

# BTS TUNNEL DESIGN AND CONSTRUCTION COURSE



'The BTS Course for 2010 has been modelled to address the ever changing face of the tunnelling industry and to focus on the project life from inception through to construction. The course this year has an increased emphasis on sustainability to ensure that tunnels are developed in a safe and sustainable manner and that society gains the full social, economic and environmental benefits of underground space. The tunnelling industry faces a buoyant future. Crossrail, Thames Tideway and Station upgrades in the UK are all progressing. Training of tunnelling professionals is vitally important as we strive to meet the demands of a rapidly increasing workload, whilst pushing the boundaries of design and construction to deliver modern, sustainable underground infrastructure both in the UK and worldwide.'

*Paul Hoyland, Chairman, British Tunnelling Society*

## Who Should Attend?

This course is ideal for young consulting engineers and construction engineers at the start of their civil engineering careers. It will also be valuable to representatives from client organisations, or the financial and insurance sectors, with involvement in tunnelling projects.

**5th – 9th JULY  
2010**

**University of Warwick**

**Coventry, UK**



# BTS TUNNEL DESIGN AND CONSTRUCTION COURSE

The BTS Tunnelling Course is organised and run by the British Tunnelling Society (BTS), an affiliate member of the Institution of Civil Engineers. The purpose of the course is to provide a comprehensive introduction to all aspects of tunnelling.

The course will follow the project life and will contain worked examples and workshop sessions to allow improved interaction between delegates and speakers. It is aimed at the wide range of professional services that support the tunnelling industry, including clients, tunnel operators and members of the financial and insurance sectors that may have a vested interest in tunnelling enterprises.

The course speakers are all recognised industry experts in their own fields. The BTS Tunnelling Course is recognised within the industry as providing the highest standard of technical content with the course material being presented in a format designed to engage and inform attendees from a wide range of backgrounds.

It traditionally attracts a wide range of attendees from around the world where challenging tunnelling projects demand informed and competent professionals at all stages of the project life cycle. Attendees will gain a comprehensive introduction to all aspects of tunnelling in a wide range of ground conditions. Industry best practice will be presented by leading experts in the various technically challenging fields of tunnelling technology with special emphasis placed on health and safety

## WHAT THIS COURSE HAS TO OFFER

Delegates will upon completion:

- understand current best practice in all aspects of tunnel construction from planning through to construction
- be informed on risk, technical solutions for differing ground conditions and the health and safety aspects of tunnelling projects
- have networked with other delegates and had the opportunity to discuss technical matters with Europe's leading tunnelling practitioners
- receive copies of the latest relevant BTS publications.

## Course Programme

### Monday 5<sup>th</sup> July

#### Day One: Introduction to Tunnelling

9:00	Coffee and registration
9:30	<b>Welcome &amp; Introduction</b> - Chairman
10:00	<b>Creation of Underground Space</b> Mike Murray, Hatch Mott MacDonald
10:50	<b>Financing and Procurement of Tunnelling Projects</b> Dr Chris Eaglan, Transport for London
11:40	Coffee
11:55	<b>Health and Safety in Tunnelling Projects PTI</b> Donald Lamont, HM Principal Specialist Inspector, HSE
12:45	Lunch
13:45	<b>Health and Safety in Tunnelling Projects PTII</b> Donald Lamont, HM Principal Specialist Inspector, HSE
14:35	<b>Risk Management and Insurance of Tunnels projects</b> John Keys, London Bridge Associates
15:25	<b>Workshop</b>
17:00	<b>Discussion/Q&amp;A</b>
17:30	Close



