

# **CFAC Project Update:**

## **Draft Feasibility Study Report**

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**Presented by CFAC and Roux**

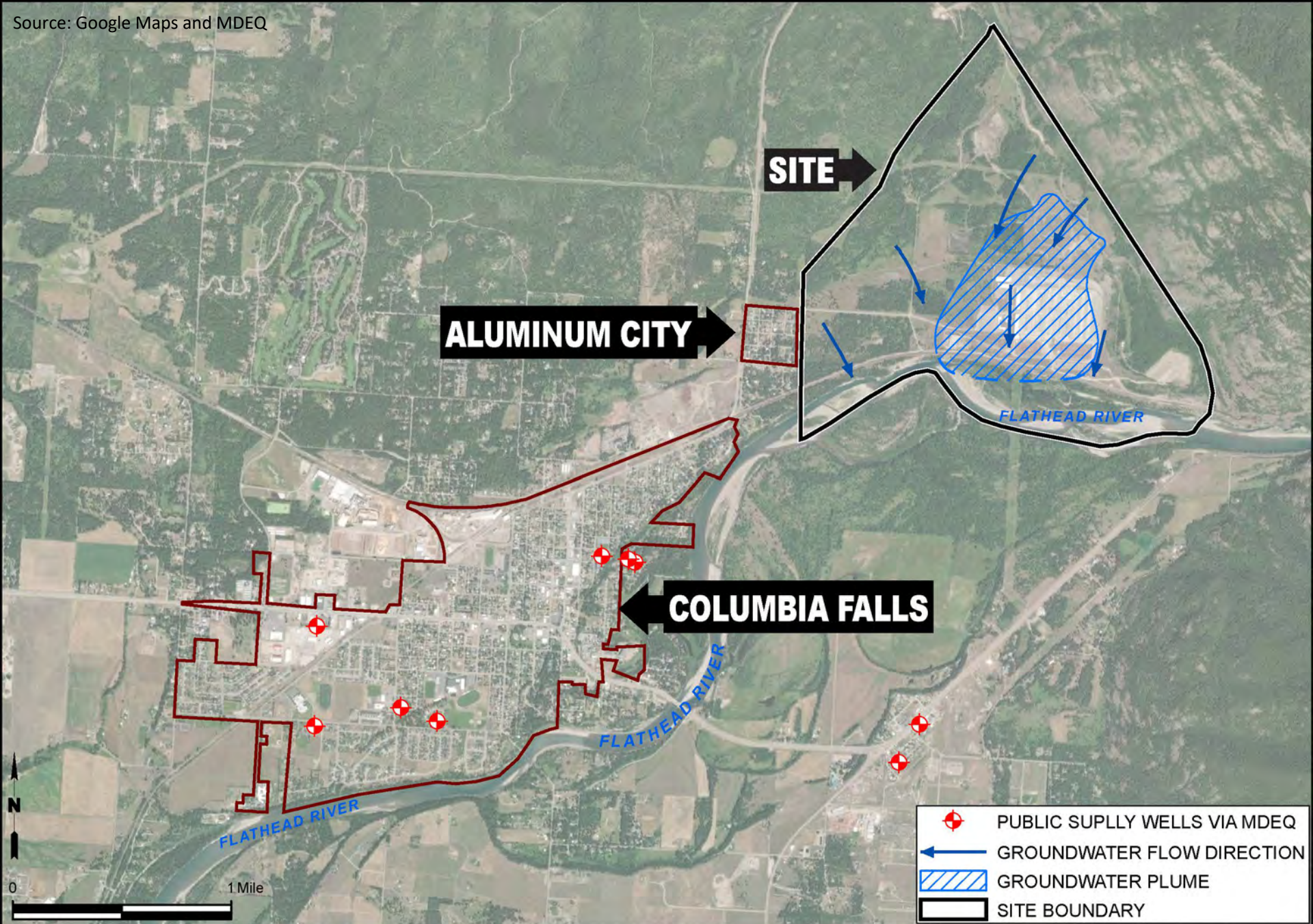


# Presentation Agenda

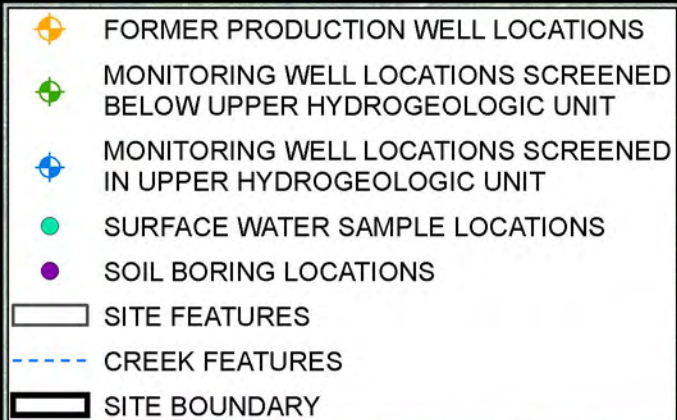
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- ① Summary of Remedial Investigation
- ① Feasibility Study Objectives
- ① Feasibility Study Process
- ① Feasibility Study Findings
- ① Path Forward



