

Helping you to improve sustainability through best practice



CEEQUAL

IMPROVING SUSTAINABILITY

INTRODUCTION

sustainability assessment, rating and awards scheme for civil engineering, infrastructure, landscaping and works in public spaces

www.ceequal.com

“ It is very good for the industry and profession to have challenging tools like CEEQUAL available to us to test out and measure our performance. I want to thank CEEQUAL for all its work in developing the assessment scheme for the use and benefit of civil engineering and society. ”

Sir John Armitt CBE (Chairman of the 2012 Olympic Delivery Authority)

“ CEEQUAL not only covers environmental aspects, but broadens out into the wider sustainability agenda. The whole project team develops a good team ethos and makes you more competitive between contracts. ”

Nigel Sagar (Senior Sustainability Manager, Skanska)

“ Using CEEQUAL has been instrumental in driving performance forward and sets the bar for other contractors we used to follow. CEEQUAL is now a mature tool and Version 5 raises that bar even higher. ”

Mike de Silva (Sustainability Manager, Crossrail)

“ The CEEQUAL Assessment tool provides a framework for those involved in the design, construction and operation of a project to integrate environmental, social and sustainability benefits and to gain acknowledgement for sustainability measures that are being incorporated into the project. ”

Emma Clark (Project Developer, E.ON)

“ CEEQUAL should be considered for inclusion as a contractual element of all public sector civil engineering projects, with minimum standards set. This will set responsibilities and performance levels from project conception. CEEQUAL provides consistency in raising awareness and standards across the industry, whether it is a public or private sector project. With the inclusion of the new Project Strategy section I think the focus towards socio-economic issues would blend very nicely with public sector contracts containing community benefits clauses. ”

John Logan (Sustainability Manager Scotland, Sir Robert McAlpine)

Welcome to CEEQUAL! From the benefits CEEQUAL brings to infrastructure works, through valuable case studies on completed Assessments to how the scheme works, and the benefits of using the Scheme: this document presents all these aspects of CEEQUAL and more – to inform, inspire and influence you in the application of best practice to creation and maintenance of the infrastructure on which we all depend, wherever it may be in the world.



Kincardine Bridge - Forth Crossing achieved an overall 'Very Good' CEEQUAL rating

What is CEEQUAL?

CEEQUAL is the international evidence-based sustainability assessment, rating and awards scheme for civil engineering, infrastructure, landscaping and works in public spaces, and celebrates the achievement of high environmental and social performance.

CEEQUAL aims to assist clients, designers and contractors to deliver improved project specification, design and construction of civil engineering works. The scheme rewards project and contract teams who go beyond the legal, environmental and social minima to achieve distinctive environmental and social performance in their work. In addition to its use as a rating system to assess performance, it also provides significant influence to project or contract teams as they develop, design and construct their work, because it encourages them to consider the issues in the question set at the most appropriate time, and to strive to secure the CEEQUAL score their work deserves.

CEEQUAL is available in two forms: **CEEQUAL for Projects** and **CEEQUAL for Term Contracts**.

Benefits of using CEEQUAL

- **Demonstrating your commitment to the sustainability agenda and public recognition** – to clients, within both the team and the organisations involved, to the industry as a whole, and/or to stakeholders and the general public.
- **Significant improvements to your projects and contracts through adoption of best practice** – ranging from whole-life costing, waste minimisation, resource efficiency (materials, water, energy) and responses to predicted climate change effects, to reducing complaints and environmental incidents.
- **Reputation-building and good PR** – including verified demonstration of delivery of your environmental, sustainability and/or corporate social responsibility policies.
- **Cost savings** – CEEQUAL helps secure savings. Projects report £30,000 waste minimisation savings to £5million (3.3%) less than originally planned through design changes and alternative materials.
- **Enhanced team spirit** – it rewards teams that have “gone the extra mile” and, because using CEEQUAL provides encouragement and a target for your project and contract team to deliver high performance, it helps to develop a positive performance attitude.
- **Award presentations** – celebrate high performance and reinforce team spirit.

Objectives

- To create a climate of sustainability awareness – and of continuous improvement – in the profession and industry
- To promote the importance of setting and delivering a sustainability-driven strategy for the project or contract being assessed, and adoption of best practice
- To promote improved sustainability performance in project or contract specification, design and construction
- To recognise and promote the attainment of high economic, environmental and social performance in all forms of civil engineering – infrastructure, landscaping and works in public spaces.



