ASSESSMENT PLAN FOR CIVIL ENGINEERING SITE MANAGEMENT (LEVEL 6) NON-INTEGRATED DEGREE APPRENTICESHIP

Summary of Assessment

The Level 6 Civil Engineering Site Management Degree apprenticeship is designed to create highly skilled employees who can contribute to the success of complex construction projects by demonstrating skills, knowledge and behaviours in key aspects of the management of site activities on infrastructure projects, as well as contributing to wider project objectives.

Civil Engineering Site Managers work on construction sites, particularly infrastructure projects, and are responsible for ensuring that sites are managed safely and in a way that leads to the construction being achieved on time, to budget and in line with the client's quality expectations.

Successful completion of the Apprenticeship Standard demonstrates that the apprentice has the skills, knowledge and behaviours to work competently as a Civil Engineering Site Manager.

This assessment plan ensures that successful candidates will have satisfied the requirements for registration as an Incorporated Engineer with the relevant Professional Engineering Institution (PEI) as the first step in their career as an engineer. Incorporated Engineer (IEng) is an internationally recognised benchmark of competence.

The duration of the apprenticeship will typically be three to four years for new entrants. The End-point Assessment (EPA) will be in two stages and typically undertaken in the last three months of the apprenticeship:

Stage 1 – is the preparation for the structured interview. It will consist of:

- **Written Report (4500-5000 words):** the apprentices will submit a report in their own words which demonstrates that they have achieved the knowledge, skills and behaviours as set out at Annex A. The report will be accompanied by a two page CV, Continuing Professional Development (CPD) records and appendices to suit the content of the report. The CV, CPD records and appendices are not included in the word count.
- The employer will sign to verify that the work described in the written report has been carried out by the apprentice.
- Completing the written report will take 6 weeks in total. The written report will be submitted electronically to the assessment organisation who will pass it on to the Assessor Panel at least four weeks ahead of the date of the interview. The panel's role is to assess the apprentice's knowledge, skills and behaviours across the apprenticeship standard.

Stage 2 – is the face to face stage. It will consist of:

- Structured interview supported by written report and presentation: the apprentice will give a 12-15 minute presentation to the Assessor Panel highlighting achievements and

work they have done which they have not been able to cover fully in their written report. This is followed by an interview, which will assess relevant knowledge, skills and behaviours. The interview will last for 40-50 minutes. This part of the assessment process will be marked as a whole and the apprentice will not know the outcome of this part of the assessment process before they proceed to the written examination.

- Written examination: the apprentice will be set three unseen questions by their assessors and must answer all three in the allotted two hour timeframe. Questions will be set based on their experience as outlined in their CV and Written Report and industry-related knowledge relevant to the Standard. The three questions will be checked to ensure that they cover the knowledge, skills and behaviours from the standard. The written examination must be passed.

The anticipated time from submission of the written report to interview and written examination will be four weeks. The structured interview and written examination will all take place on the same day.

To be successful the apprentice must pass the Structured Interview and Written exam. The structured interview is supported by a written report and presentation which will be graded as part of this assessment method. The assessment will satisfy the requirements for registration as an Incorporated Engineer by the Engineering Council. The Assessor Panel will consist of two experienced, qualified and trained Civil Engineers nominated by the relevant End-point assessment organisation who have been trained to carry out assessments. Benchmarking the EPA against the Engineering Council UK-SPEC requirements for IEng means that the assessment outcomes will be consistent and reliable, allowing a fair and proper comparison between apprentices employed across the UK in different types and sizes of organisations.

The standard not only prepares apprentices for key job roles but also provides them with the foundation to be able to move on to the further academic learning and experience required to become a Chartered Engineer (CEng)

Suggested Structure

Timescale	**Knowledge**	**Skills**	**Behaviours**	**Notes**
Months 0-41	**On-programme assessment** Apprentice follows BEng (Hons) or BSc (Hons) Civil Engineering Degree, mapped to UK-Standard for Professional Engineering Competence (UK-SPEC) for Incorporated Engineer Works towards industry certificates in Site Safety Plus Site Managers' Safety Training Scheme and Site Environmental Awareness Training Scheme			Supervised and assessed by training provider and employer

