BT BREEAM Technical

BREEAM Infrastructure Foundations

An introduction to the fundamentals of BREEAM Infrastructure.

300135 TM rev 2.0 Sep 2022

Summary

WHO CHAMPIONS BREEAM INFRASTRUCTURE

Who uses BREEAM Infrastructure

The key roles in a BREEAM Infrastructure assessment

The Assessor and Verifier

Summary

RECAP QUIZ

Quiz

HOW BREEAM INFRASTRUCTURE WORKS

Assessment structure

Scoring, ratings and weightings

Exemplary performance

Minimum standards and prerequisites

Evidence

Assessment process

Tools and resources

Summary

QUALITY ASSURANCE

- Why QA?
- The QA Process
- Conflicts of interest
- Summary

RECAP QUIZ

- Quiz

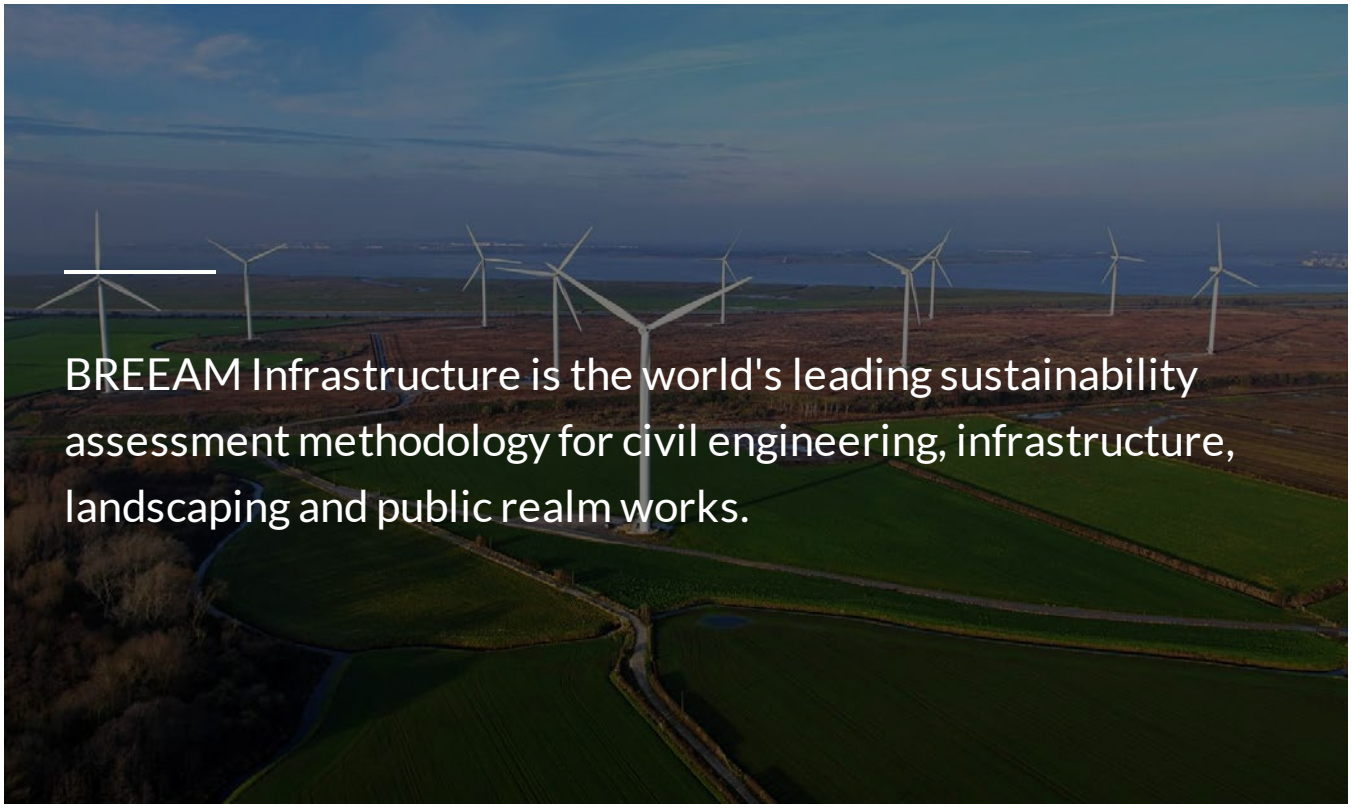
COURSE SUMMARY

- Course summary
- Next steps
- Thank you

Lesson 1 of 29

Introducing BREEAM Infrastructure

BT BREEAM Technical



What is BREEAM Infrastructure?

BREEAM Infrastructure is an evidence-based sustainability assessment and rating methodology. It is used to assess and rate civil engineering, infrastructure, landscaping and public realm projects and term contracts.

Teams from across the world have registered with BREEAM Infrastructure to achieve and demonstrate improved sustainability performance.

Aim

BREEAM Infrastructure's core aim is to improve sustainability performance. This includes objectives to:

- Prioritise sustainability for the industry.
- Continuously improve sustainability performance at every stage of projects and contracts.
- Realise the highest environmental, social and economic potential in all forms of civil engineering, infrastructure, landscaping and public realm works.

What it does

BREEAM Infrastructure helps asset owners - and design and construction teams - to improve sustainability performance. It also provides independent certification of this performance. This demonstrates the value of projects to the wider industry, market and general public.

By encouraging sustainability best practice to be embedded early in a construction project's lifespan, BREEAM Infrastructure helps achieve major cost savings through reduced resource use, wastage, and risk.

BREEAM Infrastructure enables:

- **Public and private sector clients** to deliver sustainable projects and contracts against an industry standard.
- **Designers** to consider sustainability early, maximising the opportunity to integrate this into works.
- **Contractors** to improve performance, by encouraging a systematic approach to project management under the framework of sustainability best practice.
- **All parties** to benchmark performance, increase value and enhance reputation.

How it works

BREEAM Infrastructure uses a set of best practice standards against which projects are assessed. This acts as a framework for projects to identify and action improvements. By offering third-party certification, BREEAM Infrastructure provides assurance of the sustainability performance achieved.

Rated *Excellent*
Expo 2020, Dubai
Dubai, United Arab Emirates

Rated *Outstanding*
Old Colwyn Coastal Defence and Active Travel Scheme
Colwyn Bay, Wales

Rated *Excellent*
British Antarctic Survey - Rothera Wharf
Rothera Point, Adelaide Island
Antarctica

Who is responsible for BREEAM Infrastructure?

BREEAM Infrastructure is operated by **BRE,** a profit-for-purpose organisation. BRE is wholly owned by the BRE Trust, an independent charity dedicated to improving the built environment for the benefit of all.

Since its foundation in 1921, BRE has become a leading building science research organisation with operational centres in the UK, USA, China and Ireland.

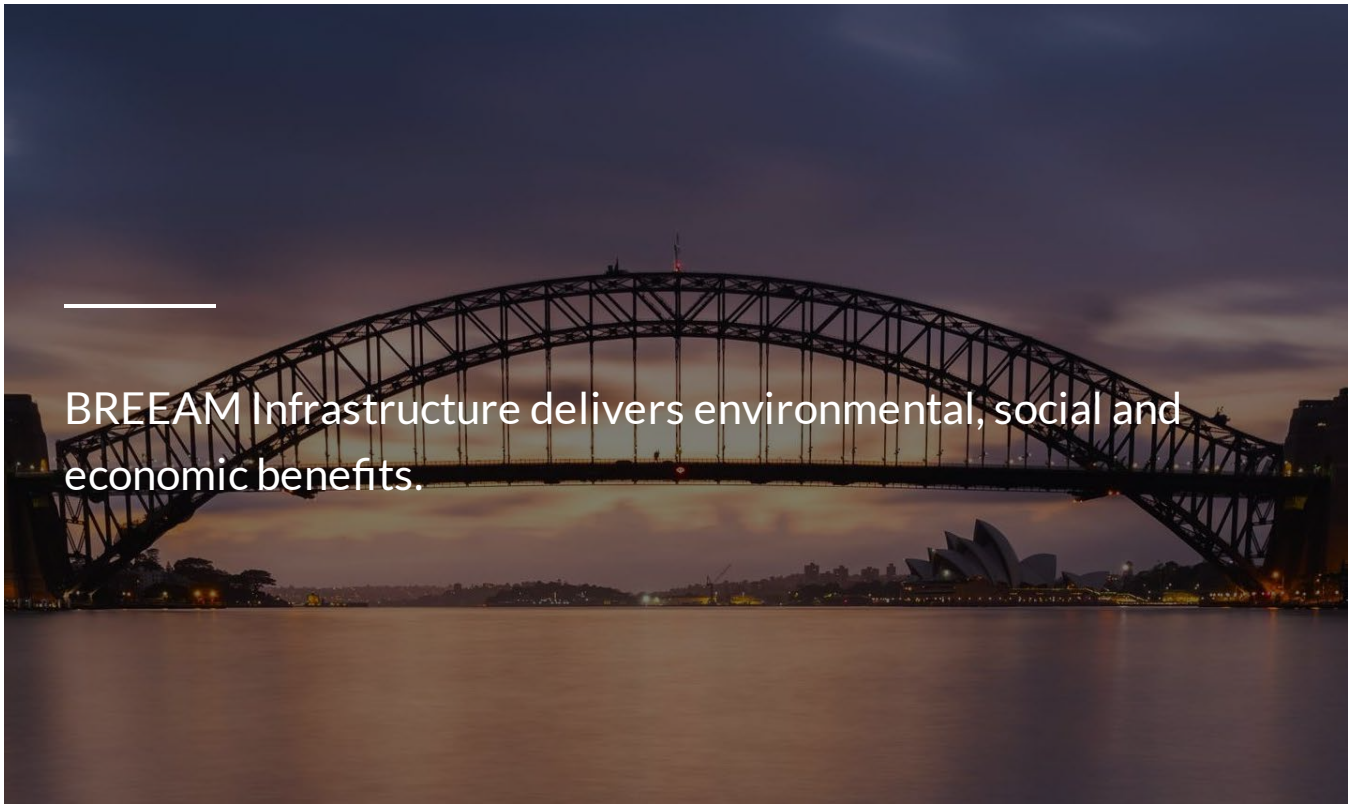
BRE is globally recognised as a world-class centre for innovation. We use our cutting-edge research to develop a range of global products, services, standards, and qualifications to bring about positive change in the built environment.

Our multi-disciplinary teams include leading experts at every stage in the asset and infrastructure life cycle process. Our long heritage of putting progressive thinking into practice means that our customers and partners, wherever they are in the world, trust us to deliver.

CONTINUE

Why BREEAM Infrastructure?

BT BREEAM Technical



We have the right to an adequate standard of living. [1]

Civil engineering has a responsibility to provide this. It produces the environments in which we live - civil engineers

create the structures and infrastructure that give shape to our societies.

This should not be to the detriment of the earth.

Yet, the construction sector emits 39% of global CO_2 emissions[2] and consumes 39% of our resources[3]. 66% of civil engineers do not feel that climate change is given sufficient thought in infrastructure projects[4].

1 Article 25 of the UN Universal Declaration of Human Rights. Link

2 UN Global Status Report for Buildings and Construction Sector (2019). Link

3 Circularity Gap report (2020). Link

4 What makes good design? A review of UK civil engineers' experiences of design, based on the NIC's design principles for national infrastructure, in collaboration with the NIC Design Group (2021). Link

Origins

BREEAM Infrastructure began life as "CEEQUAL", developed at the Institution of Civil Engineers (ICE) in the UK. It was born out of the desire to improve the environmental quality of civil engineering.

The thinking centred around two questions:

1. Is the environmental and social performance of all civil engineering as effective as it could be?

2. Can we tell how good the environmental and social performance of infrastructure is by simply looking at it?

The answer to both these questions was, resoundingly, no. It was decided that there was therefore value in having a civil engineering equivalent to BREEAM, to deliver improved specification, design and construction of works. Accordingly, CEEQUAL was developed and in 2003 it was publicly launched with Version 2 of the methodology.

Since then, the scheme has been progressively updated to broaden and deepen the scope of assessments.

CEEQUAL was acquired by the BRE Group in November 2015, enabling it to operate alongside BREEAM as part of the BREEAM family of schemes. This family brings together the world's leading sustainability assessment methods for buildings, masterplanning and infrastructure. In 2022, CEEQUAL became "BREEAM Infrastructure" consolidating its integration with BREEAM.

What does BREEAM Infrastructure do differently?

We've established that BREEAM Infrastructure aims to improve sustainable performance across civil engineering, infrastructure, landscaping and public realm works. But what do projects and contracts that use BREEAM Infrastructure do differently?

Put simply, BREEAM Infrastructure sets science-based requirements across a range of sustainability topics. Project and contract teams that use BREEAM Infrastructure must meet these requirements in order to achieve a rating. The more requirements they meet, the better the rating they attain.

Example: a requirement in BREEAM Infrastructure is that projects are not located any land or seabed of high ecological value.

The structure of these requirements and the way they work is fully explained later. However, it is worth noting here that it is this mechanism that ensures that sustainability is integrated into works in a holistic way, in line with the latest science. It also ensures that teams are consistently considering sustainability, as they must determine how to achieve their targeted rating.

Rated *Excellent*
Lahti Southern Ring Road, VALTARI alliance, 2021
Lahti, Finland

Rated *Good*
Doha South Sewage Infrastructure Project – Main Trunk Sewer, 2019
Doha, Qatar

Rated *Excellent*
Viking Link (Bicker Fen) Access Road, 2021
Lincolnshire, England

Value of BREEAM Infrastructure

Since it's inception, BREEAM Infrastructure has been used by clients to drive value across the asset life cycle.

BREEAM Infrastructure delivers value in:

STRATEGY & DESIGN | CONSTRUCTION & DELIVERY | OWNERSHIP & MANAGEMENT | ASSET USAGE & COMMUNITY

BREEAM Infrastructure benefits strategy and design by:

- Integrating sustainability into the strategy from the outset. This increases the scope for positive change and reduces the costs of doing so.
- Promoting active identification of sustainability improvements by ensuring BREEAM Infrastructure criteria are considered throughout design or contract management.
- Rewarding innovation, encouraging novel solutions that benefit the whole industry.

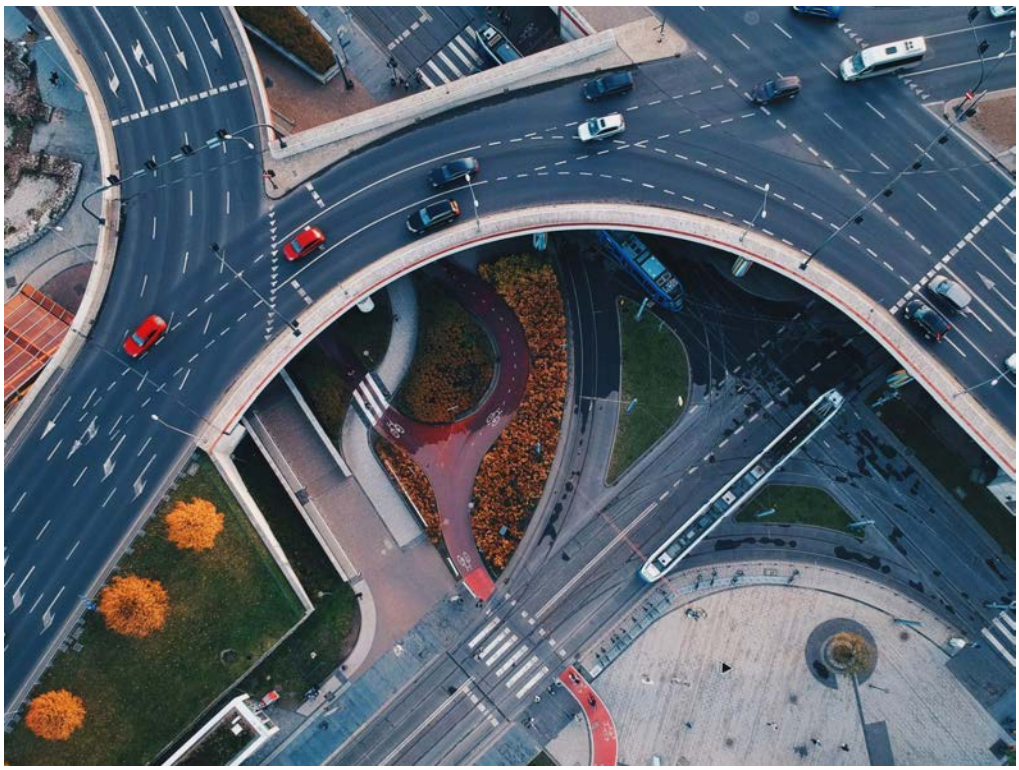
STRATEGY & DESIGN | CONSTRUCTION & DELIVERY | OWNERSHIP & MANAGEMENT | ASSET USAGE & COMMUNITY

BREEAM Infrastructure benefits construction and delivery by:

- Providing a framework to evaluate sustainability during construction and delivery, driving improvements.
- Reducing consumption and emissions across the construction process.
- Minimising negative ecological and environmental impacts.
- Incorporating circular economy principles, such as efficient material usage and minimisation of waste.
- Reducing costs through sustainable construction practices such as reduced resource consumption.
- Improving project management, by providing a systematic approach to tracking management activities within the framework of best sustainability practice.

