Kalamazoo River Superfund Site
Allied Paper, Inc. Operable Unit

Project Update

Stakeholder & Public Meetings
September 10, 2009

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Agenda – Public Meeting

- Introductory Remarks, Meeting Purpose (USEPA)
- Status of Supplemental Groundwater Study (USEPA)
- Presentation on Development of Alternatives Array (MHLLC/ARCADIS)
- Question & Answer Session (USEPA)
- Projected Schedule (USEPA)

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Meeting Purpose

Present and discuss range of alternatives to be evaluated in detail in the Feasibility Study

- Review the process for developing the potential alternatives
- Discuss how the alternatives apply to different areas of the Allied Paper, Inc. Operable Unit
- Illustrate each of the specific alternatives

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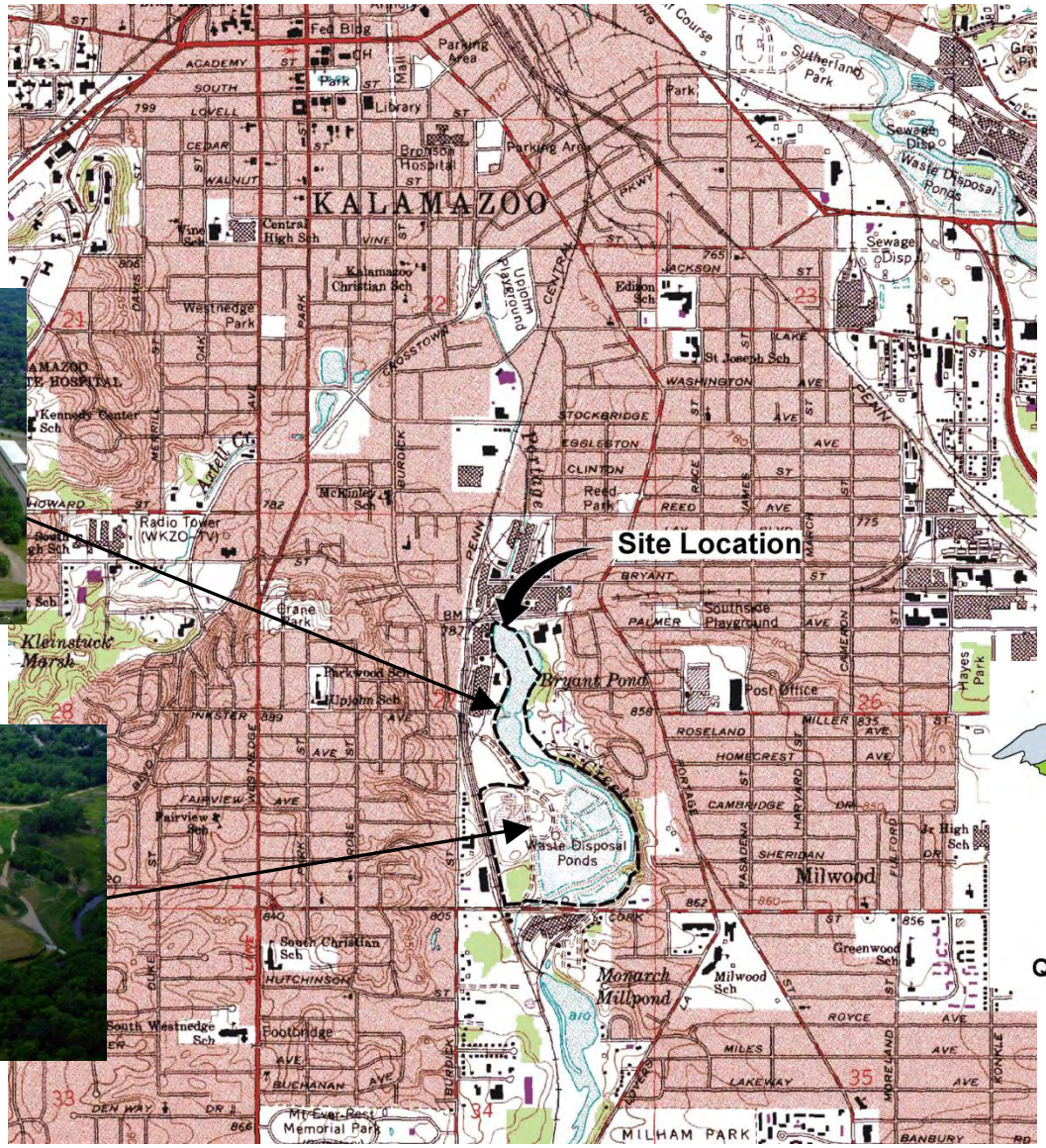
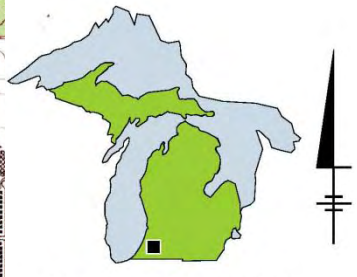
Area Map

Former Bryant Mill Pond

Former Dewatering Lagoons





Quadrangle Location

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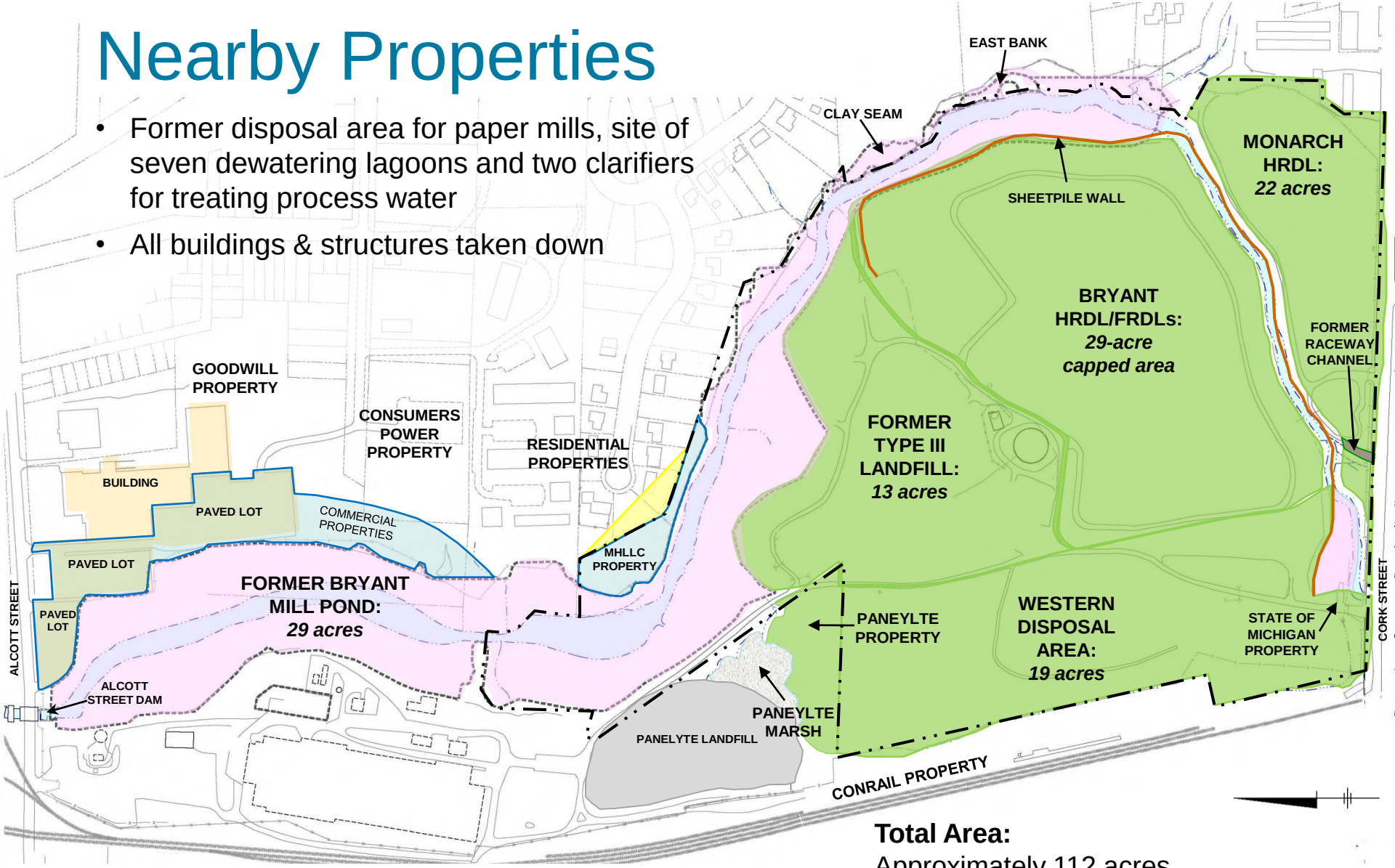
Allied OU Areas and Nearby Properties