Glenkerie Wind Farm, Scottish Borders achieved an overall 'Very Good' CEEQUAL rating

How does it work?

CEEQUAL is a self-assessment process that CEEQUAL trained-Assessors use to rigorously assess project or contract performance on management and a range of environmental and social issues of concern, arranged in Version 5 in nine sections (see page 14).

Assessors use the appropriate CEEQUAL Manual to score performance against questions relevant to their project or contract. Assessors collect evidence supporting their scores for each question, and use our Online Assessment Tool for capturing those scores and evidence. Upon project or contract completion, each Assessment is externally verified by a CEEQUAL-appointed Verifier, and then ratified by the Scheme Management Team.

Once the Assessment score is ratified, the project or contract is awarded a percentage score and is then presented with a CEEQUAL Award certificate that demonstrates their level of achievement on the Pass – Good – Very Good – Excellent scale.



2012 Olympic Park, London, achieved an overall 'Excellent' CEEQUAL rating with an overall score of 93.8% for all 17 assessment packages

Who uses CEEQUAL?

- **Public sector clients**, such as Government departments, local and regional authorities, executive agencies of Government, and arms-length utilities procuring and operating assets for the public good.
- **Private sector clients**, such as water companies, power companies and ports operators, and developers who can use CEEQUAL to assess infrastructure associated with building developments.
- **Designers**, including mainstream civil engineering designers, architects for building developments with significant associated infrastructure, landscaping designers, utilities designers, and electrical and mechanical engineering design companies involved in infrastructure projects and contracts.
- **Contractors**, including but not confined to mainstream civil engineering, landscaping and utilities contractors, and electrical and mechanical engineering contractors involved in infrastructure projects and contracts.



The M25 DBFO project team collecting their many CEEQUAL Award certificates at the first Outstanding Achievement Awards Ceremony at the ICE, London

How was CEEQUAL created?

CEEQUAL was originally developed between 1999 and 2003 by a team led by the Institution of Civil Engineers, supported by its Research & Development Enabling Fund and the UK Government.

By 2014, more than 220 Final Awards and 80 Interim Awards have been achieved with more than 250 further projects and contracts currently being assessed. The civil engineering value of work that has been or is currently being assessed totals now exceeds £25 billion.

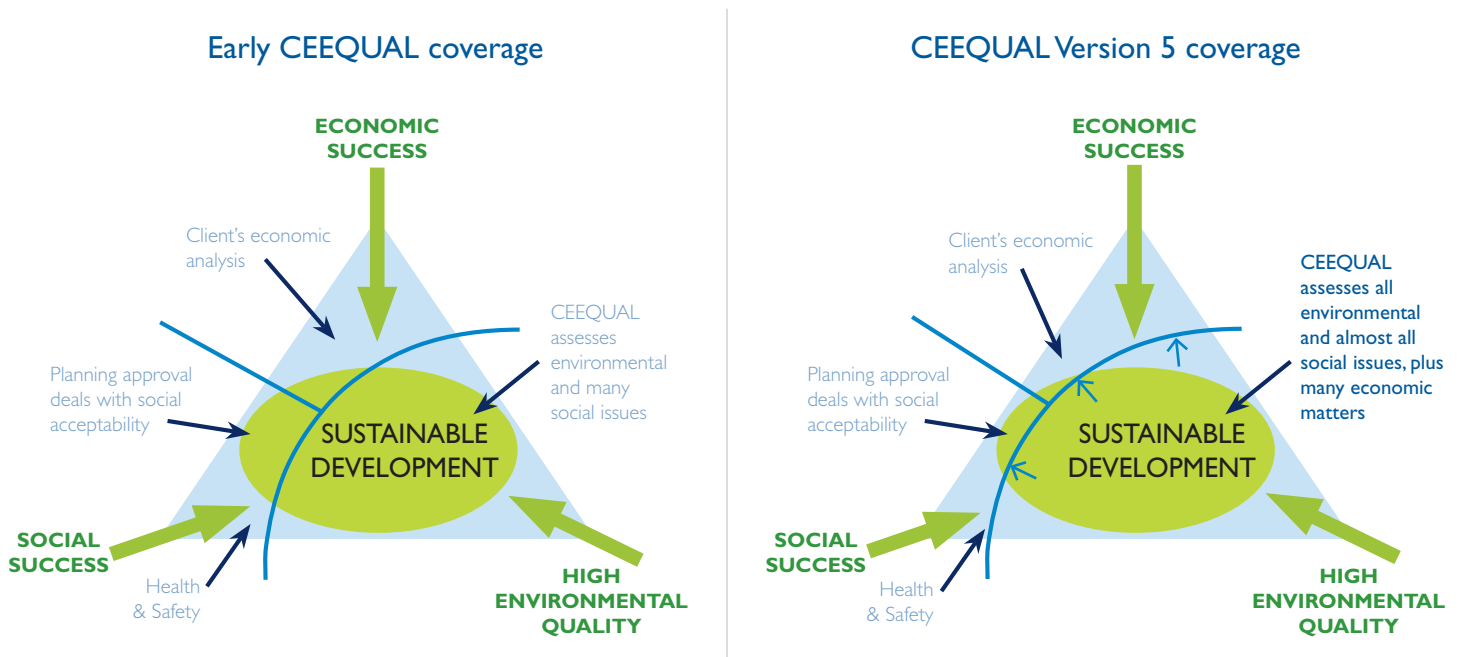
It is now operated by, and continues to be developed on behalf of the industry and profession through, CEEQUAL Ltd, owned by a group of 14 organisations actively involved in the operation of the Scheme and/or were involved in the project that developed the Scheme. They include the Institution of Civil Engineers (ICE), the Association for Consultancy and Engineering (ACE), the Civil Engineering Contractors Association (CECA) and the Chartered Institution of Water and Environmental Management (CIWEM). CEEQUAL is operated on a not-for-profit basis by a Scheme Management Team provided jointly by Crane Environmental Ltd, CIRIA and Responsible Solutions Ltd.

