DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

STAKEHOLDER ENGAGEMENT COMMITTEE (SEC)

Stakeholder Engagement Committee

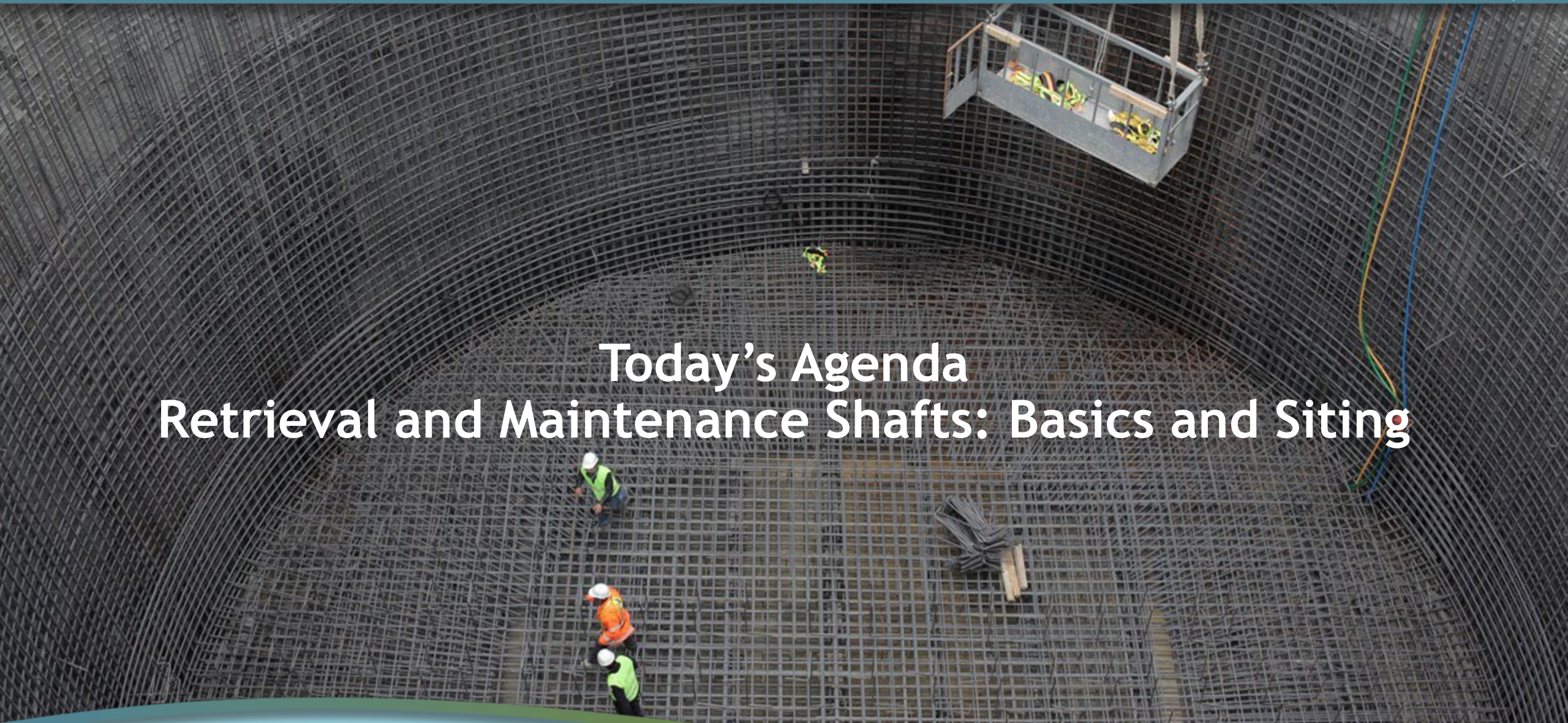
February 26, 2020

MEETING OVERVIEW

- Question and Answer Follow-Up
- Roundtable Discussion on Tunnel Drive Shaft Siting
- Engineering Discussion
  - Introduction to Retrieval Shafts
  - Introduction to Maintenance Shafts

DELTA CONVEYANCE DESIGN & CONSTRUCTION AUTHORITY

Minutes Review



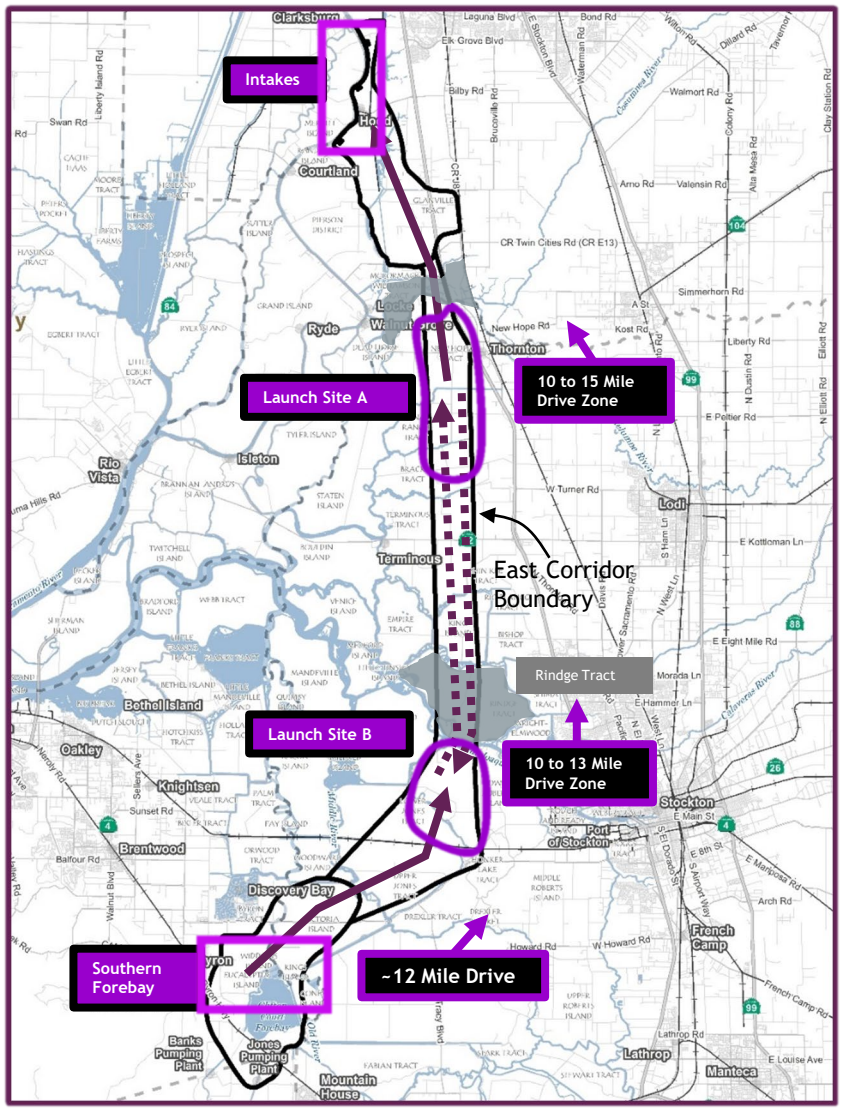
Today's Agenda
Retrieval and Maintenance Shafts: Basics and Siting

Site Tours

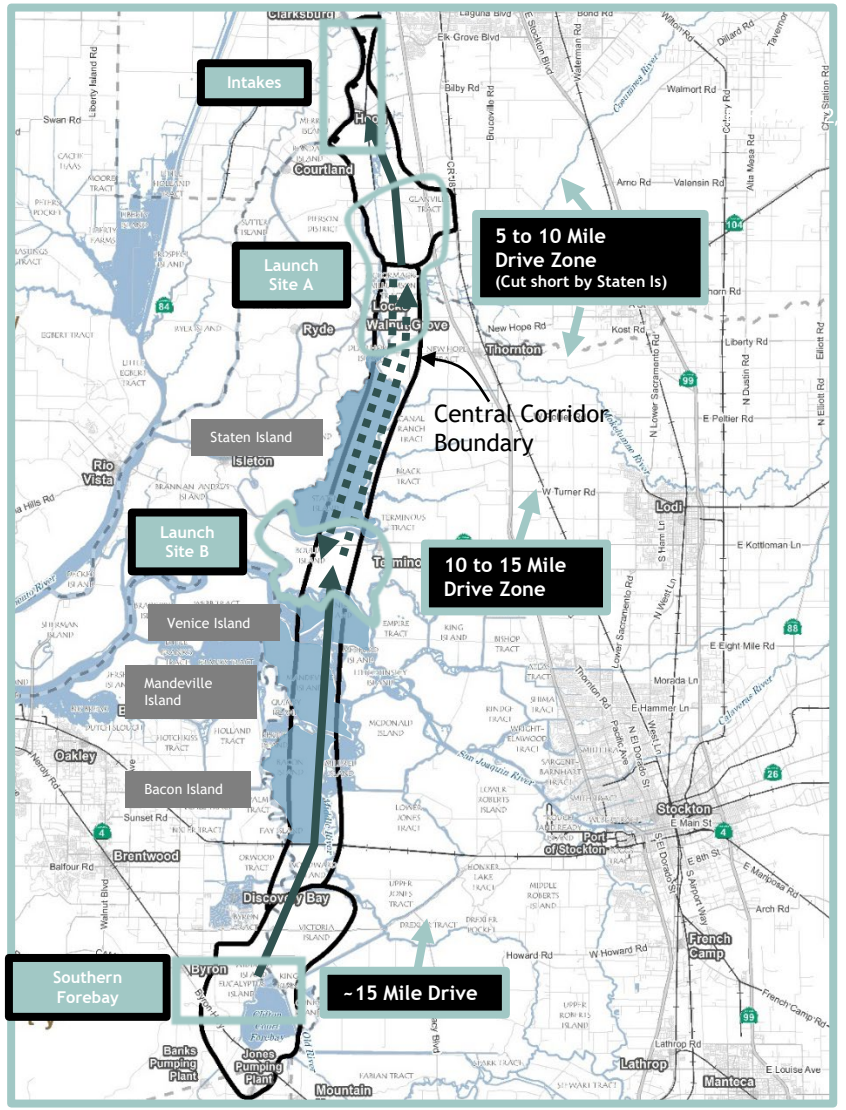
- SEC member tours:
  - Tunnel launch shaft site in Silicon Valley
    - Barnard site tour
    - First/second week in March
  - ISI fish screen manufacturing facilities in Freeport
  - Intake facilities in Red Bluff
- DCA can arrange transport to sites or you can meet at site
- Contact Valerie Martinez to indicate which tours you are interested in and we will notify you of day/time.

February 12, 2020 SEC Meeting Follow-Up & Member Roundtable

Preliminary Tunnel Alignments



East Alignment



Central Alignment

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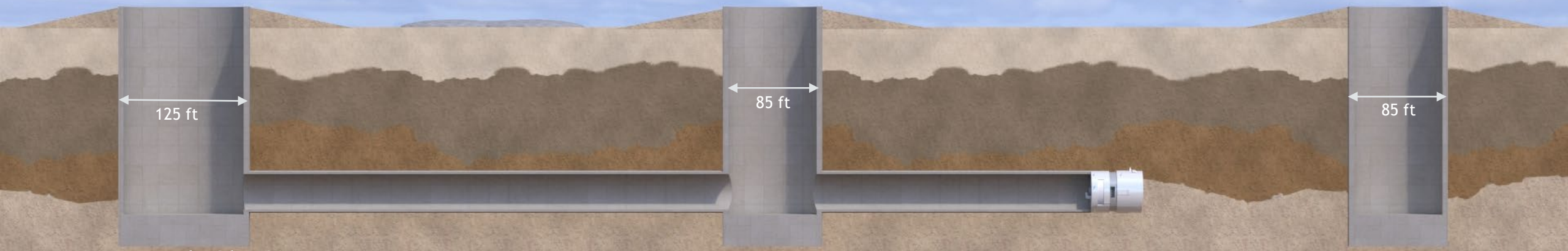
RETRIEVAL AND MAINTENANCE SHAFTS

Key Components of a Tunnel Drive

10 to 15 mile tunnel drive lengths acceptable based on Delta soil conditions



Launch Shaft
Where the tunnel boring machine (TBM) is lowered into the tunnel. Where the concrete liners are transported into the tunnel. Where the excavated material (RTM) is removed.

