

Capability statement

Civil Engineering



Why Tony Gee?

Tony Gee has been adding value to design and infrastructure solutions for over 40 years. Our core business has been established by working with clients, contractors and other designers to complex design and build civil engineering projects. We have developed an extensive capability in both temporary and permanent works design, focussing in particular on integration of design with construction.

Our reputation has been built through the delivery of innovative and alternative designs that have taken into account the employment of construction methods, modern and innovative techniques as well as the effective use of materials. Our approach is always to work alongside our client to consider robust, combined solutions, designing both permanent and temporary works together. We have extensive knowledge and experience of working for contractors across the globe, recognising and understanding the logistical challenges associated with major infrastructure schemes.

Unusually for consulting engineers, our workload is divided between the design of permanent works and the development of temporary works and construction methodology together with design of any specialist equipment necessary to build or maintain complex infrastructure projects. The firm has a wide range of capability within the Civil and Structural disciplines built environment and has specialist expertise in geotechnical engineering, design and build contracts and the strengthening of existing structures using advanced composites. Our diverse experience covers all the main construction mediums and techniques in use today. Our size allows us to be flexible and adaptive to our clients changing needs and this combination of skills enables efficient, innovative and economical designs to be produced - a fact recognised by our involvement in major UK and international projects.

Our key differentiators and USPs are :

- Experience in working with clients and contractors on complex projects for many years.
- Flexibility and responsiveness in service delivery
- Expertise and experience in infrastructure design including, value engineering, construction methodology and design integration.
- Substantial design and technological resource
- Understanding of construction risk in the design process.
- Highly experienced technical teams exercising regular peer review

We employ highly qualified and experienced staff and engage in a progressive graduate sponsorship and training programme to develop a broad range of skills across all disciplines. Coupled with advanced design and BIM software the practice has developed a reputation in the industry for delivering efficient, innovative and economic designs delivered on time. We undertake independent checking of complex solutions and construction methodology for every engineering solution. All civil engineering, geotechnical engineering and permanent way design is carried out in house and Tony Gee has a mature supply chain for the delivery of other specialist disciplines.

A firm which has carved out a strong reputation as a provider of technical maestros who can sort out any complex construction challenge

New Civil Engineer Magazine

Rail	Research and development
Highways and Infrastructure	Inspections and assessments
Marine	Feasibility studies
Power and Energy	Ground investigations
Education	Permanent works design
Health	Temporary works design
Airports	Lifting and moving systems
Commercial	Design checking
Industrial	Demolition and facade retention
Retail	Construction methodology
	Site monitoring
	Expert witness

For further information please contact:

Chris Burton
+44 7989 746576
chris.burton@tonygee.com

Peter Adamson
+44 7807 411372
peter.adamson@tonygee.com

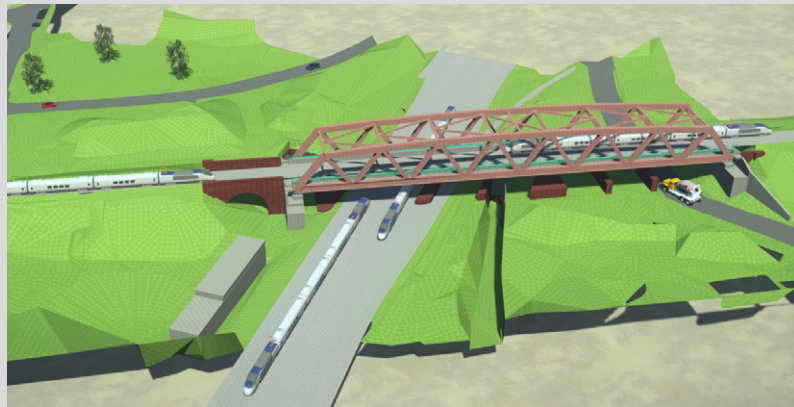
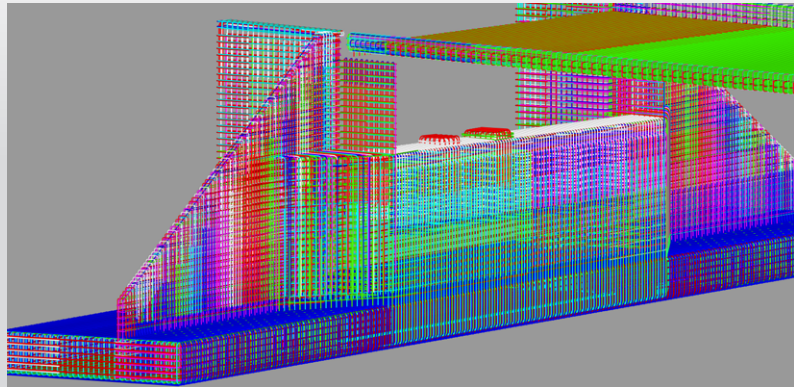
Tony Gee and Partners LLP

Tony Gee

Our engineers are highly capable in the latest analysis techniques and industry best practice. They undertake high quality, relevant training to ensure they are suitably qualified and equipped to work on projects of any complexity.

