Taylor Wimpey Uk
Site HSE Manual

Section 4
Groundworks

Document Owner

Craig Schwarze	Head Of HSE

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4.1 - Managing Groundworks Operations

Groundworks pose significant health risks due to exposure to hazardous substances, physical strain, and environmental conditions. Workers are at risk of respiratory diseases such as silicosis, COPD, and asthma from inhaling dust, including silica. Prolonged manual handling and repetitive tasks can lead to musculoskeletal disorders, while noise and vibration from heavy plant increase the likelihood of hearing loss and hand-arm vibration syndrome. Skin contact with cement and chemicals can cause dermatitis, and poor site conditions may contribute to slips, trips, and long-term health issues. Effective planning, robust control measures, detailed within the HSE Manual ensure a safe working environment.

Groundworks present significant safety risks that must be carefully managed. Key hazards include excavation collapses, falls into trenches, and contact with underground or overhead services, which can lead to electrocution, flooding, or explosions. The movement of heavy plant and vehicles introduces collision and crushing risks, while unstable or contaminated ground can cause structural failures and health hazards. Effective planning, robust control measures, and compliance with the HSE Manual ensure a safe working environment.

During the construction phase, groundworks activities can influence the surrounding environment, but these impacts can be effectively managed through proactive measures. Excavation, drainage installation, and material handling may affect soil stability, water quality, and local ecosystems; however, suitable controls including, silt fencing, and drainage systems helps prevent sediment run-off and flooding. Careful storage and handling of fuels and chemicals reduce the risk of soil or water contamination, while using modern, low-emission machinery minimizes air and noise pollution. By integrating these practices into daily site operations, any environmental impact can be minimised.

The Groundworks Supervisor supports the Site Management Team in planning, managing, and monitoring all groundworks activities to ensure effective health, safety, and environmental controls are implemented and maintained.
Responsibilities include:

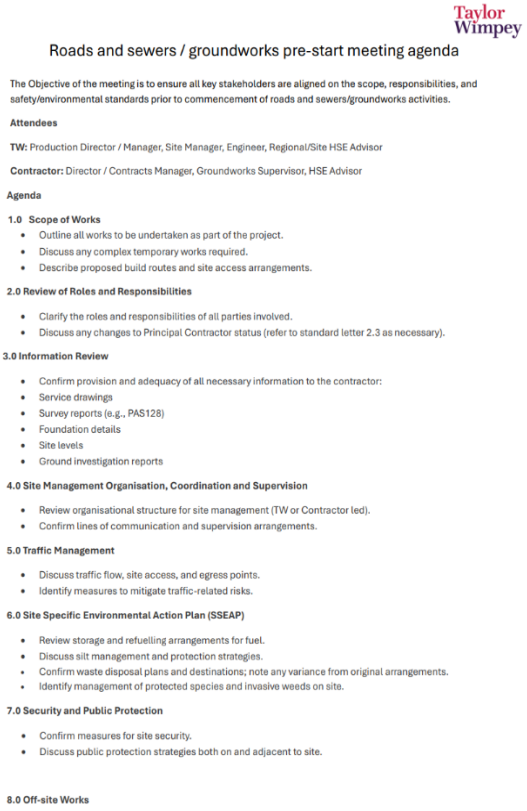
- Leading daily briefings with operatives.
- Maintaining and updating the Groundworks Zone Plan.
- Overseeing safe systems of work and statutory inspections.
- Managing documentation such as risk assessments, plant assessments, and excavation registers.
- Ensuring all operatives are appropriately trained, briefed, and authorised.
- Responding to incidents and coordinating with the Site Manager and HSE Advisor.
- Maintaining a dedicated site office equipped with a Health and Safety board displaying all required documentation.

4.1.1 Groundworks Pre-start Meeting

Before any Groundworks activity commences on site, a pre-start meeting must be held. The TW pre-start meeting agenda must be followed.

