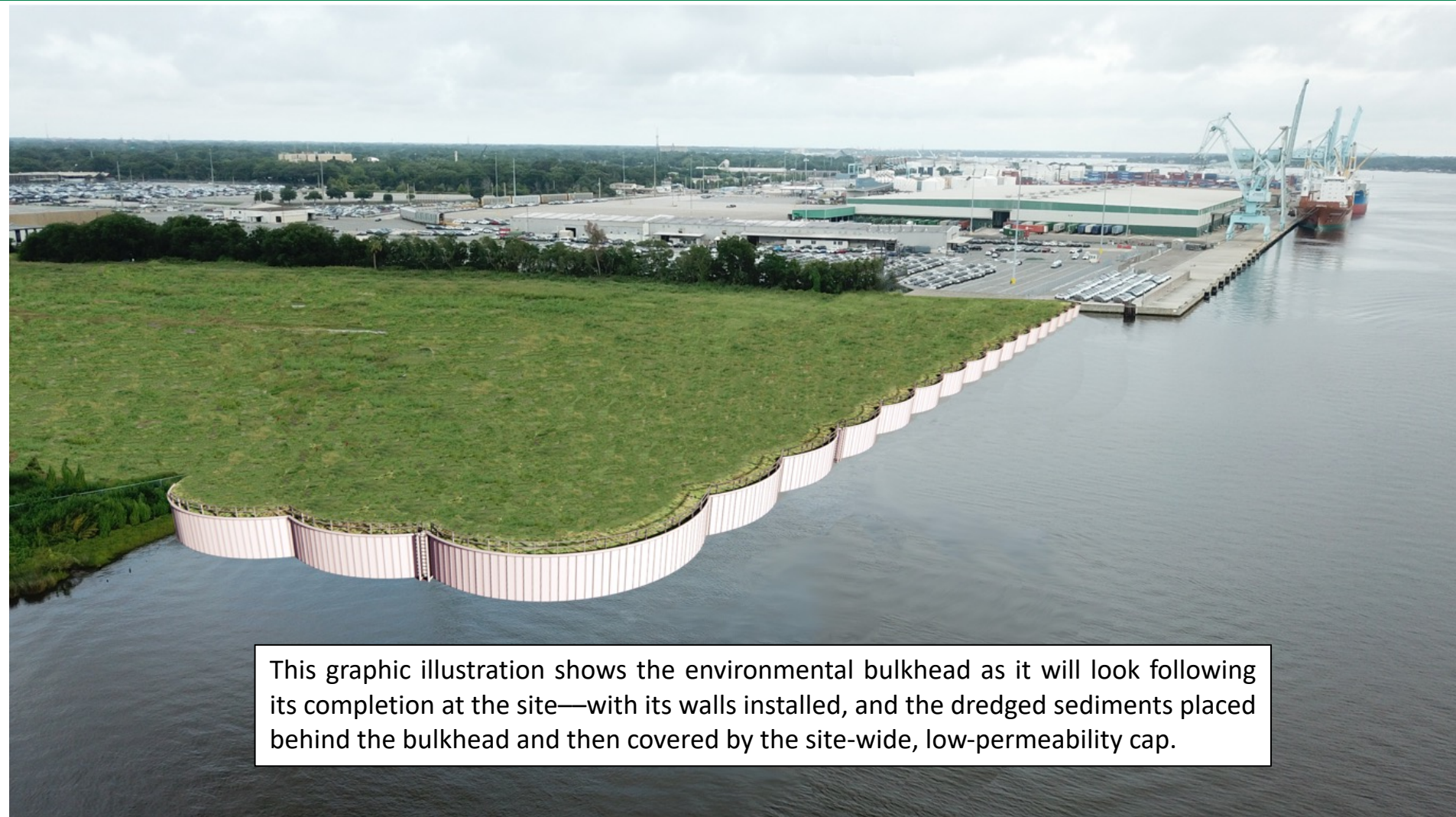


Bulkhead Limits

- Horizontal limits
 - Approximately 85 feet east of Site's shoreline
 - Parallel to and approximately 140 feet from edge of federal navigation channel
- OPEN CELL Sheet Pile Bulkhead
- Coating to extend design life



Bulkhead Rendering



This graphic illustration shows the environmental bulkhead as it will look following its completion at the site—with its walls installed, and the dredged sediments placed behind the bulkhead and then covered by the site-wide, low-permeability cap.



