

London 2012 Olympic Park delivered on time and within budget using NEC3 contracts

MARC BRYANT HEAD OF COMMERCIAL GOVERNANCE, ODA

Looking out across the Olympic Park now, it seems incredible that so much has been accomplished in such a relatively short space of time.

As you read this article, we stand on the eve of the London 2012 Olympic and Paralympic Games, with the UK ready to showcase itself and its achievements to the world.

Ambitious and intensive

It is easy to forget that a little over 6 years ago we embarked on one the most ambitious and intensive urban regeneration projects the UK has witnessed since the aftermath of the Second World War.

The UK Olympic Delivery Authority (ODA) was established to design and deliver the construction programme for the venues and

infrastructure required to host the London 2012 games.

The programme has been delivered within budget, and ahead of schedule, and all against a backdrop of an increasingly tough economic climate, and intense public scrutiny and interest

Embedding spirit of NEC

In 2006, ODA made an early decision to employ the NEC3 suite of contracts across the majority of its projects, and sought to embed the spirit of NEC throughout ODA and its delivery partner, CLM.

The flexibility and approach to change control that NEC3 contracts offer has helped to make possible what has been a truly unique collaboration between public and private

sectors in the UK.

It has helped enable delivery through a contractual framework embodying transparency and governance.

Testimony to collaboration

The London 2012 construction programme has been a brilliant testimony to what can be achieved in the spirit of mutual trust and cooperation and is a tribute to the UK construction industry.

I hope that this dedicated issue of the NEC Users' Group newsletter offers you an interesting and entertaining insight into the contractual and commercial drivers that have underpinned delivery. ○

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The London 2012 Olympic Park: the main venues and buildings (clockwise from bottom left) are the Velodrome, Basketball Arena, Olympic Village, Aquatics Centre, Olympic Stadium, Copper Box, International Broadcast Centre and Riverbank Arena (blue pitches). The northern parklands can be seen in the foreground. NEC3 contracts were used to procure the majority of projects.

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NEC's role in delivering the London 2012 construction programme



MARC BRYANT HEAD OF COMMERCIAL GOVERNANCE, ODA

The UK Olympic Delivery Authority (ODA) is the non-departmental public body established to manage the delivery of the London 2012 construction programme across the Olympic Park and Village.

The challenge ODA faced at its inception in 2006 was considerable, with a site of some 2.5 km² to be redeveloped, and the infrastructure, utilities and landscape works to be delivered to support the construction of a suite of permanent and temporary venues for the London 2012 games.

Compliance and policy

The works had to be delivered against a backdrop of compliance with the UK's public procurement regulations, and of delivering a set of ambitious policy aims and priority themes covering

- health and safety
- sustainability
- socio-economic regeneration
- legacy
- security.

Developing a strategy

A work-packaging strategy and contract choice for the programme was critical in setting ODA on course for success. The overall programme was segmented into its constituent delivery areas:

- enabling works
- utilities
- structures
- bridges and highways
- permanent venues
- temporary venues
- landscape and public realm.

These were underpinned by programme-wide

logistics and security projects. As one senior member of the team remarked of the challenge 'How do you eat an elephant? Answer: 'in small chunks'

With the programme established, and 112 primary contracts identified, ODA needed a commercial strategy and approach that would support the delivery of a highly complex multi-disciplinary programme for works that were not completely defined, and had a rigid deadline and a highly publicised budget.

NEC3 contract suite selected

The NEC3 suite of contracts was adopted by ODA to deliver the majority of its Olympic Park construction programme (see page 3).

Its selection centred on the right mix of key facets that would enable ODA to deliver its obligations successfully, including

- a wide adoption in the marketplace, with a proven track record of use in the supply chain
- an extensive array of standard commercial and contractual approaches that support different project types
- an ethos of collaboration
- a robust change-control mechanism that offers transparency over the cost and schedule impacts of each change event
- the transparent management of risk.

Progressing in partnership

Central to ODA's delivery approach was the appointment of a delivery partner; an ambitious, but ultimately simple plan to make the most of the experience and ingenuity of the construction industry in partnership with an informed, 'thin' client.

Following completion of one of the first competitive dialogue procurement procedures in the UK, CLM – a joint venture between CH2M Hill, Laing O'Rourke, and Mace – was successfully appointed as ODA's delivery partner

to provide programme and project management services via an NEC3 Professional Services Contract (PSC) (see page 5).

The contract saw CLM accept significant delivery risk, and ODA incorporated programme-level cost and schedule incentives linked to the phases of delivery.

Fit for purpose

ODA and CLM moved to finalise the delivery structure for the major projects, adopting a model based around a main contractor approach, with an integrated project team consisting of ODA, CLM and contractor. Through this model ODA sought to engender an ethos of collaboration from the beginning.

As part of the process, ODA and CLM refined a proforma works and site information document, combining the two into the 'project information'. This was split into site-wide and project-specific sections, which could be utilised on each contract, maximising efficiency.

The method of producing the works and site information has been very well received by the supply chain and has provided significant benefits to the project management team.

Moving into the market

The delivery structure informed the detail of the major procurement programme, which began with a wide market engagement exercise.

In 2007, the UK construction market was buoyant, and the ongoing issues with the Wembley Stadium redevelopment were fresh in the minds of the likely supply chain. With numerous private enterprise clients offering projects that were lower risk and of considerably lower profile than London 2012, initial market testing demonstrated little appetite for work on the programme.

