

# United Kingdom



**Name:** British Tunnelling Society

Learned Society Institution of Civil Engineers

**Individual Members:** 800 Individual Members

**Corporate Members:** 70 Corporate Members

## MAIN ACTIVITIES

- Develop a course in underground surveying.
- The BTS continues to work closely with Warwick University in the delivery of an MSc in Tunnelling & Underground Space
- Industry working group – Transforming Tunnel Safety comprising BTS, Clients, Consultants and Contractors.
- Guidance Documents:-
  - Continue to work on a guidance document on sprayed concrete linings for use in soft ground
  - Worked with High Speed 2 and BSi to publish Publically available specification (PAS) for Fibre reinforced concrete segments
- The BTS jointly with the Institution of Civil Engineers supports a Parliamentary Group to engage with politicians and promote tunnelling and use of underground space as a sustainable form of infrastructure development.
- The BTS continues to work with and support Tunnel Skills. TunnelSkills (the industry training development forum) has developed a number of tunnelling specific courses in conjunction with City & Guilds and CITB. Tunnel Entry, Loco Operators, Concrete Pump Operation and Tunnel Safety Training Scheme are some of the courses developed.

## "THINK DEEP UK"

- This is established as a cross industry group with Planners, Architects, Civil, Engineers, Tunnellers, Geologists, Academics to develop and improve the understanding of how underground space can be used.
- ITACUS has been instrumental in the support for this group and Han and Antonio have been to the UK several times and are part of the steering group to assist forming the group.
- Much work has taken place and the group was formally launched in February 2017.
- The event was attended by over 100 guests from all sectors of the industry including local government and central government.

## Mission

- To promote an awareness of the value of underground assets and to create a policy framework that can enable its fair use.
- To inform and guide the general public, decision makers, politicians and professionals how the use of urban underground space can create better cities with socio-economic benefits for society.
- To encourage society to think deep

**Think Deep UK** is a group of built environment experts committed to creating *resilient, sustainable and liveable cities through smart use of underground space.*

**TDUK** think deep  
Young Professionals Think Deep Programme (YPTDP)

ISOCARP itacus  
RETHINKING THE CLYDE WATERFRONT  
CONNECTING THE INFRASTRUCTURE DEVELOPMENT INTO INTEGRATED SPACES AND BUILDING GROUNDS. URBAN DESIGN FOR THE BROWNFIELDS REDEVELOPMENT SCHEMES

Glasgow TDUK itacus ISOCARP  
for an urban underground future  
Knowledge to Better Cities

## CONFERENCES

### BTSYM Conference

- Over 100 delegates
- Overseas delegates



### BTS Conference and Exhibition 2016

- The BTS Conference 2016 took place on Tuesday 11<sup>th</sup> and Wednesday 12<sup>th</sup> October.
- Over 800 attendees over 2 days