Sediment Dredging

- **Remedy Objective:** dredge and consolidate contaminated sediment currently located outside the planned environmental bulkhead
 - Dredging limits were based on EPA Record of Decision (ROD) cleanup levels and pre-design investigation (PDI) sampling results.
 - Dredging depths range from 1 to 10 feet below existing surface.
 - Volume of contaminated sediment and debris is approximately 13,705 cubic yards.
 - All debris will be placed behind the wall, or placed under the upland cap, or if not suitable for placement under the cap, disposed of off-site.

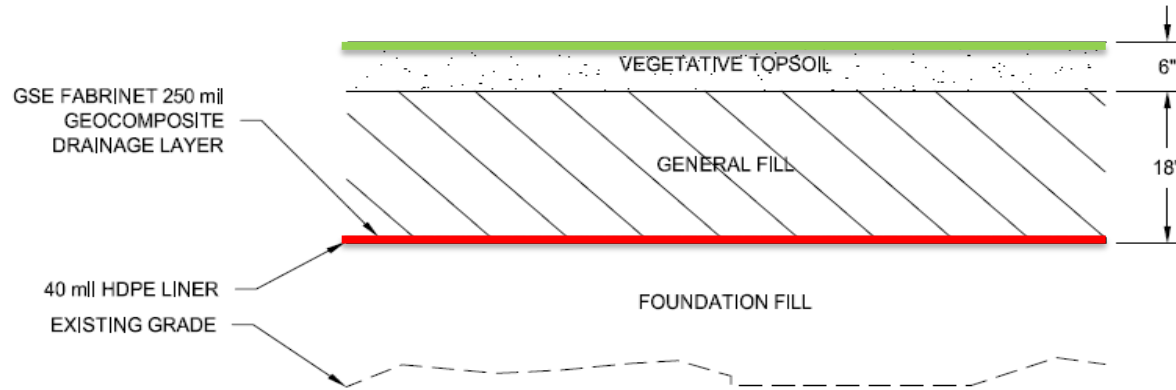


Soil Remedy

- **Remedy Objective:** installation of a cap to
 - (1) prevent exposure to soil above ROD cleanup levels that are protective for commercial and industrial use and
 - (2) limit infiltration
 - Construction of an engineered cap designed to limit precipitation from getting to groundwater
 - Designed to provide minimum required slope to manage surface water runoff and drainage
 - Two feet of clean fill to prevent direct exposure



Low-Permeability Cap



- Low-permeability cap consists of a high-density polyethylene (HDPE) geomembrane liner overlain with a geocomposite drainage layer (GDL)
- Cap, with its two-foot protective soil layer, prevents direct exposure
- The top six inches will be capable of supporting vegetative growth to prevent erosion