BREEAM Infrastructure benefits ownership and management by:

- Helping projects achieve and verify their environmental, social and governance (ESG) targets and other sustainability commitments.
- Demonstrating sustainability performance to help assets access green finance and bonds.
- Building reputation.
- Achieving long-term cost savings by encouraging operational efficiency and mitigating against future risks.



BREEAM Infrastructure benefits asset users and local communities by:

- Considering the social impacts assets have on users, occupiers and local communities.

- Considering the health and wellbeing of future users and neighbours.
- Promoting inclusive and accessible assets, that incorporate local communities' input.
- Enhancing ecological value in the local environment for the mutual benefit of all.

In sum, BREEAM Infrastructure is used to:

Save money

Achieve and verify environmental, social and governance (ESG) targets

Improve reputation

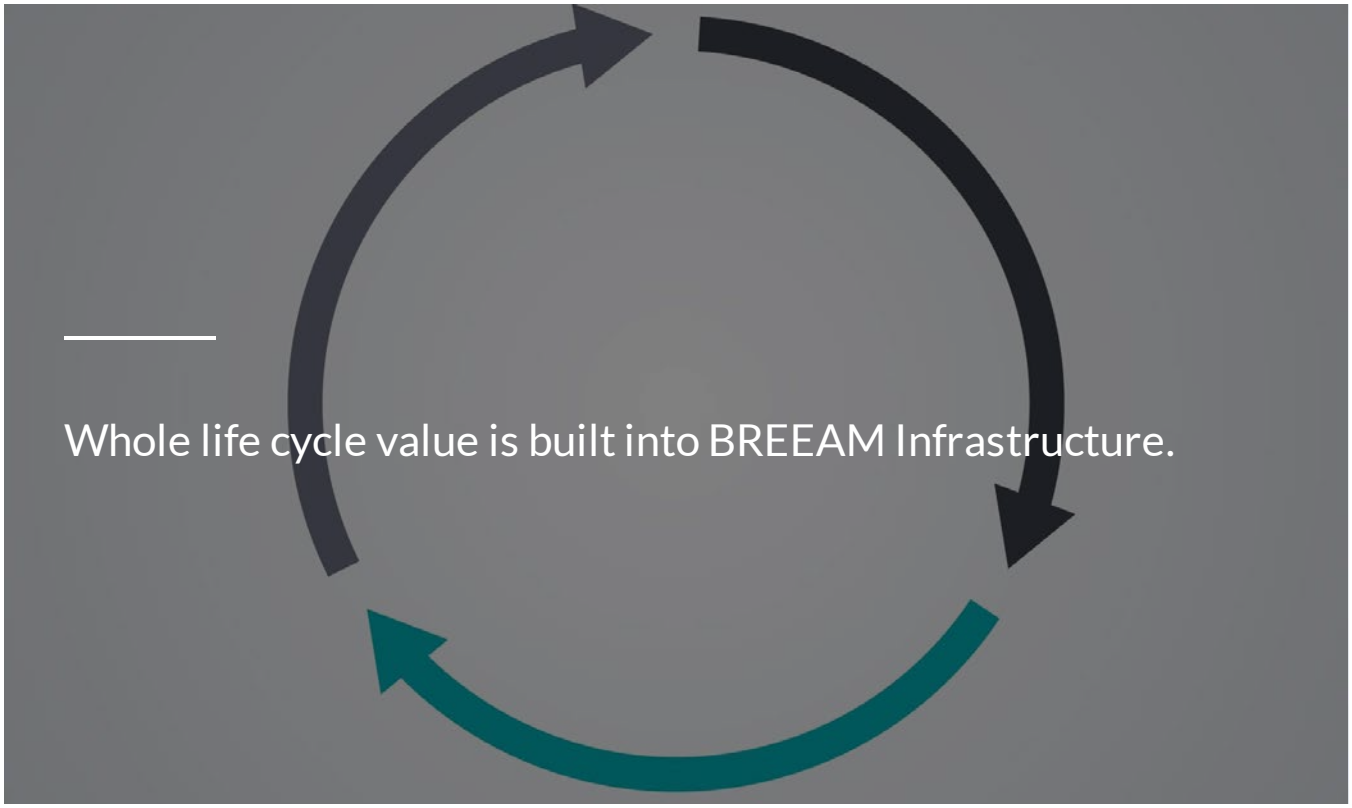
Drive sustainability

Improve project performance

CONTINUE

Whole life value

BT BREEAM Technical

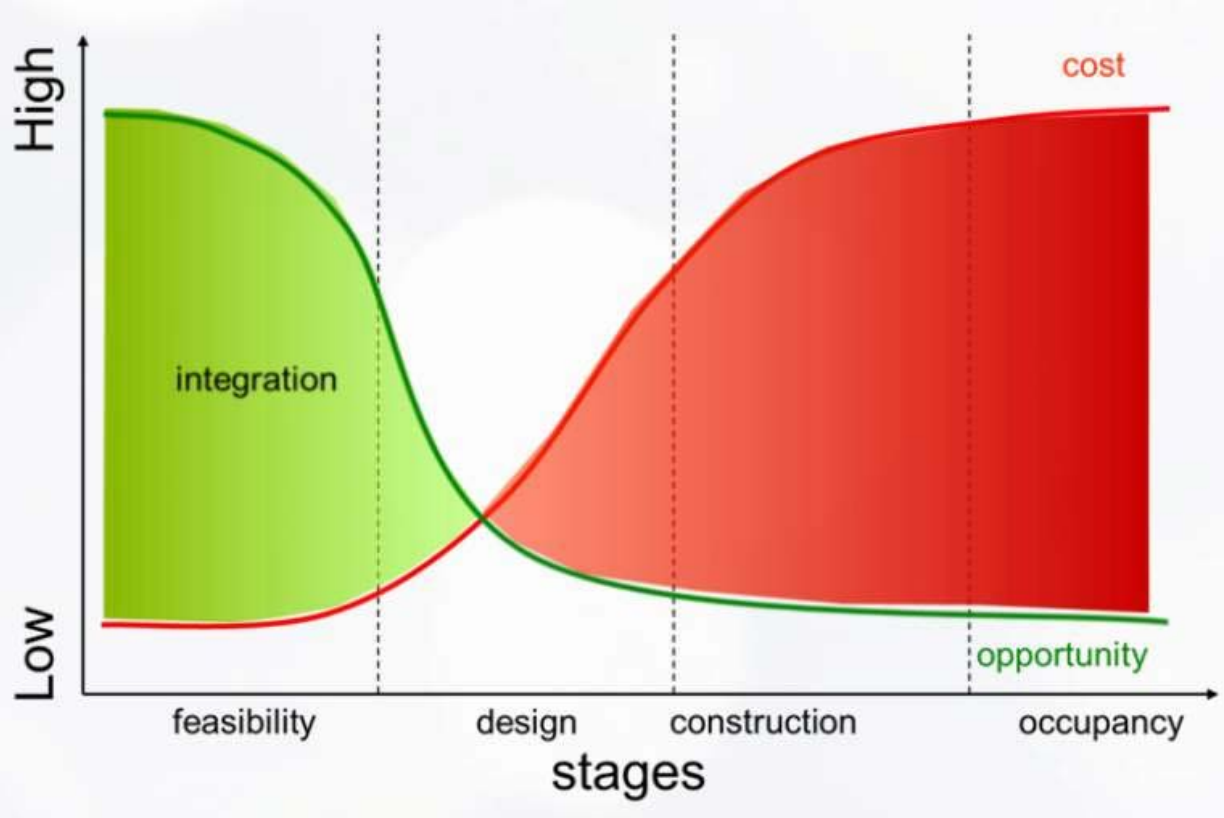


Sustainability doesn't need to be expensive

BREEAM Infrastructure encourages early engagement. Engaging with the scheme early helps realise the best sustainability outcomes as opportunities to be sustainable are highest during the earlier stages. This is because sustainability can be properly integrated into the project or contract.

Early engagement also reduces costs. This is because choices made at early stages impact later stages. If sustainability is not engaged with early, greater costs will be incurred down the line through re-work and constraints that need to be worked around. During construction or delivery of contracts, changes can involve replacing materials, and people relocation. This creates extra delays, which means more cost.

At later stages, only isolated sustainability improvements are possible. This makes higher ratings harder to achieve.



Setting the right goals

BREEAM Infrastructure recognises high levels of performance in terms of a holistic approach to sustainability.

Rather than singularly focusing on achieving the lowest capital costs in the short term, it encourages solutions that realise long-term sustainability benefits.

By building in the principles of whole life costing and impacts, BREEAM Infrastructure promotes whole life value, accounting for future operation, maintenance, durability and risk. This helps clients achieve efficiencies and savings over the full life cycle.

Whilst BREEAM Infrastructure provides a framework to achieve this, project and contract teams must work together to ensure that positive outcomes are realised.

The importance of teamwork

BREEAM Infrastructure promotes teamwork, with all parties united by the collective goal of sustainability best practice.

This is critical to achieving a positive outcome. The whole team should be committed to sustainability and achieving the BREEAM Infrastructure criteria.

To do this, it is important for the project team to understand the holistic, whole life approach to sustainability. If some parties have a different definition of value, this may lead to design choices that are detrimental to sustainability outcomes.

BREEAM Infrastructure is most effective when all parties understand:

- Their responsibilities and accountabilities for sustainability performance.
- Who to collaborate with and when.
- The project definition of value.
- The risks associated with their actions.

CONTINUE

Why certify with BREEAM Infrastructure?

BT BREEAM Technical

There are three types of certification, with different levels of assurance.

1st party

Also known as “Self-Certification”

This is when the certifier and receiver of the certificate are the same organisation. For example:

Company A claims they have met the requirements of Standard X.

Self-certification provides the lowest level of assurance, because the certifier may have a vested interest in achieving the certification, and there is no other party to verify this performance.

2nd party

This type of certification is conducted in the presence of peers, such as an industry trade, body, or membership organisation.

Company A claims they have met the requirements of Standard X.

Associated Organisation B is engaged to check that Company A has met the requirements and issue the certificate.

2nd party certification is more robust. There is an external certifier (B) which verifies the performance claims of the company (A), and so there is a lower risk of bias in the certification. However associated organisation B isn't entirely independent (for example, they could be a membership organisation).

3rd party

In this scenario, a new impartial third party (C) has been introduced with no links to the original company A.

Company A claims they have met the requirements of Standard X.

Company A engages Assessor B to independently check this.

Assessor B carries out the check, but needs the authority of Certifier C to issue the certificate. They send this evidence to Certifier C for additional checks and the final certification decision.

Certifier C only issues the certificate when they have checked that the work of Assessor B, and the information submitted from A meets all required standards.

Certifier C is independent of company A and will typically be accredited to show their ability to provide certification services. Certifying bodies are completely independent and impartial organisations. The issue of potential bias present in 1st and 2nd party certification is therefore removed.

BREEAM Infrastructure offers **third party certification** through our certification body **BRE Global.**

What makes BRE Global independent and impartial?

Accreditation is the process by which organisations (such as BRE) are recognised as being competent to provide assurance services.

Accreditation is performed by **accreditation bodies**. The UK's national accreditation body is **UKAS** (United Kingdom Accreditation Service).

UKAS assesses organisations that provide certification, testing, inspection, and calibration services against internationally agreed standards.

- Accreditation provides confidence in the quality and independence of certification activities performed by BRE Global, including in the operation of schemes like BREEAM Infrastructure.
- It ensures that a proven competent certification body is an informed choice.
- It distinguishes those who are independently audited and those that are not.

BRE Global is regularly and independently audited to ensure we meet ISO 17065, an international standard for certifying products, processes, and services.

We are audited to ensure that:

- Assessment results are comparable with each other.
  BREEAM Infrastructure assessments are completed in a way that allows like-for-like comparison.
- The assessments cover a clearly defined scope and measurable criteria.
  The requirements of BREEAM Infrastructure are clear, and the results are measurable.
- Assessments are impartial.
  Any conflicts of interest in the assessment process are minimised.
- Our staff are competent.
  Our staff are highly trained to maintain the value of the certification.

What does BREEAM Infrastructure certify?

BREEAM Infrastructure certifies an assessment of an asset's sustainability performance. A BREEAM Infrastructure assessment provides assurance about the performance against our standards.

BREEAM Infrastructure is able to certify performance across two schemes:

- BREEAM Infrastructure for Projects assesses the construction of new assets.
- BREEAM Infrastructure for Term Contracts assesses the maintenance of infrastructure and works that are undertaken through contracts in a geographical or operational area over a number of years.

BREEAM®

TECHNICAL MANUAL - SD6051

BREEAM Infrastructure: Projects

UK & Ireland | Version 6

BREEAM.COM

The BREEAM Infrastructure for Projects Version 6 manual.

What role do BREEAM Infrastructure Assessor and Verifiers play?

Every BREEAM Infrastructure project has an **Assessor** and a **Verifier.** They play an important role in the certification process and help maintain BREEAM Infrastructure's standards and reliability.

- **Assessors** take the lead in carrying out the BREEAM Infrastructure assessment and collate the evidence necessary to support it.
- **Verifiers** are independent of the project or contract team. They review and verify the evidence to ensure that an accurate rating has been reached.

CONTINUE

Summary

BT BREEAM Technical

- BREEAM Infrastructure exists to improve the environmental and social impact of civil engineering, infrastructure, landscaping and public realms works.
- BREEAM Infrastructure considers whole-life costing and environmental impacts, maximising value across the asset's life. Projects and contracts that engage with BREEAM Infrastructure early gain the most benefit.
- BREEAM Infrastructure provides third-party certification of an assessment of asset performance. This provides the highest level of assurance.

CONTINUE

What BREEAM Infrastructure covers

BT BREEAM Technical

Asset types

BREEAM Infrastructure is used across all types of civil engineering, infrastructure, landscaping and public realm works. This includes projects in the transport, water, power, waste and communication sectors, as well as the infrastructure between occupied buildings. Therefore, BREEAM Infrastructure might assess:

- Roads.

- Railways.
- Bridges.
- Ports.
- Wind farms.
- Flood alleviation schemes.
- Wastewater treatment plants...
- ...and much more.

Rated *Very Good*
RAF Lossiemouth - AOS Project
Lossiemouth, Scotland

Rated *Excellent*
Blue line to Barkarby Access tunnel
Robothöjden-Landningsbanan
Stocholm, Sweden

Rated *Excellent*
Rv3/Rv25 new highway between
Loten-Elverum
Norway

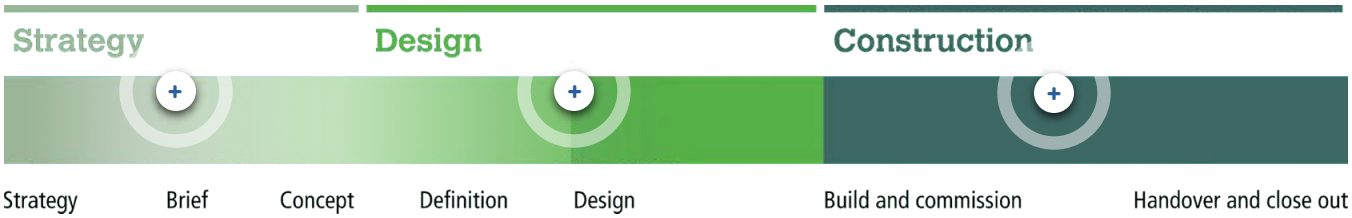
Work types

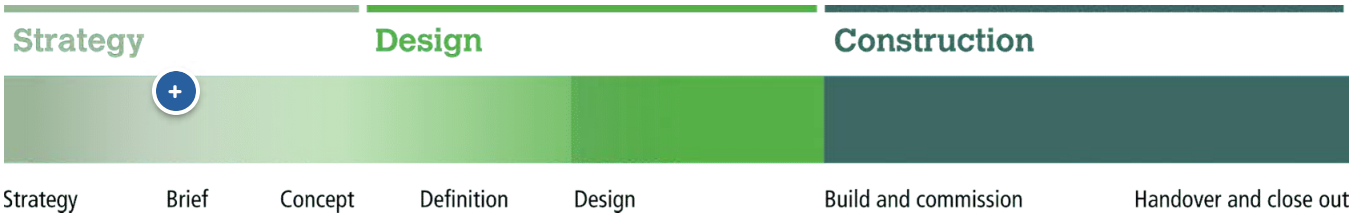
BREEAM Infrastructure has two different schemes which can be used depending on the type of work being done. These schemes are called **BREEAM Infrastructure Projects** and **BREEAM Infrastructure Term Contracts.**

BREEAM Infrastructure Projects

BREEAM Infrastructure Projects assesses the construction of **new assets** or **refurbishment of existing assets.**

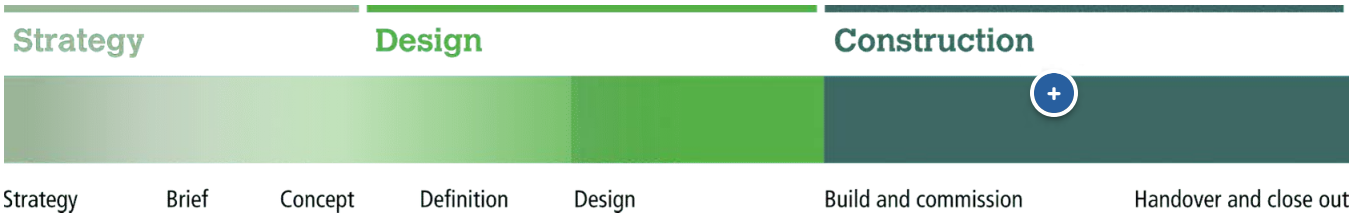
BREEAM Infrastructure can be used at the **Strategy**, **Design** and **Construction** stages of a project. This is represented in the image below:





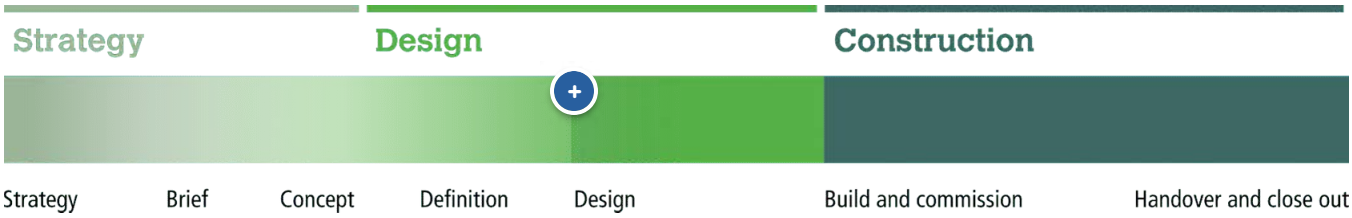
Strategy

The Strategy stage in BREEAM Infrastructure Projects includes *Strategy*, *Brief* and *Concept* stages from the UK BIM Task Group Digital Plan of Work.