CEEQUAL & Sustainability

Using the three-pillar model of sustainable development – which seeks to achieve economic, social and environmental success at the same time and is thus connected to triple-bottom-line reporting – CEEQUAL can be seen to complement the planning system and clients' financial and economic models. It assesses a wide range of economic, environmental and social issues, including a project or contract's effects on neighbours and community relations more generally.

With a Project Strategy Section now in CEEQUAL for Projects, and a Client Contract Strategy Section in CEEQUAL for Term Contracts, CEEQUAL not only includes indirect economic issues through consideration of energy, materials and waste that can significantly influence the financial outcome of a project or contract. It now also covers the wider economic, social and environmental impacts and benefits of the project or contract. CEEQUAL as a rating system does not assess the wisdom of clients or the planning system in promoting and allowing works to proceed, but does assess whether a project or contract is helping the community(ies) it serves to live more-sustainably. By promoting the development of appropriate strategies, and the use of environmental and social best practice, and then measuring environmental and social performance, CEEQUAL is now a tool that assesses the full sustainability credentials of projects and contracts covering economic, environmental and social best practice.

This extension of CEEQUAL's scope and coverage is illustrated by the two graphics below. Without concerning ourselves with the precise location of the blue curved line, the left-hand graphic represents the coverage in earlier versions, whilst the right-hand graphic illustrates the current almost-complete coverage in CEEQUAL of all of the characteristics of a 'sustainable development'. This leaves decisions on whether to proceed with projects where the CEEQUAL team and users believe they belong: with clients and the planning authorities.



CEEQUAL continues to build on current guidance, and encourages adoption and recognises of environmental and social best practice in civil engineering. It also supports strategies of the UK Government and other Governments by providing the infrastructure professions and industry worldwide with an incentive and protocol for assessing, benchmarking and rating the sustainability performance of projects and contracts as part of the industry's contribution to sustainable development.

Our place within civil engineering

Civil engineering, CEEQUAL and their economic, environmental and social context

Civil engineering shapes and influences the environment in which we live, for the benefit of society and to deliver an enhanced quality of life to the community(ies) it serves. Modern life depends completely on the infrastructure provided by engineering clients, designers and contractors. Many civil engineering projects intrinsically improve environmental quality and human well-being; for example: water & waste-water treatment plants and sewerage schemes, city metros and railway projects, land contamination remediation schemes and flood alleviation, as well as works in public spaces such as pedestrianisations, enhancements of public spaces and refurbishment of parks. In addition, the proper maintenance and progressive improvement of infrastructure through effective work under Term Contracts is vital to the sustainable management of that infrastructure, and its continued capacity to serve society.