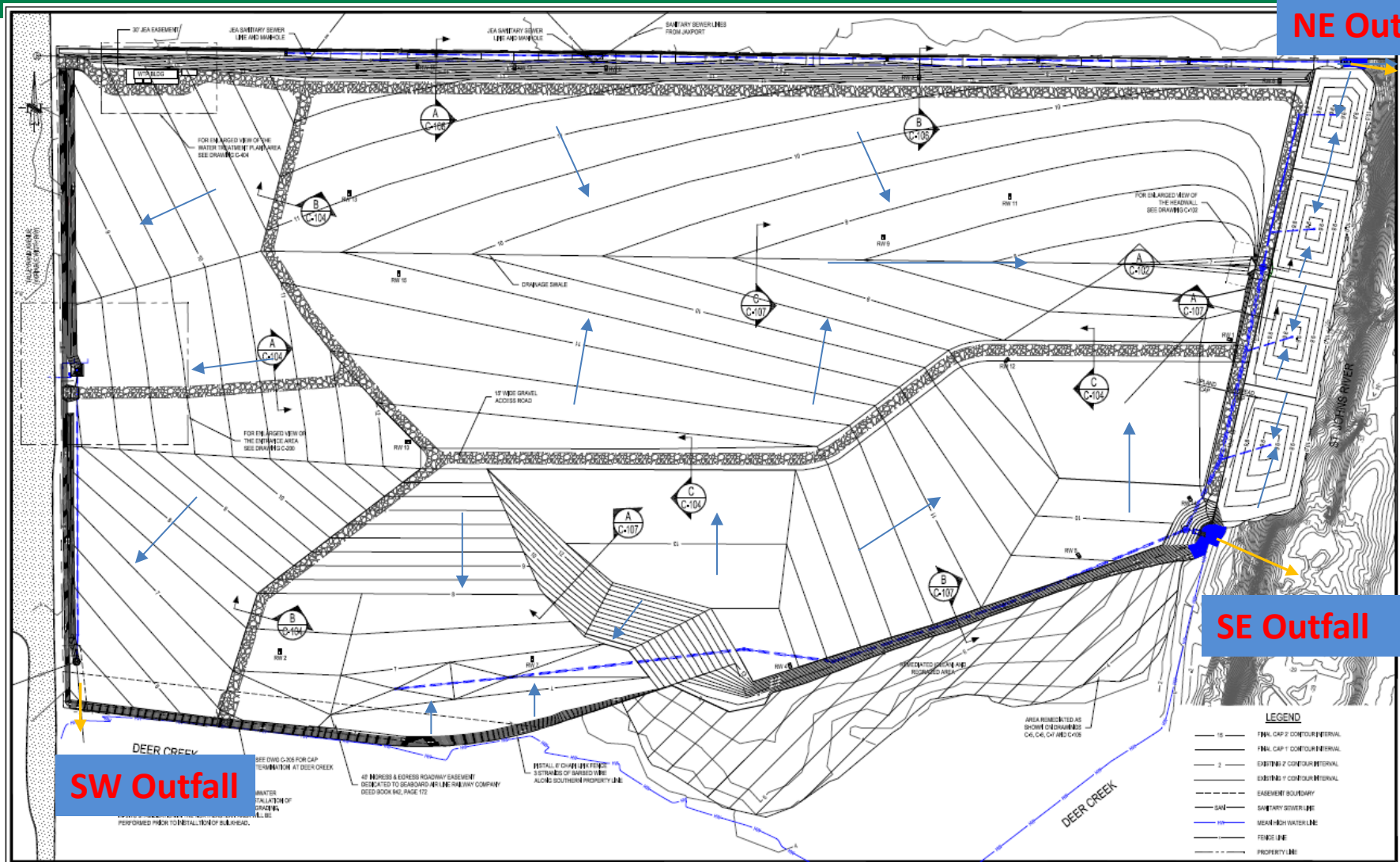
Example Liner Installation



This plastic liner is similar to the lining to be installed as part of the construction of the site-wide, multilayered, low-permeability soil cap. Atop the liner, clean fill will be placed, and then a grassy layer will be installed. This photo shows a liner being positioned at the site during the installation of a sedimentation basin in 2020.



Cap Layout and Stormwater Management



Stormwater Management Design

- Designed for 25-year, 24-hour storm
 - Oversized to account for 100-year, 24-hour storm
- 3 outfalls (2 to St. Johns River, 1 to Deer Creek)
- Water flow to central swale and northern ditch flowing east via piping
- Runoff will discharge at NE and SE property corners into St. Johns River. Tideflex check valve will prevent tidal flow into stormwater system.