Construction

The Construction stage in BREEAM Infrastructure Projects includes *Building and commission* and *Handover and close out* stages from the UK BIM Task Group Digital Plan of Work.



Design

The Design stage in BREEAM Infrastructure Projects includes *Definition and Design* stages from the UK BIM Task Group Digital Plan of Work.

There are five **assessment types** within BREEAM Infrastructure Projects. These cover the above project stages in different combinations:

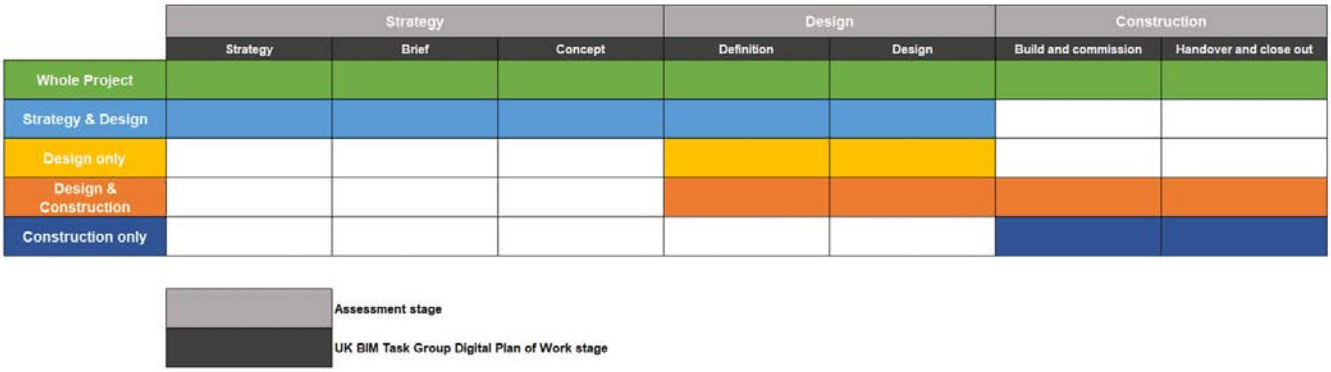
- **Whole Project:** includes *Strategy*, *Design* and *Construction* stages.
- **Strategy & Design:** includes *Strategy* and *Design* stages.
- **Design only:** includes *Design* stage only.
- **Design & Construction:** includes *Design* and *Construction* stages.
- **Construction only:** includes *Construction* stages only.

Whole Project with Interim

On Whole Project assessments, there is also the option to complete an Interim Design stage assessment. This provides a verified assessment during the design stage of a Whole Project assessment. This can be completed at any point of the design stage and recognises the client and designer's contribution to the project at this early stage. This **Whole Project with Interim** assessment is used often among larger assessments.

Once the Whole Project assessment is completed, the Interim assessment is superseded.

This diagram summarises how the BREEAM Infrastructure Project assessment types cover different project stages.



Complex projects

On larger, more complex projects, it might be impractical to assess the works as a single project. Here, multi-package assessments can be used. This means there will be separate BREEAM Infrastructure assessments of individual packages of works. The individual scores will then be aggregated to give an overall Whole Project assessment.

BRE Global can provide guidance on the type of assessment that is most appropriate to a given project.

BREEAM Infrastructure Term Contracts

BREEAM Infrastructure Term Contracts assesses the **maintenance of assets** or the construction of **small, repetitive works** that cover a geographical or operational area over a number of years.

This might include:

- Highway, rail and sewer maintenance.
- Regular interventions in rivers or drainage channels.
- A series of minor construction activities such as road junction remodelling undertaken using multi-year contracts.

BREEAM Infrastructure Term Contracts does not assess major new construction or refurbishment works. These are assessed using BREEAM Infrastructure Projects.

BREEAM Infrastructure Term Contracts assesses the following stages:

- **Strategy.**
- **Delivery** (consists of...)
    - Contract management
    - Activity delivery

Unlike in Projects, there is only one assessment type in a Term Contracts assessment:

- **Whole Contract:** includes *Strategy* and *Delivery* stages, covering all aspects of the contract.

Rated *Excellent*
Thameslink Programme – London Bridge Railway Systems: Track, Signalling & Civils
London, England

What BREEAM Infrastructure does not cover

OCCUPIED BUILDINGS | PRODUCTS

BREEAM Infrastructure should not be used to assess occupied buildings. For assets that are an occupied structure, treated and required to undertake energy modelling, an appropriate BREEAM building-level scheme should be used.

However, buildings deemed to be an ancillary part of an infrastructure project, such as stand-alone structures which are part of a wider infrastructure space and small areas of treated space located in larger buildings, can be included within the BREEAM Infrastructure assessment. For example:

- *A waiting room on a station platform.*
- *Structures covering industrial or process plants.*
- *Changing rooms at a recreation ground.*
- *A small train station.*

OCCUPIED BUILDINGS | PRODUCTS

Products are things that are manufactured and used to build assets. This could include construction materials such as steel, bricks, timber, and concrete.

BREEAM Infrastructure is an **asset level** certification scheme. As such, there are no 'BREEAM Infrastructure certified' products.

BREEAM Infrastructure assesses the holistic sustainability performance of assets. Products will contribute to that overall performance, however BREEAM Infrastructure credits are not awarded for using any specific products.

This places the emphasis on the positive outcome, rather than what (or who) is used to achieve that outcome.

Test your knowledge

The cards below contain a variety of different work types. Click and drag them to indicate whether or not they could be assessed using BREEAM Infrastructure.

Assessed by BREEAM Infrastructure

The maintenance and repair

The maintenance of a railway

of an existing highway

The maintenance of a railway

The extension of a city metro line

Not assessed by BREEAM Infrastructure

Repair work to an office building

The construction of a new hotel

The operational performance of an airport

An innovative new type of sustainable timber

CONTINUE

Around the world

BT BREEAM Technical

Both BREEAM Infrastructure schemes can be used across the world. Since its formation, BREEAM Infrastructure has been used for assessments in the UK, Sweden, Norway, Finland, Hong Kong, Malaysia, Qatar, the UAE, the Falkland Islands and Antarctica.

To distinguish between the UK & Ireland and international markets, the two schemes are each divided into two editions:

BREEAM Infrastructure edition	Countries covered
BREEAM Infrastructure Projects - UK & Ireland	UK & Ireland
BREEAM Infrastructure Projects - International	All except UK & Ireland
BREEAM Infrastructure Term Contracts - UK & Ireland	UK & Ireland
BREEAM Infrastructure Term Contracts - International	All except UK & Ireland

The UK & Ireland editions of BREEAM Infrastructure are designed to assess projects in the UK and Ireland market.

The International editions of BREEAM Infrastructure contain the same set of questions as the UK & Ireland editions but provide generic guidance, where possible, to anywhere outside of the UK and Ireland.

Rated *Good*
Doha South Sewage Infrastructure Project – Main Trunk Sewer
Doha, Qatar

Rated *Excellent*
Stockholm Extended Metro – Arenastaden
Stockholm, Sweden

CONTINUE

Summary

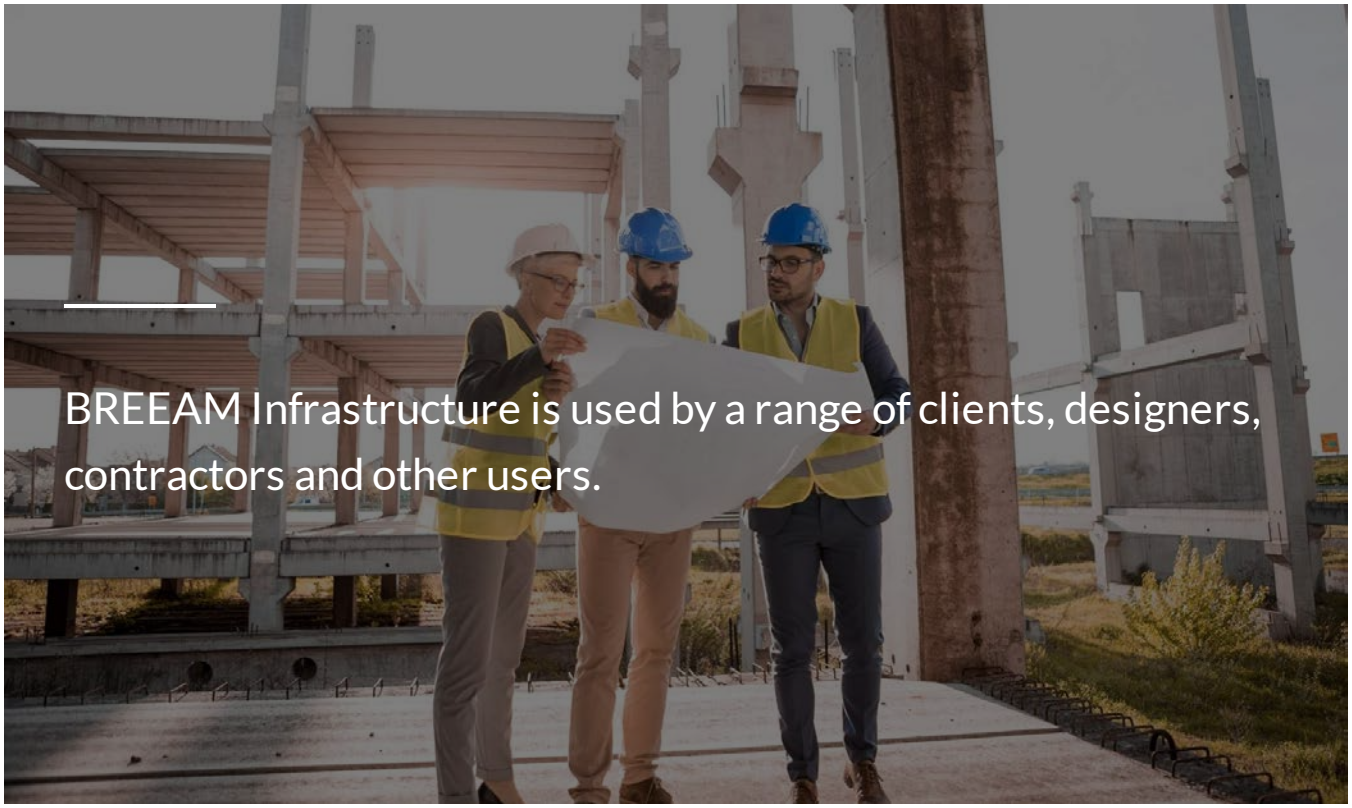
BT BREEAM Technical

- BREEAM Infrastructure can assess all types of civil engineering, infrastructure, landscaping and public realm works.
- BREEAM Infrastructure Projects covers the construction of new assets and the refurbishment of existing assets, whilst BREEAM Infrastructure Term Contracts covers the maintenance of assets and construction of small, repetitive works.
- BREEAM Infrastructure does not certify occupied buildings or specific products.
- Both BREEAM Infrastructure schemes have international editions and can be used to assess sustainability globally.

CONTINUE

Who uses BREEAM Infrastructure

BT BREEAM Technical



BREEAM Infrastructure is directly relevant to clients, designers and contractors. It is also relevant to regulators and funders with an interest in how projects and contracts are being carried out.

CLIENTS	DESIGNERS	CONTRACTORS	OTHER

This might include:

- **Public sector clients** such as government departments and agencies, as well as local and regional authorities.
- **Private sector clients** such as utilities companies, transport and logistics operators, and developers.

Clients use BREEAM Infrastructure to demonstrate that they have achieved sustainability goals and fulfilled their Environmental Social Governance (ESG) commitments. BREEAM Infrastructure allows them to benchmark their performance against an industry standard, providing reputational benefits. BREEAM Infrastructure also helps them achieve long-term cost savings through sustainable practices.

Case study:
Rated *Excellent*
London Power Tunnels, 2018
London, England
Client: National Grid

This might include:

- Civil engineering designers.
- Architects for developments that include significant associated infrastructure.
- Landscape designers.
- Utilities designers.
- Electrical and mechanical engineering designers involved in infrastructure projects.

For designers, BREEAM Infrastructure helps ensure that design considerations take sustainability outcomes into account from the project outset. It also provides a framework for identifying and implementing areas where sustainability can be enhanced.

Case study:
Rated *Excellent*
Crossrail: Thames Tunnel, 2015
London, England
Designers: Arup/Capita Symonds

CLIENTS | DESIGNERS | CONTRACTORS | OTHER

This might include:

- Civil engineering contractors.
- Landscaping contractors.
- Utilities contractors.
- Electrical and mechanical engineering contractors involved in infrastructure projects.

BREEAM Infrastructure helps contractors reduce cost. It does this by encouraging cost-saving sustainability considerations, such as reduced resource use and alternative material choices. BREEAM Infrastructure also improves project or contract management and teamwork. This is because BREEAM Infrastructure provides a systematic approach to management within the framework of sustainability best practice.

Case study:
Rated *Excellent*
Athea Wind Farm, 2016
Athea, County Limerick, Ireland
Contractor: Roadbridge

CLIENTS | DESIGNERS | CONTRACTORS | OTHER

Other parties may have an interest in using or promoting BREEAM Infrastructure. This might include:

- Funders.
- Regulators.

BREEAM Infrastructure can provide such parties with reassurance that a project or contract is being carried out to high environmental and social standards.

CONTINUE

The key roles in a BREEAM Infrastructure assessment

BT BREEAM Technical

Each of the stakeholders in the BREEAM Infrastructure assessment process has a role to play in enabling successful applications and assessments. They each perform a different but complementary function.

The Applicant

The assessment **Applicant** is responsible for applying for certification by registering their project or contract with BREEAM Infrastructure. They are also responsible for ensuring that fees are paid to BRE Global.

The Applicant can be from any of the parties involved in a project or contract, including the appointed Assessor.

The Assessor and Verifier

Every assessment includes a qualified BREEAM Infrastructure **Assessor** as part of the project or contract team.

The Assessor is responsible for driving the assessment forward. They perform the self-assessment of the project or contract. It is therefore their responsibility to ensure that necessary meetings are arranged and evidence is collected, to ensure that the assessment runs smoothly.

Over the course of the assessment, they will work closely with the **Verifier** who has been assigned to the project or contract.

The Verifier provides support and guidance to the Assessor, helping to ensure the assessment process is carried out successfully. They are also the first contact for any technical queries that

arise. The Verifier is independent of the assessment and the project or contract team. It is their responsibility to impartially review and verify the self-assessment carried out by the Assessor.

The Assessor and Verifier roles will be explored in more depth in the next lesson.