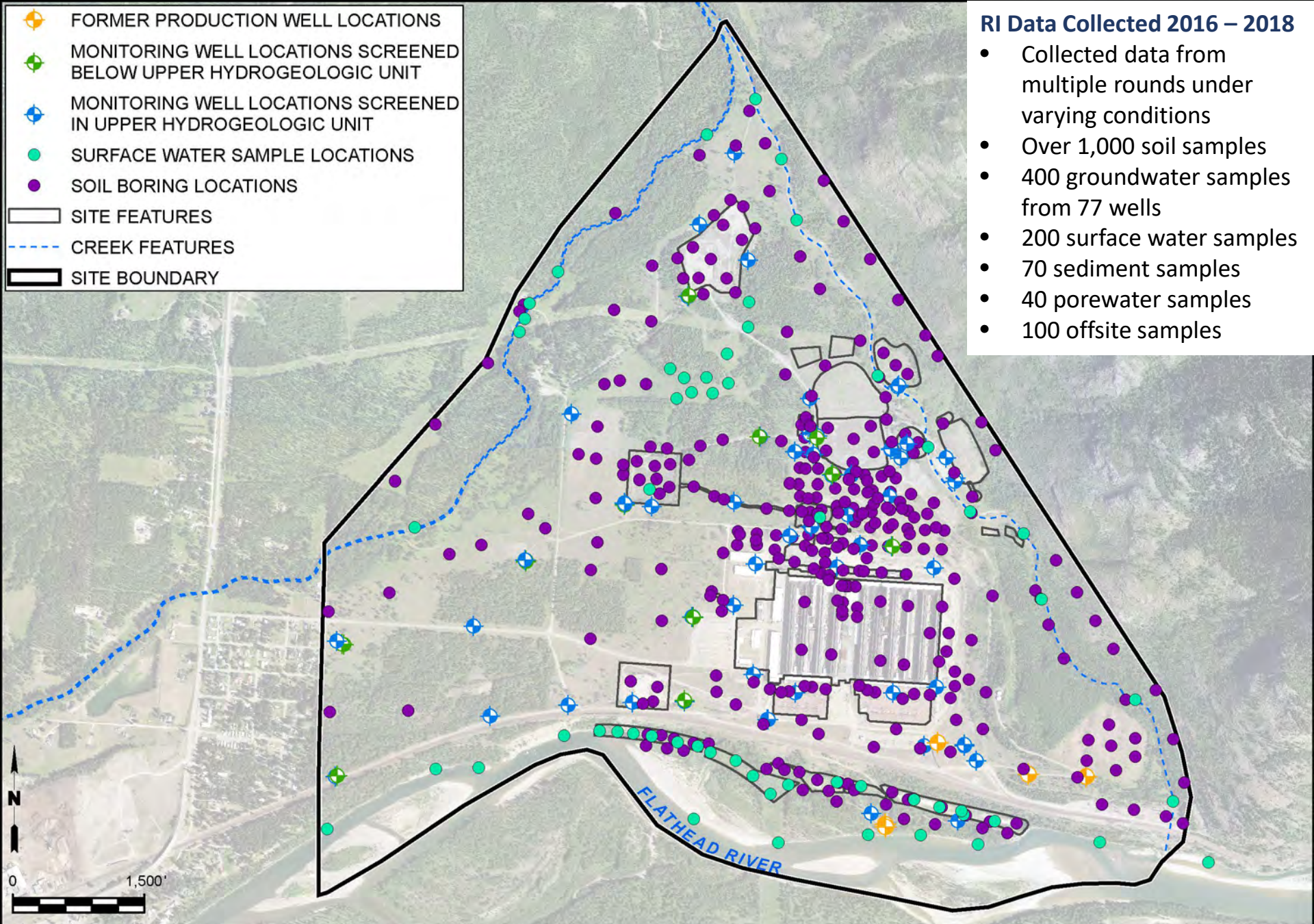






## RI Data Collected 2016 – 2018

- Collected data from multiple rounds under varying conditions
- Over 1,000 soil samples
- 400 groundwater samples from 77 wells
- 200 surface water samples
- 70 sediment samples
- 40 porewater samples
- 100 offsite samples



# Feasibility Study Work Plan

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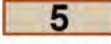
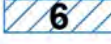


- ⦿ Address environmental media (e.g., soil, groundwater, etc.) and constituents identified as risk drivers in the risk assessments
- ⦿ Group exposure areas into Decision Units (DU)
- ⦿ Identify applicable rules with EPA/MDEQ
- ⦿ Develop Feasibility Study Scope of Work
- ⦿ March 2020
  - Final Feasibility Study Work Plan
  - Approved by EPA/MDEQ