A regime of events targeted at stimulating both appetite awareness of the project resulted largely in success. However, the first two venues to be procured – the main Olympic Stadium and the Aquatics Centre – both still suffered from a lack of widespread interest, predominantly because these were the first venues 'out of the blocks', and ODA was still an unproven entity.

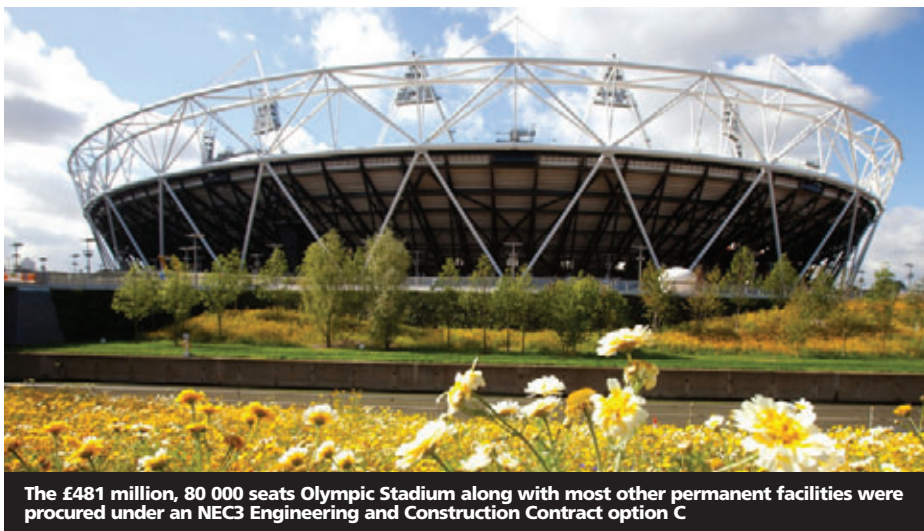
In recognition of both the likelihood of changes to the Olympic Park, and the then-buoyant economic climate, the early venue contracts – including the Velodrome and the Media Centre – were let on an NEC3 Engineering and Construction Contract (ECC) option C (target contract with activity schedule) basis, with the contractor's share positioned to ensure an equitable risk-sharing position.

Changing with the market

As part of ODA's commitment to a sustainable games, a number of venues were designed to be temporary, and will be removed and reused (either in whole or in part) after the games. The principal temporary venues are

- Basketball Arena
- Water Polo Arena
- Eton Manor (although Eton Manor Sports Complex is a permanent structure and will provide legacy recreational facilities).

The original delivery model for temporary venues had been the same main tier 1 contract model employed for the major permanent assets. However, in response to the then buoyant market conditions, and utilising the specific experience of the delivery partner, ODA and CLM developed an alternative model for temporary venues, the 'managed package solution' (MPS) approach.



The £481 million, 80 000 seats Olympic Stadium along with most other permanent facilities were procured under an NEC3 Engineering and Construction Contract option C

The MPS strategy falls somewhere between a traditional design-and-build contract, and a construction management approach. Under this model, ODA contracts for specific trade packages of work for a particular venue, with CLM managing multiple contracts per venue.

NEC3 framework agreements

To support the MPS approach, a number of framework agreements were procured, as follows

- general builder
- civil engineering
- building services
- lightweight event structures
- modular accommodation
- seating
- design services.

The frameworks were procured on the basis of the NEC3 Framework Contract, incorporating options A (priced contract with activity schedule), C and E (management contract) of the ECC, and the PSC in the case of design services. The frameworks were then used to procure the individual packages for the temporary venues.

The MPS frameworks and overall approach provided ODA with an alternative, 'plan B' option in the face of market issues, and more importantly afforded ODA a unique structure that enabled it to access efficiently the breadth of the UK supply chain, in full compliance with relevant regulation.

Moving to the finish line

As the programme progressed, and the financial crisis began to take hold, ODA was well positioned to benefit. The target contracts for the main venues allowed it to see the benefits of reduced costs in the supply chain result in reduced defined cost to its tier 1 contractors.

In tandem, the temporary venues were just entering procurement, along with the Copper Box handball venue (see page 6), and the constricting market resulted in greater competition and a greater risk appetite in the supply chain. Ultimately all of these contracts were let on the basis of ECC option A.

The combination of a genuine ethos of cooperation across the programme, and the use of innovative incentive with strong commercial leadership, has seen ODA's constructed assets completed on or before schedule, with most completed a year before the games themselves, and significantly under budget.

As we move further towards the opening ceremony on 27 July 2012, media focus on the games will inevitably continue to grow. It will, we hope, continue to shine a light on what is an incredibly positive result for the entire UK construction industry. ○



The £40 million Basketball Arena and other temporary venues were delivered under NEC3 Framework Contracts incorporating the Professional Services Contract and options A, C and E of the Engineering and Construction Contract.

Rationale for selecting NEC3



PAUL DICKINSON HEAD OF PROCUREMENT, CLM

NEC3 was ODA's preferred form of contract for London 2012 Olympic and Paralympic Games construction projects. The underlying rationale for selecting NEC3

contracts for works and services was that they reflect and promote construction industry best practice and offer a range of flexible solutions for contracting out various levels of risk.

A benefit of using NEC3 contracts is that they encompass and integrate a set of processes that ensure corporate governance, a good example being the obligation to manage public funds appropriately and transparently when initiating contract change, this being addressed within the compensation-event process.

The early-warning notice procedure also offers transparency in terms of change control and provides a contractual route to the mitigation of risk and the realisation of opportunities at contract level.

While it is fully acknowledged that NEC3 contracts have a reputation for being onerous to administer, it must equally be challenged that contract change (for cost and time), risk mitigation and opportunity realisation will have to be robustly managed within such a high-profile public programme as London 2012, regardless of contract form.

