HALEY ALDRICH

Coal Ash Removal

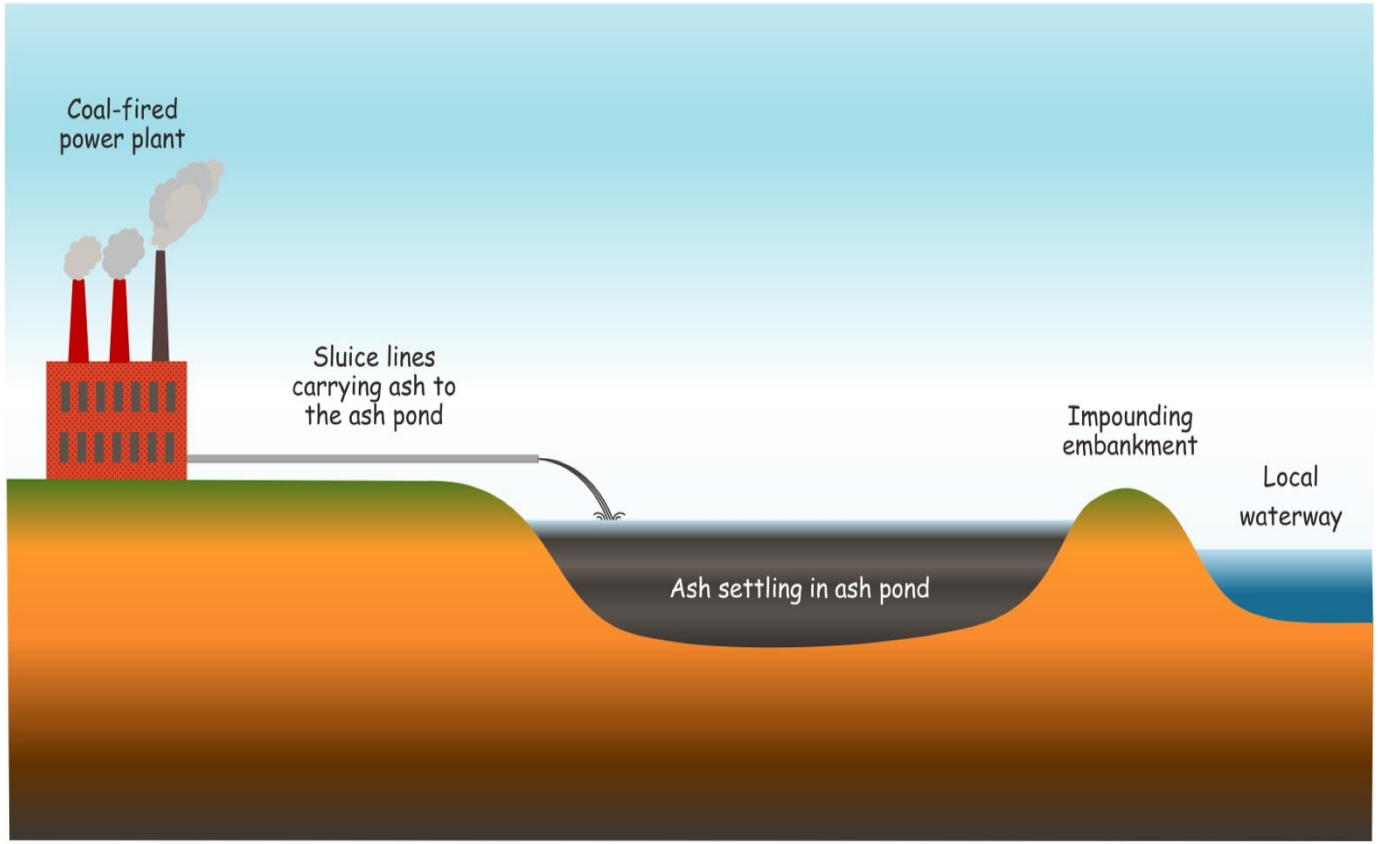
Matthew Ksanznak, E.I.T.