Thameslink programme, Farringdon Station redevelopment achieved an overall 'Excellent' CEEQUAL rating with a score of 90%



M25 DBFO Section 4b (J28 to 29) Scheme achieved an overall 'Excellent' CEEQUAL rating with a score of 83.7%

Yet despite substantial improvements in practice over recent years, some of that prompted by CEEQUAL, civil engineering and public works are still too-often perceived by some sectors of society as having a damaging effect on the living environment. There remains substantial and increasing pressure to reduce their adverse environmental impact during construction, to improve whole-life performance and to maximise the benefits of such works. Schemes not built to exacting environmental and social performance standards, or that use environmentally or socially intrusive and damaging construction processes, risk alienating communities and bringing the whole construction process and industry into disrepute.

The CEEQUAL Methodology seeks to address these issues and to improve the sustainability performance of civil engineering, infrastructure, landscaping projects/contracts, and works in public spaces. It does so by providing an incentive to clients, designers and contractors to undertake projects that:

- Are demonstrably contributing to more-sustainable living;
- Are adopting best environmental, economic and social practice;
- Are therefore delivering more-sustainable civil engineering, infrastructure, landscaping and public realm works.

CEEQUAL for Projects

CEEQUAL for Projects has been specifically created for the assessment and ratings of civil engineering, infrastructure, landscaping and public realm projects. The Scheme is available in two editions:

- **CEEQUAL for International Projects**
- **CEEQUAL for UK & Ireland Projects.**

The CEEQUAL Project Assessment process is applicable to all types and scales of civil engineering, infrastructure, landscaping and public realm projects, including the infrastructure associated with building developments, wherever the project is located in the world.

The primary differences between the International and UK & Ireland editions of the Assessment Manual for Projects are the nature and level of detail in the guidance provided, and the need on International Assessments for a weightings exercise to be undertaken in the locality of the project. The local weightings are needed to enable CEEQUAL to re-score the questions based on the local context. For instance, an International Assessment Manual based on local weightings has been produced for Hong Kong. More detail on this requirement is in the International edition of the Assessment Manual for Projects, and instructions on how to do the weightings exercise are made available to Assessors when required.

Award Types

There are six types of Award available, one for the whole project team, four for parts of the team where not all project partners can take part or where individual members of the team would like to have their own role assessed and recognised separately, and one interim award for clients and designers:

- **Whole Team Award** – full CEEQUAL Award applied for jointly by the client, designer and main contractor(s)
 - **Interim Client & Design Award** – available en route to a Whole Team Award.
- **Client & Design Award** – for a joint application by the client and designer
- **Design Award** – for principal designer(s) only
- **Design & Construction Award** – for a joint application by the principal contractor and their designer
- **Construction Award** – for principal contractor(s) only.

