Argentina

AATES
Asociación Argentina de Túneles y Espacios Subterráneos

Name: Asociación Argentina de Túneles y Espacios Subterráneos (AATES)
Type of Structure: non profit, open association
Number of Members: 46 affiliate members, 8 corporate members

ASSOCIATION ACTIVITIES DURING 2022 AND TO DATE

October 26th and 27th saw the Tunnelling Congress held - "Tunnels for a Better Quality of Life" - with the participation of Latin American experts and those from the ITACET Foundation that developed a training lecture of the same theme as the Conference.

One online training course was developed for the Argentine Construction Chamber, dealing with "Waterproofing of Tunnels of Large Diameter".

CURRENT TUNNELLING ACTIVITIES

Tunnelling beneath the Sarmiento Railway Line – Buenos Aires

Replacement of the "Sarmiento" Railway Line that runs from Western Head Station in Buenos Aires to Station Castelar, over a distance of some 22km, with a double track tunnel, mainly excavated with a 12m diameter EPBM, and a short NATM section. Featured along this section are nine stations, seven mined and two in cut & cover. By mid 2019 the first 7km of running tunnel had been excavated using the EPBM with the machine recovered in an open pit for maintenance. As stated in previous reports, the works have been interrupted due to a lack of financing. The contract with the construction JV is yet to be resigned. Over the past year, nothing has changed and there is no official decision on when this project will resume.

Sewer on the left margin of the Riachuelo River and Emissary – Buenos Aires

This project comprises the construction of a main sewer located parallel to the Riachuelo River, comprising two sections: a 9.4km long upper section with a 3.2m i.d. excavated by EPBM, and a lower section of 5.1km with a 4.5m i.d, excavated using a slurry machine. The project features a treatment plant and an Emissary of 12km with 4.3m i.d. to be excavated into the La Plata River with an EPBM. Three contracts were awarded in 2015 (sewers, plant, emissary), which are all in construction. At the end of 2018 the construction of the treatment plant was stopped, due to the withdrawal of the contractor JV. This work restarted at the end of 2019, after the appointment of a new contractor. At the end of 2019, excavation of the outfall tunnel was successfully completed. During 2020 the risers were built towards the riverbed. The EPBM excavated the entire 9,400m upper section, while the slurry machine also finished the 5.1km lower section. The 800mm and 1,100mm diameter secondary pipeline galleries were also completed, with a total excavated length of 14km. Both the sewerage and the outfall were completed in November 2022 and are in the period of acceptance of the works.

Underground water main "Río Subterráneo Sur" – Buenos Aires

This project was designed to provide a new potable water distribution main, fed by the Grl. Belgrano water purification system in Bernal, to the southern area of Buenos Aires, feeding a population of 2.5M people. It consists of a 23km long underground water line and two large pumping plants, tendered for construction in two contracts. A contractor has been selected for the first section (Lot 1) of 13.5km, 3.9m i.d and pumping plant No.1. The project has two EPBMs, ø 4.66m, with a universal segment ring 6+0, 1.4m wide, and 0.25m thick. The first TBM has finished excavation, leaving from the launching shaft in the vicinity of the Belgrano general plant, to the retrieval shaft at 7.9km, 55% of the total tunnel length. The second TBM machine will leave from an intermediate quad-lobed launch shaft in March of 2023, to complete the 5.6km tunnel to the pumping plant No. 1 in Lomas de Zamora. The first contract is scheduled to be completed in August 2024. The second part of the project, (Lot 2) is yet to be awarded, but has been tendered.

Two road tunnels on National Highway 75 – Province of La Rioja

The project will bypass a road section aligned next to a creek that features beautiful gardens and weekend houses via the construction of two bidirectional road tunnels of 560m and 890m in length. The construction method is conventional tunnelling with a shotcrete primary lining and a prefabricated inner lining. The excavation of the shorter tunnel was completed at the of 2020. Meanwhile, excavation of the second (longer) tunnel was initiated in early 2021 with the current progress of excavation at approximately 41% of its length. It is envisaged, that this project will be completed by the end of this year.

Several sewer projects in Buenos Aires

Over the last few years, in the surrounding neighbourhoods of Buenos Aires, a large number of sewer projects were constructed for the Water Company AYSA and Buenos Aires Government. Some are in progress using mechanized construction, via different modes of TBM. In general, all of these projects are planned and executed using the pipe jacking method.

Opposite is a list of the projects.

FUTURE TUNNELLING ACTIVITIES

Metro Buenos Aires and other underground projects in Buenos Aires

A tender for the basic design of the first stage of the new Metro Line "F", a 5km long circumferential line which crosses many existing lines, was launched in 2019 and delayed. In 2022, the City Government finally decided to cancel the tender and instructed the Metro Authority (SBASE) to develop the tender design, which was initiated in mid 2022, and is expected to be finished by June of 2023. It is planned for the detail design tenders for several specific contracts to be called from mid to end of 2023.