Maintenance Shaft
Provides direct access to the TBM for routine maintenance work. Needed approximately every 4 to 5 miles.

Retrieval Shaft
Termination point of tunnel drive. Where TBM is disassembled and lifted out of the tunnel.

Purpose of Retrieval and Maintenance Shafts

Retrieval Shafts

- To recover TBMs from the tunnel at the end of the drive
  - Shaft size required is based on the space required to dismantle TBM once it has driven into the shaft
- Shafts can be used to receive two TBMs, one from either direction
- Launch shafts can be used to receive a TBM coming from the opposite direction

Maintenance Shafts

- To provide access to TBMs for periodic maintenance during long tunnel drives
  - Approximately 4 to 5 mile spacing (to be verified by soil abrasion testing results)
  - The cutterhead and other major components can be repaired or replaced
- The shaft will have tunnel opening frames of reinforced concrete to maintain shaft integrity when the TBM breaks in (and later breaks out)
- The shaft is sized so that the full TBM can be accessed for maintenance
  - If only the cutterhead needs to be accessed then the shaft can be 10-20 ft smaller in diameter
- The shafts will also be used to provide fresh air for ventilation and as an exit in case of emergency during tunnel construction

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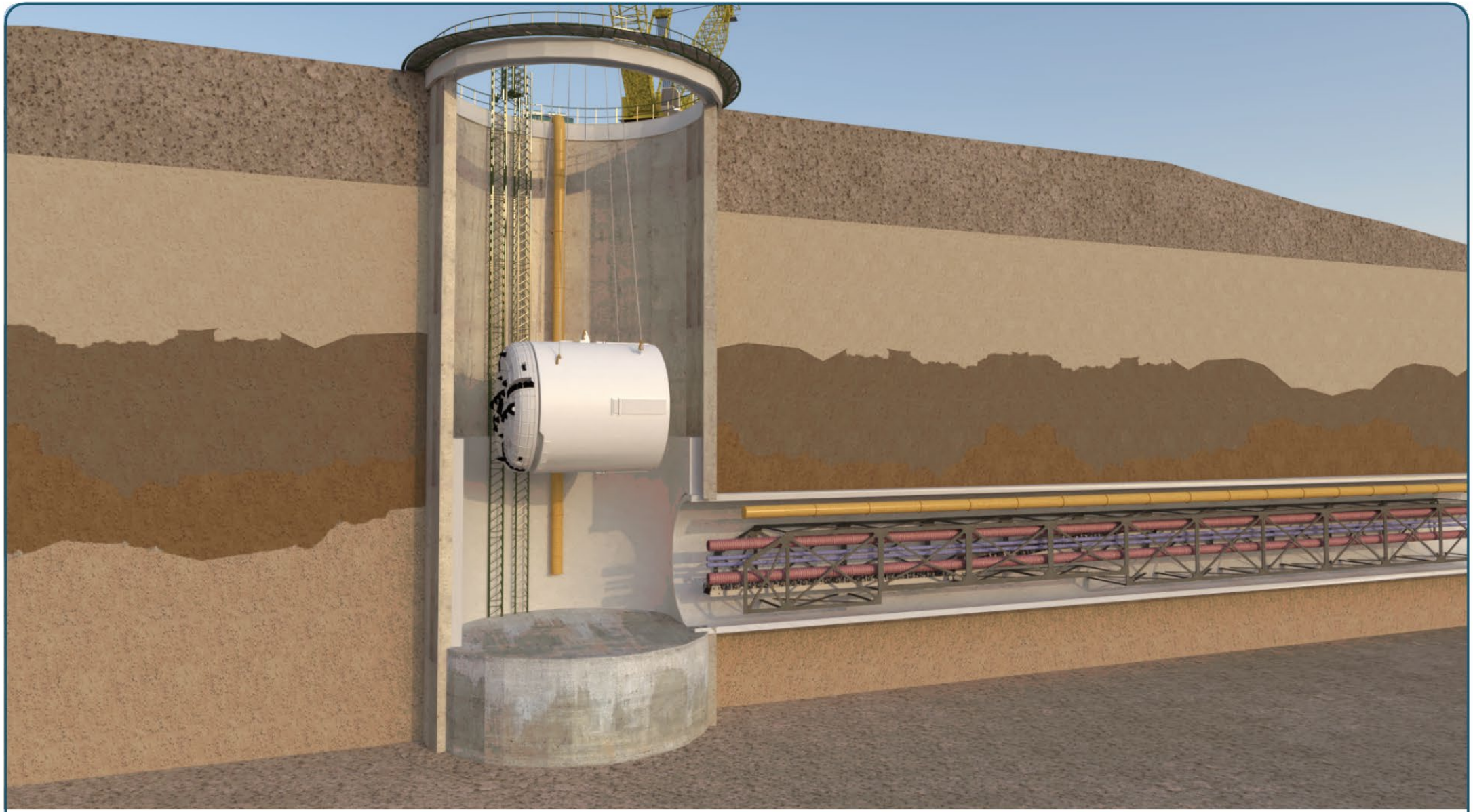
Maintenance/Retrieval Shaft Site Plan



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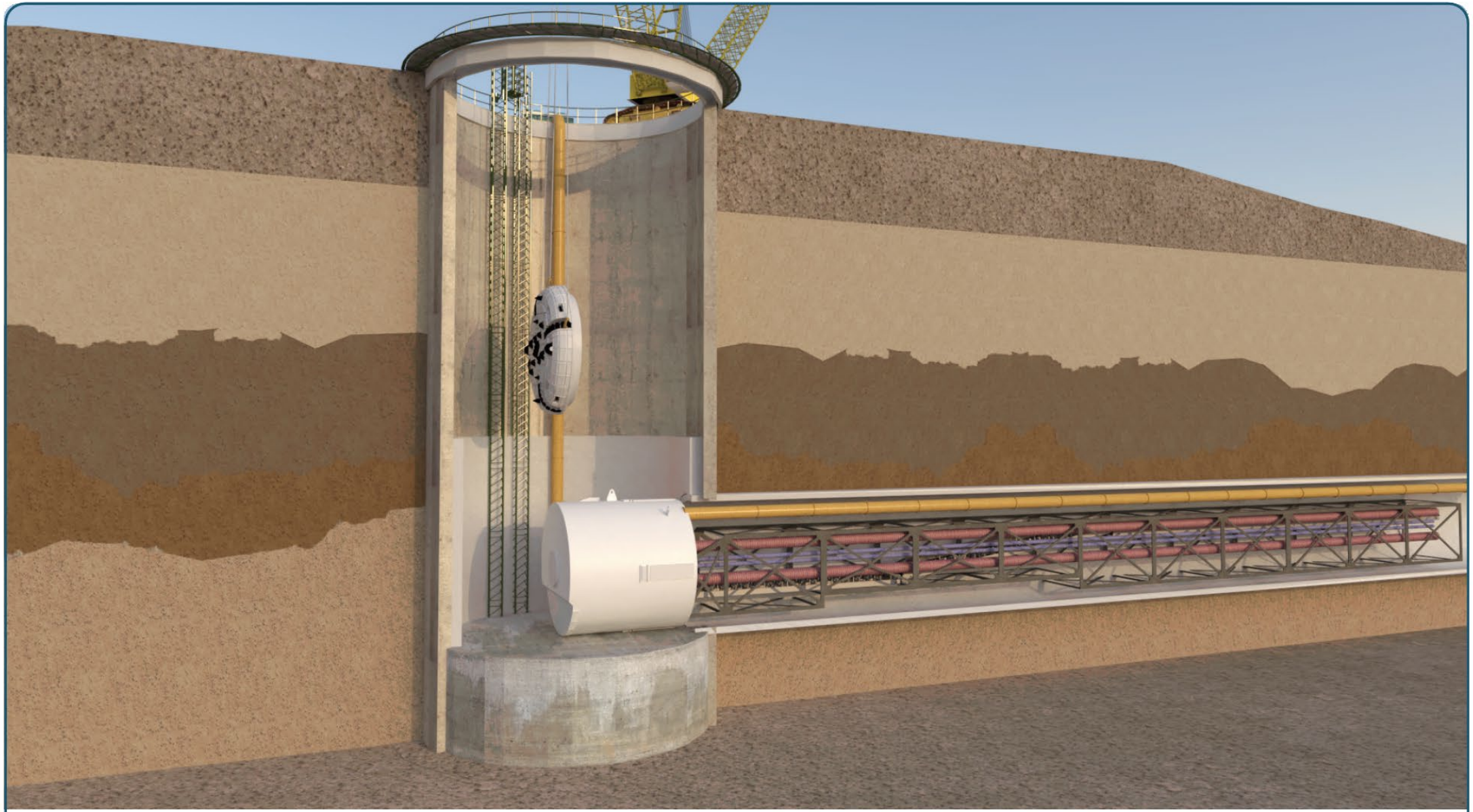
Retrieval Shaft Cross Section



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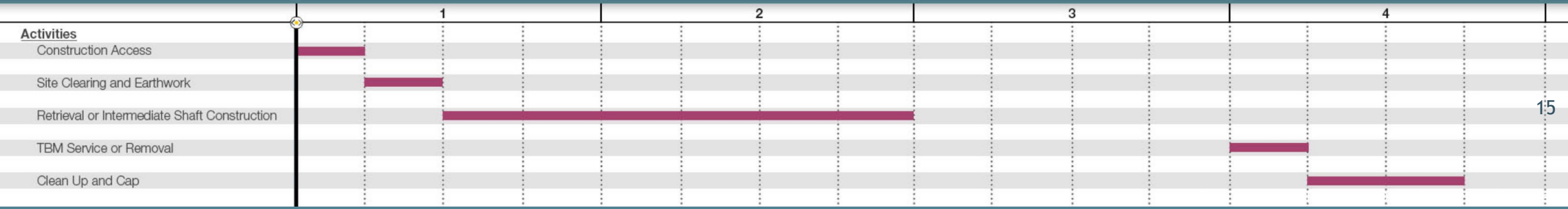
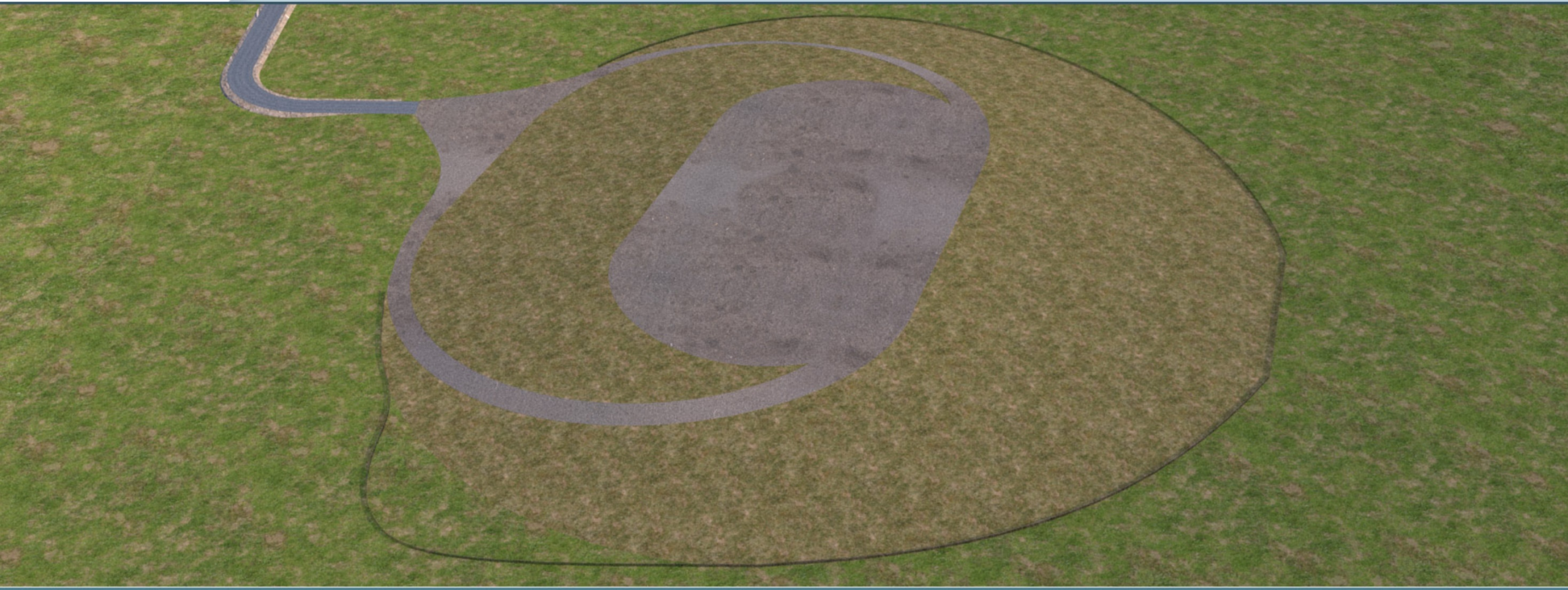
Maintenance Shaft Cross Section

