North American Tunnel Project Update


by Jack Burke

California

Los Angeles

Eastside Light Rail Transit Project

Traylor/Frontier-Kemper JV

The eastside LRT Project is part of a plan to provide public transportation to neighborhoods in East Los Angeles. The project is a 5.9 mile-long extension of the current Metro Gold Line, which extends from the City of Pasadena to Union Station in Los Angeles. The joint venture is a subcontractor to Eastside Light Rail Constructors to complete the underground segment of the project. This includes twin-bored tunnels from 1st and Boyle to 1st and Lorena. Other construction includes two sump structures, and six cross passages between tunnels.

Eastbound TBM: The Eastbound HK TBM holed through on Nov. 14, 2006, completing the 7,215-lf run. The machine has been removed from the shaft for transport to the storage yard.

Westbound TBM: The westbound TBM holed through Dec. 9, 2006, completing the 7,230-lf run. The machine was to be removed in December and transported to the storage yard.

Removal of all equipment from the Boyle Station is under way to allow construction of the Station concrete.

Cross Passages: Cross passage No. 1 and No. 2 have been excavated and were ready for concrete in late December. Cross passages Nos. 3-6 were scheduled to be excavated and concreted in January and February.

Invert And Wakway Concrete: Invert and walkway concrete will begin in March and completion is scheduled for July. All tunnel construction work will be completed by August.

Project Personnel: Los Angeles County Metropolitan Transit Authority — Owner; Parsons Brinkerhoff — Engineer; Owner Contact: Fred Smith Sr. Construction Manager, LAMTA — (213) 922-7295. Traylor-Frontier JV — Contractor; Contact: John McDonald, Project Manager — (323) 261-0444; Michael Traylor, Operation Manager — (310) 524-0044.

San Bernardino

Arrowhead East and West

Shea/Kenny JV

The Shea/Kenny JV is currently under contract with the Metropolitan Water District of Southern California to construct the Arrowhead Tunnels Project in San Bernardino. The project continues to make good progress despite some challenges.

The Strawberry Tunnel has advanced more than 72 percent of the drive with 6,200 lf left for completion. The Waterman Tunnel excavation is about 40 percent complete with excavation of 11,850 lf left to go.

Project Personnel: Brian Fulcher Project Director; Bob Gordon, Project Manager; Mike Belcher, PA; Stuart Lipofsky Assistant Project Manager; Dana Downs, Project Engineer; Ron Walton, Superintendent Strawberry; Bob Leslie, Superintendent Waterman; Walkers — Danny Sayre, Don Fulmer, Jeff Bright, Bobbie Briggs, Ron Sammeth, Bradley Leonard, Jim Autry. Daniel Spenser Office East — Joe Nagy, West- Dana Downs. MWD: John Wallace, Construction Manager; Mike Bell, Resident Engineer; Ian Ward-McNally, Deputy Resident Engineer; Dan McMaster, Assistant Resident Engineer. Contact: Brian Fulcher, (909) 883-3399

San Diego

San Vicente Pipeline

Traylor/Shea JV

The San Vicente Pipeline Tunnel is an 11-mile water conveyance tunnel being built for the San Diego County Water Authority. The joint venture of Traylor Bros. Inc. and J.F. Shea (TSJV) was low bidder at $198,366,900 on April 20, 2005. Award occurred July 1, and NTP was July 14. Contract completion is scheduled for Dec. 1, 2008.

West Shaft Site/Reach 1 - Shaft excavation is complete to 115 ft. Excavation of the starter tunnel for the rock TBM has been completed to 400 ft. The tunnel awaits delivery of the TBM from Reach 6.

Central Shaft Site/Reach 4 West — Installation of shaft rail switches and muck guides is complete. The CTS digger shield has advanced to 2,400 ft through extremely hard, well-cemented conglomerate. Ground support consists of precast concrete segments, with backfill grout.

Slaughterhouse Shaft Site/Reach 5 — Reach 5 East is at 3,100 ft and 5 West at 1,500 ft. West remains in fresh to weathered granite, support is Swellex bolts with occasional shotcrete. East has been in mixed face of granite and conglomerate, or full-face granite, support consisting of lattice girders and shotcrete, or shotcrete with Swellex.

San Vicente Portal Site/Reach 6 — The TBM has advanced 4,650 ft and is complete. Rock is granite, requiring pattern Swellex bolting. Small portions have required ribs and boards. The TBM has advanced nearly 1,000 ft into Reach 5 East, thereby removing substantial time from the project schedule. Upon completion of this portion of the tunnel, the TBM will be backed out, and re-installed at Reach 1.

TBMs — Fabrication of the second shield for use in Reach 4 East is complete. It has been delivered to site, and awaits completion of Reaches 5 and 6.

Precast Concrete Segments — Manufactured by Traylor-Shea-Ghazi JV is complete to approximately 30,000 ft.

Project Manager: Mike Jatczak, (619) 631-0777.

