

nec users' group NEWSLETTER



Highways England's integration partner for the £7 billion Lower Thames Crossing will be engaged under an NEC4 PSC

NEWS

Highways England rolls out NEC4 for £7bn Thames tunnel

SIMON FULLALOVE EDITOR

NEC Users' Group platinum member Highways England has launched the first NEC4 contract for delivering the £7 billion Lower Thames Crossing. Following a further public consultation earlier this year, the UK government-owned company published notice of a £242 million NEC4 Professional Service Contract (PSC) in July.

The eight-year contract is for an integration partner to provide consultative engineering and construction services on what the company describes as 'the most ambitious roads project in the UK for more than a generation'.

It involves building a new 23 km motorway between the M25 motorway in Essex and the M2 in Kent. It will cross the Thames estuary between Tilbury and Gravesend via twin 16.4 m wide, 4.2 km long bored toll tunnels – the UK's longest and the world's third widest. Around 50 new bridges and viaducts will also be built.

Highways England plans to let the construction as three separate main works contracts, with a total value of between £5.3 billion and £6.8 billion. It is envisaged these will all use the NEC4 Engineering and Construction Contract (ECC) Option C (target contract with activity schedule), with some minor amendments subject to further market engagement.

Managing the interfaces between the three contracts will be a key role under the NEC4 PSC contract. The integration partner will also be required to provide a broad range of project and programme management services to support the project and contract leadership teams, and provide high quality data analysis and experience-based decision making.

Due for completion in 2027, the new road will nearly double the crossing capacity currently provided the existing Dartford Tunnel and Queen Elizabeth II Bridge.

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EDITORIAL

Users' Group members make project bank accounts the new normal



RUDI KLEIN NEC USERS' GROUP PRESIDENT

It is now 21 years since the first project bank account (PBA) was set up in the UK. This was on a project procured by the Ministry of Defence involving the building of a logistics headquarters. Since then PBAs have become well-established.

They are now mandated by the devolved governments of Wales, Scotland and Northern Ireland for public-sector projects over £2 million. They have been required in England since 2010, and all UK government departments and agencies must use PBAs unless there are 'compelling reasons' not to do so.

Users' Group members lead the way

England's Environment Agency, an NEC Users' Group member, is currently using PBAs on almost 120 projects. It is expected that Highways England, also a member of the Users' Group, will have paid for £20 billion worth of work through PBAs by the end of this year.

It is particularly pleasing that another major member, High Speed Two (HS2) Ltd, declared its willingness in July 2020 to use PBAs on existing and future contracts for the new high-speed railway from London to Birmingham. This will

apply to an estimated 400,000 contracts, two thirds of which are likely to be let to small- to medium-sized enterprises.

Andy Cross, HS2 rail systems procurement director, said, 'I am thrilled that we have taken this crucial step to further strengthen our fair payment policies and in so doing, support companies at all levels of the supply chain through the use of PBAs'.

Supporting collaborative working

The NEC PBA supplement, now Y(UK)1, was the first standard PBA document to be published and is now used by most of the public-sector bodies that have implemented PBAs. I have always believed that PBAs support and underpin the collaborative intent behind NEC contracts. Indeed, there is now growing evidence that they encourage collaborative working and help to improve supply chain performance. I would encourage all NEC clients to implement PBAs if they have not done so already.

PBAs are also helping to reduce project costs since firms do not have to price the risk of not being paid, although they do not remove the

'I would encourage all NEC clients to implement PBAs if they have not done so already'

possibility of disputes over the amount which is due. Where retentions are required, they can be kept in the PBA until due for release. NEC clients should use contract data part one to stipulate the beneficiaries either by name or trade. The aim should be to include as many firms in the supply chain as is possible.

To date PBAs have been used mainly in the public sector, but I would like to have examples of their use in the private sector (please email me at rudi.klein@sec.group.org.uk). It is interesting to note that the State of Queensland in Australia has just introduced legislation to compel the use of PBAs for all construction projects over £640,000 by June 2022. ○

NEWS

ECC Option C now delivering half of Hong Kong's Central Kowloon Route works

SIMON FULLALOVE EDITOR

The Hong Kong Highways Department (HyD) has let a further NEC3 Engineering and Construction Contract (ECC) Option C (target contract with activity schedule) on the HK\$42 billion (£4.2 billion) Central Kowloon Route highway project.

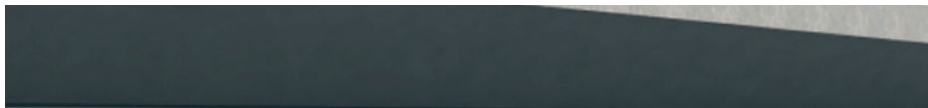
The latest award means ECC Option C contracts now total HK\$13.9 billion (£1.4 billion), just under half the HK\$28.9 billion (£2.9 billion) of works so far awarded on the project. Due for commissioning in 2025, the new 4.7 km

dual three-lane carriageway will link the Kai Tak development in the east to west Kowloon (see Issue 102).

Worth HK\$5.67 billion (£0.6 billion), the new contract was awarded in July 2020 to NEC Users' Group member Gammon Construction Limited for construction of an administration building and three tunnel ventilation buildings in Yau Ma Tei, Ho Man Tin and Kai Tak. It includes provision of the tunnel ventilation system, air purification system, central control and monitoring system, fire services system and traffic control and surveillance system.

The 2.8 km long main tunnel section of the route was awarded to Bouygues Travaux Publics last July under a HK\$6.23 billion (£0.6 billion) ECC Option C. Two months earlier an Alchmex–Paul Y joint venture started building the connecting roads at the eastern end of the tunnel under a HK\$1.97 billion (£0.2 billion) ECC Option C.

Gammon chief executive Thomas Ho said, 'We are delighted to be working with Highways Department again on this vital piece of infrastructure for Hong Kong. Building information modelling and innovative digital construction and asset management systems will be used to support a collaborative approach on the project.' ○



NEC Users' Group member Gammon Construction will be using digital construction techniques for installing electrical and mechanical systems on the Central Kowloon Route tunnel

NEWS

Hong Kong's MTR Corporation takes up platinum membership



IVAN CHEUNG NEC ASIA-PACIFIC USERS' GROUP SECRETARY

Hong-Kong-based railway company MTR Corporation Ltd has become the region's first platinum member of the NEC Users' Group, joining other major public-sector NEC users such as Highways England, Transport for London and Lantis in Belgium.



NEC Asia-Pacific Users' Group chairman Lam Sai-Hung (second from right) presenting a highly commended award to the Hong Kong government's Civil Engineering Development Department team responsible for connectivity infrastructure at Kai-Tak

A listed company majority owned by the Hong Kong government, MTR operates ten railway lines in Hong Kong plus the Airport Express and Hong Kong section of the Guangzhou-Shenzhen-Hong Kong high-speed railway.

In mainland China it operates metro lines in Beijing, Shenzhen and Hangzhou, while internationally it is involved running lines in Melbourne, Stockholm, Sydney and London – including the new NEC-procured Elizabeth line.

Successful trial

The corporation successfully trialed NEC on the second half of Kennedy Town swimming pool re-provision in Hong Kong, part of the West Island line railway project, between 2014 and 2016 (Issue 96).

The first half was built using MTR's traditional lump-sum contract, enabling a direct comparison with NEC3 Engineering and Construction Contract Option A (priced contract with activity schedule). The NEC phase was completed 2.5 weeks ahead of schedule and the final account was agreed at completion.

As a platinum member of the Users' Group,

MTR will get digital access to the full NEC4 contract suite, three printed box sets, 150 helpdesk queries a year, free attendance at Users' Group conferences and workshops, and an in-house training day for staff.

