

GeoPool 2.0 Pilot Project



Black River Dredged Material Reuse Facility

Coldwater Consulting



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Black River Dredged Material Reuse Facility Lorain, Ohio



NEWS RELEASE



1/8/19

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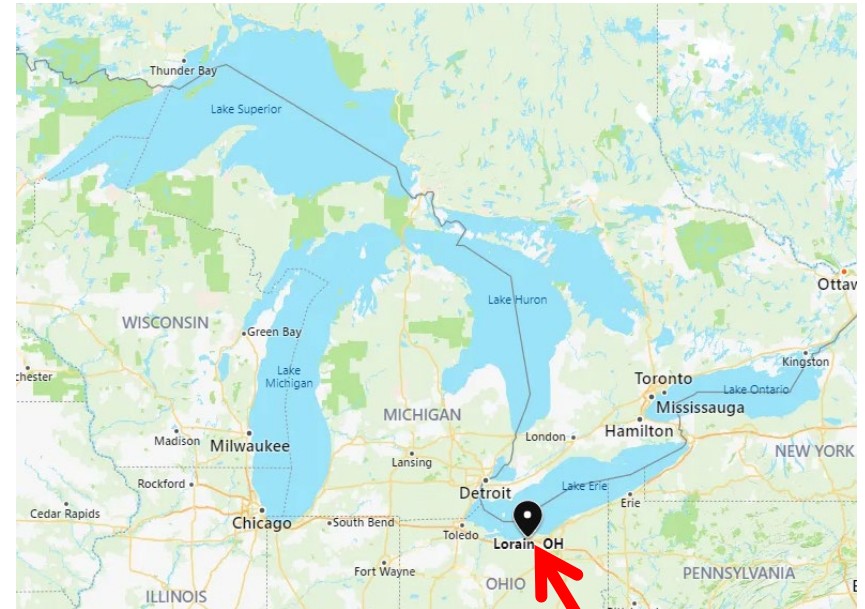
State to Invest Nearly \$10 Million to Help Protect Lake Erie

ODNR and Ohio EPA partner with Ohio communities on projects that create beneficial use options for dredge material

Toledo, OH – The Ohio Department of Natural Resources (ODNR) and Ohio EPA recently received approval from the State Controlling Board to begin funding nearly \$10 million in projects aimed toward helping to keep dredged material out of Lake Erie. These projects are part of Ohio's "Healthy Lake Erie Fund" efforts and will be managed by local officials and sponsors from Toledo, Lorain and Conneaut, the communities where these monies are being invested. These projects represent a portion of an Ohio's dredged material management program developed jointly by the Ohio EPA, ODNR, and the U.S. Army Corps of Engineers with input from local stakeholders.

"Lake Erie is Ohio's greatest natural resource and ensuring its health is vital for the continued success of the communities, businesses and families that depend on it," said ODNR Director Jim Zehringer. "These projects represent a shared commitment between federal, state and local partners in helping to protect this great lake for generations."