During 2021 the tender design for the construction of the "Colector Baja Costanera", a sewer tunnel along the coast of the La Plata River, was developed. Again, for financing reasons, the process of tendering the construction has yet to be launched. Similarly, the construction of the third and last "rain water relief tunnel" for Buenos Aires, the "Medrano River", was not initiated last year. However, in November 2022 the tender for its design was launched and will commence in April 2023. Presently it is not known when construction of either project will begin.

Bi-National Trans Andean Tunnels – Argentina - Chile

Agua Negra Tunnel: This 14km long twin-tube road tunnel is a project of priority for both countries. After a pre-qualification process for contractors launched in 2017, and a short list of companies was

No	Project	Owner	Starus	Year of completion	TBM Type	Length (m)	Diameters (mm)	Material
1	Red Primaria Cloacal Colector Budge	AySA S.A.	Finalized 2022	2022	Slurry	1513	1100	Precast Concrete
2	Red Primaria Cloacal Colector Morón Resto	Ministerio de Infraestructura y Servicios Públicos - PBA	Finalized 2022	2022	Slurry	6593	1000	
3	Red Primaria Colector Fiorito-Lavallol (SC70256)	AySA	In execution	2023	EPB / Slurry	2980	1400 / 1500	
4	Red Primaria Cloacal Colector Banfield-Centenario (SC70267)	AySA	In execution	2023	Slurry	2308	600	
5	Colector Ezeiza Etapa 2	AySA	In execution	2024	Slurry	5041	1300	
6	Colector Las Catonas	AySA	In execution	2024	Slurry	5229	900 / 1000 / 2000	
7	Colector Martín Rodríguez Etapa 2	AySA	In execution	2024	Slurry	3333	600/ 700 / 900	
8	Cildañez-Vega 2022	Ministerio de Desarrollo Urbano - GCBA	In execution	2025	EPB / Slurry	6000	2200	
9	Cildañez-Vega 2022	Ministerio de Desarrollo Urbano - GCBA	In execution	2025	EPB / Slurry	4412	2400	
10	Ampliación de Colectores y Redes Cloacales - Santiago del Estero	Unidad Ejecutora del Programa (UEP) de la Unidad de Coordinación de Programas y Proyectos con Financiamiento Externo (UCPyPFE) del Ministerio del Interior, Obras Públicas y	In execution	2025	Slurry	17000	1200	

published in 2018, no further action for the tender process has been implemented, mainly due to Chile's reluctance to develop the project. At the end of 2021 the Chilean Ministry of Public Works launched a new study of alternative corridors, which aims to identity potential road tunnel options of a minimised length, overburden and overall cost, compared to the project developed by the Argentine Authorities. Sadly, this tender process was cancelled as no bidder showed interest but was launched again in 2022. In October 2022, two bidders did submit tenders. The Public Works Ministry is still evaluating them and is yet to award the new Feasibility Study.

Las Leñas Tunnel: This approx. 11km long twin-tube road tunnel is officially recognized by both countries as the other relevant bi-national base tunnel. By the end of 2019 a new geological-engineering study was awarded by the Chilean Public Works Ministry to a consulting JV. Its aim was to develop a more detailed geological investigation, to create a better geological model, defining the final corridor for the tunnel, as well as its functional design. The study was finished at the end of 2021 and will be the basis for the next design step, scheduled to be a tender design. As a result of this study, the revised alignment of this 10.5km road tunnel will have two one-way tubes with longitudinal ventilation, connected with pedestrian and vehicular cross passages.

Tunnel Cristo Redentor – second tube (widening of the tunnel Caracoles): With the support of the IDB in 2019 the design of the second tube of the existing Cristo Redentor road tunnel of approx. 3.1km length was completed and the tender for construction developed. This second tube will be constructed as an enlargement of the existing single track "Caracoles" railway tunnel, which was part of the Transandean Railway from Buenos Aires to Valparaiso which has been out of operation since 1978. The offers of the contractor JVs were delivered in 2019 for the construction of the Argentine part of the tunnel, with an award to the winning contractor JV at the end of 2021. Since then, this JV formed by the Portuguese company Mota Engil and the Argentine company Construction started in early 2022. By the end of last year the portal cut and support had been carried out, with mined excavation yet to be initiated. The construction of the Chilean section of this tunnel was tendered in 2022 but is yet to be awarded.

EDUCATION ON TUNNELLING IN THE COUNTRY

Postgraduate Course of Design and Construction of Tunnels and Underground Works at the Engineering Faculty of the University of Buenos Aires, held for the fifth year in 2022, with a duration of 32 hours. Both lecturers, the engineers Ezequiel Zielonka and Jorge Laiun, are members of AATES.