Retrieval/Maintenance Shaft Construction

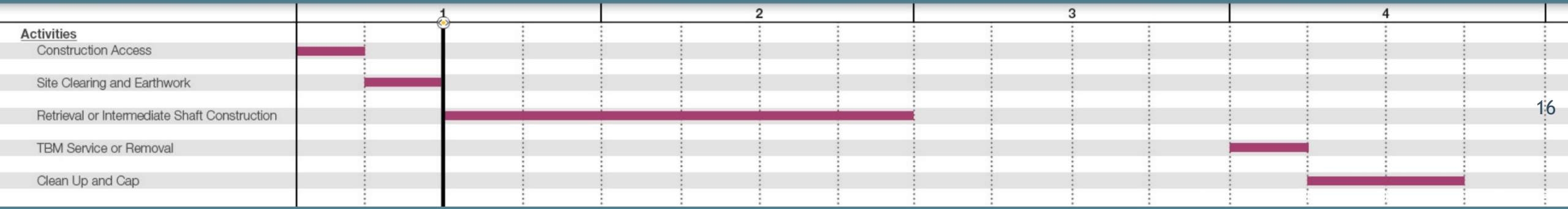
SCHEDULE



Retrieval/Maintenance Shaft Construction

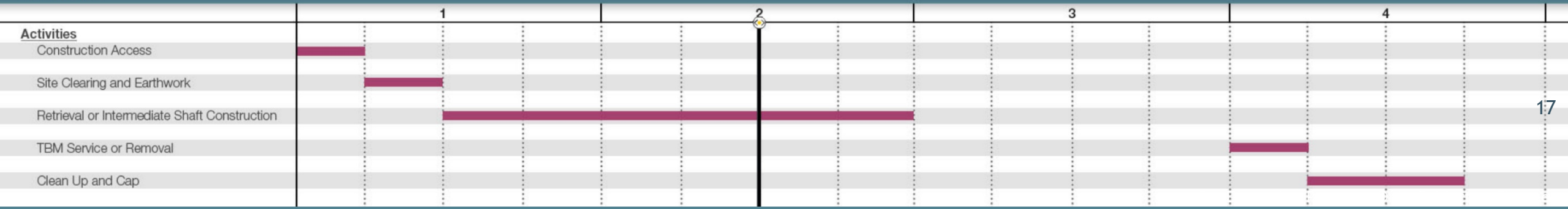


SCHEDULE



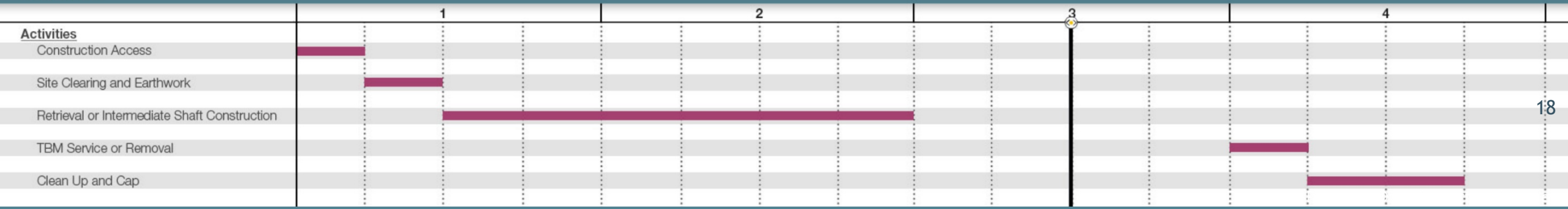
Retrieval/Maintenance Shaft Construction

SCHEDULE



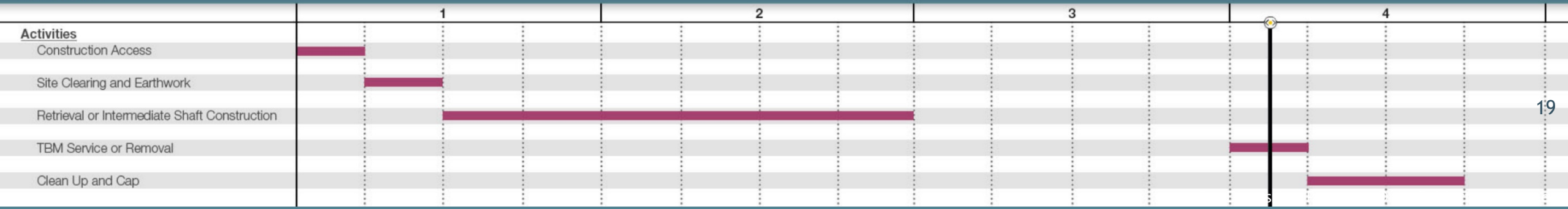
Retrieval/Maintenance Shaft Construction

SCHEDULE

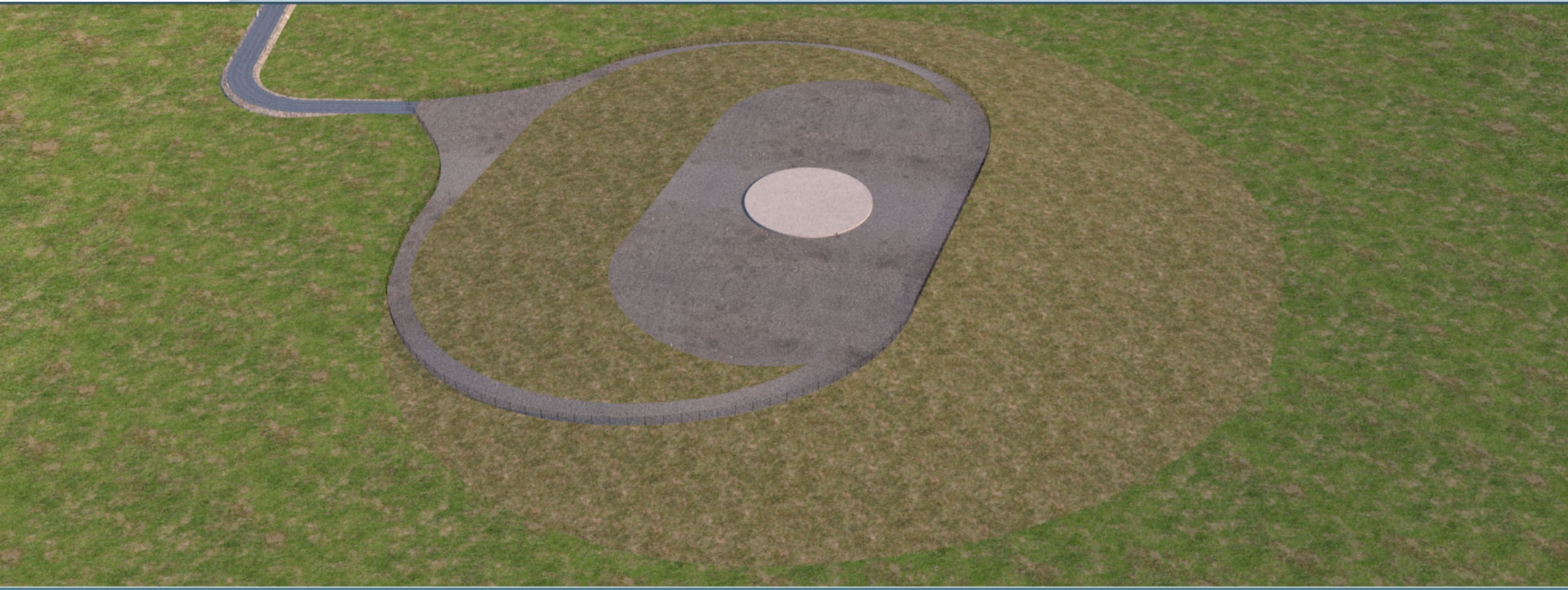


Retrieval/Maintenance Shaft Construction

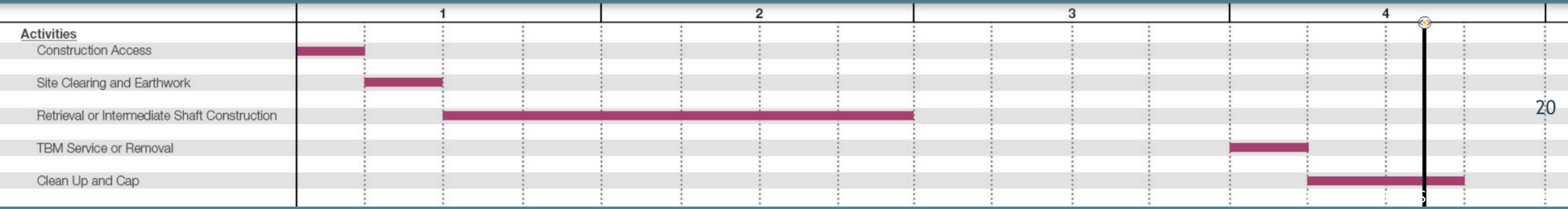
SCHEDULE



Retrieval/Maintenance Shaft Construction

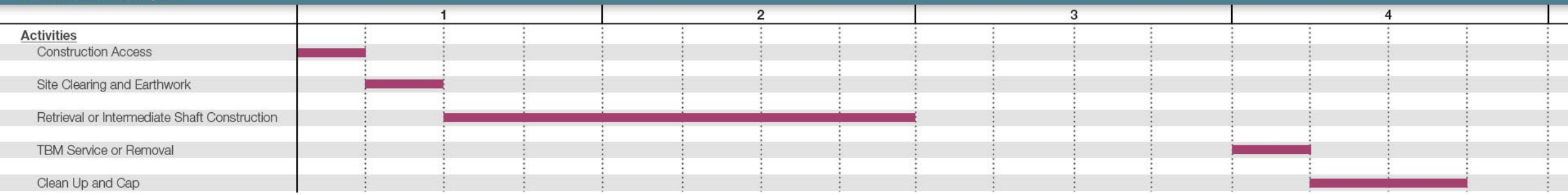


SCHEDULE

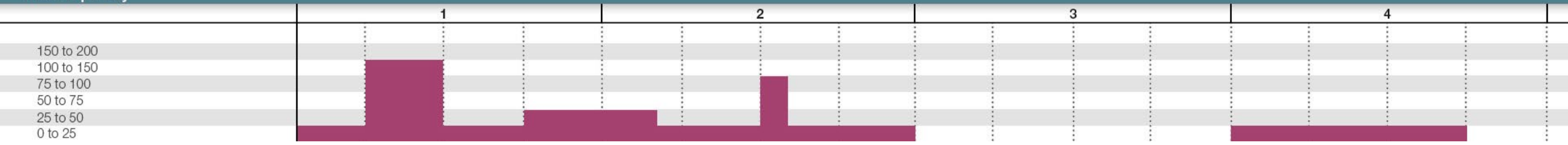


Retrieval/Maintenance Shaft Construction

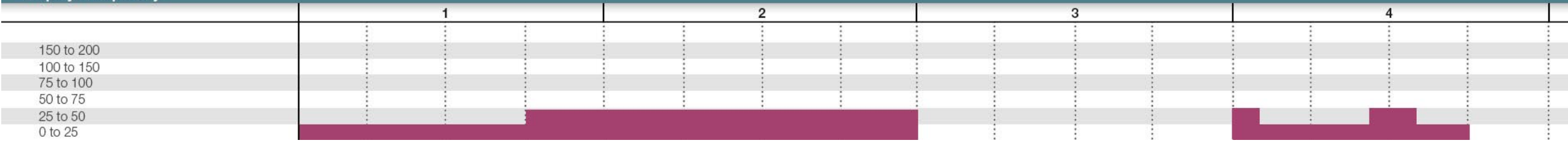
Construction Schedule



Truck Trips/Day



Employee Trips/Day



Clarifications?