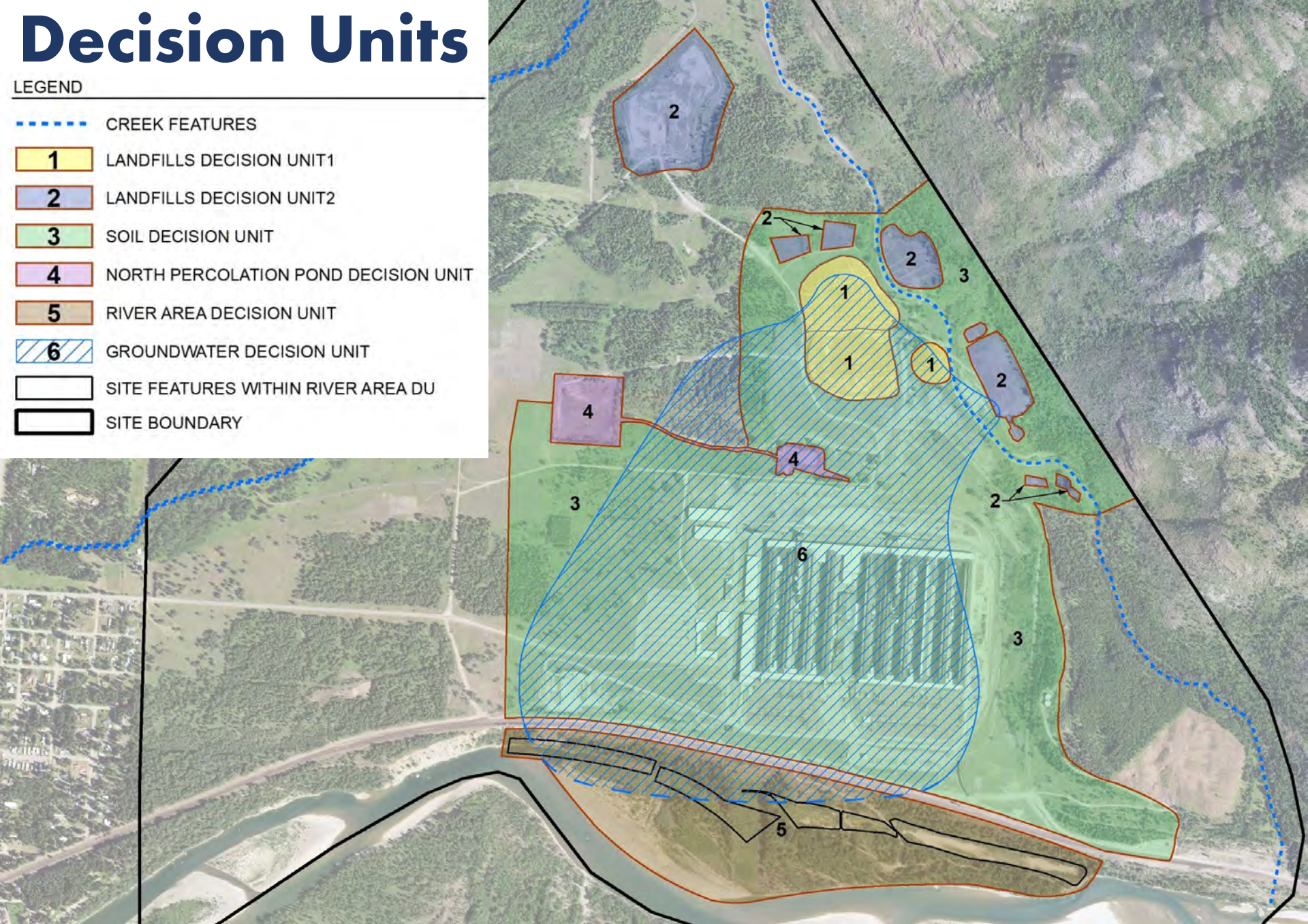




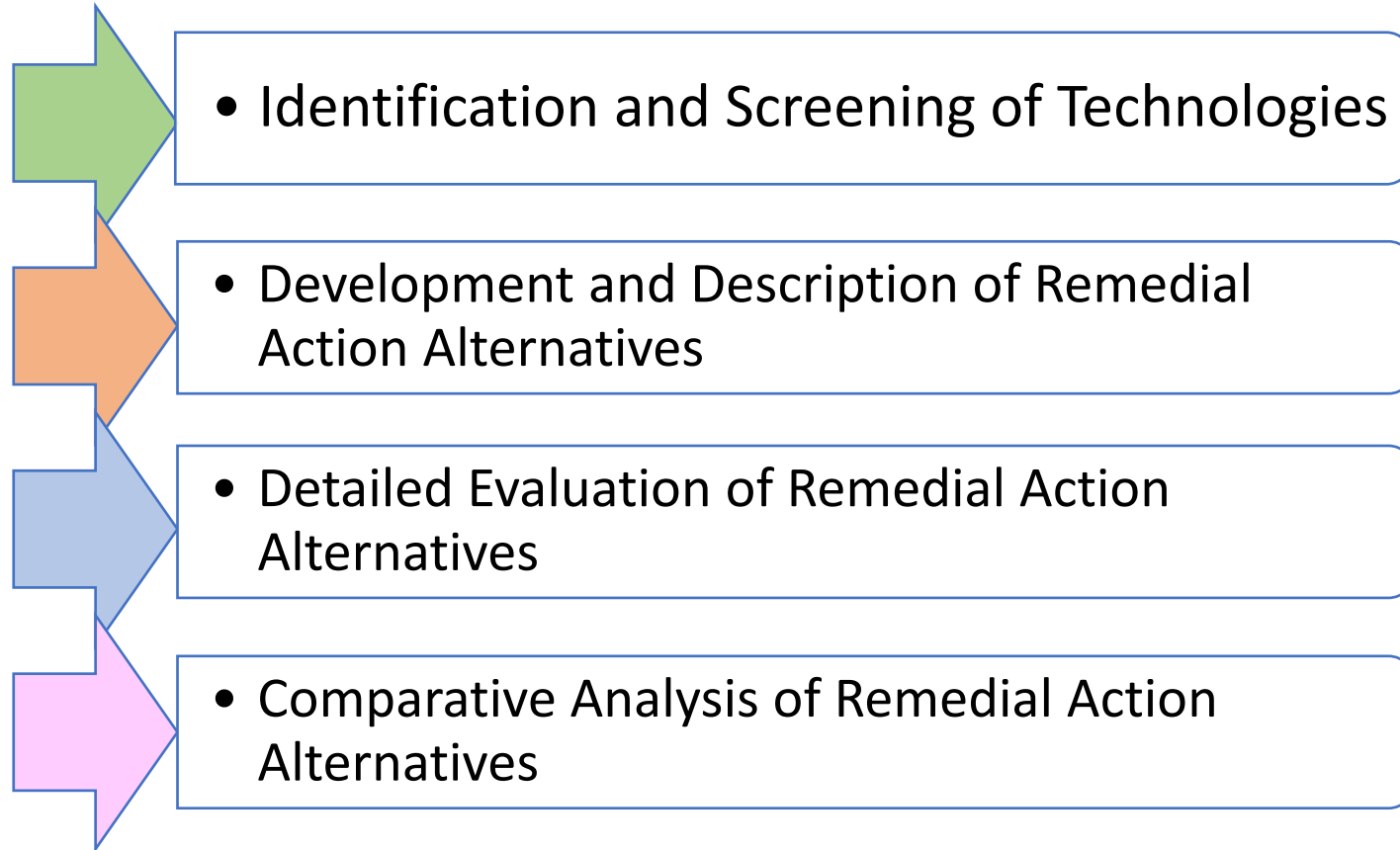
# Decision Units

## LEGEND

-  CREEK FEATURES
-  LANDFILLS DECISION UNIT1
-  LANDFILLS DECISION UNIT2
-  SOIL DECISION UNIT
-  NORTH PERCOLATION POND DECISION UNIT
-  RIVER AREA DECISION UNIT
-  GROUNDWATER DECISION UNIT
-  SITE FEATURES WITHIN RIVER AREA DU
-  SITE BOUNDARY



# Feasibility Study Report



Draft submitted to EPA/MDEQ October 2020





# Identification and Screening of Technologies

- ⦿ Presented a broad screening of a wide range of technologies that are potentially capable of achieving Remedial Action Objectives (RAOs).
- ⦿ Included options:
  - No action
  - Access restrictions
  - Treatment
  - Containment
  - Removal and disposal
- ⦿ Select technologies which should be carried forward for further evaluation in the Feasibility Study





# Remedial Technology Screening

## Qualitative assessment of:

### Effectiveness

- Ability of a technology and its associated process option(s) to perform as a stand-alone approach or component of a broader alternative to meet Remedial Action Objectives (RAOs)

### Implementability

- Relative degree of difficulty anticipated in implementing a particular remedial technology and process option under technical, regulatory, and schedule constraints

### Relative Cost

- Used to screen out options that have a high cost, only if another option of similar or greater effectiveness is available