NEC3 contracts encourage a collaborative and pro-active approach to contract administration and ensure focus upon time as a currency as much as cost.

The standardised suite of London 2012 contracts enabled ODA to establish a sound platform upon which it could implement a consistent contracting structure throughout the supply chain. The Olympic-specific suite of NEC3 contracts would thereby become familiar to the supply chain and assist the drive for efficiency as the programme progressed.

The contract options offered enabled selection of the most appropriate risk profile, balancing time, cost and quality against the nature of the particular project and its stage of design development at the time of procurement.

Whereas the main NEC3 Engineering and Construction Contract (ECC) has six contracting options (options A to F), ODA utilised only three options – with ECC option A (priced contract with activity schedule) and C (target contract with activity schedule) being the most popular – as well as the Professional Services Contract and Term Service Contract.

Key benefits of NEC3

- Mutual trust and co-operation – ECC clause 10 underpins and governs the behaviour of the respective parties to the contract in that each party must work together in 'a spirit of mutual trust and co-operation'. The NEC3 suite of contracts encourages a collaborative and proactive approach to contract administration and ensures focus upon time as a currency as much as cost.

- Good corporate governance – NEC encompasses and integrates a set of processes that ensure corporate governance. A good example is the obligation to manage public funds appropriately and transparently when initiating contract change, which is addressed through the compensation-event process.
- Encourages discipline – while it is acknowledged the NEC has a reputation as being onerous to administer, it must be accepted that at the same time that NEC demands discipline for the timely operation of contract mechanisms, for example the operation of periods for reply within the contract administration process to facilitate contemporaneous resolution of issues. The rigour applied through the contract administration process and the use of contract management software tools enabled progress of closing-out early-warning notices, compensation events and project manager assessments and acceptances to be effectively monitored. Active monitoring also enabled prompt intervention, where necessary, to prevent undue delay in the resolution of matters. The early warning notice procedure also offers transparency in terms of change control and provides a contractual route to the mitigation of risk and the realisation of opportunities at contract level.
- Standardisation of documentation – a standardised suite of London 2012 contracts helped to ensure a consistent contract structure throughout the supply chain. The suite of Olympic NEC3 contracts would become familiar to the supply chain and assist the drive for efficiency as the programme progressed. The contract options offered by NEC3 allow selection of the most appropriate risk profile balancing time, cost and quality. This was achieved through a number of contract and subcontract options (A to F) read with core clauses, secondary option clauses and Z clauses (contract amendments) to suit the works required.
- Contract incentives – certain NEC3 contracts contain incentives mechanisms to complete the works through sharing pain/gain. The stated aims within ODA's public procurement documents emphasise working in partnership with industry to deliver world-class and sustainable facilities, while achieving value for money. The target contract with activity schedule allowed ODA flexibility to determine these incentives, to set completion bonuses, and impose key performance indicators for given criteria. The use of incentives encourages the supply chain to contribute to potential efficiencies both in construction and design. In addition, setting bonus milestones focuses effort on completion at given points on the programme. Further use of key performance indicators can be introduced to measure issues such as health and safety performance, sustainability targets and employment requirements.

NEC and the Olympics: the delivery partner's view



KENNETH OWEN COMMERCIAL DIRECTOR, CLM

Too often I read articles in industry publications from consultants, lawyers and advisors giving in depth insight and guidance regarding their individual interpretation of specific contractual clauses and how the contract should

operate. One thing which these articles rarely do is rise above the technicalities and addresses the fundamental essence of what NEC contracts are trying to achieve – a collaborative, open and honest working relationship which is fair to all but does not depart from the central theme of why the parties have come together; to build a functional asset or provide a service.

This article articulates the experiences and learning from the CLM delivery partner team, who were tasked with the responsibility of managing ODA's vast portfolio of contracts awarded to deliver Britain's commitments to host a successful London 2012 Olympic and Paralympic Games.

London 2012 procurement in numbers

1	Programme
55	Major projects
96	Tier 1 suppliers
100+	Contracts
890	Critical tier 2 and 3 suppliers
1400	Unique principal contractor boundaries
151	Stakeholder delivery milestones
27 000	Integrated plan activities
1520	Integrated plan linked activities
50 000	NEC3 early warning notices and compensation events
7.3	Budget in £ billions
1	Key date, 27 July 2012

Over 100 NEC3 contracts

To facilitate the assets required on the Olympic Park for the games, over 100 NEC3 contracts have been managed and integrated, involving a critical supply base of over 850 suppliers, generating in the region of 50 000 key contract communications with an overall average monthly spend of £140 million.

It is right to say the NEC3 suite of contracts has been one of the central key enablers whereby such performance has resulted in over £600 million of public money being saved without missing one key schedule completion and handover date.

At the onset it was important to have the right balance between collaboration and commercial tension, with value for money and schedule certainty being the two ultimate barometers of success. It was also recognised that such factors if not correctly balanced could become two deadly opposing forces, ultimately impacting success.

People, process and systems

Probably the single most important ingredient associated with any successful project and ultimately NEC management is people – their quality and capability, as well as the strong 'technical' leadership which binds them together to use their combined intellect, experience and judgement to manage the contracts.

In building the foundations for what would become the successful management and integration of over 100 NEC3 contracts, the initial focus had to be given to getting right people, common processes and appropriate systems to control the unforeseen complexity that lay ahead.