The following arrangements will be reviewed during the pre-start meeting:
Attendees: TW – Production Director / Manager, Site Manager, Engineer, Regional/Site HSE advisor
Contractor – Director / Contracts Manager, Groundworks Supervisor, HSE Advisor
Scope of works – outline the work to be carried out, including complex temporary works and build routes. 2.0 Review of roles and responsibilities, e.g., change of Principal Contractor (see standard letter 2.3).
Information review – examination of information provided to contractor, e.g., Service drawings, survey

reports (e.g., PAS128), foundation details, levels, ground investigation reports
Site management - (TW or contractor) organisation/co-ordination/supervision
Construction Phase Plan - The Groundworks Contractor is to ensure a suitably prepared Construction Phase Plan is prepared and submitted for review by the Production Director, and RHSEA to enable a Checklist A to be complete.
Environmental Controls and Arrangements - The Groundworks Contractor is to ensure all Environmental Controls and arrangements have been assessed, and a suitably prepared Site Specific Environmental Action Plan (SSEAP) included within the CPP.



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Roads and sewers / groundworks pre-start meeting agenda

The Objective of the meeting is to ensure all key stakeholders are aligned on the scope, responsibilities, and safety/environmental standards prior to commencement of roads and sewers/groundworks activities.

Attendees

TW: Production Director / Manager, Site Manager, Engineer, Regional/Site HSE Advisor

Contractor: Director / Contracts Manager, Groundworks Supervisor, HSE Advisor

Agenda

1.0 Scope of Works
- Outline all works to be undertaken as part of the project.
- Discuss any complex temporary works required.
- Describe proposed build routes and site access arrangements.

2.0 Review of Roles and Responsibilities
- Clarify the roles and responsibilities of all parties involved.
- Discuss any changes to Principal Contractor status (refer to standard letter 2.3 as necessary).

3.0 Information Review
- Confirm provision and adequacy of all necessary information to the contractor:
- Service drawings
- Survey reports (e.g., PAS128)
- Foundation details
- Site levels
- Ground investigation reports

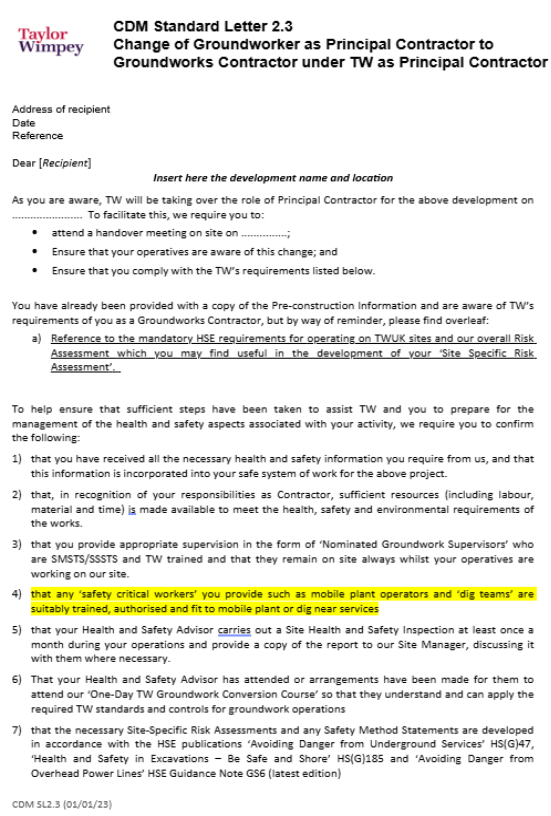
4.0 Site Management Organisation, Coordination and Supervision
- Review organisational structure for site management (TW or Contractor led).
- Confirm lines of communication and supervision arrangements.

5.0 Traffic Management
- Discuss traffic flow, site access, and egress points.
- Identify measures to mitigate traffic-related risks.

6.0 Site Specific Environmental Action Plan (SSEAP)
- Review storage and refuelling arrangements for fuel.
- Discuss silt management and protection strategies.
- Confirm waste disposal plans and destinations; note any variance from original arrangements.
- Identify management of protected species and invasive weeds on site.

7.0 Security and Public Protection
- Confirm measures for site security.
- Discuss public protection strategies both on and adjacent to site.

8.0 Off-site Works



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CDM Standard Letter 2.3
Change of Groundworker as Principal Contractor to Groundworks Contractor under TW as Principal Contractor

Address of recipient
Date
Reference

Dear [*Recipient*]

Insert here the development name and location

As you are aware, TW will be taking over the role of Principal Contractor for the above development on ..... To facilitate this, we require you to:

- attend a handover meeting on site on .....;
- Ensure that your operatives are aware of this change; and
- Ensure that you comply with the TW's requirements listed below.