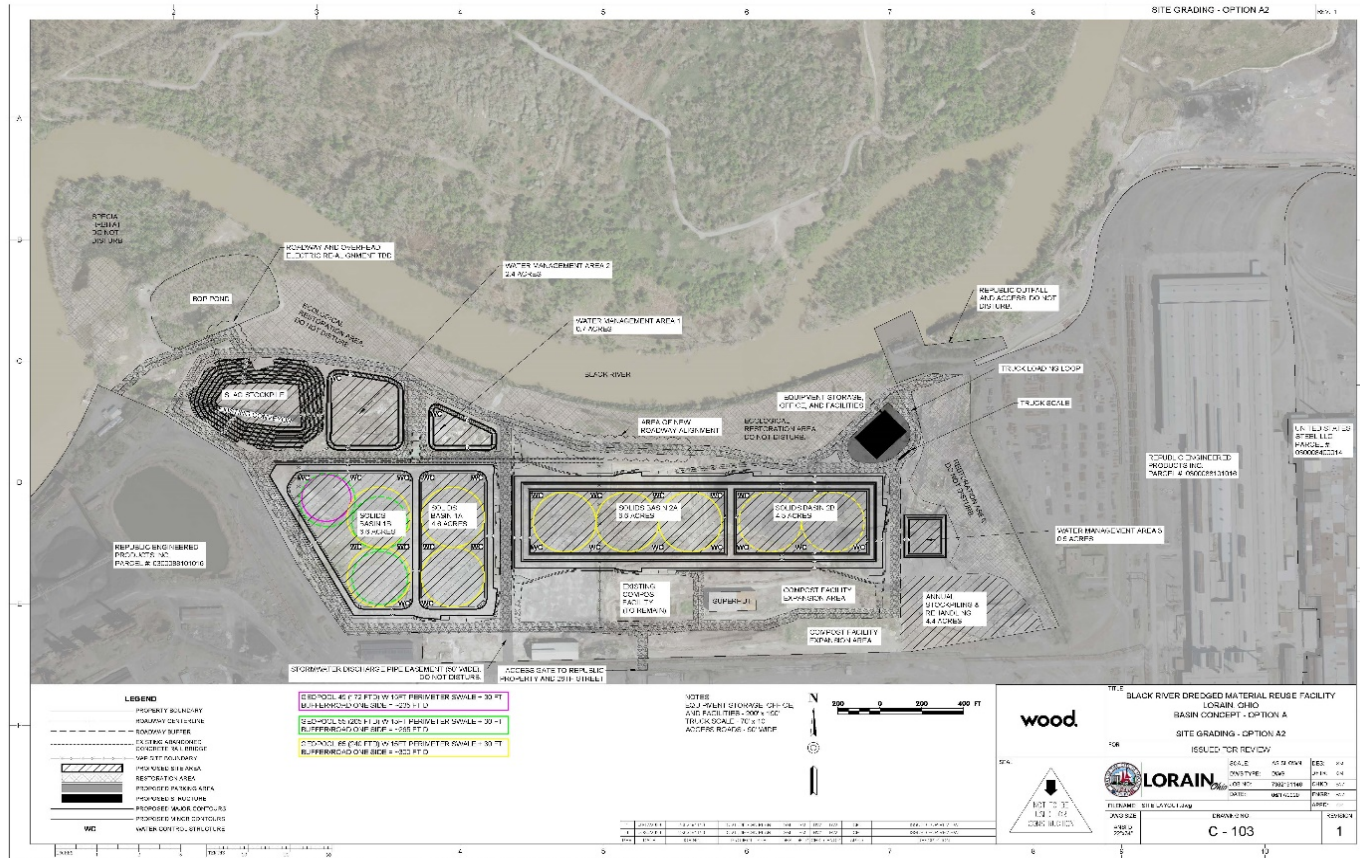
"These projects are part of Ohio EPA's comprehensive strategy to manage nutrients entering Lake Erie. They demonstrate how we can repurpose material dredged from Lake Erie's harbors and use them in beneficial ways and not simply dumping this nutrient laden material into Lake Erie," said Ohio EPA Director Craig W. Butler. "I appreciate the widespread support these projects have from local stakeholders and the U.S. Army Corps."



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BRDMRF at City-owned Reclamation Site...brownfield



Location of multiple slag reclamation & ecological restoration projects

60 ft above Black River

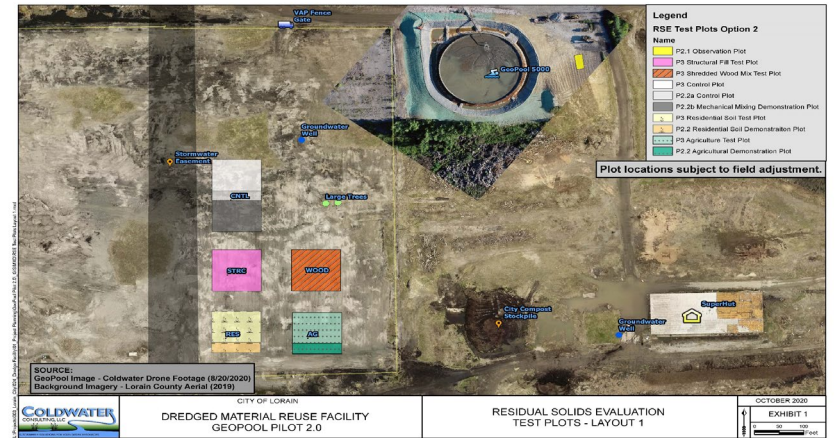
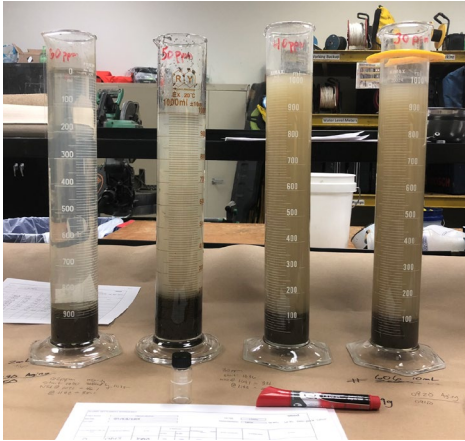
Multi-functional facility design



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GeoPool Pilot Study - stages



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GeoPool...what, why?