- People – at the peak a multi disciplinary commercial team of in excess of 160 staff was deployed from the three parent companies of delivery partner CLM (CH2 M Hill, Laing O'Rourke, Mace) or recruited externally. The interview process was rigorous to ensure we created a team with both balance and depth. Technical knowledge of NEC3 contracts

was not the primary governing factor but an individual's behavioural skills – whether they could work collaboratively with the industry – and business acumen – whether they could make the right judgements balancing between project and programme necessities, and fairness against hiding behind technical points of legal argument.

- Process – the difficulty with undertaking a programme of this size and complexity is ensuring consistency in a single way of operating that does not stifle an individual's ability, but provides a framework of control, structure, transparency and governance. Training and development of our staff was key to providing a simple articulation of the process we would follow and the outputs required. We were very aware of becoming a process-stifled environment, but we changed the emphasis to the outputs that needed to be delivered and the systems and tools that would be used as enablers.
- Systems – managing a few contracts is not a challenge, but over 100 simultaneously is a major undertaking. A collaborative web-based tool was developed and embedded back in 2007 aimed at controlling and managing the key NEC3 communications; early warning notices, compensation events and instructions.

Assurance framework

The other key learning and advice which goes to ensuring a cohesive operation platform (people, process and systems) is functioning correctly was to build an appropriate assurance framework.

We went right back to the basics of NEC3 contracts and the works information and built our own evidenced risk-based assurance framework around five key themes, which ultimately we wanted to safeguard. We wanted confidence that

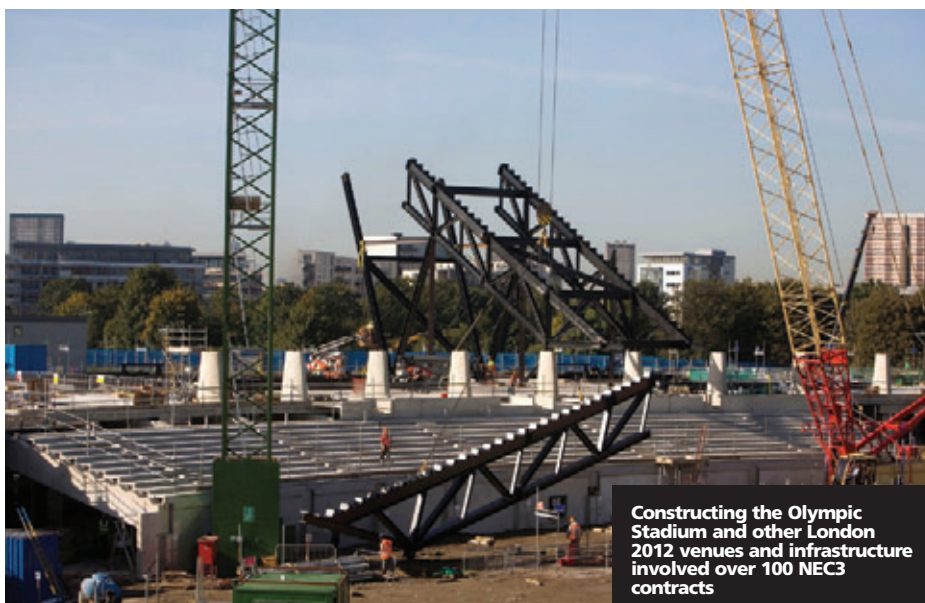
- contract deliverables (works information) were being provided
- early warning notices and compensation events were being appropriately managed
- cost and payments were correct
- contract anticipated final cost was robust
- fraud was prevented and detected.

Mastering the NEC toolkit

With the right team supported by a single, consistent way of working, the journey commenced around March 2008, when the main NEC3 contracts became active. The table on the left provides a sense and feel for the complexity and integration that NEC has been instrumental in facilitating.

So many contracts coupled with the integration challenge arising from the crossover between work sites meant that three key components of the NEC toolkit had to be mastered and implemented from day one.

- Accepted programme – its accuracy and timely preparation was vital, enabling CLM to create and constantly update the overall programme. Key 'pinch points' between operational activities contained within the contracts could be monitored and, when required, priorities could be set against a backdrop of best for programme and not best for project or contract.
- Early warnings – 'issue resolution' has been a central theme of CLM's contract management philosophy from day one as opposed to letting issues and risk fester until after the event, when the central debate is about who pays. Risk-reduction meetings were held rigorously every week and by exception for major items.



Constructing the Olympic Stadium and other London 2012 venues and infrastructure involved over 100 NEC3 contracts

Client-side management and governance using NEC3



JAMES JACOBSON COMMERCIAL MANAGER, ODA

Commensurate with a project of such a scale, ODA developed and implemented a governance framework that would allow the London 2012 venues and infrastructure programme

to be delivered without unnecessary hindrance to project management.

The governance arrangements implemented on the projects allowed ODA to maintain oversight of the projects and of key decisions while also allowing the project managers the flexibility and accountability to expedite decisions where programme progress was imperative.

Governance boards established

ODA established a series of governance boards, which would allow for key decisions to be brought to a level of seniority for sign-off at appropriate governance levels. This has been a major success for ODA.

While the project managers feel they have been given sufficient ability to take their projects forward and instil trust into the delivery of the project by the project teams, it has also provided ODA with the transparency required to assure the project.

With a majority of projects being managed by the delivery partner, CLM, it was a priority of ODA to ensure that project delivery was not hindered. From the beginning of the programme ODA looked at meeting structures, delegations and underlying structures for ODA and for CLM and also at how those needed to evolve as the programme progressed.

