Jay Carver’s paper is very useful in summarising the process that Crossrail has followed and identifying the key factors in managing the risk, and maximising the benefits, associated with archaeology on major infrastructure projects.

MOLA (Museum of London Archaeology) has been involved in many of London’s infrastructure projects, at the consultancy, planning, and mitigation stages. Over the past 30 years we have witnessed an evolution in the approach taken when dealing with the historic environment on major projects such as the Jubilee Line Extension, and the recent rail improvements to the East London Line and Thameslink.

**Early Consultation**
The lead article explores the importance of consultation during the early planning stages of Crossrail, which allowed key stakeholders to contribute to and make submissions during the examination of the Crossrail hybrid bill in parliament. Following the changes introduced by the Planning Act 2008, and amended by the Localism Act 2011, mega-infrastructure projects now go through the National Infrastructure Planning Process. The intention is to streamline decision-making for nationally significant infrastructure projects, improving the situation for developers and communities alike and providing consultation at key stages.

One new development which increases opportunities for consultation is the requirement to prepare a Preliminary Environmental Information Report (PEIR), before the Environmental Statement (ES). MOLA prepared the historic environment components of the Thames Tideway Tunnel PEIR and ES and we have found this two-stage process to be extremely helpful. This development allowed consultees (English Heritage, Local Authority planning archaeologists, local amenity societies) to come forward with additional information, queries, comments, and recommendations for mitigation in the early stages of the process.

**Centralisation, Continuity and Consistency**
The lead article also notes the importance of central contracts for building in continuity and consistency within a project. In the case of Crossrail this has been achieved with the Project Archaeologist (Jay Carver) being embedded in the management structure, directing the archaeological framework suppliers on different packages of work. This provides the client with security that the archaeological aspects of the project are
being managed to a consistent standard, and there is no doubt that this centralised approach has been crucial for the strategic design and implementation of the archaeological mitigation.

I would go further and say that most mega-projects also benefit from an overarching research strategy, bringing together the relevant objectives from existing research frameworks and strategies. This can frame and inform work at the planning stage and allows the subsequent evaluation and mitigation phases to be targeted, as well as providing a ‘vision’ for the archaeological work; one that should evolve as the archaeological results become available.

The commitment to maintaining continuity of archaeological teams, from enabling works to post-excavation work for each package of work (involving multiple sites), is one that deserves support. Whilst it is of course common for archaeologists to use and interpret archives produced by others, I think most of us have moved away from a view that archaeological context sheets, plans and records capture everything of the story of a programme of archaeological work. Undoubtedly, details can be lost in translation. Archaeological investigation requires experience and judgement to identify and interpret physical remains in the ground. Continuity of the team through critical stages allows for more connections to be made over the course of the project and for a better result to be delivered overall.

**Quantification – Speaking the Right Language**

One of the most important points to be raised is the need to present archaeological requirements in a form that the other procurement professionals, construction managers, and project managers understand. This means quantities; times, volumes, numbers of people. Words don’t help, it is the numbers that will get us noticed and ensure we are built into programmes, even if these numbers are initially best guesses based on available information. Archaeological contractors should take note of this because it can only help to demystify what we do.

However on some projects more work can be done to achieve cooperation and genuine understanding from main contractors. We still need better ways of aligning the delivery of archaeological work with the interest of other contractors on the site. Ignoring the archaeologists won’t speed up the process; in fact the opposite is often the case. We need mutual understanding of each other’s activities and needs, as well as real integration. This is going to be achieved by building relationships in construction teams and finding balanced solutions, as Jay notes.

**Opportunities**

The opportunities presented by these mega-projects are clearly set out. These include investment in methodological and technical improvements where they can deliver benefits to the project, for example speeding up recording or analysis. There are opportunities for skills development, learning from the construction industry, and also the prospect of very effective programmes of public outreach linked to other environmental and sustainability programmes. This can include facilitating archaeological apprenticeships on these big programmes. In this respect there can be conflicting requirements on some of the mega-projects. There may be a specification to have staff with a certain minimum amount of experience and also a desire to train and employ local people through apprenticeships. A bit of flexibility and joined up thinking across project procurement would help us to cope with this.

Above all we should share knowledge and experience across the archaeology sector. The Institute of Archaeology seminar in February 2013 provided a very useful overview of innovation and lessons learnt from major UK infrastructure projects. This PIA Forum is another opportunity to share information and to improve the position of archaeology on these really important, game changing projects. Long may they continue!