# BTS TUNNEL DESIGN AND CONSTRUCTION COURSE

## Tuesday 6<sup>th</sup> July

### Day Two: Project Development

- 8:30 Coffee and registration
- 9:00 **Project Management of Tunnelling Projects**  
**Bob Ibell**, Managing Director, London Bridge Association
- 9:50 **Stages in Project Development**  
**Rob Naybour**, Weston Williamson
- 10:40 **Contracts — What Form to Use**  
**Alan Finch**, Consultant, Mott MacDonald
- 11:30 Coffee
- 11:50 **Tunnelling Ventilation and Life Safety Engineering.**  
**Davar Abi-Zadeh**, Director, Arup & Leon Hewer
- 12:40 Lunch
- 13:40 **Design for Safety in Underground Construction**  
**John Scholey**, Project Manager, Jacobs
- 14:30 **Environmental Aspects**  
**Dave Hiller**, Associate, Arup
- 15:20 **Workshop**
- 17:00 **Discussion/Q&A**
- 17:30 Close
- 19:00 Sports, Activities & BBQ



## Wednesday 7<sup>th</sup> July

### Day Three: Sprayed Concrete Lining

Presenters will be: Colin Eddie (Morgan Est), Alfred Staerk (Alpine BeMo Tunnelling GmbH), Alun Thomas (Mott MacDonald) and others.

- 8:30 Coffee and registration
- 9:00 **Overview - Historical Aspect, NATM vs. SCL, Future Developments**
- 10:30 Coffee
- 10:45 **Design - Philosophy, Materials and Control of Construction**
- 12:30 Lunch
- 13:30 **Construction - Soft Ground SCL Tunnels in an Urban Environment - Quality Control, Process Control and Competencies.**
- 15:00 **Workshop - Design, Constructability, Daily Review Theatre**
- 17:00 **Discussion/Q&A**
- 17:30 Close



# BTS TUNNEL DESIGN AND CONSTRUCTION COURSE

## Thursday 8<sup>th</sup> July

### Day Four: Soft Ground Tunnelling

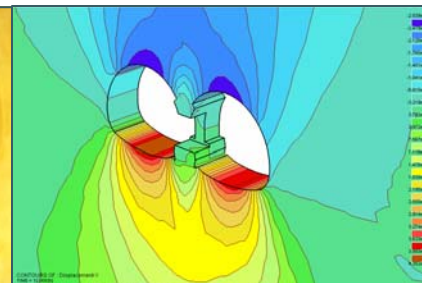
- 8:30 Coffee and registration
- 9:00 **Logistics**  
**Ivor Thomas**, Civil Engineer, Edmund Nuttal Ltd
- 10:00 **Segmental Lining Design**  
**Mike King**, Technical Director, Halcrow
- 11:00 Coffee
- 11:20 **Tunnel Induced Ground Movements**  
**Mike Devereindt**, Senior Engineer, Arup
- 12:20 Lunch
- 13:20 **Tunnel Boring Machines**  
**Roy Slocombe**, Herrenknecht
- 14:20 **Pipe Jacking Techniques**  
**Roy Slocombe**, Herrenknecht
- 15:20 Coffee
- 15:35 **Soil Conditioning in EPB and Slurry Tunnelling**  
**Ian Morrison**, Technical Sales Representative, Morrison Mud
- 16:35 **Site Investigation Techniques and their Application**  
**Bob Allen**, London Bridge Associates
- 17:30 Close
- 19:30 Course Dinner



## Friday 9<sup>th</sup> July

### Day Five: Hard Rock Tunnelling

- 8:30 Coffee and registration
- 9:00 **Rock Mass Classification**  
**A. Davis**, Principal Engineer, Mott MacDonald
- 10:00 **Highway Tunnel Design**  
**Nick Tucker**, Associate, Mott MacDonald
- 11:00 Coffee
- 11:20 **Ground Treatment**  
**Bob Essler**, Managing Director, RD Geotech Ltd
- 12:20 Lunch
- 13:20 **Hard Ground Temporary Works Techniques**  
**David Hindle**, Geotechnical Engineer, OTB
- 14:20 Coffee
- 14:45 **Project Sustainability**  
**Casey Fleming**, Environmental Manager, Morgan Est  
**David Keeble**, KBR
- 16:00 Close



# BTS TUNNEL DESIGN AND CONSTRUCTION COURSE

## Registration Form

Title: (Prof/Mr/Mrs/Miss/Ms) ..... First name:.....