Objectives embedded in contracts

The underlying processes supported the reporting requirements and ensured that

the information coming up through the programme levels (from site meetings to executive boards) was of a standard and integrity that ensured that it was fit for decision-making at the appropriate governance levels. Implementation of this approach was aided by use of NEC in providing the opportunity to embed ODA's objectives within the obligations under the contracts.

Governance arrangements also ensured that CLM understood when and in respect of what ODA's approval of, or position on, key project decisions was required. These arrangements provided a clear and efficient route to seeking approval or ratifying change, and the CLM internal board ensured that only the appropriate items were raised at these boards.

Ensuring good governance

A benefit of using the NEC3 suite of contracts is that it encompasses, integrates and facilitates a set of processes that ensure good corporate governance.

A good example is the obligation to manage public funds appropriately and transparently when initiating contract change, which is addressed within the compensation-event process. The early-warning notice procedure also offers transparency in terms of change control and provides a contractual route to the mitigation of risk and the realisation of opportunities at contract level.

The NEC3 suite of contracts allowed for adequate collation of reporting data through set processes and procedures, which was distilled to provide appropriate tools for all levels of management. This was aligned to appropriate levels of validation and assurance processes that tested the outputs at various stages, thus providing internal and external confidence in information and reporting. ○

estimate the price of anything, but cost and price are two different things.

Summary

In summary the London 2012 programme has demonstrated that NEC is more than just its various contracts – it should be regarded as a methodology and philosophy for good project and programme management.

At the end of the day, the ultimate barometer of success is the functional asset delivered when required, at an affordable price for the client and with fair reward for the supply chain. There should be no delays, disputes or adjudications, which have an ultimate adverse impact to clients' and suppliers' businesses and reputations.

On that basis, NEC is every bit a success. ○

How PSC contributed to delivering a world-class partnership



BRIAN GAYTON
DELIVERY PARTNER
COMMERCIAL MANAGER, ODA

In 2008, ODA's director of construction Howard Shiplee informed an NEC Users' Group seminar that the NEC3 contract suite had been selected for constructing London 2012 venues and infrastructure due to its flexibility, its emphasis on trust and collaboration, and because, 'NEC3 contracts provide opportunities for proactive project management, project discipline, early-warning procedures and fair risk allocation'.

Three years on, and after 5 years of delivering the programme, this article considers the benefits that the NEC3 Professional Services Contract (PSC) has provided and how these have contributed to the successful partnership between ODA and its delivery partner CLM.

Flexibility

The ODA–CLM delivery partner contract is based on a PSC option G (term contract) that

- combines the strengths of both target and term arrangements
- provides a high-level summary of the services and incentive mechanisms
- expects detailed scope and performance objectives to be set out in task orders.

From 2006 task orders were structured on clearly defined operational phases (mobilisation, enabling, big build and delivery close-out) and were developed progressively to respond to changing organisational phases (e.g. mobilisation from 2006 and demobilisation from mid-2009).

The PSC provided the flexibility to accommodate the changes with CLM proposing tasks, resources and incentive arrangements to meet ODA's service requirements and operational objectives. With a focus on managing relationships through trust and cooperation, the PSC's flexibility encouraged a systemic approach driven by shared objectives and a consistent outcome.

Strengthened by the proportionate and balanced use of mechanistic processes, service delivery was supported by a management matrix to enhance communication and facilitate close working relationships. This introduced opportunities for project and functional teams to agree appropriate levels of empowerment, control, assurance or collaboration, and promoted effective inter-project and cross-functional communication.

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- Compensation events – clients often operate in a false belief that 'no more change' will occur post-construction decision and commencement of site works. The realities are such that stakeholder and market requirements change and as such drive change into the assets the client ultimately requires. One area of learning the industry needs collectively to adopt and improve is the ability to develop robust quotations that underpin change. One of the biggest challenges we have had to overcome with suppliers is the confidence that the quote is a true reflection of cost and represents value for money. A key focus for the sector moving forward is the need to up-skill the industry so accurate cost estimates can be provided. We can

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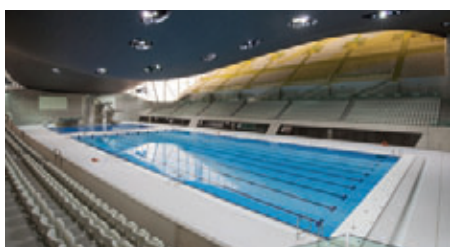
Proactive project management

PSC engenders an environment of trust and cooperation between parties and this underpinned ODA and CLM's proactive project management.

Quick and decisive management responded to the unique circumstances of the London 2012 programme, with unique solutions that succeeded under the unusual and challenging circumstances of a client, stakeholders, delivery partners and contractors all coming together for a single programme of work.

PSC's focus on relationship management was also assisted by CLM being a joint venture partnership with dynamics separate from its constituent firms, and created with the sole objective of working with ODA to deliver the Olympic and Paralympic programme.

PSC provides a framework of administrative tools around risk, change and communications



The NEC3 Professional Service Contract between ODA and delivery partner CLM facilitated a flexible, proactive and disciplined environment that enabled and supported successful, on-time completion of unique projects such as the £253 million Aquatics Centre

that ODA and CLM adapted to underpin and support good management through the following.

- Planning and gateway disciplines, ensuring major decisions and change were considered on a value rather than lowest-cost basis.
- Proportionate use of hierarchical management.
- People chosen to lead and deliver rather than administer.
- 360° challenge between all parties.
- Clear and challenging targets.
- Openness, transparency and positive reinforcement around ethics.
- Encouragement of innovation.
- Fast moving and changing programme, ability to adapt to change and move forward quickly.
- Effective communication.
- ODA policies that informed CLM process and procedures (and vice versa).
- Progressive resolution of issues.
- Prioritising social and workplace themes (including equality, inclusion, sustainability, health and safety).
- Knowledge and experience disseminated through programme and shared resources.
- Projects fostering lessons-learned processes around a continuous improvement policy aimed at leaving a learning legacy.

