T-LEVELS | Institute for Apprenticeships & Technical Education

T Level Technical Qualification in Building Services Engineering for Construction (8710-30)

8710-033 Employer-Set Project

Exemplar – E Grade

Summer 2022

City & Guilds | eal

Contents

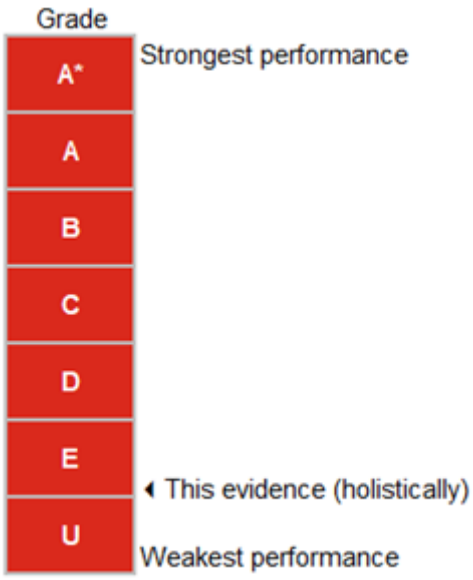
0. Introduction

This document is aimed at providers and learners to help understand the standard that was required in the summer 2022 assessment series to achieve an E grade for the 8710-033 Building Services Engineering in Construction Employer-Set Project (ESP).

Providers and learners may wish to use it to benchmark the performance in formative assessment against this to help understand a potential grade that may be achieved if a learner was to attempt the next summative assessment series.

The Employer-Set Project is graded A* to E and Unclassified.

The exemplar evidence provided for the E grade displays the holistic standard required across the tasks to achieve **one mark above** the E grade boundary (i.e. a low E grade) for the **summer 2022 series**. A slightly weaker performance would have resulted in an Unclassified (U) result being issued.



The Employer-Set Project brief and tasks can be downloaded from here.

Important things to note:

- The standard required of the E grade for summer 2022 was lower than what will be expected in the summer 2023 series and beyond. This was due to a generosity that was applied in the awarding of the summer and autumn 2022 T Level assessments in recognition of the continued impact of the pandemic on teaching and learning as well as the introduction of these new qualifications.
- The exemplar evidence presented, as a whole, was sufficient to achieve one mark higher than the E grade. However, performance across the tasks may vary (i.e. some tasks completed to a higher/lower standard than an E grade).

Marking of this Employer-Set Project is by task and Assessment Objective, below is a summary of these along with the mark achieved by the evidence presented and the maximum mark available for each aspect.

Task	Assessment Objectives	Mark achieved	Max mark available
Task 1.1 Research	- AO1 Planning skills and strategies - AO2a Apply knowledge to the context of the project - AO3 Analyse contexts to make informed decisions - AO4c Use digital skills	3	9
Task 1.2 Report	- AO1 Planning skills and strategies	3	6
	- AO2 Apply knowledge and skills to the context of the project	3	12
	- AO3 Analyse contexts to make informed decisions	2	2
	- AO4 Use maths, English and digital skills	3	6
Task 1.3 Plan	- AO1 Planning skills and strategies - AO3 Analyse contexts to make informed decisions - AO4a Use maths skills	3	8
	- AO2 Apply knowledge and skills to the context of the project	3	16
Task 1.4 Presentation	- AO1 Planning skills and strategies - AO3 Analyse contexts to make informed decisions - AO4b Use English skills	2	6
	- AO2 Apply knowledge and skills to the context of the project	3	12

Task	Assessment Objectives	Mark achieved	Max mark available
Task 2.1 Collaborative problem-solving	- AO2 Apply knowledge and skills to the context of the project - AO3 Analyse contexts to make informed decisions - AO5 Carry out tasks and evaluate for fitness for purpose	3	15
Task 2.2 Evaluation	- AO4b Use English skills - AO5 Carry out tasks and evaluate for fitness for purpose	3	8

1. Task 1.1 Research

Assessment number (eg 1234-033)	8710-033
Assessment title	Employer-Set Project

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	Task 1.1
Evidence title / description	Research notes
Date submitted by	DD/MM/YYYY

MDPE 25mm 50m for the water services https://www.screwfix.com/p/mdpe-pipe-blue-25mm-x-50m/19606 it will cost £39.99

Steel wired armoured 10m2 25m https://www.screwfix.com/p/prysmian-6943x-black-3-core-10mm-armoured-cable-25m-drum/21963 it will cost £166.64

22mm copper pipe https://www.screwfix.com/p/wednesbury-copper-pipe-22mm-x-3m-10-pack/18384 it will cost £ 193
Site access

Access to the site will start from the connecting road and lead onto site using large vehicles such as bulldozers and backhoe loaders which are used to move large mounds of dirt and earth if needed . https://www.thebalancesmb.com/must-have-earth-moving-construction-heavy-equipment-844586 https://www.jcb.com/en-gb/products/backhoe-loaders/3cx-eco

Temporary road strip road back compact soil put hardcore road the hardcore will be used is mot type 1 sub base which will cost £490 for 20 tonne
https://www.littlerbulkhaulage.co.uk/shopprices/prod_1872758-Mot-Type-1-SubBase.html?gclid=EAIaIQobChMIvcyMmN6i9wIVCLrtCh1-QwJDEAQYAiABEgIcZfD_BwE