The move reflects the corporation's increasing interest in adopting NEC4 contracts for its future projects – watch this space.

NEC awards

The NEC Asia Pacific Users' Group held its own NEC Awards ceremony at the Hong Kong government's Development Bureau on 17 June 2020. The aim was to celebrate the success of local projects and companies in the international NEC Awards competition, with four winners and seven highly commended across six categories.

The event coincided with the main awards ceremony in London, which formed part of the NEC Users' Group online annual conference (Issue 107).

For more information please visit

www.necontract.com/NEC4-Products/NEC-Awards/Awards-2020

NEWS

Tideway takes delivery of final NEC-procured TBM

SIMON FULLALOVE EDITOR

Tideway, the company delivering the £3.8 billion Thames Tideway Tunnel in London, UK, took delivery of its sixth and final NEC-procured tunnel boring machine (TBM) in July. Worth an average of £15 million each, all six machines were purchased using NEC3 Supply Contracts (Issue 103).

The 8.8 m diameter slurry TBM Selina was one of three supplied for the 25 km long, 35–65 m deep 'super sewer' project by Herrenknecht in Kehl, Germany. It was delivered to Tideway's Chambers Wharf site on the south bank of the Thames in Bermondsey after an 800 km journey by river and sea.

Later this year Selina will start tunnelling the 5.5 km east section of the sewer between Bermondsey and the already-built Lee Tunnel, which links Abbey Mills pumping station to Beckton sewage treatment works. The main contractor for this section is CVB, a Costain, Vinci and Bachy Soletanche joint venture working under an NEC3 Engineering and Construction Contract Option C (target contract with activity schedule).

Herrenknecht has already supplied the earth-pressure-balance machines (EPBM) Rachel and slurry TBM Annie, which are driving the 7 km west section and 4.5 km Greenwich connection respectively. NFM Technologies in Le Creusot, France supplied the EPBMs Millicent and Ursula working on the 12.6 km central section, while Morgan Sindall in Staffordshire refurbished the

Lovat EPBM Charlotte that has just completed the 1.1 km Frogmore connection.

Critical packages

The TBM supply contracts were all classified as critical packages, which means they had critical importance to successful achievement of the project's objectives. They were also defined in the main NEC3 ECC Option C works contracts as 'key subcontracts', requiring the contractors to seek

the project manager's acceptance prior to issuing tenders or appointing suppliers.

According to Tideway programme director Andy Alder, 'The use of the NEC3 Supply Contract on Tideway for the TBM procurement has been very effective, with the flexibility to tailor the contracts to meet project needs. This included accommodating the logistical complexities of transporting TBMs over 100 m long from Europe to the heart of London, as well as removing the financial risk from suppliers prior to delivery.'

'It has been demonstrated on Tideway that the NEC3 Supply Contract encouraged the right philosophy to deliver these high-risk, high-profile subcontracts collaboratively and therefore efficiently. NEC's use of simple English has supported its application for the procurement of the TBMs with international suppliers without the need of costly legal intervention.'



NEC-procured TBM Selina reaching the end of its 800 km journey over water from Germany

NEWS

High Speed Two launches a £3.6 billion batch of NEC railway-systems contracts

SIMON FULLALOVE EDITOR

NEC Users' Group platinum member High Speed Two (HS2), the government-owned company building a new high-speed railway between London and northern England, launched eight new NEC railway-systems contracts worth £3.6 billion between May and June this year.

The flurry of contract notices follows the UK government's decision in April to start building the first 215 km stretch of the railway between London Euston and Birmingham Curzon Street stations, with a target cost of £40 billion.

Legislation to build the 60 km phase 2a from Birmingham to Crewe is expected to win royal assent later this year, so all new contracts include this phase too. Phase 2b, the sections from Crewe to Manchester and from Birmingham to Leeds, is still in the planning stages.

Rail-systems contracts

The specialist systems contracts will be let using NEC3 Engineering and Construction Contract (ECC) Option C (target contract with activity schedule), though a couple will also involve the NEC3 Term Service Contract (TSC). Tender shortlists are expected to be announced towards the end of the year, with contract awards following in 2022.

The systems contracts and upper values are as follows: operational telecommunication and security systems (£300 million); tunnel and lineside mechanical and electrical systems (£498 million); overhead catenary system (£302 million); control, command, signalling and traffic management systems (£540 million); and track systems (four contracts) (£1,957 million).

Civil and stations contracts

After completion of design and the government's go ahead, the four ECC Option C main civil engineering contracts let in 2017

(see Issue 87) started on site in April, triggering £12 billion of construction spending.

SCS Railways has two contracts worth £3.3 billion for the Euston and Northolt tunnels section, Align JV is building the £1.6 billion Colne Valley viaduct and Chiltern tunnels, EKFB JV is working on the £2.3 billion overland route to just south of Leamington Spa, and BBV JV has the remaining £4.8 billion of the route to the north of Birmingham – winning two of the largest NEC contracts let to date.

Two of the four stations in the first phase are being delivered by construction partners engaged under the NEC3 ECC Option F (management contract).

BBVS started managing permanent works delivery on the £1 billion Old Oak Common station in June followed a month later by Mace Dragados on the £1.5 billion London Euston station.

A £570 million two-stage design and build contract for Birmingham Curzon street station will be awarded next year using NEC3 ECC Option A (priced contract with activity schedule) and Option C. The shortlisted bidders are Bam Ferrovial, Laing O'Rourke and Mace Dragados. Procurement of permanent works for Birmingham Interchange station is yet to start.

The first phase of the railway is due to open between 2029 and 2033.



NEC contracts are being used for delivering civil engineering, stations and railway systems on HS2

CASE STUDY: Water

New Zealand district council chooses NEC4 ECC Option B to renew urban water mains

SIMON FULLALOVE EDITOR

A local council in New Zealand's north island has successfully used an NEC4 works contract to upgrade 3 km of urban water supply mains. Client and project manager New Plymouth District Council completed the NZ\$2 million (£1 million) first phase of Inglewood's water mains renewal in line with expectations in 2019 under an NEC4 Engineering and Construction Contract (ECC) Option B (priced contract with bill of quantities).