BRE Global

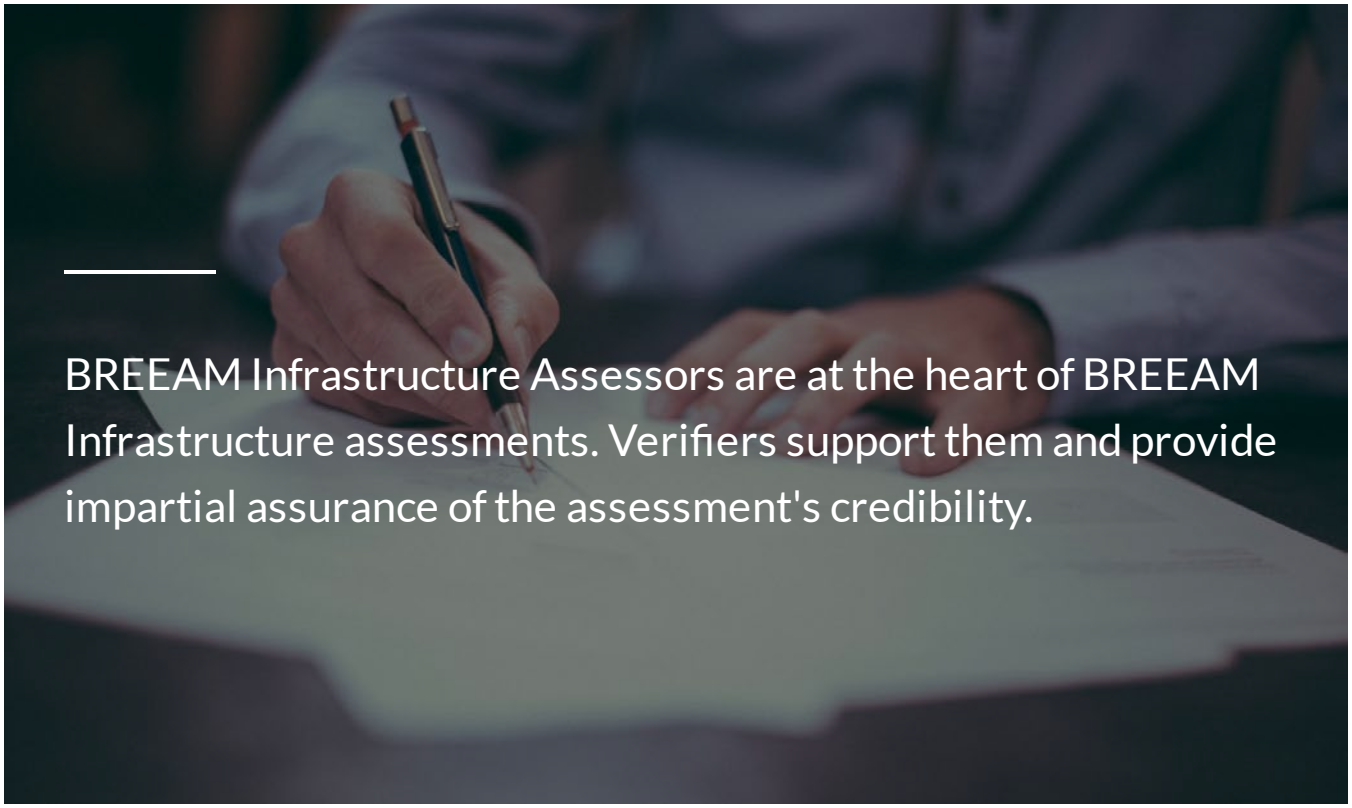
BRE Global are the scheme operators for BREEAM Infrastructure. Our role is to ensure that BREEAM Infrastructure is developed in line with the latest science, and that all technical and operational manuals, documents and tools are updated accordingly. We also provide training to make sure that there are competent professionals who are able to support successful BREEAM Infrastructure assessments.

During a BREEAM Infrastructure assessment, it is our responsibility to respond to technical queries from Verifiers and ratify assessments submitted to us in a timely manner. We also issue certification to assessments that have passed the ratification process.

CONTINUE

The Assessor and Verifier

BT BREEAM Technical



BREEAM Infrastructure Assessors

BREEAM Infrastructure Assessors qualify by successfully completing the BREEAM Infrastructure Assessor training course.

They are part of the project or contract team and usually work for an organisation involved in the assessment. They may be an existing Assessor prior to the assessment. They may also

qualify as one for the assessment at hand, which is useful as it builds in-house expertise. Alternatively, Assessors can be sub-contracted into the team.

Learn more about BREEAM Infrastructure Assessors by clicking on the tabs below:

THE ROLE | COMPETENCIES | QUALIFICATION | MAINTAINING ASSESSOR STATUS

BREEAM Infrastructure Assessors have the most influential role in an assessment. They coordinate the assessment process and drive it forward, collecting the necessary evidence with the support of the project team. They award appropriate credits based on the evidence and upload this evidence so the Verifier can verify the credits awarded.

Assessors will work closely with the Verifier. Once the Assessor has determined the assessment scope (identifying which assessment criteria are relevant to the assessment), the Verifier reviews and approves this. They also work together to identify whether any further evidence is required to support the assessment.

As part of the project or contract team, the Assessor works closely with other team members. They provide advice on interpreting BREEAM Infrastructure's criteria and the suitability of potential solutions. They also encourage the team to consider sustainability at appropriate times.

- Use their BREEAM Infrastructure knowledge to help teams complete the assessment and consider sustainability at appropriate times.
- Complete the assessment fairly, accurately and efficiently.
- Engage with the Verifier to carry out scope out and verification.
- Gather and collate a complete and auditable trail of evidence that enables the Verifier to carry out an informed review.
- Respond to any Verifier queries and help to resolve these.
- Uphold BREEAM Infrastructure's credibility by complying with the Code of Conduct for BREEAM Infrastructure Assessors.

Assessors must complete a formal qualification in the relevant scheme with the BRE Academy.

Once qualified, Assessors can complete assessments for the scheme in which they are trained.

For example, a qualified BREEAM Infrastructure for Projects Assessor can complete BREEAM Infrastructure for Projects assessments, but not BREEAM Infrastructure for Term Contracts assessments.

For Assessors qualified in older versions of the scheme, top-up training must be completed to assess projects under more recent versions of the scheme.

For example, an Assessor qualified under BREEAM Infrastructure for Projects Version 5 must complete top-up training to assess projects that use BREEAM Infrastructure Version 6.

Assessors must maintain their competence by completing the assessor training course or competency based training for the scheme as needed. This is usually when a scheme is updated.

Assessors must also keep abreast of changes to the scheme via technical and operations manuals, and supporting documentation, such as process notes and guidance notes.

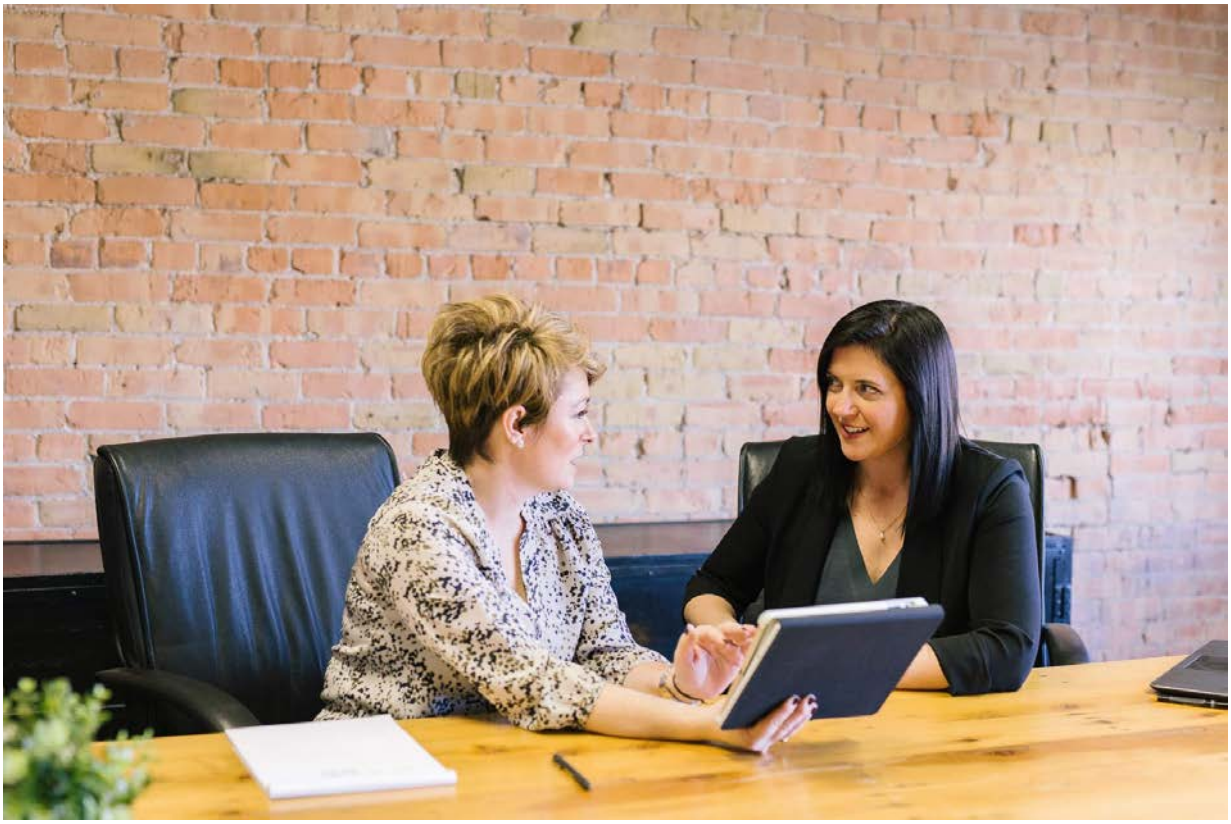
Assessors' performance on assessments is monitored for quality control purposes. If an Assessor is found to be making serious or systematic errors, further investigations will be conducted, potentially resulting in one of the following:

- The Assessor being required to undertake further training and examination at their own expense, to demonstrate their competency.
- The Assessor's qualification and listing being suspended or withdrawn.

BREEAM Infrastructure Verifiers

Verifiers also have an important role in assessments. They are selected by the BREEAM Infrastructure team from a pool of qualified Assessors who have completed at least one full assessment.

The Verifier is independent of the project or contract team and associated organisations. This provides confidence in the assessment's validity as it is verified by an impartial third party. Verifiers are appointed based on availability, location and expertise relevant to the assessment.



The role

Verifiers use their experience to support the Assessor. They review and approve the scoping out process and resolve any queries the Assessor has during the assessment. They also take on mentoring role for first-time Assessors.

Once the Assessor has submitted the assessment and supporting evidence, the Verifier reviews it. This is an important part of the quality assurance process and is fully explained later. Once verification is complete, the Verifier submits the assessment to BRE Global. We perform a final review ("ratification") to make sure the assessment is accurate and has followed the correct procedures. The Verifier will also resolve any queries that arise during ratification.

Who is responsible for coordinating the assessment and driving it forward?

Type your answer here

SUBMIT

CONTINUE

Summary

BT BREEAM Technical

In this section we have learned:

- BREEAM Infrastructure provides value to a variety of users.
  Clients, designers, contractors and other parties with an interest in civil engineering projects, all make use of BREEAM Infrastructure.
- There are four main roles to be aware of in the assessment process.
  They are the Applicant, the Assessor, the Verifier and BRE Global.
- The BREEAM Infrastructure Assessor is the driving force during the assessment process.
  They work with the project or contract team, coordinating the assessment, collecting evidence and making sure sustainability is considered at appropriate times.
- The Verifier is independent of the project or contract team.
  They provide support to the Assessor and review the accuracy of the assessment.

CONTINUE

Quiz

BT BREEAM Technical

A quick test to recap what you have learned so far.

Question

01/06

BREEAM Infrastructure provides what type of certification?

- 1st party.
- 2nd party.
- 3rd party.

Question

02/06

Which of the following are potential benefits of using BREEAM Infrastructure? Select all that apply.

- [ ] BREEAM Infrastructure can drive sustainability in projects and contracts.
- [ ] BREEAM Infrastructure can verify ESG targets.
- [ ] BREEAM Infrastructure can do the work for you in achieving sustainability best practice.
- [ ] BREEAM Infrastructure can improve your reputation.
- [ ] BREEAM Infrastructure can help achieve cost savings.

Question

03/06

The best sustainability outcomes are realised when BREEAM Infrastructure is engaged with...

- ◯ As early as possible.
- ◯ During the construction or delivery stage.
- ◯ Once the project or contract work is complete.

Question

04/06

Select all that apply. BREEAM Infrastructure can assess and certify the environmental performance of projects and contracts in:

- [ ] Civil engineering.
- [ ] Occupied buildings.
- [ ] Infrastructure.
- [ ] Public realm.
- [ ] Products and construction materials.
- [ ] Landscaping.

Question

05/06

What project stages are covered by a **BREEAM Infrastructure for Projects** assessment? Select all that apply.

- [ ] Strategy
- [ ] Design
- [ ] Construction
- [ ] Operation

Question

06/06

Select all that apply. In a BREEAM Infrastructure assessment, the Assessor’s role is to:

- [ ] Carry out the assessment, awarding credits and determining the rating achieved.
- [ ] Collect and submit evidence to support the assessment.
- [ ] Verify the accuracy and completeness of the assessment.
- [ ] Respond to queries from the Verifier during verification.
- [ ] Respond to queries from BRE during ratification.

Assessment structure

BT BREEAM Technical

Both BREEAM Infrastructure schemes follow the same assessment structure, assessing sustainability holistically, across multiple categories and issues.

In order of big to small, the basic structure of BREEAM Infrastructure is broken into:

Schemes

BREEAM Infrastructure is split into two distinct **schemes**:

- BREEAM Infrastructure Projects
- BREEAM Infrastructure Term Contracts

Each scheme assesses sustainability in the same way, and use the same structure.

Categories

In order to cover different sustainability topics holistically, the BREEAM Infrastructure schemes are split into **categories**.

There are 8 standard categories in BREEAM Infrastructure. These are shown below. There is also an additional category for 'Innovation', which is explored in the next lesson.

Management

Considers how sustainability issues are incorporated into the management of the project or contracts.

Resilience
Covers hazard identification, risk evaluation and risk management.

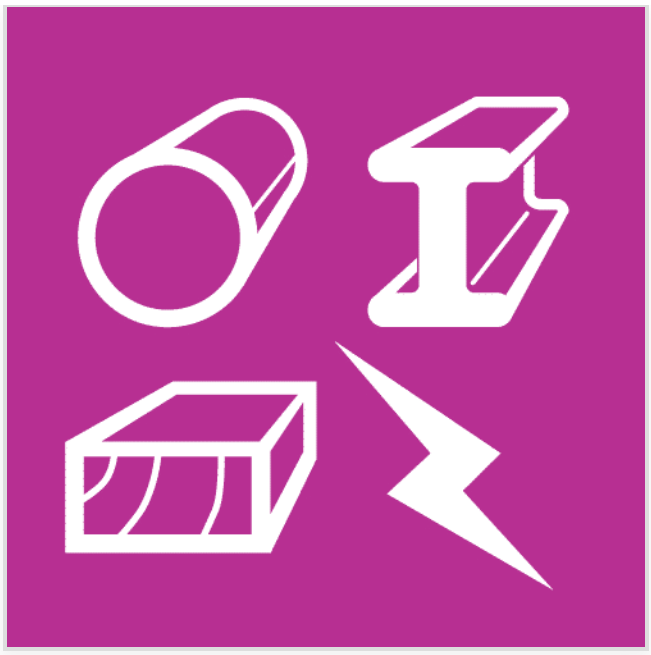
Communities and stakeholders
Addresses the range of adverse and beneficial impacts on people and wider communities that may result from the project or contract.

Land use and ecology
Minimising negative impacts on biodiversity and

the natural environment, and promoting outcomes that enhance ecological value.

Landscape and historic environment
Considers the landscape and associated heritage features within and surrounding the site of works.

Pollution
Minimisation of air, water, noise and light pollution.



Resources

Promotes prudent and responsible use of all physical resources, including materials, energy and water.

Transport

Effective management of transport impacts associated with both construction and operation.

Issues

Each BREEAM Infrastructure category is split into assessment **issues**. Each issue defines a topic against which the project or contract will be assessed.

This table demonstrates this structure in BREEAM Infrastructure Projects.

Category	Issues
1 Management	1.1 Sustainability leadership
	1.2 Environmental management
	1.3 Responsible construction management
	1.4 Staff and supply chain social governance
	1.5 Whole life costing
2 Resilience	2.1 Risk assessment and mitigation
	2.2. Flooding and surface water run-off
	2.3 Future needs
More categories…	More issues…

Assessment criteria

Within every assessment issue, a level of performance is defined, against which the assessed project or contract must demonstrate compliance. These **assessment criteria** are the requirements of the issue and they are the means by which it is achieved.

This table demonstrates this for issue *1.1 Sustainability leadership* from the table above.

Issue	Assessment criteria

1.1 Sustainability leadership	1.1.1 Principles of sustainable development
	1.1.2 Construction management strategy
	1.1.3 Selection process for designers and contractors
	1.1.4 Environmental and social performance in contracts
	1.1.5 Sustainability targets for construction
	1.1.6 Environmental targets for key sub-contractors
	1.1.7 Sustainability targets for operation
	1.1.8 Workforce consultation on sustainability performance
	1.1.9 Communicating best practice

For each assessment criteria, the scheme contains guidance on what needs to be done and what evidence needs to be provided to demonstrate compliance.

For example for assessment criterion *1.1.1 Principles of sustainable development*, it must be demonstrated that principles of sustainable development have been actively considered in the planning, design and construction of the project.