Fountain Valley

Ellis Avenue Trunk Sewer

Barnard/Soletanche J/V

Bid Results: 1. Barnard/Soletanche JV, $31,232,600.00; 2. J.F. Shea Co.; 3. Kenny Construction Co. Engineer's estimate: $25,875,000.

Orange County Sanitation District awarded the $31 million contract to the joint venture team of Barnard Construction Co. Inc. and Soletanche Inc. NTP was issued Nov. 14, 2006. Final completion is May 16, 2008.

The Ellis Avenue Project is one of 44 large sewer trunkline replacement or rehabilitation projects planned by the Orange County Sanitation District as part of its $2.5 billion, 18-year Capital Improvement Program. CDM and Malcolm Pirnie designed this project, which required the use of an EPB machine to excavate a 9-ft diameter tunnel, 5,437 ft in length under Ellis Avenue, a fairly busy thoroughfare located between the cities of Huntington Beach and Newport Beach, three miles inland from the ocean.

Project highlights include:

- Excavate 45-ft-deep by 45-ft-diameter junction shaft, 16-ft by 25-ft TBM retrieval shaft, and 30-ft by 20-ft-deep diversion structure shaft
- Chemical grout 350 lf of alignment in advance of tunnel excavation to consolidate area of known petroleum contamination
- Excavate five manhole shafts
- EPB mine 5,437 lf of 9-f t diameter tunnel in soft ground using steel ribs and wood lagging boards for initial support
- Hand-mine 25 lf tunnel for connection from TBM retrieval shaft to diversion structure shaft
- Install 5,500 lf of 66-in. ID carrier pipe within the tunnels and shafts and grout annulus between carrier pipe and tunnel
- Install manhole risers and concrete shafts.

Personnel (Barnard): Dan Schall, Operations Manager; Ben Campbell, Project Manager; Brad Bush, Project Superintendent; Boodie Hurd, Safety Manager; Patrick Stump and Jordan Hoover, Project Engineers; Andy Granger and Bob Cayer, Superintendents; and Ismail Benamar, Soletanche Tunnel Superintendent. Contact: Shelley Burg, (406) 586-1995.

Colorado

Parachute

Williams Production Co. Project

Kiewit Construction Co.

The project scope includes excavation and support of 3,200 lf of tunnel, excavation of a 340,000-cu yd drill pad and all associated access roads. The purpose of this project is to provide future access for drill rigs. The tunnel geometry is 24 ft wide by 20 ft high with a flat back. Excavation of the shale is being conducted using a roadheader; excavation of the tunnel has reached the 2,000-ft mark. Ground

support for the tunnel includes No. 8 pattern rock bolts with welded wire mesh. The project is currently scheduled to be complete in early 2007.

Project Personnel: Todd Cummings, Project Manager; JD Martin, Tunnel Superintendent. Contact: Todd Cummings, (970) 285-7909.

Twentymile Coal Intake Shaft

Frontier-Kemper Constructors Inc.

Excavation of the 18-ft diameter shaft with Nordberg hoist and shaft sinking system continues. The bottom of the shaft was 660-vt below the collar and had passed through the water-bearing zones. Due to the delays caused by excessive inflow of water, the project is now scheduled for completion end of February. Contact: Todd Richardson, (812) 426-2741

GEORGIA

Atlanta

West Area CSO Storage Tunnel and Pumping Station

Atlanta CSO Constructors

The Clear Creek Tunnel has progressed more than 12,000 lf — more than 50 percent of the excavation. North Avenue Tunnel, scene of the bearing change, utilized the downtime for subcontractor Hayward Baker to grout from the surface ground that was marginal with 30,000 gal of chemical grout. This allowed the TBM to successfully excavate the area after the bearing change without a major incident. The drive then continued with almost 12,000 lf excavated and supported.

Project Personnel: City of Atlanta — Ken Johnston, Construction Manager; Atlanta CSO Constructors - Project Manager: Taro Nonaka; Assistant Project Manager: Darrell Liebno; Project Engineer: Ray Hutton; Office Engineer: T.J. Kobayashi; Tunnel Engineers: Adam Stremcha, James McNally, Percy Townsend, Stuart Sullivan, Koichiro Shimomura; Raj Magam; Arash Sayyar; General Superintendent: Jeff Early; Assistant Superintendent: John Dempsey. W.L. Hailey & Co. - Project Manager: Don Painter; Project Engineers: Mark Palmieri, Jake Coibion. JDH JV — Resident Construction Manager: Mike Robison; Resident Engineer: Ed Kennedy; Project Engineers: Randy Divito, Ron Davis; Project Controls Engineer: James Talley; Chief Inspectors: Mark Rhodes, Dave Mundis. Information: (404) 352-0701.

ILLINOIS

Chicago

Valve Isolation Chamber-TARP Pump Station

Kenny Construction Co.

