St. Louis MSD Project Clear

LMRDP CSO Storage Tunnel

Industry Day – October 2, 2026

A few notes…

- Please sign in
- Food and beverages
- Bathroom locations
- Introductions
  - MSD
  - Jacobs

Welcome

Event Schedule

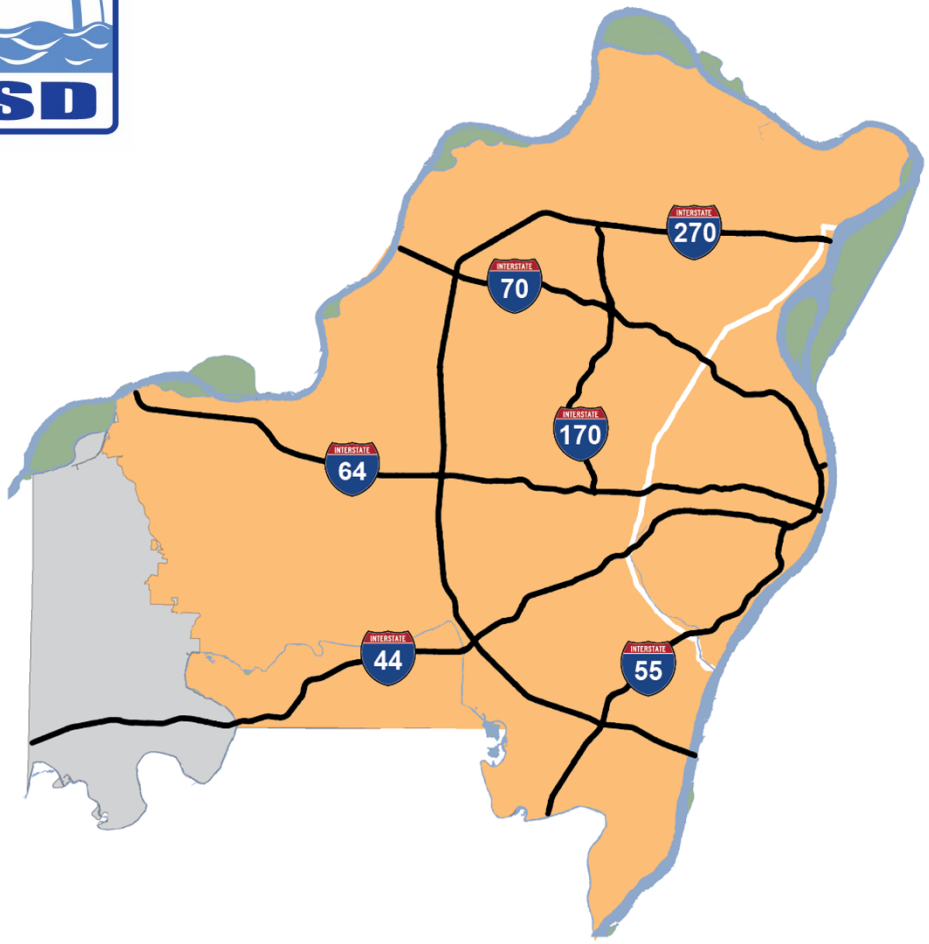
- 7:30 am – Registration, Continental Breakfast, & Networking
- 8:30 am – Session #1
  - MSD Project Clear & Technical Presentation
  - Q&A
- 9:45 am – Break and Networking
- 10:15 am – Session #2
  - Procurement, Contracting, & Diversity Presentation
  - Q&A
- 11:30 am – Event Concludes
- Optional – self-guided site tour of the project alignment following the event

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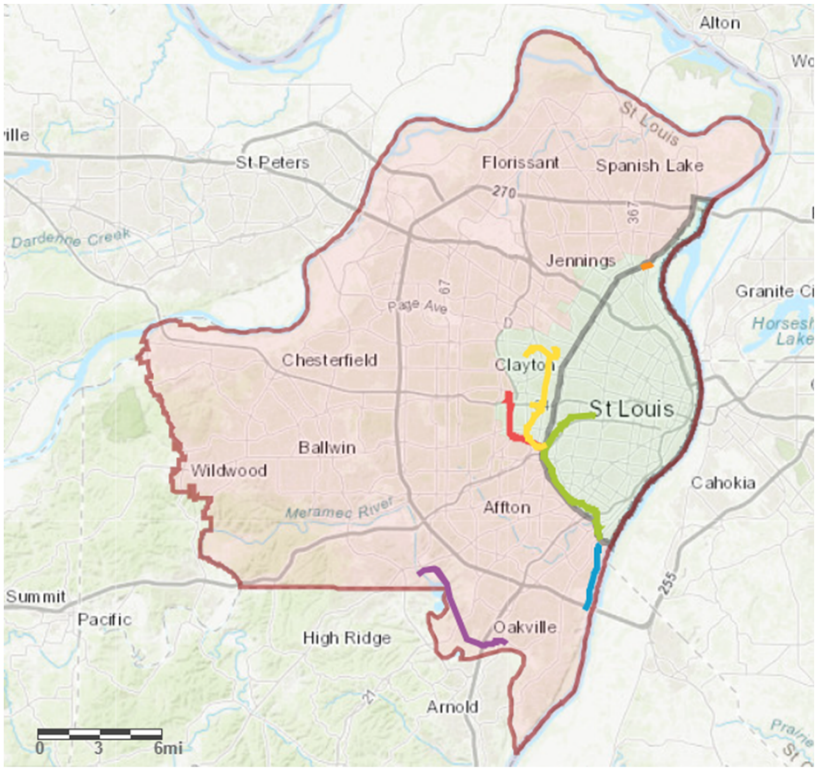
Session #1 Agenda

- MSD and Project Clear Overview
- Technical Presentation – Lower & Middle River Des Peres CSO Storage Tunnel (LMRDP Tunnel)
  - LMRDP Tunnel Overview
  - LMRDP Tunnel Geology
  - LMRDP Project Sites
- LMRDP Project Timeline
- Brief Overview – Upper River Des Peres and River Des Peres Tributaries Storage Tunnel (Tribs Tunnel)

Metropolitan St. Louis Sewer District



- Formed in 1954
- 87 municipalities
- 4th largest sewer system in USA
- 520 square mile service area
- Approx. 1.3 million customers
- 10,000 miles of sewers
- > 350 MG treated per day
- 7 treatment plants



Locations of Major Tunnels

- $7.2B, 28-year initiative to improve water quality and reduce wastewater overflows
- 7 major tunnel projects
- 5 projects complete
- 2 largest projects to bid 2027 and 2029

Jacobs

Completed Tunnel Projects

- Lemay Redundant Forcemain Tunnel (2014)
- Maline Creek Local Storage Facility (2020)
- Deer Creek Sanitary Tunnel and Pump Station (2023)
- Jefferson Barracks Tunnel (2024)
- Lower Meramec Tunnel (2026)



Maline CSO Storage Facility
Cavern Excavation



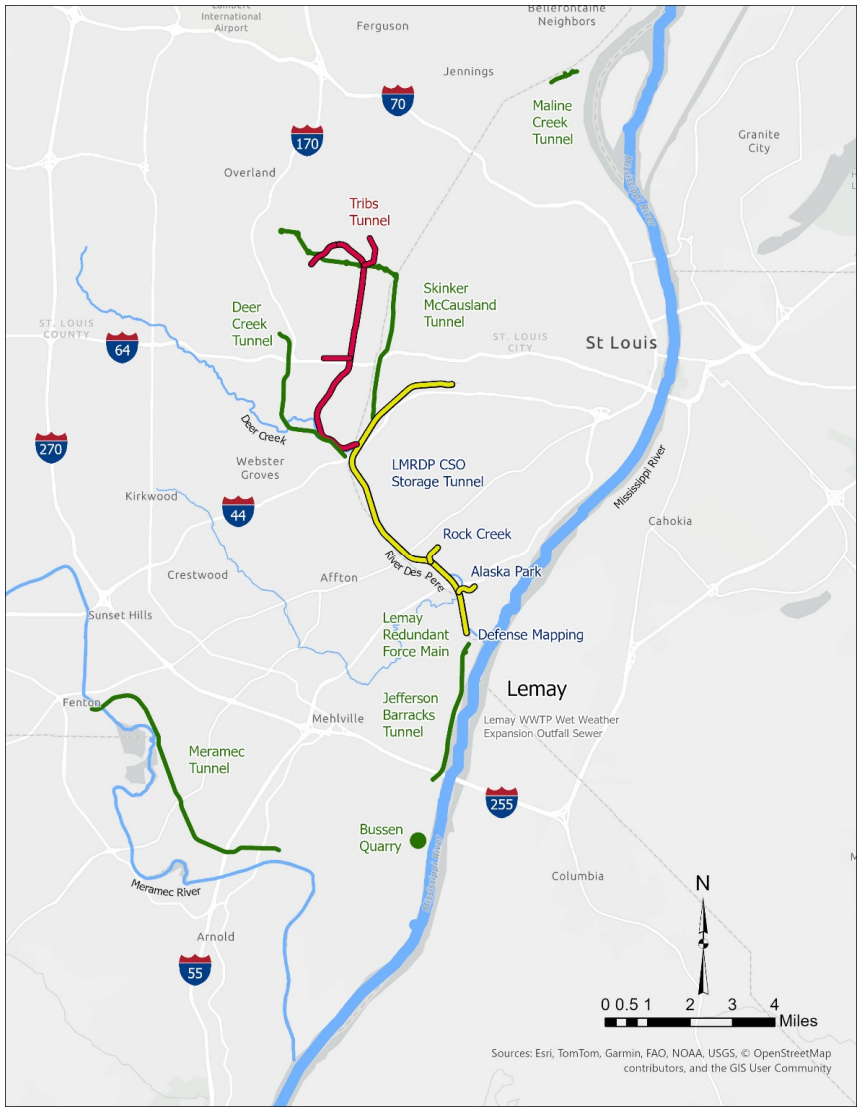
Lower Meramec Tunnel TBM



Jefferson Barracks Tunnel

Two Largest Projects

- LMRDP CSO Storage Tunnel
- Upper River Des Peres and River Des Peres Tributaries Storage Tunnel



Locations of Major Tunnels

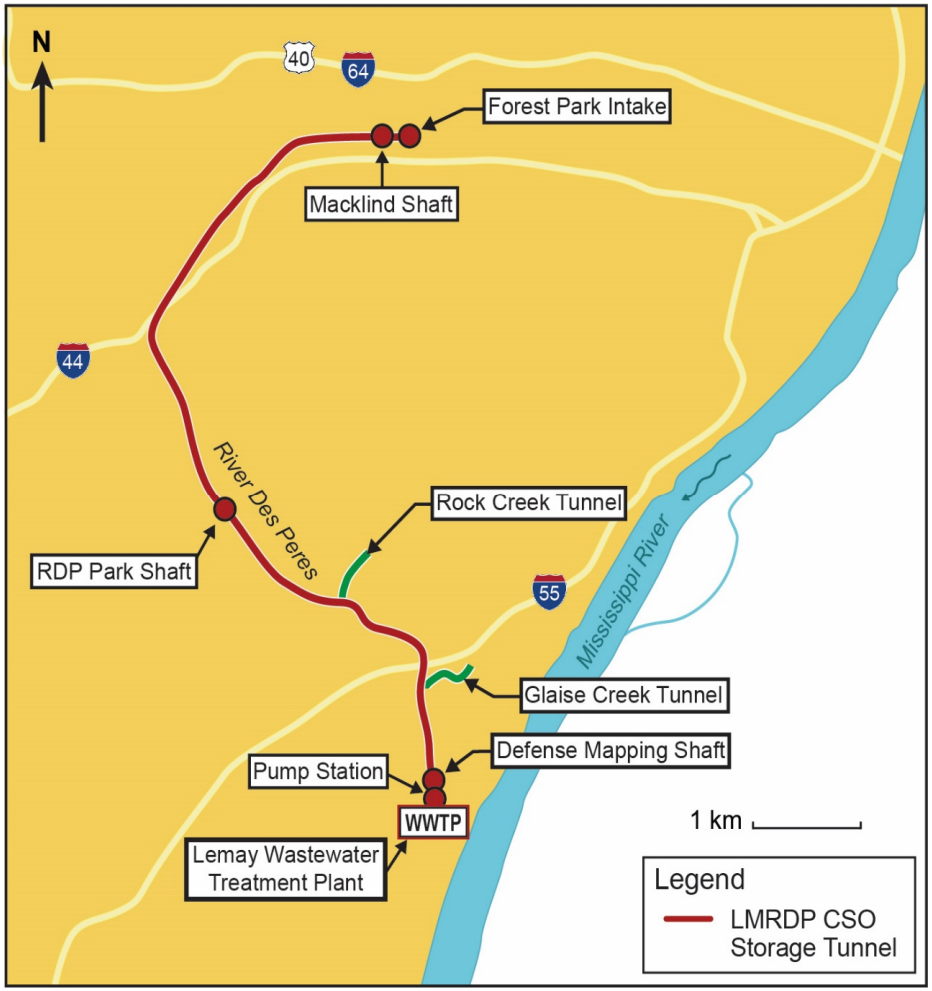
Project Background

- Mandated by Consent Decree with EPA and CSO Long Term Control Plan
- Project will be funded and constructed
- Committed to current schedule
- Financing approach has been determined through the established District's rate-setting process.

Project Status and Disclaimer

- Design details, easements, land acquisition are being finalized.
- Information shown in this presentation is preliminary and may not represent the final project configuration and contract requirements.
- Information contained herein shall not be relied upon for bidding purposes.

LMRDP CSO Storage Tunnel: Alignment and Shafts



Tunnel Alignment

- North End: Forest Park Site RDP Tubes
- Intermediate: RDP Park
- South End: Former Defense Mapping Site
- (Lemay WWTP/Pump Station Site)

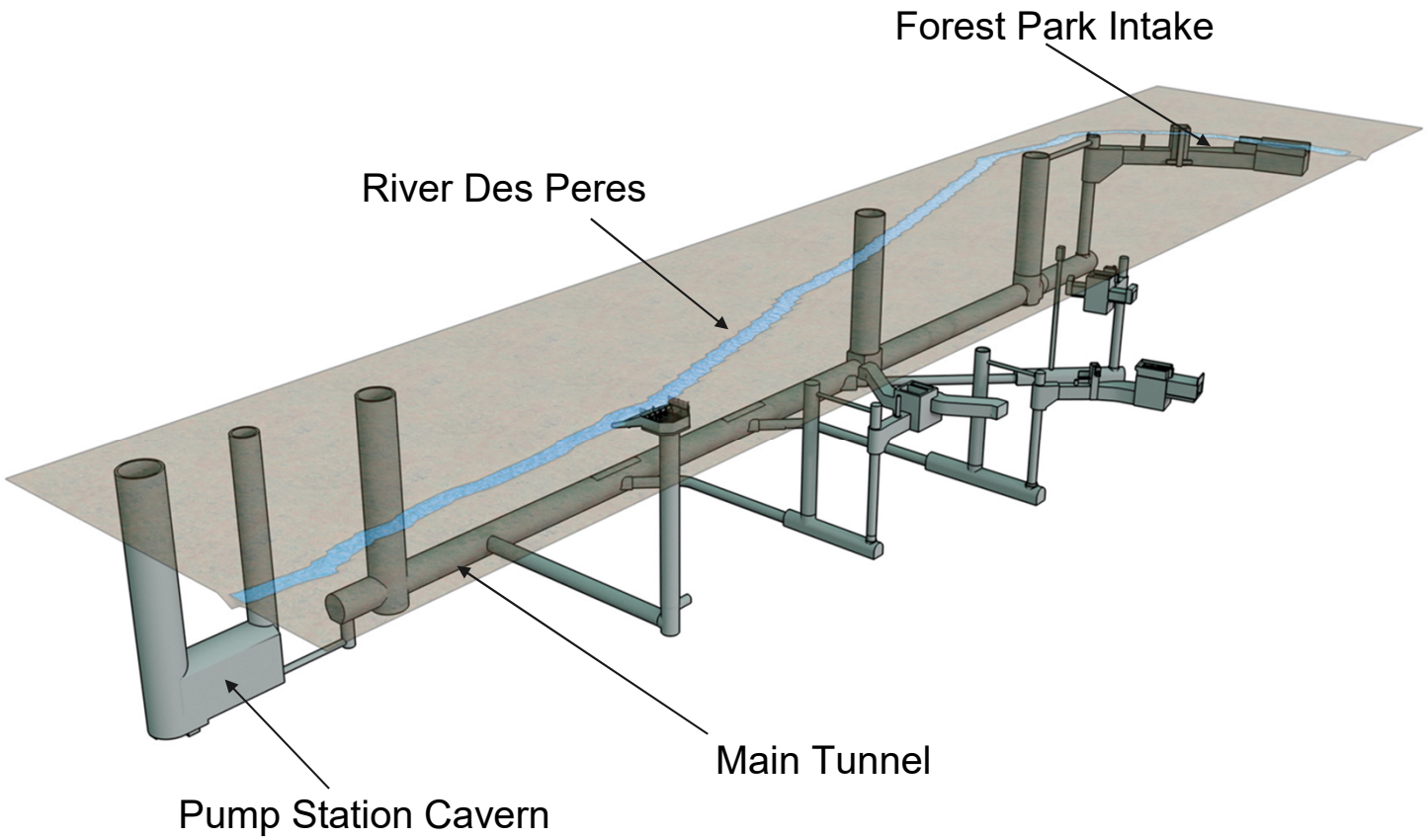
Main Tunnel Shafts

- Macklind (45 ft)
- RDP Park (45 ft)
- Defense Mapping (45 ft)
- Pump Station North Access (30 ft)
- Pump Station South Access (50 ft)