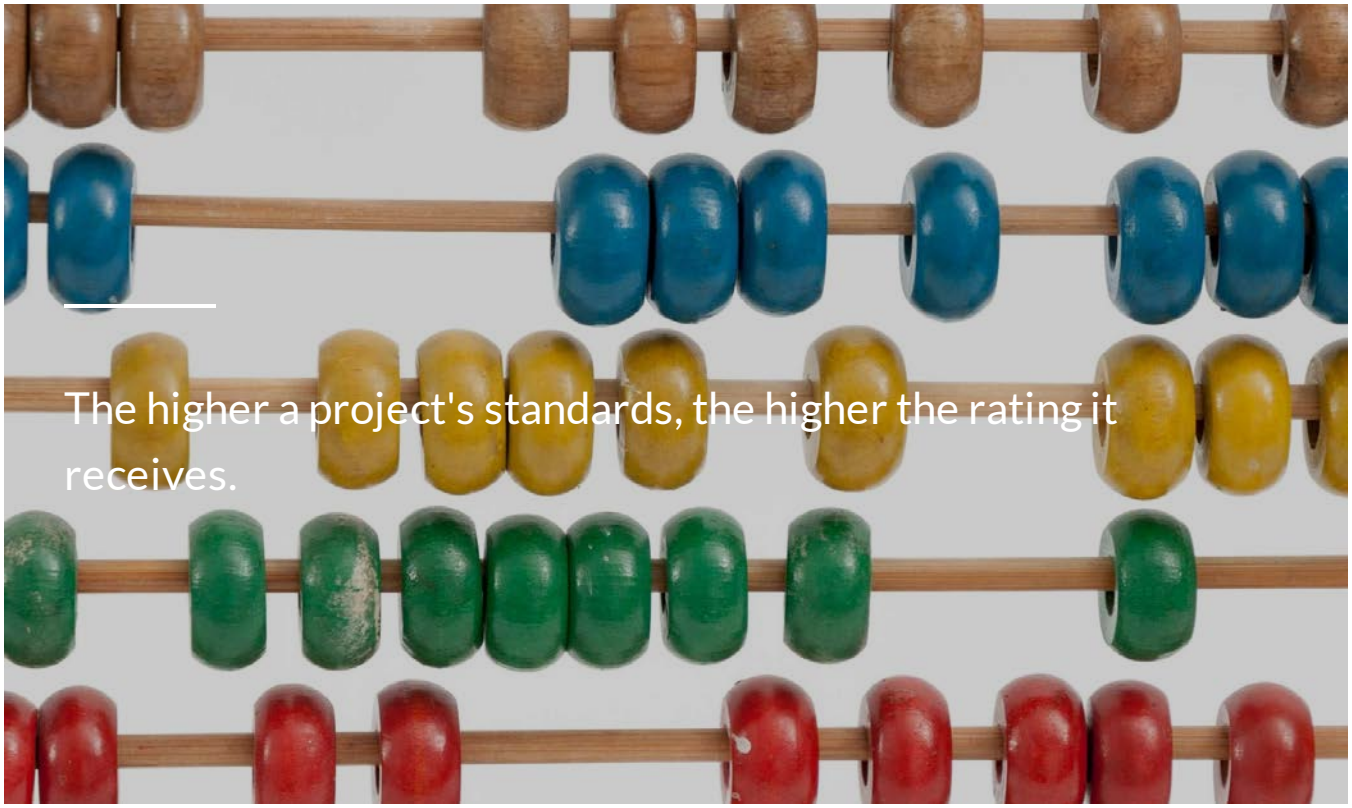
If the project or contract complies with the relevant assessment criteria, then the associated number of credits can be awarded. This is contingent upon suitable evidence being provided

that demonstrates compliance. Evidence is covered in more detail later.

CONTINUE

Scoring, ratings and weightings

BT BREEAM Technical



The basic version

BREEAM Infrastructure operates using credits, scores and ratings.

Credits

For every assessment criteria, there will be a specified number of **credits** available. Credits are BREEAM Infrastructure's basic unit of scoring. For a credit to be awarded, suitable evidence

must be provided to demonstrate that the relevant criteria have been met.

They contribute towards the **score.**

Score

To provide a score in BREEAM Infrastructure, the credits awarded during an assessment are added up and turned into a percentage score relative to the total number of credits available[1]. This provides an overall score between 0 and 100%, with the highest achievable score therefore 100%. This score defines the assessment **rating**.

This process also provides a score for each of the 8 BREEAM Infrastructure categories. The category scores break down the overall score, indicating how an assessment has performed in different areas.

1 The total number of credits available can change from assessment to assessment due to **scoping.** This is explained further below.

Ratings

There are six ratings in BREEAM Infrastructure. The following table breaks down the score associated with each rating in BREEAM Infrastructure Version 6.

BREEAM Infrastructure rating	Overall score
Outstanding	≥ 90%
Excellent	≥ 75%

BREEAM Infrastructure rating	Overall score
Very Good	≥ 60%
Good	≥ 45%
Pass	≥ 30%
Unclassified	<30%

The Outstanding rating was introduced in the most recent version of BREEAM Infrastructure. In assessments completed before Version 6, the maximum rating was Excellent.

Assessments achieving a rating of "Unclassified" have not reached the minimum benchmark for a pass rating and are not issued with a certificate.

In more detail

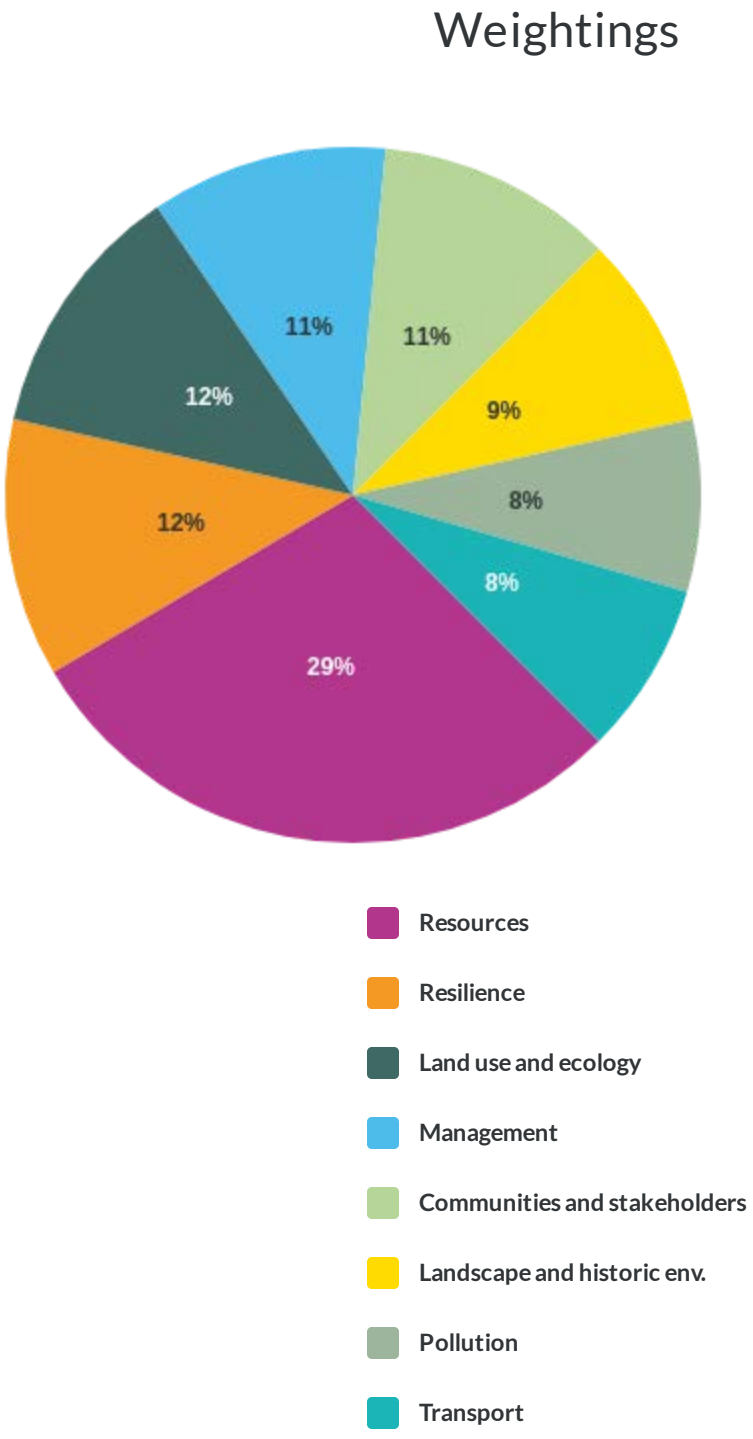
Credits and weightings

Weightings are an important part of BREEAM Infrastructure. They are used to define the relative impact each category has on the final rating.

The weightings indicate the relative importance of each category by accounting for the impact that works typically have on the various sustainability topics. For example, the higher weighted categories have a larger environmental impact, and are worth a bigger share of the score.

With the exception of the Innovation category (covered next) which does not carry a weighting, category weightings always add up to 100%.

Below you can see an example of a set of weightings.



Weighting the Resources category

As shown in the example above, the Resources category is the biggest in BREEAM Infrastructure, containing the most assessment issues of any category. This is because it covers a range of resource types.

For the purpose of weighting, the Resources category is split into 4 sub-categories, with each sub-category focusing on one resource type.

The four sub-categories, and the weightings that they are assigned are:

- Materials, including waste - 16%
- Energy and carbon (operational) - 4%
- Energy and carbon (construction) - 5%
- Water use - 4%

How weightings work in BREEAM Infrastructure

The category weightings determine how the total number of available credits are divided across the categories. This means that for categories with a higher weighting, there are more credits available. For example:

- In a BREEAM Infrastructure Projects - Whole Project assessment, there are 5000 credits available.
- The Management category has a weighting of 11%.
- The number of credits available in the Management category is therefore 5000 x 11% = 550.

The weighting process is therefore very important as it enables different sustainability priorities to be reflected in the way BREEAM Infrastructure is scored.

There is one more important thing to consider when it comes to scoring in BREEAM Infrastructure: the **scoping** process.

Scoping

At the start of an assessment, the Assessor will work through the criteria and "scope out" any criteria not relevant to the works. This means that they are not included in the assessment. This process results in every assessment using a tailored set of criteria, specific to the requirements of the works.

This isn't simply a way to remove difficult to achieve criteria. The point of scoping out is relevance, not convenience. The criteria to be scoped should be clearly defined and agreed with the Verifier, who can help ensure this is done appropriately. As part of the quality assurance process, the scoped out criteria will also be reviewed by BRE Global.

1.1 Sustainability leadership

Aim

To ensure the adoption of sustainable development principles and the consideration of environmental and social issues throughout project planning, design, and construction.

Assessment scope

Only criteria listed in the table below can be scoped out of assessments. All other criteria are fixed.

Assessment criteria	Scoping guidance
1.1.3 Selection process for designers and contractors	Scope out for Design Only Assessments where the Designer has no input to the Contractor selection process.
1.1.6 Environmental targets for key sub-contractors	There may be circumstances where it is appropriate to scope out this criteria, for example if there are no sub-contractors involved.
1.1.7 Sustainability targets for operation	Scope out if the scheme concerned is intrinsically not 'operable', such as flood defence banks.
1.1.8 Workforce consultation on sustainability performance	The decision to scope out will depend on the nature, scale, location and context of the project. And on the interests and responsibilities of the parties to the project.
1.1.9 Communicating best practice	The decision to scope out will depend on the nature, scale, location and context of the project. And on the interests and responsibilities of the parties to the project.

*Assessment scope from criterion 1.1 Sustaina*bility leadership

When to scope out

Every assessment issue in the BREEAM Infrastructure manual includes an "Assessment scope" section. An example is shown opposite. This provides guidance on which assessment criteria can be scoped out and when to do so.

All criteria not listed in the "Assessment scope" section are fixed and cannot be scoped out.

The final score is determined using the formula:

total credits achieved / total credits available.

The scoping out process can change the second half of this formula. When assessment criteria are scoped out, this reduces the maximum number of credits that are available. When criteria are scoped out, the final score is therefore:

total credits achieved / total credits available after scoping.

Example score

Here is an example from the BREEAM Infrastructure Projects Version 6 technical manual to illustrate how this breaks down.

Category	A. Category weighting	B. Credits Available (Max)	C. Credits Available (after scoping)	D. Credits Achieved
Management	11%	550	492	411

Resilience	12%	600	526	453
Communities and stakeholders	11%	550	480	445
Land use and ecology	12%	600	550	502
Landscape and historic environment	9%	450	212	212
Pollution	8%	400	369	340
Transport	8%	400	341	267
Resources				
Materials, including waste	16%	800	725	703
Energy and carbon (operational)	4%	200	101	92
Energy and carbon (construction)	5%	250	188	173
Water use	4%	200	138	122
TOTAL	100%	5000	4122	3720

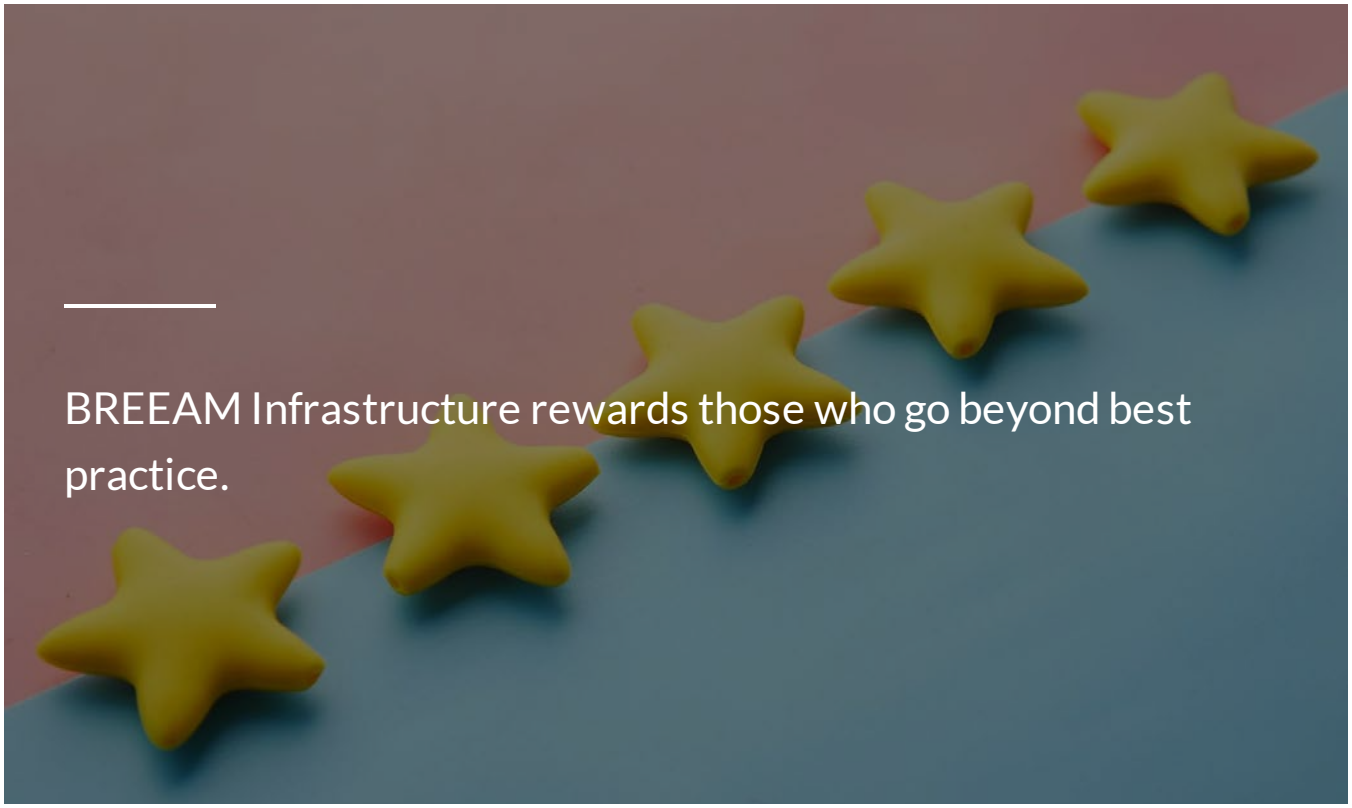
BREEAM Infrastructure score

BREEAM Infrastructure rating
Outstanding

CONTINUE

Exemplary performance

BT BREEAM Technical



There is one more category that reflects exemplary performance:

Innovation

The Innovation category offers additional credits for works that provide sustainability benefits or performance in ways not currently recognised by the standard criteria. Innovation credits

were introduced in BREEAM Infrastructure Version 6 to reward teams that go beyond best practice.

For each Innovation credit that is achieved, 1% is added to the overall score. The maximum number of Innovation credits for a single assessment is 10. The maximum additional score is therefore 10%. Innovation credits are awarded regardless of the final rating. However, the overall rating is capped at 100%.

Innovation credits are available in two forms:

- Exemplary level performance in existing issues.
- Approved innovations.

Exemplary level performance

Exemplary level performance credits are available for meeting the exemplary level performance criteria that are set on specific assessment issues. Currently, this only applies to one criterion in BREEAM Infrastructure Version 6:

7.2.4 Exemplary level: Net zero carbon.

Net-zero targets are regarded as essential but highly challenging, requiring significant amounts of work. To reflect this, BREEAM Infrastructure awards exemplary level credits where net-zero carbon is demonstrably achieved on whole life emissions.

Approved innovations

Approved innovation credits can relate to any *new* design, construction, operation, maintenance or demolition method, or process. It must improve sustainability performance and benefit the wider industry in a manner not covered elsewhere in BREEAM Infrastructure.

To achieve this, the proposed innovation must:

- Be unique (first in the world).
  Or be unique in a local context.
- Provide social, economic or environmental benefit.
- Go beyond the scope of existing BREEAM Infrastructure criteria, or significantly exceed exemplary BREEAM Infrastructure benchmarks.
- Be shared with the wider industry.
- Be replicable.