All of the shafts have been excavated and concreted. The access shaft to the TARP tunnel gives access to the existing TARP tunnel that flows to the pump station. The flow is currently being diverted to one side of the existing bifurcation so the new valves and flumes can be installed and encased in the vacated side. Concurrent with this operation is the required demolition in the inactive pump room followed by the installation of the new TARP pumps. Crews have also been working in the existing wet well in preparation for the division of wet well into two separate wet wells for the new divided station.

Project Personnel: Ted Budd, Tunnel Division Manager; Mike Surman, Project Manager; Christian Heinz, Project Engineer; Ken Dumas, Safety Manager; Richard Dresser, Safety; Donn Renfro, Senior Staff Engineer. Contact: Ted Budd or Doug Heinz, Kenny Construction Co. — (847) 541-8200; e-mail: *tedbudd@kenny-construction.com.*

Hodgkins

C.U.P. McCook Reservoir

Kenny Construction Co.

The $60 million C.U.P. project being built by Kenny Construction for the Corps of Engineers is in the final stages of completion. Final testing and operations are taking place.

Project Personnel: Ted Budd, Tunnel Division Manager; Bob Rautenberg, Project Manager; Paul Lauricella, Safety Manager; Jack Finn, Superintendent; Doug Heinz, Project Sponsor. Contact: Ted Budd or Doug Heinz, Kenny Construction Co. — (847) 541-8200; e-mail: DHeinz@kennyconstruction.com.

Hodgkins

MWRD McCook Haul Tunnels

Kenny Construction Co.

The MWRD Haul Tunnel Project associated with the reservoir portion of the Tunnel and Reservoir Plan (TARP) was awarded in September 2004 and is completed and crews are performing additional work for Vulcan Materials in preparation for the installation of a new crusher that is the major element of the new quarry development for a new TARP reservoir.

Project Personnel: Ted Budd, Tunnel Division Manager; Bob Rautenberg, Project Manager; Paul Lauricella, Safety Manager; Jack Finn, Superintendent; Doug Heinz, Project Sponsor. Contact: Ted Budd or Doug Heinz, Kenny Construction Co. — (847) 541-8200; e-mail: *DHeinz@kennyconstruction.com.*

INDIANA

Princeton

New North Mine #2 Portal Service Shaft

Frontier-Kemper

In 2006, FKCI was awarded the contract for the construction of a new service shaft at the Alliance Coal/Gibson County Coal North Mine. The shaft will serve as a new portal for the mine's expanded operations. The shaft will be 28-ft finished diameter divided shaft and conventionally excavated to a depth of approximately 550 ft. The use of ground-freezing techniques will be required to sink through the upper 120-ft of overburden. The work also includes construction of a 30-ft deep sump and a four-way concrete and shotcrete lined station. The project was mobilized in September 2006 and drilling of freeze holes completed and the freeze started October 2006. Shaft excavation is under way in the overburden.

Contact: Todd Richardson, (812) 426-2741.

MASSACHUSETTS

Dorchester

MWRA Dorchester CSO

Shank/Barletta JV

The joint venture of Shank/Barletta was the low bidder at $140 million, followed by J.F. Shea at $160 million. The project, for the Massachusetts Water Resources Authority, consists of two miles of 19-ft excavated, 17-ft segment lined tunnel using a one-pass lining from single shaft.

To date the only work on the project has consisted of submittals to the owner and reviewing and ordering the TBM.

Contact: Steve Wardwell, (401) 941-1495.

MISSOURI

Viburnum

Doe Run Ventilation Shaft

Frontier-Kemper

FKCI was awarded the contract on July 6, 2006, to construct a new ventilation shaft for Doe Run Mining Co.'s Southeast Missouri Mining and Milling Division (SEMO) at the Casteel Mine. The shaft will be raise-bored to a diameter of 6-ft from a depth of approximately 900-ft using a DUR1000 drill rig. Work will be performed at the Casteel Mine and was scheduled to start September 2006. Presently the job is on hold until the issue of surface rights is resolved. Once a resolution is reached the crews will move back and complete the job in approximately three months.

Contact: Todd Richardson, (812) 426-2741

NEW YORK

New York City

East Side Access

Dragados/Judlau JV

The project consists of 25,200 lf of 22 ft diameter hard rock TBM excavated tunnels. There are four tunnel runs, two of which are 7,400 lf and the other two are 5,200 lf. The tunnels start from the existing 63rd Street terminus. The job shaft will be in Long Island City in Queens and crews will have to travel 8,800 ft to the heading. The drill-blast excavation consists of two large crossover caverns between tunnels that will be lined with reinforced concrete. Approximately 11,000 ft of excavated tunnel will be concrete lined. The project duration is 48 months.