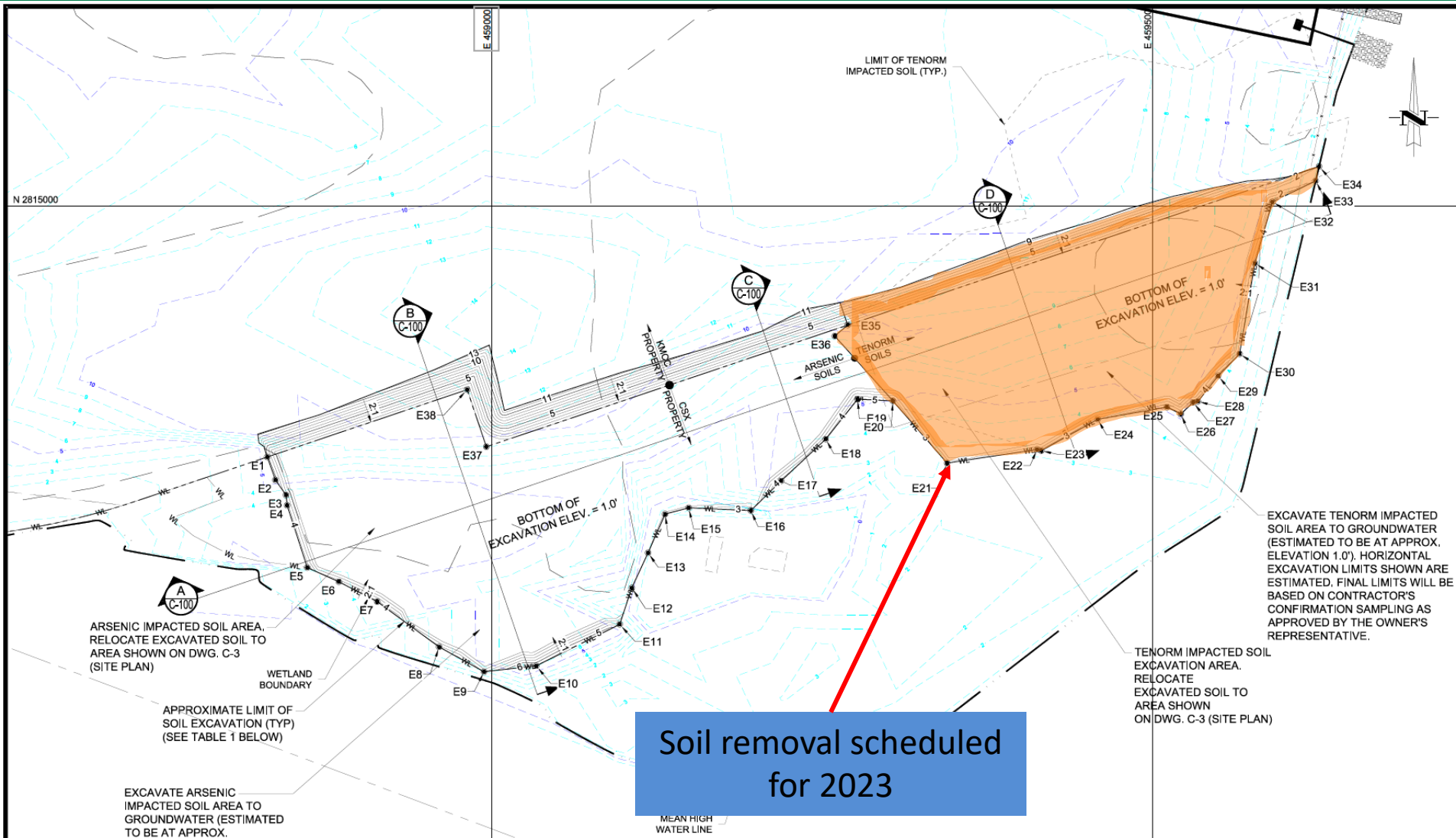


Soil Remedy

- **Remedy Objective:** removal of construction debris and contaminated soil from CSX property, and on-site consolidation
 - Concrete debris will be removed, processed and consolidated underneath the cap
 - Contractors will dig up and place under the final cap on the former KMCC property
 - CSX property will be backfilled and restored with vegetation