Other Major Shafts

- Forest Park Intake (20 ft)
- Wherry Creek (12 ft)
- Alaska Park (18 ft)
- Rock Creek (18 ft)
- Emergency Overflow (20 ft)

Lower & Middle River Des Peres CSO Storage Tunnel



Storage tunnel with 34 intakes and pump station cavern

Main Tunnel

- 9 miles long
- Main beam rock TBM
- 30-foot dia. (CIP)
- 3 – 45-foot dia. construction shafts

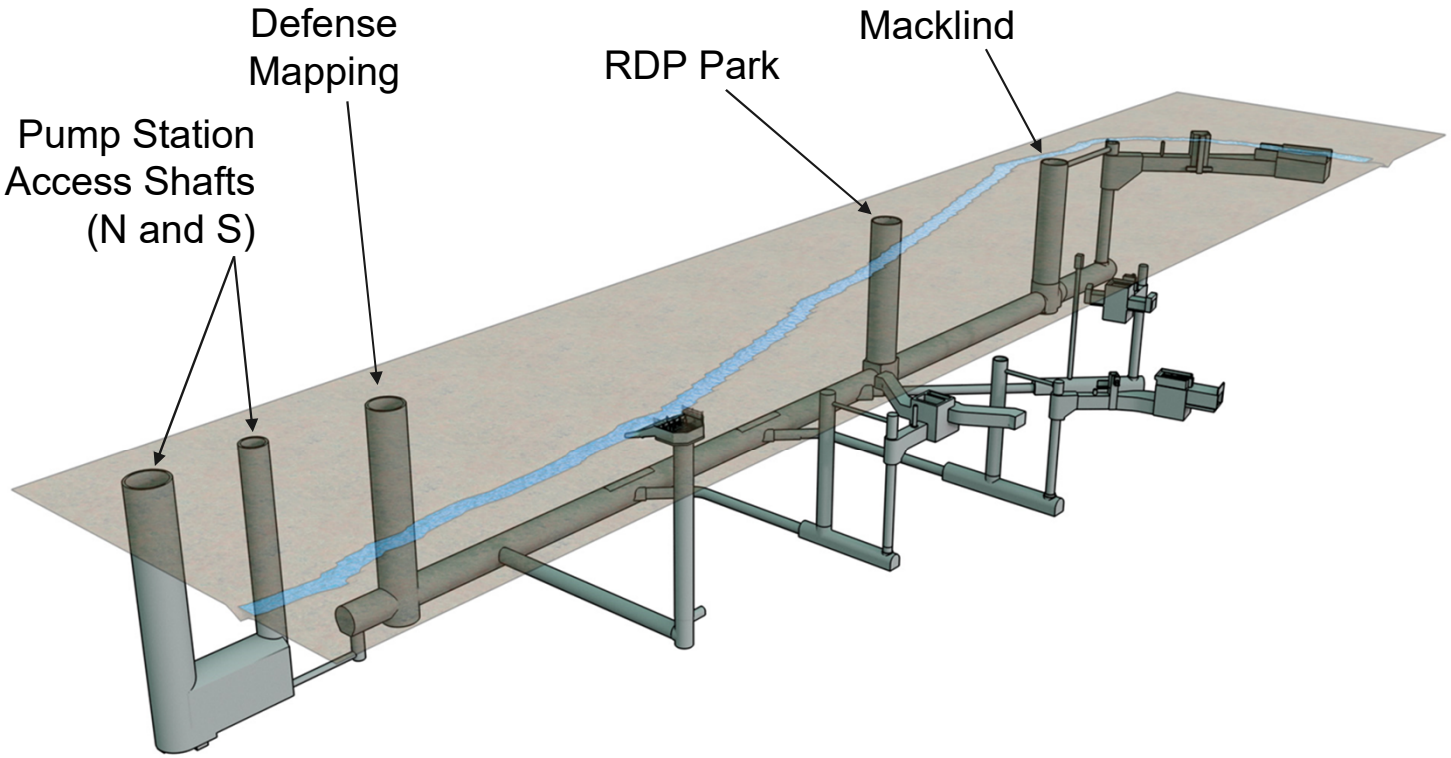
Forest Park Intake

- 4,400 MGD capacity
- Large tangential vortex

Pump Station Cavern

- 100 MGD Pump Station
- Former Defense Mapping Site

Lower & Middle River Des Peres CSO Storage Tunnel



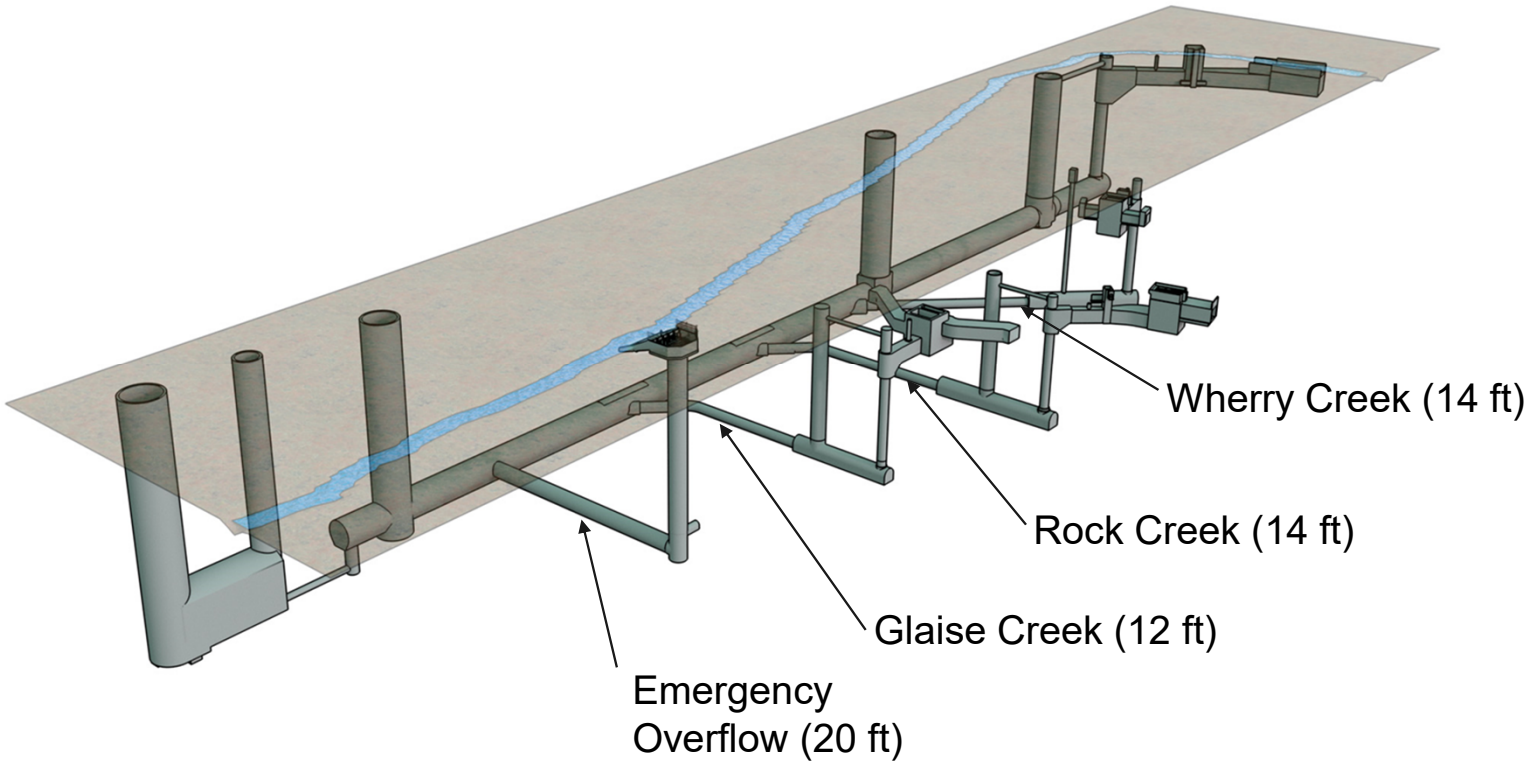
Main Shafts

- Construction shafts (3)
- Pump Station Shafts (2)

Intakes

- 34 Intakes
- Dropshafts/vent shafts

Lower & Middle River Des Peres CSO Storage Tunnel



Intakes

- Surface structures
- Drop/vent shafts
- Deaeration chambers
- Forest Park chamber: 36 ft dia.

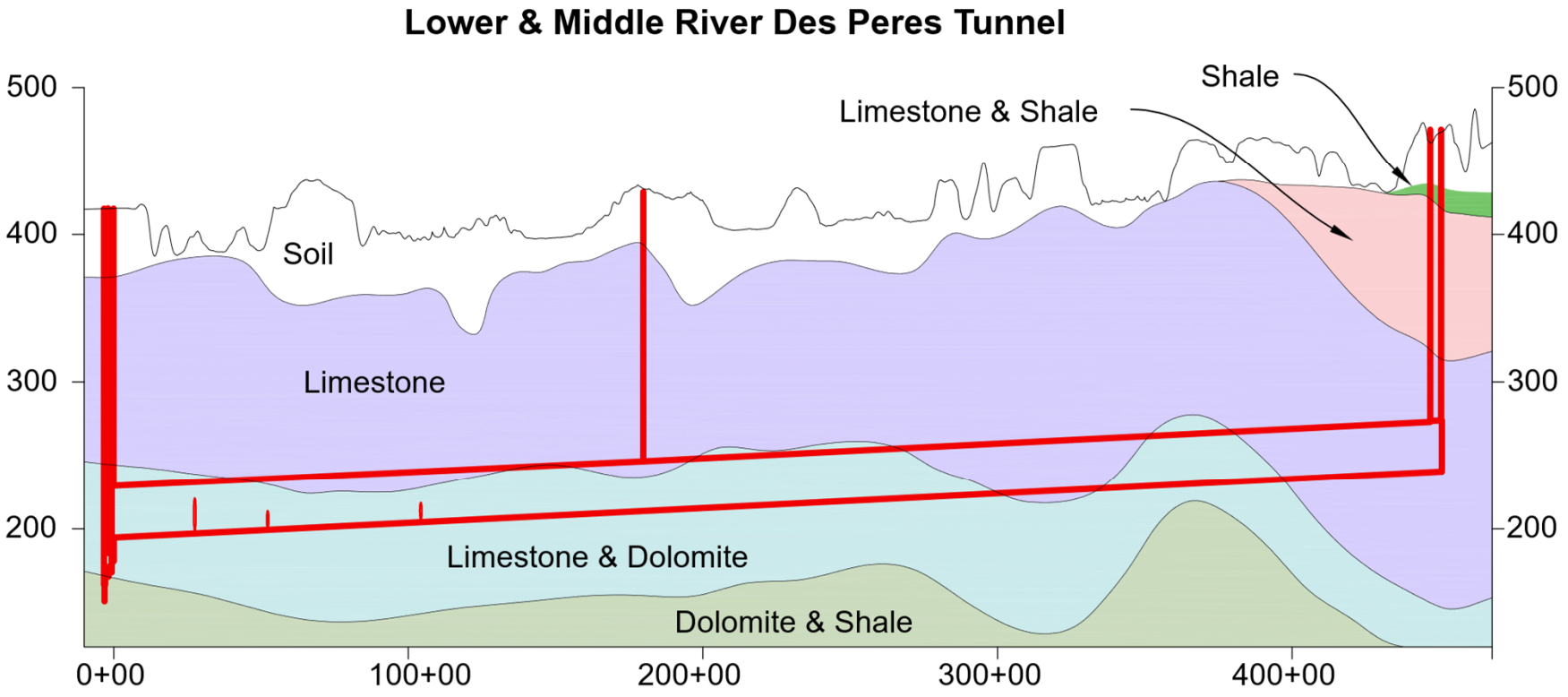
Connecting Tunnels

- Glaise Creek
- Rock Creek
- Wherry Creek
- Smaller diameter tunnels

Emergency Overflow

- Spillway
- Shaft
- Connecting Tunnel

Geologic Profile



Geology

Bedrock

- Limestone and dolomite
- Shale layers
- Karstic and slabby zones (shallow)

Soil Deposits

- Alluvial Deposits
- High Water Table



Lemay No. 3 Pump Station Shaft Excavation, Lemay WWTP. Adjacent to LMRDP Pump Station Site.