# Applying the Screening Process

- ◎ Phytocaps on landfills
  - Vegetation in cap holds water and prevents it from reaching material in landfill
  - Wouldn't be sufficiently effective at CFAC site
    - Large amounts of water in spring run off
    - Short growing season
- ◎ Excavation of Landfills Decision Unit 1 / Groundwater landfills and offsite disposal
  - Offsite transport of waste would have adverse impacts on affected communities
  - Other options would protect human health and the environment and achieve applicable rules without community disruption





# Development and Description of Remedial Action Alternatives

- ⦿ Landfills Decision Unit 1 / Groundwater Decision Unit Joint Alternatives narrowed down to seven for comparative analysis
- ⦿ Two Landfills Decision Unit 2 Alternatives
- ⦿ Four Soil Decision Unit Alternatives
- ⦿ Four North Percolation Pond Decision Unit Alternatives
- ⦿ Two River Area Decision Unit Alternatives



# Detailed Evaluation of Remedial Action Alternatives

## Evaluation Criteria

### Threshold Criteria Evaluated in the Feasibility Study

1. Overall protection of human health and the environment
2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

### Balancing Criteria Evaluated in the Feasibility Study

3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume
5. Short-term effectiveness
6. Implementability
7. Cost

The evaluation process is prescribed by the Superfund law and subsequent EPA regulations and guidance