Surname: .....

Job title: .....

Organisation: .....

Address: .....

Postcode:..... Country: .....

Tel: ..... Fax: .....

Email: .....

**Note: Please complete separate forms per delegate. Photocopies of this form are acceptable FEES**

I wish to attend the Tunnel Design and Construction Course and have indicated my level of attendance below

- Residential delegate @ £1155 + VAT @ 17.5% (includes accommodation Sunday - Thursday nights)
- Residential delegate @ £1115 +VAT @ 17.5%(includes accommodation Monday - Thursday nights)
- Non-residential delegate @ £945+ VAT @17.5%

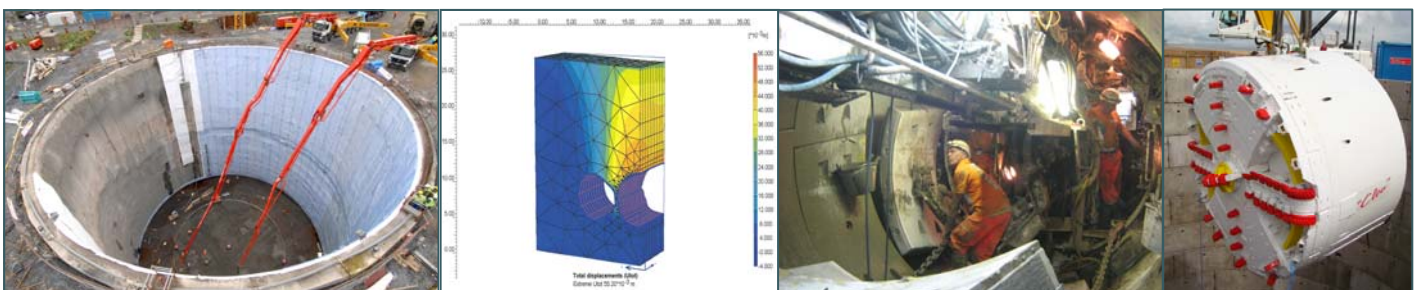
Please indicate if you will be attending the conference dinner on Wednesday 7<sup>th</sup> July

- Yes I will attend
- I do not wish to attend

If you are a non-residential delegate and require accommodation for the night of 7<sup>th</sup> July only, please indicate below.

- Please book me accommodation for 7<sup>th</sup> July only @ £40+VAT

Fees include attendance at the course, delegate documentation and catering during the course. Additionally residential fees include dinner, bed and breakfast.



# BTS TUNNEL DESIGN AND CONSTRUCTION COURSE

## Registration Form

### Method of Payment

- I confirm payment has been arranged by bank transfer
- I enclose a cheque for £ .....  
(made payable to Thomas Telford Ltd).
- I would like to pay by MasterCard /Visa / Switch / Delta /Amex card  
(**Note:** You will be contacted by Thomas Telford to process a Debit/Credit Card Payment)
- Please invoice (UK delegates only)

Please complete and return this form, together with payment details to:

British Tunnelling Society, c/o Dawn Burge,  
Mott MacDonald Limited, Mott MacDonald  
House, 8-10 Sydenham Road, Croydon, CR0  
2EE

t: +44 (0)20 8774 2252

f: +44 (0)20 8681 5706

e: Dawn.Burge@mottmac.com



A team of fourth year students involved in a recent Tunnelling research project at the University of Warwick

### Purchase order number

An invoice will be raised on registration. Please note that our VAT registration number is GB 240 8777 47. Requests for invoices must be endorsed with either a purchase order number or by an authorised signatory. Registered charity 210252