10-Minute Break

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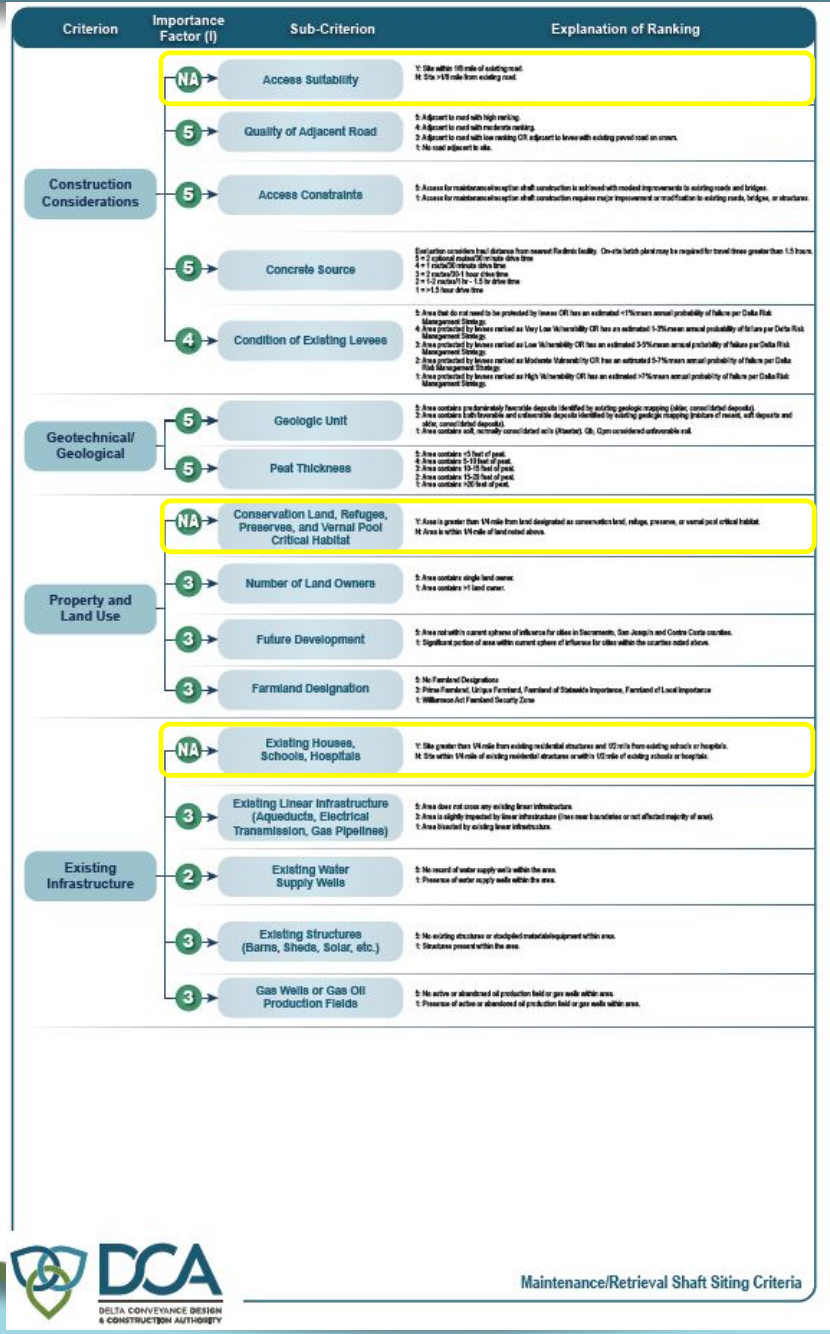
STAKEHOLDER ENGAGEMENT COMMITTEE (SEC)

RETRIEVAL AND MAINTENANCE SHAFT SITING ANALYSIS

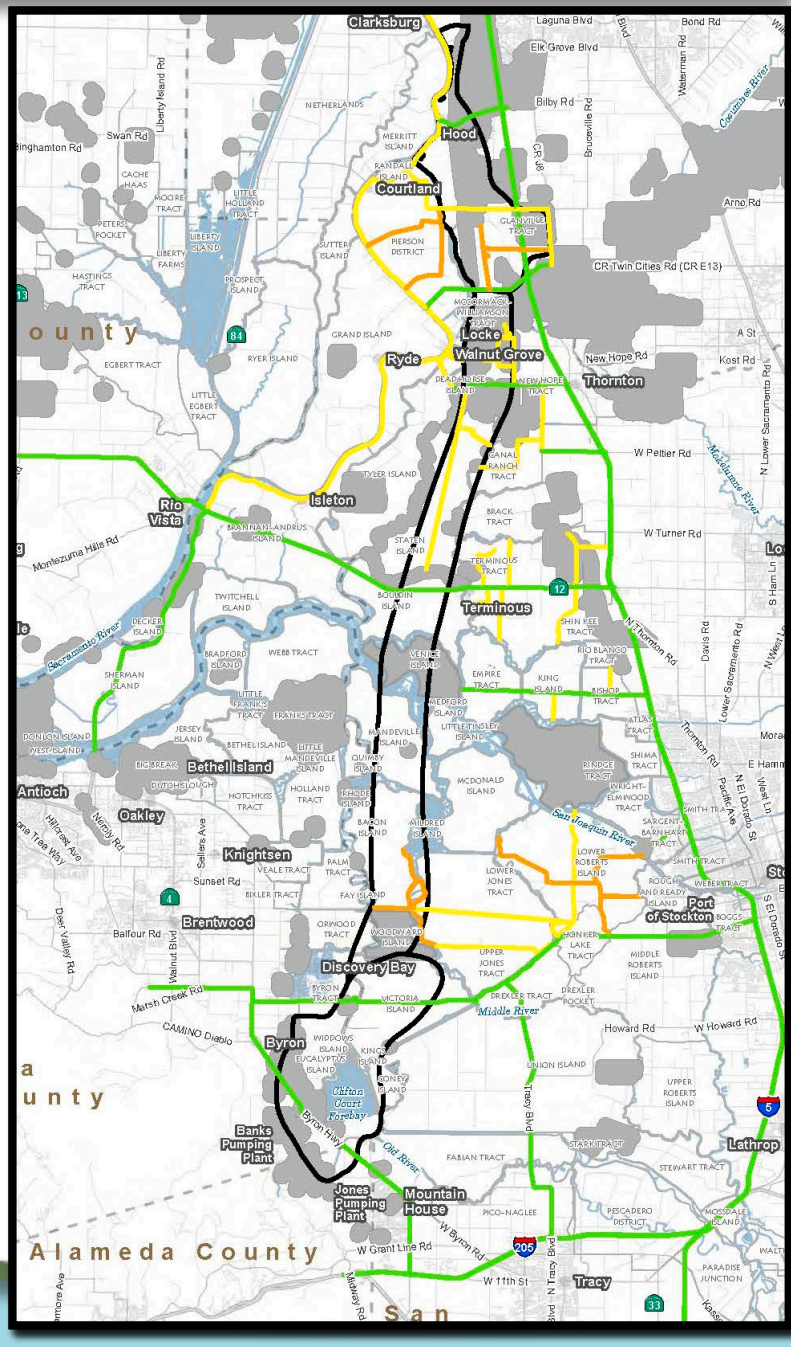
Siting Analysis Methodology

- Methodology is broken out into criteria and sub-criteria
- Sub-criteria are assigned an Importance Factor to reflect their weighting
- Smaller overall footprint for maintenance/reception shafts provides more flexibility in siting
- Criteria are based generally on design and construction considerations, including existing land uses
  - The CEQA process will consider existing land uses in more detail, as well as additional environmental resources



Central Alignment

- Maintenance/Reception Shaft Considerations:
  - Within NOP Corridors
  - Preferably within 1/8-mile of existing public road (outside grey areas)
  - Greater than ¼-mile from conservation land, refuges, preserves, and vernal pool critical habitat
  - Greater than ¼-mile from existing residential structures
  - Greater than ½-mile from existing schools, hospitals
  - 300-foot offset from existing levees



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For Discussion Purposes Only, Subject to Change

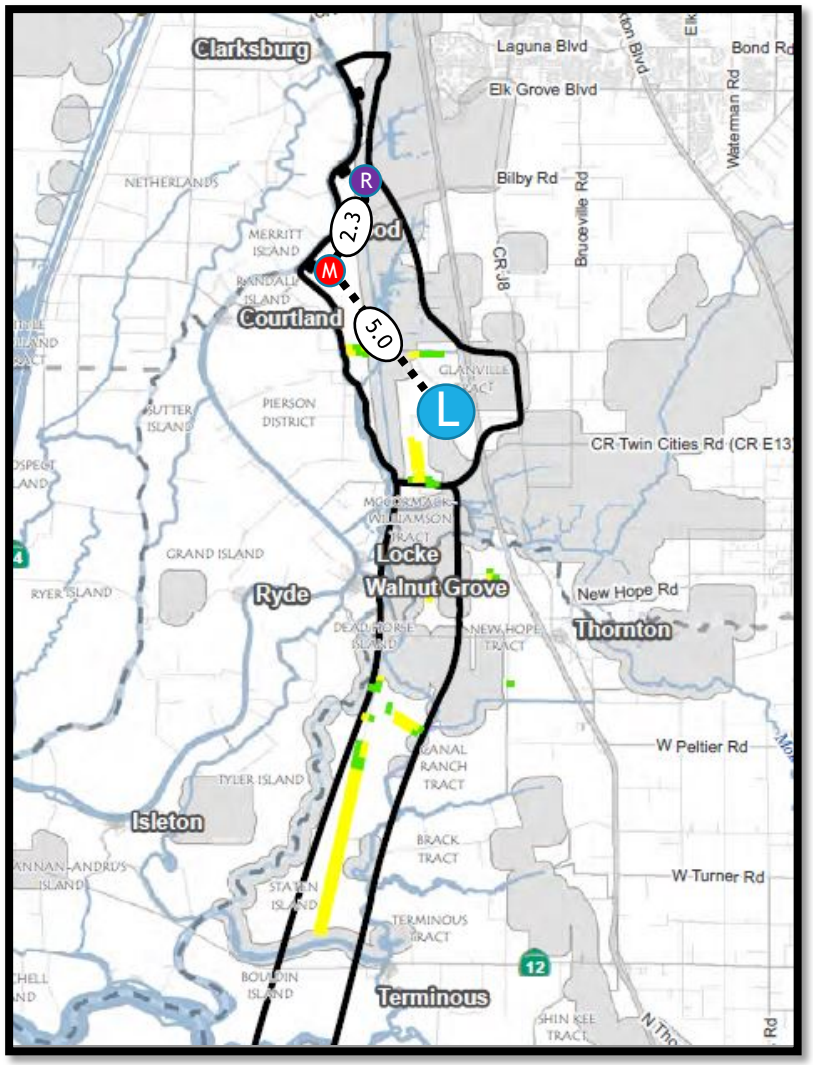
Central Alignment – Maintenance/Reception Shaft Siting – Drive C/E-1a