Programme and project discipline

Management discipline requires clear, reasonable and consistent communication, governance and compliance and the PSC assisted ODA and CLM in this regard through

- fair risk allocation
- agreed and collaborative governance assurance

and compliance audit

- cost verification open to reasonable challenge and validation
- application of vertical and horizontal controls
- all programme delivery subject to three levels of defence (ODA's assurance framework)
- reporting and meeting structures.

Fair risk allocation and key performance targets were agreed through task orders which

- focused on programme outputs over which CLM had the sufficient control or influence
- required CLM to align its performance and profit to ODA's primary risks of time and cost – all but 10% of CLM's programme and project services profit was at risk should the programme be delivered late or over budget.

In addition, the PSC's early-warning procedures

- encouraged issues to be tabled early and drawn through the change process
- were supported by the delegated authority to ensure decision making and issue resolution occurred at project level
- facilitated the efficient escalation of appropriate costs and time issues to programme-level debate.

Conclusion

While the above represents a brief fly-through of the many positive aspects of the ODA–CLM relationship, the PSC facilitated the flexible, proactive and disciplined environment that enabled and supported ODA and CLM, and the people working for them, to deliver the Olympic programme on time and on budget.

Copper Box: delivered under ECC option A



GRAHAM SEAGE HEAD OF VENUES, CLM

The Copper Box is a 6000 seat venue which will host the Olympic Games handball, modern pentathlon and fencing. In Paralympic mode it will host goalball for blind athletes, and in legacy it will become a multi-use sports

facility for community use, athlete training and small-to-medium-scale events using retractable seating to maximise flexibility.

Handover to the London Organising Committee of the Olympic and Paralympic Games (Locog) was required in May 2011, and this was achieved by the project team. A key venue requirement was that sound should not be transmitted into the building while goalball was being played.

ODA appointed a designer to undertake the outline design to Royal Institute of British Architects stage D before procuring a design-and-build contractor. The contractor, Buckingham Group Contracting, was then responsible for developing and completing the design and constructing the works. Under the terms of the contract, the contractor assumed responsibility for ODA's design.

Option A selected for cost certainty

The NEC3 Engineering and Construction Contract (ECC) option A (priced contract with activity schedule) was selected to provide cost certainty in recognition of the prevailing market conditions at the time of tender and contract award. This was in line with ODA's strategy for appointing larger contracts on a target-cost basis and smaller contracts on a lump-sum basis where possible.



The 6000 seats £41 million Copper Box will host the handball and goalball competitions – natural lighting is provided by 88 'sun-pipes' in the roof

During the course of the contract, approximately 250 project manager's instructions and compensation events were issued and just over 100 early-warning notices were issued. These had been substantially closed by completion, with the remaining items being closed soon thereafter. Early-warning notices were used effectively and many positive, yet sometimes difficult, risk-reduction meetings were held.

The project manager's team were co-located with contractor in open-plan offices, which led to an integrated 'one team' approach between ODA's delivery partner CLM and the contractor. There were a number of contractual issues to be resolved regarding the entitlement for compensation events. However these were resolved amicably and did not in any way affect the delivery of construction.

The biggest risk considered by the project team was the successful close-out of all items required for completion to be certified. This was monitored through the completion assurance schedule-of-events tracker. There was some reluctance from the contractor at first to complete these schedules but, by working together, the benefits were realised to deliver the successful and timely completion of the project.

Early-warning process embraced

CLM and the contractor actively engaged in the early-warning notice and risk-reduction process and this was not seen as a pre-cursor to claims and counter-claims.

There were a number of changes instructed to the contractor but the majority were issued in a timely manner to mitigate any impact to the programme. A number of issues did arise late in the project to meet the revised requirements of

ECC option F used for parks and waterways



MALCOLM LEWIS COMMERCIAL MANAGER, CLM

The Olympic Park landscape and public realm projects involved creating 100 ha of new parklands including new gardens stretching for 800 m between the Aquatics Centre and Olympic Stadium.

The work included planting over 4000 trees, 74 000 plants, 60 000 bulbs and 240 000 wetlands plants to create a new open green space for London, one of the largest planting projects ever undertaken in the UK. It also involved creating 45 ha of wildlife habitats – including reedbeds, grasslands, ponds, woodlands, 525 bird boxes, 150 bat boxes and artificial otter holts.

Having reviewed and assessed the potential procurement routes available through the EU regulations, a competitive restricted tender procedure was selected. Procurement for the design services and works was undertaken using e-Tendering and Award evaluation systems.

North park

The NEC3 Engineering and Construction Contract (ECC) option F (management contract) was selected for the northern section of the parklands. It was amended by ODA to retain a degree of flexibility. This allowed for early

contractor involvement in the detailed design process, which was deemed critical to securing practical solutions, value for money and assessing market capacity and resilience.

Detailed design information was delivered to the successful tier 1 management contractor, BAM Nuttall, in packages. These were then let to tier 2 contractors on an Engineering and Construction Subcontract (ECS) option A (priced subcontract with activity schedule) or option C (target subcontract with activity schedule) as already prepared by ODA and included in the invitation-to-tender document.