# Comparative Analysis

- ⦿ Required step in the Feasibility Study process as outlined in Superfund rules for all sites
- ⦿ Except for no action alternative, only for alternatives that protect human health and the environment and comply with applicable rules
- ⦿ Describe how each alternative satisfies legally mandated balancing criteria as compared to other alternatives
- ⦿ Utilized a numerical scoring system to summarize process
- ⦿ Use of a scoring system is a common approach; acceptable to EPA / MDEQ
- ⦿ In general, the higher the relative score, the better that alternative satisfies the respective criterion when compared to the other alternatives for that Decision Unit



Comparative Analysis LDU1/GW Remedial Alternatives		Threshold Criteria		Balancing Criteria and Relative Score				
		Effectiveness		Effectiveness			Implementability	Cost
		Overall Protection of Human Health and the Environment	Compliance with Applicable or Relevant and Appropriate Requirements	Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and Volume through Treatment	Short-Term Effectiveness	Implementability	Present Value Cost <sup>2</sup>
<u>Alternative LDU1/GW-1:</u> No Action	Total: NA <sup>3</sup>	Criterion Met: No	Criterion Met: No	0	0	0	20	20
<u>Alternative LDU1/GW-3A:</u> Containment via Capping and Upgradient Slurry Wall	Total: 66	Criterion Met: Yes	Criterion Met: Yes	15	9	10	16	16
<u>Alternative LDU1/GW-3C:</u> Containment via Capping and Upgradient Slurry Wall with Downgradient Extraction	Total: 65	Criterion Met: Yes	Criterion Met: Yes	15	12	16	10	12
<u>Alternative LDU1/GW-4A:</u> Containment via Capping and Fully-Encompassing Slurry Wall	Total: 77	Criterion Met: Yes	Criterion Met: Yes	18	14	16	15	14
<u>Alternative LDU1/GW-4C:</u> Containment via Capping and Fully-Encompassing Slurry Wall with Downgradient Extraction	Total: 74	Criterion Met: Yes	Criterion Met: Yes	18	16	20	10	10
<u>Alternative LDU1/GW-5B:</u> Containment via Capping and Hydraulic Control at Seep	Total: 60	Criterion Met: Yes	Criterion Met: Yes	10	10	12	14	14
<u>Alternative LDU1/GW-6:</u> Excavation with Onsite Consolidation	Total: 37	Criterion Met: Yes	Criterion Met: Yes	20	12	5	0	0





# Under EPA/MDEQ Review

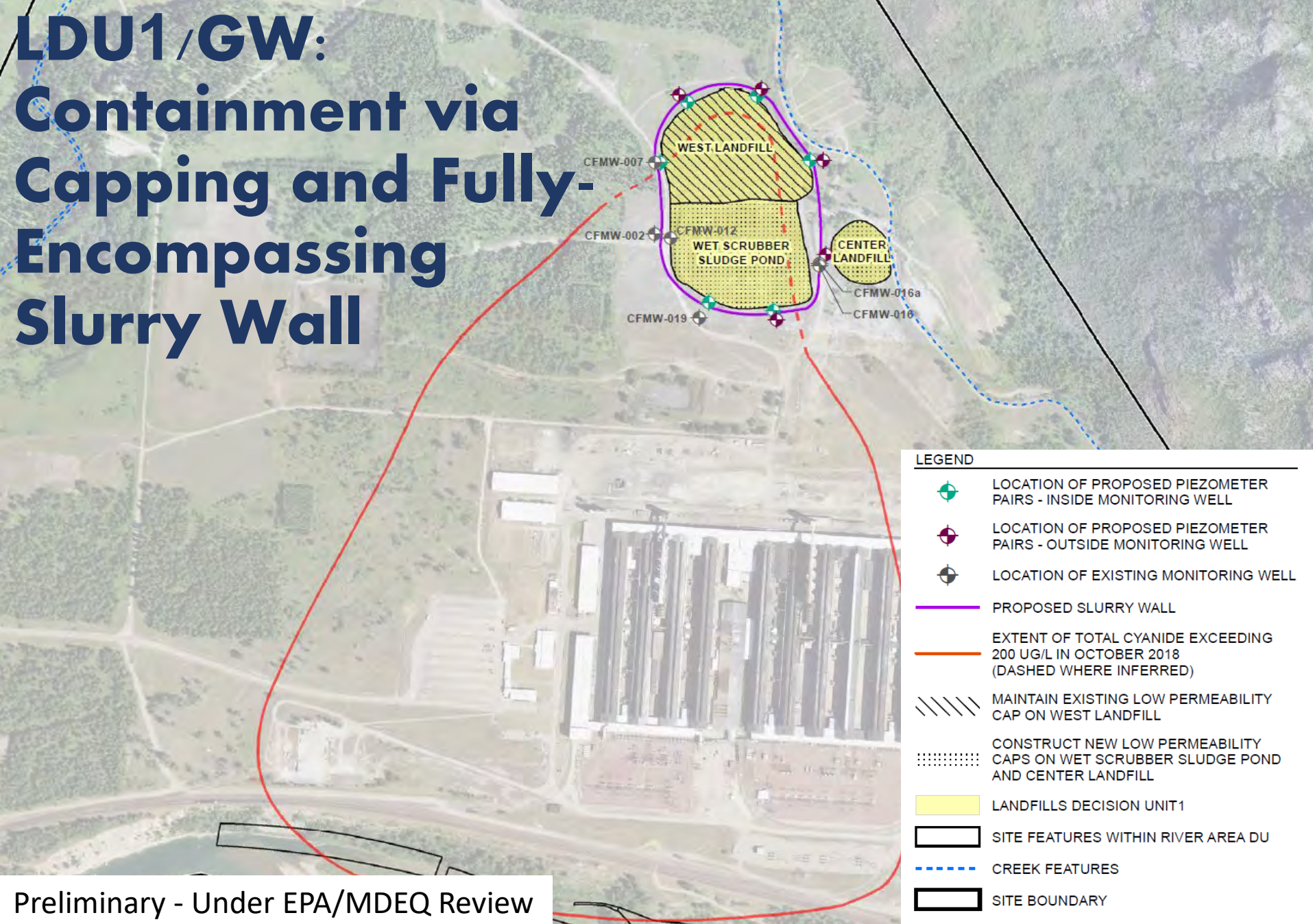
## Preliminary List of Highest Ranking Remedial Action Alternatives for each Decision Unit

- ⦿ Alternative LDU1/GW-4A: Containment via Capping and Fully-Encompassing Slurry Wall
- ⦿ Alternative LDU2-2: Containment via Capping
- ⦿ Alternative SO-4: Excavation with Onsite Consolidation
- ⦿ Alternative NPP-4: Excavation with Onsite Consolidation
- ⦿ Alternative RADU-2: Long-Term Monitoring of Surface Water and Sediment Porewater
  - ⦿ Includes Removal Action completed at the South Percolation Ponds