What is an ash pond?

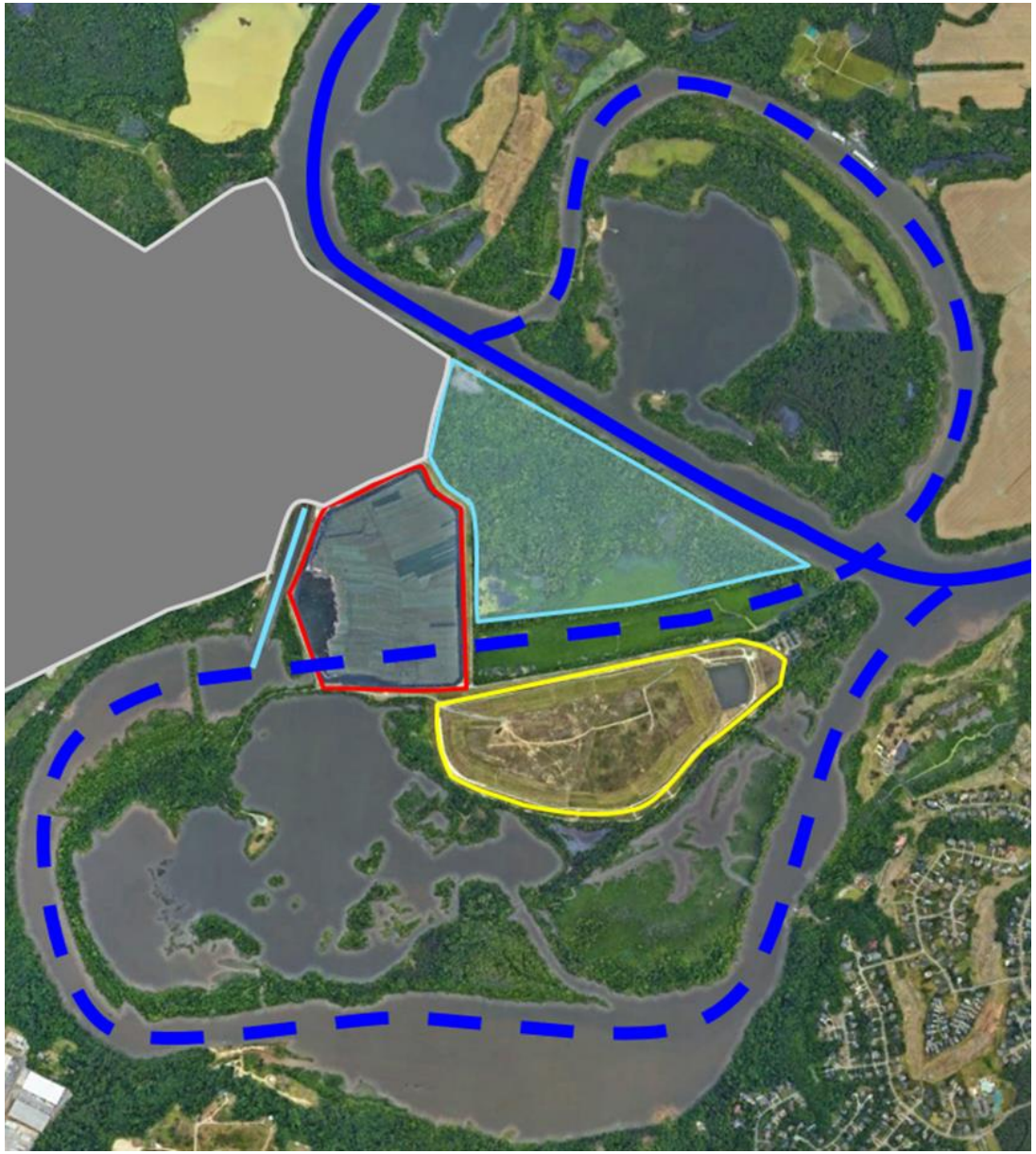
Jargon to know:

- **CCR** = coal combustion residual (a.k.a. "ash")
- **CCR Rule** = 2015 EPA regulation establishing the technical requirements for CCR facilities
- **Impoundment** = a basin designed to hold liquid waste such as sluiced ash (a.k.a. "ash pond")
- **Closure by removal** = removal of wastes from the impoundment via dredging or excavation



Ash pond closure

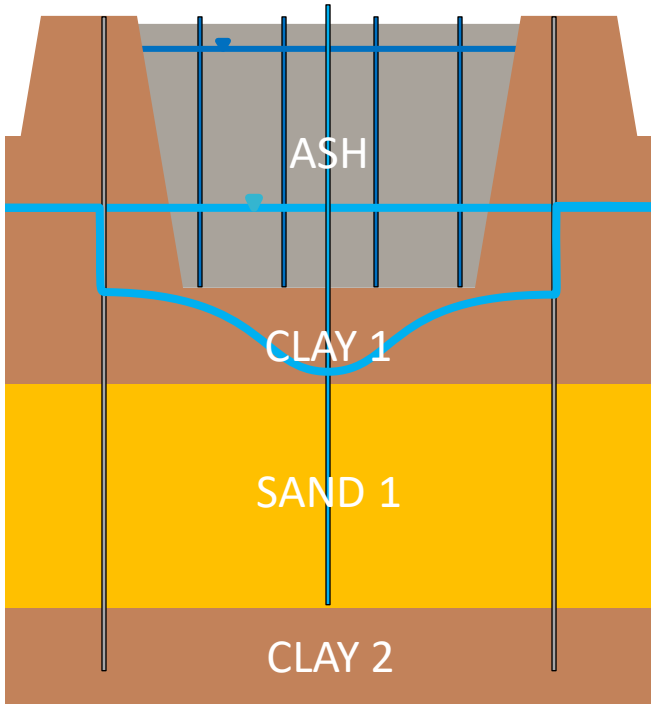
- Confidential site and client
- Constructed in 1964
- ~100 acres
- Received sluiced ash until 2018
- ~3 MCY ash
- Closure by excavation
- Dewatering efforts



