

JEFFERSON BARRACKS TUNNEL



MSD Project Clear is the Metropolitan St. Louis Sewer District's (MSD)

initiative to improve water quality and alleviate many wastewater concerns throughout St. Louis City and County. MSD Project Clear is a long-term effort by MSD, undertaken as part of an agreement with the U.S. Environmental Protection Agency and the Missouri Coalition for the Environment. Project Clear aims to improve water quality for everyone, solve problems for some customers created by the very nature and design of St. Louis' wastewater system, and provide clear, up-to-date information to the public.

MSD Project Clear will invest billions of dollars over a generation in planning, designing, and building community rainscaping, system improvements, and an ambitious program of maintenance and repair. At times of heavy wet weather, the sewer system of St. Louis City and much of St. Louis County can be overwhelmed, causing overflows into area rivers and streams. Like many cities throughout the United States, this program is designed to reduce the occurrence of sewer overflows that result from older wastewater collection and treatment systems during heavy storms. MSD Project Clear has divided this multi-year, multi-billion-dollar investment into numerous projects that will be designed and constructed over the next several decades. The Jefferson Barracks Tunnel project, for example, will address sewer overflows in the Lemay/South County area.

Jefferson Barracks Tunnel Project

The Jefferson Barracks Tunnel project extends from just south of I-255 at Koch Road to the Lemay Wastewater Treatment Plant (WWTP) located at the confluence of the River des Peres and the Mississippi River. The Jefferson Barracks Tunnel service area currently conveys and collects wastewater through a series of pump stations, force mains, sanitary sewers, and combined sewers. Treatment is provided at the Lemay WWTP. The existing system cannot handle current volumes and can be overloaded during wet weather, contributing to sewer overflows.

To alleviate these issues, a new deep tunnel will be built along with a new pump station and combined sewers. The deep tunnel will replace the existing trunk sewer and allow for elimination of two intermediate pump stations.

The Jefferson Barracks Tunnel project consists of a 17,800-foot long tunnel, lined with a 7-foot diameter fiberglass pressure pipe and containing instrumentation conduits; an 88-foot diameter launch shaft, and a 28-foot diameter recovery shaft. Seven new intake structures will be constructed along the alignment to convey sewage to the tunnel and site work including construction of a large engineered fill utilizing the rock excavated from the tunnel and shaft. The new pump station and sewer work will be a separate contract following the tunnel construction.



Jefferson Barracks Tunnel Construction Activities

MSD awarded the \$63.3 million construction contract for the Jefferson Barracks Tunnel to SAK Construction in early 2017. Construction began in March 2017 and will continue through to Spring 2020. Some construction activities will have direct impacts for those living, working, and visiting the community in the area of the project. As of July 1, 2018, the overall project is about 23 percent complete.

DIGGING THE TUNNEL

The tunnel will range from about 120 to 220 feet below the ground surface and parallel the Mississippi River from the Lemay WWTP to Koch Road, just south of Interstate 255. Tunnel excavation will proceed from the main construction shaft to the upstream termination shaft at Koch Road.

The main construction shaft is located on the former Defense Mapping site (near S. Broadway and River City Casino Boulevard) and MSD's Lemay WWTP site and will later serve as the location of a new pump station. Karst conditions are present at the shaft which contributes to a variable depth of bedrock being present. Pre-excavation grouting was performed to limit the potential for large groundwater flows into the shaft due to the karst conditions.

A secant pile wall was constructed and extended into bedrock for support of the overburden materials at the shaft. Excavation of the overburden soils began in late April 2018 using a tracked excavator. Drill and blast methods are being used to break the underlying bedrock into pieces small enough to be removed by a tracked excavator, buckets, and crane. Once complete, the shaft will be about 88 feet in diameter and 166 feet deep. Completion of shaft excavation is anticipated in late August or

early September 2018. A starter tunnel will be excavated by drill and blast methods following completion of the shaft excavation and the tunnel boring machine (TBM) mobilized to excavate the 11-foot diameter tunnel.



JB Tunnel TBM

INTAKE STRUCTURE SITES

Seven intake structures will be constructed along the alignment to convey sewage to the tunnel. These include the following:

- Huntsman Intake – MSD Lemay WWTP
- Notre Dame Intake – Notre Dame High School
- County Park Intake – Jefferson Barracks Park
- Grant Road Intake – Jefferson Barracks Park
- Smith Road Intake – Jefferson Barracks Military Post
- Kearney Street Intake - Jefferson Barracks Military Post
- Koch Road Intake – South of I-255

Excavation for the Koch Road intake will also serve as the termination shaft for the tunnel. This shaft will have a finished diameter of 18 feet and be about 135 feet deep.

CURRENT CONSTRUCTION STATUS

Pre-excavation grouting for the main construction shaft was completed in October 2017, with construction of the secant pile wall and a cast-in-place wall atop the secant piles completed in early 2018. The cast-in-place wall allows for fill placement around the shaft so the area around the shaft can be raised to its finished grade.

Excavation for the main construction shaft began in April and is anticipated being completed in late August or early September 2018. Excavated materials remain on the former Defense Mapping site and are placed to raise the grade of the site.



Main Construction Shaft

Work at the intake sites began in early 2018 and will continue throughout the remainder of 2018. This work has included site preparation and the drilling of the drop and vent shafts which will connect the intake structures to the tunnel.

Installation of the soldier pile and lagging retaining wall at the Koch Road site began in early 2018 and should be completed in July 2018. The wall allows for the site grade to be lowered for construction of the termination shaft and intake structure.



Koch Rd Site

WHAT TO EXPECT NEXT

Excavation for the main construction shaft will continue through late summer using drill and blast methods to remove the bedrock. Blasting will also be required to excavate the TBM starter tunnel near the base of the shaft. Blasting for the starter tunnel is anticipated being complete in September 2018. Once complete, the TBM will be brought to the site and assembled.

Blasting is anticipated twice per week. Structures within 500 feet of the main construction shaft were inspected prior to blasting. Five minutes and one minute before each blast, a signal is sounded to alert those near the site that a blast is about to occur. While noise from blasting may be heard some distance from the site, blasting is not expected to affect the public due to the distance of the shaft from public roads and residences. The public is also not expected to be impacted from work on the shaft as material excavated from the shaft will remain on site.

Work at the intake sites will continue through the remainder of 2018 and include drilling the remaining drop and vent shafts and construction of the intake structures.

Shaft excavation at the Koch Road site will begin once site work is completed and will involve excavation of the soil overburden using a tracked excavator followed by drill and blast methods to break up the bedrock for excavation. Excavation for the shaft is expected to start late July 2018. Temporary closures of Koch Road (between Kinswood Lane and Robert Koch Hospital Road) and Robert Koch Hospital Road (between Oakville Elks Lane and Koch Road) will be required during blasting and are expected to last between 5 and 10 minutes for each blast.

WHO TO CONTACT

Questions or concerns about construction should be directed to Pat Kinsella at (314) 750-2001 during normal business hours between 7:00 AM and 3:30 PM. If there is an emergency please call 911!