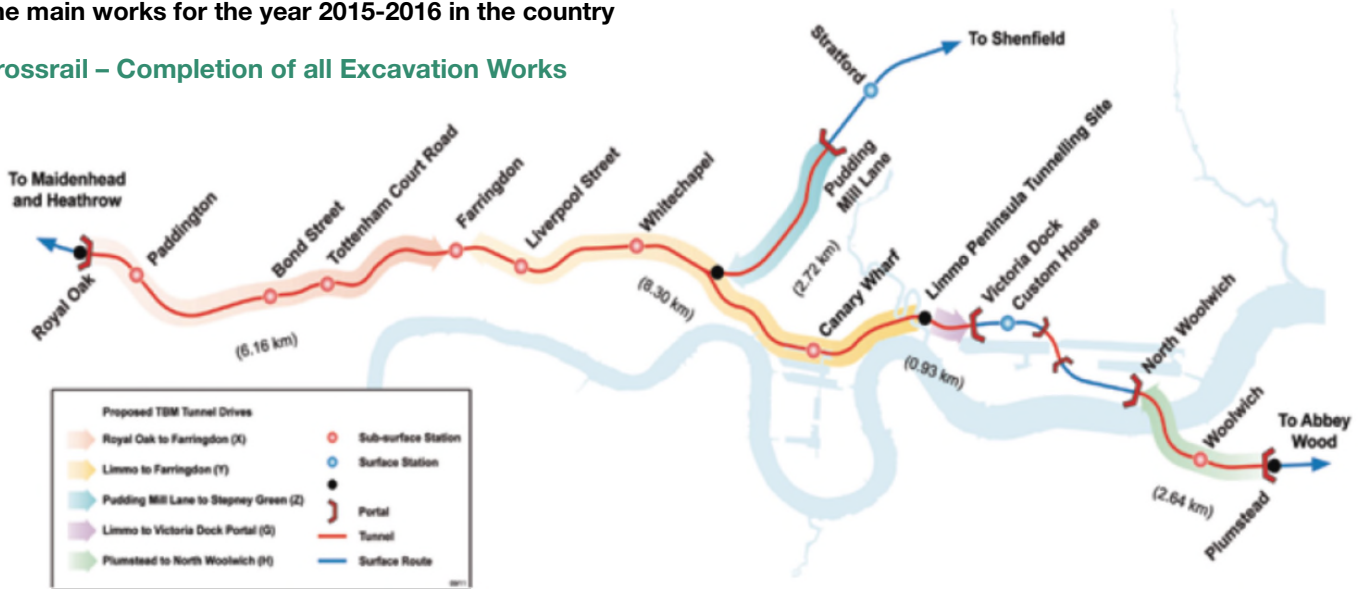
## OTHER ACTIVITIES

- 10 informal evening discussions – monthly apart from July and August.
- Various technical and social meetings and events arranged by the BTS Young Members
- Award of James Clark Medal to Alan Runacres for his lifetime contribution to tunnelling.
- Lunch for James Clark Medal recipients
- Harding Prize competition for under 35's
- Annual dinner held each year in May.
- Co-badged events with numerous other organisations including ICE, IOM3, BGA, Concrete Society

## TUNNELS – UNDERGROUND WORKS

The main works for the year 2015-2016 in the country

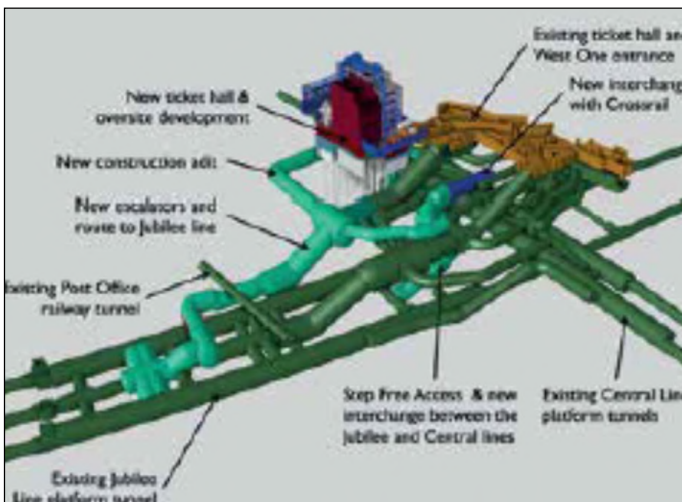
### Crossrail – Completion of all Excavation Works