The purpose of this is to encourage innovation that could bring positive change across the wider industry, and inform the future development of BREEAM Infrastructure.

Approved innovation credits are subject to independent expert review by BRE Global. If approved, only one approved innovation credit can ever be awarded for a single instance of the innovation (but a single assessment could have multiple approved innovations).

Example

An assessment scores 74% prior to Innovation credits. It also achieves net-zero carbon on its whole life emissions. It is therefore awarded one exemplary level performance credit taking the final score from 74% to 75%. The assessment is therefore awarded an "Excellent" rating.

To find out more about how approved innovation credits work:

BREEAM

1 Approved Innovations - Article Categories - Knowledge Base

READ MORE BREEAM >

Rated *Excellent*

Viking Link Access Road

Lincolnshire, UK

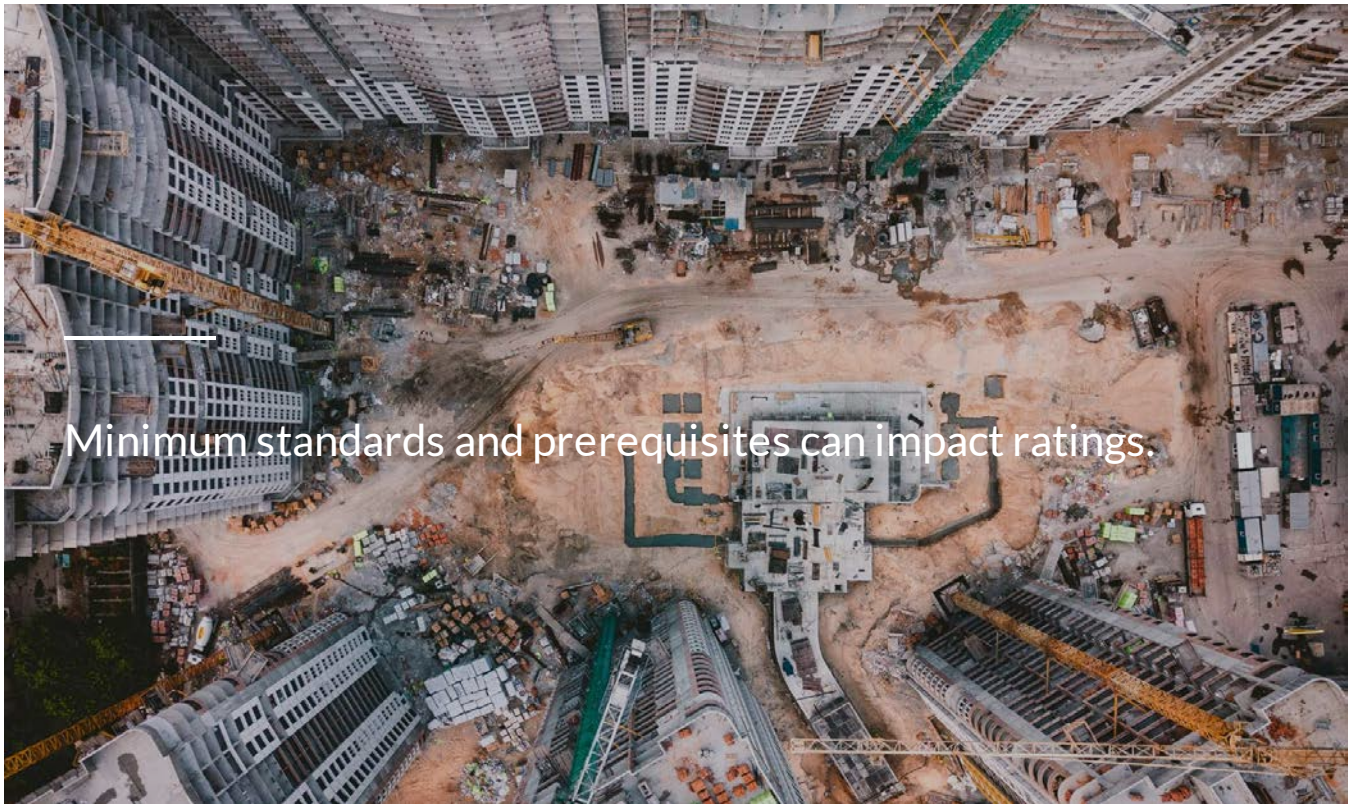
Case study

The Viking Link Access Road project gained an approved innovation credit for using a hydrogen fuel cell-powered electrical power unit for off-grid power, rather than a diesel generator. This reduced carbon emissions by 30 tonnes over 8 months and avoided local air pollution from running a diesel powered generator.

CONTINUE

Minimum standards and prerequisites

BT BREEAM Technical



Minimum standards and prerequisites are both mechanisms that can impact the rating an assessment achieves.

Minimum standards

BREEAM Infrastructure uses minimum standards to define a minimum level of performance required to access a certain rating. This means that the minimum standards *must* be met in order for a given rating to be awarded.

Minimum standards are new to BREEAM Infrastructure Version 6 and are currently only used in relation to the Outstanding rating. It is possible that this will be expanded in later versions of BREEAM Infrastructure.

The table below gives an example of of the minimum standards used in the BREEAM Infrastructure Projects Version 6 manual. Minimum standards are applied to specific assessment criteria (column C). For these criteria, the defined minimum standard (column D) must be met.

A) Rating level	B) Assessment issue	C) Assessment criteria	D) Minimum standard
Outstanding	4.4 Change and enhancement of biodiversity	4.4.1 Change in ecological value	No net loss of ecological value.

In this example, the minimum standard applies to assessment criterion *4.4.1 Change in ecological value*. This criterion requires teams to calculate the change in ecological value occurring as a result of the project.

The minimum standard is no net loss of ecological value. This means that to achieve an Outstanding rating, a project must not cause net loss of ecological value to the land included within the boundaries of the BREEAM Infrastructure assessment.

Whilst this is the minimum standard, more credits are awarded for this assessment criterion to projects that achieve a net gain of ecological value.

Where a minimum standard has not been achieved, the highest rating achievable is an "Excellent". For those aiming for an Outstanding rating, it is therefore imperative to know the minimum standards that apply.

Prerequisites

Some assessment issues in BREEAM Infrastructure define prerequisites. These are assessment criteria which *must* be achieved in order to score *any* credits for that assessment issue.

Prerequisites therefore do not directly impact the overall rating like minimum standards do. However, they impact the achievement of credits within specific assessment issues.

The table below gives an example of one prerequisite used in the BREEAM Infrastructure for Projects Version 6 manual:

Category	Assessment Issue	Prerequisite Assessment Criteria
Land use and ecology	4.3 Protection of biodiversity	4.3.1 Prerequisite: Surveys for protected species

In this instance, to score any credits for Assessment Issue *4.3 Protection of biodiversity*, the assessment criterion *4.3.1 Surveys for protected species* must be achieved. This means that the project team must demonstrate that they have specified and undertaken appropriate surveys for protected plant and animal species at each stage of the project and taken appropriate action to protect any such species which are found.

It is important to be aware of prerequisites. Not achieving them prevents you from scoring for other criteria within the same assessment issue, which impacts the overall score. This can be particularly significant if you are close to the boundary between two ratings.

CONTINUE

Evidence

BT BREEAM Technical

All BREEAM Infrastructure assessments require evidence that demonstrate that the project or contract is meeting the criteria it claims to be meeting.

Why it matters

To be a meaningful certification scheme, BREEAM Infrastructure assessment decisions must be based on traceable and credible information. This allows the assessment to be verified, upholding the validity of the outcome and the credibility of the scheme. Without it, there would be no way to prove that assets are actually achieving the performance they claim to be achieving.

Evidence-based assessments are important for:

- Providing assurance that assessments meet the requirements of the scheme and that given ratings are accurate.
- Providing protection to the Assessor in the event that a certification outcome is challenged.

How it works

The **Assessor** is responsible for collating the information needed to complete an assessment. They must ensure that relevant parties (clients, asset owners, consultants, design team, contractors etc.) supply the necessary information at an appropriate time. This is then used to accurately and fairly assess the project or contract against the BREEAM Infrastructure criteria. To award a credit, they must be satisfied that the evidence clearly complies with the relevant criteria.

The technical manual provides guidance on sources of evidence for each assessment issue and suggests the type of information that can be used to justify the credits awarded. An example of this is shown below. This is not exhaustive; as BREEAM Infrastructure is used across many asset types, there is a often a range of evidence types that could be used. Appropriate evidence can be agreed between the Assessor and the Verifier.

Evidence

Assessment criteria	Evidence guidance
7.2.1 Carbon management (fixed)	Evidence should cover the items set out in PAS 2080. It should include information on quantification of carbon emissions, setting baselines and targets, monitoring and reporting, and processes for continual improvement (as applicable). Evidence for full conformity to PAS 2080 could include assessment reports that identify the basis of the claim of conformity (self-validation, other-party validation, or independent third-party certification).
7.2.2 Independent third-party certification of carbon management	Evidence will include the certificate(s) from an independent third-party showing that the carbon management process used on the project has fully conformed with PAS 2080.
7.2.3 Achieving carbon reduction targets (fixed)	Evidence will come from the carbon management process and will need to show how the reduction target was set, the calculated baseline carbon emissions, and the final calculated carbon emissions. Whether meeting the target or not, evidence should show to what extent the carbon reduction target has been met. Where targets haven't been met, a publicly shared case study that explains the lessons learned should be provided in addition to the requirements above.
7.2.4 Exemplary level: Net zero carbon (fixed)	Evidence is likely to be an output from a formal carbon management process that shows the calculated whole life carbon emissions for the project are zero or negative. Evidence should include details of the calculation methodology, sources of data, and any assumptions or limitations. Evidence at the construction stage must reflect the project as built at practical completion.

Evidence guidance from assessment issue 7.2 *Reducing whole life carbon emissions*

Using the online assessment platform, the Assessor should produce well-referenced evidence with a clear audit trail, so that is is straightforward for the Verifier to review it.

Often, the evidence required by BREEAM Infrastructure will be information that is naturally produced over the course of a project. It is not the intention of BREEAM Infrastructure to create lots of additional work by asking teams to produce additional evidence simply for the purpose of the assessment.

Once the evidence has been submitted, the quality assurance process, known as verification and ratification in BREEAM Infrastructure, begins. This is covered later.

CONTINUE

Assessment process

BT BREEAM Technical

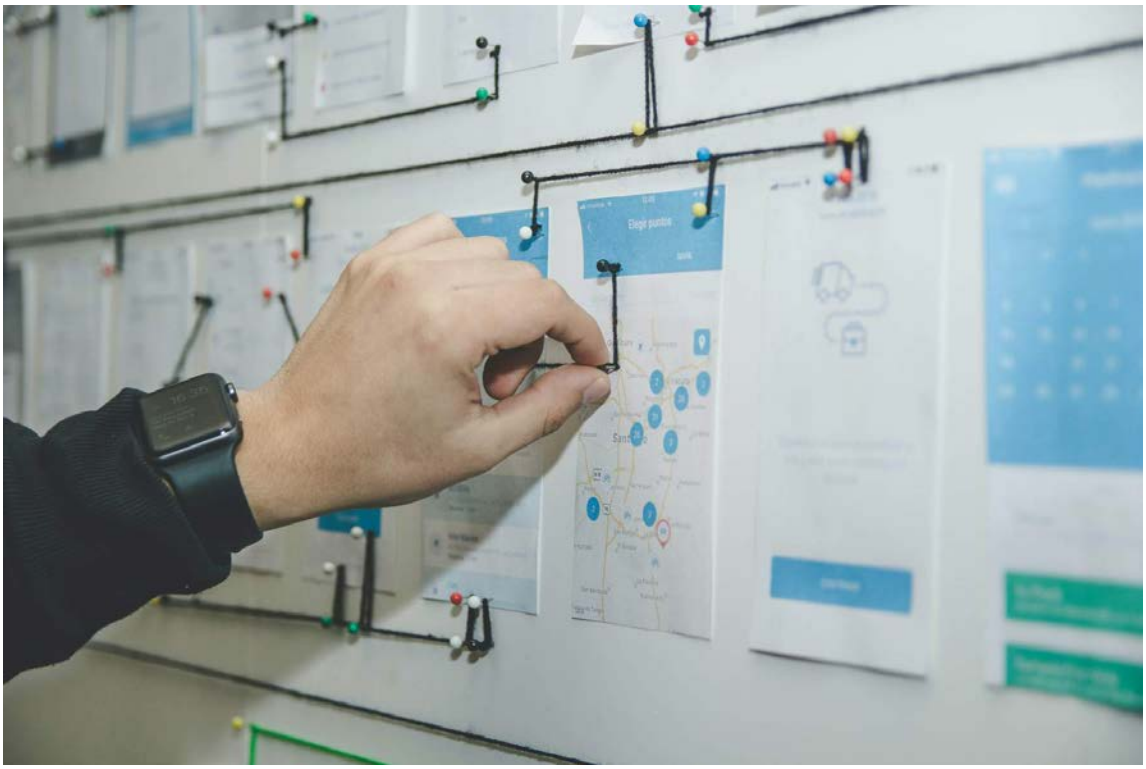
The cards below outline the BREEAM Infrastructure assessment process step by step.

Step 1

Plan project or contract

BREEAM Infrastructure is most effective when engaged as early as possible in the planning stage, so that the BREEAM Infrastructure requirements are considered from the outset. This typically increases the likelihood of achieving a higher rating.

This might including setting BREEAM Infrastructure targets and planning how this is going to be achieved.



Step 2

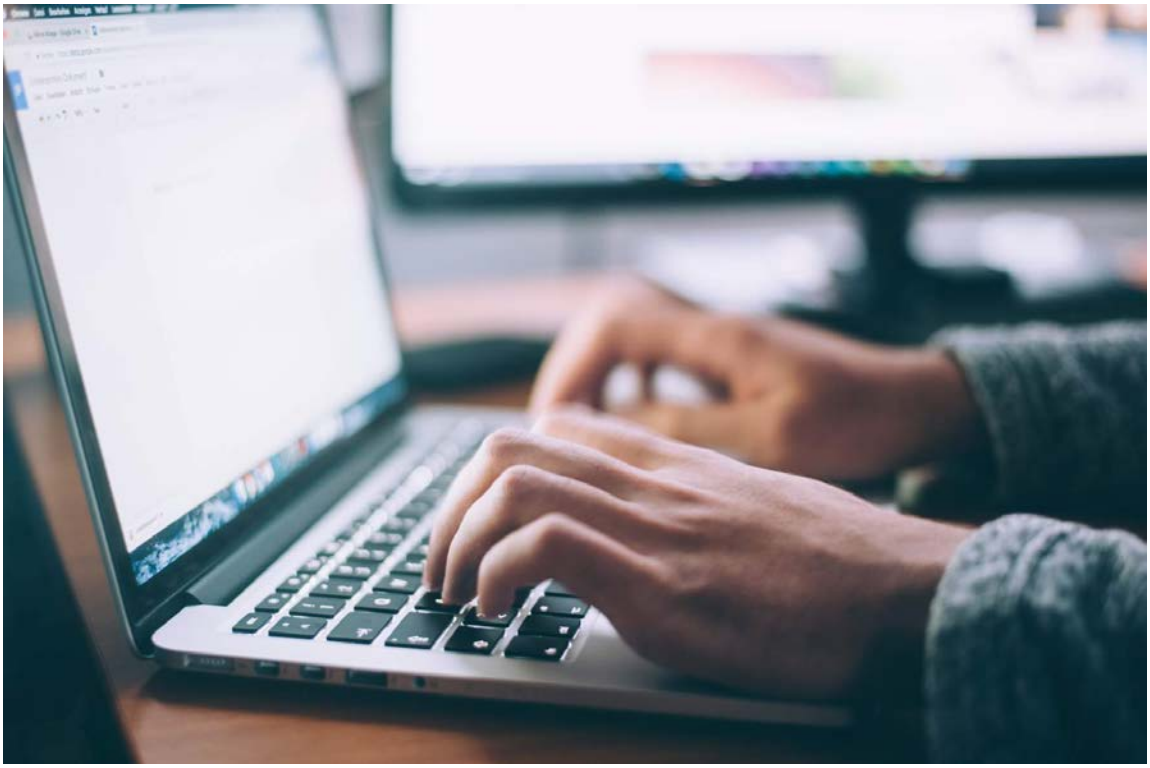
Appoint trained Assessor

To apply for an assessment, the applicant must appoint a trained Assessor. They are typically part of the project team, but they may also be sub-contracted in. In either case, the appointed Assessor must have completed the appropriate Assessor training via the BRE Academy.

Step 3

Register

Once an Assessor has been appointed, the assessment can be registered. BREEAM Infrastructure will verify that the named Assessor is qualified under the scheme applied for. Once the registration is approved and the Registration and Management fee (BREEAM Infrastructure Projects) or the Annual Subscription fee (BREEAM Infrastructure Term Contracts) has been received, the assessment can be uploaded to the online assessment platform.



Step 4

Determine assessment scope

The Assessor arranges and meets the Verifier for the scoping meeting. Together, they work through the assessment criteria to determine what can be scoped out.

Step 5

Assess project

The Assessor works through the criteria within the manual, gathering the necessary evidence and allocating credits based on this. The credits and evidence, along with supporting commentary, are recorded on the online platform.