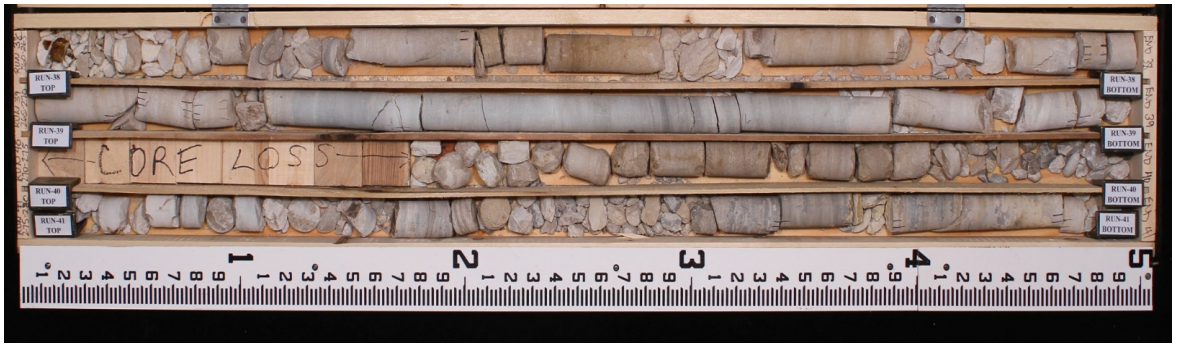


Limestone and dolomite beds

I-55 Fault Zone





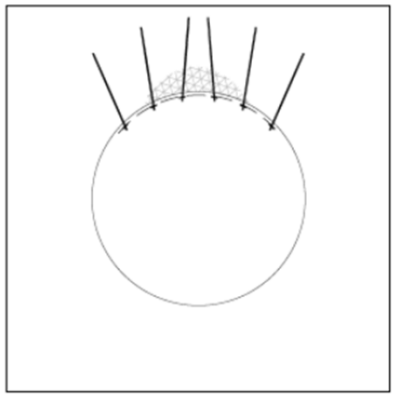




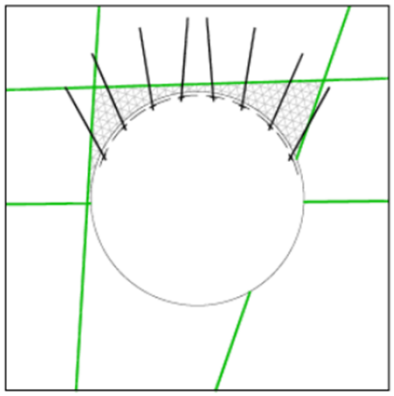
project clear
wastewater

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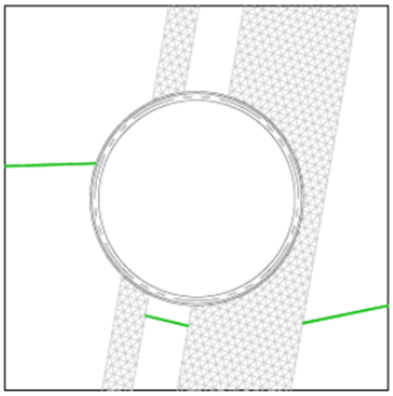
TBM Tunnel Initial Ground Support Types



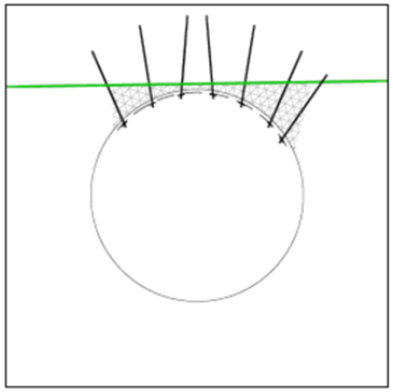
TYPE A



TYPE B



TYPE C



ANTICIPATED INITIAL GROUND SUPPORT		
TYPE A	6 x 12 ft. Rock Dowels, 5 ft. x 5 ft. & Welded Wire Mesh	80%
TYPE B	8 x 12 ft. Rock Dowels, 5 ft. x 5 ft. & Steel Channels and Welded Wire Mesh	18%
TYPE C	Steel Circular Ribs, 4 ft. apart & Welded Wire Mesh	2%



Connecting Tunnels

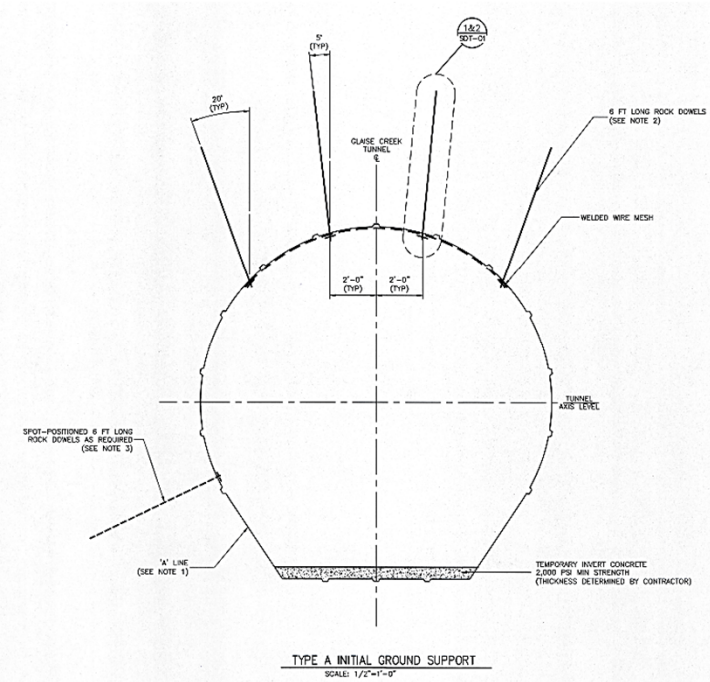
- **Emergency Overflow Tunnel**
  - Concrete lined 20-ft finished-diameter tunnel
  - Approximately 300 LF
- **Glaise Creek Tunnel**
  - Concrete lined 12-ft finished-diameter tunnel
  - Approximately 2,400 LF
- **Rock Creek Tunnel**
  - Concrete lined 14-ft finished-diameter tunnel
  - Approximately 2,300 LF
- **Wherry Creek Tunnel**
  - Concrete lined 14-ft finished-diameter tunnel
  - Approximately 400 LF



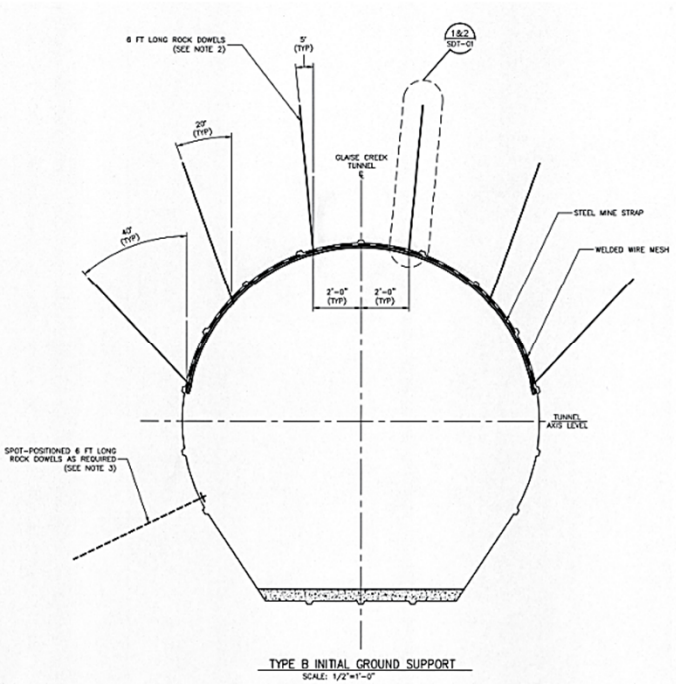
project clear wastewater

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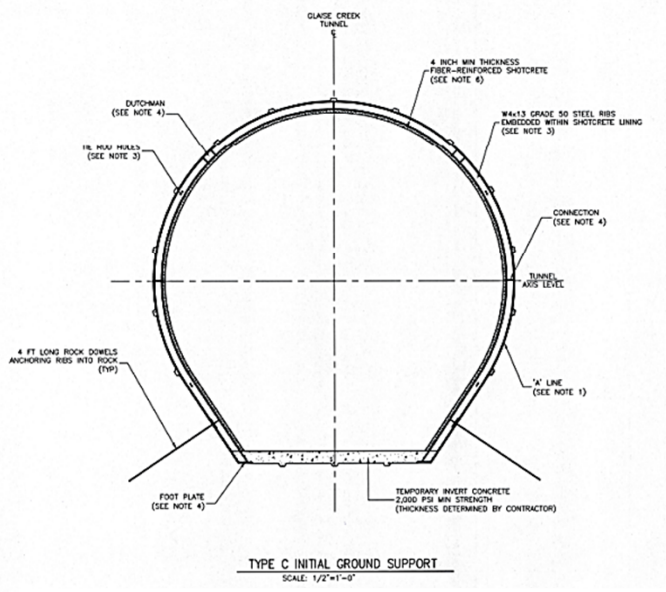
Connecting Tunnel Ground Support Types



TYPE A



TYPE B



TYPE C

Tunnel Linings

Main Tunnel and Large Diameter Connecting Tunnels

- Cast-in-place concrete lining
- Unreinforced in Type A and B
- Reinforced in Type C
- Reinforced at Junctions
- Modified Contact Grouting

Intake Connecting Tunnels

- Fiberglass Pipe Lining
- Cellular Concrete Backfill
- Cast-in-place Chamber Lining



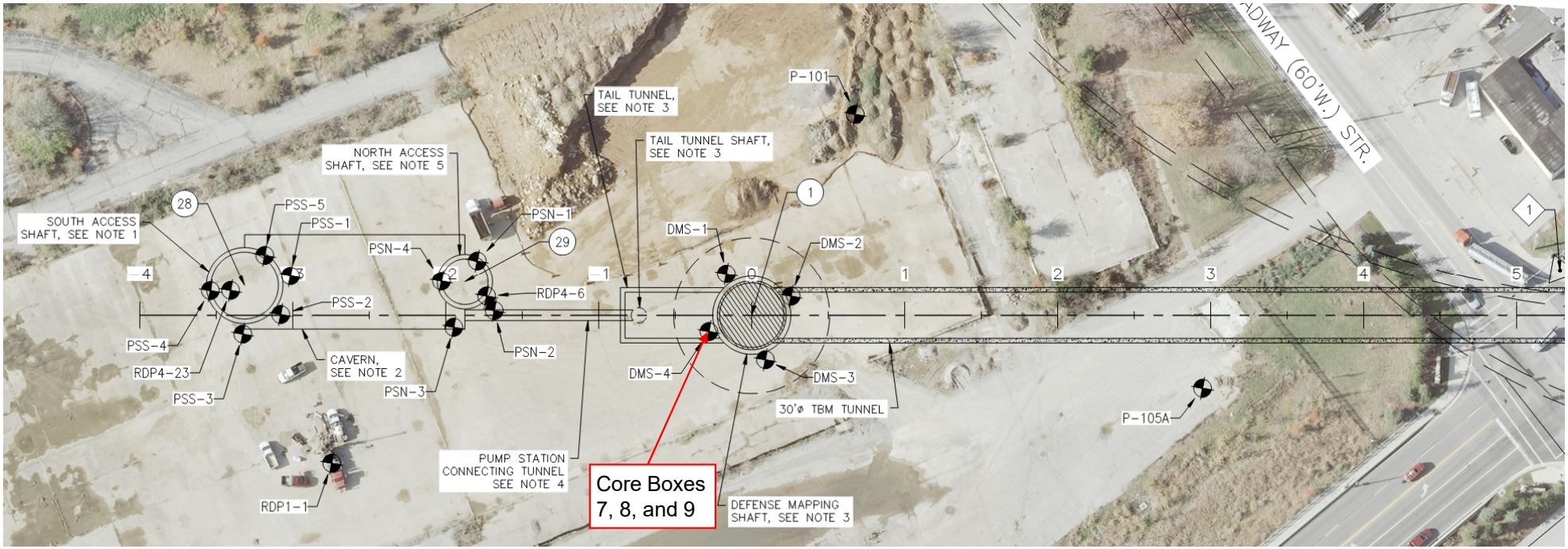




project clear wastewater

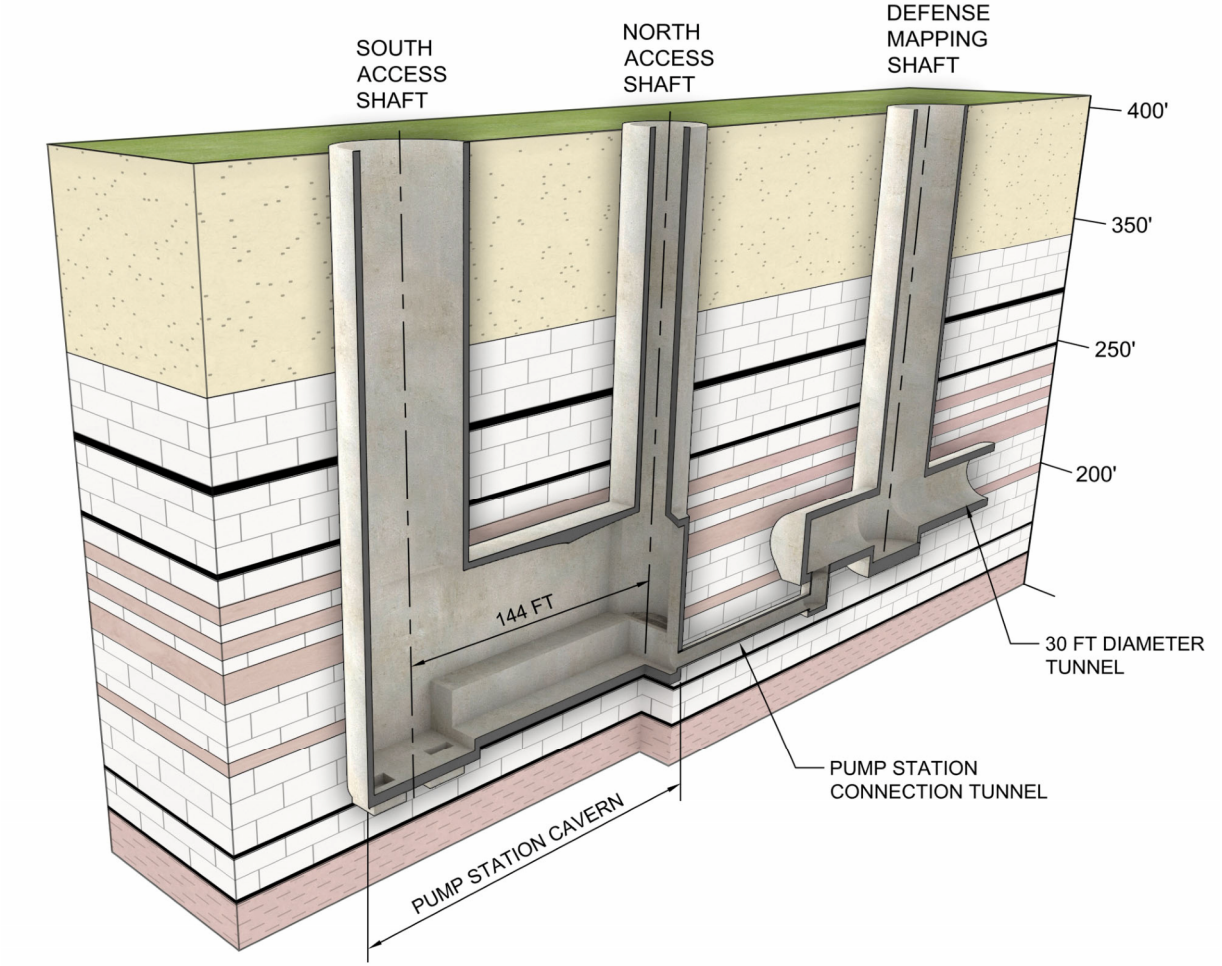
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Former Defense Mapping Site: Overview



- 36 Acre Site – Property of MSD
- Site is a part of Missouri DNR - Long Term Stewardship Program – Certain site uses are restricted by covenants.
- Grading plan provided to raise site using shot rock and tunnel muck.