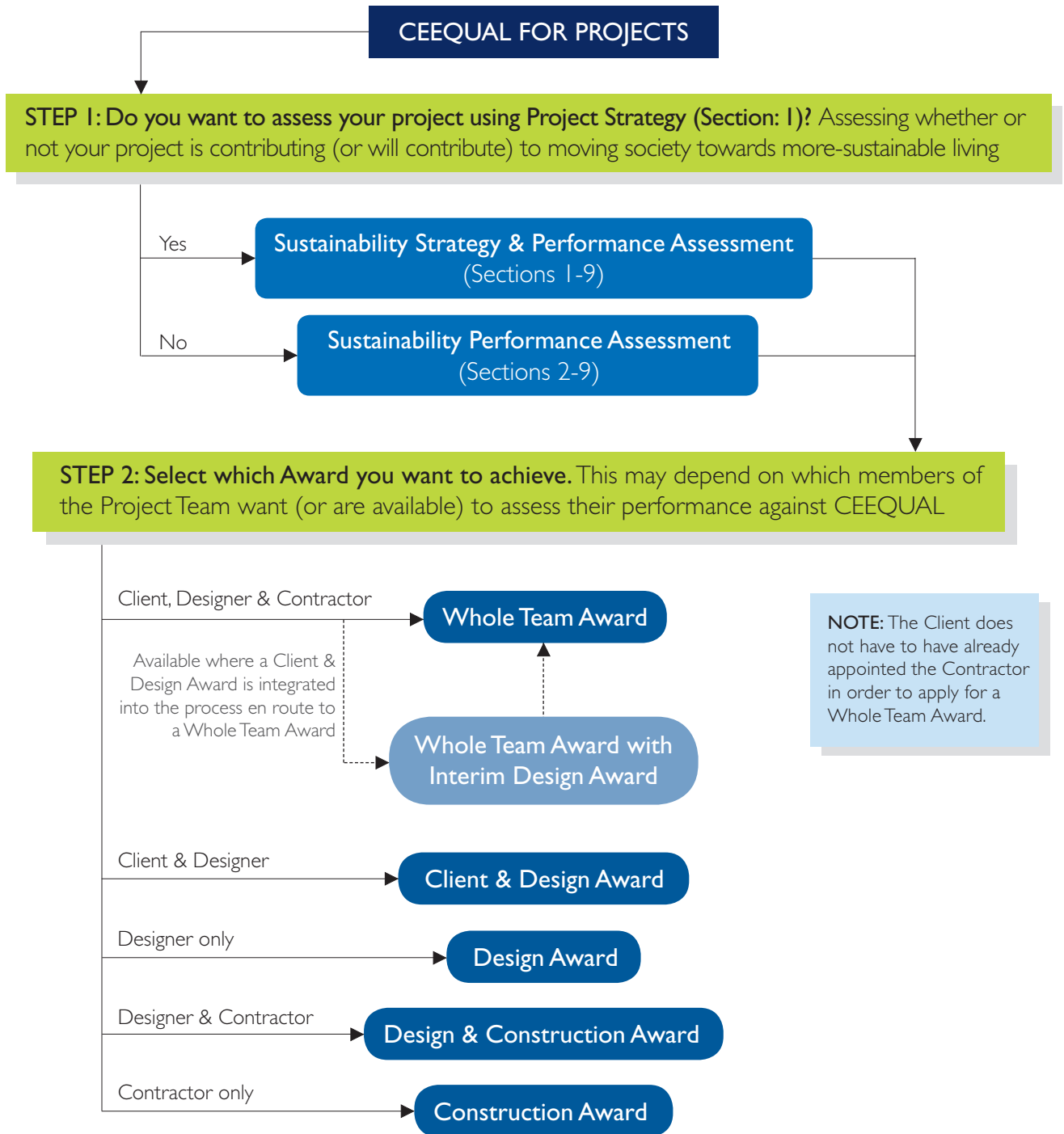
See page 12 to see a case study of a Project Assessment.

Assessment Types

There are now two main types of Projects Assessment depending upon whether a project team's strategic approach to the project is assessed using Section 1:

- **Sustainability Strategy & Performance Assessment** – assesses the project against all sections of the Projects Assessment Manual (Sections 1 to 9);
- **Sustainability Performance Assessment** – assesses the project's team's performance against Sections 2 to 9.

Choosing the right award scheme for your project...



Example projects

Projects suitable for assessment using CEEQUAL include:

- Roads • Dams • Business parks • Canals • Bridges • Coastal defence works • Ports
- Flood alleviation • Reservoirs • Major highways • Park & ride schemes • Pipelines
- Power generation • Wind Farms • Public realm works • Pumping stations • Railway works
- Transmission systems • Wastewater treatment works • River engineering
- Sports stadia and other venues • Transmission systems • Waste transfer & recycling facilities
- Remediation works • Sea locks • Urban regeneration schemes
- Water treatment works • Anaerobic digesters • and more...

CEEQUAL for Term Contracts

CEEQUAL for Term Contracts has been specifically created for the assessment of civil engineering and public realm works that are undertaken through contracts over a number of years and in a geographical or operational area. The benefits are primarily the same as for projects assessed using CEEQUAL but the methodology has been amended to suit the way these contracts are procured, managed and delivered.

With construction works orders for the individual jobs within the contract often running into 1,000s per month, not only is the nature of the work often different from projects, but its procurement and management are also different.

If the work is more like a project, but involves construction of new works that comprise a relatively limited number of focused operations, for example linear projects like electrification of railways, then using the Term Contracts Assessment Manual for Construction of small or repetitive new works may be more appropriate than using CEEQUAL for Projects.

For Term Contracts, there are two types of Award available to recognise the achievement of the whole contract team or just the delivery team, with Verified Assessments in the first and penultimate years of the contract and surveillance visits by the CEEQUAL Verifier at least every year in between and in the final year before contract completion.

Assessment Manuals

CEEQUAL for Term Contracts is presented in two Assessment Manual editions (Maintenance, and Construction of small or repetitive new works). Unlike the Projects Scheme, there are no separate International Editions of the Term Contracts Assessment Manuals at present. However, there is no reason why CEEQUAL for Term Contracts cannot be used outside UK, and CEEQUAL will work with any party interested in using it in such locations and to generate the local weightings needed for local scoring.