Maintenance/Reception Siting Study Legend

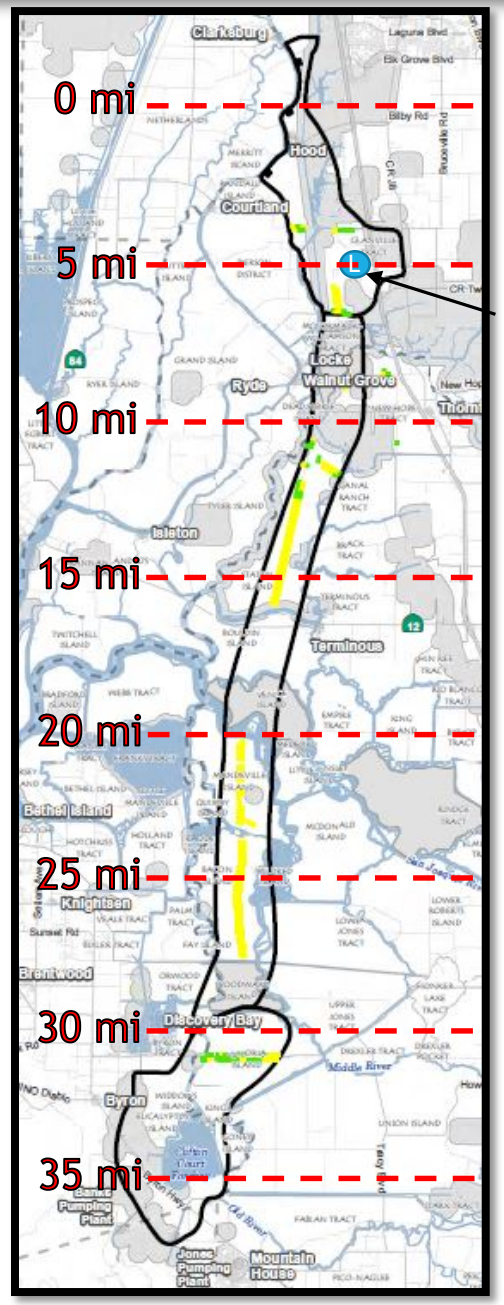
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



Site A to Intakes 5 & 3



Potential Launch Shaft Location

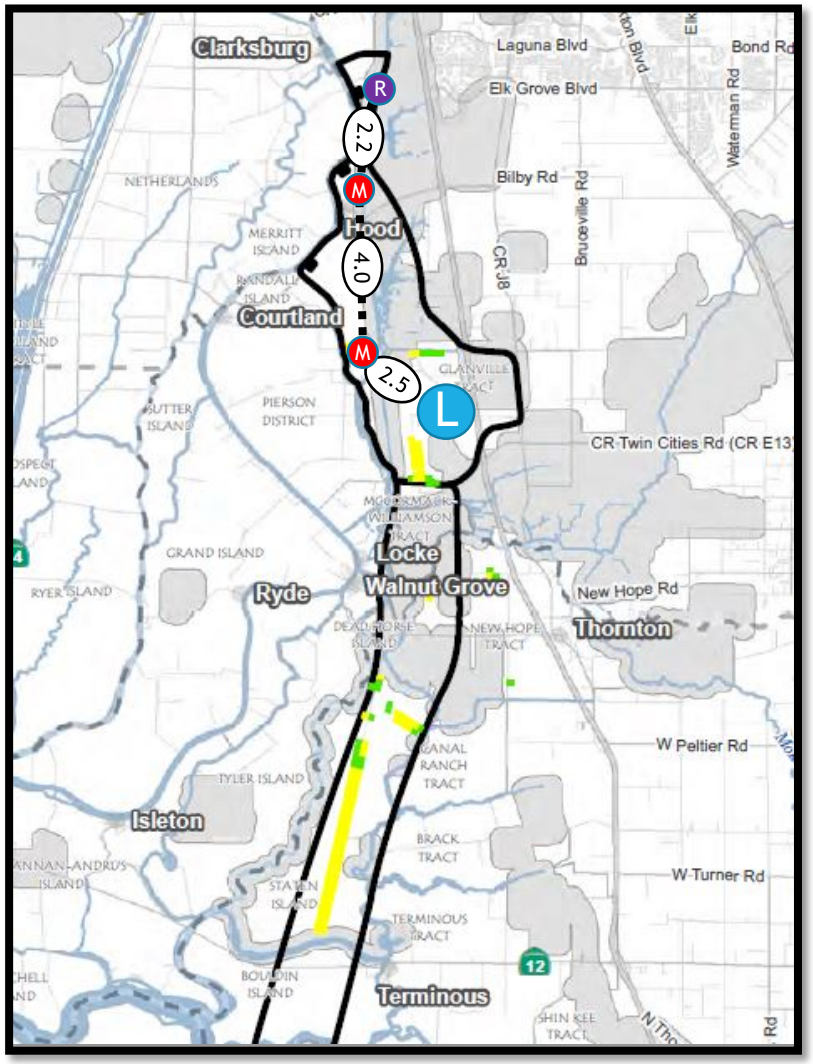
Central Alignment – Maintenance/Reception Shaft Siting – Drive C/E-1b

Maintenance/Reception Siting Study Legend

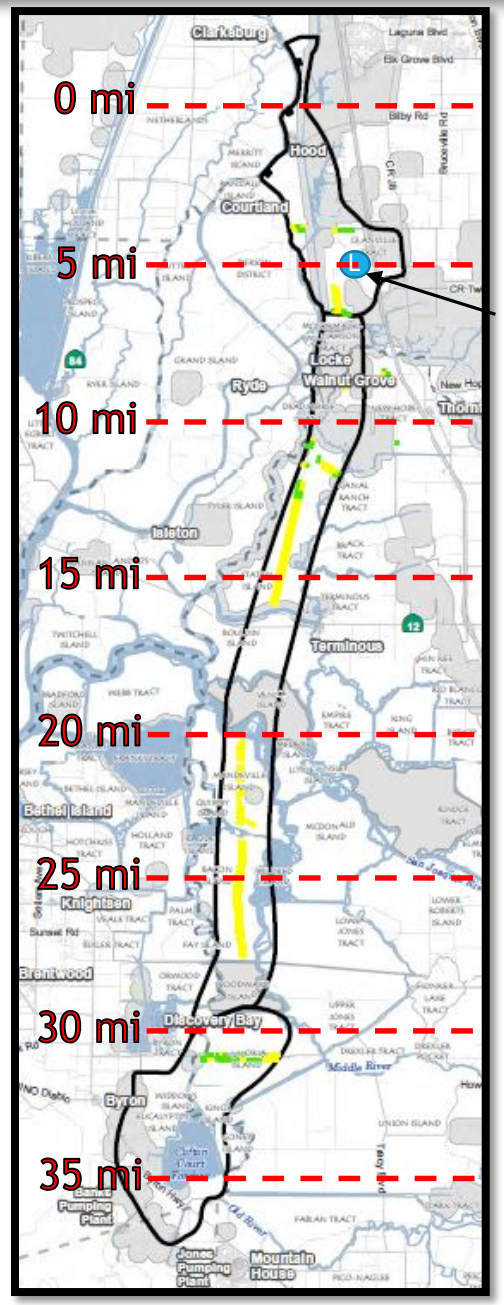
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



Site A to Intakes 3 & 2



Potential Launch Shaft Location

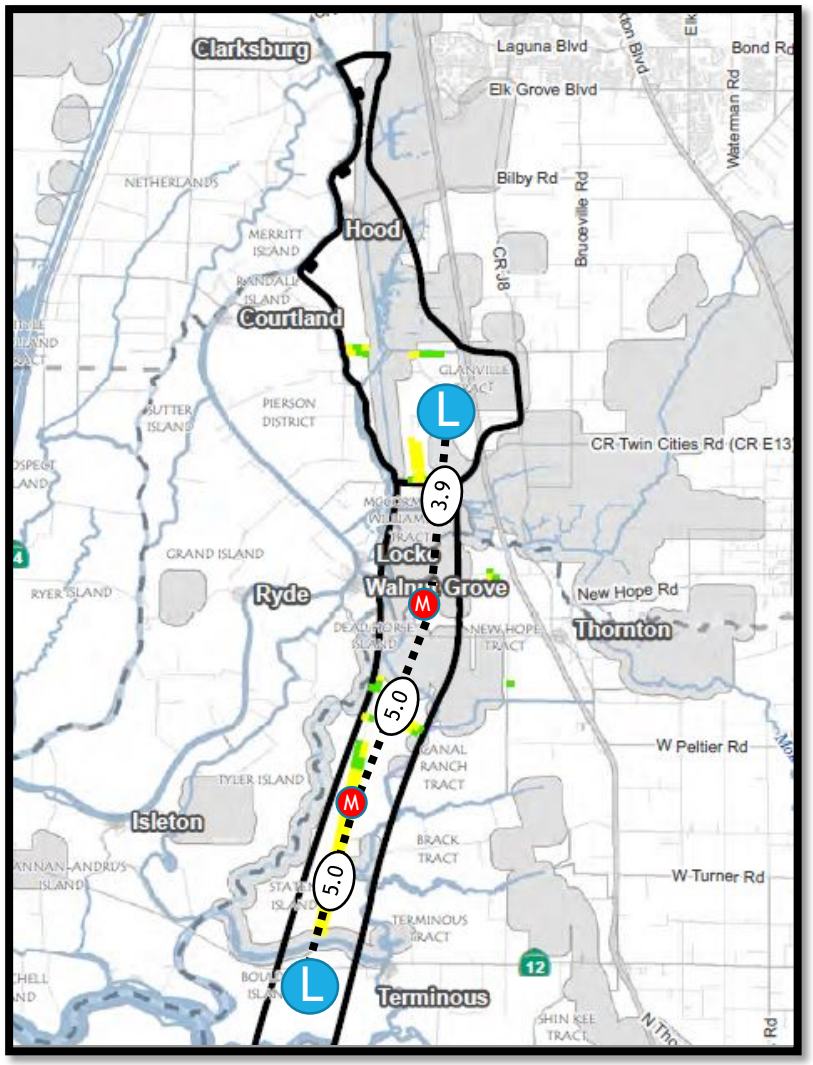
Central Alignment – Maintenance/Reception Shaft Siting – Drive C-2

Maintenance/Reception Siting Study Legend

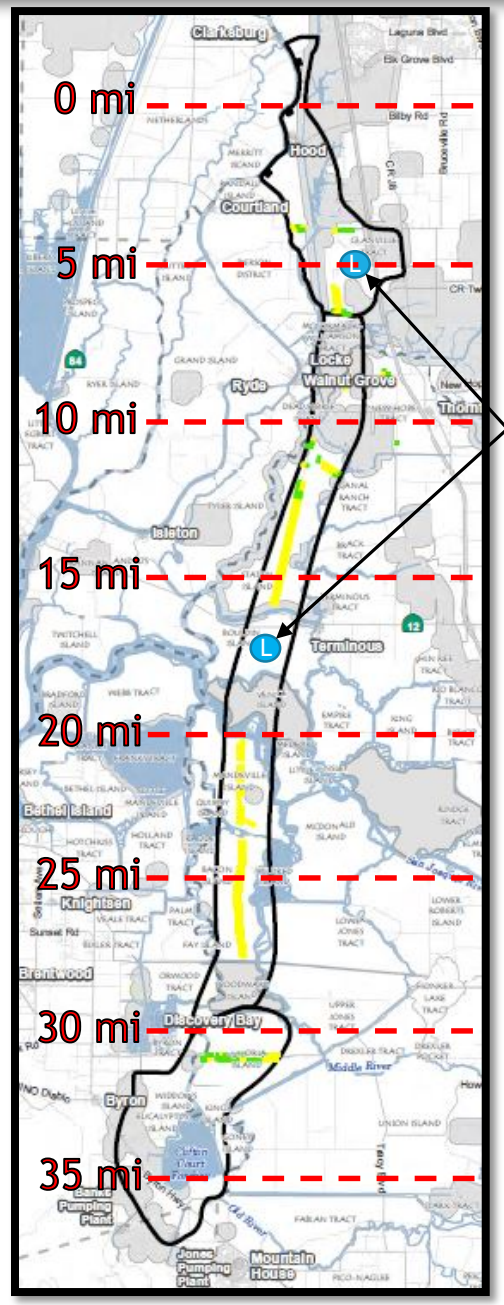
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