For site access these things need to be put in place

- Consult all stakeholders when planning site access and egress points, eg clients, suppliers, owners of nearby plant.
- Provide adequate separation between vehicles and pedestrians.
- Ensure that any door or gate for pedestrians which leads onto a traffic route is sufficiently separated from the route to enable pedestrians to see any approaching vehicle or plant from a place of safety.
- Where it is unsafe for pedestrians to use a gate intended primarily for vehicles, provide at least one door for pedestrians.
- Provide suitable and sufficient lighting around entrances and exits.
- Manage site access and prevent unauthorised access by ensuring effective boundary security.
- Pay attention to the security of site keys and vehicle keys to prevent unauthorised access and crime.
- Provide on-site information for those who will visit the site including the site rules concerning access and egress.
- Clearly state site rules regarding PPE such as high visibility clothing, limits on use of mobile phones, prohibitions on reversing or conditions for reversing such as the use of a signaller, requirements for drivers to stay in their vehicles, accident reporting.
- Ensure a suitable site speed limit is identified and enforced.
- If at all possible, a separate vehicle entrance and exit should be employed to create a one-way system.
- Provide adequate signposting to assist delivery vehicles unfamiliar with the site layout.
- Set up guardrails and barriers to prevent pedestrians crossing the flow of traffic.
- Ensure all staff have suitable footwear.

- Make all possible efforts to avoid unloading at the site entrance.
- Ensure suitable visibility at the site entrance by installing sufficient lighting.
- Ensure adequate disabled access.

https://app.croneri.co.uk/topics/access-and-egress-site-traffic-management/how-ensure-safe-access-and-egress-construction

Traffic management

Vehicles and pedestrians need to be kept apart using separate entrances and exits for pedestrians and vehicles think about installing barriers between roadway and walkway. The road needs to be wide enough so that emergency vehicles can get through.

https://www.hse.gov.uk/construction/safetytopics/vehiclestrafficmanagement.htm

Things like traffic lights need to be installed if the site blocks the road or the pedestrian footpath. Sublet rental offer a wide range of products including barriers temporary traffic lights and you can request a quote to see the cost. https://www.sunbeltrentals.co.uk/to-rent/traffic-management/#cycle_item_1

Site security

To ensure prohibited access to site use security gates barriers on site entrances and exits and make sure you use anti climb vehicle and pedestrian gate the supplier prices the gate at £175 https://www.wadebuildingsupplies.co.uk/products/anti-climb-pedestrian-gate-1?variant=40169115058327&currency=GBP&utm_medium=product_sync&utm_source=google&utm_content=sag_organic&utm_campaign=sag_organic .for the vehicle gate and for the vehicle gate £250 per gate . https://www.wadebuildingsupplies.co.uk/products/anti-climb-vehicle-gate?variant=40205950451863

Security guard average cost is £9.81 per hour according to https://uk.indeed.com/career/security-guard/salaries

To store the equipment and materials away by using storage containers you can use a steel storage container it cost £22.80 per week . https://www.portablespace.co.uk/product/20ft-x-8ft-steel-furniture-store .

Services

Water supply employ a plumber who will cost £40 per hour https://tradesmencosts.co.uk/plumbers/ tap into water supply from the existing building use the MDPE pipe 25mm

Electrical supply employ an electrician who will cost £35 per hour https://pricethisplease.co.uk/electrician-cost/#:~:text=Report%20Ad-,Electrician%20Cost%20Per%20Hour,still%20worth%20an%20electrician's%20time.

Tap into the existing electrical supply from the building using a steel wired armoured cable 25mm.

Gas supply employ a gas engineer which will cost £100 per hour https://www.emergencyplumber.uk.com/plumbing/gas-engineers-fitting-service/ tap into the existing supply using a 22mm copper pipe .

For internet you can use a LAN cable directly connected to devices.

Welfare facilities

Toilets: steel toilet which will cost £48 per week https://www.portablespace.co.uk/product/21-steel-toilet-12ft-x-9ft 7 people per toilet means 5 toilets are needed on site

Static welfare unit https://www.sunbeltrentals.co.uk/to-rent/accommodation/#cycle_item_1

Site office https://www.portablespace.co.uk/product/20ft-x-7ft6in-steel-mobile-anti-vandal-office it will cost £ 54 per week

Site canteen will cost £54 per week https://www.portablespace.co.uk/product/32ft-x-10ft-steel-anti-vandal-canteen

First aid provisions

First aid at work: The Health and Safety (First-Aid) Regulations 1981 - Guidance on Regulation.

The Health and Safety (First-Aid) Regulations 1981 require employers to provide adequate and appropriate equipment, facilities and personnel to ensure their employees receive immediate attention if they are injured or taken ill at work. These Regulations apply to all workplaces including those with less than five employees and to the self-employed.

You need a trained first aider

You need an accident book

https://www.hse.gov.uk/firstaid/legislation.htm

You need to conform to health and safety at work act and COSHH, working at height, etc

You must have safety signs complying with regulations

Risk assessment:

- identify risks
- control risks
- record your findings
- review controls

2. Task 1.2 Report

Assessment number (eg 1234-033)	8710-033
Assessment title	Employer-Set Project

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	Task 1.2
Evidence title / description	Report
Date submitted by	DD/MM/YYYY

I’m writing on behalf of Sports Facilities PLC to inform you about the proposed extension plan on the current facility. The report will show my findings and provide suggestions on how this should be carried out safely and legally. The research I have made will highlight the activities will highlight the activities that will happen on site such as:

Site access

First, we will discuss site access and things that need to be put in place to do this safely. The access to the site will start from the connecting road and lead onto site. Because the road is small and large vehicle will need to access site, I think we need to widen the road by making into a double lane. This will be done by using backhoe and bulldozers that I think should be supplied from JCB due to the good quality and price of £495. which will be used to move large mounds of dirt if needed. Then you will need to employ groundworkers to strip the road back and compact the soil and put the hardcore on the road, the hardcore that will be used is mot type 1 subbase which will cost £490 for 20 tons and I have researched the best prices and supplier and from my research I think that this will be bought from the supplier littlerbulkhaulge because of the good prices. Also, adequate signposting needs to be provided to assist delivery vehicles unfamiliar with the site layout.