Defense Mapping Site: Pump Station



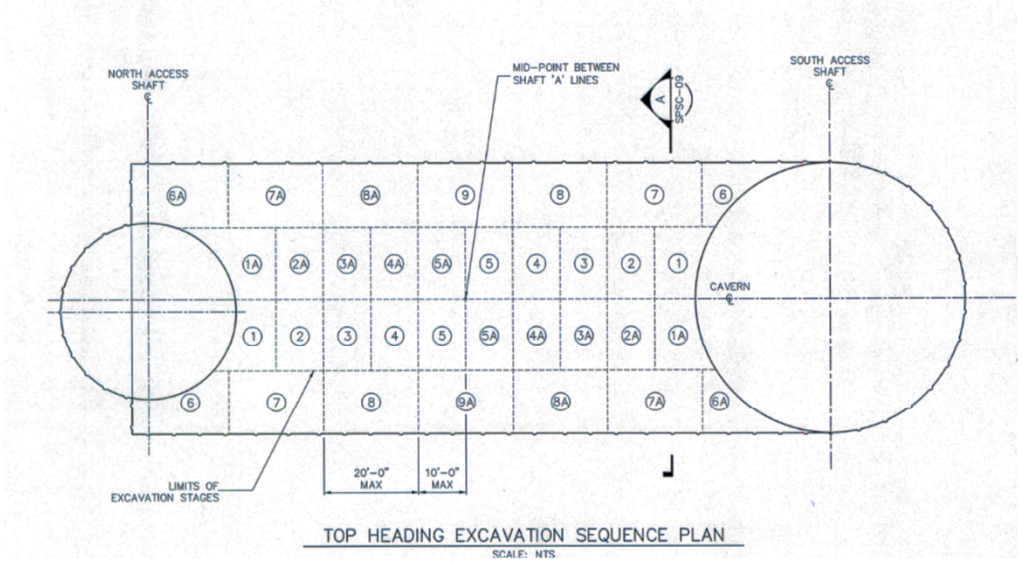
Tunnel Contractor

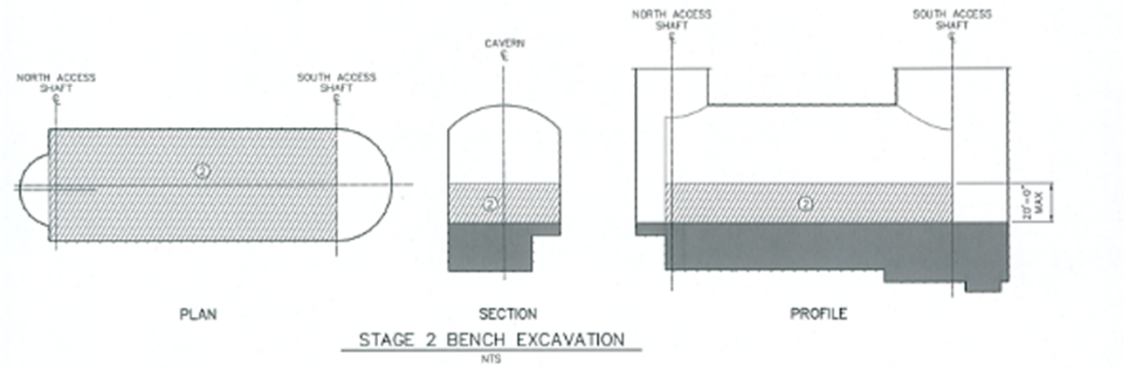
- Pre-excavation grouting
- Diaphragm walls into bedrock
- Excavation:
  - Top heading/center drift
  - Benching
- Pattern rock bolts and shotcrete

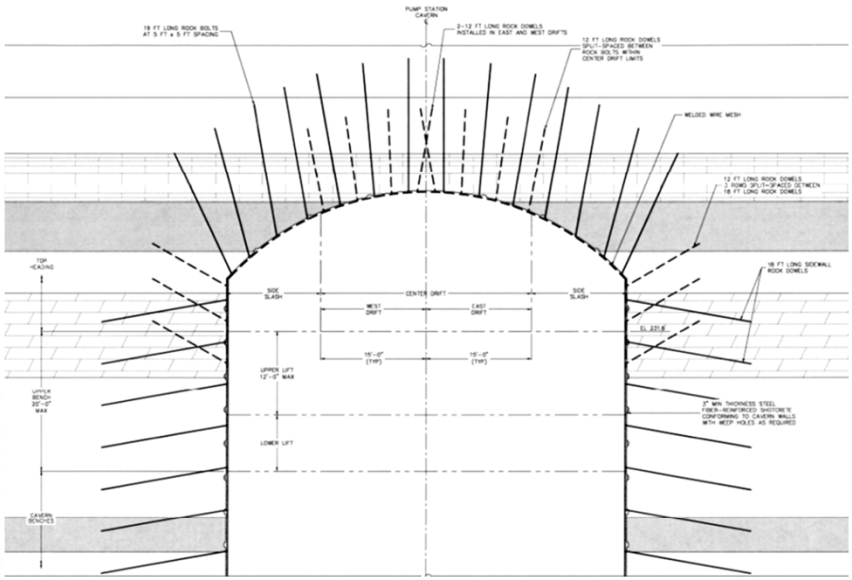
Pump Station Contractor

- Install CIP concrete linings
- Build out and commission

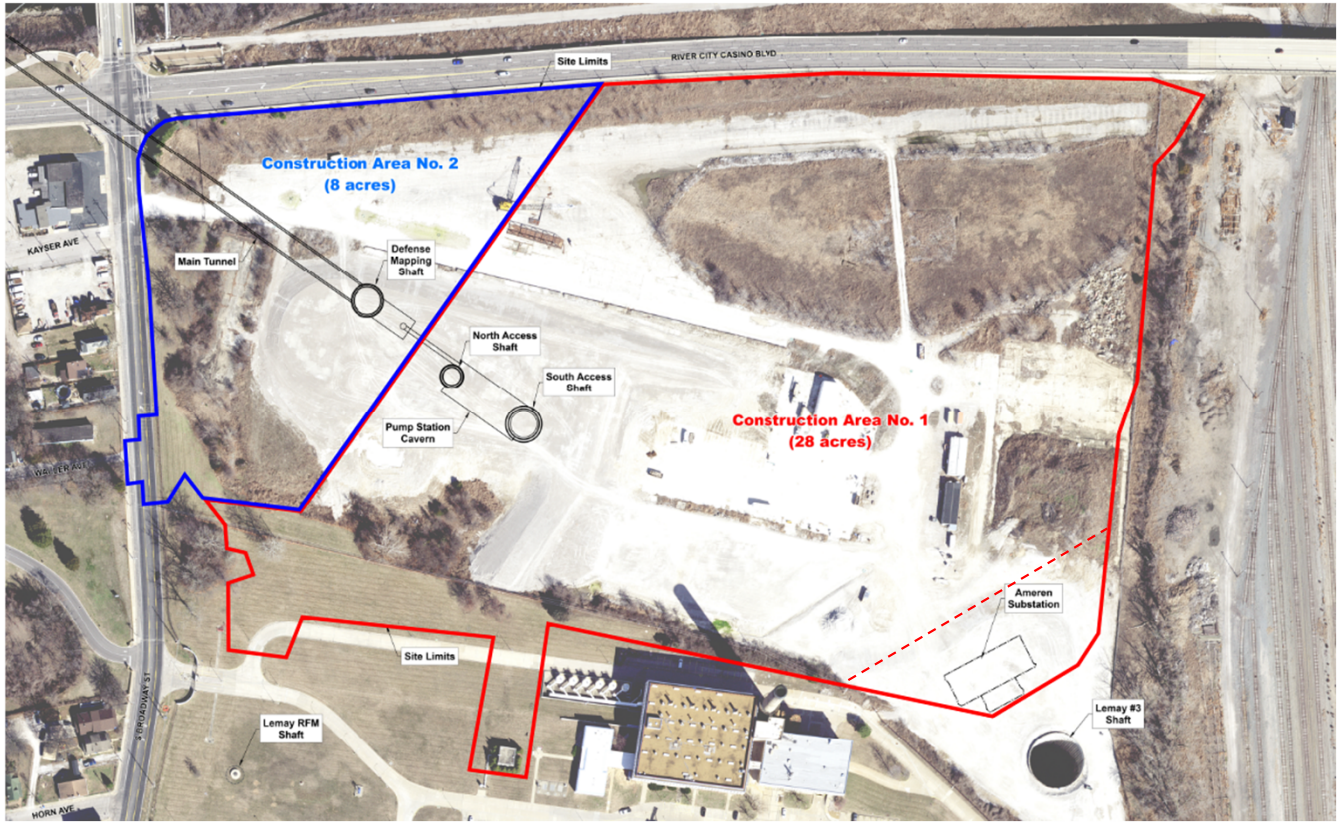
Pump Station Cavern: Support and Excavation Sequence







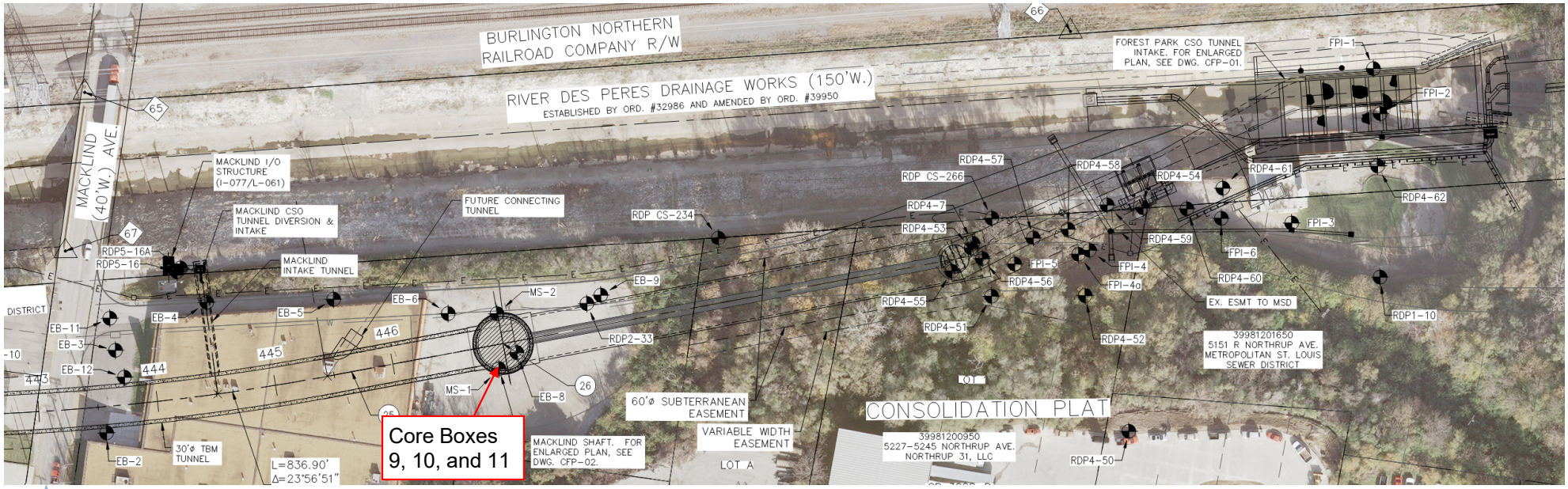
Former Defense Mapping Site: Construction Milestones



Construction Milestones

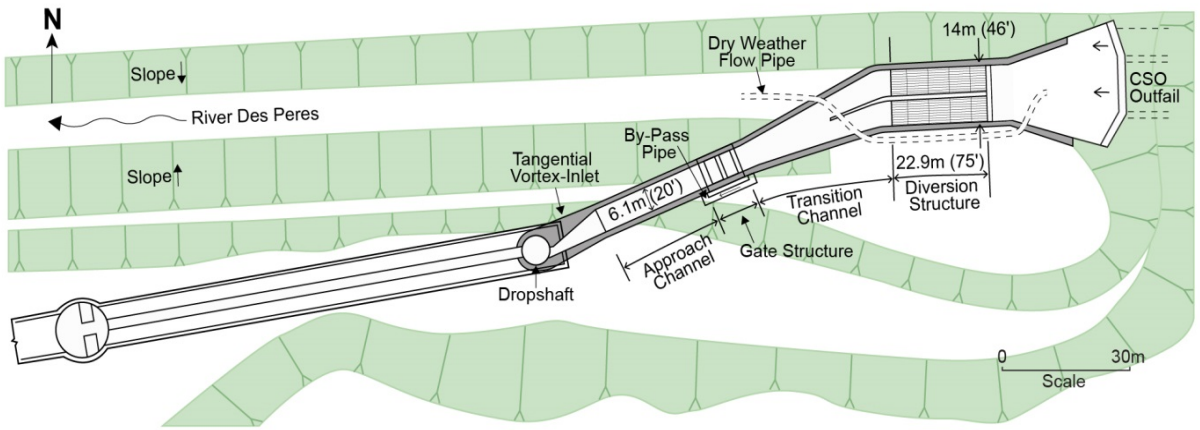
- 1st Milestone will turnover the east side of the site (28 acres) including the North and South Access Shafts and Cavern to the Pump Station Contractor.
- 2nd Milestone will turn over the remainder of the Former Defense Mapping Site (8 acres) to the Pump Station Contractor.

Macklind & Forest Park Sites: Site Overview

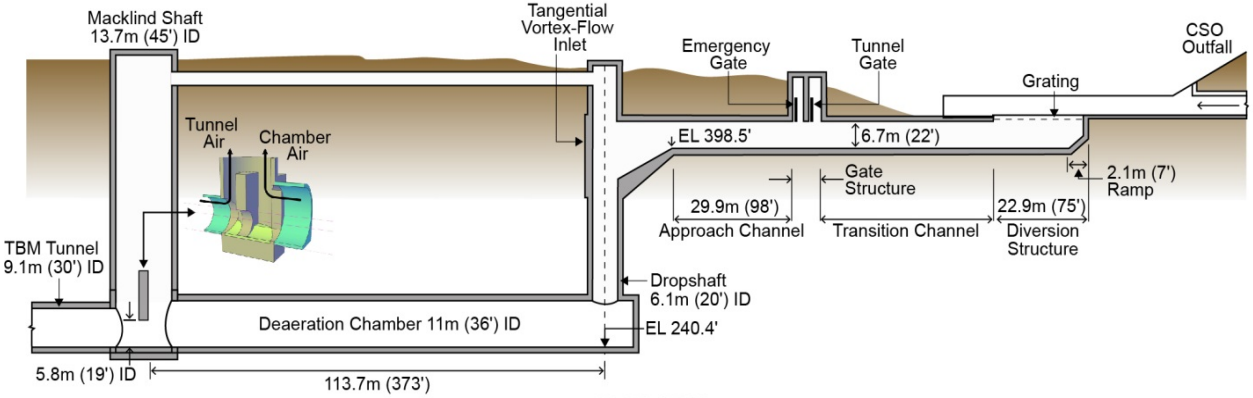


- 5.8 Acres (Combined)
- Site includes:
  - Forest Park Intake
  - Macklind Shaft
  - Macklind Intake and associated shafts
- Flow bypass plan provided for Forest Park Intake

LMRDP CSO Storage Tunnel: Forest Park Intake



PLAN



SECTION

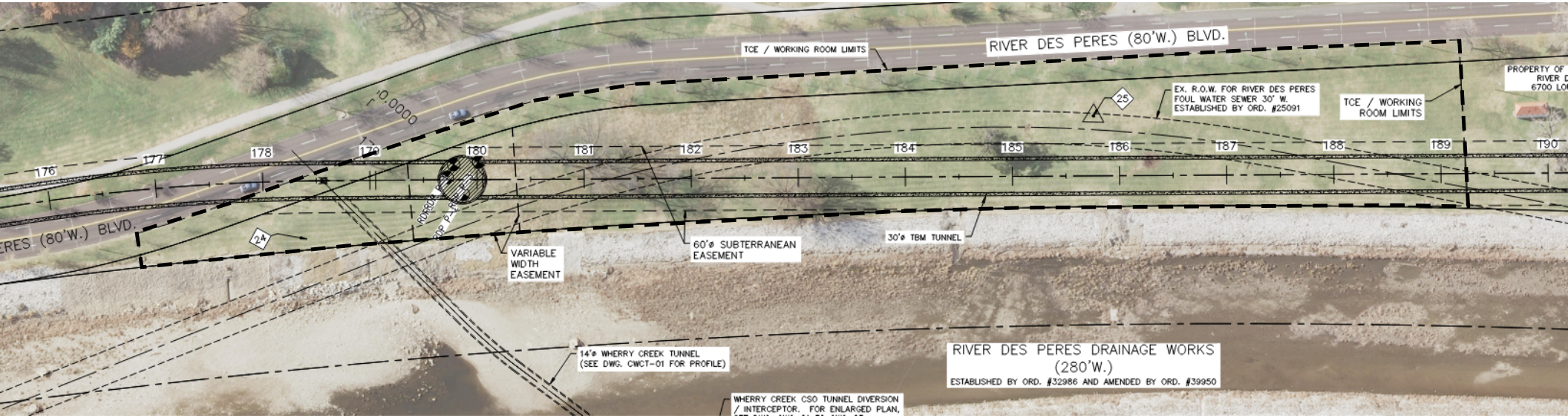


River des Peres CSO Outfall.