Site A to B & Site B to A



Potential Launch Shaft Locations

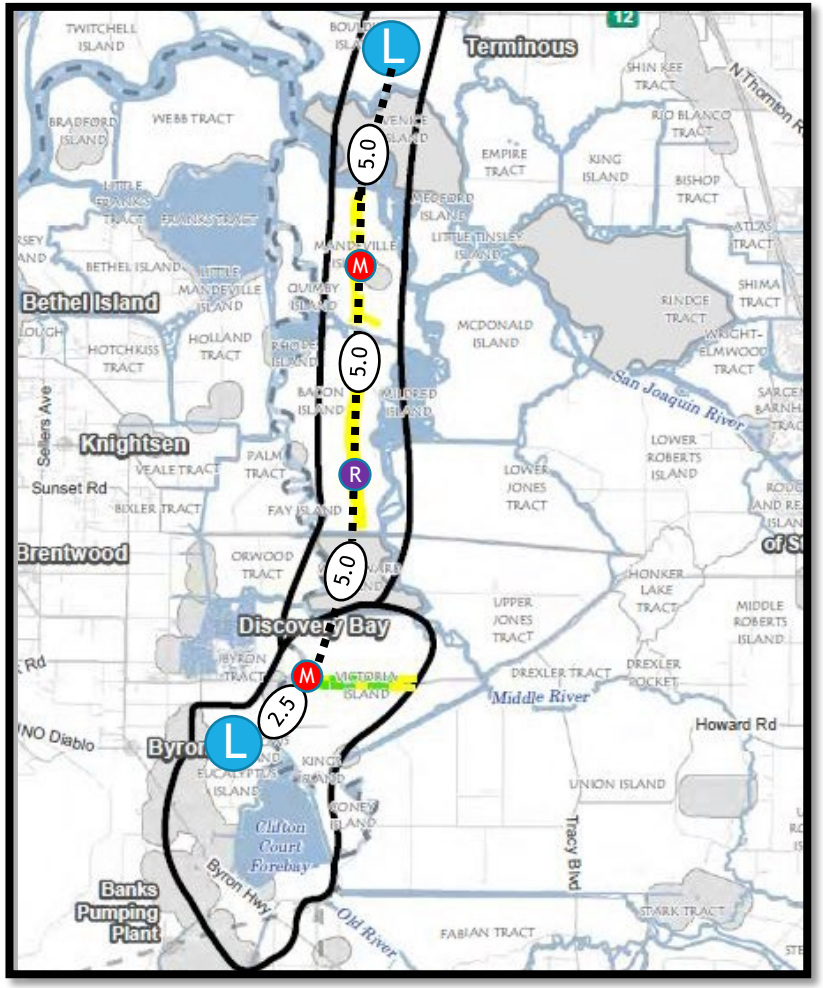
Central Alignment – Maintenance/Reception Shaft Siting – Drives C-3 and C-4

Maintenance/Reception Siting Study Legend

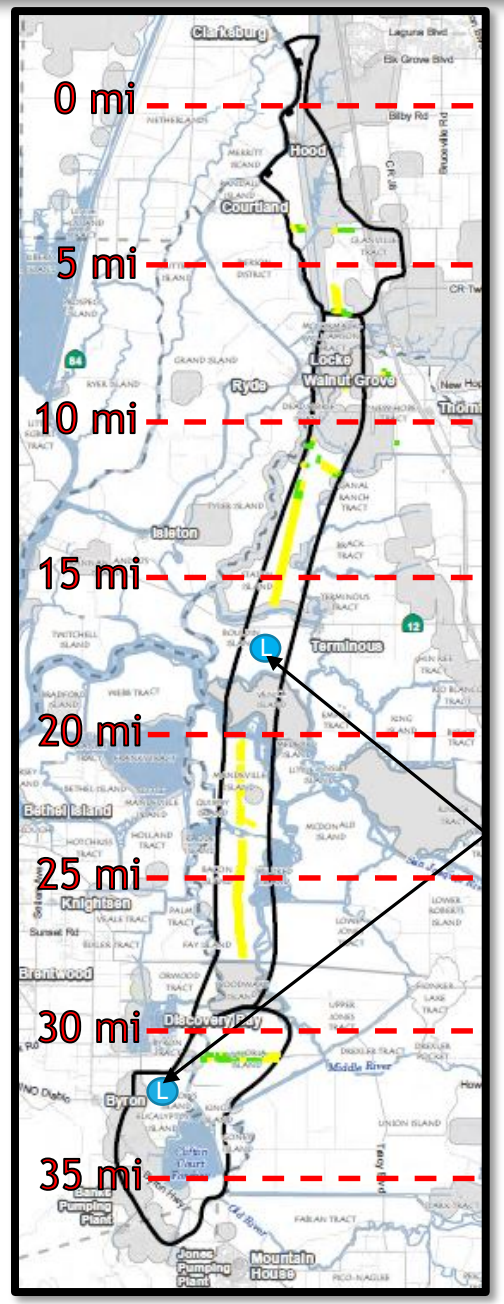
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



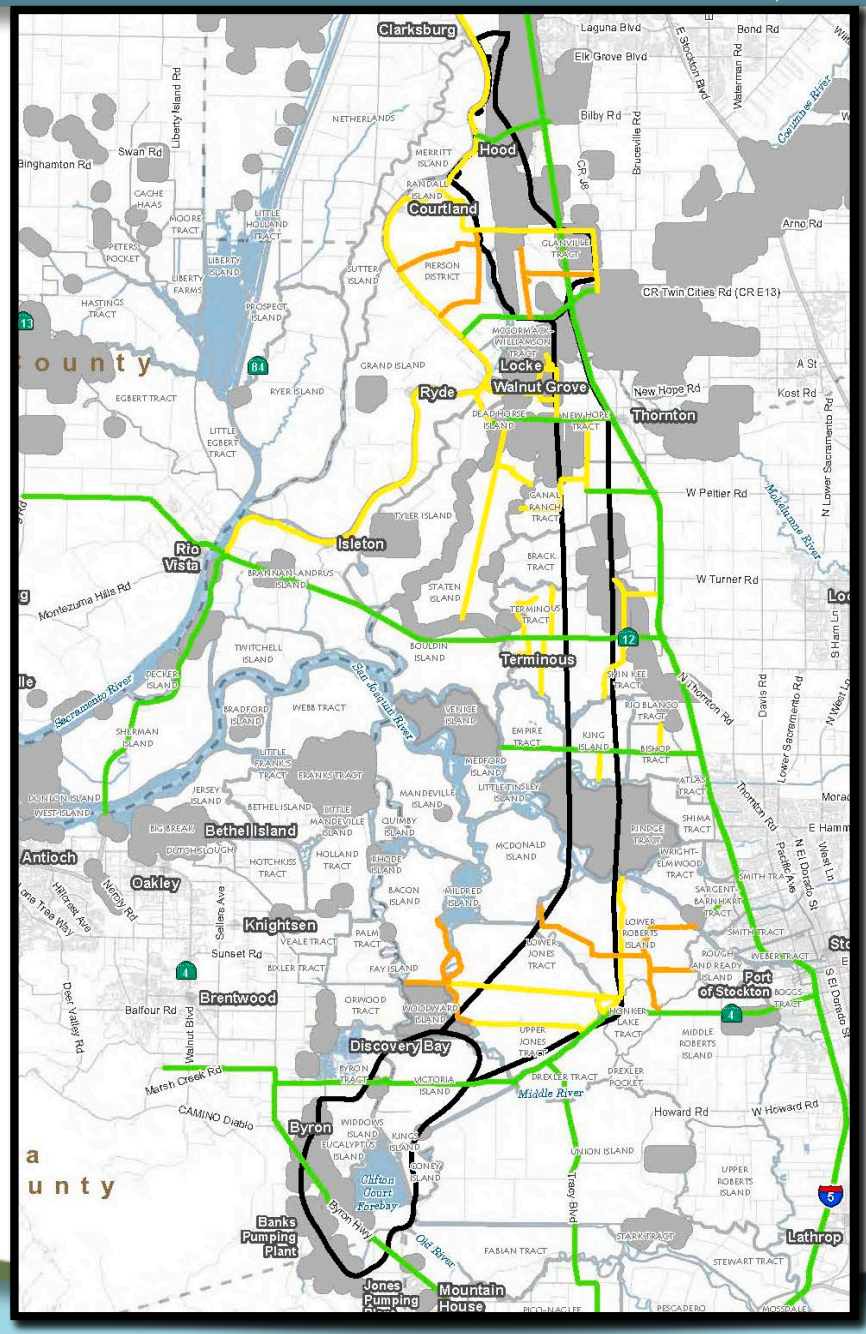
Southern Forebay & Site B to Bacon Island



Potential Launch Shaft Locations

Eastern Alignment

- Maintenance/Reception Shaft Considerations:
  - Within NOP Corridors
  - Preferably within 1/8-mile of existing public road (outside of grey areas)
  - Greater than ¼-mile from conservation land, refuges, preserves, and vernal pool critical habitat
  - Greater than ¼-mile from existing residential structures
  - Greater than ½-mile from existing schools, hospitals
  - 300-foot offset from existing levees



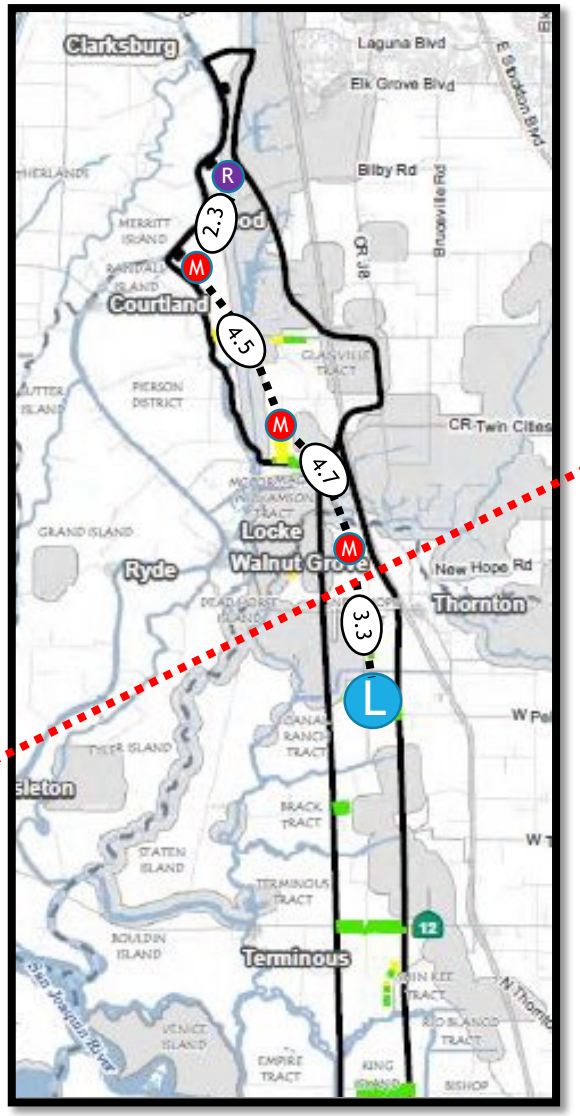
Eastern Alignment –Maintenance/Reception Shaft Siting – Drive E-1c

Maintenance/Reception Siting Study Legend

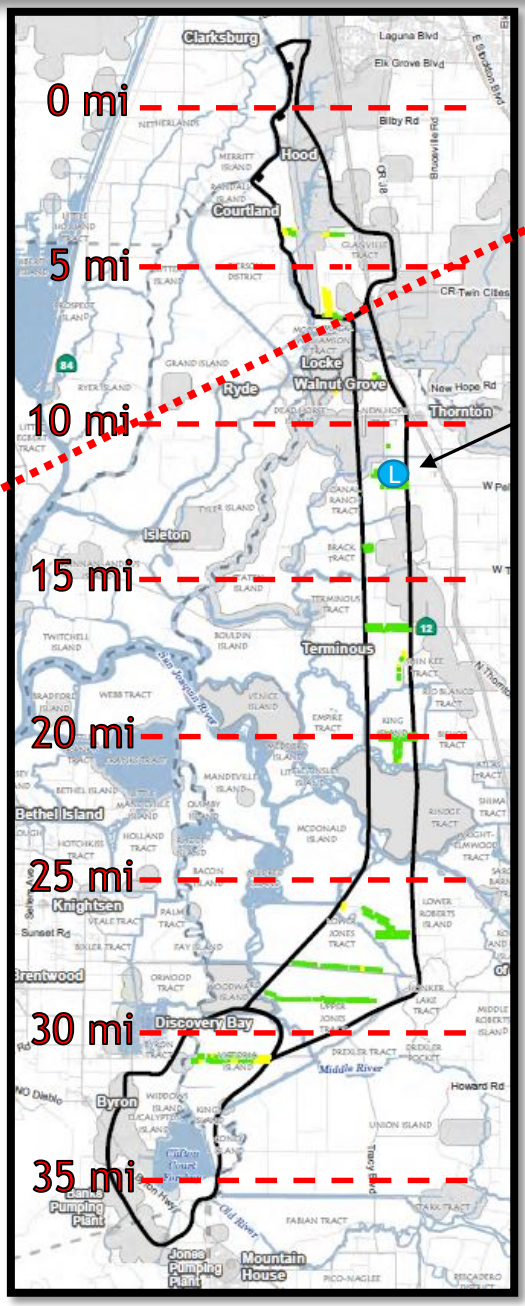
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