Work has begun in the portal and existing tunnels. The JV has removed a concrete overlay from the existing tunnels and commenced to install the 8,900 lf of track to extend to the rock face in each of the two tunnels. Civil work in the existing portal is under way by extending the opening of the bellmouth and placing a new 5-foot thick reinforced concrete invert. The surface work of building a maintenance shop and laydown areas is in progress. The electrical substation is in fabrication for delivery and installation prior to the first of the two TBM arrivals in May. The team is planning the installation of the TBM's conveyor systems and the assembly chambers. Equipment is also arriving to the site including a shaft crane, loaders, compressors and rolling stock. Procurement of the tunneling equipment is mostly complete

with a few items still remaining. The first TBM is provided by SELI in Rome, the components of the TBM are in the manufacturer's facility and assembly will begin the first week in January. The first TBM should arrive in May so all work that is required to get the TBM running needs to be completed including installation of conveyor systems that will bring the muck back through existing tunnels, all utility installations and completion of the drill-blast assembly chambers, it should be a very busy few months in order to get ready for the TBMs. The second TBM will be supplied by The Robbins Co. and is scheduled to arrive two months after the first. All tunnel systems will be designed to support the two headings from one shaft.

Project Executive: Jose Miguel Gonzalez; Project Manager: Don Hockey; Project Engineers: Joaquin Fernandez, Julio Velez; Job Superintendent: Denis O'Neill; Equipment Manager: Louis Sanchez; Survey Superintendent: Jim Skura.

New York City

Water Tunnel #3 Stage 2 Contract 538c

Schiavone/Frontier-Kemper/Shea JV

TBM excavation was completed Aug. 4, 2006. Tunnel forms were installed in the south tunnel and the 10-ft diameter concrete lining placement started in October 2006. Tunnel concrete placement will continue through the to line 47,770 ft of tunnel.

Excavation and final lining of five south shafts is completed and shafts are turned over to subcontractor J.P Picone for installation of final stainless steel piping and fill concrete. Out of four north shafts, one shaft remains to be raise bored, while slashing and concrete placement operation are taking place at three shafts. Final contract completion is in July 2009.

Project Personnel: Schiavone Project Manager: Anthony Del Vescovo; General Superintendent: Dale Estus; Project Engineer: Florentino Sison. J.F. Shea Shaft Manager: Shemek Oginski; Shaft Superintendent: Mike Jennings; Shaft Project Engineer: Jim Rosteck. Information: (212) 564-8552.

North Carolina

Charlotte

Irwin Creek Relief Sewer-Phase 2

Bradshaw Construction Corp.

As of Dec. 22, 2006, 16 shafts and 10 tunnels have been completed. The unanticipated rock conditions have resulted in drilling and blasting in front of the soft ground TBMs for significant reaches of the tunnels. The contractor is currently using a Herrenknecht microtunneling machine to bore through rock and mixed face under Trade Street and installing 36-in. DIP carrier pipe at various completed tunnels.

Bradshaw Construction Project Manager: Eric Eisold; Superintendent: Jerry Simon. Contact: (410) 461-4466.

Charlotte

Sugar Creek WWTP Pump Station-Tunnel

Bradshaw Construction Corp.

The project consists of a 27-ft deep shaft and a 340-ft long by 114-in. diameter tunnel under Tyvola Road. Ground conditions include mixed face and rock. The tunnel is being advanced with a poling plate shield excavated by drill-blast, and lined with steel liner plate. The poling plate shield was cut away due to blast damage. Mining has been challenging due to the soft ground top overlying hard rock. The tunnel is about 55 percent complete. The carrier pipe in the tunnel will be 72-in. reinforced concrete pipe.

Project Manager: Eric Eisold, Superintendent: Bob Welch. Contact (410) 461-4466.

Ohio

Cleveland

Mill Creek Contract 3

KM&M&K JV

Northeast Regional Sewer District. Concrete final lining to a 20-ft ID has begun and is scheduled for completion in early spring. Shaft construction and connector sewer installation are continuing.

Project Manager: Robert J. Kassouf; Project Superintendent: Ralph Dodero. Contact: Bob Kassouf (216) 651-3333

Columbus

BWARI

Jay Dee/Michels/Traylor JV

The holing through into the reception shaft, which is also the main working shaft for the McNally/Kiewit project, took place Oct. 15, 2006. The TBM was dismantled and hoisted from the shaft together with all the backup gear, which was completed on Nov. 20.

Project Personnel — of Columbus Division of Sewerage and Drainage: Gary Gilbert, Civil Engineer; City of Columbus, Division of Sewerage and Drainage: Tanya Arsh, Sewer System Engineering Manager; URS Corp., Designer: Douglas Uhren and Tom Richardson; HR Gray, Construction Management: Robert Scott, Sr. Mgr., James Joyce; Lachel & Assoc., Geotechnical Design: David Chapman and Glen Frank; Contractor, Jay Dee/Michels/Traylor JV: Michael DiPonio, Project Manager; Jeremy Theys, Project Engineer and Tim Awald, Project Superintendent. Contact: (614) 491-9551.