You have already been provided with a copy of the Pre-construction Information and are aware of TW's requirements of you as a Groundworks Contractor, but by way of reminder, please find overleaf:

a) Reference to the mandatory HSE requirements for operating on TWUK sites and our overall Risk Assessment which you may find useful in the development of your 'Site Specific Risk Assessment'.

To help ensure that sufficient steps have been taken to assist TW and you to prepare for the management of the health and safety aspects associated with your activity, we require you to confirm the following:

1) that you have received all the necessary health and safety information you require from us, and that this information is incorporated into your safe system of work for the above project.
2) that, in recognition of your responsibilities as Contractor, sufficient resources (including labour, material and time) is made available to meet the health, safety and environmental requirements of the works.
3) that you provide appropriate supervision in the form of 'Nominated Groundwork Supervisors' who are SMSTS/SSSTS and TW trained and that they remain on site always whilst your operatives are working on our site.
4) that any 'safety critical workers' you provide such as mobile plant operators and 'dig teams' are suitably trained, authorised and fit to mobile plant or dig near services
5) that your Health and Safety Advisor carries out a Site Health and Safety Inspection at least once a month during your operations and provide a copy of the report to our Site Manager, discussing it with them where necessary.
6) That your Health and Safety Advisor has attended or arrangements have been made for them to attend our 'One-Day TW Groundwork Conversion Course' so that they understand and can apply the required TW standards and controls for groundwork operations
7) that the necessary Site-Specific Risk Assessments and any Safety Method Statements are developed in accordance with the HSE publications 'Avoiding Danger from Underground Services' HS(G)47, 'Health and Safety in Excavations – Be Safe and Shore' HS(G)185 and 'Avoiding Danger from Overhead Power Lines' HSE Guidance Note GS6 (latest edition)

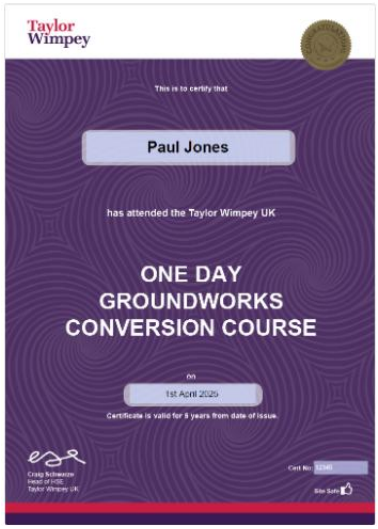
CDM SL2.3 (01/01/23)

4.1.2 Groundworks Supervisor

No groundworks operation may be undertaken without the Nominated Groundworks Supervisor on site. The Groundworks Supervisor must be familiar with the safe system of work and controls to be adopted on site and must:

- Be SMSTS/SSSTS and TW trained; and
- Be identified on the Site Management / Support Team Board.
-

If the Groundworks Supervisor leaves or does not attend site, groundwork operations must be suspended until a trained TW substitute Groundworks Supervisor is in place.



Taylor Wimpey

This is to certify that

Paul Jones

has attended the Taylor Wimpey UK

ONE DAY GROUNDWORKS CONVERSION COURSE

on

1st April 2025

Certificate is valid for 5 years from date of issue.

Site Safe

Site Manager can check SMSTS training records via the CITB Online Card Checker, click the CITB icon.
Site Managers can check Groundworks Supervisor training records by contacting Donna Alderson - HSE Administrator
HSE-training@taylorwimpey.com

4.1.3 Operative Training and Competency

The Groundworks Contractor must provide details of their Operatives' Safety Critical Training, e.g., plant operations, confined space entry, cable avoidance, dig-teams, etc. This is demonstrated by the Groundwork Contractor providing copies of:

- The individual's training certificates; and/or
- The company's H&S training matrix

For safety critical workers such as mobile plant operators and 'dig teams', the Groundwork Contractor must have arrangements to check and monitor that these operatives are suitably trained, authorised and fit to operate mobile plant or dig near services.