	Apprentice gains experience in workplace and records achievement on line or in paper form	
Month 42	**Employer-led Gateway** Satisfactory completion of BEng (Hons) or BSc (Hons) Civil Engineering Degree Satisfactory completion of industry certificates in Site Safety Plus Site Managers' Safety Training Scheme and Site Environmental Awareness Training Scheme Satisfactory completion of knowledge, skills and behaviours Achieved Level 2 standard in Maths and English Progression to EPA confirmed by employer with the support of training provider	
Months 43-45	**End-point Assessment** Structured interview supported by a written report and presentation. Pass/Fail Written examination. Pass/Fail Pass or Fail – Pass satisfies the requirements for registration as an Incorporated Engineer	Assessed by qualified engineers appointed by the assessment organisation

Assessment Overview

Assessment Method	**Area Assessed**	**Assessed by**	**Grading**
Structured interview supported by written report and presentation	Knowledge, skills and behaviours from across the Standard. Details for each method can be found in Annex A.	An Assessor Panel of two assessors appointed by the relevant End-Point assessment organisation	Pass/Fail
Written examination			Pass/Fail

Process Summary

Gateway	Satisfactory evidence of knowledge, skills and behaviours as set out in the apprenticeship standard confirmed by employer Satisfactory completion of BEng (Hons) or BSc (Hons) Civil Engineering Degree Satisfactory completion of industry certificates in Site Safety Plus Site Managers' Safety Training Scheme and Site Environmental Awareness Training Scheme Achieved Level 2 standard in Maths and English Employer confirmation and request for EPA
Written report	Apprentice completes a written report of 4500-5000 words which demonstrates how, in the course of their apprenticeship, they integrated the knowledge, skills and behaviours needed to be a competent Civil Engineering Site Manager. This report is accompanied by a two page CV and CPD records to support the content of the report. The Apprentice will have 6 weeks to prepare this report.
Submission	Apprentice submits the written report and associated attachments. The report is verified by their employer and will be used to inform the structured interview.
Review of report	Two trained and qualified assessors review the written report and assess it against all of the knowledge, skills and behaviours listed in the apprenticeship standard and agree areas that need to be explored further at the interview. This is in line with current PEI practice and Engineering Council requirements.
Structured interview supported by written report and presentation	The apprentice makes a 12-15 minute presentation to the Assessor Panel expanding on one or more topics from their report. The apprentice will decide on the topic area(s) in the light of their experience. This is followed by a 40-50 minute interview picking up the points raised at the report review stage and from the presentation. The purpose of the interview is for the assessment panel to be confident that the apprentice has acquired and can use all the knowledge, skills and behaviours needed to be a competent Civil Engineering Site Manager.
Written examination	Apprentices will answer three questions set by their assessors in a two hour timeframe under exam conditions. The questions will be based on subjects related to their experience and industry-related knowledge relevant to the

	Standard and in line with the knowledge, skills and behaviours as set out in the Standard.
Decision	The Assessor Panel submits the completed documentation provided by the End-point Assessment organisation along with a recommendation as to whether or not the apprentice has successfully passed the EPA and satisfied the requirements for registration as an Incorporated Engineer to the relevant PEI.

On-programme Assessment

The maintenance of an online or paper-based portfolio of evidence which demonstrates how the apprentice has met each of the Knowledge, Skills and Behaviour statements in the Standard is recommended. It is recommended that these should be supervised by in-company mentors and training providers and tested by external assessors and verifiers.

The academic programme must be a BEng (Hons) or BSc (Hons) Civil Engineering Degree accredited by the Joint Board of Moderators and listed on the Engineering Council website as satisfying the educational baseline for IEng accreditation.

Apprentices are recommended to keep a diary of further learning activities that they undertake outside their apprenticeship as they may be required to produce a portfolio of CPD to submit to the assessment organisation for review by the PEI.

Assessment Gateway

Readiness for the End-point Assessment will be decided by the employer in consultation with the training provider.

The apprentice will need to demonstrate satisfactory completion of all aspects of their apprenticeship before they are able to undertake the EPA, including having achieved Level 2 standard in Maths and English. Specifically, they must have:

1. Achieved the academic qualifications specified in the standard. The precise requirements for this are outlined in the Employer Occupational Brief (which will be published at www.goconstruct.org). Proof of achievement of the appropriate Level 6 qualification and industry certificates may be evidenced by a certificate, course transcript or letter from the university.
2. Gained the experience required to be recommended for the EPA by demonstrating all the knowledge, skills and behaviours in the Standard to the satisfaction of their employer.
3. Passed English and Maths at Level 2.