Columbus

BWOAS II

McNally/Kiewit JV

The joint venture has completed five shafts. Subcontractor Soletanche/Moretrench completed a 39-ft finish diameter, 77-ft deep work shaft with a slurry wall 99 ft deep. A jet grout area, 15 ft deep, 30 ft wide and 27 ft high, was placed on one side of the shaft where the tunnel eye will be placed and a similar jet grout area placed on another side where the TBM from BWARI I will break through into this shaft.

Mining operations were halted after completing 856 rings and all components in the shaft including shaft hoisting frames, and other equipment were removed to allow the Lovat EPB TBM from the BWARI Jay Dee/Michels/Traylor project to hole through into this working shaft

Mining operations were re-started after the shaft was cleared and all ancillary hoisting and mucking equipment replaced during the week of Nov. 20, 2006.

Project Sponsor: Larry Lenahan; Project Manager: Tom Szaraz; Project Engineer: Gary Bulla; Project Superintendent: John Herward. Contact: Scott Lewis, (614) 491-2800.

Oregon

Portland

East Side CSO Tunnel Project

Kiewit/Bilfinger Berger JV

The joint venture of Kiewit/Bilfinger Berger started construction of the project for the City of Portland Bureau of Environmental Services (BES) in April 2006. As of early 2007, the 70-ft diameter, 130-ft deep main mining shaft has been completed. Work on this shaft involved construction of the shaft slurry wall, underwater shaft excavation, tremie slab concrete and shaft dewatering. Work is currently progressing on the shaft structural concrete lining for this shaft. Further along the alignment Bencor of America continues its slurry wall work on subsequent shafts. A total of seven main shafts will ultimately be completed. Excavation of the second main shaft is anticipated to start during the first quarter of 2007.

Fabrication and commissioning of the Herrenknecht 25-ft diameter slurry tunnel boring machine is complete and will start arriving at the project site in early 2007. Site setup of the tunneling operation continuous with the installation of the slurry separation plant, muck conveyance system, shaft tower crane and shaft utilities. It is expected that the tunnel operation will start as scheduled in May. Assembly and testing of the precast segment lining plant is also complete as all tunnel molds have been received and installed along with the batch plant. Segment cast will start in early 2007.

Work on the pipeline shaft structures has commenced with Malcolm Drilling starting installation of the secant pile walls. Ultimately, a total of twelve different pipeline structures will be completed using both slurry and secant pile support of excavation methods. Fabrication of the 8-ft diameter slurry microtunneling boring machine has begun with an expected arrival on-site during the second quarter 2007. A total of 6,000-lf of microtunnel will be completed along with another 3,000-ft of open-cut pipeline construction. This work is scheduled to begin in mid-2007.

Project Personnel for KBB: Tom Corry-Project Manager, Tony O'Donnell-Engineering Manager, Paul Weisheit-Safety Manager, Glen Tomack-Quality Manager, Scott Wimmer-Shaft Manager, Christof Metzger-Tunnel Manager, Scott Cromack-Pipeline Manager, Dave Craemer-Precast Manager, Mike Hanley-General Superintendent, Rich Schubert-

Shaft Superintendent, Dave Cramer-Precast Manager, Kevin Young-Equipment Manager, Darwin Goodsell-Business Manager. Contact: Bill Mariucci, (503) 849-8189.

Pennsylvania

Pittsburgh

Pittsburgh Light Rail Tunnels

North Shore Constructors/ Obayashi Corporation Inc.

On Oct. 2, 2006, North Shore Constructors, a joint venture of Obayashi Corp. and Trumbull Corp., was issued the notice to proceed for the Port Authority of Allegheny County's North Shore Light Rail Tunnel and Station Shell expansion contract. This $156 million project includes construction of a 1,500 lf of cut-and-cover section, twin 2,400 lf of bored tunnel 40 to 50 ft below the Allegheny River, and an underground station shell extending the existing light rail line a total of 3,700 lf.

The tunnels are part of the first phase of the North Shore Connector project, a $435 million, 1.5-mile expansion of the city's light rail system. This new section of the 25-mile line will eventually link the central business district in downtown Pittsburgh to the northern shore community. This project also includes reconstruction of retaining walls on the 10th Street Bypass and underpinning support for the Route 65 overpass on the north shore. It is anticipated the entire light rail expansion project will take 4 1/2 years to complete and once open will carry more than 14,000 riders on weekdays.

Current work includes utility relocation, site preparation, archeological investigations, and mobilization of support for excavation subcontractor Nicholson Construction's jet grouting and soil mixing wall equipment.

Project Personnel: Asao Nomura-Project Manager, Hiroaki-Deputy Project Manager, John Murray-Construction Manager, Shu Mino-Project Engineer, Kenji Yamauchi-Tunnel Engineer, Daisuke Sone-Mechanical Engineer, Mike Restani-Safety Manager, Russ Pollard-Chief Field Engineer, William Gyofi-Site Superintendent, Vince Kraynak-Utility Superintendent, Joe Restelli-Electrical Superintendent. Contact: Paul Zick-Project Director (412) 246-0325

Rhode Island

Providence

Deep Tunnel CSO Project

M.L. Shank Co. Inc.