These checks could include checking the authorised plant operators are not suffering any medical conditions or undergoing any medical treatment that could lead to sudden loss of consciousness or incapacity, concentration, balance, or co-ordination, etc.

4.1.4 Safe System of Work

Groundwork Contractor must have provided their risk assessments and safety method statements for review before the Roads and Sewers / Groundworks Pre-start Meeting.

The Site Management Team must ensure that they are familiar with them and that the Groundworks Supervisor has briefed the operatives prior to commencing the works, e.g., by:

- Discussing the TW Authority to Proceed: Excavations and Ground Penetration (see Section 4.9.1).
- Discussing the TW Authority to Proceed: Confined Space Entry (see Section 4.14).
- 'Take 5' briefings (see Section 3.5.6); and
- Site Safe Briefings (see Site Safe Briefing Folder) including:

- Safe Use of Dumpers;
- Safe Operation of Excavators
- Operatives Working Near Excavators;
- Ride on Rollers.

4.1.5 Monitoring and Inspection - Groundworks HSE Inspection report

The Site Management Team must carry out regular monitoring of work underway, particularly medium to high-risk work such as work near/adjacent to underground services, excavations, etc.

The Groundworks Supervisor is responsible for:

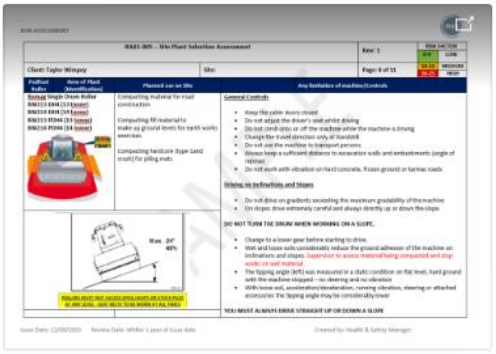
- The supervision of the groundwork operations on site;
- Carrying out and recording the statutory inspections (this may be delegated to their team, e.g., a trained plant operator);
- Under PUWER (Provision and Use of Work Equipment);
- LOLER (Lifting Operations and Lifting Equipment Regulations) using the Work Equipment and Lifting Equipment Inspection Record Sheet
- Excavations using the Excavations Inspections Record Sheet (Folder 2 F2.03).

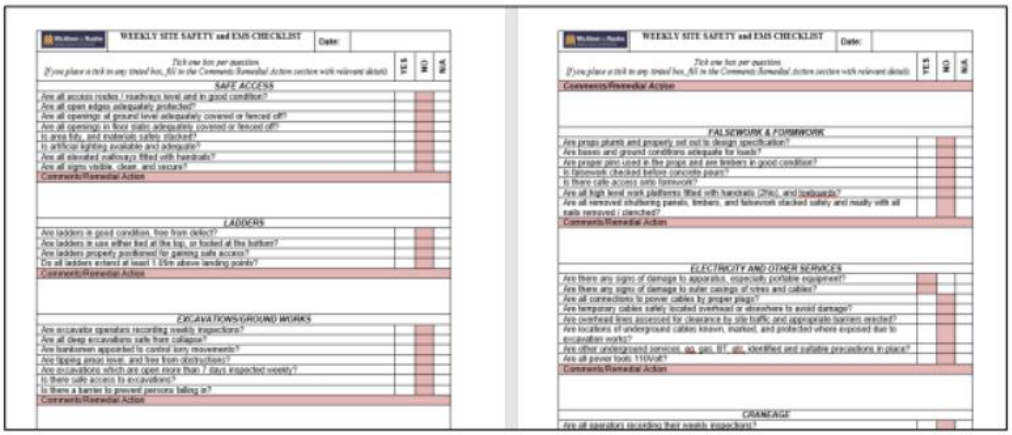
The Groundworks Contractor HSE Advisor must:

- Attend the 1-day TW Groundworks HSE Conversion Training
- Complete a Monthly Site HSE Inspection / Audit (as a minimum)
- Provide the TW Site Manager and Groundworks Supervisor with a copy of their report

The report must clearly identity: -

- Any concerns / shortfalls with immediate actions taken and required
- Include forthcoming / planned works and note controls agreed
- Review of the Ground Condition/Plant Selection Assessment





4.1.6 Daily Briefing

Consultation with operatives regarding forthcoming works is paramount to the management of groundwork activities and ensuring works are coordinated effectively with minimal interface; the Groundwork Supervisor must conduct a morning briefing before commencing activities.