### Data protection

The information provided by you will be used for correspondence, billing and accounts for this event. The data will also be held on a database to provide you with information on services that ICE and Thomas Telford provide in the engineering field. We do not sell data information to third parties. If you wish to receive details of future ICE and Thomas Telford Ltd products and services, please tick here



# BTS TUNNEL DESIGN AND CONSTRUCTION COURSE

## TERMS AND CONDITIONS

### Booking Conditions

A confirmation letter will be sent to you on receipt of your booking. If you have requested an invoice one will be sent to you from Thomas Telford Ltd, a wholly-owned subsidiary of the Institution of Civil Engineers. Payment must be received before the conference date. If payment is not received, delegates will be asked to guarantee payment with a personal credit card.

### Joining Instructions

Joining instructions will be issued subject to receipt of payment. We cannot be held responsible for the non-arrival of registration information. If you have not heard from us within 14 days of the conference date, please contact Dawn Burge.

### Cancellations / Substitutions

Cancellations and substitutions must be made in writing. Cancellations made four weeks before the event will be charged at 10% of the invoice total (minimum charge £75 plus VAT). Cancellations made between four weeks and two weeks will be charged at 50% of the invoice total. Cancellations made after this period will be charged the full invoice amount. However, you can send a substitute delegate at any time. Bookings received less than two weeks before the conference date can only be paid by credit card. Non-attendance at the event will be considered a late cancellation and the full fee will be payable. It may be necessary for reasons beyond the control of the organisers to alter the content and the timing of the programme or the identity of the speakers. In the event that the conference has to be cancelled you will be entitled to a full refund of your delegate fees. The Institution of Civil Engineers will not be responsible for the reimbursement of any other costs incurred by potential delegates.

### Special Arrangements

If you have any additional requirements, such as wheelchair access or special dietary needs, please let us know in advance. Conference Language - English, unless otherwise stated.

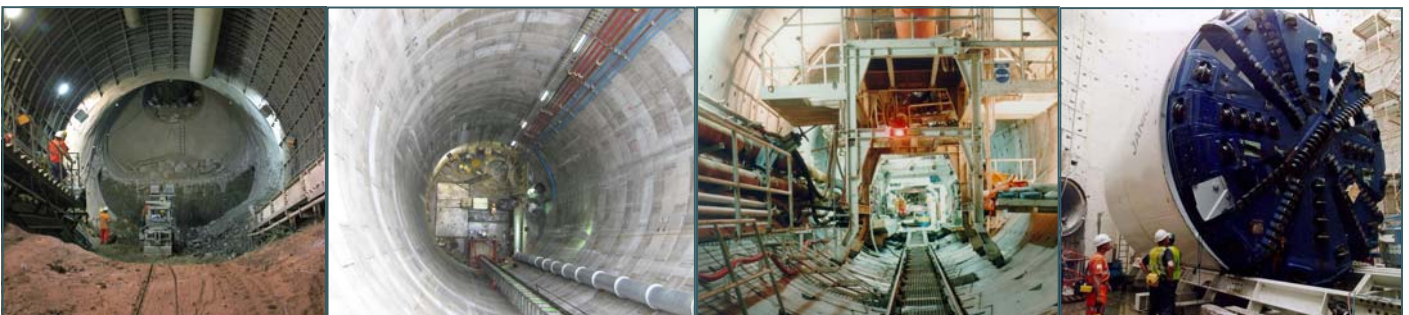
Please Note Normal conference fees cover entrance to all sessions, conference documentation and available papers, coffee/refreshment breaks and lunch. However, where stated, some special promotional delegate offers may exclude some or all of these items. We are sorry that we are unable to accept provisional bookings.