The main spine tunnel, 26-ft in diameter and 16,215 ft long, was turned under in March 2004 and the TBM holed through into the Foundry Shaft on Dec. 1, 2005. The break through came within 1 in. of line and grade for the three miles of tunnel.

Using 160-ft of full circle Everest Forms for a finished ID of 26 ft has been completed. The main construction shaft was to be concrete slip-formed in January followed by move out and site restoration.

Project Director: Mike Shank; General Manager: Gerry Stokes; Project Manager: Steve Wardwell; Project Engineer: Scott Shylanski; Tunnel Superintendent: Curtis Bahten; QC Manager: Nick Torello; Superintendent: Jim Mulkey; P.A.: Jim Hinashian; Safety: Eric Stalman. Contact: Steve Minassian (401) 941-1495.

South Carolina

Charleston

Daniel Island Extension

Affholder Inc.

This new project was awarded to Affholder Inc. for $24 million as a negotiated bid. It will be getting under way simultaneously with the Cooper River Tunnels. A new caisson shaft, 20-ft ID, will be sunk with a concrete caisson full depth 120 ft and a Lovat EPB TBM 96-in. in diameter will be assembled to excavate the 11,000 ft to the Huger Street Shaft.

With the completion of the two shafts in October 2006 the Lovat TBM will be installed and mining will commence.

Operations Manager: Ross Webb; Project manager: John Scheithe; Superintendent: Ron Beasley; Project Engineer: Jason Teuscher; Structure Superintendent: Harry Gajan; Microtunnel Superintendent: Roy Windham; Tunnel Foremen: Vince Cardenas, Jose Rios; Safety Manager: Howard Jones. Contact: Ross Webb (843) 723-5899.

Greer

Bushy Creek Trunk Sewer-Tunnels

Bradshaw Construction Corp.

The project consists of two access shafts and two 120-ft long by 96-in. rock tunnels. The tunnels are being excavated by drill-blast and lined with steel liner plate per South Carolina Department of Transportation (SCDOOT) specifications. The carrier pipe consists of 60-in. ductile iron pipe, both tunnels excavated and the carrier pipe installed end of 2006.

Project Manager: Eric Eisold: Project Superintendent: Frank Jones. Contact: (410) 461-4466.

Washington

Seattle

C710 Beacon Hill Tunnel Contract

Obayashi Corp.

The west heading for the South Platform tunnels (31 ft in diameter) is complete. Waterproofing and concrete invert work has begun. The east heading excavation was finished by Oct. 1, 2006. Excavation for the west heading on the North Platform tunnel has begun. Development work for the east portal was completed. The Mitsubishi EPB TBM arrived at the station and was rehabilitated to continue after walking through the competed tunnel and turned under to complete the drive day lighting into the prepared portal where it will be transported back to the west portal for the final drive.

Sound Transit Personnel: Rick Capka, Resident Engineer; Zeph Varley, Station Project Engineer; Clement Wiggins, Tunnel Project Engineer; Roger Smith, Resident Engineer Structures. Obayashi Personnel: Masaki Omote, Project Manager; Steve Redmond, Tunnel Manager; Rohit Shetty, SEM Manager; Nestor Garavelli, TBM Project Engineer; Bob Clucas, Structural Manager; Russell Nash, Building Manager; Gregg Olsen, Project Engineer; Billy Hahn, Safety Manager; Jon Kirk, Business Manager; Richard Boutelle, Tunnel Superintendent; Leif Nordell, Tunnel Structural Superintendent; Rob Stark, Equipment Superintendent; Duke Wilhite, Surface Superintendent; Satoshi Akai, SEM Engineer; Yoshi Sawamoto, Equipment Manager; Tomo Kudo, EPB Tunnel Engineer; Nezihi Turkalp, Surface Engineer; Mat Matsumoto, Structural/Building Engineer. Contact: Paul Zick, Project Director (206) 262-0665.

Bothell

Brightwater Conveyance System — East Contract

Kenny/Shea/Traylor JV

King County awarded the Brightwater Project to the joint venture of Kenny Construction(Sponsor)/J.F. Shea Co./Traylor for $130,848,700. Mobilization got under way in February 2006 after the Jan. 30, 2006, NTP. The scheduled completion date is Aug. 28, 2009. The project is in both King and Snohomish Counties.