Award & Assessment Types

In contrast to CEEQUAL for projects, there are just two types of Assessment and Awards available for the Term Contracts Scheme. These are independent of whether the works are assessed using the Maintenance Assessment Manual, the Construction Assessment Manual or a combination.

- **Whole Team Award & Assessment** – available for use when the client mandates the use of CEEQUAL on a contract. Under this award Section 1: Client Contract Strategy is mandatory and the contract is assessed using Sections 1 to 9.
- **Delivery Award & Assessment** – available for where the contractor(s) and designer(s) making up the contract delivery team wish to use CEEQUAL to assess their performance without the direct instruction or involvement of the Client. With this award, Section 1: Client Contract Strategy is omitted from the assessment and the delivery team assess their performance only against Sections 2 to 9.

See page 13 to see a case study of a Term Contract Assessment.

Choosing the right award scheme for your contract...

CEEQUAL FOR TERM CONTRACTS

Step 1: Is the whole contract team – the client and the delivery team – seeking to have their work assessed together?

Yes – then you will be undertaking a Whole Team Assessment and seeking a match Whole Team Award, assessing the work under the contract using Sections 1 to 9

Whole Team Award & Assessment
(Sections 1-9)

No – then the delivery Team can assess their part in the contract using the Delivery Team Assessment and Award, assessing the work under the contract using Sections 2 to 9

Delivery Award & Assessment
(Sections 2-9)

Step 2: Which Assessment Manuals should you use? The answer to this is governed by the nature of the work to be undertaken and whether it is maintaining an existing asset, creating new or significantly modified assets, and a mix.

Maintenance: For works such as highway repairs and resurfacing in a county or borough over a period of five years, bridge repairs and maintenance and rail track maintenance in a Network Rail operational area. The work may involve a number of different types of work across the operational area at different times, and the precise nature, scope and location of all the works to be undertaken may not be known at the beginning of the contract

Maintenance Manual

Construction: In the example given above of the electrification of railways, this may involve three or four types of work such as bridge raising, track lowering, installation of the gantries and overhead power lines, and the installation of the power supply and distribution facilities. For highways, this could include a workstream of remodelling junctions that is included in what is otherwise a maintenance contract. It may also include significant modification of existing assets that includes new works

Construction Manual

NOTE: For contracts whose scope includes both maintenance and construction works, both Assessment Manuals are used, the assessments are undertaken in parallel within the overall assessment, and the scores aggregated to arrive at an overall score.

Example term contracts

Example contracts include:

- Highway, rail or sewer maintenance
- Regular interventions in rivers or drainage channels to maintain channel capacity
- A series of minor new works such as road junction remodelling, track renewals and minor realignments

Case study: Projects

Blackfriars Bridge and Station Refurbishment

Whole Project with Interim Award – Rating: Excellent (92.4%)

Winner of a CEEQUAL Outstanding Achievement Award 2013 for Energy & Carbon

Client: Network Rail | Design: Jacobs Engineering, Tony Gee & Partners | Construction: Balfour Beatty Civil Engineering

OVERVIEW

As part of the Network Rail £6 billion Thameslink Programme, Blackfriars Station was transformed in order to facilitate increased Thameslink train and passenger capacity (50% longer trains and trebling of frequency, equalling 14,500 extra passengers a day in 2018). At Blackfriars, the 1886 Victorian railway bridge was transformed to create a new landmark and is now the first UK station to span a river – the River Thames. The station with its new entrance on the south bank, the first building constructed in this location for over 120 years, will now also provide passengers with direct access to the area's leading cultural attractions.

CHALLENGES FACED

The improvements made at Blackfriars station will not only provide a better journey experience for passengers but also provide a more sustainable station.

To help the station become more sustainable, over 6,000m² of solar photovoltaic panels were incorporated into the new roof of the historic structure, making it the largest roof array in the UK. The installation was complex, working over a river and next to live overground and underground railways, but with the help of the CEEQUAL process this was overcome. The roof provides 1.058MW of renewable electricity at its peak (up to 50% of the station's energy) powering lighting, ticket machines, staff accommodation and office facilities with any excess electricity being fed back into the National Grid. The energy generated by the cells will reduce carbon dioxide emissions (CO₂) by 550 tonnes a year, equivalent to flying from London Heathrow to Sydney, Australia and back approximately 75 times.