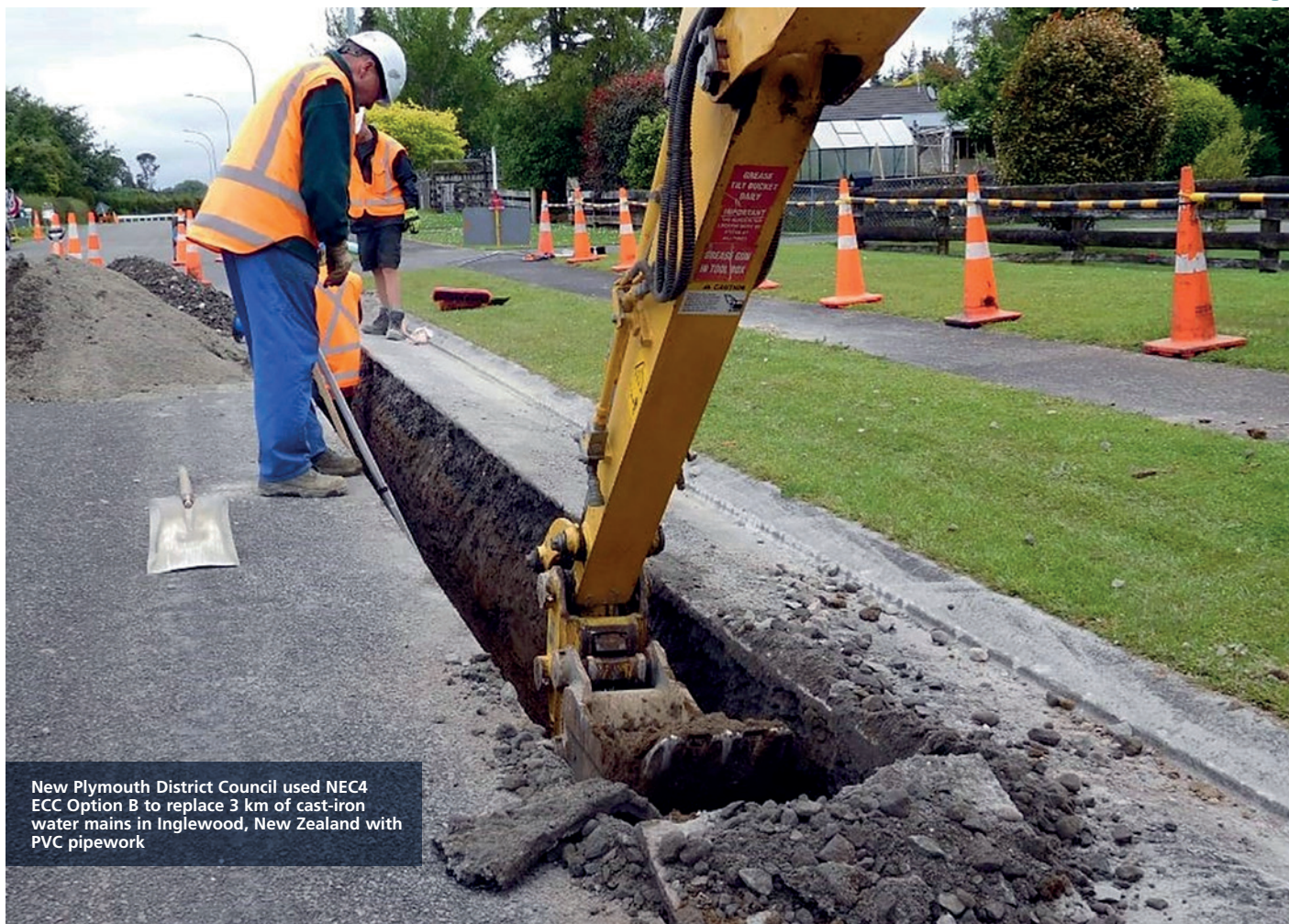
The year-long contract with Fulton Hogan involved replacing some of the town's existing older cast-iron mains with polyvinyl chloride

(PVC) pipework. Deterioration of the existing pipes, some of which were over 110 years old, was resulting in discolouration of tap water and parts of the system were also undersized, which limited flow capacity for firefighting. The town's remaining 4 km of substandard pipework is being replaced under part of a separate NEC4 Term Service Contract option C (target contract with price list) due for completion by 2021.

Designer and NEC supervisor WSP was engaged under a seven-year NEC3 Professional Services Contract (PSC) Option C (target contract with activity schedule), which was let in 2016.



The council holds six-monthly workshops with its designer and NEC supervisor WSP, which was engaged in 2016 under a seven-year NEC3 PSC option C

CASE STUDY: *Water*

New Plymouth District Council used NEC4 ECC Option B to replace 3 km of cast-iron water mains in Inglewood, New Zealand with PVC pipework

'We decided it made sense to jump straight into the then recently launched NEC4 version of ECC. This has since been adopted for three more of our projects'

Promoting collaboration

According to the council's projects manager Andrew Barron, 'We decided back in 2016 to base our new infrastructure professional services contract on the NEC3 PSC due to its promotion of collaboration and good project management. We have since rolled out a series of NEC3 Engineering and Construction Short Contracts (ECSC) for less-complex low-risk works.'

'For the more complex Inglewood water mains renewal, we decided it made sense to jump straight into the then recently launched NEC4 version of ECC. This has since been adopted for three more of our projects, including an NZ\$13 million (£6 million) contract to build two new reservoirs. However, much as we like the target cost arrangement of the PSC, we chose Option B for Inglewood as lump-sum pricing based on bills of quantities is the most widely recognised payment mechanism for this type for work in New Zealand.'

Barron says option X18 was also used to limit the contractor's liability to the client. 'This option, which does not exist on standard contracts in New Zealand, also helped to build the contractor's trust. The scope of the works was prepared using volume 2 of the NEC4 ECC users guide, *Preparing*

an Engineering and Construction Contract, which required a one-off redraft of the council's standard specifications to align with NEC4 requirements.'

Delivery on time and budget

The Inglewood contract was let in November 2018 and was successfully delivered in line with the client's expectations in December 2019.

'The project team worked together in a highly collaborative manner in accordance with the NEC4 ECC clause 10 obligation to act "as stated in this contract" and "in a spirit of mutual trust and co-operation";' says Barron.

He says team working and collaboration was enhanced by all team members being new to NEC4. 'This required all team members to support each other and learn together. We also used a cloud-based NEC4 management system, which greatly helped with contract compliance and team learning.'

A total of 128 early warnings were notified during the works, with 60 by the contractor and 68 by the project manager. These were discussed at early warning meetings held during weekly progress meetings, and revised programmes were submitted and accepted on a monthly basis. A

BENEFITS OF USING NEC

- NEC4 ECC clause 10's obligation to act 'as stated in this contract' and 'in a spirit of mutual trust and co-operation' promoted collaborative working and good project management.
- NEC early warning and compensation event process minimised the risk of disputes and cost and time over-runs.
- The payment mechanism in ECC Option B lump-sum contract with bill of quantities was readily understood by New Zealand's utility works supply chain.
- Option X18 to limit contractor's liability to client was new to New Zealand and helped to build trust.

total of 89 compensation events were notified and agreed, though many of these were for traffic management as originally agreed when the contract was let.

'We decided during the procurement process to remove traffic management from the scope. The traffic management requirements for each part of the works were then discussed and agreed by the project manager and contractor to ensure the most appropriate solution for health and safety was used. This was then instructed as a change to the scope and a compensation event notified for each element of the works.' ○

CASE STUDY: *Transport*

'This high-profile project was completed on budget and opened ahead of the publicly committed date'

The new NEC-procured bus station in Wigan, Greater Manchester, can accommodate over 150 bus movements an hour

Transport for Greater Manchester procures new Wigan bus station with ECC Option A

SIMON FULLALOVE EDITOR

NEC contracts have been used to deliver a new state-of-the-art bus station serving over 100,000 people in the town of Wigan in Greater Manchester, northwest England. The work was completed on budget and two months early in September 2018.

Client Transport for Greater Manchester (TfGM) let the £8 million main contract to Vinci under an NEC3 Engineering and Construction Contract (ECC) Option A (priced contract with activity schedule) in July 2017. Atkins was the project manager and supervisor.

The work involved building a new more efficient, safe and attractive bus station on the site of the existing 1987 bus station at New Market Street in the town centre. Designed by Austin-Smith: Lord and Mott MacDonald, the new station can accommodate 152 bus movements an hour and offers enhanced levels of passenger convenience, comfort and safety. It is a key part of the regeneration of Wigan town centre.

The new brick- and glass-clad, steel-frame structure provides a fully accessible covered passenger concourse with waiting areas, information points and seating. The striking concourse roof is clad underneath in anodized



The fully accessible passenger concourse includes a new travel shop, cafe, newsagent and toilets

aluminium sheeting and features two large ethylene tetrafluoroethylene rooflights. The station also includes a new travel shop, coffee shop, newsagent, accessible toilets and cycle parking.

Prior to the main contract starting, a temporary travel shop, ticket and passenger information facilities and staff accommodation were built in an existing nearby building under a three-month NEC3 Engineering and Construction Short Contract (ECSC).

Cost certainty

TfGM senior project manager James Nairn says the project was funded by the UK Department for Transport's Growth Deal Programme with a strict £15.7 million budget. 'It was essential that the project was delivered with the stated benefits while remaining on budget, which required a strong emphasis on cost certainty to ensure it remained viable.'