GeoPool 101:

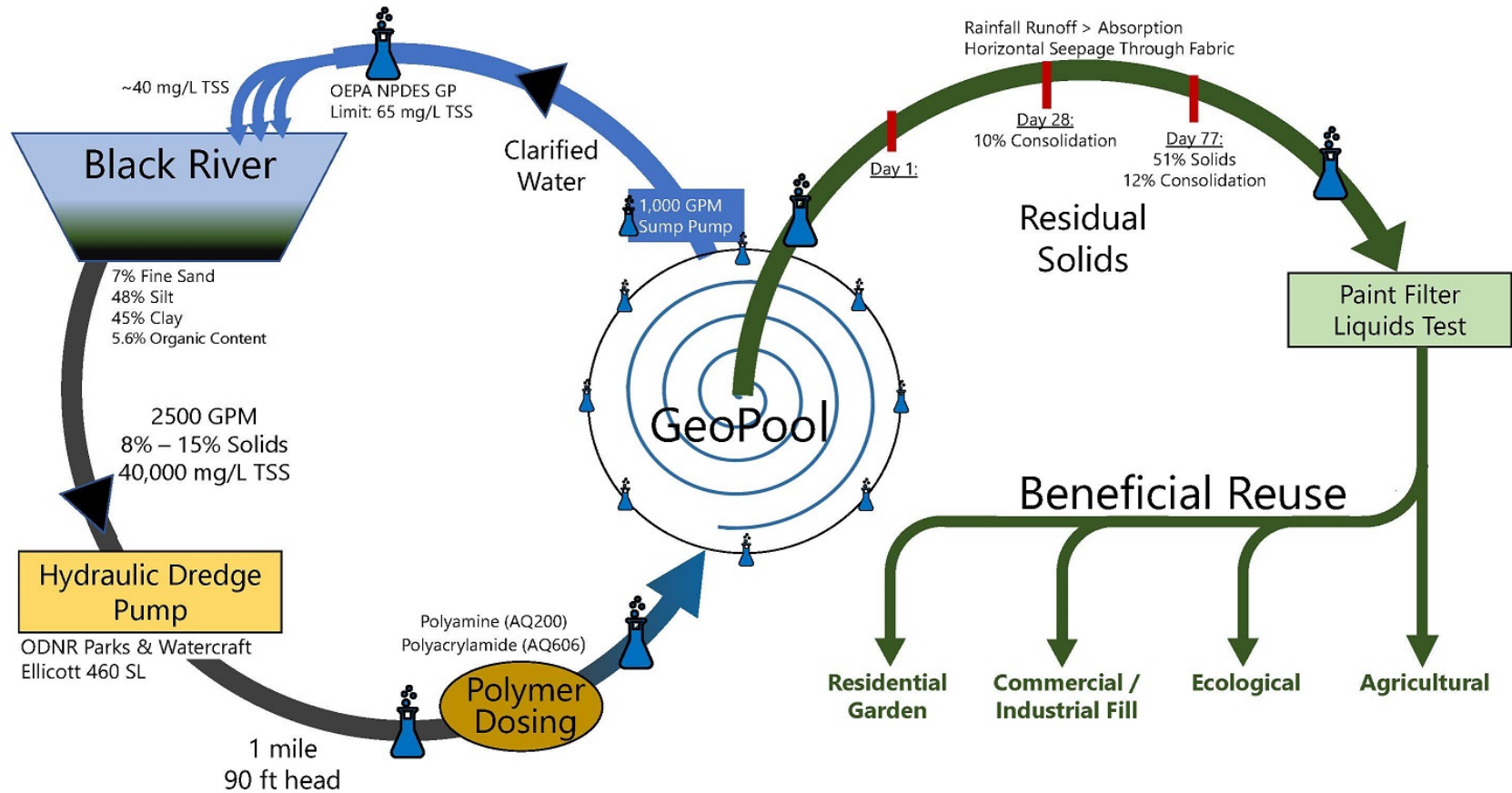
- Series of rigid steel frames linked together secured with four safety cables – *scalable, reusable, portable, up-n-ready timing*
- Textile filter fabric lined – *circumference seepage*
- Louvered dump doors provide rapid release of clarified surface waters – *incoming & outgoing GPM balancer*
- Equipment gates enable heavy equipment access for unloading – *single rehandling touch*