### Data Protection

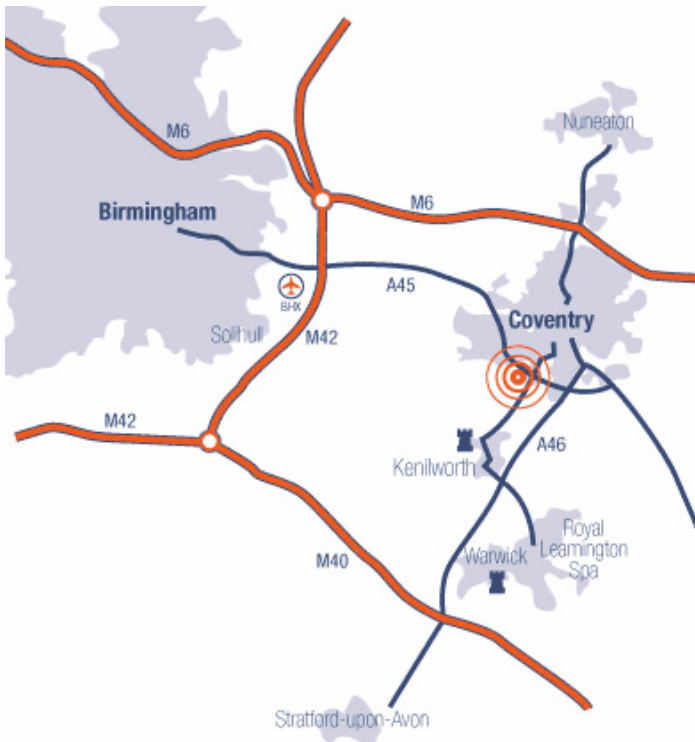
The Institution of Civil Engineers and Thomas Telford Ltd, are committed to protecting your privacy and security. From time to time we may invite you to supply personal information in order for us to provide you with services. In order to deliver such services, we will need to process and store your personal information and may need to transfer it to the relevant partner(s) such as ICE regional representatives, for processing both inside and outside the European Economic Area. By submitting your personal information, you consent to such processing and transfers in connection with such orders, offers or services and for any other purposes to which you consent at the time you provide the information. We will never wilfully disclose personal information about you to any third party, other than to process an order, without first receiving your permission or unless we are under a legal obligation to do so.

### General

Nothing in these Terms and Conditions shall restrict or exclude any liability that we have to any party that cannot be excluded by law. These Terms and Conditions shall be governed by English law, and the courts of England and Wales shall have exclusive jurisdiction over any disputes arising. Submission of this booking constitutes a legally binding agreement. UK delegates may request an invoice and requests must be endorsed with either a purchase order number or by an authorised signatory. For your reference our VAT registration number is GB 240 8777 47.



# BTS TUNNEL DESIGN AND CONSTRUCTION COURSE



## Campus Facilities

- Free use of the comprehensive campus sports facilities including the 25m swimming pool; squash, badminton and tennis courts and Fitness Suites
- Free Internet access in rooms
- Free Parking
- Warwick Arts Centre
- Bear Rock Indoor Climbing Centre
- Rugby/Football pitches

## How to Find Us

Warwick Conferences, based at the University of Warwick lies on the outskirts of Coventry. Situated at the very heart of England it is easily accessible by road, rail and air.

### By Air

Birmingham International Airport is approximately 30 minutes by taxi (approx. 13 miles). A frequent train service runs to Coventry from Birmingham International station, adjacent to the airport which takes approximately 10 minutes. This campus is also located approximately 1 hour from Nottingham East Midlands Airport, 2 hours from Luton Airport and 15 minutes from Coventry Airport.

### By Rail

Coventry Intercity station is the nearest station and only four miles from the University. The Euston service runs half-hourly with an approximate journey time of 60 minutes. Services to Birmingham International and Birmingham New Street are also frequent throughout the day. There is a large taxi rank at Coventry station. Alternatively, a regular bus service runs to the centre of the campus - Travel West Midlands 12 or 12a, or Stagecoach X10 or X12 bus from the Warwick Road Bus Stop (which is signposted from the station).

### By Road

Situated at the hub of the national motorway network, all major links (M1, M6, M40, M42, M45 and M69) are within easy reach.

[Directions to University of Warwick](#)