He says detailed cost estimates were undertaken at each stage of the design development and, where required, value engineering was undertaken to ensure affordability.

'Following a "lessons learnt" exercise from previous TfGM projects and programmes, we chose a single-stage design and construct arrangement using NEC3 ECC Option A as this enabled accurate cost and schedule forecasts to be attained at the procurement stage. By understanding the contract conditions and completing a robust quantitative schedule and cost-risk analysis, we ascertained the P80 cost and schedule data to ensure viability could be achieved.'

Collaborative ethos

Nairn says the use of NEC for both design and construction enabled a collaborative working ethos to be developed during the advanced design

BENEFITS OF USING NEC

- ECC Option A provided maximum cost certainty by enabling robust cost and programme forecasts to be achieved at the design stage.
- A single NEC design and construction contract enabled a collaborative ethos to be developed during the latter contractor design stage which then continued through the construction stage.
- NEC early warnings, risk reduction meetings and monthly progress meetings ensured the project was completed early and on budget.

development stage and then continue through to construction. 'The client, design and construction teams worked positively to overcome any issues throughout the project. The NEC requirement to act "in a spirit of mutual trust and co-operation" was also facilitated by all members being in shared accommodation on-site.'

He says NEC fostered improved communication and relationships, enabling decisions to be taken quickly. 'The team worked transparently, implementing NEC early warnings and holding regular risk reduction meetings. Monthly progress meetings were also held to review health and safety and keep us on top of design issues, compensation events and programme.'

'Overall, NEC facilitated a strong collaborative working environment and helped to ensure the success of this high-profile project, which was completed on budget and opened ahead of the publicly committed date.'

CASE STUDY: *Building*

The NEC-procured vocational training centre was handed over on budget and ahead of schedule

NEC used to deliver UK's new Energy Skills Centre at East Coast College in Lowestoft

SIMON FULLALOVE EDITOR

Britain's East Coast College, which has further education and sixth-form college campuses in Great Yarmouth in Norfolk and Lowestoft in Suffolk, has used NEC to procure a state-of-the-art vocational training centre serving the fast-growing local energy sector.

Completed ahead of schedule and within budget in August 2019, the new £11.3 million Energy Skills Centre in Lowestoft was funded by the UK government through its New Anglia local enterprise partnership. The aim of the centre is to boost the number of suitably skilled workers for large local energy projects, such as the 3.6 GW Norfolk Vanguard and Boreas offshore wind farms and 3.2 GW Sizewell C nuclear power station in Suffolk.

East Coast College engaged contractor Morgan Sindall in October 2018 through the LGSS public-sector procurement framework. The £6.9 million construction phase of the two-stage design-and-build procurement was let under an NEC3 Engineering and Construction Contract (ECC) Option A (priced contract with activity schedule).

The two-storey, steel-framed building has a total floor area of 2,656 m². Facilities include two



The centre includes a marine simulation suite for operators of tankers and offshore energy vessels

workshops for engineering and clean energy training, a marine simulation suite, an events and conference centre, classrooms and offices. External equipment is housed in a 635 m² enclosed service yard.

Architect Chaplin Farrant and consulting engineer Canham Consulting were both novated to the main contractor while Fusion Project Management was engaged as NEC project manager through Perfect Circle UK.

Tight cost control

College project manager Adri van der Colff says one of the main reasons for choosing NEC was the tight cost control required throughout the project lifecycle. 'There was absolutely no scope to increase the fixed budget, so we needed cost certainty from the start, with very close cost monitoring all the way through,' she says.

'We simply had no capacity to withstand any surprises or claims at the end of the project, as we had no means to access any further resources. We also wanted to spend every last penny of the grant to make the best use of the rare opportunity to buy the best equipment we could afford to enable us to stay ahead of the technological curve.

'We knew the tight fiscal control afforded by the NEC would help us to walk the cost tightrope successfully. Because the contractor effectively produced something akin to a final account every month, we were able to release the contingency budget gradually for "nice-to-have" items as cost certainty increased. As it turned out, we came in a few pounds under budget.'

Collaborative approach

She says another key reason for choosing NEC was the college's desire for a collaborative approach and true teamwork. 'Right from the start we made it clear we wanted to work closely

BENEFITS OF USING NEC

- NEC obligation to work in a 'spirit of mutual trust and co-operation' promoted collaborative working between the parties and avoided adversarial practices, ensuring a genuine team spirit permeated the whole project.
- NEC's core requirement for a regularly updated 'accepted programme' helped client keep track of anticipated completion date. The need to update the anticipated final account every month when payments were claimed also helped client to monitor predicted outturn cost.
- NEC early warning mechanism obliged parties to notify possible future risks as soon as they became aware of them. This enabled prompt action to be taken to avoid or reduce compensation events, ensuring there were no unpleasant surprises at the end of the contract.
- NEC shared risk register and risk reduction meetings helped both parties to consider ways of avoiding or reducing risks, decide which party was best placed to mitigate the risk and collaboratively seek solutions that overcame those risks in all parties' best interests.

together with every team member to deliver a truly inspirational facility that would motivate everybody – from directors to labourers on site and the whole supply chain – to feel invested in the project's wider aims and ambitions.

Continued on page 8 >>

PRACTICE

Three years on it is time clients switched to NEC4



RICHARD PATTERSON MOTT MACDONALD, UK

Two years ago I wrote an article titled 'NEC3 to NEC4 – evolution, not revolution; some fixes and some good ideas!'. It was published in the Institution of Civil Engineer's *Management, Procurement and Law* journal and is now available from the NEC website (Patterson, 2018). The article covered the then relatively new NEC4 contracts and their new language, secondary options, features and fixes.

Three years on from the June 2017 launch of NEC4 contracts, many significant clients that Mott MacDonald works with have fully embraced them, including Highways England, the Environment Agency and Defence Infrastructure Organisation. So why are some other clients still reluctant to change? As I often remind people, the most damaging phrase in the language is 'we've always done it this way' or, in this case, 'we are comfortable with NEC3, so why make the effort to change?'

I hope my previous article articulates just why, after 12 years of international learning and a lot of good thinking, NEC4 is simply better than NEC3. In this article I identify some of the perceived barriers to change and how to overcome them.

Training

Certainly it is true that staff familiar with NEC3 contracts will need a little help with training to get their heads around what is new in NEC4. But NEC4 really was an evolution, not a revolution, and there is

not so much new to learn.

In any case, any team coming together at the start of a new NEC contract will benefit hugely from some refresher training – so they should make it on NEC4 rather than NEC3, and pick up the relevant key changes while doing so.

If staff have qualified as NEC3 ECC accredited project managers, NEC offers a one-day course to refresh the learning and update the accreditation to NEC4 ECC.

Contract templates

If a client has developed their standard templates for the NEC3 Engineering and Construction Contract (ECC) works information, there will also be some work to do developing that into a template for the NEC4 ECC scope.

For example, there are more references from the NEC4 contract conditions to the scope than there are from the NEC3 conditions to the works information. The same principles apply to the NEC4 Professional Service Contract (PSC) and the NEC4 Term Service Contract (TSC). But in each case, this is all very clearly set out in the relevant volume 2 of the guidance notes and should not be a major exercise.

The contract data is also subtly different and so an NEC4 template for contract data should also be developed. Again, this will not be a major exercise. A positive client will take these two tasks as an opportunity to learn from their NEC3 experience and make these critical documents better. They should use up-to-date guidance on how they should be completed to suit the organisation and the contract.