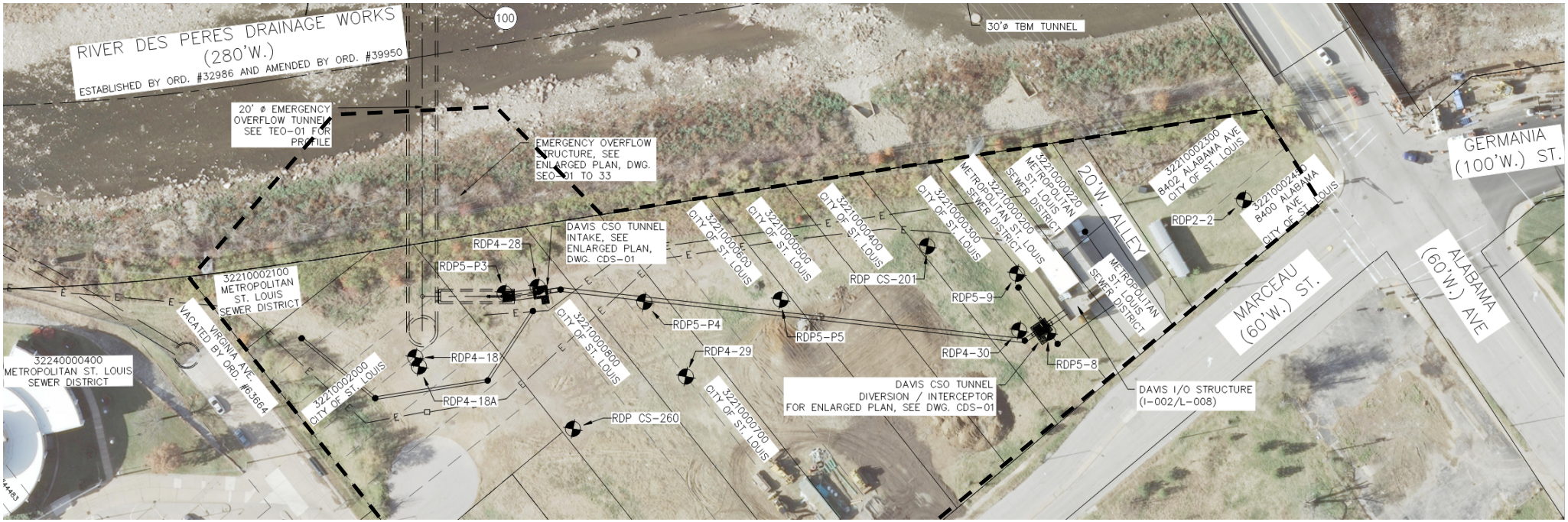
Maline Creek Cavern, similar to Forest Park Deaeration Chamber

River Des Peres Park: Site Overview



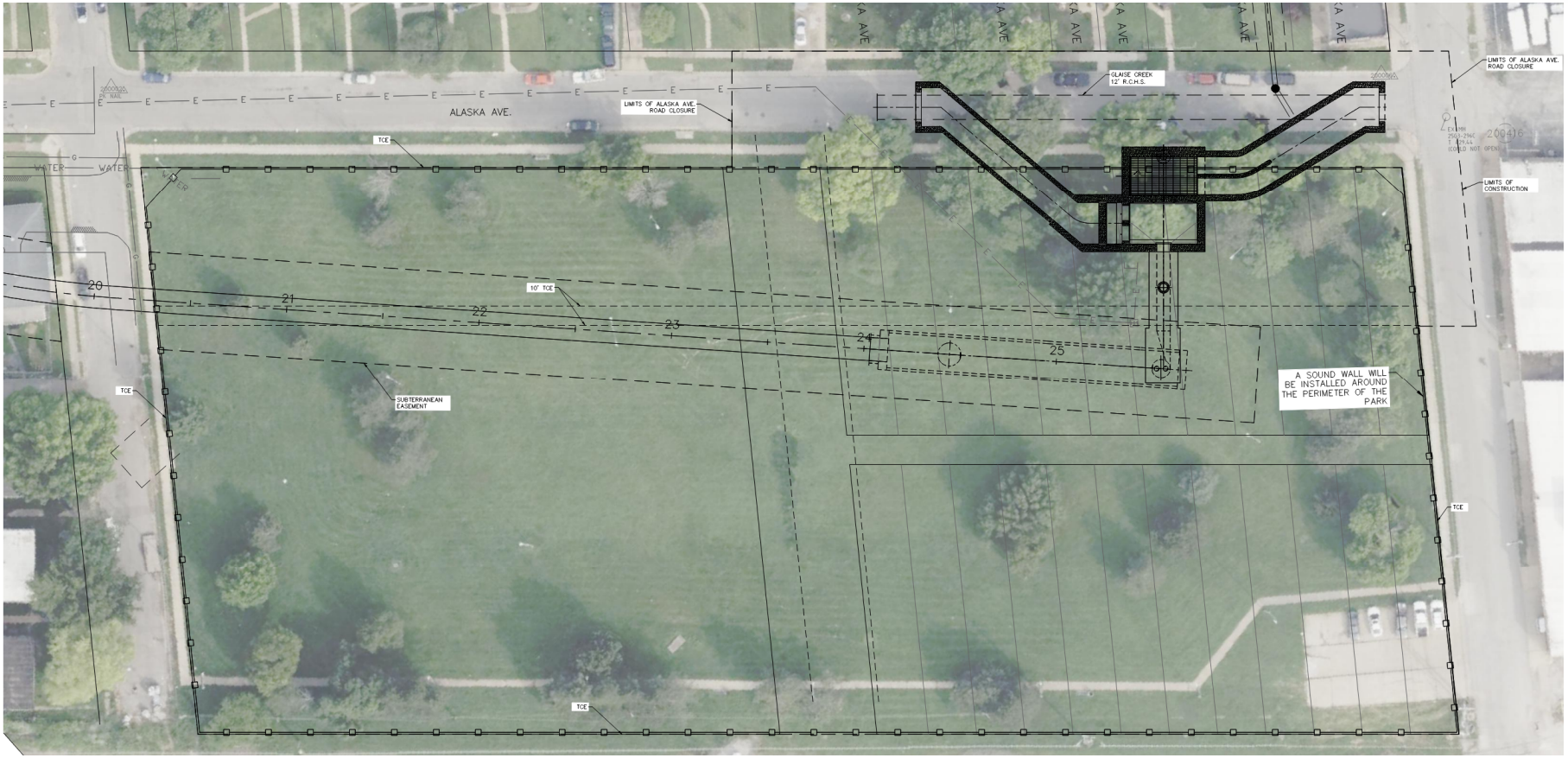
- 2.75 Acre Site
- TBM Access Shaft for maintenance
- Shaft provides access to construct the Wherry Creek Tunnel
- Permanent 45-ft finished-diameter tunnel access shaft

Emergency Overflow: Site Overview

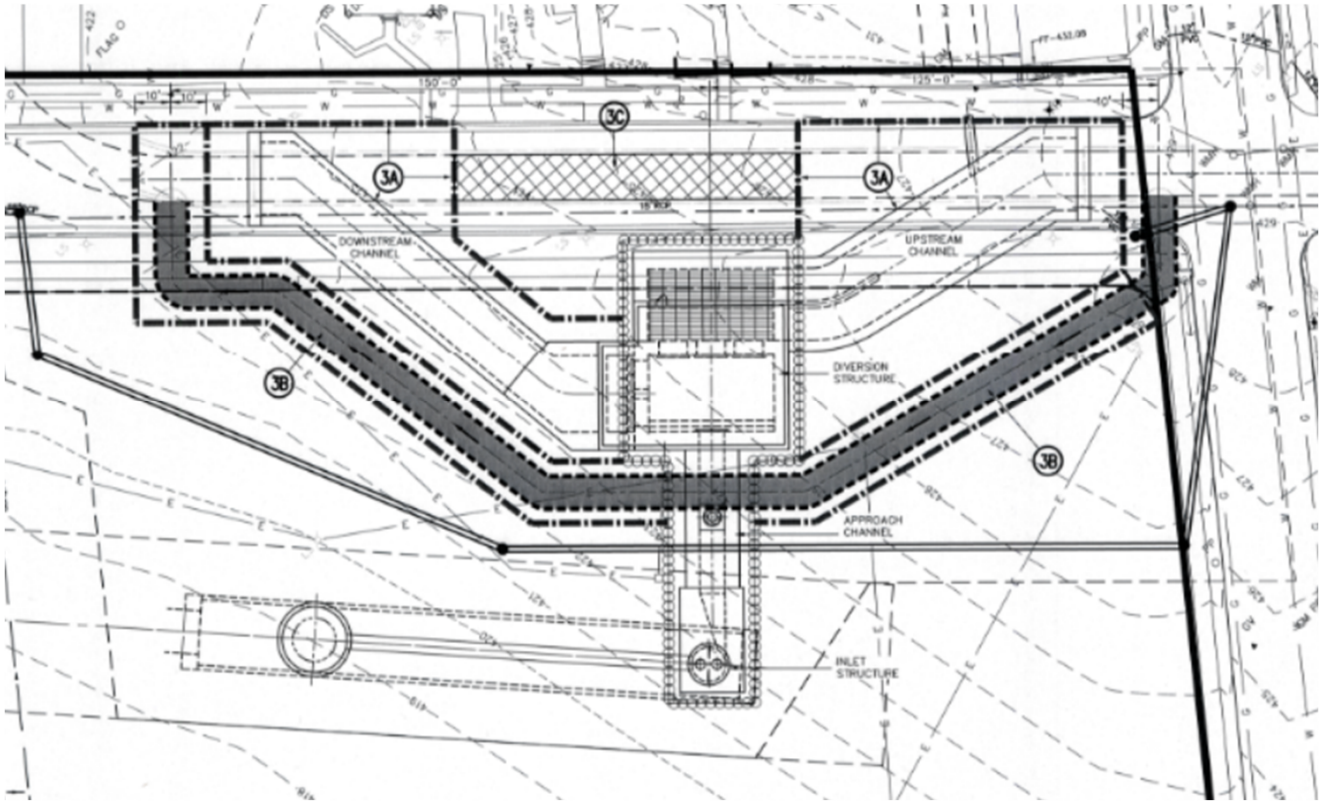


- 4.6 Acre Site
- Site includes:
  - Emergency Overflow Shaft and Overflow Structure
  - Emergency Overflow Tunnel
  - Davis Intake and Diversion Structure and associated shafts

Alaska Park Intake: Site Overview

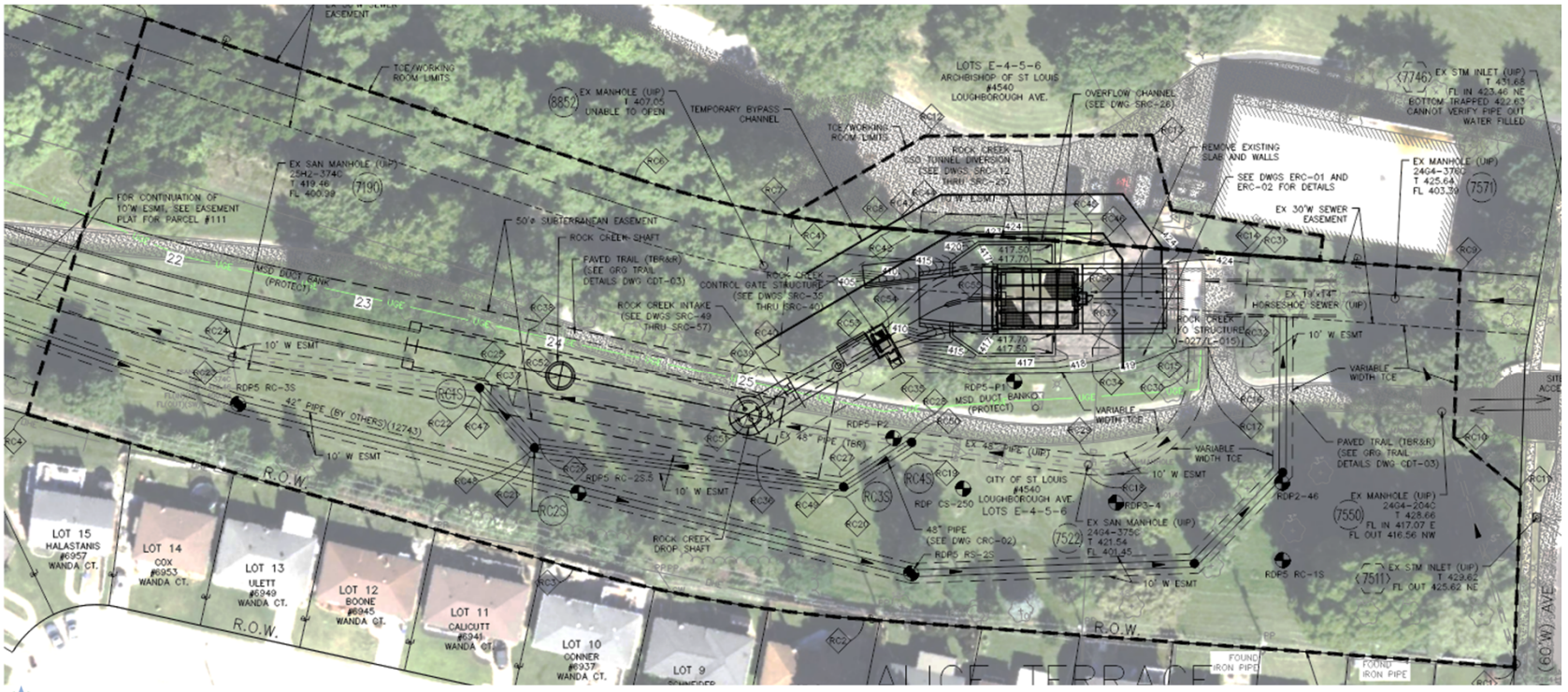


Alaska Park Intake: Site Overview



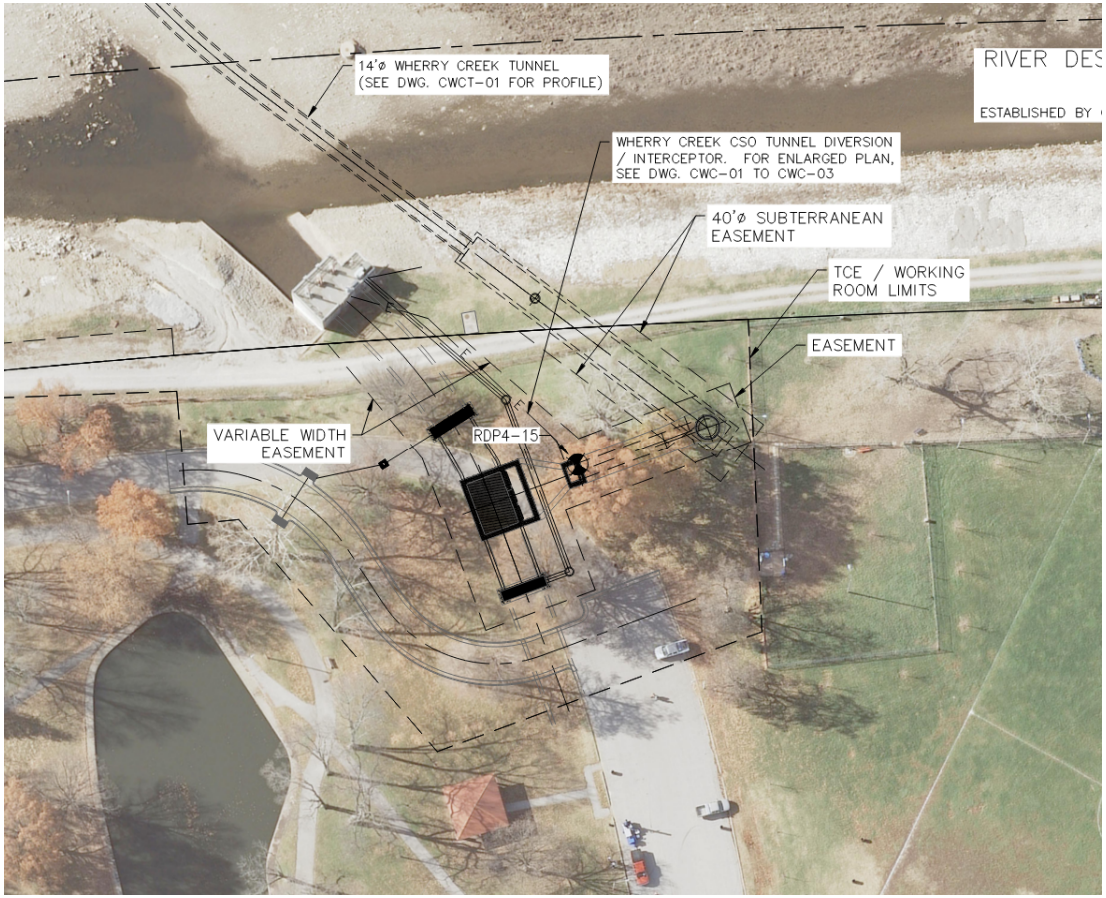
- 4.3 Acre Site
- Construction limited to consecutive 3-year period
- Acoustic barrier walls are required
- Flow bypass plan provided