Eastern Site A to Intakes 5 & 3



Potential Launch Shaft Locations

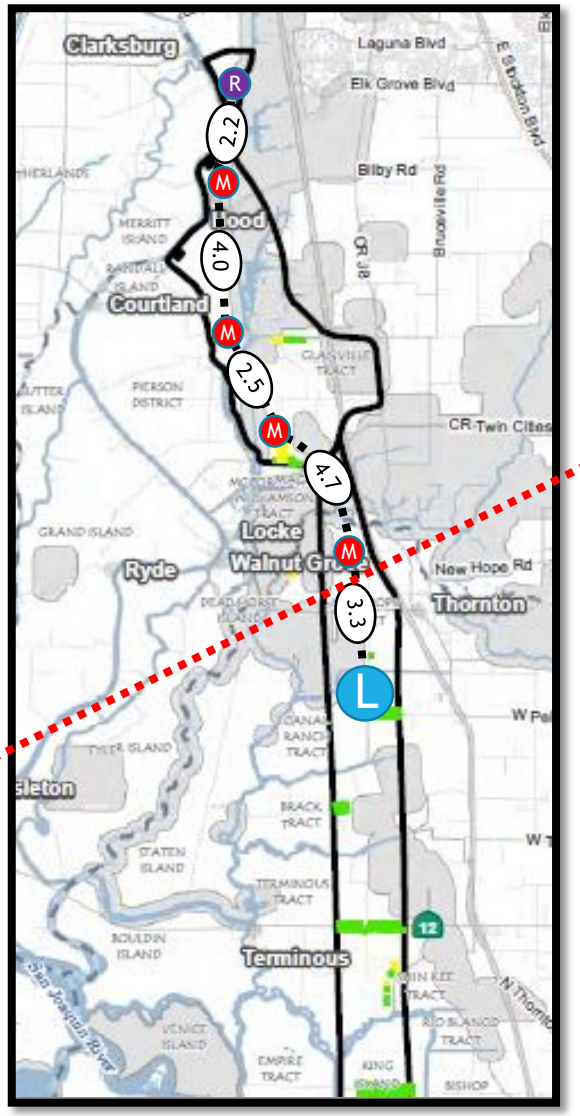
Eastern Alignment –Maintenance/Reception Shaft Siting – Drive E-1d

Maintenance/Reception Siting Study Legend

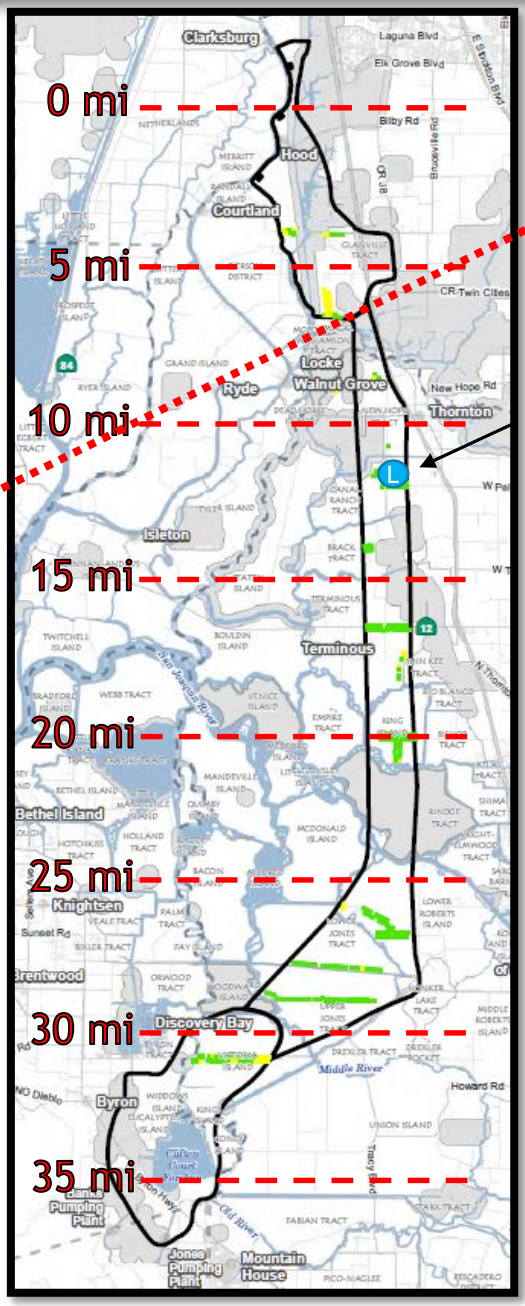
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



Eastern Site A to Intakes 3 & 2



Potential Launch Shaft Locations

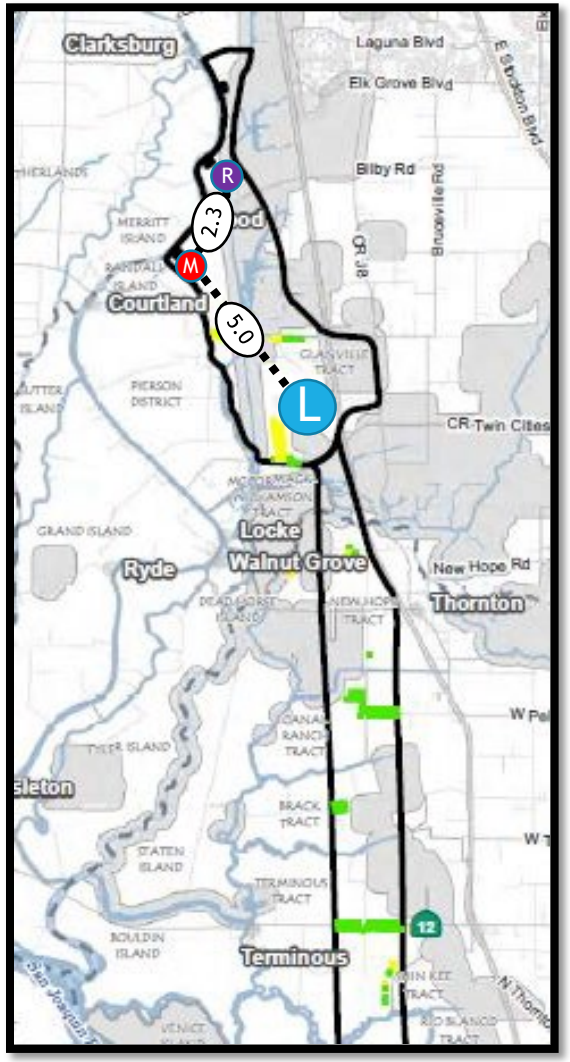
Eastern Alignment - Maintenance/Reception Shaft Siting - Drive C/E-1a

Maintenance/Reception Siting Study Legend

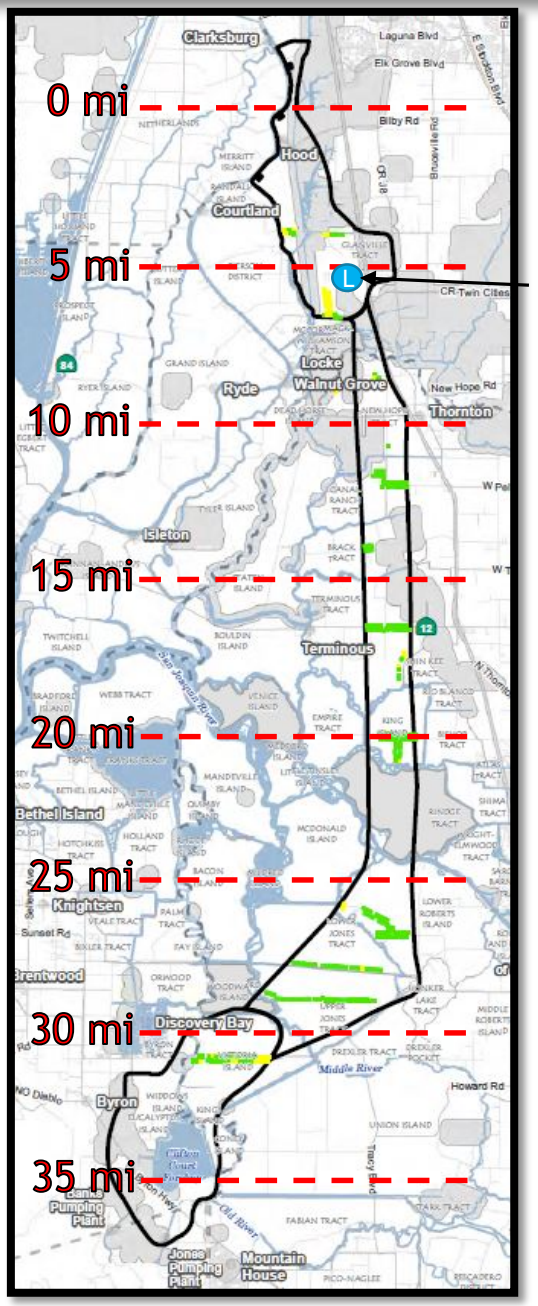
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



Central Site A to Intakes 5 & 3



Potential Launch Shaft Location

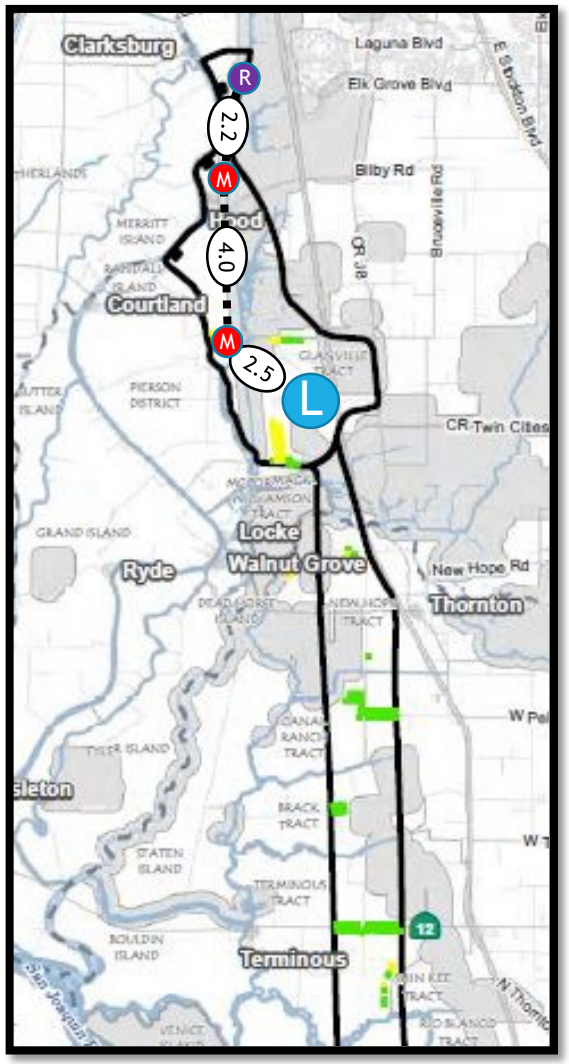
Eastern Alignment - Maintenance/Reception Shaft Siting - Drive C/E-1b