4. Confirmed which assessment organisation the apprentice and employer wish to use for the EPA.

This will enable the apprentice to be recommended for the End-point Assessment by their employer. It is recommended the employer recommendation is from a senior manager responsible for apprentices or a Director, depending on the size of the company and its structure.

End-point Assessment

What will be assessed?

The apprentice will be expected to demonstrate through a structured interview (supported by a written report and presentation) and written examination that they have acquired the knowledge, skills and behaviours as described by the statements in the Standard and can, through their integration, competently undertake the role of a Civil Engineering Site Manager. See Annex A for a mapping of the Standard against the assessment methods.

How will it be assessed?

The assessment organisation will ensure their assessment process is aligned to the Engineering Council Incorporated Engineer review process.

The assessment will be in two stages:

STAGE 1 – preparation for the structured interview. Completing the written report will take 6 weeks in total.

1. **Written Report (4500-5000 words)**

   The apprentices will submit a reflective account in their own words, which provides details demonstrating how they have achieved the relevant knowledge, skills and behaviours as set out at Annex A. The written report will:

   1. Emphasise their responsibilities and experience for each statement in the Standard in accordance with the grading criteria. They should expand on decisions made, problems encountered and in particular highlighting occasions when they gained unusual or extensive experience and learned valuable lessons.
   2. Focus on one or two projects in which they had a significant role. They must clearly indicate their role in any relevant aspects of the project they have worked on by giving background and insight into the important decisions they were responsible for or made a significant contribution to. They must demonstrate where they have exercised independent judgement – as an engineer and a practising professional.

3. Have appendices (of no more than 12 sides of A4) to support the content of their report, which could include numerical analyses, cost data, drawings (no more than three A3 drawings) or other relevant additional documentation. Appendices are not included in the word limit.

2. **A brief two page CV:** which includes:
    a. An indication of the size and financial value of the projects undertaken
    b. Their role and responsibilities in each project.

This will not be included in the 5000 word limit.

3. **CPD Records:** these must include
    a. A Development Action Plan (DAP) which details their objectives for the current/forthcoming year
    b. A Personal Development Record (PDR) for a minimum of three years (with a minimum of 30 hours of learning per year). These records must include current formal training related to health, safety and welfare. The appropriate template will be available from the assessment organisation.

The employer will sign to verify that the work described in the written report has been carried out by the apprentice.

The written report will be submitted electronically to the assessment organisation who will pass it on to the Assessor Panel at least four weeks ahead of the date of the interview. The assessors' role is to assess the apprentice's knowledge, skills and behaviours across the Standard in accordance with the grading criteria and agree areas to be explored further as part of the structured interview.

STAGE 2 – is the Structured Interview and Written Examination. These will take place on the same day and the apprentice will not know the outcome of the structured interview ahead of taking the written examination. It is anticipated time from submission of the written report to structured interview will be 4 weeks

Structured Interview supported by Written Report and Presentation – The Apprentice will give a 12-15 minute presentation to the Assessor Panel on one or more topics covered within their written report. They should provide an in-depth description of what they have done which expands on their report and highlights their involvement. The apprentice will decide on the topic(s) based on their experience and demonstrate how they cover the knowledge, skills and behaviours as set out in the Standard.

This is followed by an interview, lasting 40-50 minutes, which will seek to confirm that the apprentice has achieved the required level of competence as set out in the Apprenticeship Standard. The assessors will pose specific questions to make sure that the apprentice can demonstrate achievement of knowledge, skills and behaviours that are mapped to this method (see Annex A).

There will be at least one question on each of the following topics which will be contextualised to the individual apprentice's experience.

1 Knowledge and understanding of engineering principles – questions about engineering principles such as structural and ground responses, the properties of materials and their behaviour as part of integrated systems, civil engineering design and mathematical modelling

2 Technical and practical application of engineering – questions about the use and validation of digital solutions and data gathering tools such as building information modelling, site investigation and construction techniques, provision of integrated solutions.

3 Management and leadership – questions about planning for effective project implementation, planning, budgeting and organisation, managing teams and developing staff, best practice methods of quality management and continuous improvement.

4 Commercial ability – questions about managing the balance between quality, cost and time, client and end user needs, budgeting, procurement, contract management, commercial and financial risks, satisfying legal and statutory obligations,

5 Health, safety and welfare – questions about safe systems of work, assessing and controlling risk, health safety and welfare legislation and best practice.