- Former disposal area for paper mills, site of seven dewatering lagoons and two clarifiers for treating process water
- All buildings & structures taken down



Total Area:
Approximately 112 acres

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Alternatives Array Development

Step 1: Identify where PCB levels exceed USEPA's preliminary remedial goals to identify areas for feasibility study

Step 2: Develop remedial action objectives to protect human health & environment

Step 3: Identify and evaluate range of cleanup approaches (technologies and methods)

Step 4: Assemble viable approaches into representative array of alternatives

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Step 1: Identify where cleanup work is necessary

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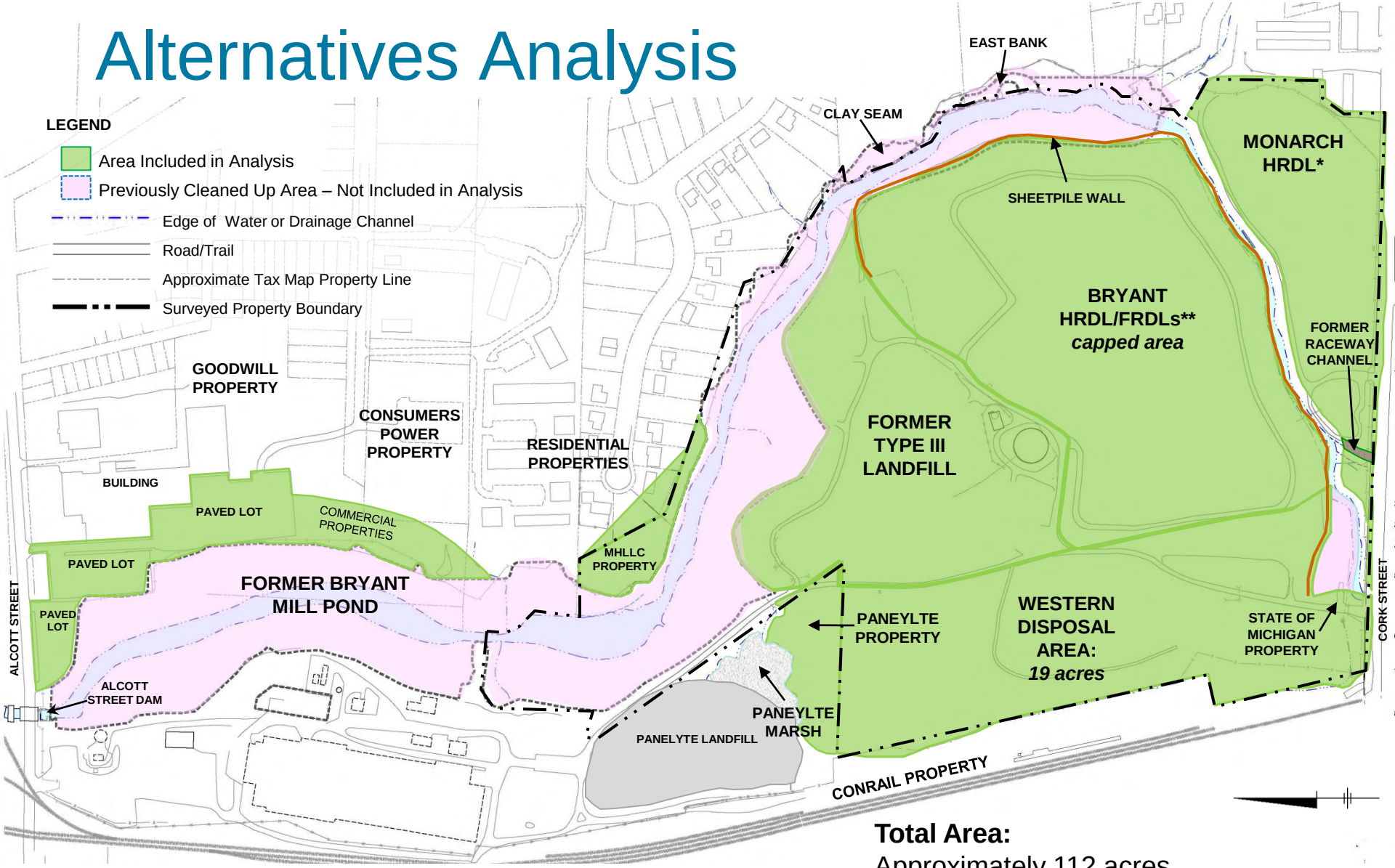
Allied OU: Focus on PCBs

- Remedy will be designed to primarily address PCBs
- Actions to address PCBs will also address other co-located chemicals
- Any cleanup plans that leaves waste on-site is expected to include groundwater monitoring to confirm compliance with relevant criteria for PCBs and other chemicals

Areas Included in Alternatives Analysis



Total Area:
Approximately 112 acres

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*HRDL – Historical Residuals Dewatering Lagoon
**FRDLs – Former Residuals Dewatering Lagoons

Summary of Completed Cleanup Actions

Year	Action
1998-1999	Former Bryant Mill Pond Removal Action – USEPA excavated 146,000 cubic yards of materials, consolidated at the OU in Bryant HRDL/FRDLs
2000	MHLLC began operation of groundwater monitoring network and groundwater recovery system
2001	MHLLC installed half-mile long sheetpile wall along Portage Creek
2002	MHLLC excavated 2,000 cubic yards from various locations across the property, consolidated in Bryant HRDL/FRDLs
2003	MHLLC installed 18-acre multi-layer landfill cap over Bryant HRDL/FRDLs based on State specifications
2004	MHLLC completed stormwater management system for 18-acre cap over the Bryant HRDL/FRDLs
2005	MHLLC began operation of new groundwater treatment plant

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Summary of Completed Cleanup Actions (cont'd)