Traffic management

Also, traffic management needs to be considered. Vehicles and pedestrians need to be kept apart by using sperate entrances and exits for pedestrians and vehicles we will need to install barriers between the roadway and walkway. The road needs to be wide enough so emergency vehicles can get through. Things like traffic lights need to be installed if the site blocks the road or the pedestrian footpath. Sublet Rental offer a wide range of products including barriers traffic lights and you can request a quote to see the cost. We will need to consult all stakeholders when planning site access.

Also there needs to be sufficient lighting around entrances and exits so that people and vehicles can see other vehicles coming of and on site and prevent accidents happening and this will ensure health and safety measures are met. Also, where it is unsafe for pedestrians to use a gate intended primarily for vehicles, there needs at least one door for pedestrians. Ensure that any door or gate for pedestrians which leads onto a traffic route is sufficiently separated from the route to enable pedestrians to see any approaching vehicle or plant from a place of safety. Also, that a suitable speed limit is met by putting up speed limit signs to make sure that everyone knows the speed limit on site and on the road leading to site. Also, signs need to be placed to ensure safety such as reversing vehicles to make sure that everyone is aware of the risk and to be patient so that the vehicles can reverse safely. Quadrails and barriers need to be set up to prevent pedestrians crossing the flow of traffic. A separate vehicle entrance and exit should be employed to create a one-way system.

Site security

To ensure prohibited access to the site we will need to use security gates and barriers to fence of the site on the site entrances and exits and make sure you use anti climb vehicle and pedestrian gate and after researching suppliers I think the best supplier is wade building supplies who prices the pedestrian gate at £175 for hire. The vehicle gate will cost £250 per gate. Security guards will need to be employed to watch the site to monitor the site and equipment over night to ensure it is kept safe. And I have researched, and I have found on indeed that security guards will cost £9.81 per hour but this will be good to have to have more protection and ensure that there is no unauthorized access on site and that the materials and equipment are kept safe. The equipment and materials will need to be stored safely so that it is not damaged or stolen so they will need to be stored using steel 20 ft x 8ft storage container and I think from my research that it should be supplied from Portable Space.co.uk because of the price. This will keep the equipment and materials the safest. The storage container is a good price, and it will cost £22.80 per week to hire. I think these are a good choice because of the price and that this is really the best and most effective way to ensure that the equipment and materials are kept safe, and they are big enough to store a lot of equipment and materials and there is enough room to get the things out.

First aid provisions

There needs to be first aid to ensure that the safety of everyone on site and the health and safety regulations which require employers to provide adequate and appropriate equipment, facilities and personnel to ensure their employees receive immediate attention if they are injured or taken ill.

There also should be safety signs complying with the regulations.

There also needs to be a risk assessment on site to assess all the risks. A risk assessment is identifying all the potential risks and who may be harmed. Then to control the risks by putting measures in place to try and prevent them. Record your findings such as any risks. Then review your controls to make sure that they are being updated because the risks can change.

A method statement will tell the operative exactly how to do the job they are doing even down to what tools and PPE is required.

The minimum first aid provisions are:

- A first aid kit
- A first aid station
- A trained first aider
- An accident books

Services

To ensure that the site has gas, water and electric for things such as toilets and equipment temporary supplies must be used.

For the water supply I think that the best way is to tap into the existing building next to the extension. A plumber will need to be employed and after my research I have found on Tradesmen Costs that they will cost £40 per hour. They will use a MDPE 25mm pipe to connect to the existing building as a temporary water supply.

For the electrical supply I think the best way is to tap into the existing building. An electrician will need to be employed and according to my research I have found on Price This Please that they will cost £35 per hour. They also need to be part of a competence scheme so that they can sign the work off and to make sure that they are complying with British regulations and wringing regs bs7671. They will tap into the existing building using a steel wired armored cable 25mm. Alternatively, you can have a standby generator in case of a electrical failure

For the gas supply I think the best way is to use an LPG gas cylinder and the price will be confirmed later. It will be fitted by a specialist in the field.

Internet

To ensure that the site can connect to the internet so that everyone on site can send emails and know about delivery's I think that the best option is to use a LAN cable which will directly connect to devices.

Welfare facilities

On site there must be places where employees can go to the toilet, eat food and there also needs to be a site office. So, things like static welfare units, portable toilets and canteens need to be placed on site. I think the best place to them is the northeast end of the car park. This is because it is far enough so that all work areas will remain sanitary, and it will be easily accessed all the time.

There are a certain number of toilets needed on site so there needs to be that seven people per toilet the toilets will be separated in a steel 12ft x 9ft toilet block this means that there needs to be five toilets on site. They will cost £48 per week and the supplier used will be portable space.

For the static welfare unit that needs to be placed on site I’m going to use the supplier subelt rentals and you can get a quote from them.

A site office will need to be put on site and the supplier will be sunbelt rentals and will cost £54 per week.