6 Sustainability and environment – questions about the impact of civil engineering infrastructure in its construction, management and use and the tools used to assess sustainability and environmental impact

7 Interpersonal skills and communication – questions exploring examples of technical and non-technical presentations, reports, working as part of a team, presenting and discussing proposals

8 Professional commitment – questions about client confidentiality, codes of conduct, continuing professional development

The assessment will be recorded on documentation provided by the End-point Assessment organisation.

The presentation and written report will also be graded as part of this assessment method.

Written Examination – The apprentice will answer three questions set by their assessors in a two hour timeframe. The questions will be on:

- Management
- Health and Safety
- Sustainability and Environment

and based on the apprentice's experience as outlined in their CV and written report and industry-related knowledge relevant to the Standard. The questions will be checked and approved internally by the assessment organisation in advance of the interview. This is to make sure that the questions provide full coverage of the relevant knowledge, skills and behaviours **(see Annex A**) and are also acceptable to the relevant PEI and are comparable in terms of difficulty and so maintain quality

standards over time. The apprentice will complete their written examination with other apprentices attending the same assessment centre under exam conditions and supervised by an invigilator. If the apprentice advises that they have Specified and Defined Learning Disabilities (SdLD), reasonable adjustments will be made to the arrangements for the written examination to accommodate their needs. The written examination must be passed.

What will the Apprentice have to do?

- Submit a written report, accompanying CV, CPD records and appendices to suit the content of the report
- Attend an interview
    - Make a 12-15 minute presentation
    - Take part in a 40-50 minute structured interview
- Undertake a two hour written examination

Where will the assessment take place?

The interview will be set up by the assessment organisation in a suitable venue to minimise travel wherever possible by the Apprentice and the assessors. In exceptional circumstances, for example if the Apprentice is working in a remote location, the option of an interview by the use of video conference facilities may be used. In this case it is envisaged the written exam would take place in the same building, with an invigilator appointed by the assessment organisation.

Who will carry out the assessment and who will be on the Register?

The EPA will be carried out by an Assessor Panel of two independent assessors appointed by the relevant assessment organisation which has the ability to assess applicants as Civil Engineering Site Managers and award the status of IEng.

The assessment organisation will be on the Register of End Point Assessment Organisations (RoEPAO).

Minimum requirements for assessors

The members of the Assessor Panel are required to be professionally qualified members of a PEI and must have been trained to carry out their role as assessors. Applicants must either be working in the industry or, if not currently working in the industry or recently retired (up to two years), will need to demonstrate that they have maintained links with the industry and current practices. Each application to become an assessor will be evaluated on its own merits. The evaluation process will consider all relevant factors such as a minimum of three years' industry experience, professionally qualified to at least IEng and having post-professional qualification experience. Once appointed, the assessor will undertake training as required by the assessment organisation and be subject to the assessment organisation's quality assurance process including maintaining and submitting CPD

records on request. This training includes how to undertake assessments, marking standardisation, questioning techniques and observing interview and is a tried and tested process within the PEIs which are licensed by the Engineering Council, the UK regulatory body for the engineering profession.

How will the panel work and who will have the casting vote?

The Assessor Panel will be appointed by the assessment organisation. Following receipt of the application for EPA the End-point assessment organisation will check that all is in order and then select two assessors at least one of whom is matched to the Apprentice's area of specialism.

Both the assessors and the apprentice will be informed of the details of the EPA and will make the assessment organisation aware of any potential conflicts of interest. If a potential conflict of interest is identified, then an alternative assessor will be provided. The Written Report and evidence from the Gateway submitted by the Apprentice will be checked by the assessment organisation's staff to ensure that all is in order before they are passed on to the Assessor Panel members for them to assess ahead of the interview. The Assessor Panel members will consider the written report and agree between themselves on the areas to be covered in the interview. The assessors will record their findings for both the written exam and the structured interview on the documentation provided by the End-point Assessment organisation. The assessors will mark the structured interview and the supporting elements for this method i.e. the written report and presentation and also the written examination as pass or fail, backing their decision from the evidence from the the EPA. To be successful the Apprentice must demonstrate that they have met all of the knowledge, skills and behaviours in the Standard and have obtained a pass grade for both the written exam and structured interview elements of the EPA.