It is the Groundwork Supervisors responsibility to coordinate and lead the Daily Briefing with all their operatives.
The suggested agenda for the daily briefing is:

- HSE
- Forthcoming works
- Temporary works
- Plant Zone Plan
- ATP's
- Significant Hazards
- Lifting Operations

Interface with other trades conflict A Daily Discussion Sheet must be completed and displayed on the Groundwork Notice Board.
Other agenda items can be annotated within the Briefing Sheet.
This Daily Briefing ideally takes no longer than fifteen minutes and is aimed to deliver key HSE information to all operatives on site.

Groundworker Daily Briefing Sheet

Site Name	
Groundworker Supervisor Name	

Groundwork Daily Briefing	Date:
	Time:
Discussion points	
HSE	
Forthcoming Works	
Temporary works	
Traffic management	
Plant Zone Plan	
ATP	
Significant hazards	
Lifting operations	
Interface with other trades conflict	
Other:	

Name:	Role:	Signature:

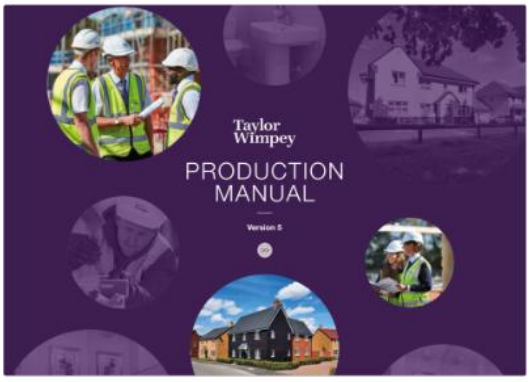
HSE-FO-004-V2Groundworker Daily Briefing Sheet1

4.1.7 Groundworks Supervisor Office

A suitable office must be provided for the Groundwork Supervisor:

- Be in the main Taylor Wimpey Compound
- Have power, lighting, and heating
- Access to welfare facilities
- Sign on door
- Display the 'Groundwork HSE Board'

Details of the Groundworks Compound location can be found in the TW Production Manual



4.1.8 Groundworks Health and Safety Board

The Groundworks Health and Safety Board consists of the following:

- Groundwork Zone Plan
- SMSTS/ SSSTS Certification &TW Groundworks Conversion
- Record of daily briefing
- Record of risk assessment briefing
- Plant assessments
- Authority to Proceed – Excavations / Ground Penetration
- Excavation Registers
- Groundwork HSE inspection Report

4.1.9 Groundworks Zone Plan

The Groundwork Contractor must provide a 'Zone Plan' that clearly identifies the authorised areas where their plant and vehicles can operate on the site.
The Zone Plan must identify:

- Areas where plant/vehicles are prohibited (red)
- Areas where plant/vehicles are permitted subject to a site-specific plant/vehicle assessment (yellow)
- Areas where all plant and vehicles can safely operate without the need for a site-specific assessment (green)

The Zone Plan must be reviewed weekly by the Groundworks Supervisor and updated as necessary to reflect the dynamic nature of the site, with their HSE Advisor reviewing monthly All plant on site must have a suitable and adequate plant assessment