A site canteen will need to be placed it will cost £54 per week and it will be supplied from portable space.

Waste management

There needs to be recycling bins and skips on site to ensure that there is no rubbish and waste is disposed of properly, so it doesn’t damage the environment. They will also need to following waste regulations and environmental regulations and all hazardous waste must be dispose of properly.

Energy evacuation plan and muster points

There needs to be places where in the event of an energy everyone on site will be at these points. They will need to be sign posted to ensure everybody knows where they are. They also need to be an evacuation plan so that in an event of an emergency everyone knows where to go what to do and how to get to the emergency points safely.

3. Task 1.3 Plan

Assessment number (eg 1234-033)	8710-033
Assessment title	Employer-Set Project

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	Task 1.3
Evidence title / description	Project plan and supporting statement
Date submitted by	DD/MM/YYYY

Kenneth social has asked me to propose a solar pv system to supply lighting to reduce the cost on the client Kenneth social.

Schematic drawing

Looking at the schematic drawing from the architect to show where everything is going, it should be strong enough to hold solar panels and mounted on a motorised bracket that faces the sun all day. We are going to put enough solar panels to supply for the electricity.

Ordering materials

a motorized mounted bracket will be delivered for the solar panels to go on. for the solar panels the things that need to be ordered are an inverter that coverts DC current to AC current, battery and cables.

Ordering equipment

Then we are going to order the scaffolding and then it will be delivered on site and erected by the scaffolding company. the next thing with be a scaffolding hoist to lift the equipment on site. Then the solar panels.

Specialised labour

The specialised labour needed will be an installer and scaffolding company we will get a structural engineer to inspect the roof. The installer will be to be certified to install solar panels which means they are qualified to work with solar panels, and they will install the solar panels. the scaffolding company will need to erect the scaffolding in a safe way and check k that it is up and is safe. The structural engineer will check the strength of the roof to make sure it is able to have solar panels of it.

Risk assessment and method statement

There will need to be a risk assessment which will need to be carried out by a person who has knowledge and experience such as the site manager. they will need to identify all the all the potential risks and hazards and who can be harmed. They will need to record any risks that are found. then they will need to put measures in place to prevent the risk. Then they will need sign the risk assessment off. A method statement is a document that describes how to do the work safely do work safely step by step and using the correct ppe.

The installer will need to attach the rails on the roof which the mounted bracket will be attached to the solar panel will be attached and the cables will be also. the cables will run under the tiles into the void where it is connected to the inverter. The cables from the two strings are connected to dc isolators which are then connected to the inverter. the ac output from the inverter is then connected to an ac isolated from where it is taken down to the consumer unit.

Benefits of solar panels are that they are environmentally friendly, cost effective, easy to install, easy to maintain.

Waste management

There needs to be skips and recycling bins for and waste and all waste needs to be disposed of properly and is following regulations. when working which electrical waste the regulation that needs to be followed is WEE which is a regulation of how to dispose of electrical waste properly

Handover commissioning

Commissioning is when all the work needs to be signed off by the site manager and approved contactor and check that the work is up to standards and that anything wrong is adjusted.

Handover

The handover is when the site manger shows the client the building and the work that has been and then the keys are handed over.

days

Trades		1/2	3/4	5/6	7/8	9/10	11/12	13/14	15/16	17/18	19/20	21/22	23/24	25/26	27/28	29/30	31/32	33/34	35/36	37/38	39/40
Site set up	A	A	A	A	A	A															
Ground workers	B	B	B	B	B	B	B	B	B	B	B										
Foundation prep	C	C	C	C	C	C	C	C	C	C	C										
Brick layer	D					D	D	D	D	D	D	D									
Foundation electrodes	E				E	E															
Foundation	F											F	F	F	F	F	F	F	F	F	F
External shell	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Internal walls blockwork	H										H	H	H	H	HH	H	H	H	H	H	H
Roof trusses	I								I	I	I	I	I	I	I						
Roof covering	J								J	J	J	J	J	J	J	J	J				
Panel installation	K																K	K	K	K	K
Cut through door to existing building	L																	L	L		
Floor screeding (100mm throughout and cure)	M											M	M	M	M	M	M	M	M	M	M
External doors and windows	N														N	N	N	N	N	N	N
Plastering	O															O	O	O	O	O	O
Bar servery construction	P											P	P	P	P	P	P	P	P	P	P
Paint and decorate	Q											Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Finishes	R															R	R	R	R	R	R
Floor finishes	S											S	S	S	S	S	S	S	S	S	S
Commissioning / handover	T																		T	T	T

4. Task 1.4 Presentation

Employer-Set Project - Observation Record (Task 1.4 Presentation)

8710-30 T Level Technical Qualification in Building Services Engineering for Construction

8710-033 Employer-Set Project (Summer 2022)

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234
Date	DD/MM/YYYY

Provider name	<provider name>
City & Guilds Provider No.	999999a

Record observation notes below to inform external marking. Notes must be detailed, accurate and differentiating. They should identify areas of strength and weakness to distinguish different levels of performance quality for each of the prompts below.

Structure/detail
Presentation was good in its detailed structure and in logical approach.

Techniques
They had a good technique. Effective and well justifying reasons behind the information they provided.

Terminology
The terminology used was accurate and the content was clear.

Theories and concepts
The core knowledge skills are showed with clear justification on how these are being applied in response to the brief requirement.

Communication
Communication during the presentation was appropriate and technical information was presented accurately with clarity.