Soil Removal from Adjacent CSX Property



Soil removal scheduled for 2023

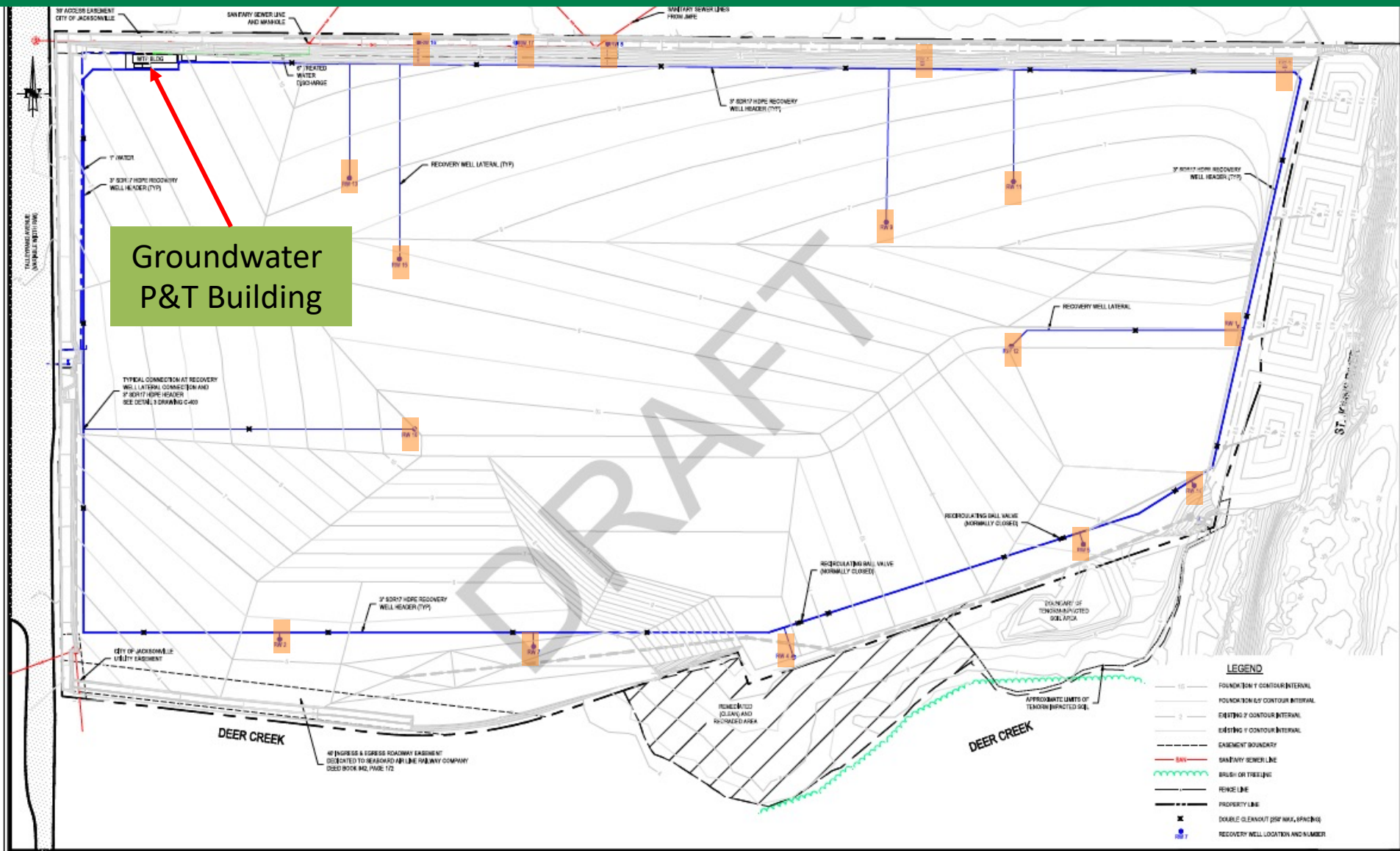


Groundwater Remedy

- **Remedy Objective:** Prevent discharge of contaminated groundwater to the St. Johns River and Deer Creek with a groundwater containment system
 - Pump and Treat (P&T) system (28.5 gallons per minute) is designed to capture groundwater above cleanup levels to prevent discharge to surface water
 - Groundwater contaminant concentrations will decrease naturally in time; pumps will be turned off once sampling indicates that the groundwater plume is able to decrease on its own and groundwater cleanup can be achieved in a reasonable timeframe
 - Treatment system is designed to meet JEA requirements prior to discharging water to the sewer, which requires JEA approval