Z clauses

Some NEC3 clients paid lawyers significant fees to develop their NEC3 Z clauses and are reluctant to do so again. However, it is likely a number of their Z clauses were to 'correct' the odd issue with NEC3. Also, many clients are realising that far too often their Z clauses add confusion and problems, and are not really necessary.

Switching to NEC4 represents a good chance to review Z clauses in the light of experience, ideally with the help of someone with real NEC experience. We have done the same exercise with our own list of Z clauses that we advise our clients to consider – and

it is now considerably shorter than the old NEC3 list.

Good practice is to develop Z clauses in tabular format, with a column setting out clearly why the change is needed and what it will achieve. A brave client might share that with tenderers, but it should not be included in any contract.

Communication forms

If a client has developed forms for communication under the various key clauses of an NEC3 contract, they will need to review and update these for NEC4. But the changes will be minimal and sample forms are included in volume 4 of the guidance notes.

In this digital world, for all but the simplest contracts, a sensible client will be investing in one of the many excellent cloud-based NEC contract management systems. No one that has had the chance to use them would contemplate going back to emails with 'please find attached'. All the main systems now have NEC4 versions.

NEC4 PSC options C and E

For consultancy contracts, it should be noted that NEC decided to move away from traditional rates in the NEC4 PSC target (option C) and cost reimbursable (option E) contracts. Instead of rates, for both payment and assessment of compensation events, the contract uses a defined cost. This is very similar to that for contractor's people in NEC3 ECC – and is very close to the real cost of employment.

There are good reasons why a client might want to see the real costs of a consultant, but some may consider it will add to the management burden. If clients want to stick to rates, they can do so simply by adding a one-line Z clause to bring in the definition of defined cost from option A (priced contract with activity schedule), which is based on tendered people rates.

Conclusion

Based on 12 years of learning and a lot of good thinking, NEC4 contracts really are better than NEC3. They are an evolution, not a revolution, so any perceived barriers to making the switch can be readily overcome. Clients should therefore not delay in getting the extra help they need to make this worthwhile transition. ○

Reference

Patterson R (2018) 'NEC3 to NEC4 – evolution, not revolution; some fixes and some good ideas!' *Proceedings of the Institution of Civil Engineers – Management Procurement and Law*, **170(6)**: 269-271, available at <https://www.neccontract.com/About-NEC/News-Media/NEC3-to-NEC4-evolution-not-revolution-some-fix>.

KEY POINTS

- The NEC4 contract suite launched in 2017 was based on 12 years of worldwide experience with NEC3 and is comprehensively better.
- Many major NEC clients have already switched to NEC4, including Highways England, the Environment Agency and Defence Infrastructure Organisation.
- Barriers perceived by other clients to making the switch include training, templates, Z clauses and forms, but these can all be readily overcome.

>> Continued from page 7

'For instance, at tender stage, 50% of marks were awarded for quality criteria, with a strong focus on sustainability, workforce development and innovation. We wanted the project to be delivered in the spirit of Sir Michael Latham's seminal report *Constructing the team*: there was to be no "them" and "us".'

'NEC was the natural choice to facilitate a mindset where everyone was committed to produce an exceptional end product. A deep sense of pride was palpable when the project was completed on budget and ahead of schedule, and very well received by end users.'

Early warnings

Once construction got underway, Van der Colff says ground conditions at the site posed

innumerable risks – from underwater springs and unexploded bombs to contamination and very poor soil conditions. 'NEC's system of early warning notices proved to be invaluable, especially during the early stages of the project when our client-owned risks below ground were significant. It meant that as soon as an issue reared its head, the project team quickly pooled its extensive combined knowledge and skills at a risk reduction meeting to find an innovative solution.'

She adds that the NEC's approach to risk – with a fair distribution of risk, production of a single shared risk register and regular risk reduction meetings – also assisted value engineering. 'It helped to ensure the whole supply chain was involved in seeking more cost-effective materials

and products that would not compromise whole-life functionality or quality.'

The project also had to be delivered to a tight schedule to meet the college's academic calendar and income targets, so it was important the new facility should not be delivered late. 'The fact that the programme is a key contract document in NEC projects and the requirement for the contractor to produce an updated programme every month enabled us to exercise tight control,' says Van der Colff.

'We had real confidence that the project timescales would be achieved because there was such a spirit of transparency and openness throughout. As it turned out, the building was handed over a few days ahead of schedule, snag free.' ○

PRACTICE

UK court decision shows importance of ensuring scopes are consistent



DAVID HUNTER DANIEL CONTRACT MANAGEMENT SERVICES

In June 2020 the UK Technology and Construction Court handed down its judgment in the case of *Blackpool Borough Council v. Volkerfitzpatrick Ltd & Ors* [2020] EWHC 1523 (TCC). The decision serves as a reminder for NEC users preparing ECC contract documents of the importance of writing clear, consistent and concise scopes (or works information in NEC3).

The council had appointed the contractor using an amended NEC3 Engineering and Construction Contract (ECC) to design and build a landmark tram depot as part of a major upgrade to Blackpool's historic tramway system. The depot was completed in May 2011 and in spring 2012 the new tram service started operating. A defects certificate was issued in June 2012.

Unfortunately in January 2015 a storm caused the depot roof to become detached. Following subsequent inspection and repairs, the council discovered that the galvanised cold-formed steel purlins and cladding rails that connected the main structural steel frame to the roof and wall panels were corroded.

Design-life dispute

The council went on to sue the contractor on the grounds that significant parts of the depot did not comply with the 50 year design life as required by the contract, and that the depot as designed and constructed was not suitable for an exposed coastal marine environment.

The council relied on its ECC works information, identified in contract data part one (data provided by the client), which specified a design life of 20 years unless otherwise stated in the appended functional procurement specification. This specification stated the 'building structure' should achieve a 50 year design life, though the contract did not provide a definition of 'design life' or 'building structure'.

The contract also included works information provided by the contractor, referenced in contract data part two (data provided by the contractor). Attached to this was a technical design log stating a minimum design life of 50 years for the 'structural frame' and 25 years for the 'external shell'. The contractor contended in its defence that the design life for the wall cladding panels was 25 years but for the purlins and cladding rails it was the client's generally specified figure of 20 years.

The contract included an amendment stating that, in the event of an inconsistency, the council's works information took priority over the works information provided by the contractor. The council argued there was an inconsistency between the documents so the contractor's obligation was to ensure the purlins and cladding rails complied with the 50 year design life stated in its functional procurement specification.

The court did not agree. The problem was that the contract did not clearly identify that the purlins and cladding rails were part of the 'building structure', and there was no legal precedent or decisive British standard for the court to rely on. Judge Stephen Davies concluded

there was no inconsistency, so the contractor's works information prevailed and the design life of the purlins and cladding rails should be 20 years.

Discussion and lessons learnt

Scope (and works information) is defined in clause 11.2(16) of ECC (11.2(19) in NEC3) as

- 'information which either
- specifies and describes the *works* or
 - states constraints on how the *Contractor* Provides the Works.'

The scope identified in contract data part one is the client's scope. A main responsibility of the contractor is to provide the works in accordance with the client's scope (clause 20.1).

For a design and construct contract, the client's scope should state what design the contractor is to do, otherwise the default position is the client provides the design (clause 21.1). With contractor design, the client sets out its requirements, which may be in the form of a performance specification providing standards and a description of what the final product must be capable of doing.

The client may also invite the contractor to submit its design proposals at tender stage by identifying, 'The Scope provided by the *Contractor* for its design' in contract data part two. This becomes the contractor's part of the scope.

The ECC does not expressly state a hierarchy of contract documents. After the contract is signed, if the project manager or contractor becomes aware of an inconsistency between the client's and contractor's parts of the scope, they must notify the matter. The project manager is then required to give an instruction to resolve the inconsistency (clause 17.1).

