

## **Civil Engineering Design Project: Example briefs**

### ***SHOPPING CENTRE***

*Kings Chase Shopping Centre is located in the Kingswood area of Bristol. It comprises an existing shopping centre, multi-storey car park and also an area of parking at ground level. This project is to provide new retail space and parking to an existing shopping centre as part of the local regeneration plan. The following is the area requirements for the new retail space, not including circulation space, stair/lift cores and plant space.*

- *12 units of retail ranging between 124 to 467 sq m. The units are generally A1 but three should be able to accommodate A3 use too.*
- *Gym 1400-1500 sq m*
- *Storage 640 sq m*

*Each retail unit needs a separate access towards the rear of the unit for staff/deliveries. Level access between the existing and new retail is highly desirable along with easy access to parking, although existing retail level is approximately a storey level above the ground floor of the new build site.*

*At least 300 car parking spaces need to be provided in the new scheme, although the existing multi-storey car park is in poor condition and needs replacement. The existing shopping centre is to remain live throughout the construction of the new retail/parking so consideration is required of phasing of the new development in order to maintain reasonable levels of parking at all stages. The site is in a residential area so the massing and elevation treatment will be very important for planning.*

### ***TACKLING CONGESTION IN BRISTOL***

*Bristol City Council (BCC) are seeking assistance to develop a coherent and deliverable transport package for east Bristol. This is an excellent opportunity to undertake a real-world consultancy style project that will help shape the development of Bristol over the next 20 years. BCC would like to work with students to help design the project and provide ongoing input, and can provide technical information and transport models to help develop the proposals if needed.*

*East Bristol between the M32 and River Avon experiences slow traffic and bus speeds, as well as rat running traffic using residential streets. In future, housing and employment growth to the east of the city may add further pressure to this area of the city. The Council is investigating new Park & Ride sites and corridor improvements, however, this area of the city is particularly constrained and there is a real lack of space and opportunities for new transport infrastructure. As such, more radical and innovative solutions may be needed here.*

*The group project should aim to develop a coherent and deliverable transport package for the area that improves conditions for walking, cycling, and public transport. Within the wider project, BCC would be particularly interested to see concept designs for any new pieces of transport infrastructure. For example, this could include specific layouts and designs for reallocation of road space including cycling and public transport improvements on the A420.*

## **TEMPLE QUARTER PEDESTRIAN BRIDGE**

*The University is starting the conceptual design for its new Temple Quarter campus, due to come into full operation in late 2021. One of the important issues is access to the site, which is located between the river and the main railway line. There is currently very limited access and one possibility is to put in a footbridge over the river to improve pedestrian access from the eastern side and to improve the connectivity of the campus to that part of the city. This project will give students an exciting opportunity to work with the University's Estates team on a major development project and potentially to influence thinking about the connectivity of the new campus.*

## **THAMES TIDEWAY**

*The Thames Tideway tunnel project is being constructed to curb the 40 million m<sup>3</sup> of raw sewage that is currently discharged into the river Thames each year. The Victoria Embankment Foreshore site is one of the most prominent on the scheme being opposite the London Eye.*

*The Victoria Embankment Foreshore site will control the discharges from the Regent Street combined sewer overflow. When the scheme is finished, and tunnel open, it is expected that no discharges will occur in this location.*

*A new foreshore structure is to be constructed to house the drop shaft that will connect, by virtue of a connection tunnel, to the main 7.2m diameter main tunnel.*

*Detailed consideration should be given to the sequence required to facilitate the construction and the interface with the surrounding grade 2 listed river wall. As this will be a new structure constructed into the river the serviceability of the structure after being struck by a vessel should be considered*

## **SCHOOL AND CULTURE CENTRE IN ETHIOPIA**

*Education is fundamental to the development of any country. Ethiopia is currently engaged with the development of its own rural education and require the design of a culturally sensitive school which is affordable and can be delivered off grid. The school construction should be flexible to the different needs of different communities but as a minimum should provide 4 classrooms, a larger hall and a cultural centre which provides both adult education and also enables the community to celebrate their own culture. Ethiopia has suffered a number of natural disasters in recent years including flooding and landslides. The school should be robust and able to survive a 1:100 year event. It should also be developed so that in a disaster it can provide emergency facilities.*