Rock Creek Intake: Site Overview



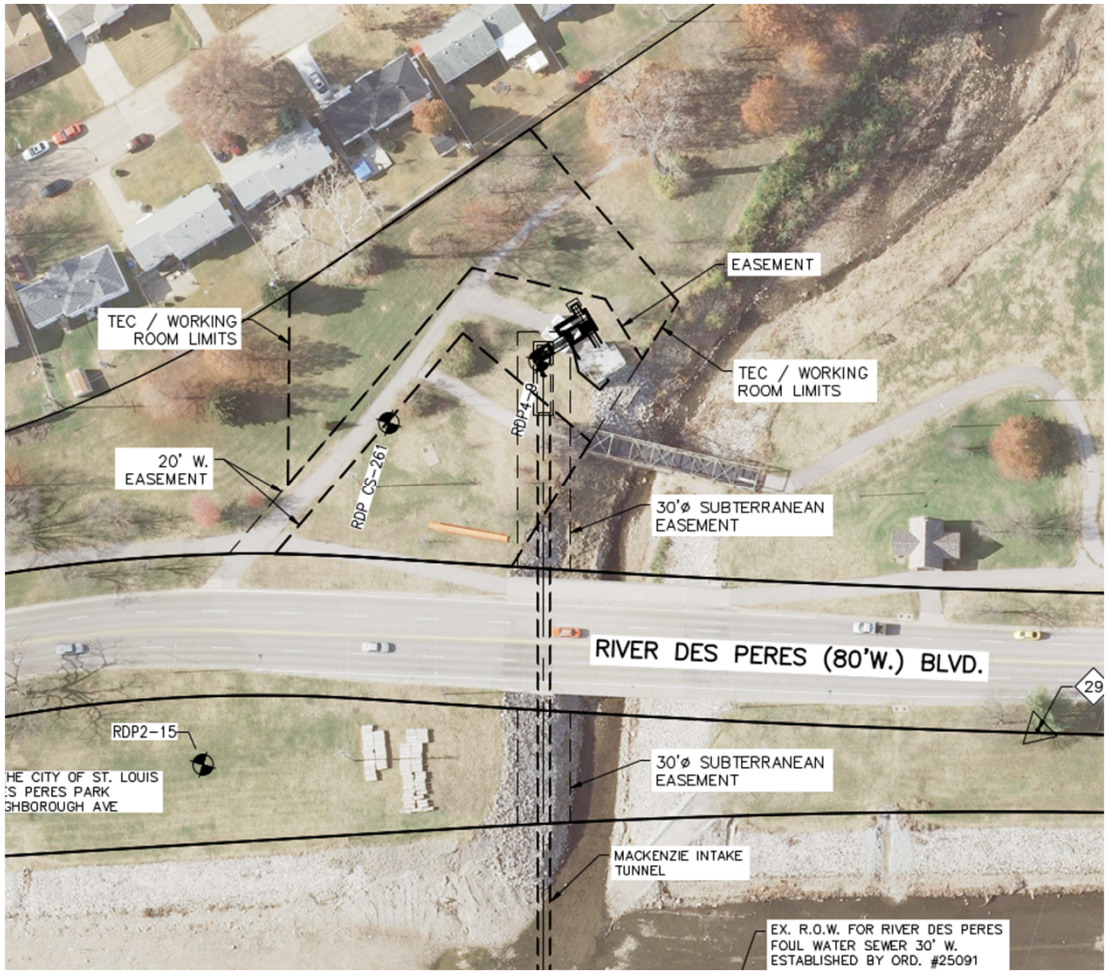
- 3.4 Acre Site
- Flow bypass plan provided
- Great Rivers Greenway Trail on site – Coordination necessary
- Must be completed within a consecutive three-year period
- Acoustic barrier walls required

Wherry Creek Intake: Site Overview

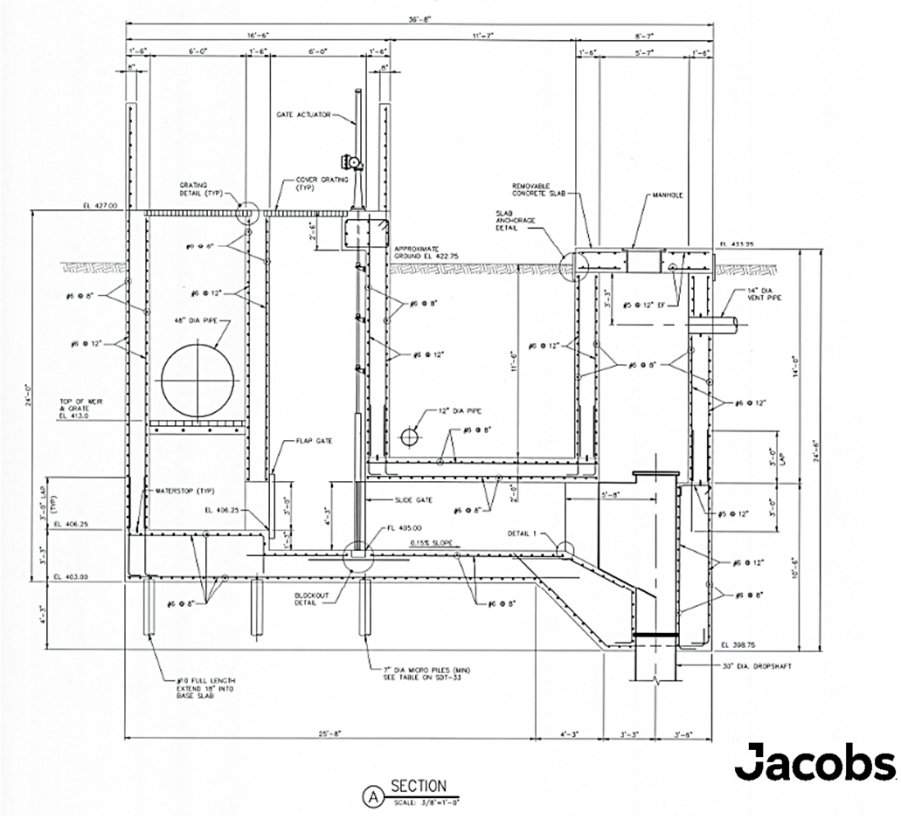


- 1.3 Acre Site
- Includes Wherry Creek Diversion Structure, Wherry Creek Shaft, and Wherry Creek Tunnel
- Flow bypass plan provided
- Acoustic barrier walls are required
- Includes 12-ft finished-diameter concrete-lined drop shaft

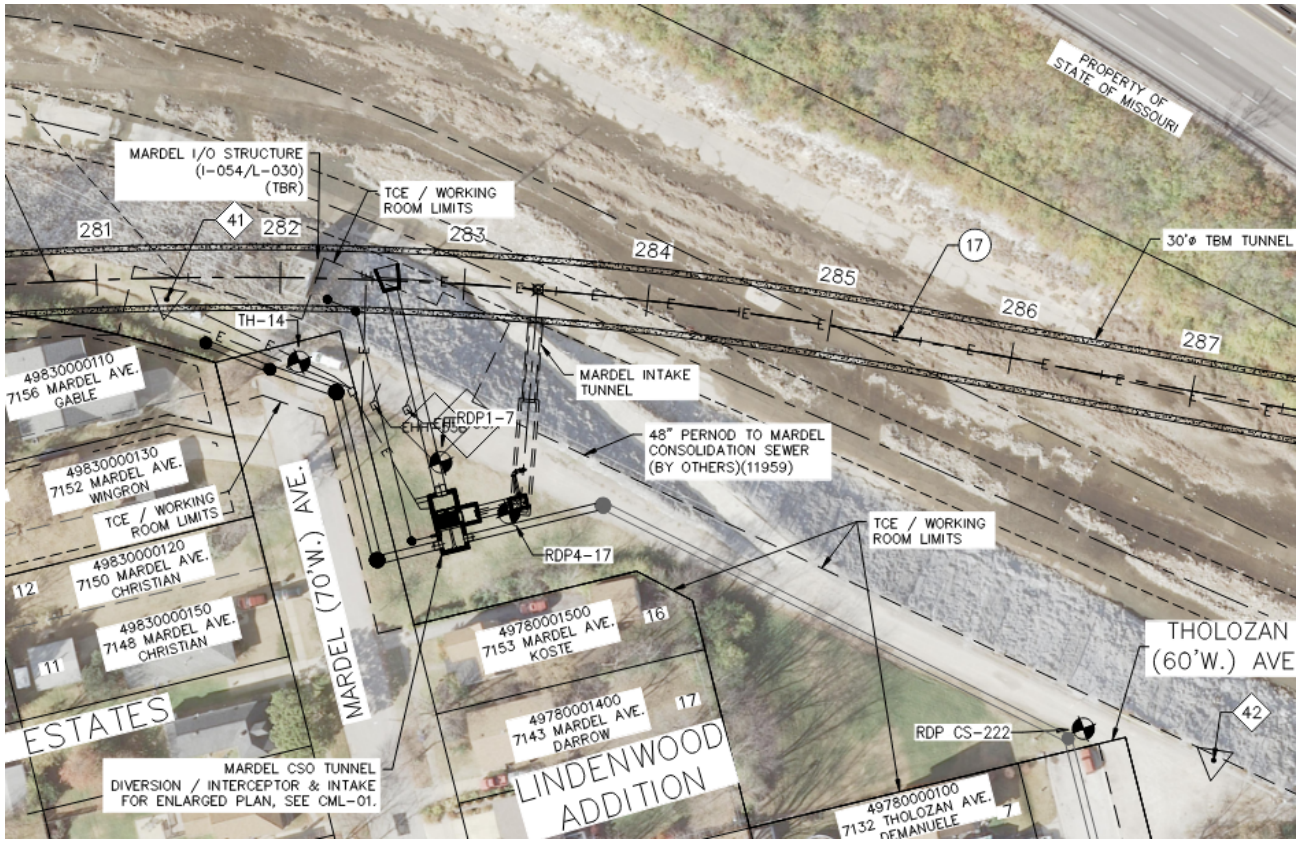
Mackenzie Intake: Site Overview



- 0.9 Acre Site
- Includes Diversion Structure, Drop Shaft Structure with stainless steel inlet, dropshaft, and vent shaft.



Mardel Intake: Site Overview

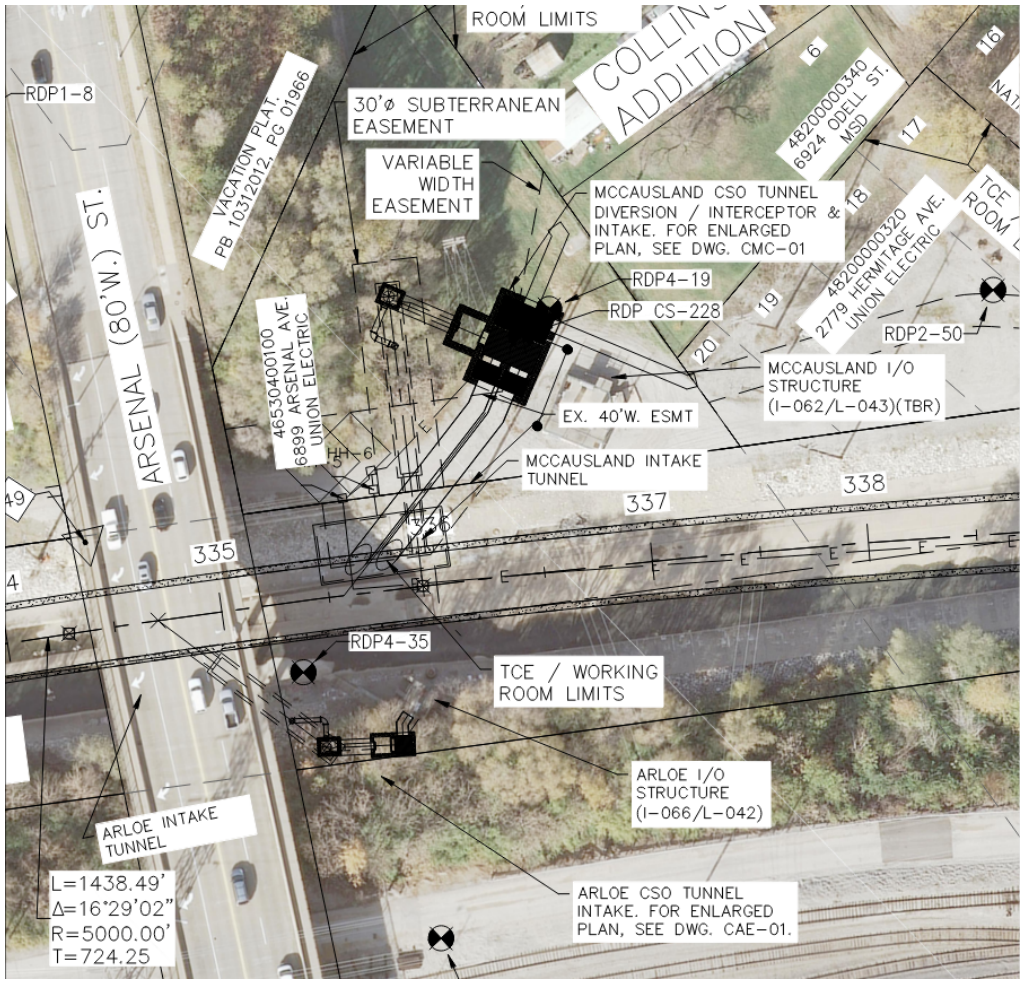


- 1.2 Acre Site
- Includes Diversion Structure, Drop Shaft Structure with stainless steel inlet, dropshaft, vent shaft, and associated piping including outfall.



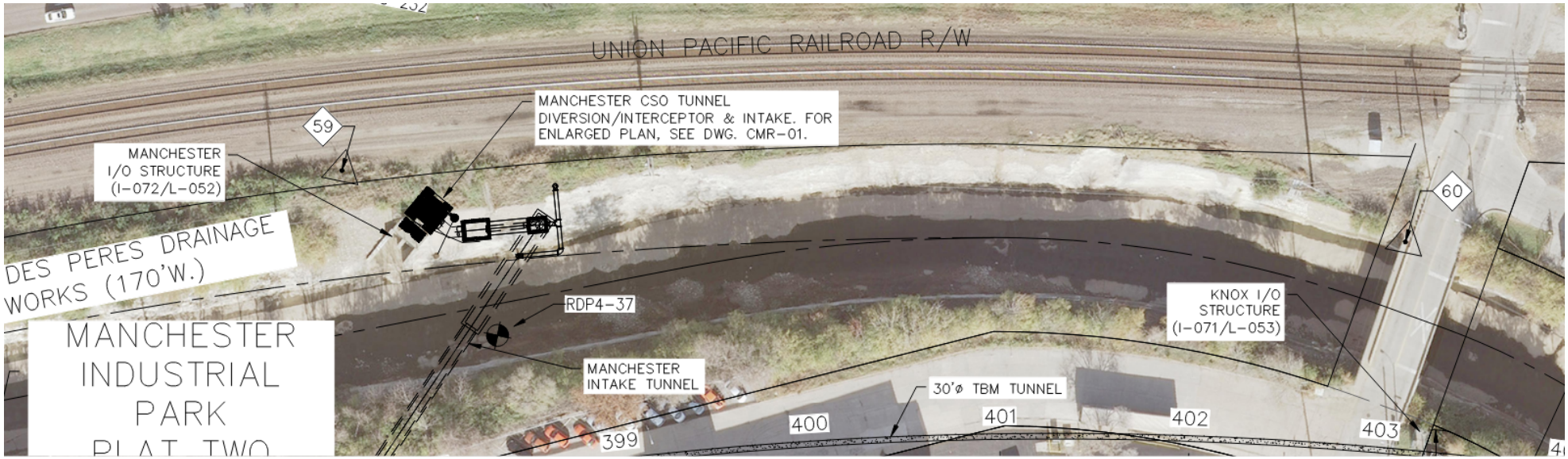
Jacobs

Arloe Intake: Site Overview



- Located in River Des Peres Right of Way
- Slope monitoring plan required
- Site cannot be accessed through BNSF Railway's property. Access is expected to be gained through the River Des Peres channel via Canterbury Ave.