Tutor questions to candidate	Candidate responses
What would you expect to see on site at the beginning, then next etc.	Risk assessment immediately, then site prep, the ground works, bricklayers etc.
How would you stop the public coming onto site?	Safety barriers and signs.
Can you name four safety signs?	Warning (with prompting), mandatory (with prompting), prohibitive (with prompting), information (with prompting).
What could delay things on site?	Weather (e.g. rain, hail, storms, snow), staff sickness. Wind (with lots of prompting).

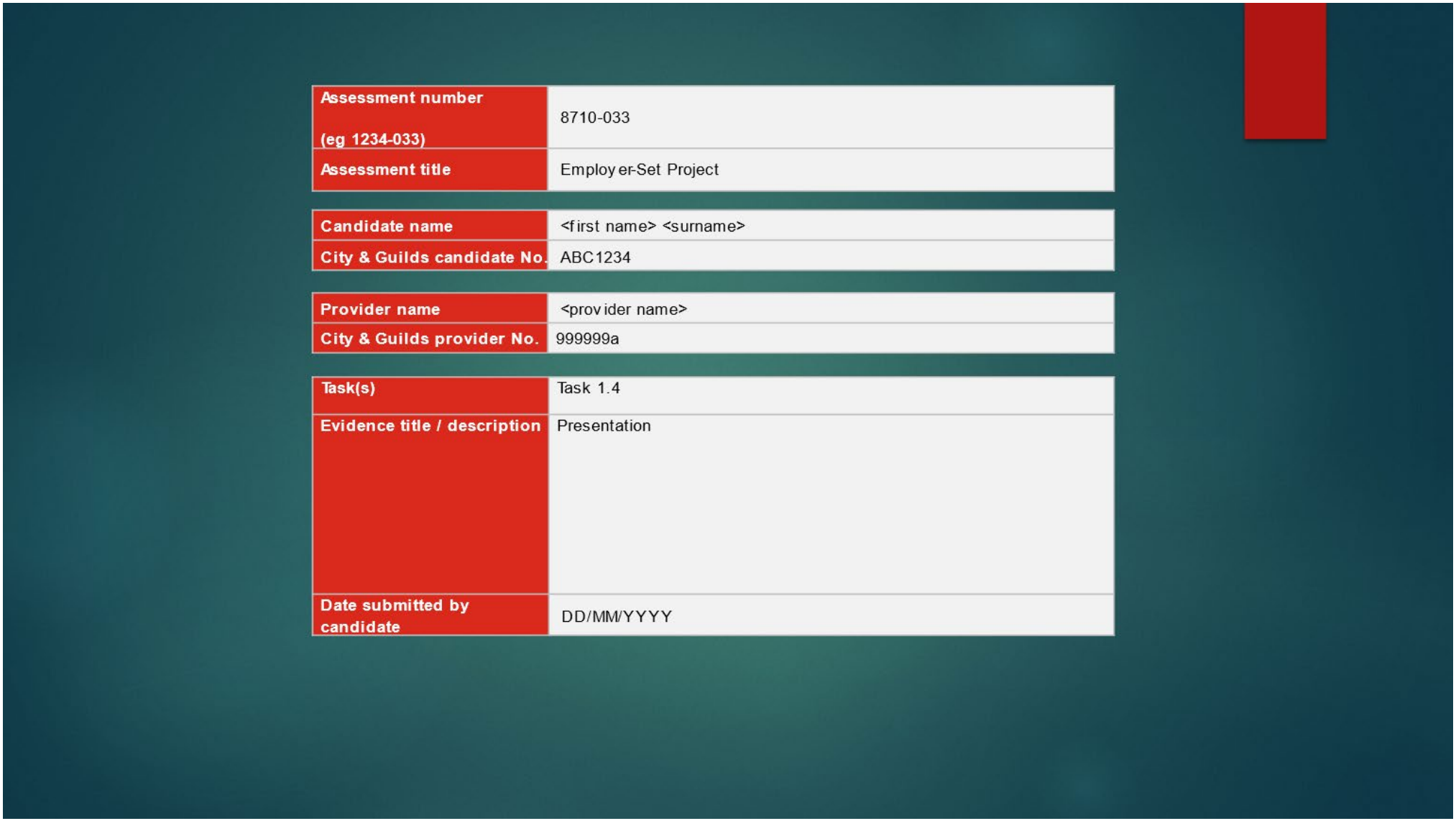
Can we ignore regulations? What happens if we contravene regulations? Can we get prosecuted?	No You can get prosecuted by court, but not by the HSE. HSE will send you a warning notice.
What's COSHH? What type of materials could be hazardous to health?	Control of substances hazardous to health. Asbestos, silicone dust, chemicals.
In the event of an emergency on the building site, alarm has gone off, due to a fire. What should happen? What happens at the muster point?	Everyone should go safely, exit the site or building, to the emergency muster point. Someone will do a list to check everyone is there.

Any other aspects
Presentation was very short and significant questioning (often with prompts) was required to obtain all the required information.

Tutor signature	**Date**
X	DD/MM/YYYY

If completing electronically, double click next to the 'X' to add an electronic signature once the record is **finalised**.

Task 1.4 Presentation (slide deck)



Assessment number (eg 1234-033)	8710-033
Assessment title	Employer-Set Project
Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234
Provider name	<provider name>
City & Guilds provider No.	999999a
Task(s)	Task 1.4
Evidence title / description	Presentation
Date submitted by candidate	DD/MM/YYYY

Introduction

- Hi I am here representing sports facilities PLC as a specialist contactor supervisor. In this presentation I will be telling you about ,
- General site safety
- Site emergency procedures
- Installation planning timings
- How other activities are impacted by timings
- How other tasks in the project will be impacted from any delays to the bse system
- How safety procedures will change as the project evolves

General site safety

When we need to ensure that we comply with BS7671 which is the wringing regulations.