If the project manager decides the contractor's part of the scope is wrong, an instruction may be given to change it to comply with the client's scope. This instruction is not a compensation event and therefore gives effect to the client's scope taking precedence over the contractor's scope (clause 60.1(1)).

With design and construct contracts, there is a risk that the contractor's design, where provided, may not comply with the client's scope. Time should be spent reviewing tender submissions and correcting any differences before entering into a contract.

Some clients also amend their contracts to include an order-of-priority clause as a fall-back position in the event of inconsistencies. The difficulty of this, as demonstrated in the Blackpool and other cases (e.g. Waterhouse, 2019) is that the clause cannot be relied upon

KEY POINTS

- Scopes (or works information in NEC3) are key documents in NEC contracts.
- Where part of a scope is provided by the contractor for its design, it should be checked for consistency and completeness with the client's scope before entering into an NEC contract.
- Amending NEC contracts to include order-of-priority clauses may not serve the intended purpose.

where there is no inconsistency.

In the Blackpool case, the employer's works information was not sufficiently clear as to its requirements, leaving a gap which was filled by the contractor's works information, affirming the position taken by the courts that the contract should be read as a whole.

Conclusion

The scope (or works information) in an NEC contract can be a substantial document comprising separate parts prepared by different people. Clients should take great care and time when preparing and checking these documents to ensure that requirements are unambiguous and consistent.

NEC publishes excellent guidance on how to prepare scopes (NEC, 2019) and works information (NEC, 2013). Without proper co-ordination and alignment of the client's and contractor's versions of these documents at tender stage, there is a real risk of inconsistency.

Amending the contract to include an order-of-priority clause may give the client a false sense of security and should not be seen as an alternative to spending time getting the scopes in order before entering into a contract.

References

- NEC (2013) *NEC3: how to write the ECC Works Information*, <https://www.neccontract.com/NEC3-Products/NEC3-Contracts/NEC3-Engineering-Construction-Contract/How-Tos/NEC3-how-to-write-the-ECC-Works-Information>
- NEC (2017) *NEC4: Preparing an Engineering and Construction Contract Volume 2*, <https://www.neccontract.com/NEC4-Products/NEC4-Contracts/NEC4-Guidance-Notes-Flow-Charts/NEC4-Preparing-an-Engineering-and-Construction-Co>
- Waterhouse P (2019) NEC short contracts and ambiguities, *NEC Users' Group Newsletter*, 98, May, p 10.

'The scope (or works information) in an NEC contract can be a substantial document comprising separate parts prepared by different people'

PRACTICE

Helping NEC clients decide the best way to get a first programme in place



RICHARD PATTERSON MOTT MACDONALD, UK

An option for clients in both the NEC4 (and NEC3) Engineering and Construction Contract (ECC) and the Professional Service Contract (PSC) is to state how and when they require the contractor or consultant to provide the first programme. Getting a good first programme in place is critical to both the client and supplier.

Clients generally require tenderers to include a programme as part of their tender submission as it helps to see if tenderers have understood their requirements and have a plan. In the case of target contracts, it also helps to see whether the plans and cost build-ups are consistent.

A contentious issue for clients however is whether to include a tendered programme in the contract. In *Yorkshire Water Authority v. Sir Alfred McAlpine Ltd* [1985], a contractor successfully claimed against a client when the sequence and methods in the tendered programme, which the client had included in the contract, proved to be

impossible. Since then, most construction clients using 'traditional contracts' have avoided putting the tendered programme in the contract.

But NEC is different to other contracts. In both NEC4 ECC and PSC, the requirements and constraints on the contractor or consultant are solely in the scope (works information in NEC3). The programme is effectively just the supplier's latest idea on how it intends to get from now to completion. Importantly, the supplier does not have to do what it says in the programme: it can change the timings and methods at will, so long as they comply with the scope (clause 20.1), and each new accepted programme supersedes the last (clause 11.2(1)). Either way, the latest accepted programme is the starting point for assessing the time impact of any compensation events and for that the supplier's date in the accepted programme for planned completion is critical.

Two options for first programme

The ECC and PSC give clients two options for getting a first programme. They can either ask for a programme to be submitted with the tender and then included in contract data part two, or ask in contract data part one for the contractor or consultant to submit its first programme after award within a stated number of weeks from the contract date. This is a significant decision. Table 1 sets out some of the advantages and disadvantages of each option, and some suggestions for mitigating the disadvantages.

With either option, the first programme needs to be properly reviewed. Terminal float, which is the period between the supplier's planned completion date and the client's required completion date, is owned by the supplier under clause 63.5 (clause 63.3 in NEC3 ECC and NEC3 PSC). As there is a

commercial incentive on suppliers to maximise the terminal float, they must be required to demonstrate that durations of operations on the critical path are realistic. This will have to be reviewed by

- the client, if the programme is included in the contract
- the project or service manager, if the programme is requested after award.

Once an ECC or PSC is in place, the project or service manager can reject a submitted programme if the plans are not practicable, it does not show the information required by the contract, it does not represent the plans realistically, or it does not comply with the scope.

Clearly programme review meetings and the NEC obligation to 'act in spirit of mutual trust and co-operation' will help both the client and supplier determine whether a submitted programme is practicable and realistic. As ever, the best advice is to talk and listen to each other and then do what it says in the contract.

Conclusion

As can be seen from Table 1, there are clear advantages and disadvantages to each option regarding the first programme. It is hoped this article will help clients make the best decision for their particular contracts.

Acknowledgements

This article was prepared with Nik Farrar, technical principal of planning at Mott MacDonald, Ian Gannon, head of planning for the south regional investment programme at Highways England, and Matt Orton, director at Metisplan. ○

KEY POINTS

- ECC and PSC clients can ask for the tendered programme of the winning bidder to be included as the first accepted programme in contract data part two
- Alternatively, clients can set a post-award date in contract data part one for the winning bidder to submit the first programme.
- There are advantages and disadvantages to each option, and ways to mitigate the latter. Either way, the first programme needs to be carefully reviewed.

Table 1. Advantages, disadvantages and mitigating factors and actions for each of the two options for getting a first programme in place