Crossrail links 9 Underground Stations on a 21km route under heart of London

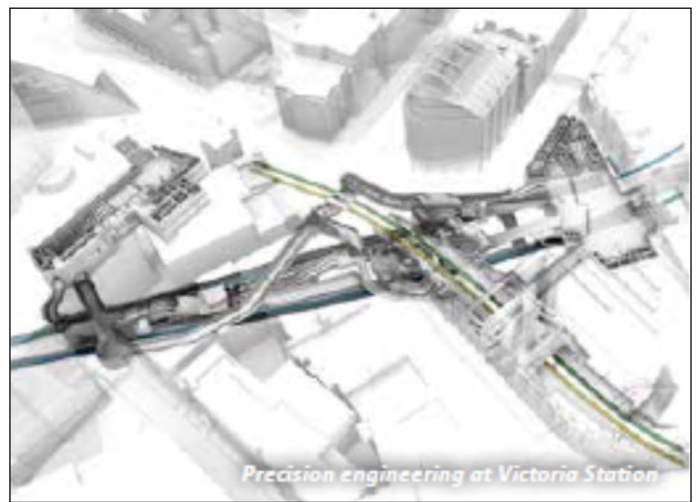
### London Underground Station Upgrades

#### Bond Street



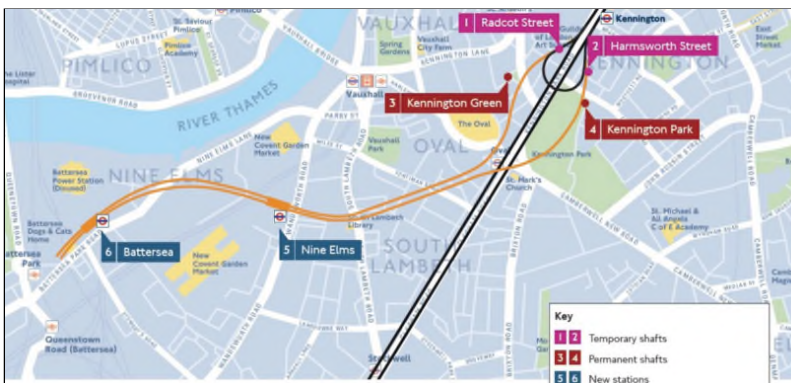
New station connectivity between Crossrail, Jubilee and Central Lines

#### Victoria Station



New ticket halls and connections between Victoria Line, District and Circle Line

### Northern Line Extension



- 3km of 5.2m diameter tunnel
- 2 Stations
- 2 Step Plate Junctions around live railway



## Thames Tideway Tunnel



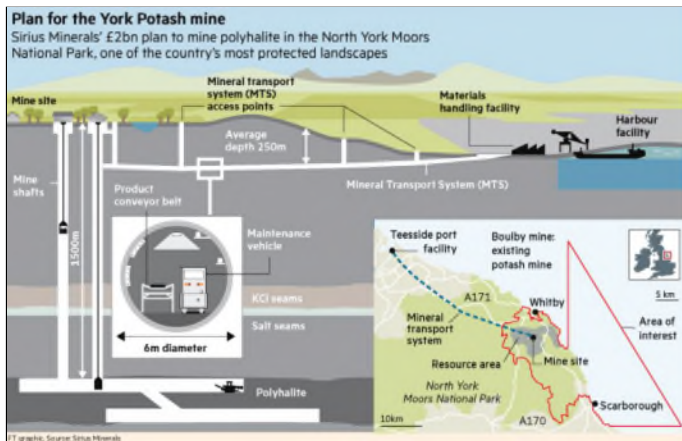
25km of 7.2m diameter tunnel at depths up to 80m under the River Thames connecting the Lee Tunnel CSO

## FUTURE ACTIVITIES

- Silvertown Tunnel
  - Twin bored Tunnel under River Thames – 12m diameter
- CrossRail 2
  - 72km twin bored tunnel; 11 underground stations
- Lower Thames Crossing
  - 3km of Tunnel under the River Thames approx. 12m diameter
- Hinckley Point Nuclear Power Station
  - intake and out fall tunnels; 9km in total
- London Underground Station Upgrades
  - Bank, Camden, Holborn...

## York Potash Mine

37.5km of 5-6m tunnel at depths up to 360m



## Silvertown Tunnel

Twin 12m diameter tunnels 1.3km long beneath River Thames with 8m cover to the River bed. Due to start construction in 2019.



## Crossrail 2

Over 70km of 6m diameter tunnels with 11 underground stations. Hybrid Bill 2019. construction start 2021



## Lower Thames Crossing

Twin 15m diameter tunnels 3km long beneath River Thames on M25. Due to start construction in 2021



## Stonehenge Tunnel

Twin 12m diameter tunnels 2.5km long beneath Stonehenge on A303



## Morecambe Bay Cable Tunnel

25km of 5m diameter cable tunnel beneath Morecambe Bay