Health and safety at work act to ensure that all work carried out is done safely and correctly to reduce injury and death to the public and employees.

Because of the installation will be taking place on the roof we will need to comply with working at height regulations .

Control of substances hazardous to health (coshh) is reregulation which requires employers to protect employees and the public from substances hazardous to health. Such as led from the roof and drilling into the brick . And silica dust

General site safety

- a risk assessment will need to be completed which requires you to identify the risk and record any found and reduce them .
- A method statement will need to be completed which is a document explain how to do a task step by step safely.
- We need to wear the correct protective equipment to reduce the risks of getting injured
- The Provision and use of Work Equipment regulations (PUWER) is to ensure that all equipment is safe to use and is pat tested.

Site emergency procedures

- A fire assembly point will be identified on the site map and across the site and that's were you will go in the event of a fire .
- The emergency procedure will be a list of where to go and what to do in the event of an emergency
- There needs to be enough space for emergency vehicles to access site

Installation planning timings

- Panels would be ordered at the start of the project it will start on day 31 and will take
- 5 days to complete

How other activities are impacted by timings

- People being ill
- Delivery's not on time
- Weather
- Injuries

How other tasks in the project will be impacted from any delays to the BSE system installation

- External windows
- Plastering
- Paint and decorate
- Finishes

How safety procedures will change as the projected evolves

- It will change because as the project evolves as the new trades come on . Such as when the gas is fitted there will need to be gas safety and electrical safety when the electrics are installed. Working at height as the scaffoldingcomes up.

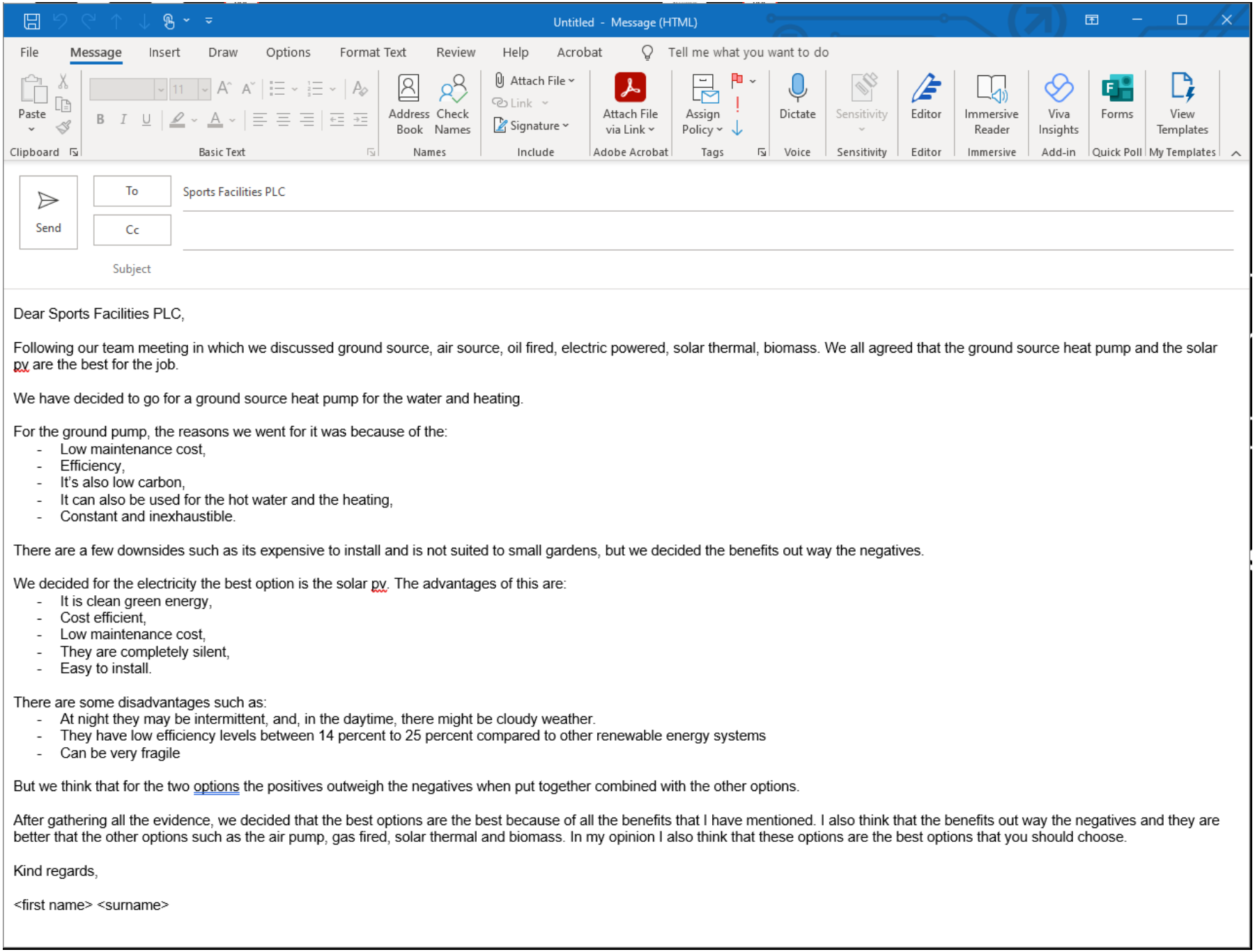
5. Task 2.1 Collaborative problem-solving

Assessment number (eg 1234-033)	8710-033
Assessment title	Employer-Set Project

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	Task 2.1
Evidence title / description	Email
Date submitted by candidate	DD/MM/YYYY



Dear Sports Facilities PLC,

Following our team meeting in which we discussed ground source, air source, oil fired, electric powered, solar thermal, biomass. We all agreed that the ground source heat pump and the solar pv are the best for the job.