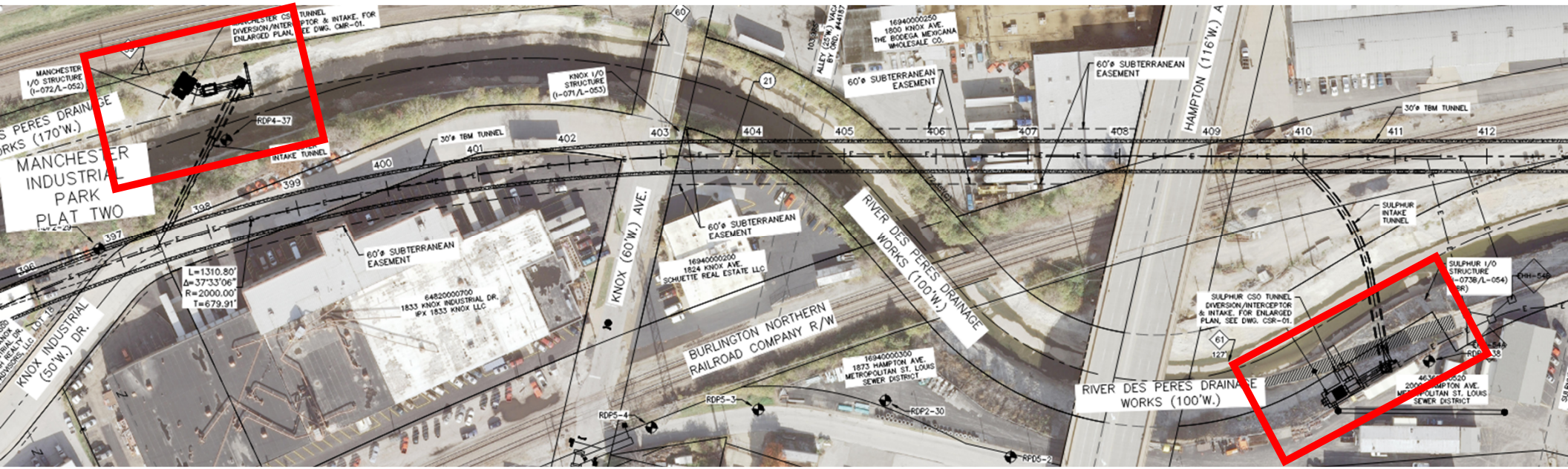
Manchester Intake: Site Overview



- Located in River Des Peres Right of Way
- Slope monitoring plan required
- 12” gas line present on north side of site
- Access through River Des Peres channel via the ramp adjacent to Sulphur

Manchester Intake: Site Access

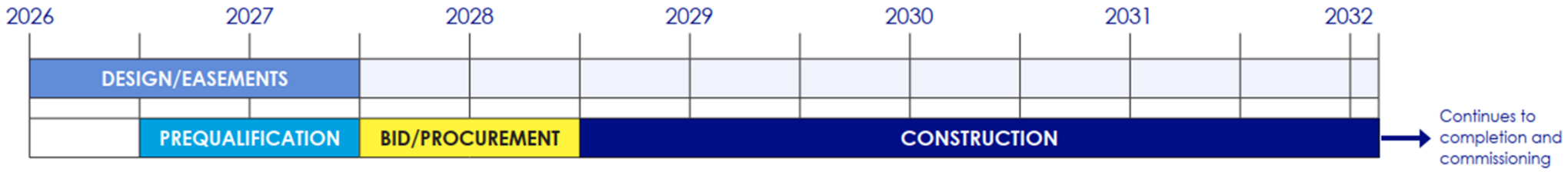
Manchester Intake



Sulphur Intake

LMRDP CSO Storage Tunnel: Design & Construction Timeline

- Prequalification: Ongoing
- Advertise for bids: July 2027
- Construction: NTP Fall 2028
- Estimated cost: ≈ $1.3 B*



*Schedules and costs are tentative as determined by current planning efforts, and subject to program implementation and final budget approval. Prequalification: based on project experience, performance, financial strength.

Upper River Des Peres and River Des Peres Tributaries Storage Tunnel



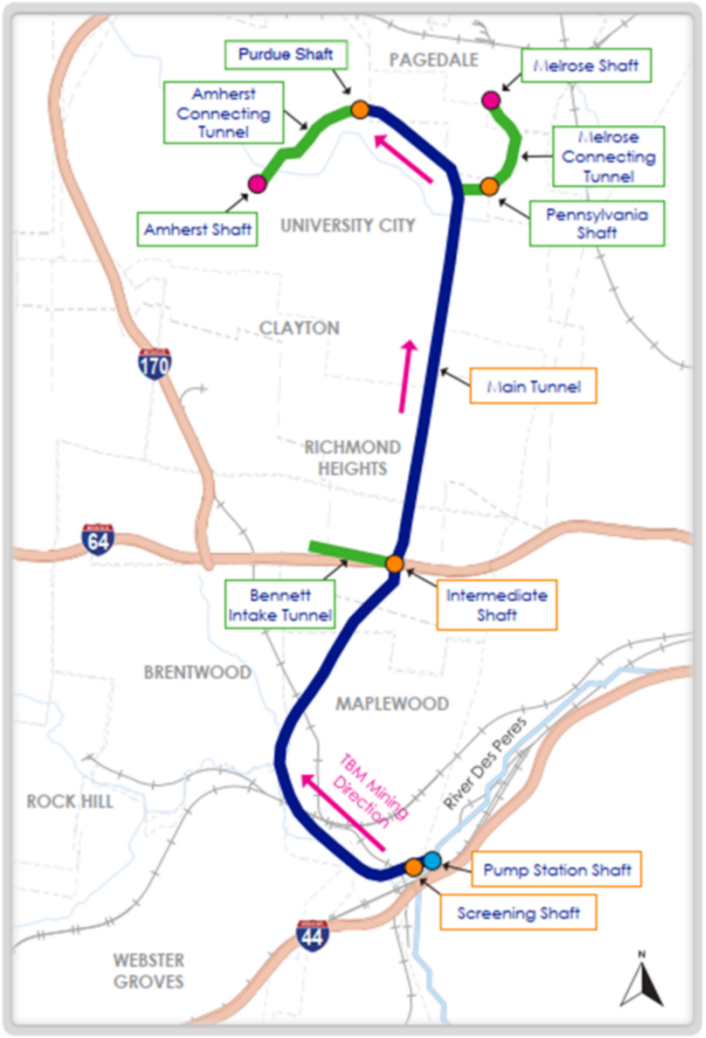
Deer Creek Tunnel, Main Beam TBM.

- Storage tunnel with pump station shaft
- 16 intakes
- Adjacent to Deer Creek Tunnel



Deer Creek Tunnel, lining installed.

URDP and RDP Tributaries Storage Tunnel: Alignment and Main Shafts



Main Tunnel

- 6 miles long by main beam TBM
- 18-foot finished dia. (CIP)
- 90-feet to 240-feet deep

Main Shafts

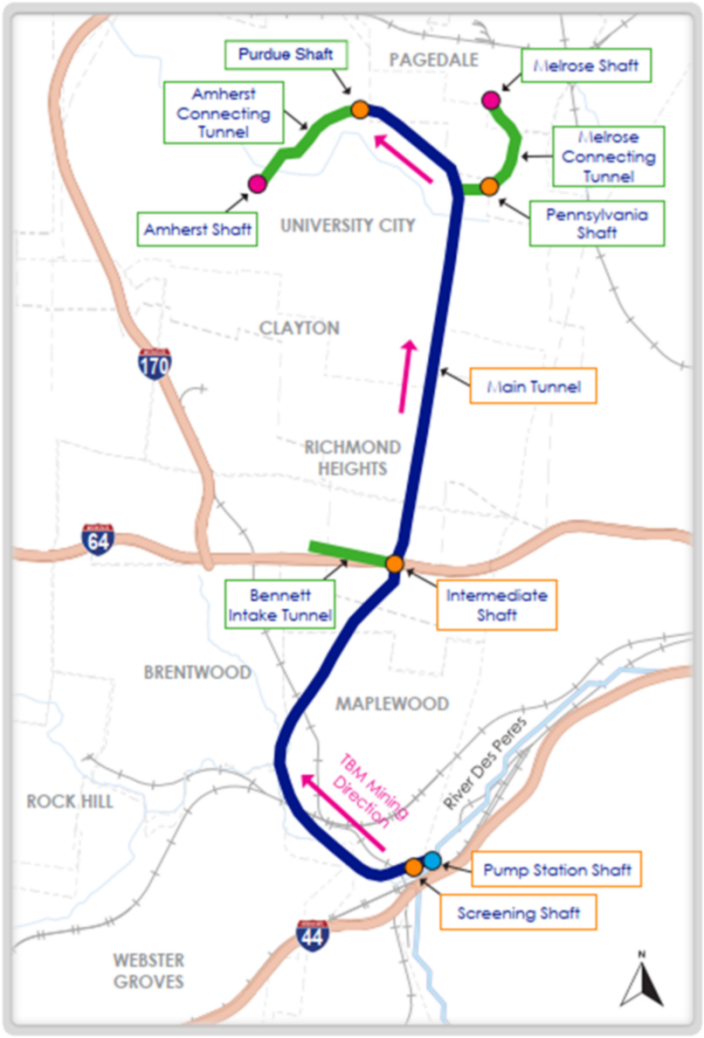
- Pump Station (65 ft)
- Screening – staging tunnel construction (45 ft)
- Intermediate – staging (northern portion) (45 ft)
- Purdue Shaft – TBM removal (30 ft)
- Pennsylvania – Melrose Connecting Tunnel (30 ft)

Other Major Shafts

- Amherst – TBM removal (20 ft)
- Melrose – TBM removal (20 ft)

Note: This project will impact multiple municipalities with different regulations.

URDP and RDP Tributaries Storage Tunnel: Connecting Tunnels and Intakes



Connecting Tunnels (3)

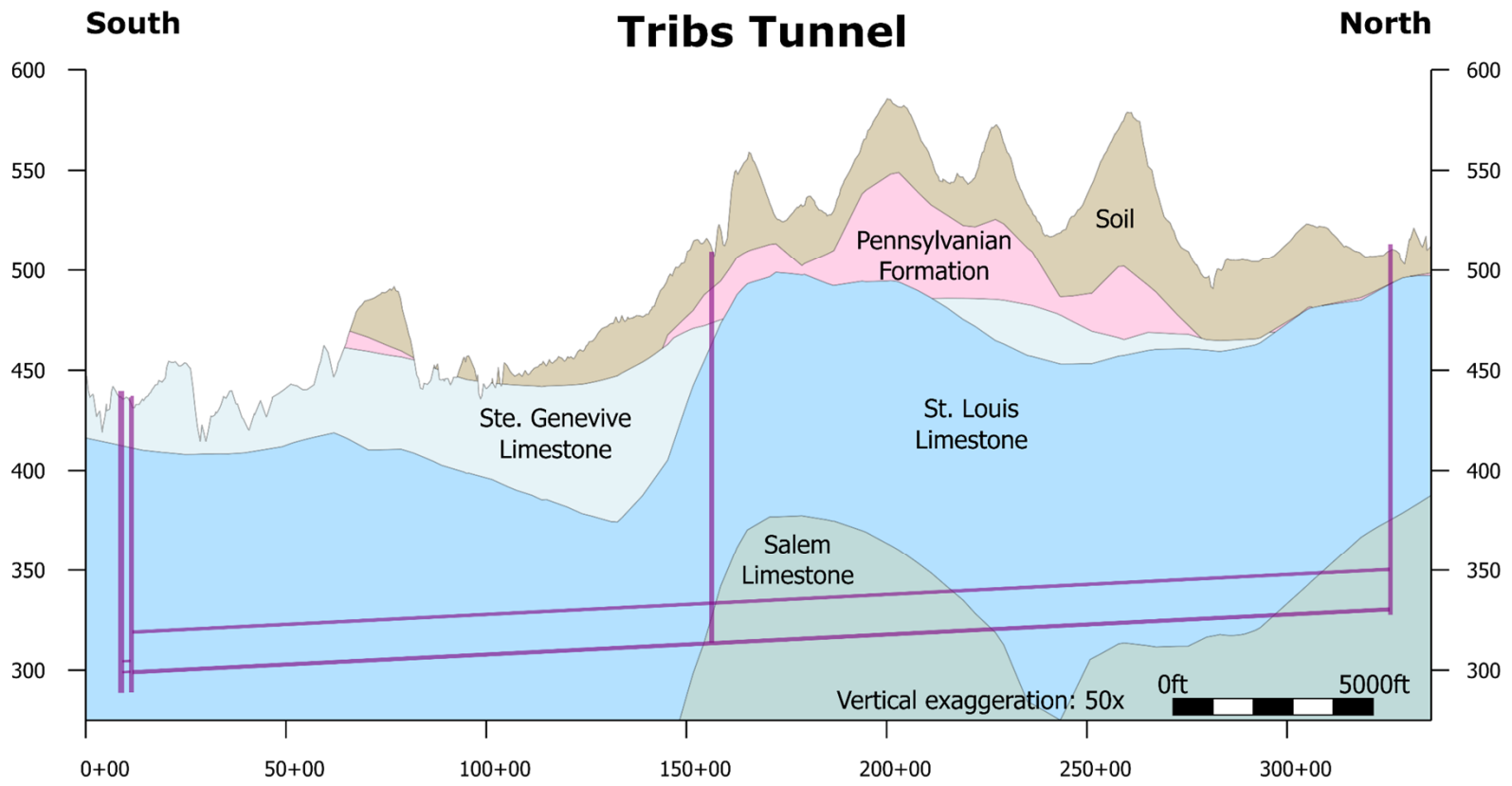
- Mined by main beam rock TBM
- 12-ft dia. cast-in-place lining
- Length (total): 12,200 ft (approx.)
- Length (each): 3,600-4,300 ft

Intakes

- 16 total
- Dropshafts and deaeration chambers

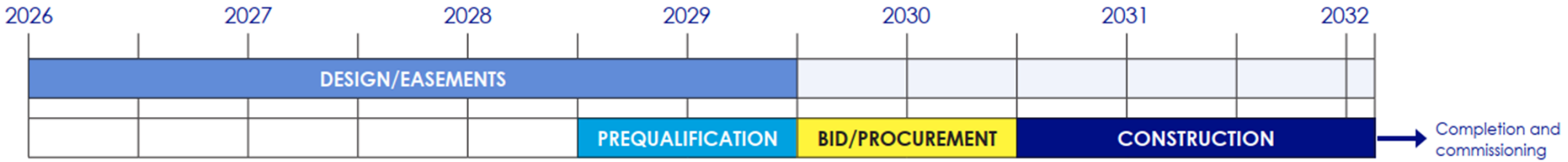
Note: This project will impact multiple municipalities with different regulations.

URDP and RDP Tributaries Storage Tunnel: Geologic Profile



URDP and RDP Tributaries Storage Tunnel: Design, Procurement, and Construction Timeline*

- Design at 60%
- Prequalification: mid-2028
- Advertise for bids: mid-2029
- Construction: NTP mid-2030
- Estimated cost: ≈ $800M*



*The schedules and costs are tentative as determined by current planning efforts, and subject to program implementation and final budget approval.

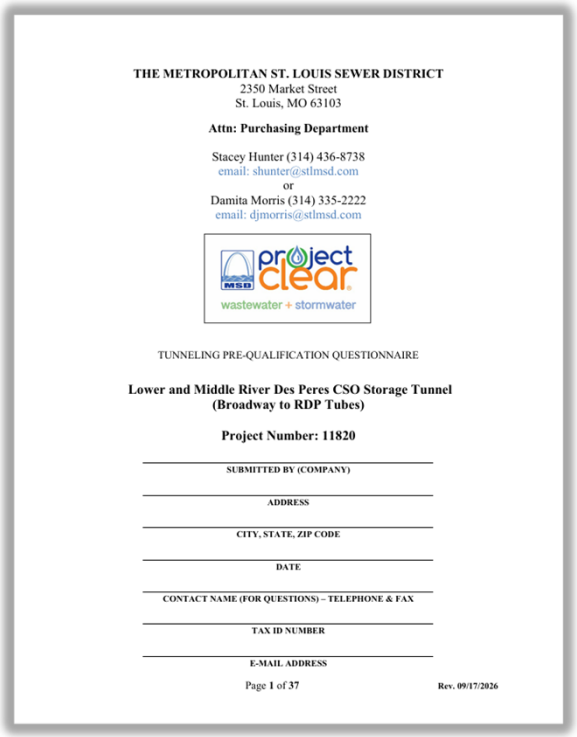
Questions?