P&T System – Recovery Well Layout



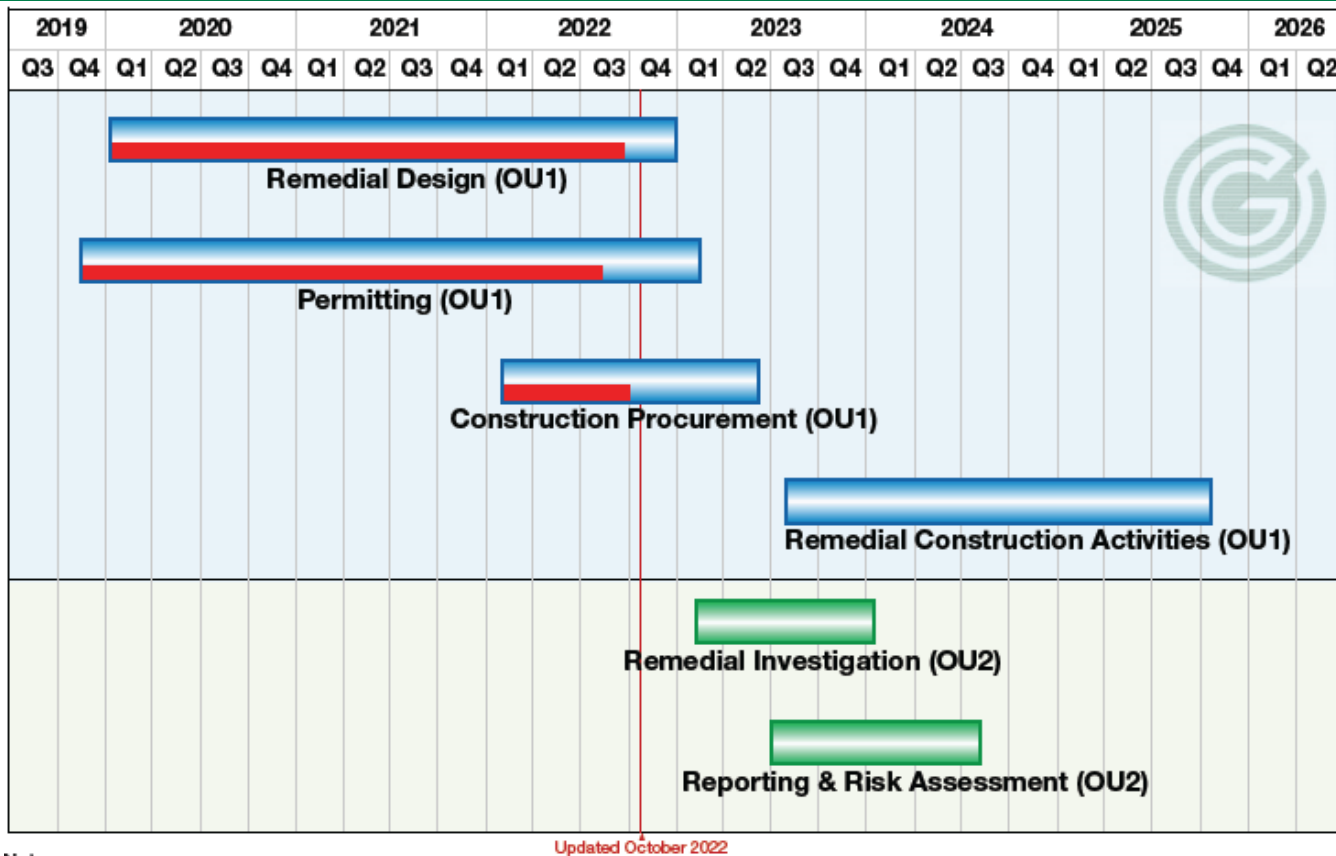
P&T System Concept



This building is comparable to the kind of structure to be built as part of the pump and treat system. Inside the building, recovered groundwater will be processed through carbon filtration to remove contaminants before its release to the City's wastewater treatment system.



Design and Construction Schedule



- Remedial design to be complete in December 2022
- Remedial construction to start in June 2023



Remedial Action

- Currently scheduled for 2023 to 2025
- Multistate Trust will provide updates via the website
 - <https://jacksonville.greenfieldenvironmental.com>
- The construction manager will prepare construction plans in the first half of 2023
- Work for contractors will be bid in the first half of 2023



Community Health and Safety

- Health and Safety Plan
- Perimeter air monitoring
- Traffic control
- Site access and security
- Status updates



**TSP / PM10
Filter-Based Sampler**



On-Site Worker Health and Safety

- Daily meetings
- Health and Safety Plan
- Training of Site workers
- Personal protective equipment
- Worker air space monitoring



Air Monitoring

- Air Quality Monitoring Plan
 - Developed action levels in 2020 Air Monitoring Plan
 - Plan completed and approved
 - Implemented during Phase 1 of construction (2020–2021)
- Continuous air monitoring during remedial action construction
 - Three fixed locations to protect community
 - One mobile location placed near construction work
 - Backup equipment on-site for redundancy
 - Monthly reporting of data



Perimeter Air Monitoring Locations



Dust Mitigation

- Apply water to minimize dust
- Cease or alter work on windy days
- Monitor dust on-site and perimeter



OU2 Background and Status

- OU2 is defined as Site-related sediment and surface water contamination in Deer Creek.
- Deer Creek flows along the southern boundary of a CSX property located to the south of the former KMCC property.
- Chemicals identified in the ROD as used or produced by manufacturing activities at the Site include organochlorine pesticides, metals, sulfuric acid, and volatile organic compounds.



OU2 Site Overview



OU2 Remedial Investigation



Questions?

- Website:
 - <https://jacksonville.greenfieldenvironmental.com/>
- Contact Info:
 - EPA
 - Charles King – Remedial Project Manager
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 - King.CharlesL@epa.gov
 - FDEP
 - Dean Cox – Environmental Consultant
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 - Peter Cornais – Project Manager
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