Step 6

Verification

The Assessor submits the assessment and informs the Verifier. The Verifier then reviews the credits and evidence to ensure that the assessment has been carried out accurately and correctly.

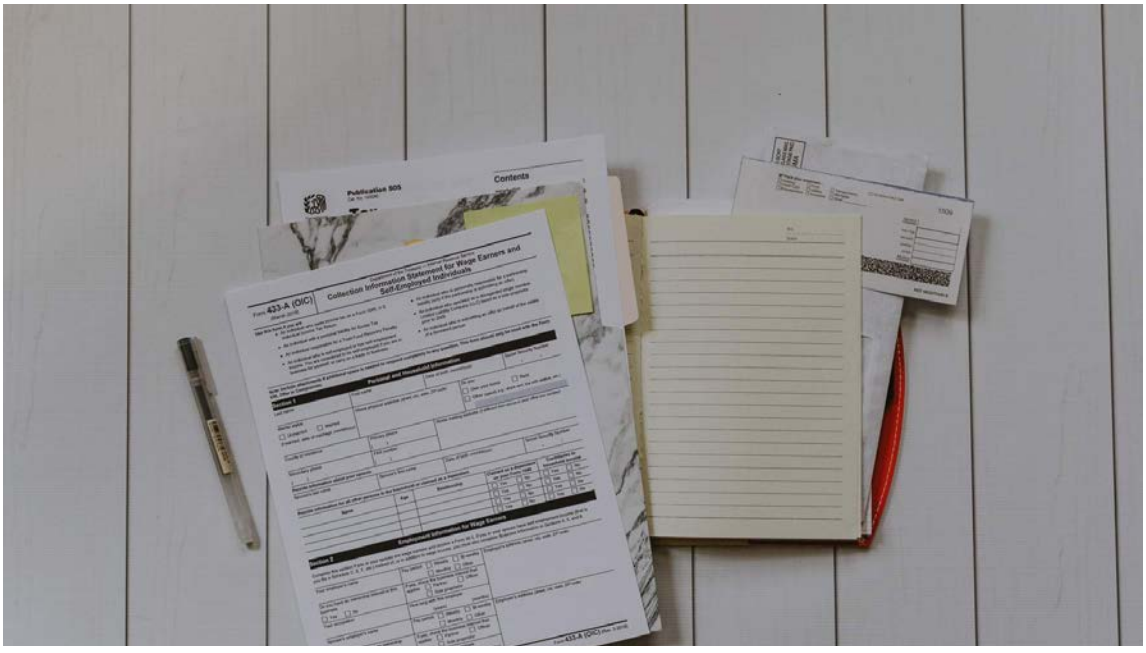
Once the Assessor has submitted the assessment to the Verifier, they should also arrange a verification meeting. At this meeting, the Verifier and Assessor review evidence, resolve any queries and carry out a site visit where appropriate. They also establish whether any

additional evidence is needed, which the Assessor has the opportunity to provide following the verification meeting.

Step 7

Ratification

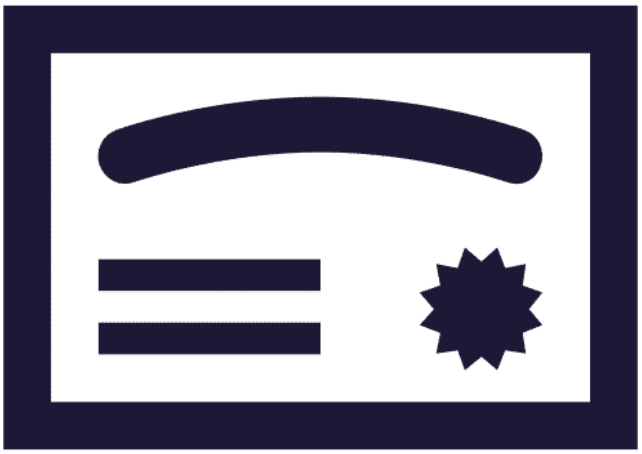
Once the Verifier completes their review, they submit the assessment to BRE Global for ratification. The ratifier checks that the assessment is credible and accurate and does a consistency check on the Verifier.



Step 8

Certification!

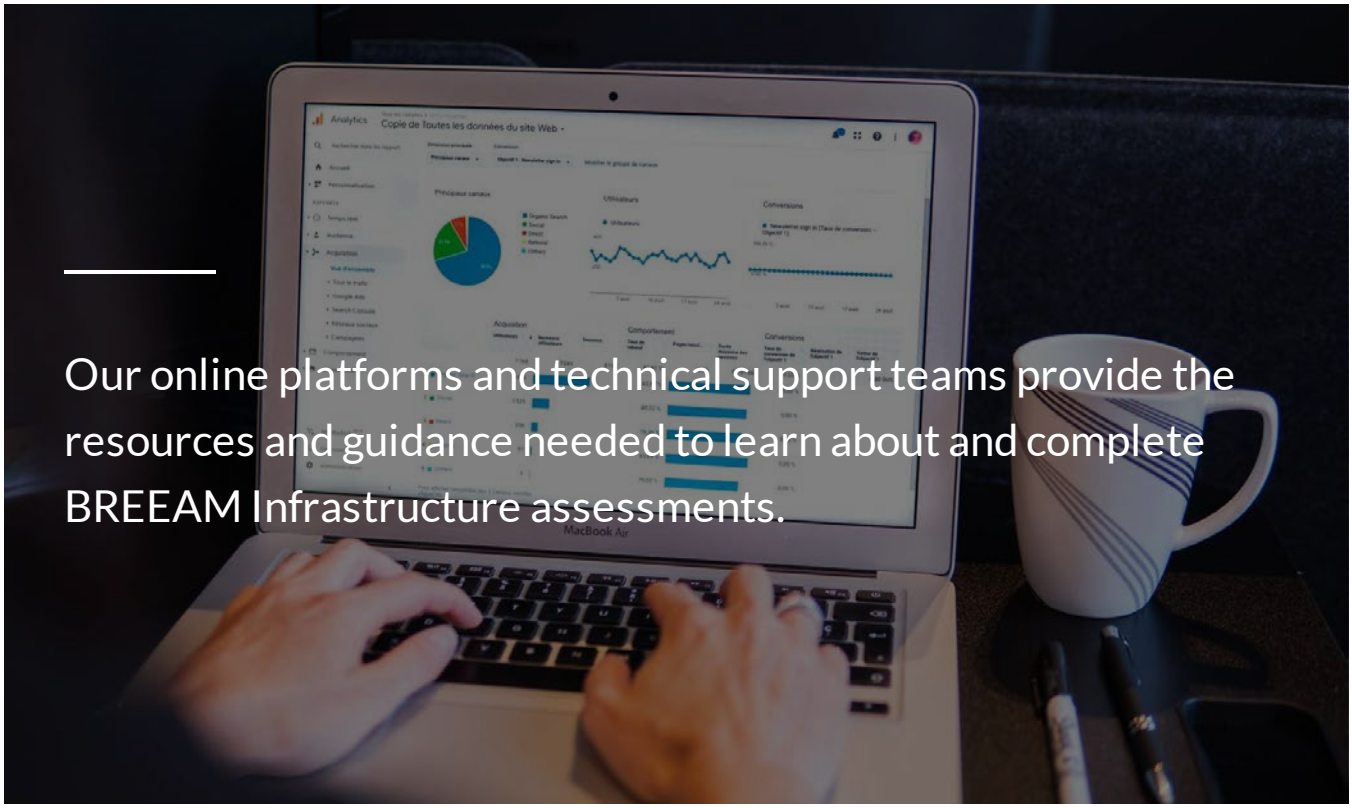
Once ratified, the relevant teams receive a copy of the certificate from BRE Global, certifying that the assessment has achieved the stated score.



CONTINUE

Tools and resources

BT BREEAM Technical



Online platforms

BREEAM Infrastructure has two main online platforms:

The website

https://www.bregroup.com/products/ceequal/

Our website hosts a wealth of knowledge about BREEAM Infrastructure, including information about our schemes and the latest news, case studies and events.

The website also houses a number of useful resources including scheme documents, briefing papers and infographics.

BREEAM Projects

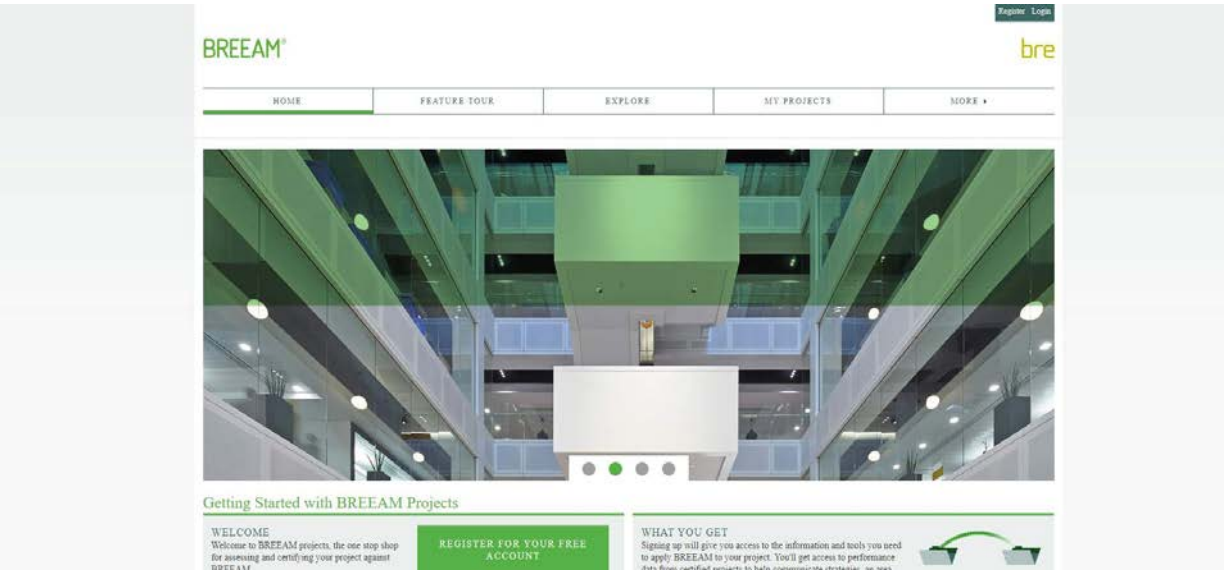
https://tools.breeam.com/projects/

BREEAM Projects is the online platform currently used to support new BREEAM Infrastructure for Projects assessments.

Only BREEAM Infrastructure qualified Assessors get access to BREEAM Projects following successful completion of the Assessor training course.

During an assessment, BREEAM Projects is the focal point for completing and submitting an assessment for verification and ratification. It enables Assessors to:

- Organise existing and new assessment work
- Carry out assessments online
    - Submit assessments and evidence for verification and ratification.
    - Track assessments through the verification and ratification process.
- Access supporting documents and tools including:
    - Current and archived Process Notes (containing important updates and information relating to technical aspects of the scheme).
    - Assessor guidance documents (e.g. fee sheets, operational manuals, guidance notes and application forms).
    - MS Excel-based reporting tools.
    - Superseded versions of scheme technical manuals.



The BREEAM Projects platform

Technical and operational support

Our customer support teams are here to provide support.

When to contact BREEAM Infrastructure Technical Support

In the first instance, the Assessor should raise technical queries with the Verifier. If the Verifier is unable to resolve the query themselves, they will contact BREEAM Infrastructure Technical Support.

BRE Global provides support for the following types of enquiry:

- **Assessment registration**: *assistance and updates with assessment registrations and transfers.*
- **Scheme classification**: *assistance in determining which scheme to register an assessment under.*

- **Assessment tools**: *assistance in using online systems, scheme tools and calculators.*
- **Verification, ratification and certification**: *timescale updates, verification, ratification or certification enquiries, and assistance in interpreting or responding to verification or ratification feedback.*
- **Complaints:** *complaints concerning BRE Global, BREEAM Infrastructure Assessors or Verifiers, or misuse or misrepresentation of a scheme/organisation by a third party.*
- **General scheme enquiries***: other scheme related enquiries not covered above.*

CONTINUE

Summary

BT BREEAM Technical

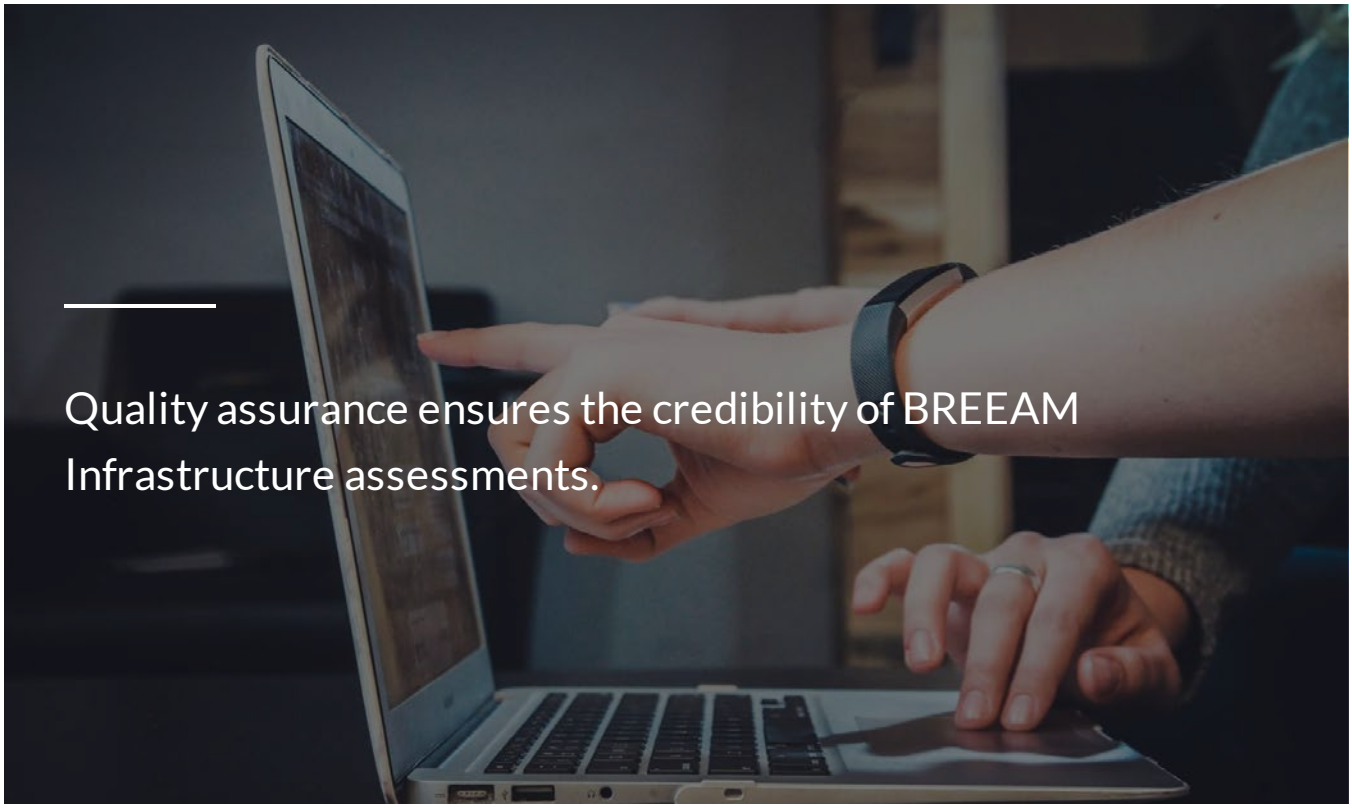
In this section we have learned:

- How BREEAM Infrastructure's structure allows sustainability to be assessed in a holistic manner.
- How the scoring, rating and weighting system works to recognise performance.
- How exemplary performance is rewarded.
- How minimum standards and prerequisites can impact the credits and ratings that are achieved.
- Why evidence is important and how it is collected.
- What the BREEAM Infrastructure assessment process looks like.
- What tools and resources are available to support the assessment process.

CONTINUE

Why QA?

BT BREEAM Technical



All assessments carried out by BREEAM Infrastructure Assessors are subject to evaluation by Verifiers (verification) and Ratifiers (ratification), before certification can take place.

This quality assurance process is a core requirements of the standards against which the schemes are accredited. This maintains the standard of BREEAM Infrastructure assessments by:

- Ensuring that BREEAM Infrastructure processes and procedures are robust.
- Ensuring that the rating is valid.
- Protecting the credibility of BREEAM Infrastructure.
- Protecting the credibility of the Assessor.
- Ensuring Assessors are providing an acceptable standard of service by being competent, diligent, and honest.

CONTINUE

The QA Process

BT BREEAM Technical

The Verifier verifies compliance based on the submitted evidence

Verification

The Verifier reviews a random sample of submitted evidence to check for completeness and accuracy of assessment. They may also complete a site visit to check that commitments made at earlier stages have been fulfilled.

Where issues arise, such as missing, inaccurate or inappropriate evidence, the Verifier will raise a query with the Assessor. This gives them the opportunity to produce further evidence. If the Assessor has provided well-referenced evidence with a clear audit trail, this reduces the likelihood of delays or additional work during verification.

Verification may result in scores for parts of the assessment being confirmed, reduced or increased. Once the Verifier is satisfied with the assessment, they submit it to BRE Global for ratification.