The apprentice must be deemed to have demonstrated achievement of the knowledge, skills and behaviours by both assessors. If, after discussion, one or more of the assessors are of the opinion that the required standard has not been achieved then the outcome is a Fail. The documentation, with the Panel's recommendation, will then be submitted to the assessment organisation for moderation.

End-point Assessment – final judgement

The two assessors will make the final judgement on whether the Apprentice has passed the End-point Assessment and the Apprentice will be notified within 12 weeks of attending the End Point Assessment. To be successful the apprentice must pass the Structured Interview and Written Examination. If they pass, then they will be able to apply to register as IEng with no further assessment process

The relevant assessment organisation will be registered and listed on the Register of End Point Assessment Organisations (RoEPAO).

If the Apprentice has been unsuccessful the employer will have to apply for them to resit/retake the EPA, taking into account assessor feedback on areas where they did not demonstrate competence as evidenced in written feedback provided to the apprentice.

The feedback will be provided in writing at the same time as the Apprentice is informed that they have failed the EPA. The Apprentice will be required to resit/retake the structured interview and the written examination, even if they have passed one of these methods. The resit/retake must be taken within 12 months of the original EPA.

Independence

Who is providing the independent EPA?

The assessment organisation will co-ordinate the entire EPA process and not be involved in any aspect of the delivery of the on-programme assessment and be independent of the employer. The assessment organisation must have systems in place to ensure that if assessors know the apprentice, or have links to the employer or training provider they would not be able to take part in the assessment process.

How is this deliverable for all employers?

The EPA will be set up by the assessment organisation in a suitable venue to minimise travel wherever possible by the Apprentice and the assessors. In exceptional circumstances, for example if the Apprentice is working in a remote location, the option of a structured interview by the use of video conference facilities may be used.

End-point – Grading

The table below outlines the scoring criteria that will be applied to each assessment method.

EPA method	Pass criteria	Fail criteria
Structured Interview (supported by a written report and presentation)	Using Annex A provides evidence of knowledge, skills and behaviours required to: - Maintain and extend a sound theoretical approach to the application of technology in engineering practice (K1, S1, S2) - Use a sound evidence-based approach to problem solving and be able to contribute to continuous improvement (K1, K3, K6, S1, S2, B2) - Identify, review and select techniques, procedures and methods to undertake	Fails to provide evidence to meet knowledge, skills and behaviours as required in Annex A for this assessment method

	engineering tasks (K1, K2, K3, S1, S2, B2) - Contribute to the design and development of engineering solutions (K2, S1, S2, B3) - Implement or construct design solutions and contribute to their evaluation (K2, K3, K6, K10, S1, S2, S5, B1, B2) - Plan for effective project implementation (K4, K5, S3, B1) - Manage the planning and organisation of tasks, people and resources (K4, K5, K10, S3, S5, S7, B1) - Manage teams and develop staff to meet changing technical and managerial needs (K8, K9, S3, S7, B1, B2) - Manage quality processes (K6, S3, B1) - Identify the limits of personal knowledge and skills (K9, S7, B2, B4) - Exercise sound independent engineering judgement and take responsibility (K1, K2, S1, S2, B1, B2) - Prepare and control budgets (K7, S4, B1) - Use sound knowledge of statutory and commercial frameworks within own area of responsibility and have an appreciation of other commercial arrangements (K7, S4, B3) - Maintain a knowledge of legislation, hazards and safe systems of work (K10, S3, S5, B1, B2) - Manage risks (K3, K10, S3, S5, B1, B2) - Manage health, safety and welfare within own area of responsibility (K10, S3, S5, B1, B2)	

	- Maintain a knowledge of sustainable development best practice (K11, S6, B3, B4) - Manage engineering activities that contribute to sustainable development (K11, S3, S6, B3, B4) - Communicate well with others at all levels including effective use of English orally and in writing (K8, K9, S3, S7) - Discuss ideas and plans competently and with confidence (K8, K9, S3, S7) - Maintain effective personal and social skills (K8, K9, S7,) - Manage diversity issues (K9, S3, S7, B3) - Understand and comply with the Professional Engineering Institution's code of conduct (B3) - Plan, carry out and record Continuing Professional Development and encourage others (B4) - Engage with the Professional Engineering Institution's activities (K9, S1, S7, B4) - Demonstrate appropriate professional standards, recognising obligations to society, the profession and the environment (K1, B3) - Exercise responsibilities in an ethical manner (B2, B3) - Show they have, or would, use Building Information Modelling (BIM) to access and work with data (K2, K3, K6, S2,) To pass the Apprentice must demonstrate achievement of all these grading criteria.	
	Using Annex A provides evidence of knowledge, skills and behaviours required to:	Fails to provide evidence to meet knowledge, skills and behaviours as required in