Scope of ash pond closure

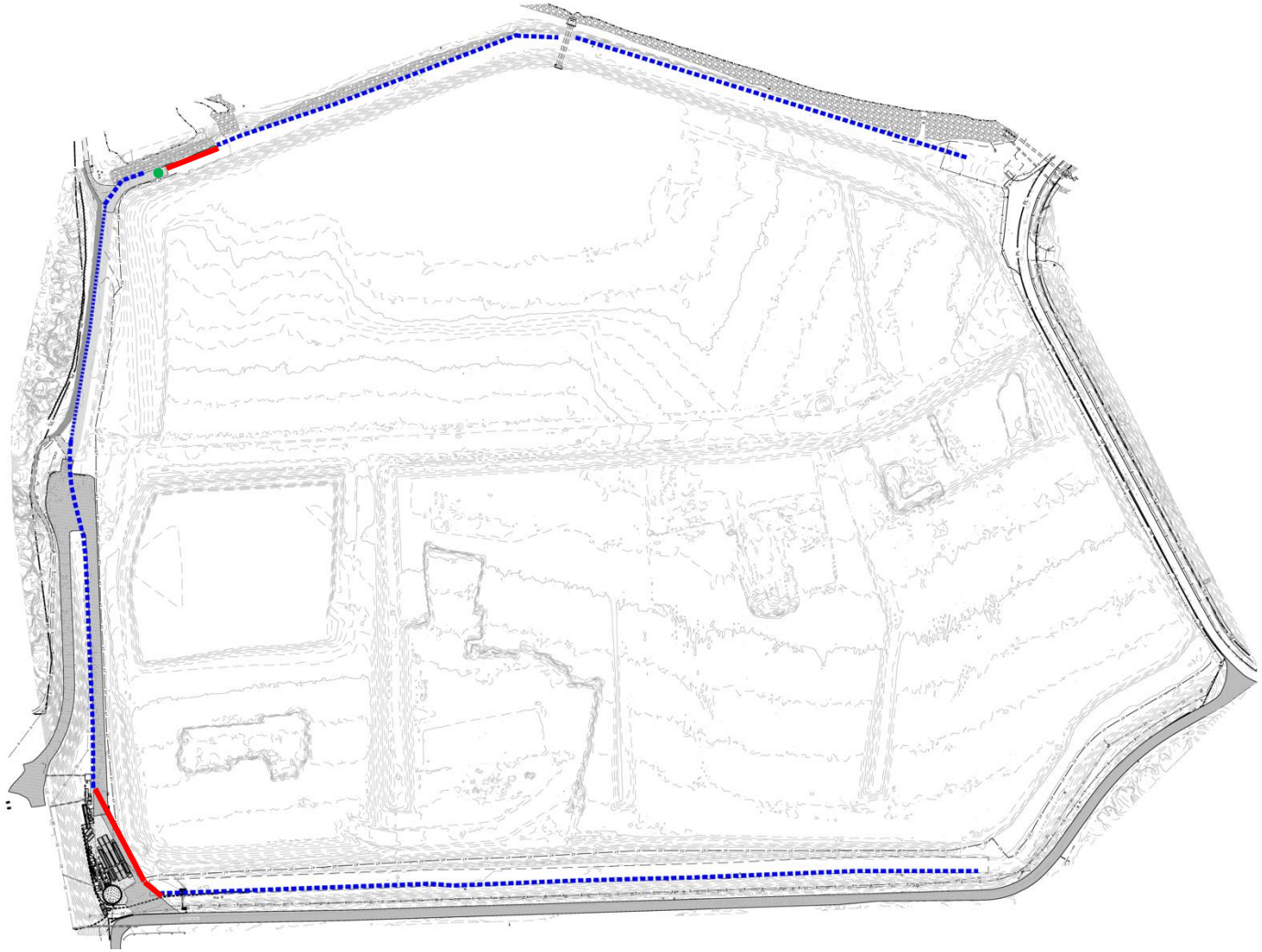
CLEAN CLOSURE BY REMOVAL

1. Cutoff groundwater
2. Depressurize Sand 1 with depressurization wells
3. Dewater ash with well points, sumps, and ditches
4. Excavate ash
5. Replace with clean fill



Cutoff wall

- Between 2021 and 2023 a 6,000 LF cutoff wall was installed as a combination of:
  - TRD wall
  - Sheet piles
  - Deep wells



TRD Wall

- Trench cutting and remixing deep (TRD) soil mix walls
- 5,941 LF
  - 568 LF Structural TRD Wall with W sections
- Enabling works
  - Grout plant construction
  - Regrading the embankments
  - 165 Micro-piles



Sheet piles

- Installed with Giken Silentpiler
- Predrilled with Supercrush auger
- Extensive monitoring
  - Shape arrays (SSA)
  - In place inclinometers (IPI)
  - Manul inclinometer (torpedo)
  - Monitoring point surveys