Maintenance/Reception Siting Study Legend

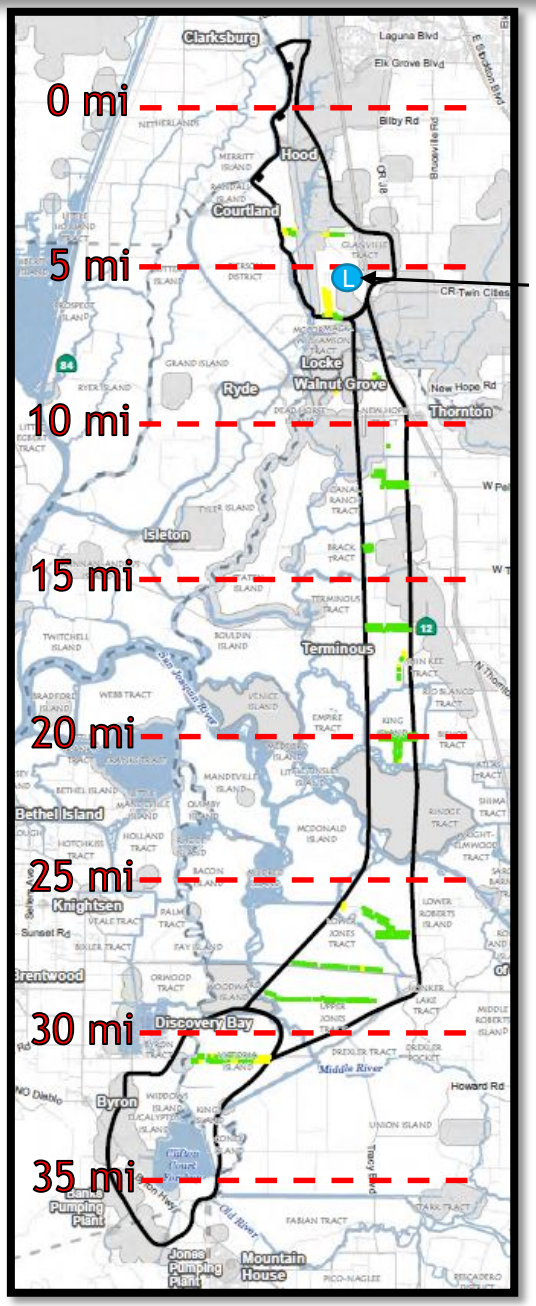
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



Central Site A to Intakes 3 & 2



Potential Launch Shaft Location

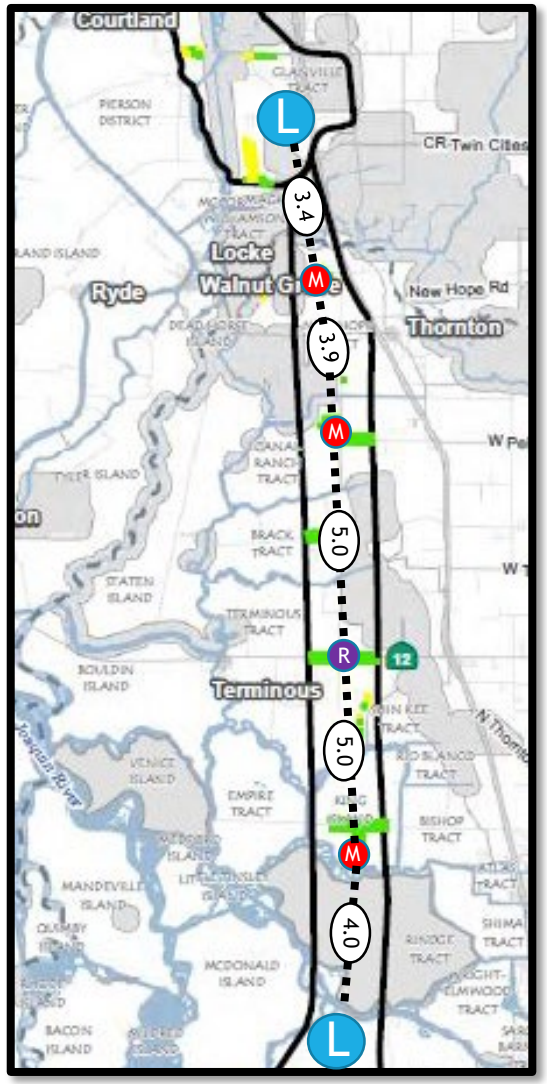
Eastern Alignment -Maintenance/Reception Shaft Siting - Drive E-2 and E-3

Maintenance/Reception Siting Study Legend

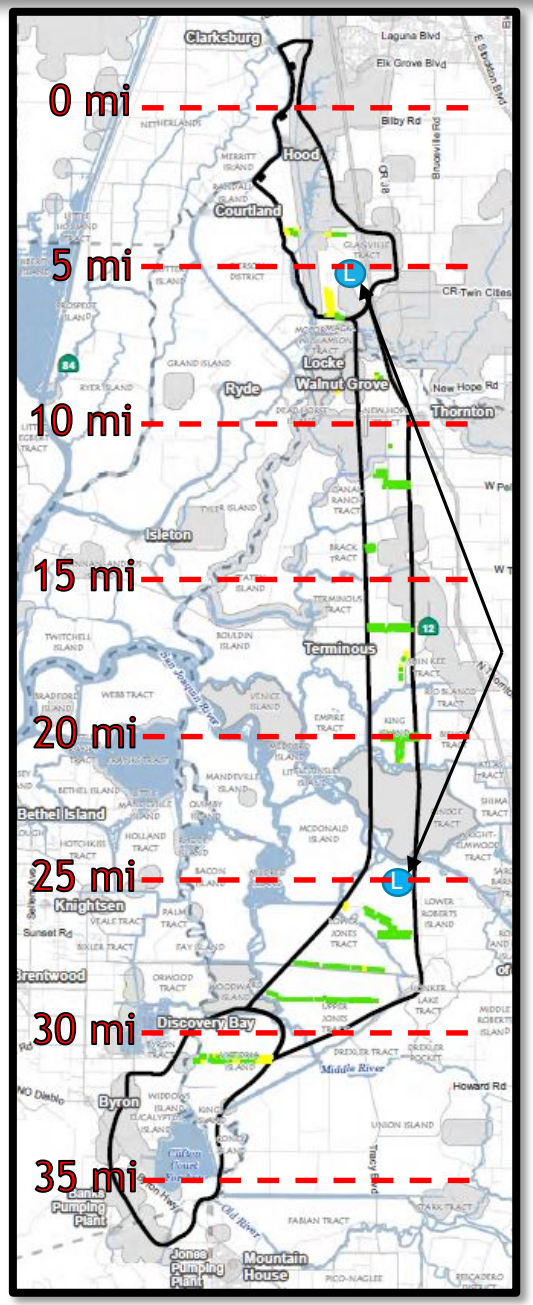
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



Central Site A & Site B to Hwy. 12



Potential Launch Shaft Locations

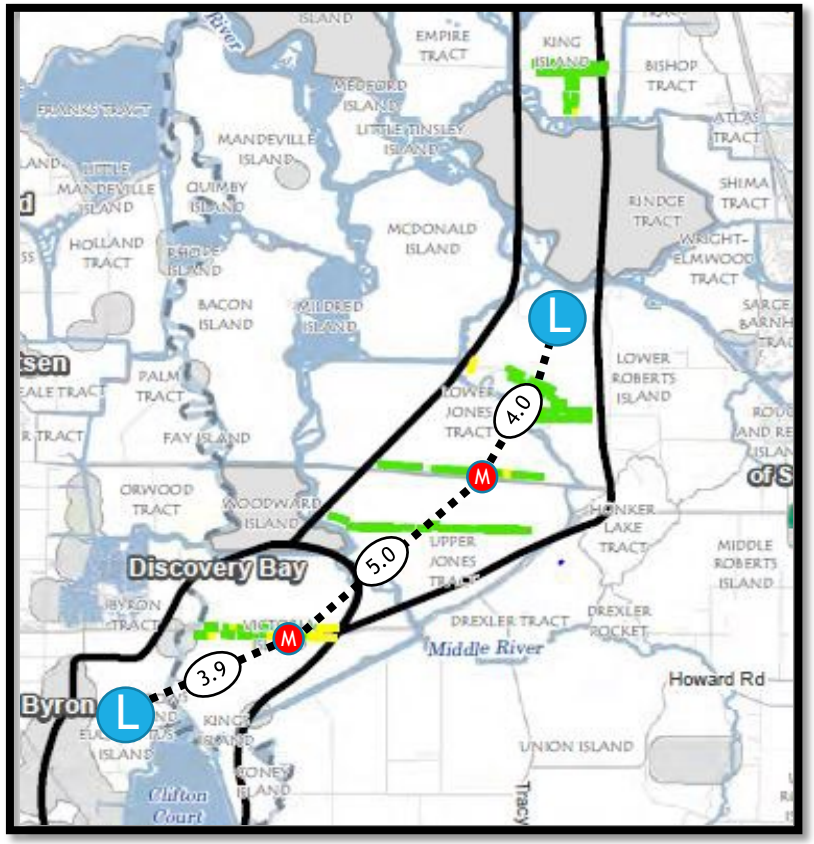
Eastern Alignment – Maintenance/Reception Shaft Siting – Drive E-4

Maintenance/Reception Siting Study Legend

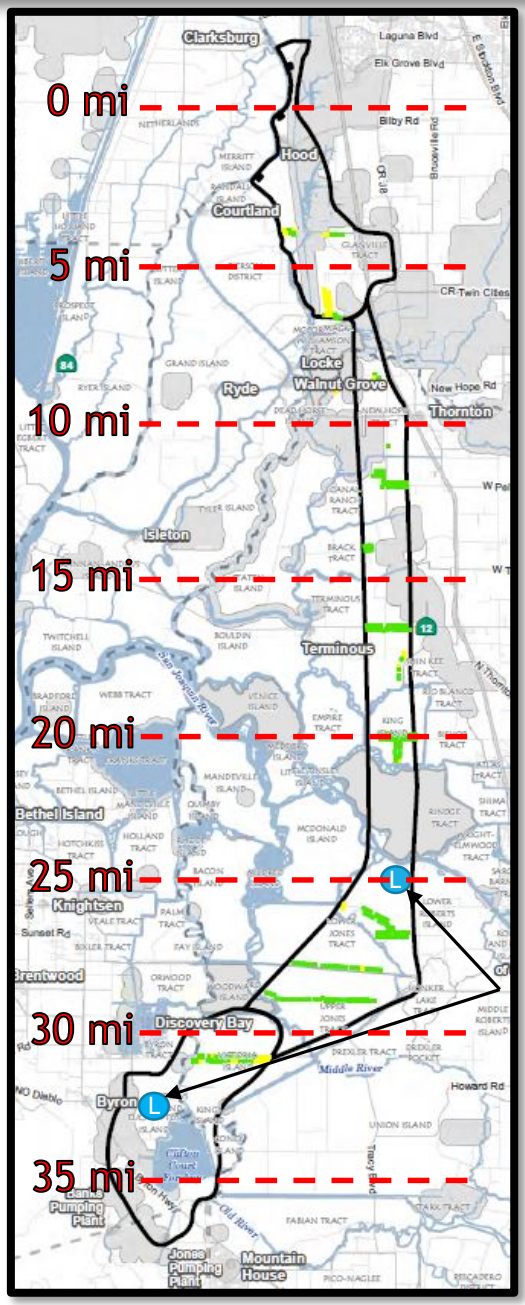
- Favorable
- Acceptable

Shaft Legend

- L Launch
- M Maintenance
- R Reception



Southern Forebay to Site B



Potential Launch Shaft Locations

Clarifications?

Public Comment

Item 4: Staff Presentation & Committee Discussion

Public Comment

Non-Agendized Items

NEXT SEC MEETING

DATE: March 11, 2020

TIME: 3-6 PM

LOCATION: Willow Ballroom

10724 CA-160, Hood, CA 95639

TOPICS*:

- Follow-up SEC MEETING #5 & Member Roundtable
- Tunnel Alignment Refinements
- South Delta Facilities Siting and Design