Written examination	- Plan for effective project implementation (K4, K5, S3, B1) - Manage the planning and organisation of tasks, people and resources (K4, K5, K10, S3, S5, S7, B1) - Manage teams and develop staff to meet changing technical and managerial needs (K8, K9, S3, S7, B1, B2) - Prepare and control budgets (K7, S4, B1) - Use sound knowledge of statutory and commercial frameworks within own area of responsibility and have an appreciation of other commercial arrangements (K7, S4, B3) - Maintain a knowledge of legislation, hazards and safe systems of work (K10, S3, S5, B1, B2) - Manage risks (K3, K10, S3, S5, B1, B2) - Manage health, safety and welfare within own area of responsibility (K10, S3, S5, B1, B2) - Maintain a knowledge of sustainable development best practice (K11, S6, B3, B4) - Communicate well with others at all levels including effective use of English orally and in writing (K8, K9, S3, S7) - Discuss ideas and plans competently and with confidence (K8, K9, S3, S7) To pass the Apprentice must demonstrate achievement of all these grading criteria.	Annex A for this assessment method

End-point – Summary of roles and responsibilities

Assessor	Role
Employer	To ensure that the apprentice is given the correct experience in their job role and act as the final approver in the Gateway process for going forward to the EPA.
Assessment Organisation	Act as the independent Assessment Organisation for the EPA by: Recruiting, training and monitoring assessors Administering the EPA Conducting the EPA Quality control of the assessment process Informing the Apprentice of the outcome of the EPA Arranging resits/retakes Dealing with any issues or appeals that arise Applying for the Apprenticeship Completion Certificate

Quality Assurance – internal

The assessment organisation will have its own internal quality assurance procedures to ensure that the End-point Assessment is valid and reliable. Where the assessment organisation is a PEI, these procedures are in accordance with the Engineering Council requirements from whom its gets its license in the first place.

The EPA will be conducted by assessors who are trained, approved and reviewed by the relevant assessment organisation.

The assessment organisation will sample all failures and 10% of the passes of the EPA results for consistency and reliability i.e. moderation. Regular meetings with assessors will be held at least annually to provide standardisation as well as an update and feedback on the assessment process.

The assessment organisation will have an appeals process if an Apprentice wishes to challenge the outcome of the EPA.

Quality Assurance – external

The employer led approach has been chosen as the EQA model, with the employers working in partnership with the Construction Industry Training Board (CITB).

Implementation

The Employer consortium (trailblazer group) is working with a number of potential assessment organisations to ensure alignment with EngTech requirements.

Affordability

The cost of the End Point Assessment (EPA) will be no more than 20% of the overall apprenticeship. The funding band is awaiting confirmation. This ensures that the EPA is open to all sizes of employer anywhere in the UK.

The assessment organisation costs will include:

- Logging applications for the EPA and issuing the technical project brief
- Setting up the interview and appointment of assessors
- Venue costs
- Assessor travelling and subsistence expenses
- Internal quality assurance
- External quality assurance
- General administration of the process.

Professional body recognition

A Pass grade means that the Apprentice should have met the standards required to achieve Incorporated Engineer status with the Institution of Civil Engineers (IEng MICE). Successful completion of the End-point Assessment process for this Apprenticeship and will mean that the apprentice is also eligible to apply for the designatory letters IEng MICE and the status of Incorporated Engineer.

If the employer has chosen a PEI as the assessment organisation, apprentices are recommended to keep a diary of further learning activities that they undertake outside their apprenticeship as they may be required to produce a portfolio of CPD to submit to the PEI to enable registration as IEng MICE.

Consistency

Benchmarking the EPA against the Engineering Council UK-SPEC requirements for IEng and the internal and external quality assurance processes mean that the assessment outcomes will be consistent and reliable, allowing a fair and proper comparison between Apprentices employed in different types and sizes of organisations and at different geographical locations.