Session #2 Agenda

- Prequalification
- Prequalified Bidder Meetings
- Procurement and Bid Procedures
- Diversity Program Information
- Specification Information
- Self-Guided Tours
- Follow-Up Information

Prequalification

- Contractors must be prequalified
- Contractor prequalification package distribution – Did you receive it?
- Website link https://www.stlmsdplanroom.com/projects/public
- Tentative Important dates:
  - September 18, 2026 — Prequalification Package Distribution
  - December 4, 2026 — Prequalification Submittals Due to MSD
  - March 27, 2027 — Final Prequalification Letter Sent to Contractors



THE METROPOLITAN ST. LOUIS SEWER DISTRICT
2350 Market Street
St. Louis, MO 63103

Attn: Purchasing Department

Stacey Hunter (314) 436-8738
email: shunter@stlmsd.com
or
Damita Morris (314) 335-2222
email: djmorris@stlmsd.com

TUNNELING PRE-QUALIFICATION QUESTIONNAIRE

Lower and Middle River Des Peres CSO Storage Tunnel (Broadway to RDP Tubes)

Project Number: 11820

SUBMITTED BY (COMPANY)

ADDRESS

CITY, STATE, ZIP CODE

DATE

CONTACT NAME (FOR QUESTIONS) – TELEPHONE & FAX

TAX ID NUMBER

E-MAIL ADDRESS

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Prequalified Bidder Meetings

- MSD offering meetings with prequalified bidders
- Upon request
- After March 27th, 2027 – following completion of prequalification process
- Confidential
- No questions will be answered at this time

Procurement and Bid Procedures

Procurement Procedures

- Purchasing policy posted on ProjectClear.org
- Contractor proposals for value engineering may be considered post award only.

Pre-Bid Meeting

- Pre-bid meeting attendance will be mandatory.
- MSD will host a Diversity Fair to help support finding subcontractor partners.

Bids

- Bids will be sealed and opened in public.
- Bid Evaluation – The winning bid will be evaluated for responsiveness to bid package requirements, including the specified diversity.

Business Diversity Programs

Program Goals:

- Promotes economic inclusion across all segments of its business
- Maximize opportunities for diverse participation

Required for construction projects receiving State or Missouri Funding:

- Participation of Minority and Women Business Enterprises (M/WBE)
- Participation of Minority and Women Workforce

M/WBE Partners

- **Approved M/WBE Certification Agencies:**
  - St. Louis Development Corporation | sldc.gob2g.com
  - Missouri State Office of Equal Opportunity| apps1.mo.gov/MWBCertifiedFirms

- **Certification** – Typically takes 90 days once all required documents are submitted

- **Resources to Help Connect With Local M/WBE Partners:**
  - Both SLDC and State of MO OEO maintains a directory of certified firms

M/WBE Goals

M/WBE Goal Percentages

- Goal percentages
  - Based upon 2022 Disparity Study Update
  - Based on the total bid amount and apply for the entire contract duration, including change orders over $500,000

Subcontractor M/WBE Goals for Contracts above $50,000:

- 10% MBE subcontractor participation for SRF Non-Building Construction
- 10% WBE subcontractor participation for SRF Non-Building Construction

Minority and Women Workforce Goals for Contract above $500,000:

- Minority workforce goal will be 37% of total work hours
- Women workforce goal will be 11% of total work hours

M/WBE Program Guidelines for Evaluation of Bids

Goal Achievement: Meeting subcontractor participation of percentages for MBE and WBE

- Must achieve the required goal percentages for M/WBE's or successfully perform "Good Faith Efforts"
- Utilization of M/WBE's solely for the purpose of providing "Labor" does not serve a "Commercially Useful Function" and will not count towards goal participation
- Bid clarifications may be requested during bid evaluations and requires a timely response by the due date and time. Failure to respond by the due date will render the Bidder non-responsive.

Specifications – Dispute Review Board (DRB)

- 3-person board with regularly scheduled meetings
- Informal and formal meetings
- Board recommendations are non-binding
- Recommendations from formal meetings are admissible in subsequent legal proceedings
- Cost split equally between MSD and Contractor

Specifications – Formal Partnering

- Initial facilitated kickoff meeting
- Regular surveys
- Additional facilitated meetings as mutually agreed
- Attendance required for major subcontractors
- Cost split equally between MSD and Contractor

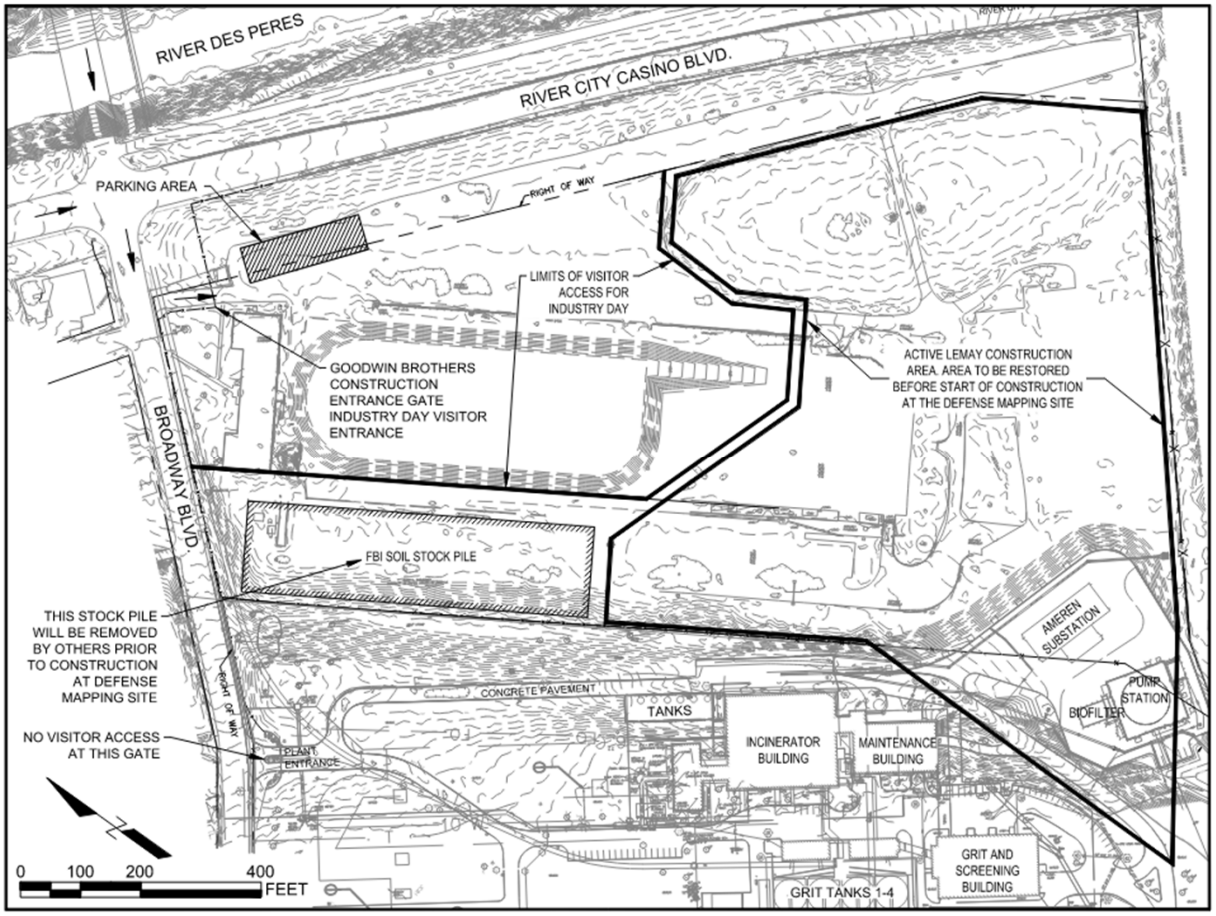
Specifications – Escrow Bid Documents

- To assist in the negotiation of price adjustments and change orders
- Three lowest bidders required to submit bid documents
- Failure to submit complete bid documents is sufficient cause for rejection of bid
- Examination of bid documents to be performed in the presence of MSD and Contractor

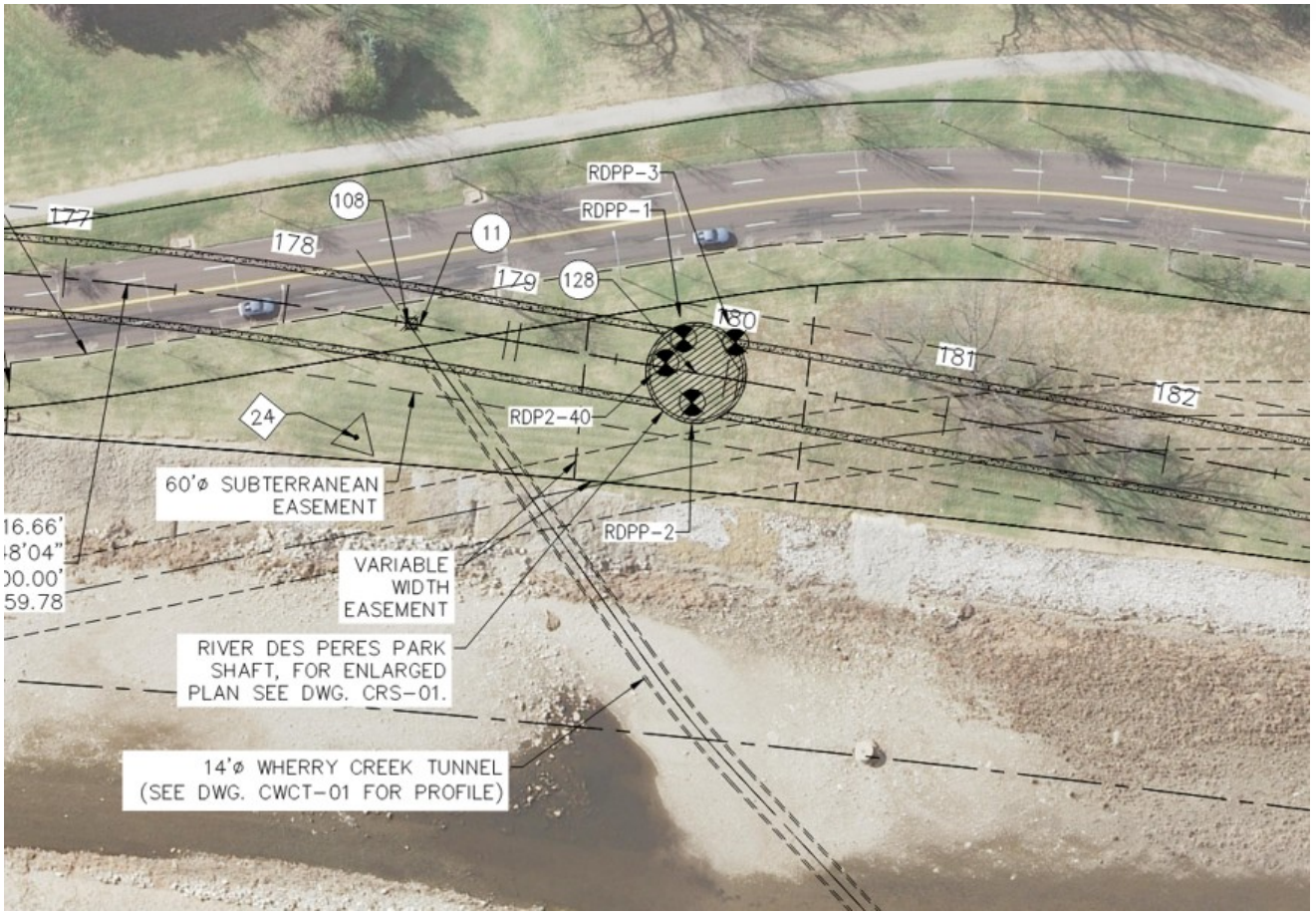
Self-Guided Tours

- Self-guided tour packets available
  - Electronic emailed yesterday
  - Hard copy provided today
- Major and difficult access sites are highlighted in packets
- Ownership is noted as Public or Private
- Property acquisition is currently underway.
- Private properties may not be entered, including surrounding properties for access to the project-related properties.

Self-Guided Tours – Former Defense Mapping Site



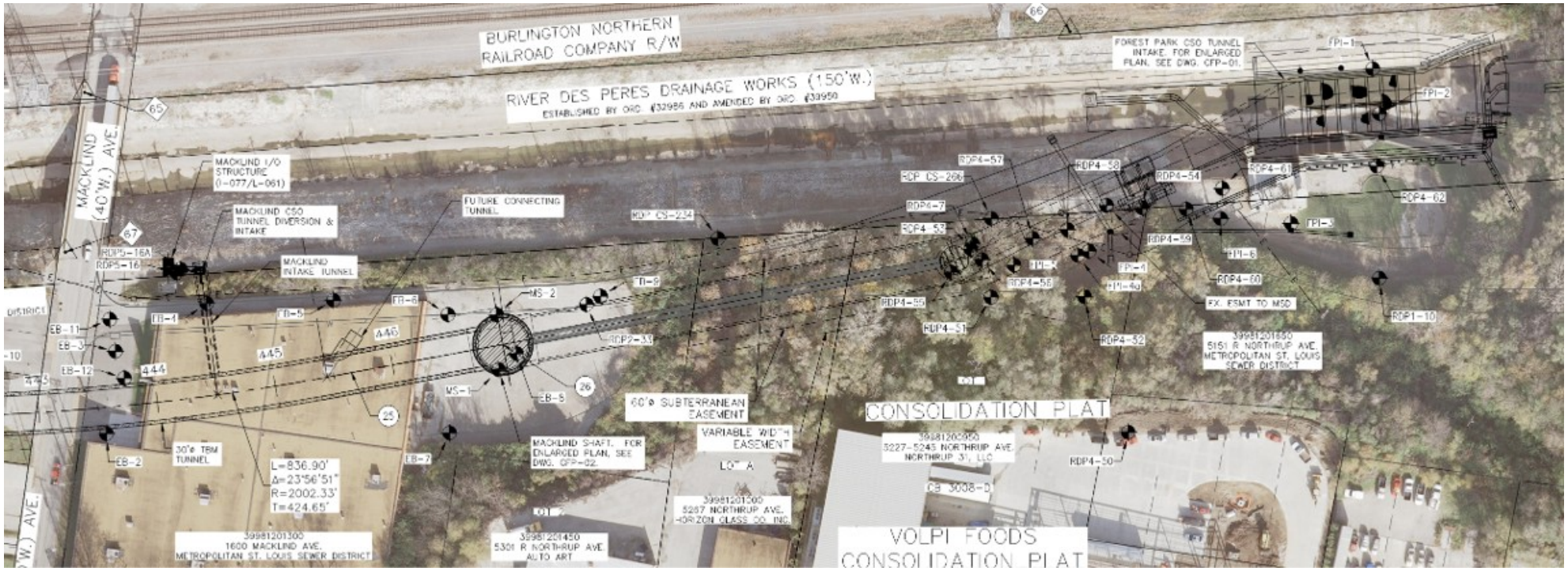
Self-Guided Tours – River Des Peres Park



Self-Guided Tours – Rock Creek Intake



Self-Guided Tours – Forest Park Intake



Follow-Up Information

- Until bid time, MSD will be providing updates on the MSD website:

  Lower & Middle River Des Peres Storage Tunnel - Metropolitan St. Louis Sewer District

  Contractor Interest - Metropolitan St. Louis Sewer District

- Watch the website for updates!

Contact Us and Stay Updated

@MSDProjectClear

Metropolitan St. Louis Sewer District

MSDProjectClear.org/Projects/tunnels

For questions, please contact project leaders at **LMRDPTunnel@stlmsd.com** or using the following:

Information	Construction Dept	Design Dept	Design Engineer
Name	Mr. Allen Muehlher	Ms. Patricia Pride	Mr. Andrew Bursey
Email	afmueh@stlmsd.com	paprid@stlmsd.com	andrew.bursey@jacobs.com

Questions?