It is the first of the major projects scheduled by King County to complete the Brightwater System. The East Contract consists of the following major elements: 14,050 ft of 18-ft, 10-in. diameter EPB TBM mined tunnel using 16-ft, 8-in. ID bolted, gasketed precast concrete segments for a primary liner; installing and grouting 14,200 ft each of 48-in., 66-in., 27-in. and 84-in. diameter pipes inside the tunnel along with three runs of fiber-optic cable; 2,430 ft of 72-in. diameter microtunnel including three shafts including structures; one intercepting structure to mine from that is 74 ft deep and 80 ft in diameter with 130-ft deep slurry diaphragm walls, tremie slab and final concrete wall lining; one influent pump station shell 83 ft deep, twin 84-ft ID cells, with 160-ft deep slurry diaphragm walls, tremie slab, and final lining; two short 12-ft diameter connector tunnels; one extraction shaft 40 ft deep by 40 ft wide and 140 ft long for connection to new treatment plant piping.

The site utilities and screen/sound wall fence were completed and the slurry wall construction for the IS shaft was completed by Bencor Corp. despite a six-week setback due to an operator's strike against the ready-mix concrete suppliers in King County. Bencor was on pace to finish installation of the binocular twin 84-ft diameter shafts and center wall for the IPS shaft using 160-ft deep by 48-in. thick panels by early January. The IS shaft excavation is completed with diver work currently taking place to pour the 2,600-cu yd tremie slab. Following the installation of a 13-ft thick tremie slab in the bottom of the IS shaft, the shaft must be lined and a microtunnel drive from the IS shaft must be completed before the 19-ft, 4-in. diameter Lovat EPB TBM will be assembled in the shaft. A mid-summer TBM launch is expected.

Project Personnel: Ted Budd, Tunnel Division Manager; John Kennedy, Project

Manager; Jake Taylor, Project Engineer; Luminita Calin, Cost and Schedule Manager; Tony Huphauf, QAQC Manager; Mark Saylor, Division Equipment Manager; Rich Mascarello, Site Equipment Manager; Mickey Aliff, General Superintendent; Dale Wold, Electrical Superintendent; Terry Walls, Warehouse Manager; Mike Sarlitto, Safety Manager; Austin Cooney, Home Office Sponsor. Contact: (847) 541-8200, e-mail: tedbudd@kennyconstruction.com; jmkennedy@kennyconstruction.com.

Bothell

Brightwater Conveyance System -West Contract

Jay Dee/Coluccio/Taisei J/V

The joint venture was scheduled to be moving onsite after Jan. 1.

Project Personnel: Greg Hauser, Project Manager; Tom Foley, Project Engineer; Tom McMahon, General Superintendent.

Bothell

Brightwater Conveyance System — Central Contract

Vinci/Parsons/FKCI JV

On July 24, 2006, the joint venture of Vinci Construction Grands Projects, Parsons and Frontier-Kemper was awarded a four-year, $210 million contract with King County, Wash., for the Brightwater Central Conveyance Tunnel. Work includes 11,600 lf of 14.33-ft diameter segmentally lined tunnel between the North Kenmore Shaft and the North Creek Shaft, and 21,100 lf of 14.33-ft diameter segmentally lined tunnel between the North Kenmore Shaft and the Ballinger Way Shaft. The project also includes 3,400 lf of 3- to 5-ft interceptor work constructed by microtunneling and cut-and-cover methods. The JV will also construct the North Kenmore Shaft, 54 ft in diameter and 90 ft deep, and the Ballinger Way Shaft, 28 ft in diameter and 200 ft deep. The JV will use mixed slurry (slurry and compressed air) TBM, which is a first for FKCI and rarely used in North America until just recently, but a popular technology in Europe. Maximum operating pressures are expected to be just over 5 bar. Notice to proceed issued on Aug. 28, 2006. Contract calls for substantial completion late 2010.

Currently setting up offices and shops and ordering equipment and slurry TBM. Contact: Dave Rogstad (296) 766-8106.

WISCONSIN

Milwaukee

Elm Road Generating Plant — Cooling Water Intake System

Kenny Construction Co.

Dredging and installation of manifold piping is taking place when the weather permits. This will be followed by the installation of the intake screens to complete at least two of the shafts to fill the tunnel late this year for test water for the new plant.

The overburden excavation using a 32-ft ID caisson method to the rock (80 ft deep) for the first of three land-based shafts was completed and the rock drilled and shot to the top of the tunnel and TBM erection chamber. The 200-ft deep shaft was lined followed by the drilling and shooting of the 30-ft horseshoe erection chamber. The 27-ft, 4-in. diameter TBM was erected and has currently mined more than 4,000 ft with a March completion anticipated.

The dredging operation in the intake channel was completed and followed by steel sheeting work in the existing inlet channel that is also complete. The dike wall construction has started along with the second deep land-based shaft that will intercept the mined tunnel.

Project personnel: Ted Budd, Tunnel Division Manager; Paul McDermott, Project Manager; Jon Isaacson, Project Engineer; Tom Plinke, QAQC Manager; Mike Smithson, D/B Coordinator; Mark Saylor, Equipment Manager; Joe Johnson, Electrical Superintendent; Tom Peterson, TBM Specialist; Dave Kuepper, Site Equipment Manager; Chuck Hartman, Warehouse Manager; Rich O'Neil, Survey Manager; Terry Beesley, General Superintendent; Matt Hadaway, Site Safety Manager; Phil Harris, Safety; Austin Cooney, Home Office Sponsor.