Digital Design

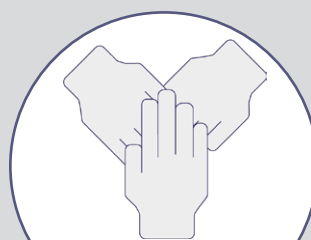
Tony Gee embraces emerging technology and best practice. Building Information Modelling (BIM) and 3D modelling is currently used on all projects that we believe will benefit from the advanced features. We have well established capability in all the industry standard software packages and systems particularly with those more specialist in design.



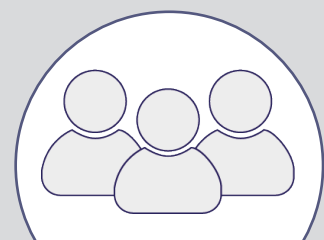
Our Values



Working
positively and
responsively



Commitment to
success through
collaborative working



Investing in the
development of
all staff



Conscientious design
with due regard to its
impact on the environment
and the wider community



Reduction of waste,
with increased reuse
and recycling



Proud Patron of
international disaster
relief charity RedR



Community liaison
in partnership with
the client and the
project team

Dawlish Emergency Works

Key points:

- Main designer for the emergency response to repair the station and for the permanent solution for the damaged seawall
- Railway line was repaired and reopened two months ahead of schedule
- Innovative solution utilising precast vertical concrete barriers to stop the seawall breach
- Multi-award winner including the ICE Brunel Medal

On 4th February 2014 storm damage caused an 80m long breach in the railway line near Dawlish Station. As the lead designers on the project, we worked collaboratively with Network Rail, BAM Nuttall, Amco Rail and Dyer and Butler

Emergency works were undertaken to protect the area from being undermined further by the tide; containers were filled with debris / ballast to form a protective barrier to the works area. High tides and poor weather restricted work to short length low-tide cycles. Sprayed concrete was used within the side slopes of the hole to prevent the fine sand from washing out further and protect undermined residential properties.

A second storm caused further damage extending the breach by 20m and increasing the quantities of other wall defects and causing a large slope failure in the cliffs immediately above the rail line. By using staggered rows of precast vertical concrete barriers (VCBs) as facing shutters on the seaward face, the breach was filled with four lifts of mass concrete. The VCB face was anchored back into the mass pour to ensure composite unit was created.

Contractor: BAM Nuttall, Amco Rail
and Dyer and Butler

End Client: Network Rail



Midland Metro Alliance (MMA)

Key points:

- Part of design consortium to develop an integrated transport system for the West Midlands

Tony Gee has been contributing to solving a wide range of technical challenges for the MMA as part of the development of an integrated transport system for the West Midlands. The MMA consists of Tony Gee, The West Midlands Authority (which owns the Midland Metro), Egis, Pell Frischmann, Barhale, Bouygues UK, Auctus Management Group, Colas Rail and Colas Ltd.

Bilston Road Track Renewal: Tony Gee provided the design lead and support across many disciplines, including development of an innovative polypropylene fibre reinforced track slab. The design was a major part of enabling the project to be completed on time and budget. The scheme was awarded the Large Project Award at the ICE West Midlands earlier this year.

Wednesbury-to-Brierley Hill Extension (WBHE): Tony Gee is covering the full spectrum of civil engineering services, including highways, permanent way, geotechnical, structural, drainage and environmental disciplines for the WBHE scheme.

East Birmingham Solihull Extension (EBSE): Tony Gee is leading the development of two significant viaduct and bridge structures to cross the West Coast Mainline (WCML) and the M42 Motorway.

Working to develop buildable and economic solutions, we have taken advantage of the co-located teams to reduce capital and whole life costs, reduce impact on adjacent landowners and stakeholders, minimise disruption to the railway corridor and offer programme savings.