HALEY ALDRICH

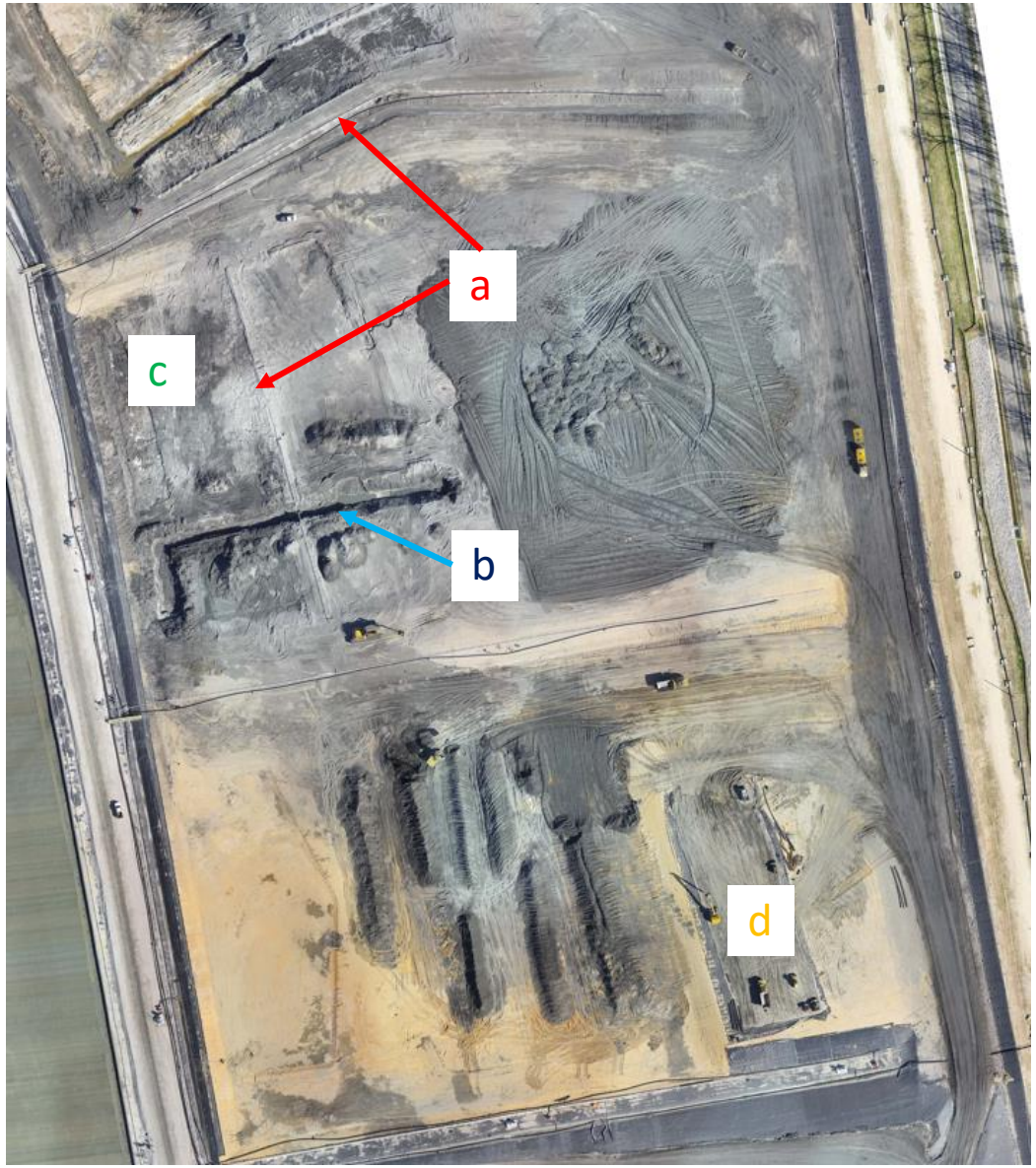
Dewatering the Ash

a) Well points

b) Rim Ditches

c) Sumps

d) Windrows



Aerial courtesy of general contractor

Water Management

- Coordinated timing of liner removal
- Grading plans for each lift of excavation
- Better management of
  - Contact stormwater
  - Non-contact stormwater
- Optimizes water treatment volumes