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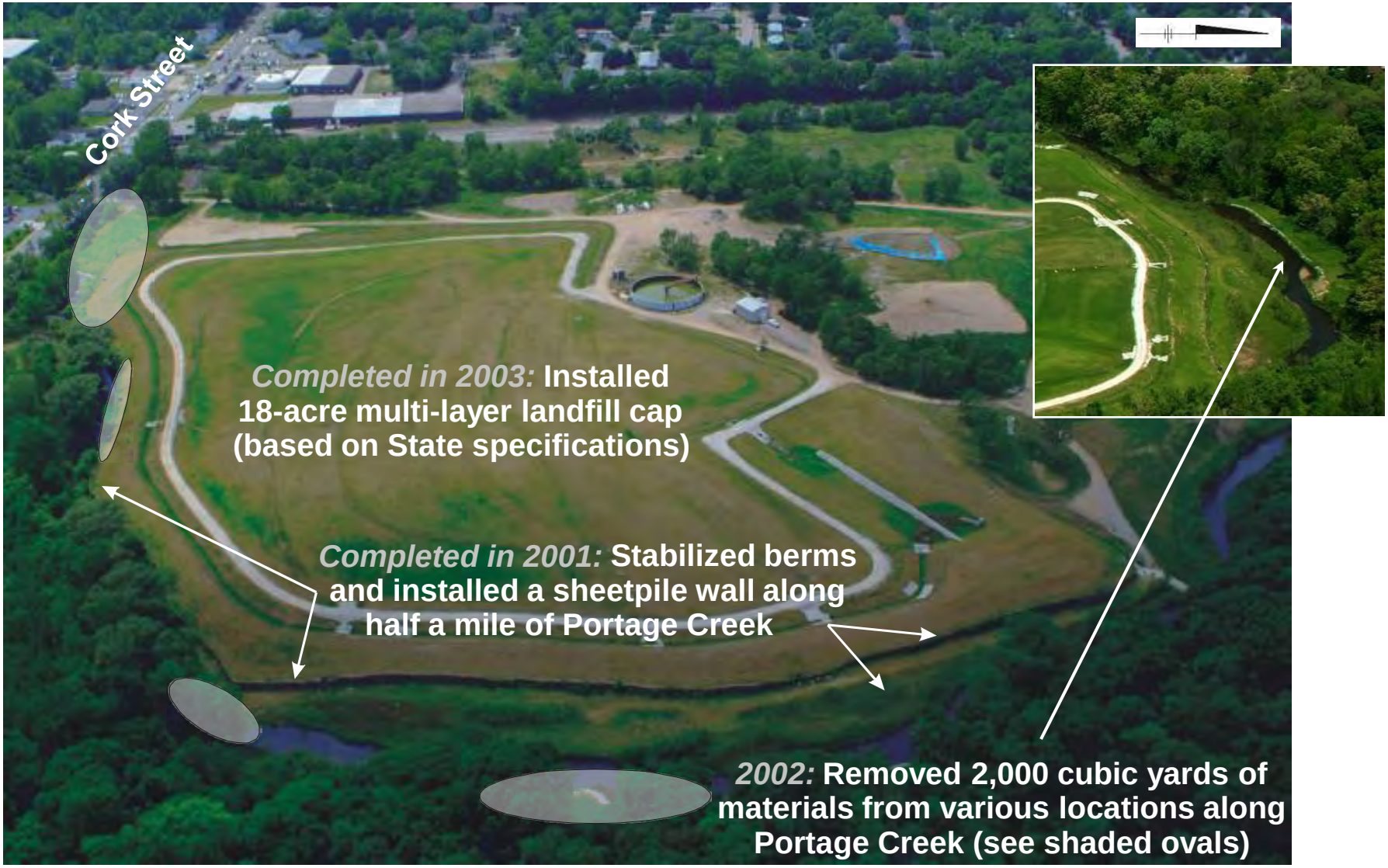
Summary of Completed Cleanup Actions (cont'd)



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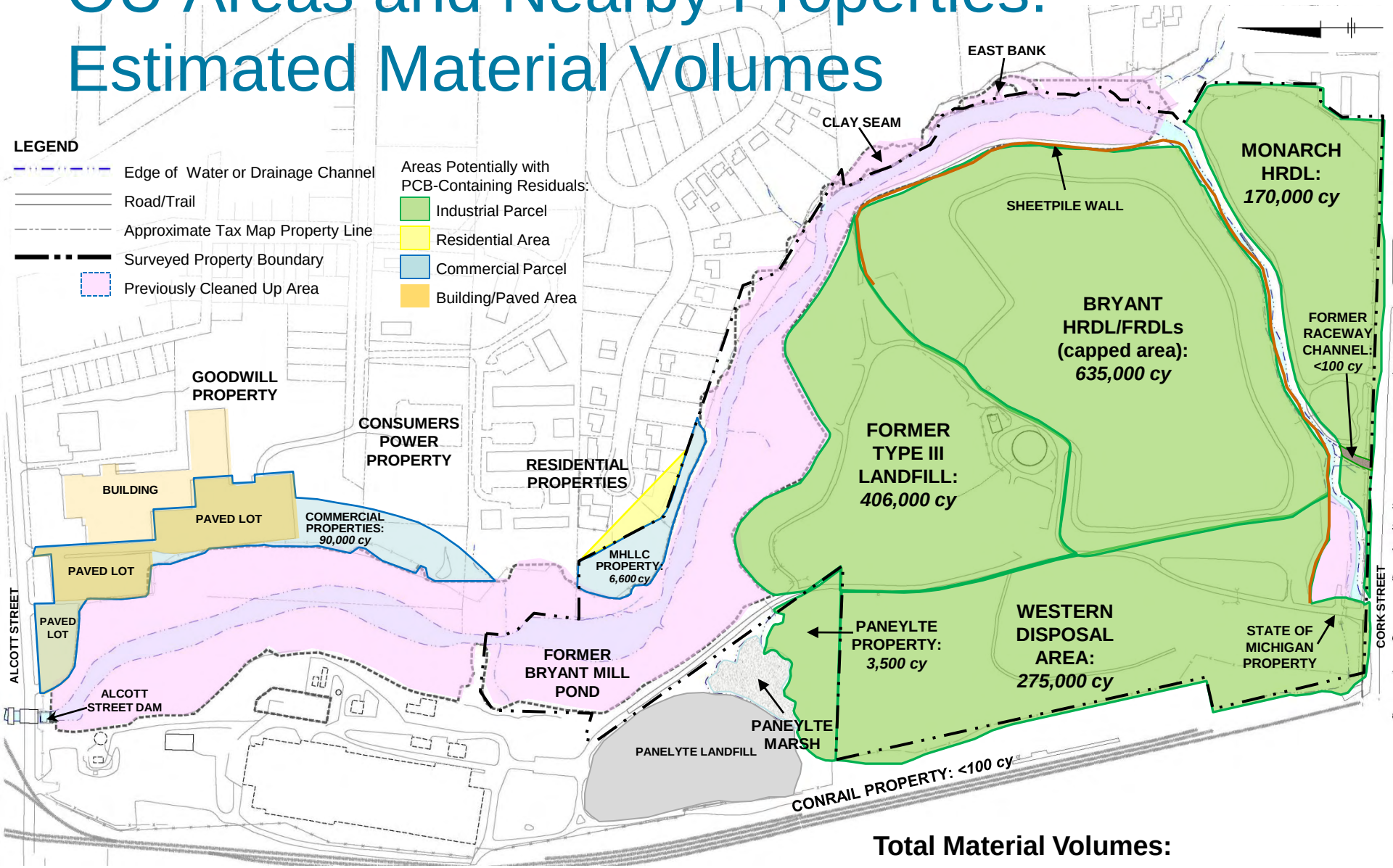
OU Areas and Nearby Properties: Estimated Material Volumes



Total Material Volumes:

Former Operational Areas – 1,500,000 cy

Non-Operational Areas – 100,000 cy

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Step 2: Develop remedial action objectives to protect human health and the environment

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Remedial Action Objectives

1. Mitigate the potential for human and ecological exposure to materials at the Allied OU containing PCB concentrations that exceed applicable risk-based cleanup criteria.