Option for getting a first programme in place	Advantages	Disadvantages	Mitigating factors and actions
Include tender programme in the contract, referenced from contract data part two	<ul style="list-style-type: none"> ■ Ensures a programme is in place on day 1 ■ Drives professional behaviour in tendering teams, leading to better all-round tenders. ■ Enables clients to set high standards for required detail in programmes and include them as part of tender quality assessments. ■ In target contracts and early contractor involvement, enables clients to see linkages between tenderers' programmes and forecasts of defined costs. ■ Gives both suppliers and clients better visibility on cashflow requirements. ■ Gives clients more time to review programmes in detail and seek clarifications. ■ Emphasises to suppliers the importance of programmes in NEC. ■ Can shorten periods required by suppliers after award to plan and mobilise. 	<ul style="list-style-type: none"> ■ Costs tenderers more, potentially inflating tender prices. ■ Can increase tender periods. ■ Can require corrections to tendered programmes between bid and award. ■ Can require significant changes to programmes after award due to differences of opinion between supplier's bid and project teams, and between client procurement and project teams. ■ Can require additional skilled resources to review tendered programmes for complex projects. ■ Can require additional discussions with suppliers to enable acceptance of tendered programmes after award. ■ Can be difficult to decide how programmes will be scored. 	<ul style="list-style-type: none"> ■ Good tenderers will have built up detailed programmes to plan and cost works so this additional requirement should not be onerous. ■ Use instructions to tenderers to limit level of detail required, such as focusing on critical-path operations and early items. ■ Offer workshops for tenderers with clients' planning teams to review and comment on draft programmes, ideally including proposed project/service managers. ■ Consider requiring post-tender presentations from tenderers on programmes to emphasise importance of programmes. ■ Use quality of programmes as a significant part of tender quality assessments. ■ Ensure tender periods are appropriate to complexity of projects. This should ensure tenderers have time properly to plan and cost tenders, giving clients more confidence in deliverability of tendered programmes. ■ Make clear in instructions to tenderers that revisions to submitted programmes may be required from tenderer by client prior to award. ■ Ensure that if contract awards are delayed, tender programmes are updated to suit actual contract dates. ■ Changes to programmes by suppliers are allowed but at suppliers' risk (clause 32.1). ■ Sensible tenderers will try to take account of views of proposed project teams, especially their proposed planners. ■ A programme pointed to from contract data part two is the first accepted programme. If not compliant, project/service managers can require them to be revised (clause 32.1). ■ Bring in resources to review tendered programmes during bid evaluations (should not be an issue in with early contractor involvement). ■ Make clear in instructions to tenderers how quality of programmes will be assessed. ■ Include programmes as part of scores for realism of forecast defined costs in target cost options, and for deliverability in all options.
Ask successful tenderer for a programme after award of contract	<ul style="list-style-type: none"> ■ Avoids suppliers' project teams being unhappy with programmes prepared by bid teams. ■ Reduces bid costs. 	<ul style="list-style-type: none"> ■ May take some time to get an accepted programme after award. ■ Can be very difficult to assess early compensation events without an accepted programme. 	<ul style="list-style-type: none"> ■ Parties should recognise mutual benefits of having good programmes in place from the outset. Project/service managers should work collaboratively to help suppliers produce an acceptable programme. ■ Clause 50.5 (50.3 in NEC3) allows 25% retention of price for work done to date until suppliers submit a programme 'showing the information which the contract requires'. ■ Clause 64.2 allows project/service managers to assess compensation events if suppliers has not submitted a programme.

PRACTICE

FAQs



ROBERT GERRARD

NEC USERS' GROUP SECRETARY

This is a selection of recent questions to the NEC Users' Group helpline and answers given. In all cases it is assumed there are no amendments that materially affect the standard NEC4 or NEC3 contract referred to.

Language of main contract in subcontracts

Question

We are the contractor on an NEC3 Engineering and Construction Contract (ECC). Can the project manager insist on our subcontract documents being written in the language of the main contract?

Answer

Language is not a reason written in clause 26.3 for the project manager not accepting your proposed conditions of subcontract. Certainly in some countries it may be desirable to use the local language in subcontracts if, for example, English was used in the main contract. Provision would need to be made in the main contract for English to be used in subcontracts. Without this, a compensation event would occur under clause 60.1(9) if the project manager tried to insist on it.

Recovering overpayment in a payment certificate

Question

We are a main contractor using the NEC3 Engineering and Construction Subcontract (ECS) option A (priced subcontract with activity schedule) for our subcontractors. The defective workmanship of one of our subcontractors has been revealed during commissioning of some pumps, which is likely to cause substantial delay under our main contract and result in damages. The nature of the defect meant it had to be corrected within 72 hours (as stated in the subcontract data) but this was not practical. The subcontractor was unable to provide temporary pumping arrangements while it took additional time to correct the defect, so we put these in place until the permanent pumps could be reinstalled. We did this on the basis that cost can be recovered under clause 25.

The employer has reduced the certified amount in the latest assessment period as the activities previously deemed complete are no longer complete, in accordance with the final paragraph of clause 11.2(27). This results in a negative payment certificate, which we would have to recover as a debt. Some of this amount would correct itself naturally as the defect is corrected and the work deemed complete once again. However, the cost we have incurred must still be recovered. As we

were nearing completion, we have paid 90% of the subcontract value. The subcontractor is unwilling to credit the debt whereas we seek recourse under the subcontract in the first instance. What would you advise here?

Answer

There is no clear-cut answer to this question unfortunately. At the moment you are relying upon the subcontractor to enable you to get your work completed, and there is a practical risk that the subcontractor may decide to walk away. You therefore need to factor in how you will manage that if it occurs. It may be difficult, if not impossible, to find somebody else to sort this matter out. Therefore, applying your contractual rights may not be the best course here.

You refer to the time needed to correct a defect within its defect correction period. This only comes into play after completion of the of the subcontract works, see clauses 43.2 and 11.2(2), so we assume the subcontractor has already achieved completion. If so, it is doubtful you will be able to reduce the price for work done to date in the way you suggest. Instead, if a defect occurs after completion, clauses 43, 44, and/or 45 set out how you deal with it and what recovery you have. Given these clauses set out your remedies, it highly unlikely you would be able contractually to reduce the price for work done to date or invoke clause 25.

If the subcontractor has not achieved completion, it becomes even more complicated. That would mean the defect correction period is irrelevant and the subcontractor is not obliged to achieve completion until the subcontract completion date (see clause 30.1). If the subcontract completion date has not yet passed, it could be that the subcontractor is not, as yet, in breach of the subcontract, unless of course you have relevant sectional completion dates (see X5) or key dates (see clauses 11.2(9), 30.3 and 25.3). And, if this defect means that the subcontract completion date is not met and you have option X7 in the subcontract, it could mean all you will be able to deduct because of the delay would be the delay damages in the subcontract. However, the good news is that you probably could, in this scenario, temporarily reduce the price for work done to date until such times as the defect has been corrected.

When things get this complicated, we always recommend you sit down with all the parties and discuss how it can all be dealt with. With a little give and take on both sides, you may come up with an agreement that everybody can live with. Otherwise you could end up with a dispute under

whichever dispute option you have chosen. That is not to be entered into lightly and we always recommend you try to reach an agreement you can live with rather than start that process. Unfortunately, whether you like it or not, it will cost all involved a lot of money and a lot of staff time, both of which probably would be better deployed in reaching an agreement.

Rights for extreme weather

Question

We are the contractor on an NEC3 Engineering and Construction Short Contract (ECSC). During a spell of extreme weather we had stop work on site for 4 months and deploy additional mitigation measures to prevent water pollution. There is no item in the price list for mitigation works although there is a paragraph in an associated appendix that states we are to provide mitigation works for all ground and surface water. We are in discussions with the client and believe we should be due something extra for the mitigation works as this was an extreme occurrence no one could have predicted. However, the client disagrees, saying it states in the associated appendix that mitigation works are covered. Could you possibly clarify?


Answer

In the ECSC you will be compensated both in time and money if an event listed as a compensation event in the contract happens. This is covered in section 6 of the contract (clauses 60 to 63). It is irrelevant what you were supposed to have allowed for such events; the monetary and time effects of the listed events are effectively the client's risk.

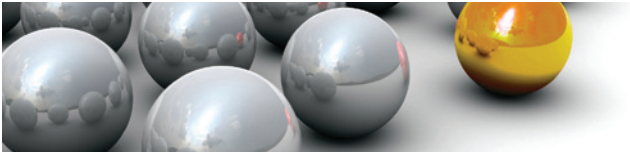
One of the compensation events is when you are prevented by weather from carrying out the works for more than one seventh of the original time to carry out the works, see clause 60.1(10) for a more detailed description. It seems likely the 4 months delay you refer to will fall within that definition. If so, this is a compensation event. This is not something that can be valued based upon the prices in the price list and therefore clause 63.2 applies.

You will be paid the increase in defined cost caused by the weather event, plus one or other of the percentages for overheads and profit you quoted in the contract data. That would include the cost of any additional mitigation measures as well as any other costs caused by the delay. Defined cost is a defined term (see clause 11.2(5)) and is based upon the costs you actually incurred, but only for those items listed in 11.2(5).

In addition if the weather event caused a delay to the planned completion (see 11.2(1)), the completion date (i.e. the date by which you are obliged to achieve completion) will be moved back by the length of that delay, see clause 63.4.