End Client: The West Midlands Authority



Dover Western Docks Revival

Key points:

- Design of major infrastructure project at the Port of Dover
- Integrated temporary works design
- Awarded an interim CEEQUAL Excellent rating



Tony Gee worked on the £115m Dover Western Docks revival Scheme for VolkerStevin Boskalis Westminster JV to design a new 500m long public access pier and navigation access structure and decking of quay walls.

The navigation access includes a lock and 100m cut, sector gates, future provision for mitre gates and a 15m span lifting bascule bridge. Outline design of the bascule bridge and lock gates are included with the design scope.



Phased construction of the navigation access was required to enable service diversions to be undertaken without disruption to private and public users. Interfaces between the new navigation access and the existing highway and grade II listed dock walls have been considered.

The Marina Pier design has been developed with VolkerStevin to ensure a solution is buildable within the shortest timescale taking cognisance of the potential environmental conditions including wave, wind and the 7m tidal range.



Contractor: VolkerStevin Boskalis
Westminster JV

End Client: Dover Harbour Board

A142 Ely Southern Bypass, Cambridgeshire

Key points:

- Preliminary and detailed design of new bypass
- Time and costing saving solution utilised 3D reinforcement software to design complex V-Piers

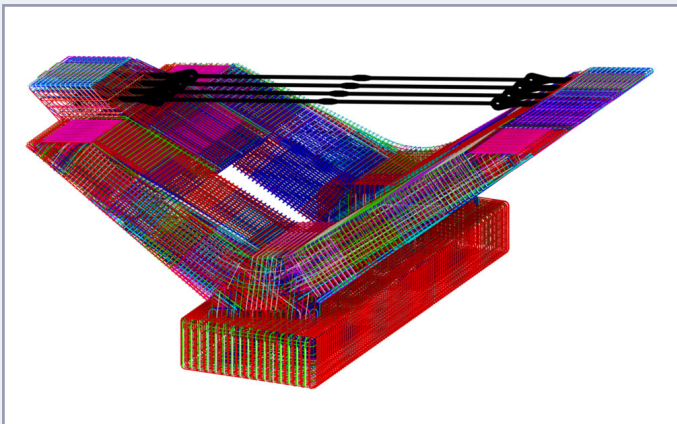


Tony Gee was appointed by VolkerFitzpatrick to undertake the preliminary and detailed design of the new A142 Ely Southern Bypass.

The scheme brings a much needed new road to alleviate traffic problems, including large volumes of heavy goods vehicles which currently go through Ely. This includes two new roundabouts with the road built up on embankment, a 300m long viaduct structure crossing the River Great Ouse floodplain and a 100m long bridge crossing two railway lines.

One of the challenges was designing the geometrically complex V-shaped piers on the viaduct. This was addressed through fully exploiting our 3D reinforcement detailing software, Design for Manufacture and Assembly. This included a clash detection and producing an animated reinforcement fixing sequence in NavisWorks to aid the contractor, as well as reduce congestion and improve safety for site personnel.

These benefits have been realised with VolkerFitzpatrick saving a substantial amount, based on avoiding re-work, reinforcement wastage and delays to the programme. Throughout the design stages, the team was consistently surprised by the cross-sections cut through the 3D model of the V-piers. This demonstrated it would have been close to impossible to detail the reinforcement using conventional 2D methods.



Contractor: VolkerFitzpatrick

End Client: Cambridgeshire County Council

City of Dreams, Macau

Key points:

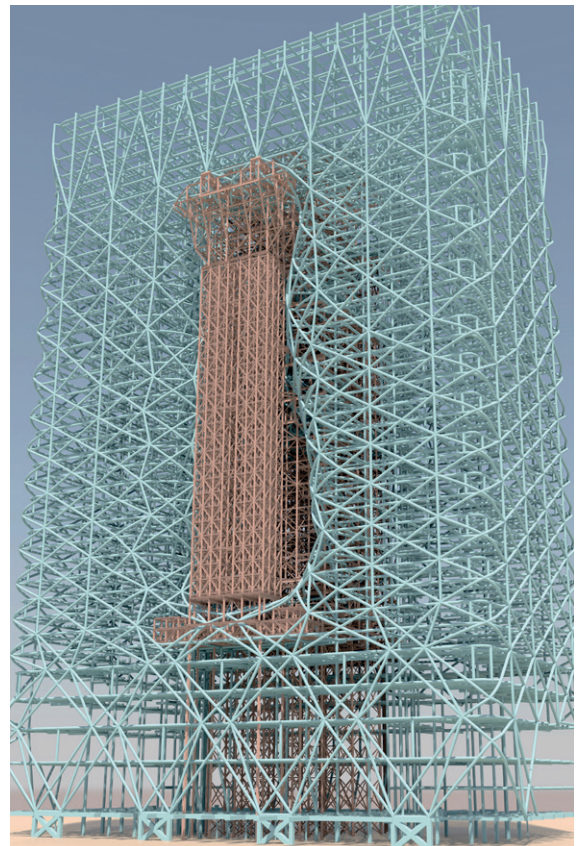
- Temporary works design to support steelwork of the Morpheus hotel
- Innovative design of temporary works to be dismantled early

Tony Gee designed the temporary works required to support the steelwork of the Morpheus hotel, part of the City of Dreams casino during its construction.