We have decided to go for a ground source heat pump for the water and heating.

For the ground pump, the reasons we went for it was because of the:

- Low maintenance cost,
- Efficiency,
- It's also low carbon,
- It can also be used for the hot water and the heating,
- Constant and inexhaustible.

There are a few downsides such as its expensive to install and is not suited to small gardens, but we decided the benefits out way the negatives.

We decided for the electricity the best option is the solar pv. The advantages of this are:

- It is clean green energy,
- Cost efficient,
- Low maintenance cost,
- They are completely silent,
- Easy to install.

There are some disadvantages such as:

- At night they may be intermittent, and, in the daytime, there might be cloudy weather.
- They have low efficiency levels between 14 percent to 25 percent compared to other renewable energy systems
- Can be very fragile

But we think that for the two options the positives outweigh the negatives when put together combined with the other options.

After gathering all the evidence, we decided that the best options are the best because of all the benefits that I have mentioned. I also think that the benefits out way the negatives and they are better that the other options such as the air pump, gas fired, solar thermal and biomass. In my opinion I also think that these options are the best options that you should choose.

Kind regards,

<first name> <surname>

Assessment number (eg 1234-033)	8710-033
Assessment title	Employer-Set Project

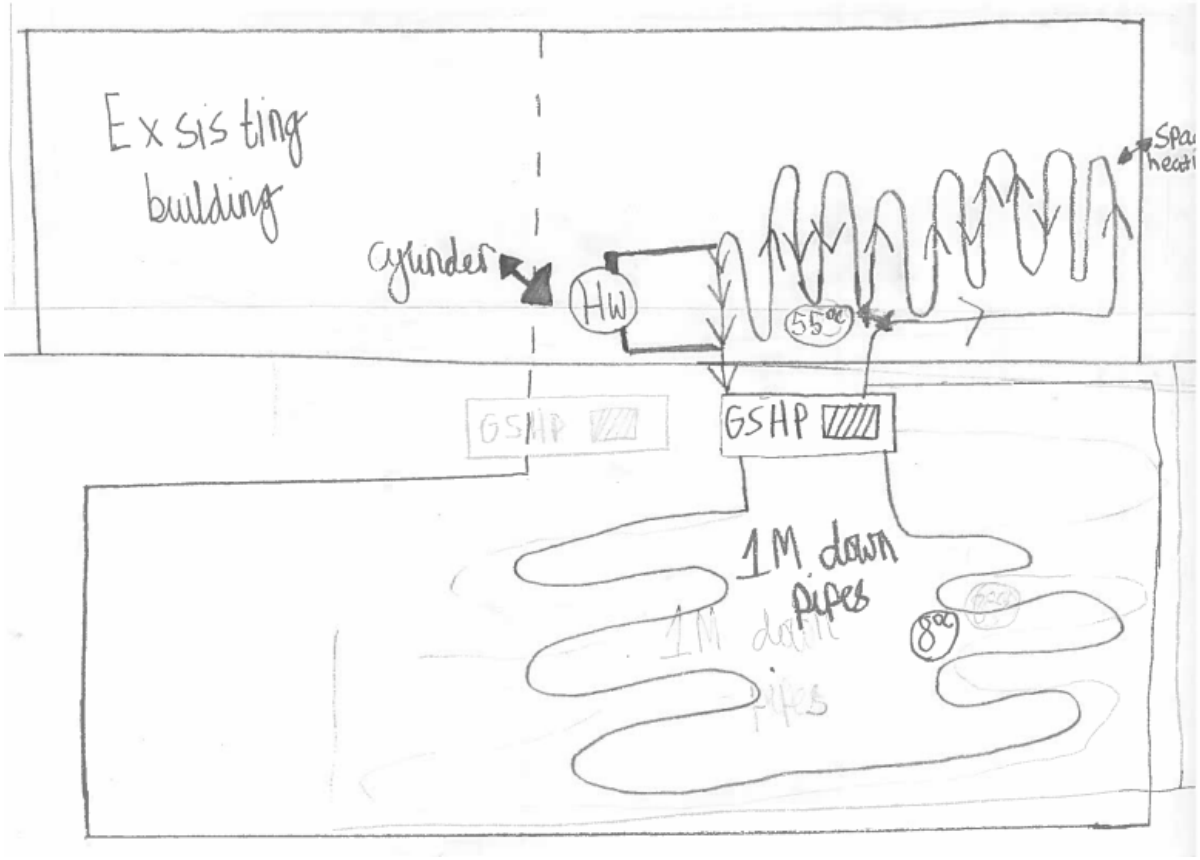
Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	Task 2.1
Evidence title / description	Discussion notes
Date submitted by	DD/MM/YYYY

In a group of 8 we got around a table and looked at the brief and everybody gave their opinion on which was the best technology and problem solved and we elected a spokesperson and talked about the building and drew a diagram and decided ground source heat pump was the best option