You and the client will need to follow the processes set out in clauses 61 and 62 to deal with the weather compensation event. You should start by notifying the compensation event as soon as possible. 

'We recommend you try to reach an agreement you can live with rather than start a dispute'



ICE Register for Accredited NEC professionals

Below are new entrants on the Institution of Civil Engineers (ICE) Register for Accredited NEC Professionals at necprofessionals.ice.org.uk. The register recognises the technical and practical skills required of project managers and supervisors using the NEC4 or NEC3 Engineering and Construction Contract (ECC) and service managers using the NEC4 or NEC3 Term Service Contract (TSC). All individuals on the register have completed the relevant accreditation programme and successfully passed the stage 1 and stage 2 assessments.

Accredited NEC4 ECC Project Managers

Andrew Barron
Benny Chan
Vincent Chan
Eddy Cheung
Samantha Fennell
Michael Fung
Wilson Fung
Nick Gaughran
John Hitchings
Simon Hui
Vanessa Ip
Yuk Ming Kan
James Kwok
Joseph Lee
Chi Yan Lo
Greg Lord
Alvin Lun
Natasha Orange

Rebecca Rollinson

Davis So
David Solan
Stuart McArthur
Man Kong Sung
Jerry Tang
Elwin Tang
Chi Ho Tong
Lawrence Tsang
Ashish Virkar
Ming Yan Wong
John Wong
Yui Tai Yuen

Accredited NEC3 ECC Project Managers

Chiman Chan
Vincent Chan
Daniel Fielden
Hugh Grehan

Michael Heston
Chiron Hung
Ron Hung
Parvin Izadpanah
Wayne Kelly
Raymond Kwong
Gregory Lo
Luke Moran
Stewart Nicholson
John Royds
Andy Stanley
Stuart McArthur
Mike Tillery

Accredited NEC3 ECC Supervisors

Barbara Botkowska
Michael Heston
Andrew Mason

NEC Users' Group members

A warm welcome is extended to all new members, highlighted in **bold** in the membership category lists below.

PLATINUM

AWE
Dounreay Site Restoration Ltd
Geoffrey Osborne Ltd
High Speed Two (HS2) Highways England Co Ltd
Innogy Renewables UK Limited
INOVYN ChlorVinyls Ltd
L&M Keating Ltd.
Lantis
LLW Repository Limited
Magnox Limited
MTR Corporation Limited
Paul Y. Engineering Group Limited
Pinsent Masons LLP
Sellfield Ltd
Skanska Construction UK Ltd
Southern Borough Council (HQ)
Southern Water
Strategic Estates, House of Commons
Tarmac
Transport for London
TwoplusTwo Commercial Services Limited

GOLD

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Driver & Vehicle Standards Agency
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Gateshead Metropolitan Borough Council
Gigaclear Ltd
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Mace Group
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MacKenzie Construction Limited
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North Ayrshire Council
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Pagabo
R J McLeod Ltd
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South Gloucestershire Council
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Stantec UK Ltd
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Thomas Bow Ltd
TLT LLP
Tom Crowe
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Turner & Townsend
University of Glasgow
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Yelland Savage Ltd

BRONZE

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Ansaldo Nuclear
AstraZeneca
Bennetts Associates
Black & Veatch Ltd
Breheny Civil Engineering Ltd.
Caledonian Maritime Assets Limited (CMAL)
Capital Consulting International Ltd
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CCJ Group Limited
Chandler KBS
Construction Dispute Resolution
Corderoy
Costain Limited
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Daniel Commercial Management Services
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Department of Health
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Doig & Smith Ltd
Dunstan-Consulting Ltd
East Lothian Council
Eastern Solent Coastal Partnership
ECS Associates (Pty) Ltd
Fife Council
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Fulkers
GHD
Glanville Projects Ltd
Hanscomb
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Haskoning DHV UK Ltd
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J T Mackley & Co Ltd
JLL Consultancy Ltd
John Papworth Limited
K&L Gates
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MissionCX Limited
MIM Miller (Wick) Ltd
MY Cheng & Co (Engineering) Ltd
NBS Services
NE Consult
NMCN PLC
Novi Projects
Orkney Islands Council
Palbro Consulting Limited
Pat Munro (Alness) Ltd
pdConsult
Procom-IM Ltd
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Quigg Golden Ltd
RA Gerrard Ltd
RedRay Ltd
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RSK

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Schneider Electric Systems UK Limited
Severn Trent Services Operations UK Ltd
Solomons Europe Ltd
Steve Brown & Associates Ltd
Summers-Inman LLP
Synergie Training
The Clarkson Alliance
The Francis Crick Institute
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The Rochester Bridge Trust
Timothy Willis
TKR Consulting Ltd
Trebis Consulting Limited
VVB Engineering UK Ltd
Wallace Stone LLP
Wrekin Consulting Limited

ASIA PACIFIC

Airport Authority Hong Kong
Architectural Services Department, HKSAR
Arup
Atkins China Ltd
Beria Consultants Ltd
BK Surco Ltd
Building & Construction Authority
China State Construction Engineering (Hong Kong) Ltd,
Chun Wo Construction & Engineering Co Ltd
Civil Engineering & Development Department, HKSAR
CLP Power Hong Kong Ltd
Construction Industry Council
Deacons
Development Bureau, HKSAR
Driver Trett Ltd
Electrical and Mechanical Services Department, HKSAR
Gammon Construction Ltd
Highways Department, HKSAR
HKCA Civil Engineering Committee
Hogan Lovells
Kum Shing (KF) Construction Co Ltd
Mannings (Asia) Consultants Ltd
Meinhardt Infrastructure & Environment Ltd
Mott MacDonald Hong Kong Ltd
MTR Corporation
Project Group
Shui On Construction Company Ltd
The Contracts Group Ltd
The Hong Kong Institute of Surveyors
Thomas Telford Ltd
Turner & Townsend
Vastream Construction Limited
VSL Intrafor
Water Supplies Department, HKSAR

REST OF WORLD

Critical Input Pty Ltd
Egis Road & Tunnel Operation Ireland

nec DIARY

03 September	NEC3 to NEC4 ECC Project Manager Accreditation extension	Virtual (UK)
07 September	NEC4: ECC Supervisor Accreditation	Virtual (UK)
07 September	NEC4: ECC Project Manager Accreditation	Virtual (HK)
09 September	NEC3: Introduction to the ECC	Virtual (UK)
14 September	NEC3: ECC Project Manager Accreditation	Virtual (UK)
16 September	NEC4: Introduction to the ECC	Virtual (UK)
23 September	NEC3: ECC Supervisor Accreditation	Virtual (UK)
25 September	NEC3 to NEC4: ECC Project Manager Accreditation extension	Virtual (HK)
29 September	NEC3: Introduction to the TSC	Virtual (UK)
05 October	NEC3: ECC Supervisor Accreditation	Virtual (HK)
06 October	NEC3: Introduction to the PSC	Virtual (UK)
07 October	NEC3: ECC Compensation Events Workshop	Virtual (UK)
08 October	NEC3: ECC Programming Workshop	Virtual (UK)
12 October	NEC4: ECC Project Manager Accreditation	Virtual (UK)
13 October	NEC3: TSC Service Manager Accreditation	Virtual (UK)
13 October	NEC4: Introduction to the TSC	Virtual (UK)
15 October	NEC3: Introduction to the ECC	Virtual (UK)
19 October	NEC4: ECC Project Manager Accreditation	Virtual (HK)

Key: ECC – Engineering and Construction Contract, PSC – Professional Service Contract, TSC – Term Service Contract, Virtual – online course in Britain (UK) or Hong Kong (HK) running from 9 am to 5 pm local time

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