GeoPool System

1. Site Civil pad
2. GeoPool structure and textile fabric
3. Sediment slurry & (as-pertinent) polymer dosing
4. Clarified Water sump and surface water return
5. Residual Solids reuse



GeoPool Pilot 2.0 Schematic



Sample Location



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GeoPool - components



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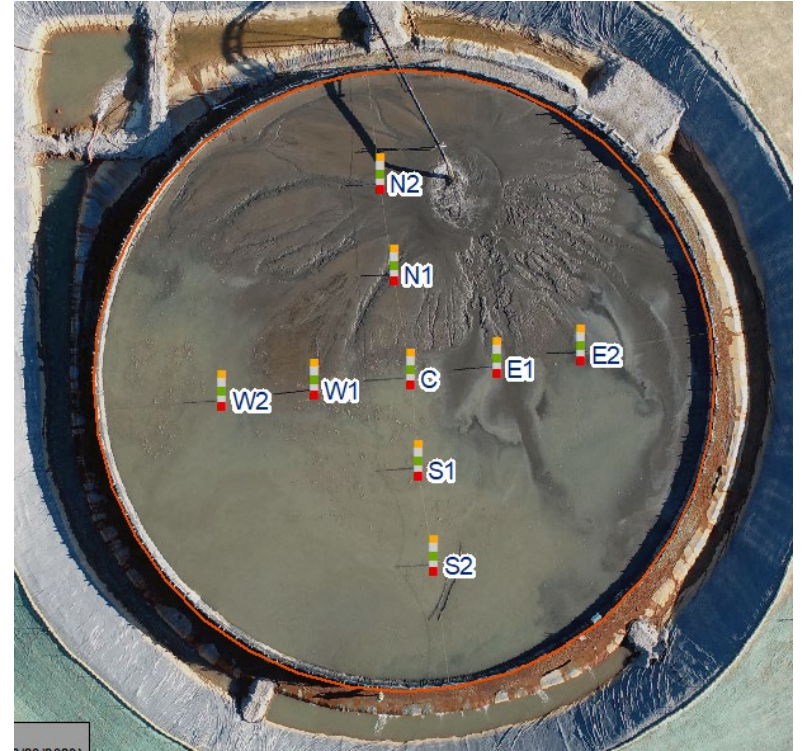
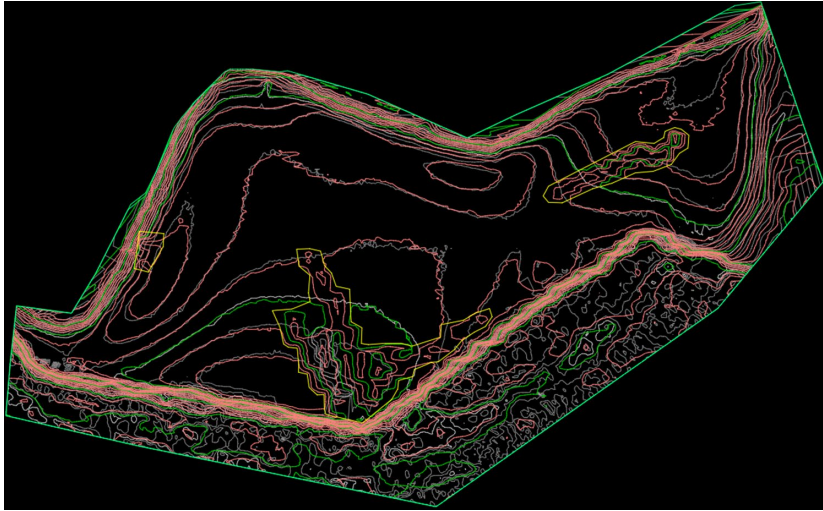
GeoPool - components



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GeoPool Pilot Study - calculations