South park

The ECC option C – again amended to include ODA requirements, specific targets, key performance indicators and appropriate incentives – was selected for the southern parklands because the design was well advanced, and lessons had been learned through the contractor involvement on the north park.

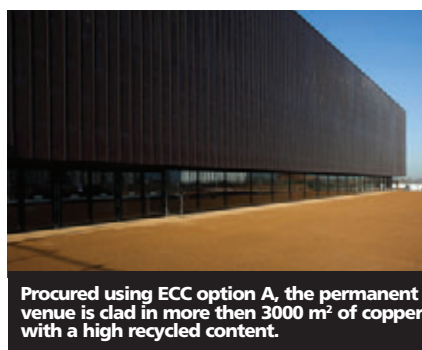
Changes were expected to the design so a level of flexibility to absorb changes was required. In addition, the pain/gain mechanism was an attractive option in aligning the tier 1 south park contractor Skanska to ODA's objectives and management of risks.

Lessons learned

Key lessons learned and recommendations from the procurement and management of the north and south landscape and public realm contracts are as follows.

- Contract form – it was generally considered that ECC option C was the best form of contract to deal with the extent of change instructed. This however necessitated a high level of administrative effort, confidence, trust and understanding. When an option F form of contract is utilised, it is imperative that a schedule of services is included which fully outlines the client's requirements from the management contractor. The conditions of contract should also include adequate provisions which would allow for the measurement of the management contractor's performance together with suitable provisions to affect any corrective measures should such performance fall below that which is required.
- Project information – it is important to ensure that the following are described in sufficient detail in the project information: interfaces with others in and around the working area; completion requirements description of sectional completion; handover process / requirements – ensure latest requirements are incorporated including a clear statement on the party that is responsible for collating the documentation; clear description of roles and responsibilities in connection with design, planning, licenses and approvals and utilities; make clear statements about the availability of items such as free-issue materials; and clear, unambiguous descriptions for what is required from the tier 1 contractor should be made distinct from that which is required from the supply chain.

- Ensure tenderers submit an accepted programme at the outset – managing the programme of work was fundamental to the successful operation of NEC3 contracts. The programme is the central document for effective project management and should be fully resourced and costed to be used effectively by project control teams. It is essential that the tier 1 and tier 2 planners are fully conversant with project control methods at the outset of the contract, including concepts of 'planned value' and 'earned value'.
- Establish good communication and commercial behaviour at outset – NEC3 contracts are ideal for encouraging good commercial behaviour and this was generally the experience across all of the park contracts. With few exceptions, collaborative working was maintained throughout the project with an open sharing of ideas, working practices and procurement initiatives. The co-location of ODA's delivery partner, CLM, and the tier 1 teams at the start of each contract helped to improve the relationships and commitments for delivery. This could have been improved if the tier 1 programme planners had also been co-located.
- Ensure tenderers provide detailed supporting information with bids – in addition to the standard pricing document, it is recommended that tenderers submit supplementary information in the form of a 'bid book' containing a detailed breakdown of their activity schedule. This became a formal request for the procurement of the south park, which greatly reduced the number of clarification questions and eased the evaluations.
- Maintain communication and commitment throughout supply chain – because of the scale of the project and programme requirements, there were some difficulties with getting the smaller tier 2 contractors to align with the administrative, programme and project management requirements. Similarly, it took contractors and suppliers some time to get up to speed on issues of information technology, site access, security, insurances and best practice on large projects. Consequently, there was a need for training across the contractor and supply chains in Primavera P6 Enterprise Project Portfolio Management software. All, however, found this a valuable learning curve that has raised their level of expertise and productivity.



Procured using ECC option A, the permanent venue is clad in more than 3000 m² of copper with a high recycled content.

Locog, but these were undertaken within the timescales of the original project milestone.

Fortnightly meetings held on site to review progress, logistics and park-wide interfaces with the project manager, tier 1 and 2 contractors and other departments from across the programme. Regular on-site meetings were also held between CLM and the contractor's commercial representatives, leading to timely progression of the instruction, quotation, acceptance and assessment process within NEC3.

There were a number of disputed compensation events that were agreed outside of the timescales of the contract but did not require any formal dispute resolution.

The Copper Box construction project team also actively engaged with ODA's priority theme stakeholders (environment, sustainability, accessibility, etc) to ensure meeting and subsequent sign-off of the objectives.



The north park project was procured using an ECC option F management contract with works packages let under ECS option A and C

NEC training

MIKE CRUTCHLOW COMMERCIAL MANAGER CLM

At the outset it was recognised that for many of the staff working on the London 2012 programme this would be their first opportunity to work with NEC3 contracts. It was also clear that to obtain the full benefits to be brought to the programme in using NEC3 it would be necessary to provide a range of training programmes and opportunities for all ODA and CLM staff, consultants and contractors to ensure its effective implementation.

A training programme was developed with the aim of providing sufficient knowledge of NEC3 contracts and the way they work to allow personnel to apply effectively their skills and experience. This would deliver consistency of understanding and interpretation of the contracts and the way they are meant to be administered to reduce the likelihood for this to become a point of contention between ODA and its contractors. The training would also aim to reinforce the required procedures and processes for the programme and its governance and facilitate project team building and bonding.

Modular programme

The training programme consisted of modules. The first module was a 3 h introduction for all - providing understanding of NEC3 concepts, how the contracts fit together and how they should be used. Further specialist modules were set up on a seminar basis to deliver the topics of time and quality, compensation events (in two parts) and project management and contract administration, with two further modules for those working with the Professional Services Contract and Term Service Contract. These specialist modules covered the specifics of the contracts with their detailed provisions and timescales. Learning was reinforced through supplementary interactive question and answer sessions.