This is a diagram of how the heat pump works



Task 2.1 notes and prompts

begin reading the brief while diagram of gswp is being drawn

discuss the advantages of each source of hot water

disscuss dis advantages of each

choose ground source and discuss its benefits and usability

[redacted] brief discussion on how the system will work and be intergra into existing systems

discuss [redacted] potential options and their viability

adress concerns with the [redacted] choice in technology

Answer questions

newbuild FINISH existing building

centralised heating using a heat pump

Ground Source a heat pump is used to heat a room by transfering natural heat from the ground into pipes that are used for hot water and central heating.

advantages:

Sustainable

low Maintainance

~~fetott~~ Safe

disadvantages:

expensive installation

Not suited for small gardens

Costs could occur beyond the initial cost

Solar thermal advantages

no limit to the energy that can be gained

upto 60% energy saved on heating water

reduce green house gas contribution.

lower fossil fuel consumption

can be intergrated with existing systems

disadvantages

high installation cost

can become less effective or obsolite due to weather

uses a lot of roof suface area

Employer-Set Project - Observation Record (Task 2.1 Collaborative)

8710-30 T Level Technical Qualification in Building Services Engineering for Construction

8710-033 Employer-Set Project (Summer 2022)

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234
Date	DD/MM/YYYY

Provider name	<provider name>
City & Guilds Provider No.	999999a

Record observation notes below to inform external marking. Notes must be detailed, accurate and differentiating. They should identify areas of strength and weakness to distinguish different levels of performance quality for each of the prompts below.

Communication skills
Spoke over others a couple of times. Some points raised were not technically accurate and were often disjointed (unstructured in justifications).

Collaboration/contribution
Candidate made some relevant contributions to the discussion but were often at the wrong time (i.e. not relevant to the point of discussion at that particular time).

Methods to solve the problem
Points being raised by the candidate did not address the issues being raised.

Any other aspects
Candidate was given opportunities to contribute more but were not taken.

Tutor signature	Date
X	DD/MM/YYYY

If completing electronically, double click next to the 'X' to add an electronic signature once the record is **finalised**.

6. Task 2.2 Evaluation

Assessment number (eg 1234-033)	8710-033
Assessment title	Employer-Set Project

Candidate name	<first name> <surname>
City & Guilds candidate No.	ABC1234

Provider name	<provider name>
City & Guilds provider No.	999999a

Task(s)	Task 2.2
Evidence title / description	Evaluation
Date submitted by	DD/MM/YYYY

1.1Research

In task 1.1 I found that from start to finish it wasn't difficult I found the gathering of the information such as all the equipment etc. The bulldozers, welfare units, barriers and the prices of them all was easy, and I think that it met the requirements on the brief. However, I think that I didn't go into enough detail in explaining the information I just linked the site and put a bit of information so I think that how I could improve it is to explain in detail all the equipment and materials. however, I think that I listed and explained the things well, but I need to explain in a bit more detail. In this task I think the skills I have learned are researching my findings and putting them into my own words.

1.2 report

In task 2.1 we had to write up all are information we had research and put it all into are own words and in more detail. I found that overall, from start to finish it wasn't difficult to write all my information I had found such as the site access and traffic management, services, welfare facilities and waste management. I think that I went into a lot of detail and put a lot of information into these points. I think that I could have researched into the gas regulations and requirements more and the first aid provisions. I think that in this task I met the requirements of the brief. I think that the skills I have I proved are my English skills because I had to word paragraphs differently and sentences and I have had to learn to explain all my work.

1.3 project plan

In task 1.3 I found that it was easy from start to finish. I think that what I did well was my Gantt chart and I ordered everything and all the dates correctly according to the brief for when everything needs to be done. I also think that I explained the risk assessment well and what needs to be done. I think that I could have explained my Gantt chart better such as why I have chosen to do everything in the order that I did. I think that the skills I have improved are my English skills such as explaining.

1.4 presentation

In task 1.4 we had to make a PowerPoint about the information asked on the brief and then present all our work. I found that it wasn't difficult, and I was brief and didn't overload information I did a screenshot of my Gantt chart and included a lot of information. However, I think that I could know my work in detail such as explain my Gantt chart and explain more confidently. I think that my work met the requirements of the brief. In this the skills I have learned are my PowerPoint skills and how to present work.

2.1 collaborative problem solving

In task 2.1 we had to discuss in a group about technologies and decide which one was the best we all had to agree on one then write an email explaining the advantages and disadvantages. I found this task easy and I think that what I did well was explaining all the advantages and disadvantages of each technology and explained my choose which was the ground source heat pump. I think that what I could have done different was explaining my justification for the technology in more detail as I was brief I also think that I could have put my work more clearly so that it is easier to understand such as adding titles and headings of every point. However I think that I did good on this and my work met the requirements of the brief. I think that the skills that I have learned are teamwork, discussing, writing an email and justifying my point.

I think that the task that I found went most successful was 1.4 because I feel like I put a lot of detail and explained my work clearly and confidently. I also think that I understood the most information about this task because a lot of the information that I put I had done in the other tasks like the health and safety requirements. Although I do think that there were things that I could improve such as understanding my work in detail and explaining more confidently. I think that this task went the best because of these reasons.

Get in touch

City & Guilds Technicals Quality Team

We are here to answer any queries you may have regarding your T Level Technical Qualification delivery.

Should you require assistance, please contact us using the details below:

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W: cityandguilds.com/tlevels