

Work Plan No. B.03-01 Richmond Yard Track Renewal

Scope:

The scope of work will include all preparatory and support work necessary for District forces to rebuild and expand Richmond Yard:

- Geographic Scope:
 - Includes all special trackwork north of the cart path crossing at the north end of the Transfer Tracks, except for the shop tracks and turnouts north of SW159 and SW161
 - Also includes Turnouts SW133, SW229, SW231 in Interlocking R65
 - See Attachment A
- Review of available District information
 - As-built drawings for trackwork, civil, utilities, systems
 - Preliminary engineering for turntable relocation
 - Recent District-provided survey data (LIDAR and others as available)
 - Adjacent or concurrent project files
 - Identify current BFS for applicable sections
- Field reconnaissance and survey: Verification of recent and historic District survey data for existing trackwork, traction power, train control, and civil configurations
 - Ground survey for horizontal/vertical track geometry
 - Ground survey for capture of all above-ground BART Systems elements (Traction Power and Train Control), utilities, and other required infrastructure elements
 - Topographic survey of northeast corner of ORY to determine required civil work to support the new turntable installation and lead track
 - Topographic survey of ORY perimeter to assess perimeter surface drainage system
 - Aerial survey of entire yard for topographic mapping (as needed)
- Engineering work to prepare a complete set of Construction Drawings
 - Track centerline geometry: 1:20 scale plan and profile, surface utilities and District Systems elements, alignment control drawings, alignment control tables, including new turntable lead track. Will show existing track geometry and proposed revisions where necessary to conform to BFS or other project requirements. (12 plan sheets, 8 profile, 8 data sheets)
 - Trackwork Design for new turntable lead, new turnout, and extensions including interface with existing infrastructure: 1:20 scale rail and tie layout (6 sheets)
 - Traction Power Design for new turntable lead, new turnout, and extensions including interface with existing infrastructure and an evaluation of power supply feasibility from existing Traction Power supply feeder circuits: 1:20 scale layout (8 sheets, TP coordination)

- Train Control Design for new turntable lead, new turnout, and extensions including interface with existing infrastructure: 1:20 scale layout (4 sheets)
 - Civil drawings: 1:10 scale, existing conditions for surface utilities, cart paths, intertrack drainage, perimeter drainage (24 plan sheets, 4 detail sheets)
 - Civil drawings: 1:10 scale, existing conditions and future topography for relocation of new turntable and lead using fill from existing material laydown area
 - Construction Staging drawings, scale TBD (60 sheets, 6x10 sequences)
 - Survey Control drawings (4 sheets)
 - Traction Power detailed design drawings: 1:20 scale, (24 sheets) may include the following elements:
 - i. The contact rail system including end approaches
 - ii. Insulator assemblies
 - iii. Anchor assemblies
 - iv. Expansion joint assemblies
 - v. Flexible jumper assemblies (connected to contact rail and increased from 350kcmil to 500kcmil).
 - vi. Rosettes
 - vii. Coverboard assemblies
 - viii. Jumper cables (increased from 500kcmil to 750kcmil)
 - ix. Ductbanks for traction power (8 sheets)
 - x. Negative return conductors
 - xi. Cross-bonds and impedance bonds
 - xii. Dip rail replacement design
 - xiii. Traction power circuit schematics provided by District and verified by Parsons.
 - xiv. Existing and proposed cable and conduit schedules
 - Evaluation of existing yard track feeders and Substation and Gap Breaker station capacity to determine feasible option for Traction Power supply to new turntable track and turnout and new extensions.
 - Duct bank structural design (following District Memo for Duct Bank Design) for all underground Traction Power circuits.
 - Train Control drawings: Parsons to locate Train Control surface elements on Track plan/profile drawings and define any clearance discrepancies or potential conflicts with track works or traction power elements. Design will include proposed relocation of Train Control cabling where necessary.
- Review and comments to 65%-95%-Final Special Trackwork drawings provided by Nortrak.
 - Coordinate with District engineering support for the new turntable design
 - Systems interface to existing trackwork
 - Coordinate with Train Control for new switch machine project and/or any other train control projects within the work limits of this scope, design provided by others
 - Coordinate with Traction Power for new TPSS feeders and/or any other traction power projects within the work limits of this scope, design provided by others

- Coordinate with Civil for geotechnical and environmental design for the new yard extension, design provided by others
- Development of an Engineer’s Estimate for Construction
 - Coordinate with District for Bill of Materials with quantities for procurement
 - Detailed quantities shall be provided for all District-Furnished Materials
- Development of a Contract Package for Civil Grading only for the new turntable installation
 - Civil Drawings
 - Contract Book of Specifications
 - Engineer’s Cost Estimate
- Collaboration with Operations to develop an Interim Operating Plan
 - Required weekend shutdowns
 - Proposed schedules for yard track outages
 - Other yard operations alterations or mitigations
 - Contingency plans
- Development of a Constructability Report
 - Demolition plans for all elements to be removed
 - Construction staging plans
 - Required resources (District and outside contractors)
 - Traction Power circuit revisions and energizing/de-energizing plans required to support construction staging and Interim Operating Plan
 - Proposed Schedule
 - Contingency plans

Prime: Parsons

Subconsultant	Amount	DBE (Y/N)	SBE (Y/N)
RSE, Inc.	\$249961	Y	Y
360 Total Concept Consulting Service	\$73,538	Y	Y

Total Work Plan Value: \$1,930,940