The opportunity was also taken in these training sessions to acquaint delegates with the various management tools and processes used on the programme and how these would assist delivery and administration. Project management was delivered by the teams through an online collaborative platform with access to management tools from an online programme delivery management system. Process was delivered through a contract administration manual and shared communication software tailored to suit ODA's NEC3 suite of standard contracts.

Training the trainers

The training programme was delivered in-house but set up and written with the benefit of the NEC office (part of the Institution of Civil Engineers) and other outside advice and assistance. Opportunity was also taken to enlist support from planning, quality control and legal expertise available within the programme in writing and running the modules. At the start it was necessary to 'train the trainers' and the NEC office was engaged to provide this training. From here the trainers engaged with the training modules and also acted as a central point of reference for subsequent queries and questions. Training was reinforced with access to all training material on-line and by the development of an 'e-learning' module for self use.

The training modules were run over a 9 month period with the introduction module continuing until the end of the programme for all new starters. Training was also made available for major contractors for their specific contracts, in conjunction with the CLM staff.

Sharing experiences

As the programme developed, further practitioner and specific project related and 'hot topic' courses were written to meet the needs of users and to ensure that NEC training remained relevant across the programme. Refresher courses were also in demand as users gained the experience of live implementation of the contract and needed to check back in with the basics of the contracts and their requirements. As experience was gained, teams were also able to share and cross-fertilise their ideas within workshops set up to facilitate these exchanges.

Central to the training was the need to deliver transparency in contract administration and to ensure compliance for audit. The training programme provided the ideal opportunity to deliver these key messages to teams and to reinforce the client's objectives. Consistency of NEC training from the trained trainers, coupled with the engagement of the tools and systems designed for the programme, allowed these objectives to be delivered. ○

All articles in this newsletter are the opinions of the authors and do not necessarily reflect the views of the NEC Users' Group or NEC office.

For ease of reading, all NEC contract terms are set in lower-case, non-italic type and their meanings (unless stated otherwise) are intended to be as defined and/or identified in the relevant NEC contract.

Constructive contributions to the newsletter are always welcomed and should be emailed to the editor Simon Fullalove at simon@fullalove.com (telephone +44 20 8744 2028).

Current and past issues of the newsletter are also available on the NEC website at www.neccontract.com. All other enquiries should be made to the NEC general manager Rekha Thawrani, NEC, 40 Marsh Wall, London E14 9TP, telephone +44 20 7665 2446, fax +44 20 7538 2847, email nec@neccontract.com.

London 2012 construction programme: lessons for NEC users

The following table summarises the key lessons learned for future users of NEC contracts from the extensive and successful usage of ECC options A, C, F and PSC and TSC on the London 2012 venues and infrastructure programme.

Area	Topic	Key learning
Generic lessons	Accepted programme	Regular updates, and quality of information is key
	Defined cost	Recognise the importance of cost verification at the onset
	Early warning notices	Two-way process between the parties
	Defects	Not unlimited liability for the clients, an area NEC needs to look at
	Close-out	Start mid-contract and get the anticipated final cost locked down after completion
	Supply chain	Back-to-back NEC with tier 1 and 2 (clients must insist)
	Payment	Fair payment terms between the whole of the supply chain (back-to-back)
Suppliers	Resources	Intensive to administer but essential (spend pennies to save pounds)
	Understanding of NEC	Disconnect between bidding team and operational team
	Quotations	Need to improve quality, and truly understand cost/quote build up
	Client environment	Greater demands of funding requirements (particularly public sector), full traceability of costs, and full visibility of decisions (particularly tier 2)
Client / employer	Procurement	Creates the start point only, represents <10% of the whole life management contract challenge – construction is not a commodity too many client procurement teams have a 'buying' mentality and do not recognise the effort downstream.
	Team	An integrated commercial team from day one, procurement is just one element
	Resources	Intensive but invest if you want smooth contract exit with no disputes
	Anticipated final cost	Lock it down as the works progress
	Governance and assurance	Must embed the right structure and operating approach
	Create common understanding	Employer and supplier; train, train and train more
	Change	Large quantities of change can be handled without loss in value if managed correctly
	Close out	Ensure a robust process for commercial closeout is embedded well in advance of programme completion

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Date	Event	Venue
17 April	Introduction to the ECC	Bristol
18 April	Practical application of the ECC	Birmingham
26 April	NEC Users' Group workshop	Hong Kong
10 May	Managing risk under the ECC	Glasgow
15 May	Preparing and pricing ECCs	Birmingham
17 May	Introduction to the TSC	Birmingham
22 May	NEC Users' Group workshop	Leeds
22 May	Introduction to the ECC	London
20 June	Preparing and managing ECCs	Birmingham
21 June	Professional Services Contract	London
21 August	Introduction to the ECC	London
5 September	Managing risk under the ECC	Birmingham
13 September	Introduction to the TSC	Birmingham
18 September	Preparing and managing ECCs	London
20 September	Engineering and Construction Short Contract	Birmingham
25 September	TSC pre- and post-contract workshop	London
2 October	ECC project managers' workshop	Birmingham
4 October	Introduction to the ECC	Birmingham
9 October	ECC pre- and post-contract workshop	London
10 October	ECC programming workshop	London
16 October	ECC compensation events workshop	London
17 October	NEC Users' Group workshop	London

Key: **Bold** – NEC event, ECC – Engineering and Construction Contract, TSC – Term Service Contract. All events relate to NEC3 contracts.

For further details of all courses and events, please visit the NEC website at www.neccontract.com