*Preliminary - Under EPA/MDEQ Review and Subject to Change. Alternatives listed do not represent the selected remedy for the Site; nor should they be considered, CFAC's, Roux's, EPA's or MDEQ's preferred alternatives. Alternatives listed are highest ranking against CERCLA criteria*



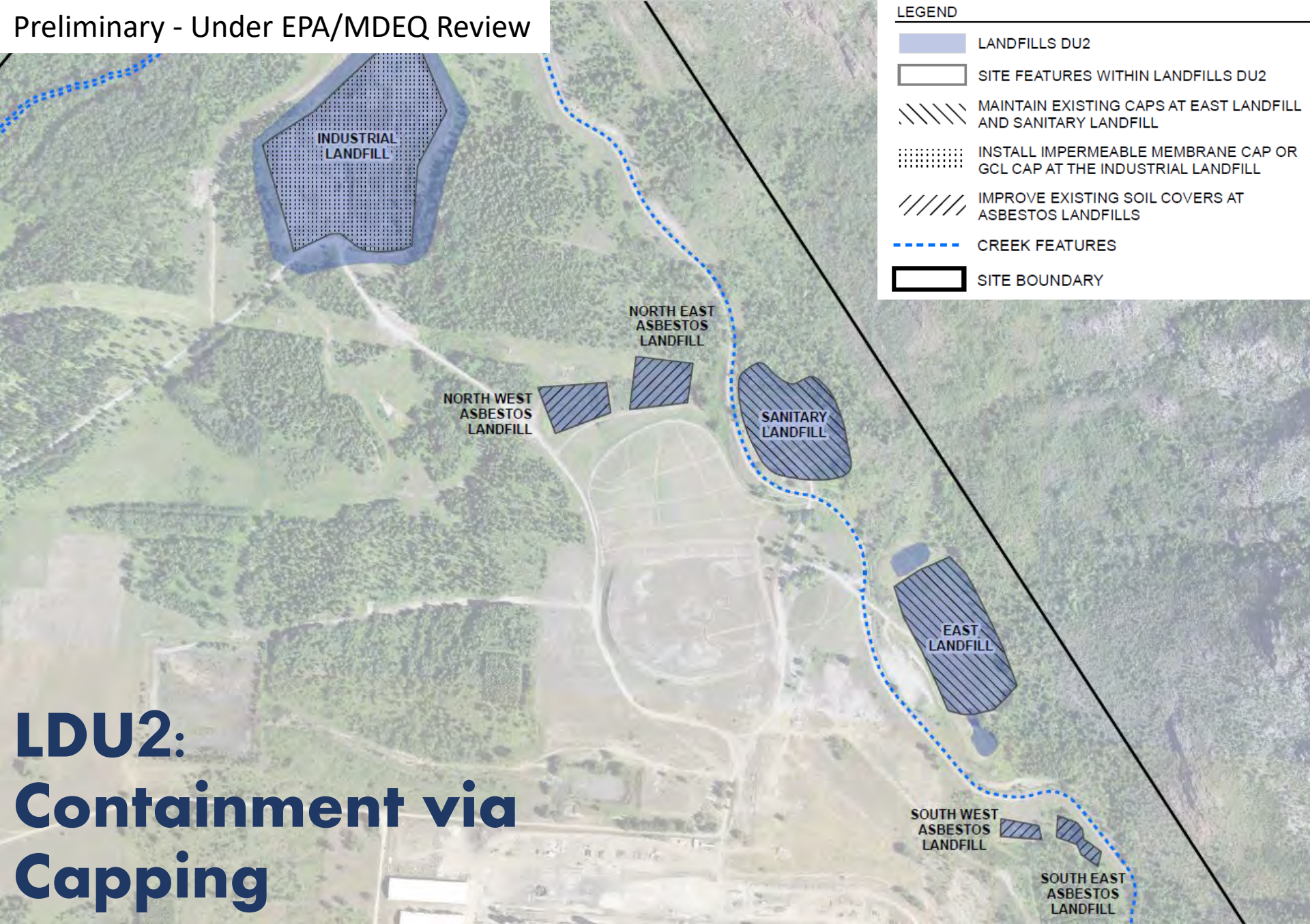
# LDU1/GW: Containment via Capping and Fully- Encompassing Slurry Wall



Preliminary - Under EPA/MDEQ Review







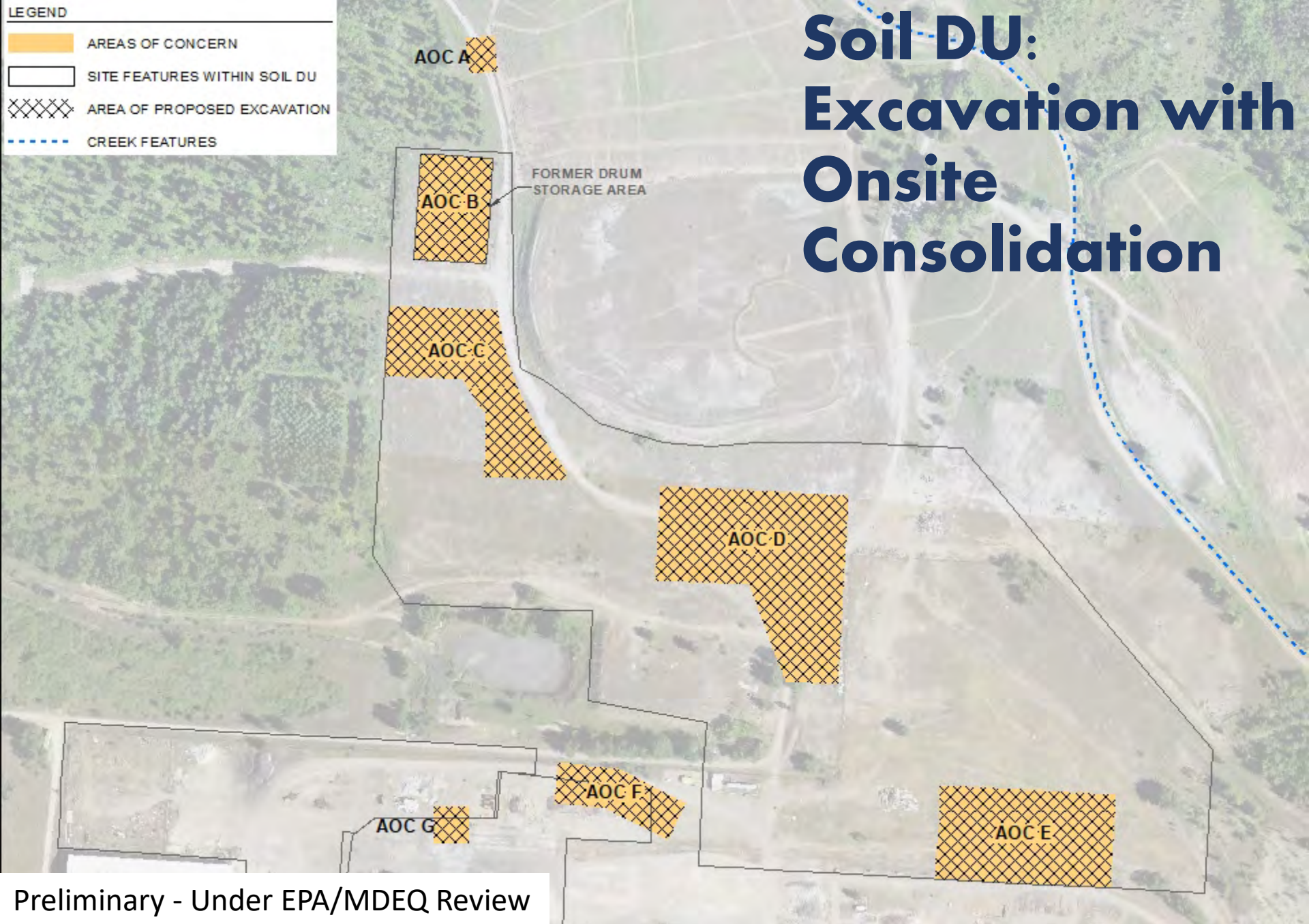
**LDU2:**  
**Containment via**  
**Capping**