The Ratifier completes a final review of the evidence

Ratification

BRE Global carry out a further review to ensure that the assessment is accurate and credible and that supporting evidence is complete. The Ratifier reviews a sample set of criteria, which as a minimum includes:

- Scoped out criteria.
- Scoring differences between the Assessor and Verifier.
- Contested criteria or criteria that require further technical review.

The Ratifier can raise a query with the Verifier to resolve issues including incomplete or inaccurate evidence, or contested technical reasoning between the Assessor and Verifier.

Once the Ratifier is satisfied, the assessment will pass the ratification process and be certified by BRE Global.

Passing the verification and ratification process does not imply that BRE Global is verifying the accuracy or compliance of *all* the assessment issues within the assessment. This remains the **Assessor's responsibility**.

The purpose of verification and ratification is rather to review the assessment completed by the Assessor and provide a reasonable level of confidence that the assessment has been accurate and credible.

Certification

Certification is released by BRE Global to the applicant and assessor.

A presentation can be made by BRE Global at the request of the applicant or assessor.

CONTINUE

Conflicts of interest

BT BREEAM Technical

Conflicts of interest

A conflict of interest occurs when an organisation or individual has a vested interest in the outcome of an assessment that potentially clashes with their professional duties. This puts into question whether their actions and decisions can be unbiased.

Managing such situations is necessary to maintain impartiality during the verification and ratification process. This, in turn, ensures that BREEAM Infrastructure certifications are credible.

Report conflicts of interest to BRE

Verifiers are expected to check for conflicts of interest when notified of a verification opportunity.

Conflicts of interest can also arise where a project team, Assessor or third party places pressure on the Verifier to deliver a certain outcome.

Where such situations arise, they should be declared to BRE Global. We will confirm or advise actions that need to be taken to maintain the objectivity of the assessment or take necessary steps to resolve the situation.

Verifiers can advise Assessors on whether proposed solutions comply with assessment criteria, and help them to interpret assessment criteria. However Verifiers must be mindful that this doesn't lead to a conflict of interest such as:

- A Verifier advising an Assessor on how to answer an assessment criteria for a particular assessment. This would be creating a solution and then judging it to be suitable.
- A Verifier and Assessor working together to make sure the assessment is certified at a particular level. This would not be impartial on the part of the Verifier.

Where a conflict of interest exists, or there is potential for one, the assessment will be allocated to another Verifier.

CONTINUE

Summary

BT BREEAM Technical

In this section we have learned:

- Why quality assurance is important in maintaining BREEAM Infrastructure's credibility.
- How the verification and ratification processes are used to confirm the accuracy and validity of an assessment.
- What certification looks like in BREEAM Infrastructure.
- Why managing conflicts of interest is vital to maintaining BREEAM Infrastructure's credibility.

CONTINUE

Quiz

BT BREEAM Technical

A quick test to recap what you have learned so far.

Question

01/06

Select all that apply. Within a BREEAM Infrastructure scheme, the basic structure is split into:

- [ ] Categories.
- [ ] Issues.
- [ ] Parts.
- [ ] Assessment criteria.
- [ ] Divisions.
- [ ] Credits.

Question

02/06

In a *BREEAM Infrastructure for Projects - Whole Project* assessment, there are a total of 5000 credits available. The Pollution category has a weighting of 8%. How many credits are available in the Pollution category?

- ○ 400
- ○ 625
- ○ 800
- ○ 250

Question

03/06

How does scoping impact scoring in BREEAM Infrastructure

- Scoping determines how credits are distributed between the BREEAM Infrastructure categories.
- Scoping impacts the total number of credits that can be achieved during an assessment.
- Scoping is used to remove difficult to achieve credits, so it is easier to achieve a high rating.
- Scoping is used to reward innovation.

Question

04/06

Select all that apply. Which of the following statements about innovation credits is true?

- [ ] Each innovation credit adds 1 credit to the total number of credits achieved.
- [ ] Each innovation credit adds 1% to the overall score.
- [ ] A maximum of 10 innovation credits can be awarded to a single assessment.
- [ ] Innovation credits can take the total score to above 100%.

Question

05/06

What do minimum standards do in BREEAM Infrastructure?

- They suggest a minimum level of performance that teams should aspire to.
- They define a minimum level of performance required in order to access a certain rating.
- They define assessment criteria which must be achieved in order to score any credits for that assessment issue.
- They define the minimum score that teams must achieve in order to pass their assessment.

Question

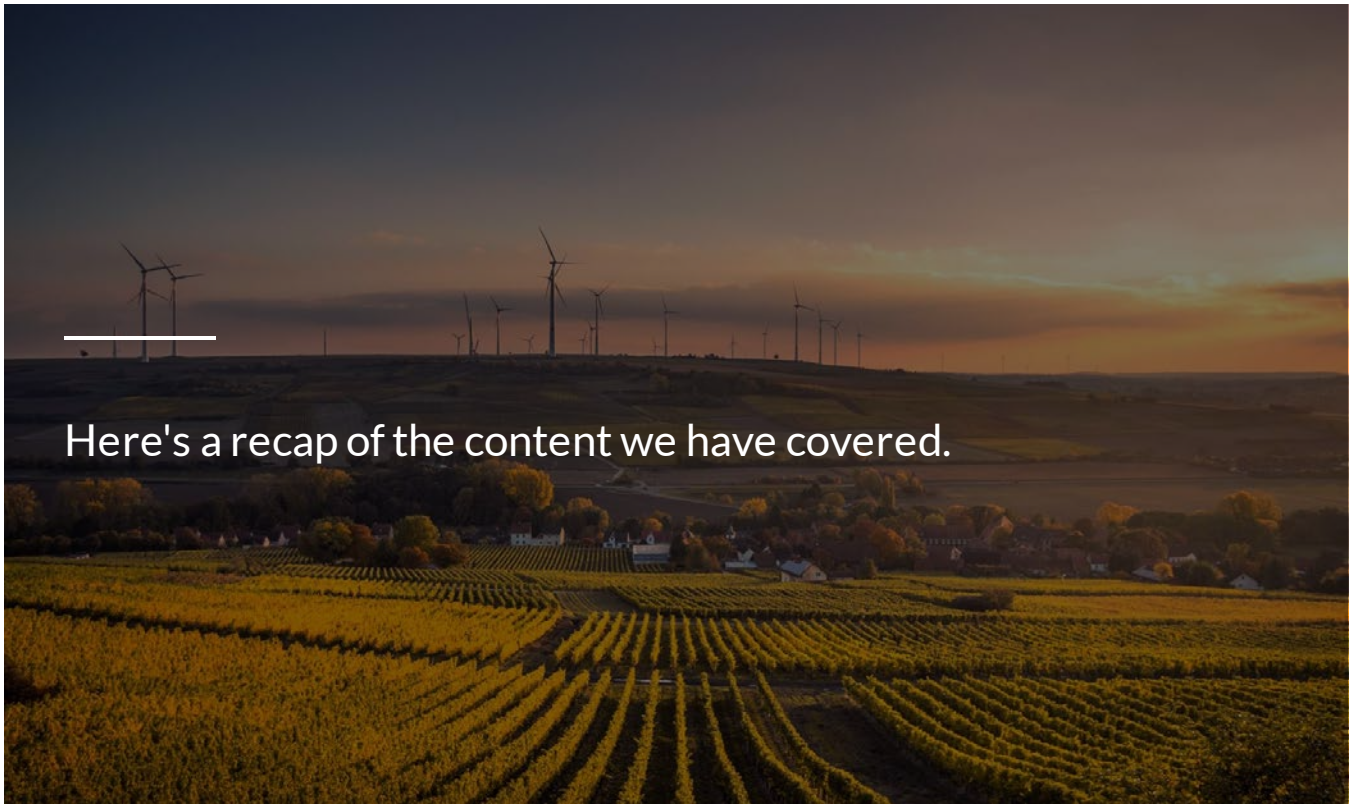
06/06

Select all that apply. Why is quality assurance important in BREEAM Infrastructure?

- [ ] To make the BREEAM Infrastructure process robust by providing a reasonable degree of confidence that assessments are accurate.
- [ ] To protect the credibility of BREEAM Infrastructure and the Assessor.
- [ ] To check the accuracy of every assessment issue in an assessment.
- [ ] To ensure Assessors carry out assessments to an acceptable standard.

Course summary

BT BREEAM Technical



Why BREEAM Infrastructure

- BREEAM Infrastructure exists to drive improvements in civil engineering's environmental and social impacts.
- BREEAM Infrastructure brings whole life value to assets.
- BREEAM Infrastructure provides third party certification, giving the highest level of assurance.

What BREEAM Infrastructure covers

- BREEAM Infrastructure assesses all types of civil engineering, infrastructure, landscaping and public realm projects.
- It covers the construction of new assets and the refurbishment of existing assets (BREEAM Infrastructure Projects) and the maintenance

of assets and construction of small, repetitive works (BREEAM Infrastructure Term Contracts).

- BREEAM Infrastructure assesses assets anywhere in the world.

Who champions BREEAM Infrastructure

- BREEAM Infrastructure is used and promoted by clients, designers, contractors and those interested in the standard of civil engineering projects.
- The assessment Applicant, Assessor, Verifier and BRE Global all have a role in ensuring BREEAM Infrastructure assessments are carried out successfully.
- Conflicts of interest must be managed effectively.

How BREEAM Infrastructure works

- BREEAM Infrastructure is split into schemes, categories, issues and credits.
- Credits are awarded for each category, with the total number of credits achieved determining the rating. This can range from Unclassified to Outstanding.
- Exemplary level credits reward exemplary performance and innovation.
- Minimum standards and prerequisites can limit the credits and rating that is achieved.
- All performance must be backed up by evidence.
- There are a range of tools and resources available to support Assessors and assessment teams.

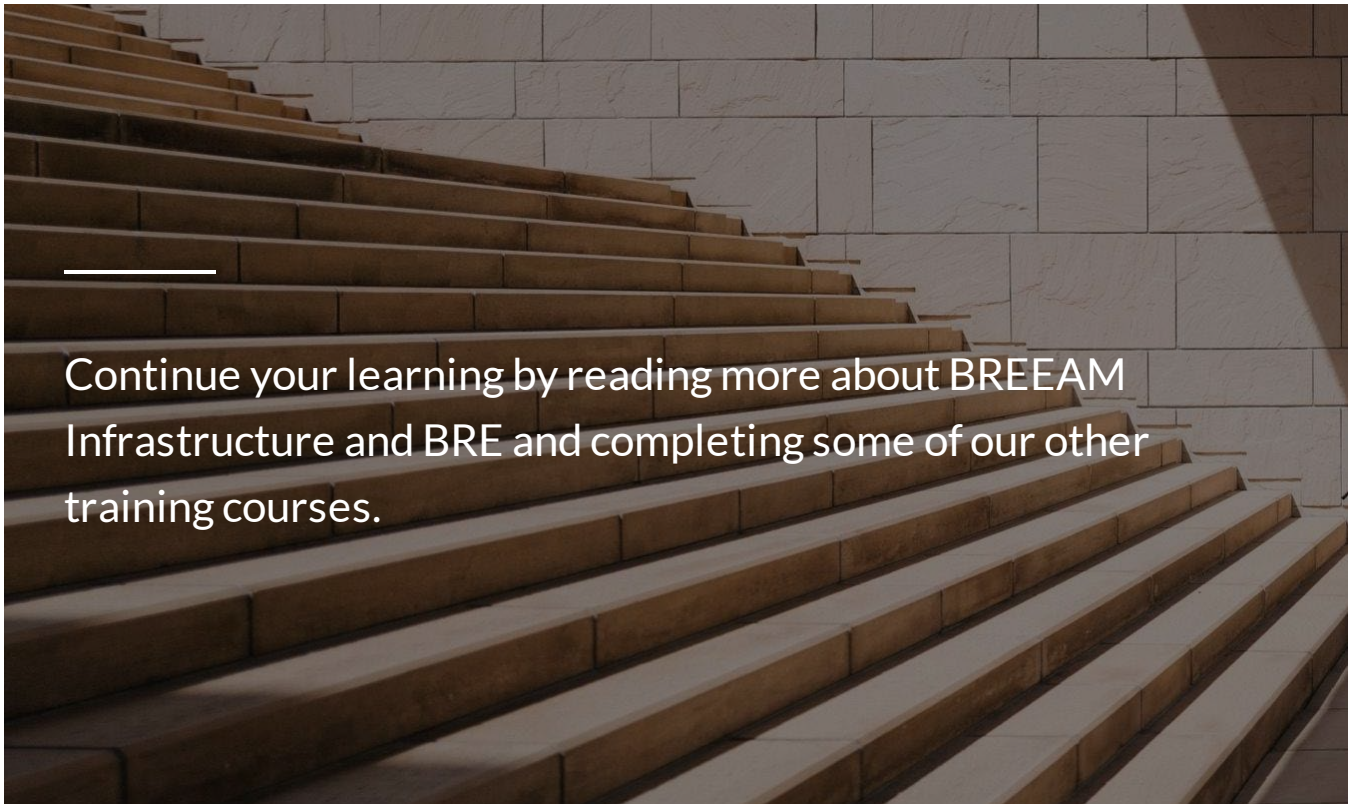
Quality assurance

- Quality assurance maintains BREEAM Infrastructure's credibility.
- Verification and ratification confirm the accuracy and validity of assessments.
- Once the quality assurance process has been passed, the project is certified.

CONTINUE

Next steps

BT BREEAM Technical



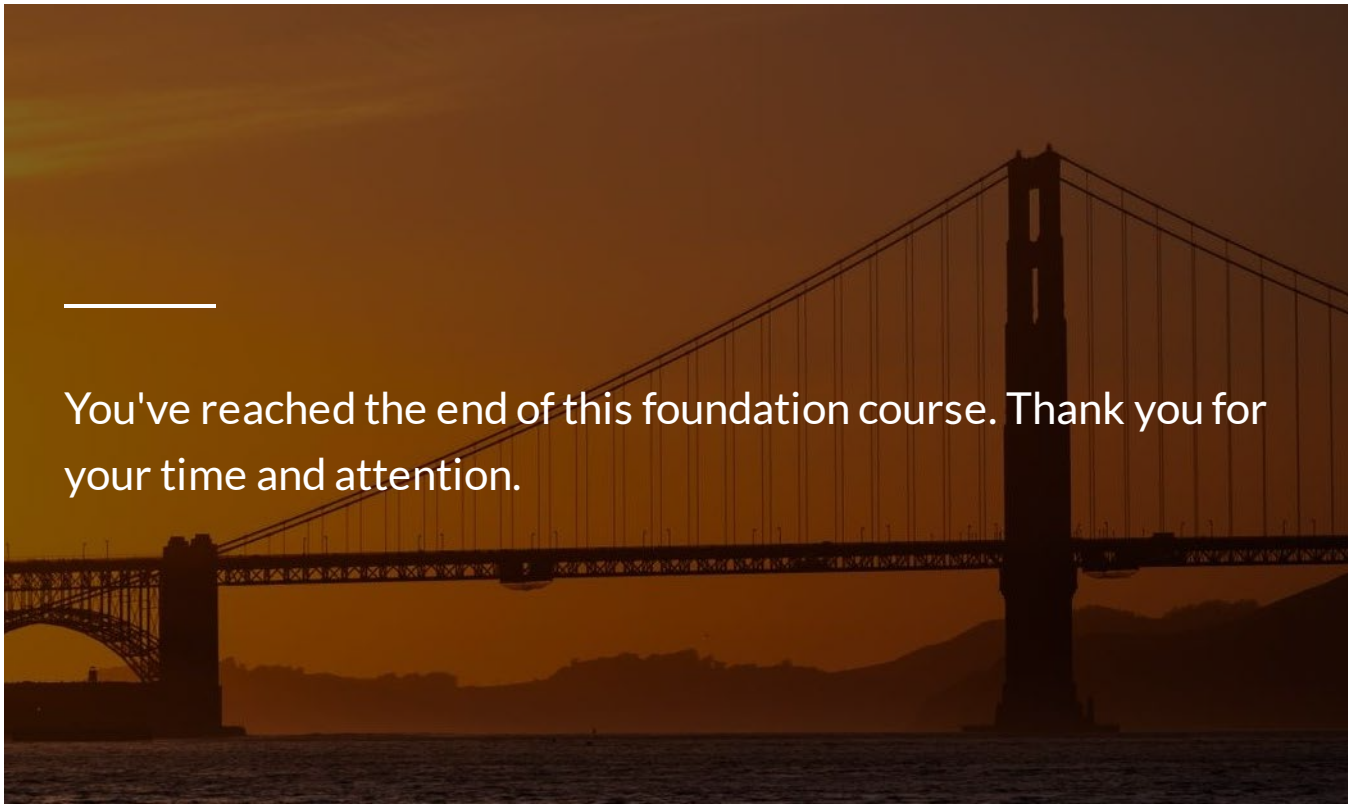
The next steps in your learning journey:

- Learn more about BREEAM Infrastructure.
- Learn more about BRE.
- Register for the BREEAM Infrastructure Assessor training course.

- Try our BREEAM Foundations course or Net Zero Carbon Foundations course.

Thank you

BT BREEAM Technical



We hope you've enjoyed this course.

We'd love to hear your feedback - please fill in the feedback form at the end of your course to let us know how we did.

You can close this window to end this module.