The Morpheus hotel was designed by Zaha Hadid and utilises an irregular form steel exoskeleton in its central region. The façade has an unsymmetrical curved or 'billowing' profile and bridges across the gap between two halves of the building. The façade structural frame was not self-supporting until complete to nearly full height and therefore required additional supports before completion.

Tony Gee was able to make installation of the cladding to the exoskeleton easier by eliminating clashing members and by designing the temporary works to permit sections to be removed early (prior to the completion of the permanent works steel frame) so that façade installation could be earlier, reducing overall construction time.

Our designs were prepared to allow use of either proprietary prop and soldier components or bespoke elements fabricated from rolled sections in approximately 50% of the structure. The contractor eventually adopted rolled sections throughout.



Contractor: Dragages Macau

End Client: Melco Resorts and Entertainment

Brechfa Wind Farm

Key points:

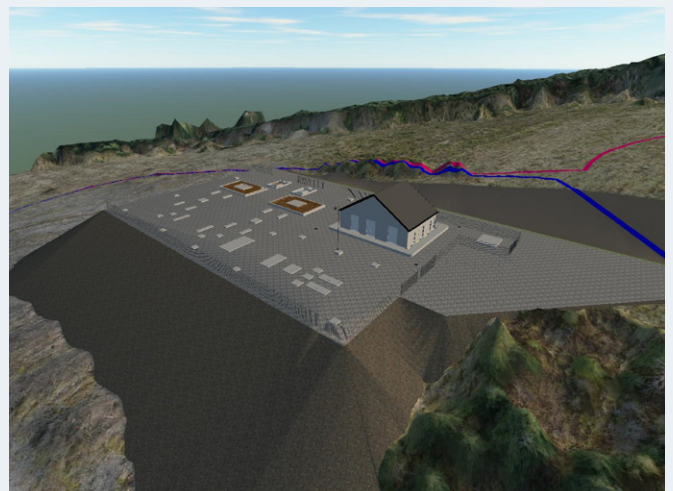
- Civil, Structural and Geotechnical design services
- Provided integrated 3D models through detailed design phase
- Business Green Awards 2018 - Renewable Energy Project of the Year Winner

Tony Gee completed the Civil, Structural and Geotechnical detailed design of Brechfa Wind Farm on behalf of Farrans. Innogy UK engaged with Farrans to construct a wind farm comprising of 28 wind turbines in the Brechfa Forest north of Carmarthen in South Wales.

Along with the turbines and their associated foundations this scheme included the following permanent supporting infrastructure; access road from the A485 to the site, wind farm site roads and a substation. Overhead power cables which connect the main substation to the local electricity distribution network (operated by Western Power Distribution).

Based on our extensive BIM capabilities, we were able to provide integrated 3D models throughout the detailed design phase. By combining our REVIT models, used for WTG base and buildings, and our Civils 3D models, in the Infracore software package we produced accurate models of the final design.

As a firm, we are committed to collaborative working and we believe that the use of models such as these in design reviews is vital is essential for clear communication between ourselves and the client. The replacement of extensive paper drawings with integrated 3D models is also one way in which we are continually striving towards a more sustainable project delivery.



Contractor: Farrans

End Client: Innogy UK

Office locations and human resources



All of Tony Gee’s engineers have engineering degrees. the rest of the technical team is made up of BIM technicians, all of whom possess the relevant qualifications pertaining to their roles (HNC, HND etc). Recruitment is driven by the requirement for the very best engineering intellect and we therefore recruit students at a variety of top universities and offer them sponsorship throughout their course.

Tony Gee prides itself on a low staff turnover. the reasons for this are a comprehensive benefits package, the opportunity for career progression, a varied workload and excellent working environment, exemplified by our appearance in the highly profiled Sunday Times 100 Best Companies to work for listing.

Staff levels by Grade	
Chartered Engineers	96
Graduate Engineers	199
Engineering Technicians	33
BIM Technicians	101
Business support	36
FTE equivalent	434