**LEGEND**

- AREAS OF CONCERN
- SITE FEATURES WITHIN SOIL DU
- AREA OF PROPOSED EXCAVATION
- CREEK FEATURES

# Soil DU: Excavation with Onsite Consolidation

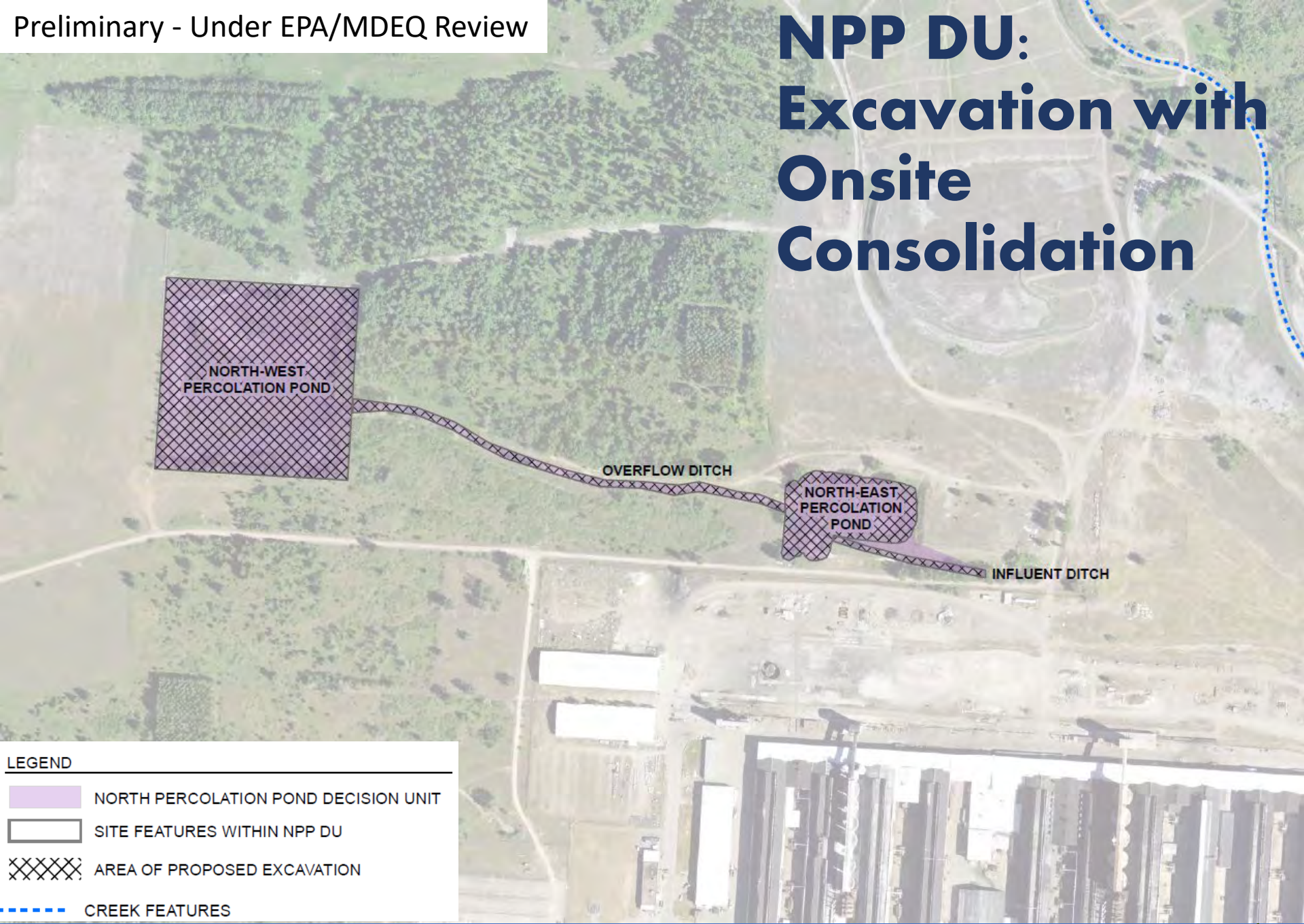


Preliminary - Under EPA/MDEQ Review









# NPP DU: Excavation with Onsite Consolidation

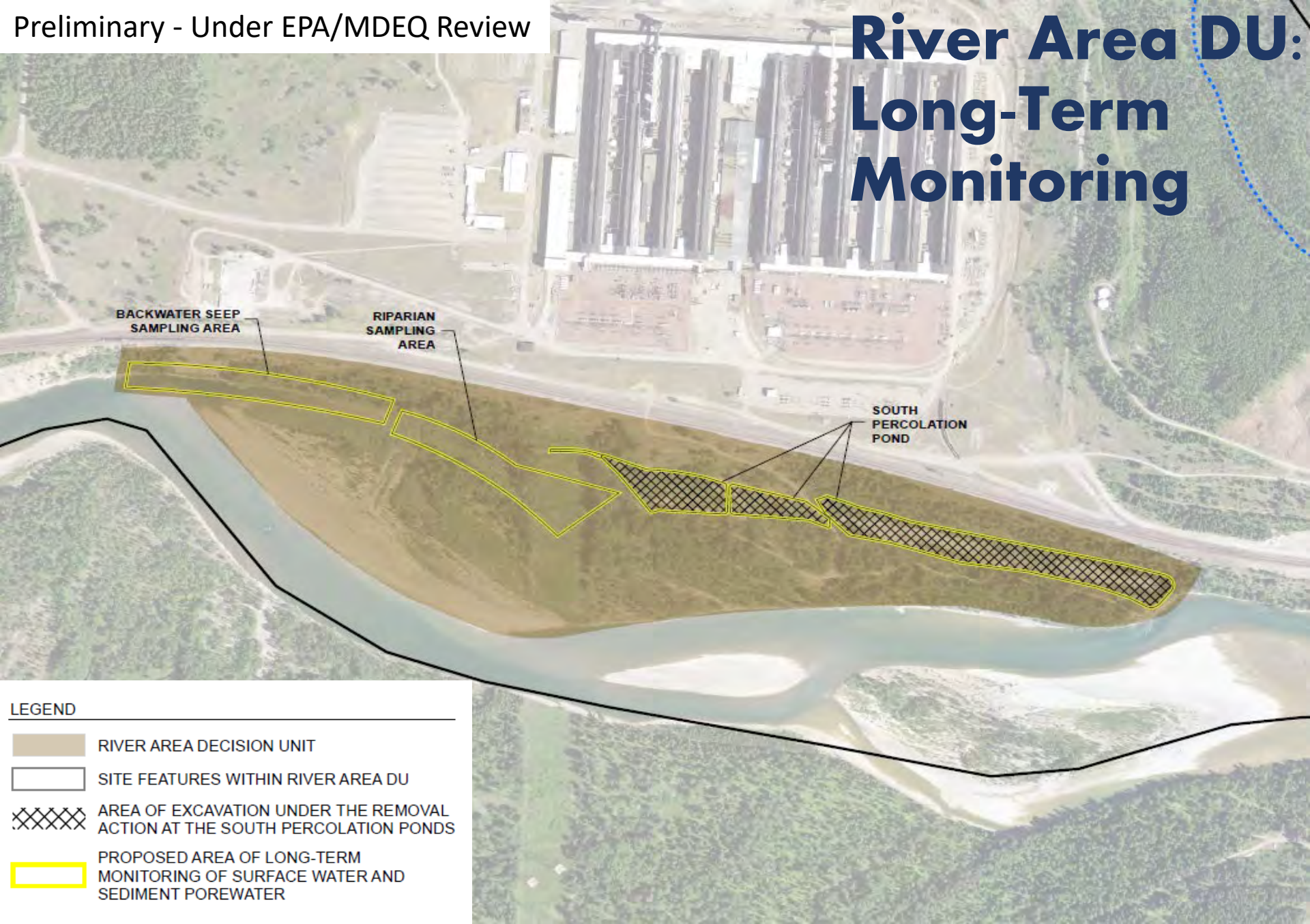


**LEGEND**

-  NORTH PERCOLATION POND DECISION UNIT
-  SITE FEATURES WITHIN NPP DU
-  AREA OF PROPOSED EXCAVATION
-  CREEK FEATURES



# River Area DU: Long-Term Monitoring



**LEGEND**

- RIVER AREA DECISION UNIT
- SITE FEATURES WITHIN RIVER AREA DU
- AREA OF EXCAVATION UNDER THE REMOVAL ACTION AT THE SOUTH PERCOLATION PONDS
- PROPOSED AREA OF LONG-TERM MONITORING OF SURFACE WATER AND SEDIMENT POREWATER



# Preliminary Highest Ranking Site-Wide Alternative

## LEGEND - LANDFILLS DECISION UNIT 1

- LANDFILLS DECISION UNIT 1
- LOCATION OF PROPOSED PIEZOMETER PAIRS - INSIDE MONITORING WELL
- LOCATION OF PROPOSED PIEZOMETER PAIRS - OUTSIDE MONITORING WELL
- LOCATION OF EXISTING MONITORING WELL
- PROPOSED SLURRY WALL
- EXTENT OF TOTAL CYANIDE EXCEEDING 200 UG/L IN OCTOBER 2018 (DASHED WHERE INFERRED)
- MAINTAIN EXISTING LOW PERMEABILITY CAP ON WEST LANDFILL
- CONSTRUCT NEW LOW PERMEABILITY CAPS ON WET SCRUBBER SLUDGE POND AND CENTER LANDFILL

## LEGEND - LANDFILLS DECISION UNIT 2

- LANDFILLS DECISION UNIT 2
- MAINTAIN EXISTING CAPS AT EAST LANDFILL AND SANITARY LANDFILL
- INSTALL IMPERMEABLE MEMBRANE CAP OR GCL CAP AT THE INDUSTRIAL LANDFILL
- IMPROVE EXISTING SOIL COVERS AT ASBESTOS LANDFILLS