2. Mitigate the potential for PCB-containing materials to migrate, via erosion or surface water runoff, into Portage Creek or onto adjacent properties.

3. Facilitate the reliable restriction of groundwater use at the Allied OU, and mitigate the potential for groundwater with PCB concentrations exceeding applicable criteria to migrate to Portage Creek or offsite.

4. Mitigate the potential for adverse effects to human health and the environment due to implementation of a remedial action.

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Step 3: Identify and evaluate range of cleanup approaches (technologies and methods)

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Process for Screening Cleanup Approaches

Step 1: Evaluated wide range of possible approaches based on implementability – could each be used at the OU?

Step 2: Remaining approaches further evaluated based on overall effectiveness, implementability, and cost.

Those that do not meet these criteria are eliminated.

Step 3: Retained approaches are assembled into a range of potential cleanup alternatives for detailed evaluation.

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Cleanup Approaches Retained for Development of Alternatives

General Cleanup Approach	Specific Cleanup Option
No Further Action	No Further Action
Institutional Controls	Access & Deed Restrictions, Fish Consumption Advisories
Monitoring	Periodic Visual Observations/Sampling
In-Situ Containment (contain/consolidate materials in place)	Clean Soil Cover, Engineered Barrier (permeable/impermeable cap, vertical barrier), Rip Rap, Sheetpile
Removal	Soil/Sediment Excavation, Groundwater Extraction Wells/Trenches
Ex-Situ Treatment (remove materials, then treat)	Stabilization/Solidification, Water Treatment and Discharge
Transportation & Disposal	Offsite Disposal via Truck, Onsite Consolidation

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Cleanup Approaches Eliminated from Development of Alternatives

General Cleanup Approach	Specific Cleanup Option
Monitored Natural Attenuation	Natural Processes
In-Situ Treatment (treat materials without removal)	Biodegradation, Immobilization, Chemical Treatment, Thermal Treatment
Ex-Situ Treatment (remove materials, then treat)	Enhanced Bioremediation, Chemical Treatment, Thermal Treatment

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Retained Cleanup Approaches for Areas of the OU and Adjacent Properties

Area	Soil and Sediment Cleanup Options									Contingent Groundwater Remedy
	No Further Action	Institutional Controls	Monitoring	Earthen Cover	In-Place Containment (landfill cap)	Removal/ Excavation	Ex-Situ Treatment	On-Site Consolidation	Off-Site Disposal	
Former Operational Areas										
Monarch HRDL	●	●	●	●	●	●	●		●	●
Former Monarch Raceway	●	●		●	●	●	●	●	●	
Former Type III Landfill	●	●	●	●	●	●	●		●	●
Western Disposal Area	●	●	●	●	●	●	●		●	●
Panelyte Property	●	●		●	●	●	●	●	●	
Conrail Property	●	●		●	●	●	●	●	●	
Bryant HRDL/FRDLs	●	●	●	●	●	●	●	●	●	●
Non-Operational Areas										
Residential Properties	●	●	●	●		●	●	●	●	
MHLLC-Owned Property	●	●	●	●		●	●	●	●	
Commercial Properties	●	●	●	●		●	●	●	●	

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Step 4: Assemble viable approaches into array of alternatives to address cleanup goals and objectives

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Draft Assembly of Alternatives

Alternative 1 – No Further Action beyond Completed Response Actions
Alternative 2 – Onsite Consolidation/Containment beneath Permeable Engineered Barrier
Two sub-alternatives differ based on treatment of outlying areas: in-place soil cover vs. removal and onsite consolidation under soil cover
Alternative 3 – Onsite Consolidation/Containment beneath Impermeable Barrier
Two sub-alternatives differ based on scale/scope of consolidation in outlying areas: some outlying areas vs. all outlying areas
Alternative 4 – Removal and Offsite Disposal
Three sub-alternatives differ based on scale/scope of removal (some outlying areas, all outlying areas, total removal)
Alternative 5 – Total Removal, Immobilization, and Offsite Disposal
Contingent Groundwater Remedy

"Outlying Areas" are locations that contain smaller deposits of materials separate from the main contiguous deposits in the former operational areas

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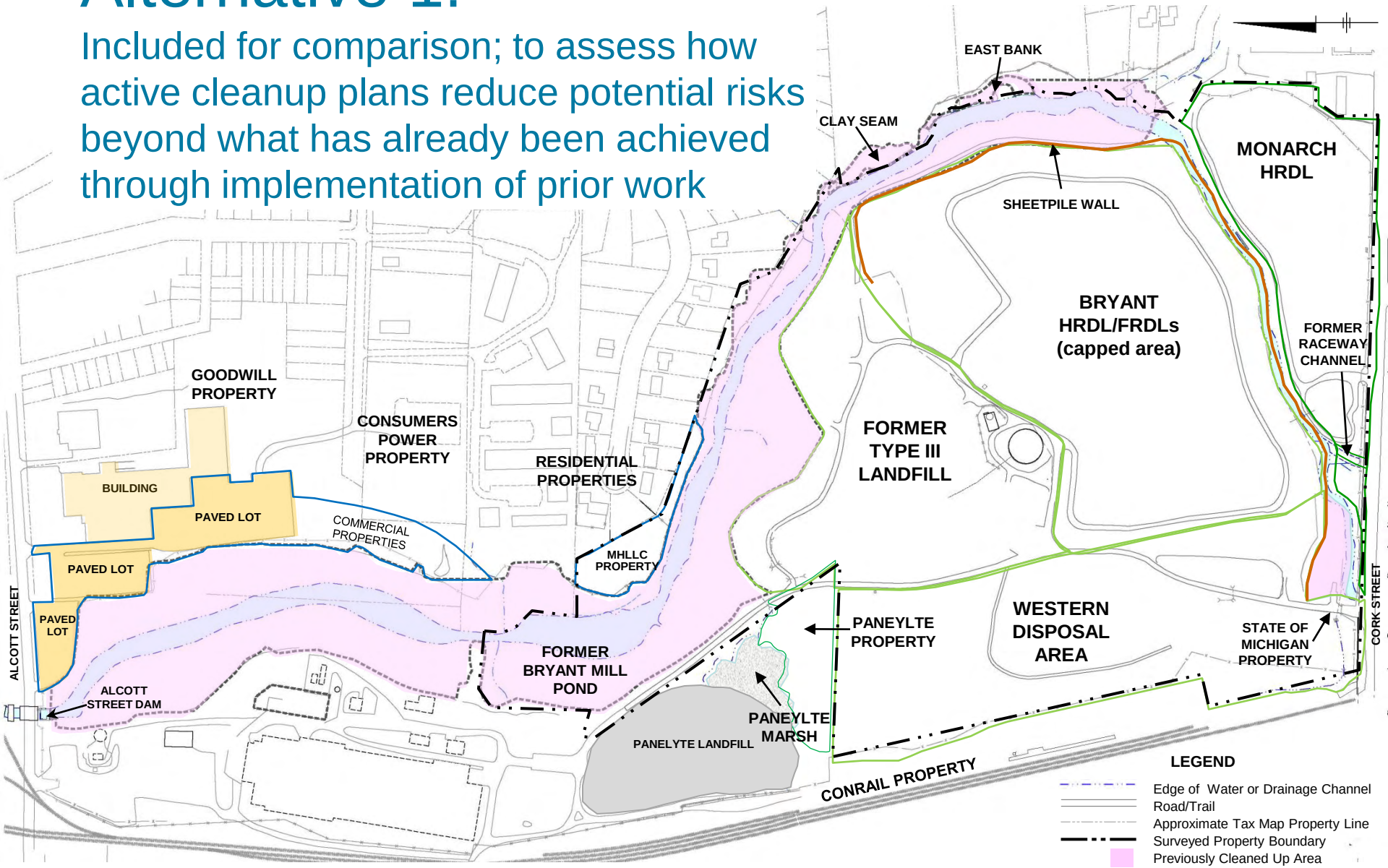
Alternative 1:

Included for comparison; to assess how active cleanup plans reduce potential risks beyond what has already been achieved through implementation of prior work



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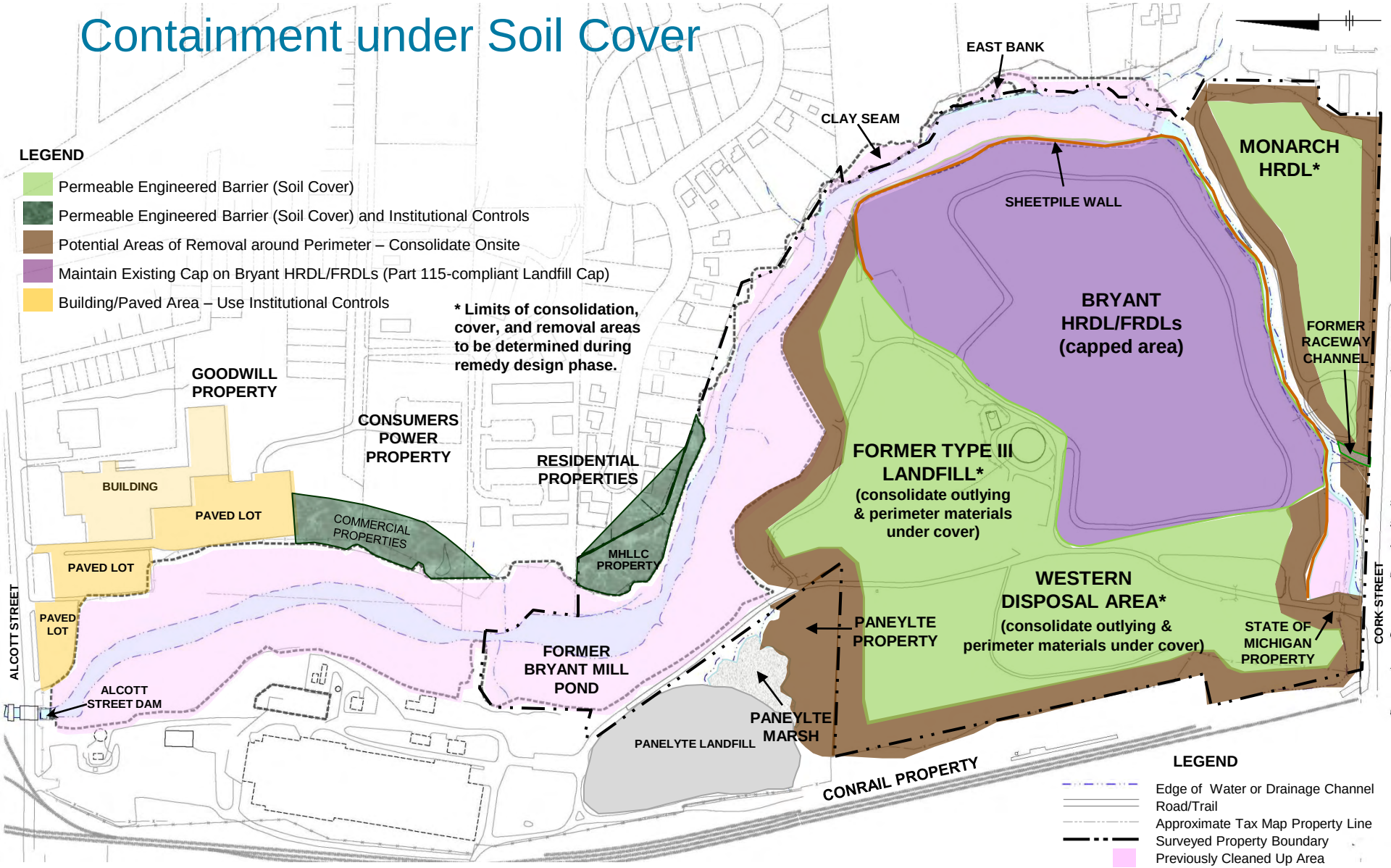
Alternative 2A:
Containment under Soil Cover



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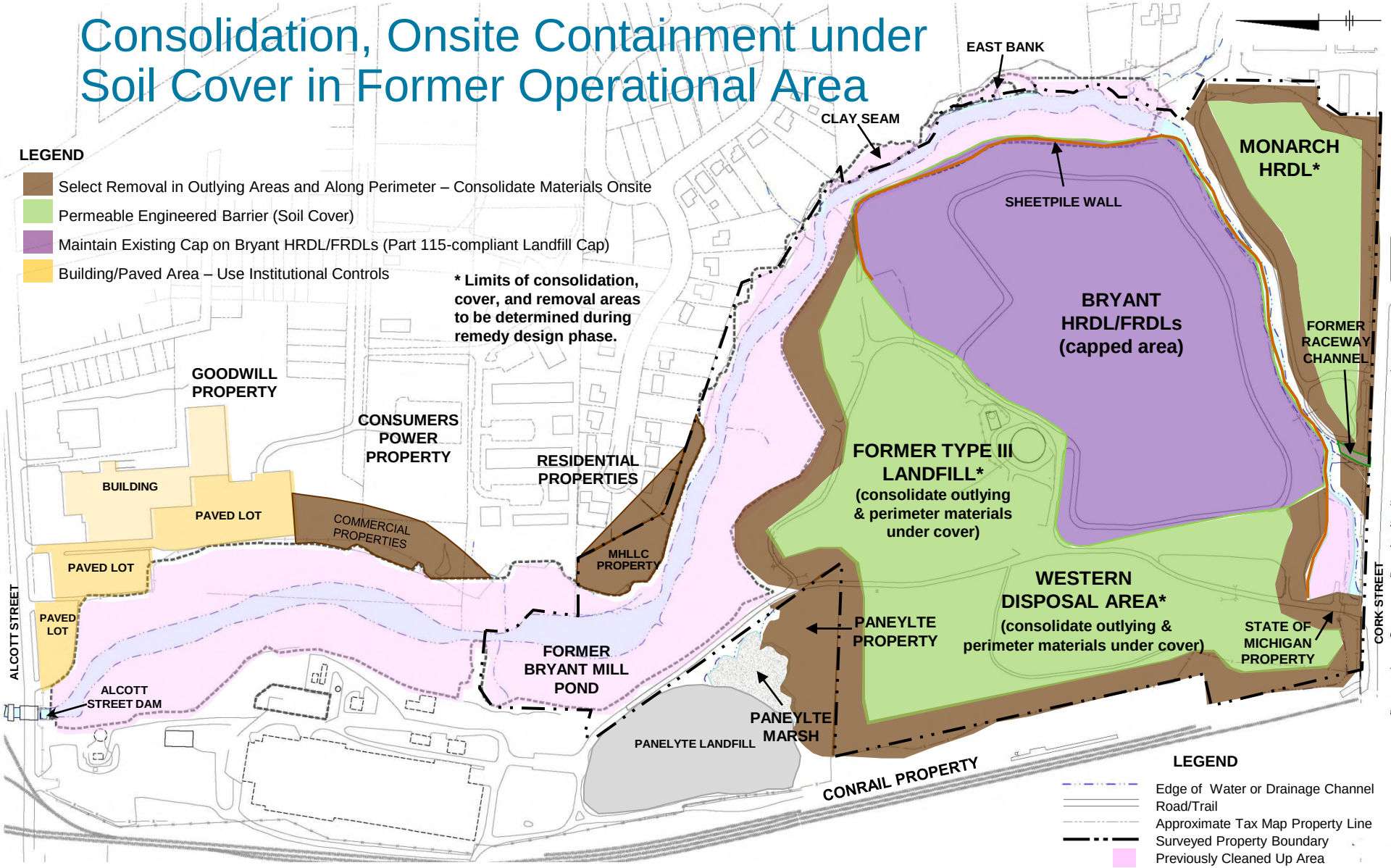
Alternative 2B:

Consolidation, Onsite Containment under Soil Cover in Former Operational Area



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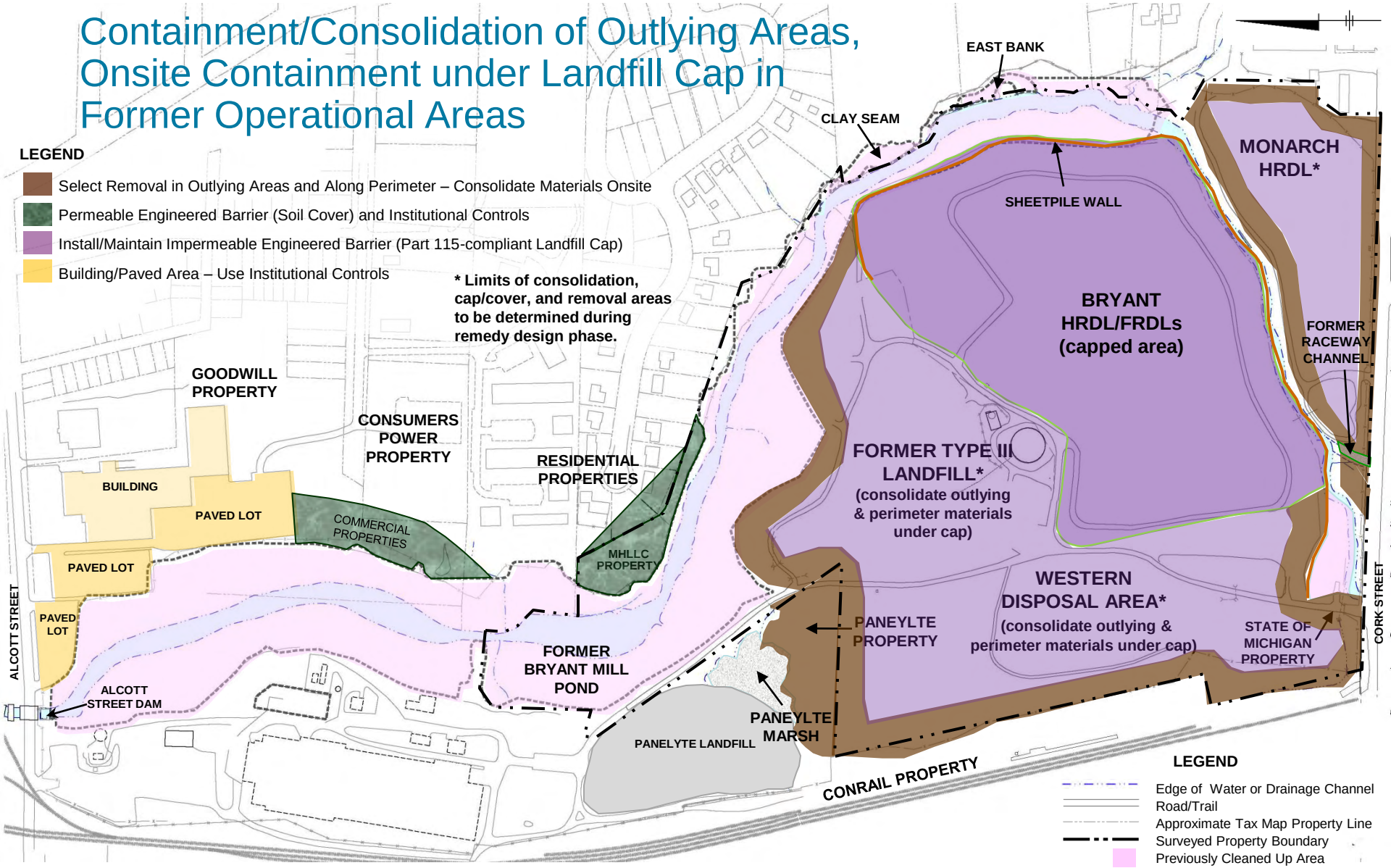
Alternative 3A:

Containment/Consolidation of Outlying Areas, Onsite Containment under Landfill Cap in Former Operational Areas



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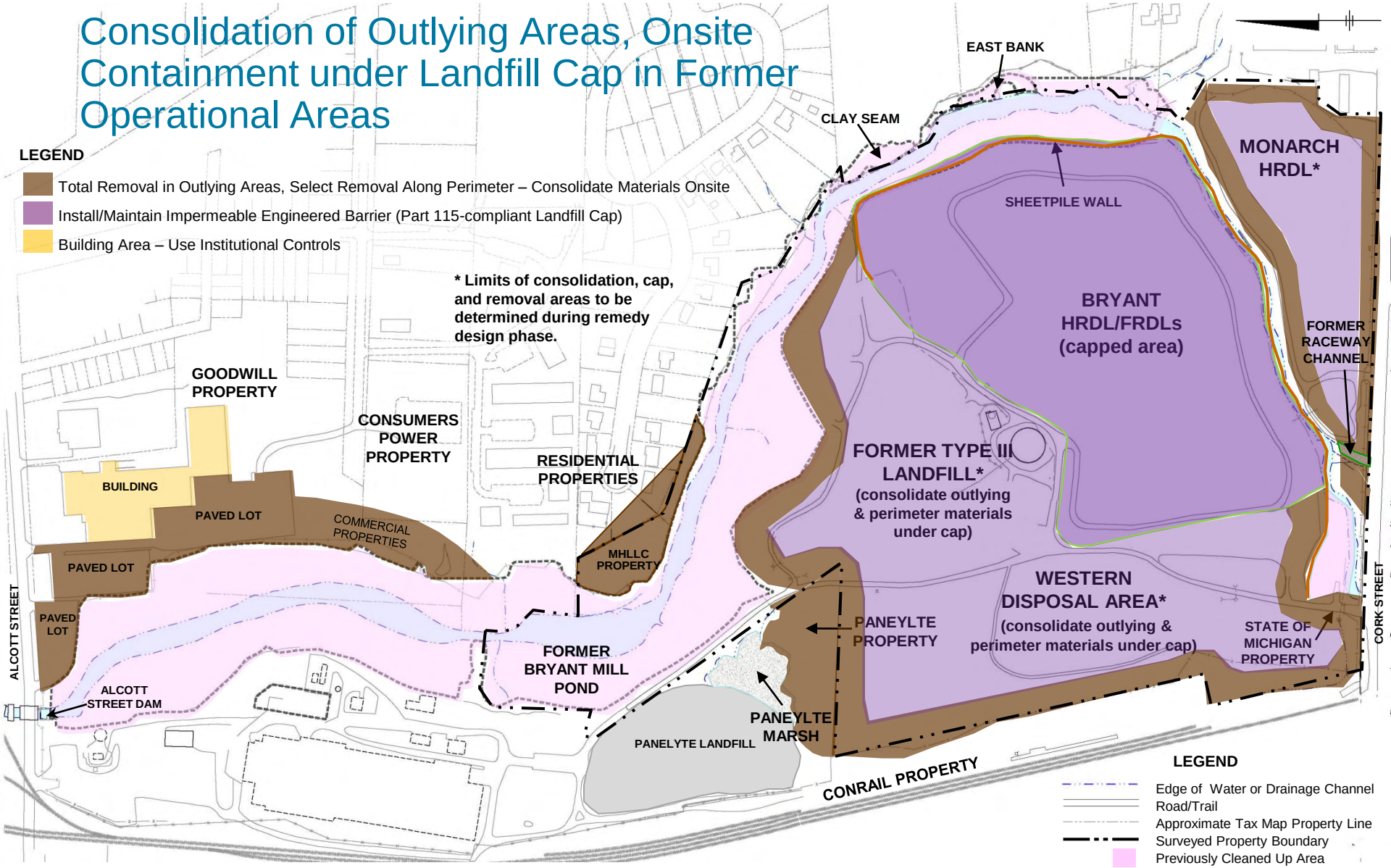
Alternative 3B:

Consolidation of Outlying Areas, Onsite Containment under Landfill Cap in Former Operational Areas



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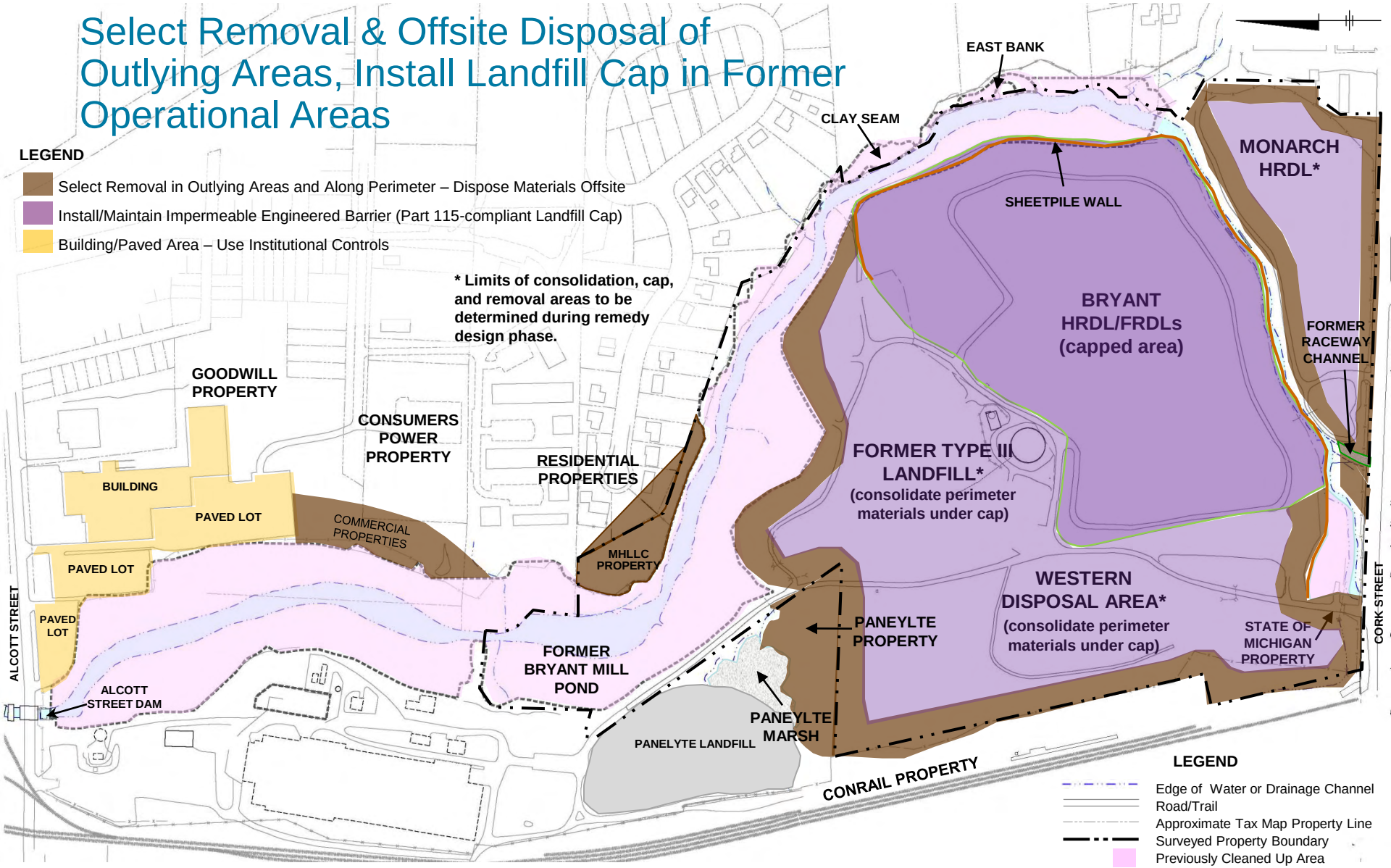
Alternative 4A:

Select Removal & Offsite Disposal of Outlying Areas, Install Landfill Cap in Former Operational Areas

LEGEND

- Select Removal in Outlying Areas and Along Perimeter – Dispose Materials Offsite
- Install/Maintain Impermeable Engineered Barrier (Part 115-compliant Landfill Cap)
- Building/Paved Area – Use Institutional Controls