Contact: (847) 541-8200; e-mail: tedbudd@kennyconstruction.com or acooney@kennyconstruction.com.

Milwaukee

Harbor Siphons Project

Shea/Kenny JV

The project for the Milwaukee Metropolitan Sewerage District consists of approximately 2,100 ft and 2,400 ft of 17-ft horseshoe drill-blast tunnel, with two 20-ft drop shafts and one 30-ft riser shaft. The shafts range from 250 to 300 ft deep with approximately 190 ft of overburden, which has to be frozen into the bedrock by contract. Also included is a frozen cofferdam of 80 ft by 250 ft for the various pipe connections.

The contract was awarded on May 22, 2006. Notice to proceed was May 23, 2006. At present time shaft sinking has started on Jones Island. The Scott and Barclay site is set to turn the freeze plant on with structures ready for piping and concrete work. On the Erie St. drop shaft site, 78 pipe piles have been driven and the steel sheet piling installed for Phase I. Pre-excavation grouting of the shaft has been started.

Project Personnel: Martin (Dutch) Vliegenthart, Vice President; Carl Christensen, Project Manager; Bonnie Senkowski, Office Manager; Jerry Straube, Structure Superintendent; Darrell Vliegenthart, Shaft Superintendent. Contact: (414) 258-2510.

CANADA

Brackendale, B.C.

Ashlu Creek Power Plant

Frontier-Kemper

The Ashlu Creek contract is a design-build-operate-transfer hydroelectric project. It consists of an upriver diversion weir, drop shaft, transfer tunnel and downriver powerhouse. The weir diverts the part of the river into the drop shaft and tunnel, which then conveys the water 4.3 km downstream to a powerhouse and is finally discharged back in to Ashlu Creek. Frontier-Kemper's portion of the work includes the design and construction of a 130-m deep raise bored shaft and boring 4.3 km of 4.1-m diameter power tunnel. After a two-year delay, the Provincial Government of British Columbia has resolved the land use dispute with the local SLED regulatory body. The developer of the project, Ashlu Creek Investments (an Innergex & Ledcor partnership), issued Frontier-Kemper Constructors a notice to proceed effective August 2006. Mobilization on the site started in December 2006 with machine tunneling to begin in the first quarter of 2007. Contact: Dave Rogstad, (206) 766-8106.

Vancouver, B.C.

Seymour-Capilano Filtration Project

Bilfinger-Berger (Canada) Inc.

The first TBM, the "Seymour TBM," was set up in the raw water tunnel, which is the southernmost of the two tunnels, and commenced the phase 1 tunneling on June 1. The TBM was stopped after 136 m at for a scheduled standdown in late July to allow installation to commence of the second TBM, the "Capilano TBM," in the treated water tunnel.

TBM No. 1-Raw Water Tunnel: Third and final stage of TBM installation completed. TBM and backup system is now 265 m long. Excavated to 0+637 m from Seymour Shaft. Ground support installation to date has been minimal (occasional spot bolting and shotcreting). Water inflows into tunnel are close to projected from detailed design borehole transmissivity results.

TBM No. 2-Treated Water Tunnel: Completing third and final stage of TBM installation, TBM and backup system is now 265m long, services hookups to complete. Excavated to 0+437 m from the Seymour Shaft. Ground support installation to date has been minimal (occasional spot bolting and shotcreting). Water inflows into tunnel are close to that projected from detailed design borehole transmissivity results. Grouted two zones ahead of the current TBM position.

Pipe Supply: Steel pipeline contract awarded to North West Pipe Co. for $33.6 million (CAN) in September 2006. Pipe will be installed on surface, in shafts and at each end of both tunnels, center portion of tunnels (approximately 5 km) will be unlined. Project requires up to 4,800 m x 3 m ID pipe of 12 to 50 mm wall thickness. Delivery of first pipes is scheduled for December.

Project manager is Pacific Liaicon & Associates Inc. (PLA), a subsidiary of SNC Lavalin. Design and CM engineer is Hatch Mott MacDonald (HMM). Tunnel Contractor is Bilfinger Berger (Canada) Inc.

Project Personnel: GVRD — Tom Morrison, Senior Project Engineer Tunnels; Doug Neden, Manager Water Treatment Engineering; Goran Oljaca, Senior Engineer. PLA — Andy Saltis, Area Manager Tunnels; Jeff Spruston, Project Manager for SCFP; Brian Gardner, Project Director and VP Project Services; HMM — Dean Brox, RE; Joe Rotzien, ARE; Golder (geology subcontractor to HMM) — Grant Bonin; BBC — Christian Genschel, PM; Joseph Messner, CM. Contact: Andy Saltis, (604) 982-3197.