Volumes

It is anticipated that there will be the following volumes of Apprentices following this standard:

- 2018-19 Academic Year: 100
- 2019-20 Academic Year: 150

The colleges and universities in the provider consortium who have indicated interest in delivering this new standard already deliver part-time academic qualifications for the industry and so there are no issues with capacity and scalability. Similarly, the potential assessment organisations consulted already deliver their assessment processes and have infrastructure in place. In the longer term this new standard should lead to an increase in new starters and the providers are able to cope with the gradual increases expected.

Annex A

MAPPING OF EPA METHODOLOGY TO STANDARD

Knowledge reference	Knowledge category	Core knowledge to be assessed	Structured Interview (supported by written report and presentation)	Written Examination
K1	Civil Engineering Knowledge	Understand engineering principles, codes and standards including but not limited to: transportation, buildings, infrastructure, utilities and structures.	Y	
K2	Civil Engineering Solutions	Understand the client's needs and the practicality of using certain engineering solutions to meet those needs, taking into account constraints and opportunities.	Y	
K3	Civil Engineering Techniques	Understand design principles, building surveys, costing, risk analysis, sustainability, Health and Safety, buildability, contract law.	Y	
K4	Project Management	Understands the project management cycle including the planning, budgeting, project funding and payment processes so as to lead to effective project delivery.	Y	Y
K5	People and Resources	Understand principles of team working, staff co-ordination, supply chain management, performance	Y	Y

		management and the development of people.		
K6	Quality Management	Understand the importance of maintaining quality standards, using records, systems, tools and techniques for quality improvement.	Y	Y
K7	Commercial and Legal Awareness	Understand budgets, costs, various forms of contract, procurement and record keeping and their impact on project success, profitability and meeting the budget.	Y	Y
K8	Communication	Understand different forms of communication (written, verbal, electronic) and evaluate the best solution for different circumstances.	Y	Y
K9	Working with Others	Be aware of the importance of good working relationships, the needs of others and equality and diversity in the workplace	Y	Y
K10	Safe Systems of Work	Understand obligations for Health, Safety and Welfare issues on site, how to identify potential hazards and manage the risks	Y	Y
K11	Sustainability	Understand the environmental impact of civil engineering activities and how to minimise negative impacts during all stages of the project	Y	Y

Skills reference	Skills category	Core skills to be assessed	Structured Interview (supported by written report and presentation)	Written Examination
S1	Civil Engineering Knowledge and Understanding	To develop and apply practical engineering solutions using established and emerging civil engineering technologies such as, but not limited to, new materials or off-site manufacture.	Y	
S2	Civil Engineering Appreciation	Be able to identify, review and select techniques, procedures and methods to undertake engineering tasks. Be able to contribute to the design, development and implementation of engineering solutions and evaluate their effectiveness.	Y	
S3	Management and Leadership	Be able to plan for effective project management, plan and organise resources, tasks and people. Be able to manage teams and staff to meet project requirements and be able to manage quality processes.	Y	Y
S4	Commercial Ability	Be able to prepare and control budgets and apply statutory and commercial frameworks to ensure profitability and adherence to budget.	Y	Y

S5	Heath, Safety and Welfare	Be able to identify and manage risks of health, safety and welfare in line with legislation, hazards and safe systems of work.	Y	Y
S6	Sustainable Development	Be able to manage engineering activities in a way that contributes to sustainable development and implements best practice.	Y	Y
S7	Interpersonal Skills and Communication	Be able to communicate well with others at all levels and discuss plans and issues. Demonstrate personal and social skills and an ability to deal with colleagues and stakeholders in a way that enhances equality and diversity. Be able to proactively transfer information to teams and staff.	Y	Y

Behaviours reference	**Behaviours category**	**Core behaviours to be assessed**	**Structured Interview (supported by written report and presentation)**	**Written Examination**
B1	Take Responsibility	Be responsible for your own work and that of others.	Y	
B2	Independent Judgement and Responsibility	Exercise independent engineering judgement, take responsibility for actions and decisions and operate within the	Y	

		constraints of own skills and knowledge.		
B3	Complying with Codes of Conduct	Be able to operate within the Institution of Civil Engineers Code of Conduct and implement work activities within the context of industry issues. Promote ethical behaviour in others and promote the construction industry.	Y	
B4	Maintaining Continuing Professional Development	Identify own development needs and take appropriate action to meet those needs. Use own knowledge and expertise for the benefit of others.	Y	