*** Limits of consolidation, cap, and removal areas to be determined during remedy design phase.**



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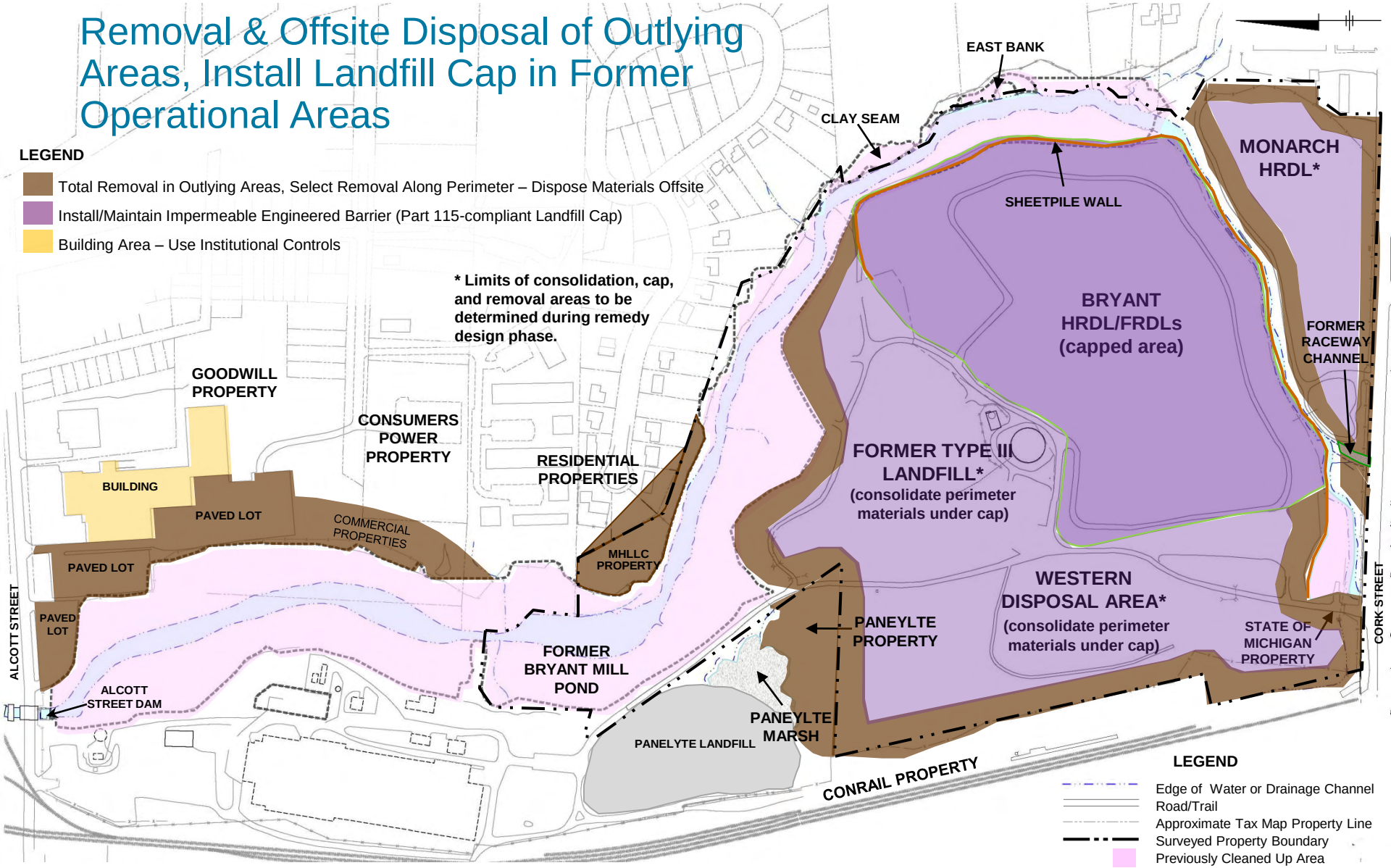
Alternative 4B:

Removal & Offsite Disposal of Outlying Areas, Install Landfill Cap in Former Operational Areas



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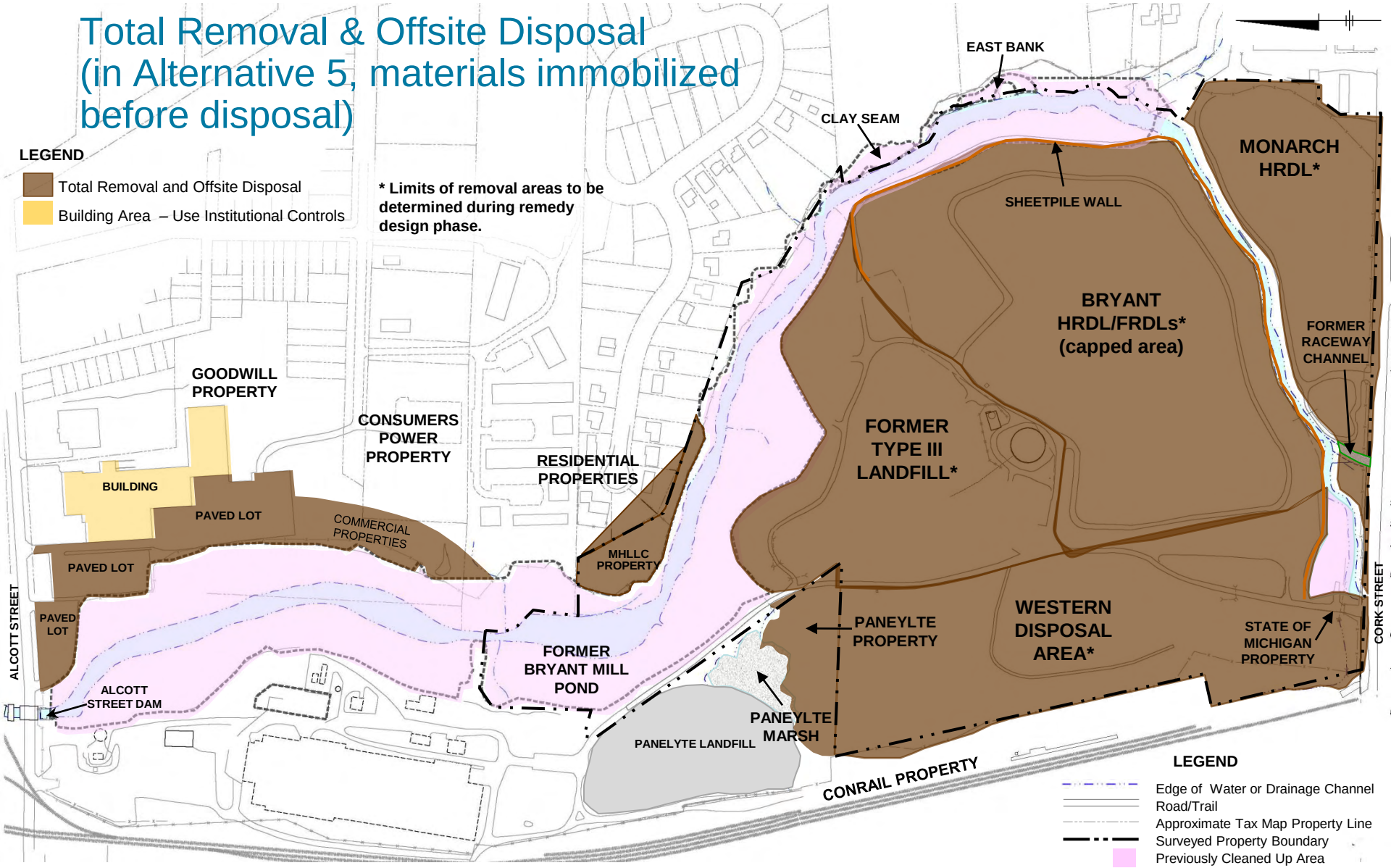
Alternatives 4C & 5:

Total Removal & Offsite Disposal (in Alternative 5, materials immobilized before disposal)



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Aspects of Alternatives with Materials Remaining On-Site

- Property use restrictions, routine monitoring, and inspections
- Landfill gas control along boundaries of concern
- Design and maintenance of stormwater and erosion controls
- Groundwater monitoring and contingencies
- Design and maintenance of structural components

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Contingent Groundwater Remedy

- Groundwater monitoring is a component of alternatives that leave waste onsite
- Monitoring approach and well network would follow a USEPA-approved plan
- Contingent actions implemented if necessary based on monitoring
- Contingent actions could include additional measures such as barrier walls, pumping systems, or others
- Appropriate response would be developed with USEPA based on data assessment and conditions at that time

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