Blackfriars Tube Station

The project took full advantage of its unique location and was able to use barges to remove and deliver materials via the River Thames. Over the course of the project 14,000 tonnes of materials were brought to site and 8,000 removed via barge. Using this method, approximately 2,000 lorries and 9 tonnes of CO₂ were removed from London's roads.

BENEFITS OF CEEQUAL TO THE PROJECT

A key driver for the Blackfriars Station project was to achieve best in class performance in sustainable design and construction and as such the project team sought to achieve standards to far exceed basic requirements by targeting a CEEQUAL 'Excellent' award. In 2012, the Blackfriars Station redevelopment project was awarded Thameslink's highest CEEQUAL Whole Project Award scores to date at 92.4%.

A significant part of the construction power supply was redesigned to reduce the amount energy used during construction and achieve such a high CEEQUAL score. The number of generators from the original design requirement for all tower cranes and site temporary power were able to be reduced from four to three. This small change saved approximately 2.8 tonnes of CO₂ (equating to £1,200 per week in hire costs and reduced fuel movements). To enable construction work to continue on the bridge without the need for multiple generators, a power cable was routed across it. This also reduced fuel movements and associated noise and air quality issues.

Case study: Term Contracts

London South Area Highway Maintenance

Term Contracts Award – Rating: Excellent (78.6%)

Winner of a CEEQUAL Outstanding Achievement Award 2013 for Contract Management

Client: Transport for London | Construction: EnterpriseMouchel [now EM Highway Services Limited]

OVERVIEW

In 2007, EnterpriseMouchel (EM) was tasked with providing maintenance activities and ad-hoc improvements works for the southern Highways and Maintenance Works Contract (HMWC) area of the TfL Road Network (TLRN). Using specific requirements (such as Environmental Service Performance Indicators (SPIs), the formulation of an annual Sustainability Plan and ISO 14001 accreditation) the contract management team established an outstanding framework whereby the environmental impacts and opportunities for environmental enhancements were identified, assessed, managed and monitored. Partnership between client and contractor was a key driver to the contract management's success.

TfL asked EM to take part in piloting CEEQUAL for Term Contract – Assessment. This was good timing as the pilot took place during the last year of the HMWC contract, which meant that not only were TfL and EM able to assess their sustainability credentials, but they were also able assist CEEQUAL in developing the Term Contract Assessment and Award Scheme. Lessons were learnt, which stood TfL in good stead for the new highway and works maintenance contract (LoHAC).



Winter maintenance



Road-side planting

ACHIEVEMENTS

100% of the fleet vehicles met Euro 4 and 5 emission standards (SPI 22); 99.7% of excavated and 96.4% of non-excavated construction and demolition waste was reused or recycled (SPI 24/25); EM provided free expert advice to supply chains used to develop and implement environmental management systems; the Team worked with TfL in the formulation of a climate change adaptation action plan; the Team won on multiple other awards such as Transport Partnership of the Year at the London Transport Awards, and platinum award from the Mayor of London Green500 scheme for reductions in CO₂ emissions.



Emergency response to oil spill



Road resurfacing

Assessment Methodology

The Assessment questions, guidance on how to address them, guidance on scoping-out, and evidence guidance are all provided in the Assessment Manuals to CEEQUAL Methodology (Version 5). The Assessment Manuals for Projects are for use on the assessment of civil engineering, infrastructure and landscaping or public realm projects with a clearly defined project boundary and timescale. The Assessment Manuals for Term Contracts are used to assess of civil engineering maintenance or construction works undertaken under contracts defined by their geographic area and time period.

All Assessment Manuals have the same structure in nine sections (as explained below) and similar question topics, but there are some differences between the questions in the Projects and Term Contracts Manuals, and between the Maintenance and Construction editions of the Term Contracts Manuals, all related to the nature of the work being assessed.

Section I: Project/Contract Strategy

I. Project Strategy (which is optional) assesses how the project team has related their project to the wider sustainability agenda surrounding civil engineering and infrastructure projects, and their contribution to 'sustainable development'. It prompts project teams to ask themselves such questions as 'Is there evidence that the client and designer have actively adopted the principles of sustainable development in the planning and design of the project?' and to undertake studies of the project and its likely impacts to a wider remit than just the interests of the project's promoter. The aim is that the results might then lead to improvements, and to a judgement by the project team on whether their project is assisting the communities it serves to move on the pathway to more-sustainable living.