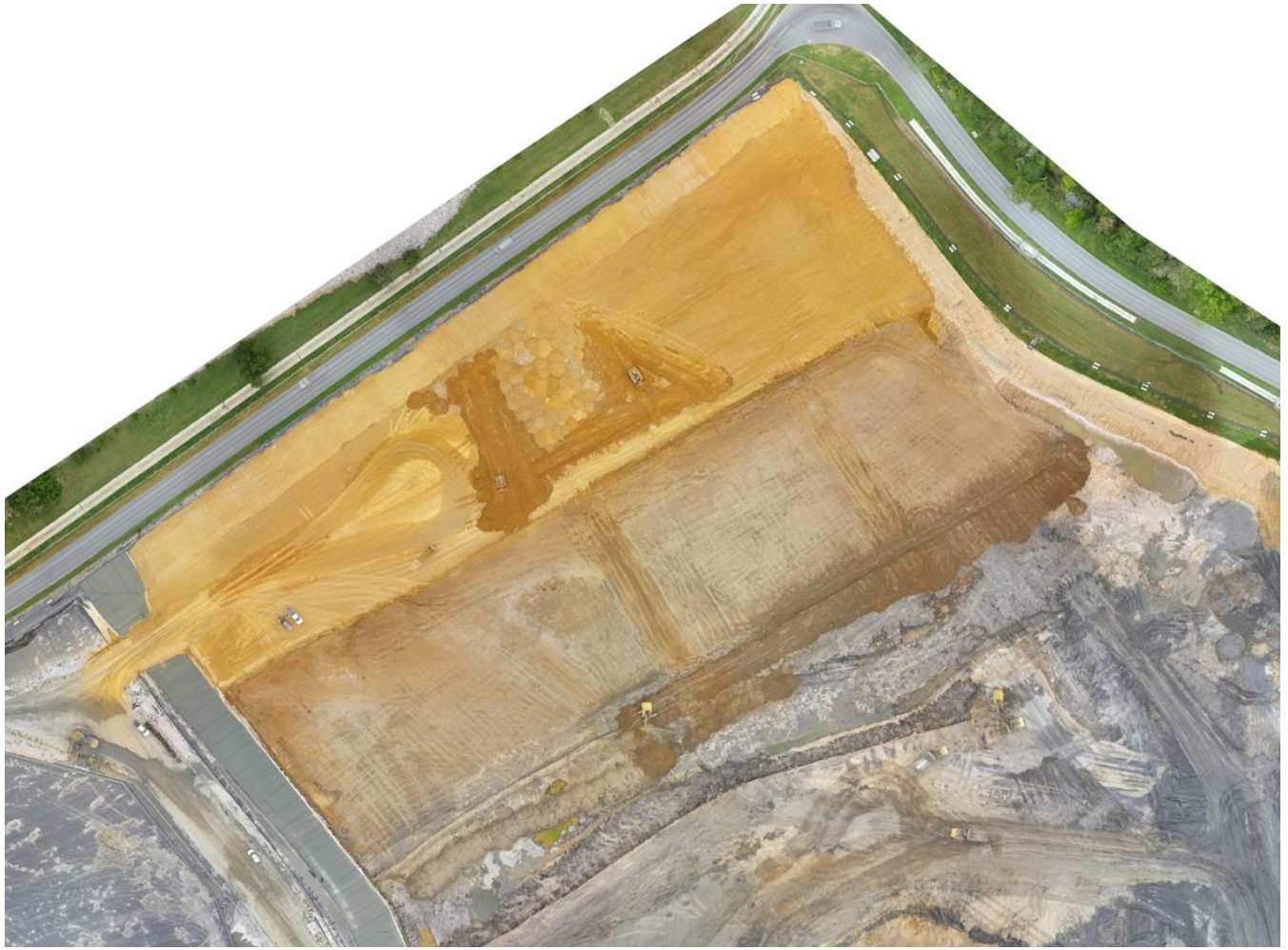
Thresholds for safe ash excavation

- Extensive geotechnical investigations
  - CPTs
  - Test Pits
- Establishment of safety thresholds
  - 3D modeling
- Go/No Figures
- Continuous Monitoring



Replace with clean soil fill and closure

- After clean closure verification, clean soil fill is placed
- Ash pond enters into long term monitoring to establish "closure status"
- 1.3 MCY ash removed



Aerial courtesy of general contractor

Contact us



Matt Ksanznak, E.I.T.
Project Professional (Civil)
mksanznak@haleyaldrich.com
804.419.0024



Joseph Keller, P.E.
Senior Client Leader (Civil)
jkeller@haleyaldrich.com
804.419.0017



Katherine Coco, P.E.
Senior Technical Specialist (Geotechnical)
kcoco@haleyaldrich.com
804.419.0014