## LEGEND - SOIL DECISION UNIT

- AREAS OF CONCERN
- AREA OF PROPOSED EXCAVATION

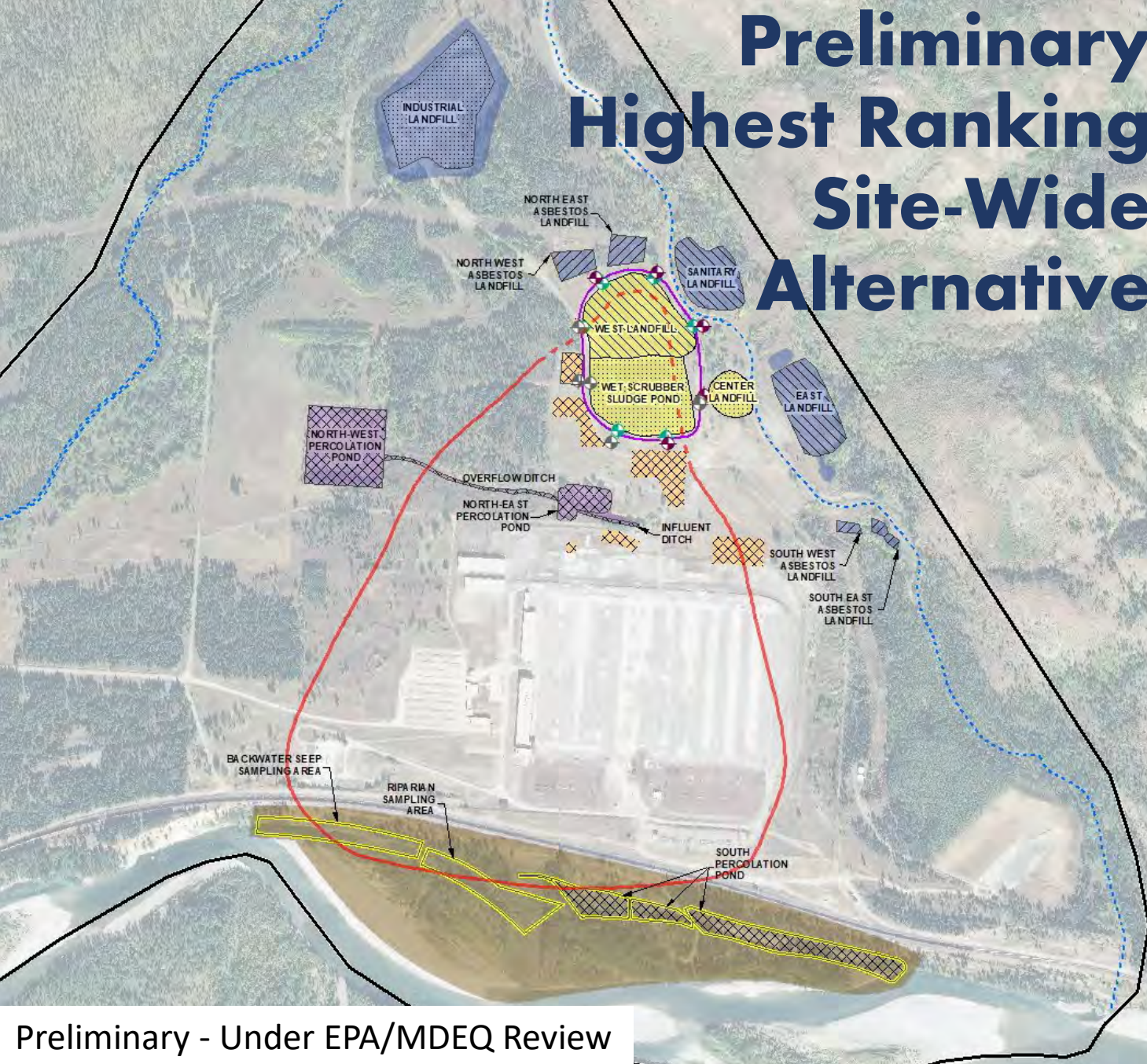
## LEGEND - NORTH PERCOLATION POND DECISION UNIT

- NORTH PERCOLATION POND DECISION UNIT
- AREA OF PROPOSED EXCAVATION

## LEGEND - RIVER AREA DECISION UNIT

- RIVER AREA DECISION UNIT
- AREA OF EXCAVATION UNDER THE REMOVAL ACTION AT THE SOUTH PERCOLATION PONDS
- PROPOSED AREA OF LONG-TERM MONITORING OF SURFACE WATER AND SEDIMENT POREWATER

## SITE-WIDE REMEDIAL ACTION ALTERNATIVE



Preliminary - Under EPA/MDEQ Review



# Summary

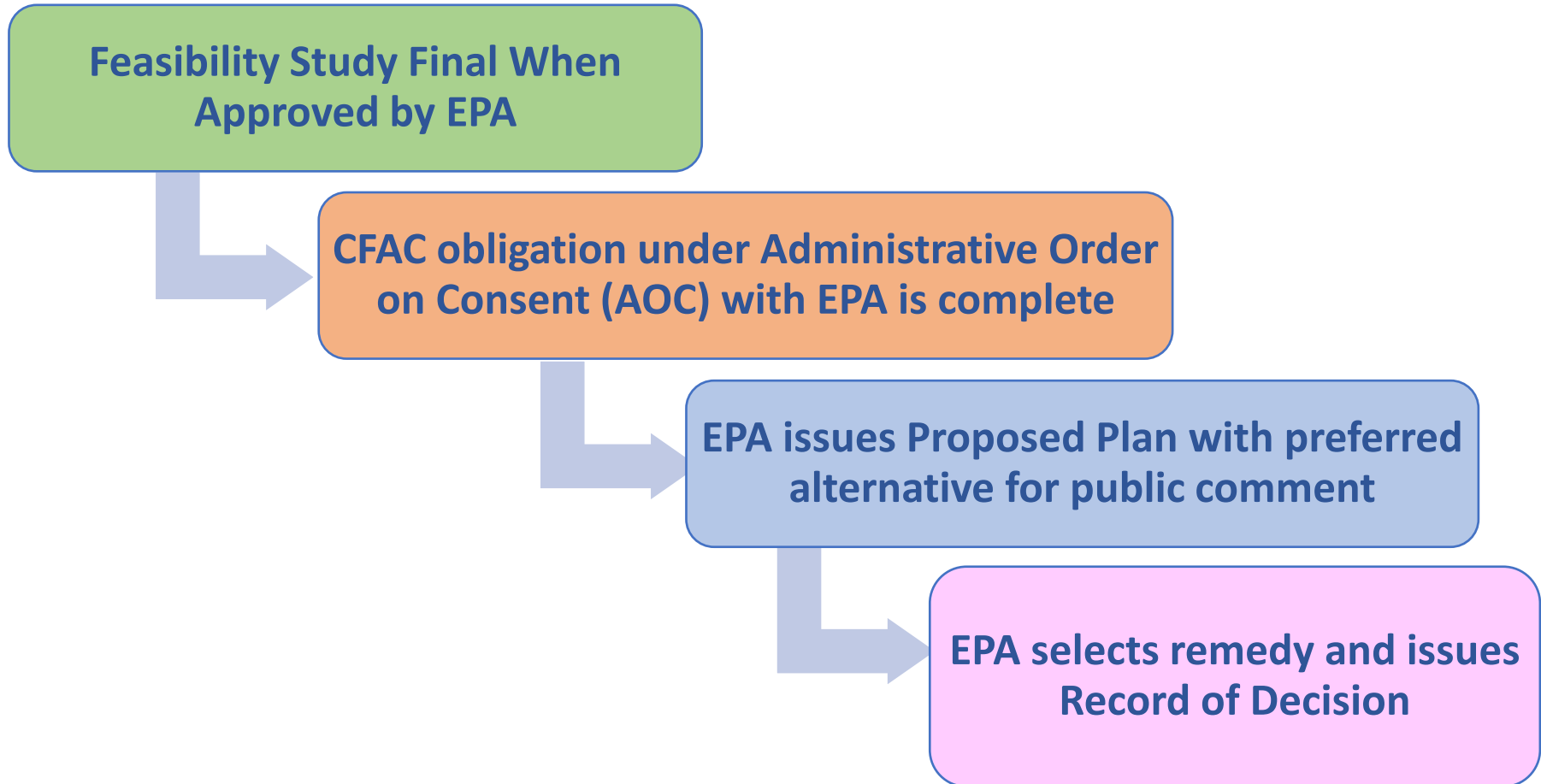
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- ⦿ Remedial Investigation provides site details and shows no impact off-site, including to City drinking water wells
- ⦿ Feasibility Study uses site details to determine alternatives
- ⦿ Alternatives put forth in the Feasibility Study must protect human health and the environment and comply with laws



# Next Steps

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# Questions and Comments

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