I. Client Contract Strategy (which is not optional for Whole Team Awards) assesses how the client has related their contract to the wider sustainability agenda surrounding civil engineering and infrastructure assets, and how their maintenance and refurbishment contributes to 'sustainable development'. It prompts clients to ask themselves whether the maintenance strategy for the assets within the contract enables those assets to continue to operate in a way that helps the communities which they serve to live more sustainably. However, it does not assess the judgement of the client in setting the scope and objectives of the contract, for example whether it is seeking to enhance the asset's functionality, merely maintain it at present levels or manage it down prior to closure and replacement.

These Strategy Assessments are subject to adjudication by a CEEQUAL Panel whose members are independent of the team undertaking the works.



Project team receiving their 'Excellent' CEEQUAL rated certificate (score of 94.6%) for Parc Cybi



M60 Junction 5-8 Widening achieved an overall 'Excellent' CEEQUAL rating with a score of 82.4%



Forth Replacement Crossing achieved an overall 'Excellent' CEEQUAL rating with a score of 92.7%

Sections 2-9:

2. Project/Contract Management considers how environmental and sustainability issues are being incorporated into the overall management of the project/contract. It covers a number of issues ranging from environmental management practices and training through to how the procurement processes consider environmental performance. It assesses what is being built and how it is built, so references to sustainability and social issues throughout the Manual refer to the social issues that arise from developing, designing and constructing the project/contract, rather than the broader issues of social acceptability of the project/contract.

3. People and Communities addresses a wide range of positive and adverse impacts on people affected by the project or contract and/or on the wider communities served by or affected by the scheme. It covers minimising operation- and construction-related nuisances, legal requirements, community consultation, community relations programmes and their effectiveness, engagement with relevant local groups, and human environment, aesthetics and employment. A few questions include within the definition of 'communities' the wildlife that may also be neighbours to a project or contract.

4. Land use and Landscape covers issues affecting land above and below water such as design for optimum land-take, legal requirements, flood risk, previous use of the site, land contamination and remediation measures, and applies to conventional land use, and to use of the seabed, and the beds of estuaries, rivers and lakes. This part of an assessment also covers consideration of landscape issues in design, amenity features, local character, loss and compensation or mitigation of landscape features, implementation and management, and completion and aftercare.

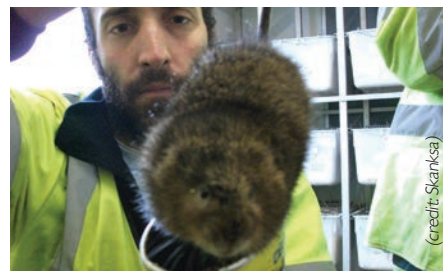
5. The Historic Environment covers baseline studies and surveys, conservation and enhancement measures to be taken if features are found, and information and public access. Recent additions to this section are how to address issues of historic assets under water, such as shipwrecks, old Roman jetties, old sea or river walls.



Trafikplats Jära Gård (Sweden) achieved an overall 'Very Good' CEEQUAL rating



White Cart Flood Prevention Scheme achieved an overall 'Excellent' CEEQUAL rating with a score of 76.5%



Water vole population identified during a protected species survey (M25 DBFO)

6. Ecology and Biodiversity covers impacts on, sites of high ecological value, protected species, surveys conservation & enhancement, habitat creation measures, monitoring and maintenance.

7. Water Environment (fresh & marine) covers control of a project or contract's impacts on, and protection of, the water environment, legal requirements, and enhancement of the water environment wherever practical.

8. Physical Resources Use and Management covers the impacts of using the very wide range of physical resources needed for civil engineering projects or contracts. The questions cover: life-cycle analysis; energy and carbon emissions in use; energy and carbon performance on site; minimising material use and waste; responsible sourcing of materials including selection of timber; using re-used and/or recycled materials; minimising use and impacts of hazardous materials; durability and maintenance; and future de-construction or disassembly; design for waste minimisation; legal requirements; waste from site preparation; minimising water consumption and embodied water; policies and targets for resource efficiency; and on-site waste management.

9. Transport covers location of a project/contract in relation to transport infrastructure, minimising traffic impacts of a project/contract, construction transport, and minimising workforce travel. A new approach in this section is relating the assessment to whether the project/contract is part of the transport network, a destination that places extra demands on transport networks, or other schemes with more-limited impact on transport infrastructure. Questions cover the project/contracts's relationship to transport infrastructure, access for pedestrian and cyclists, need for additional transport infrastructure arising from the project/contract, resilience of the network, and performance for non-motorised users.



*Helping you to improve sustainability
through identifying and applying best practice*

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