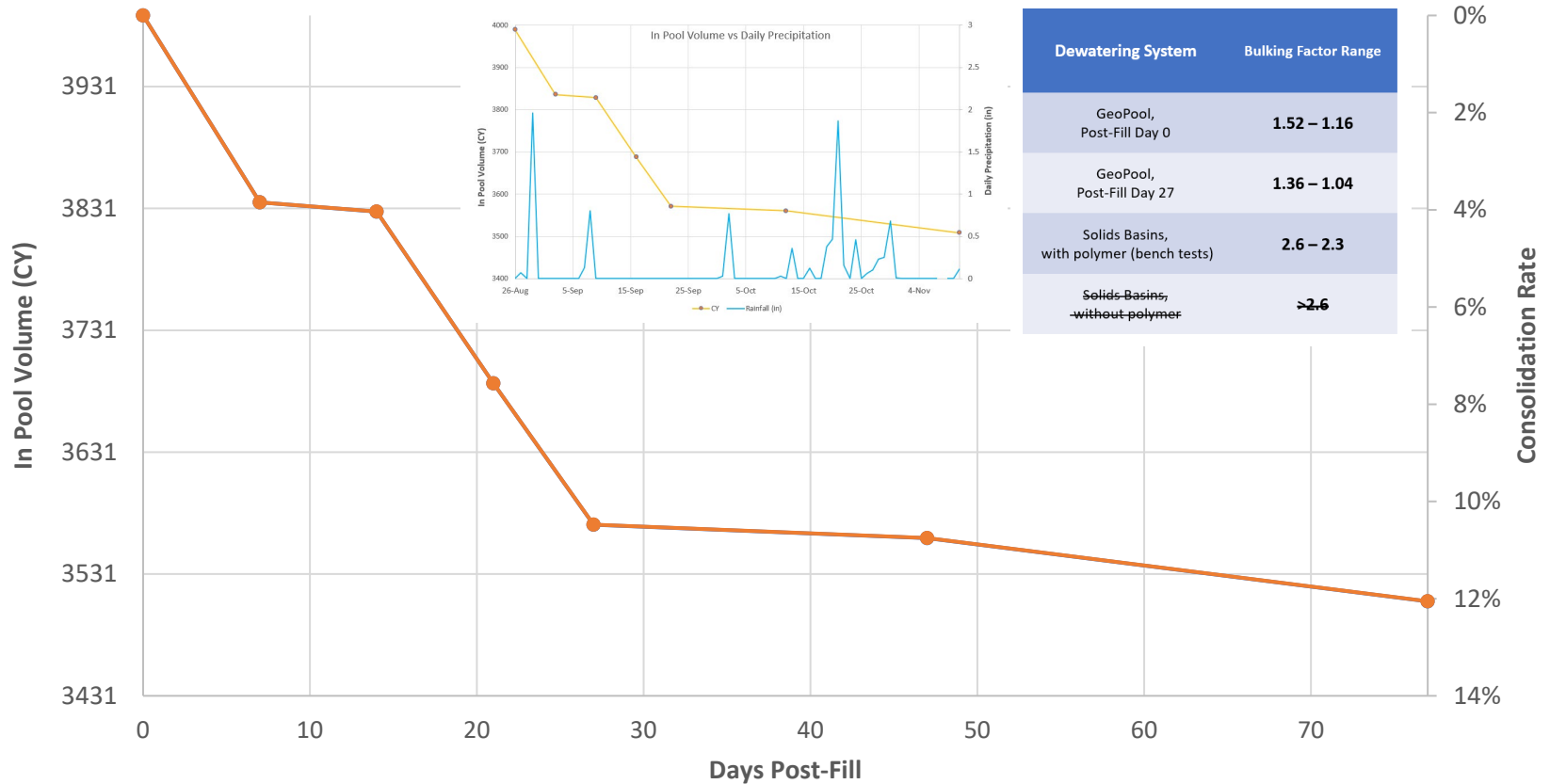


- BD/AD Surveys
 - Single beam
 - 25 ft transects
- Meter calculations
 - Flow, % solids, uptime

- Measuring posts
- AutoCAD Civil 3D



In-Pool Solids Consolidation



GP2 - Residual Solids Evaluation (RSE) Objectives

- *Residual solids characteristics vs. pre-dredge characteristics?*
- *Natural freeze-thaw cycle aid dewatering and consolidation?*
- *Blending effort to create suitable and marketable beneficial reuse products from typical Black River dredged material?*
- *Structural components wear & tear between usages?*



Lessons & Considerations

- Stable structure!
- Effluent quality!
- Slurry flow & % solids consistency is key
- Expect efference
 - Algae & bacteria
- “Rind” slowing “cake-like” residual solids

- Civil Pad
 - Integrate gravity-induced dewatering with connections to sump
 - Sump pump GPM
 - Infiltration barrier may be unnecessary
- Polymer-induced settling
 - Bench test dosing matched
 - Cost-optimizing bench testing for polymer selection
- Operation
 - Activating fabric is manual
- Consolidation
 - 75 days to load-out to on-road trucks with sludge locks
 - Bulking factor decrease in multi-pool pod from cycling
- Account for beneficially reused product value in project costs



2019 = GP1.0



BUBBLES!



Discussion



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