4.1.10 Groundworks Storage Area

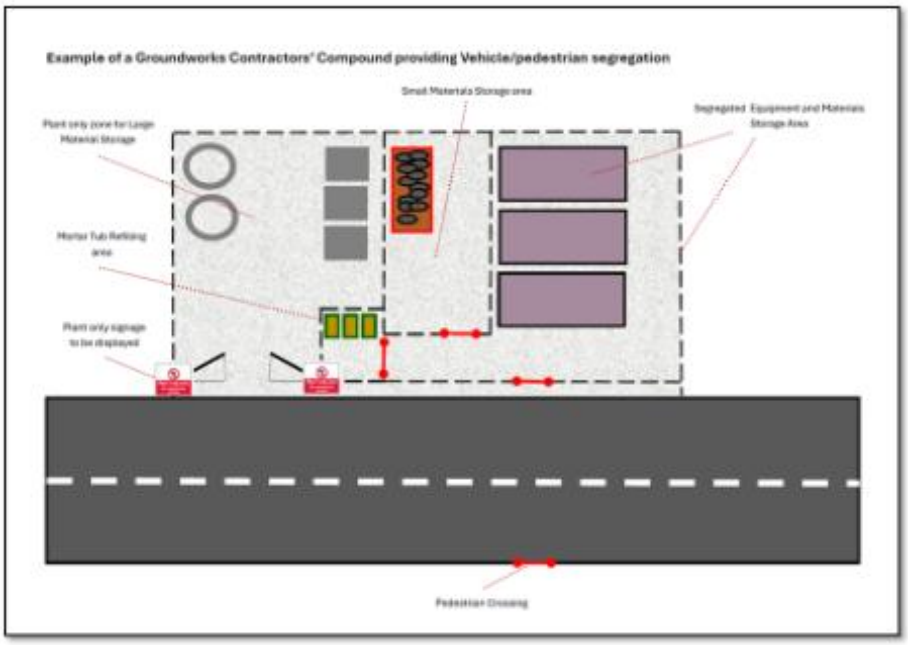
Category 0: Standard Temporary Works

As part of the site set-up arrangements the Site Management Team and Groundworks Supervisor must review and agree the location(s) and layout of the groundworks storage areas to ensure:

- Separate access/egress is provided for plant and Operatives
- Where pedestrian access required, there is suitable pedestrian segregation within the storage area
- Plant only signage to be displayed at large material storage area entrances (Signage can be ordered via C-Graphics)

Once the location has been agreed, the layout and operation of the Groundworks Compound must be integrated into the site-wide Traffic Management Plan.

For detailed guidance on site-wide Traffic Management Plan, refer to Section 2.
This section outlines mandatory standards for pedestrian segregation, plant movement zones, signage, and dynamic traffic planning.



There are two types of Groundworks Storage Areas:

A) Plant and Pedestrian Access Required

- Area must be served by a pedestrian route.
- Storage area and activities within must be segregated from plant
- Good underfoot conditions within pedestrian areas
- Signage must be displayed

B) Plant Access Only

- Plant Only material storage areas must be pedestrian-free
- Physically separated and the sign opposite must be displayed

4.1.11 Groundworks Safe Zones

During the early stages of groundworks activities, it may not be possible or practical to install fully defined pedestrian routes across the site. In such cases, Safe Zones must be established to protect operatives from plant movement.
Safe Zones are temporary pedestrian islands formed using two barriers and two crossing hoops. When positioned strategically around the site, they provide a safe refuge for operatives while mobile plant is operating nearby.
These zones enable operatives to move around the site safely without being exposed to the risk of plant collisions or machinery interface.
The “Thumbs-Up” protocol must be used at all times between plant operators and pedestrians to confirm visual contact and safe passage before movement occurs.

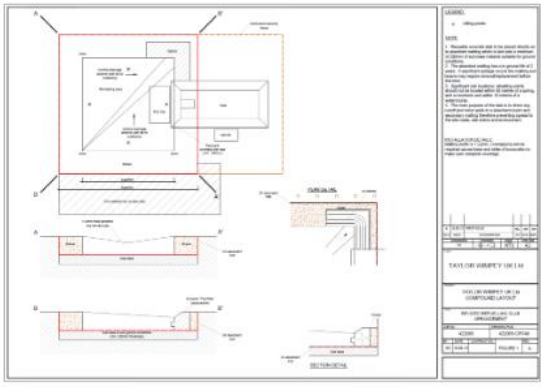
4.1.12 Groundworks Fuel Storage

Where a refuelling area is required by the Groundwork Contractor, one of the following two options must be used:
Option 1 - TW Standard Compound Refuelling Slab (Category 0: Standard Temporary Works)
Option 2 - Fuel Eco-Hub (Category 0: Standard Temporary Works)

TW Standard Compound Refuelling Slab

Full details can be found in Section 2.5, including details of the slab design and where materials can be sourced
Key Points:

- Pre-cast slab to capture drips and spills during refuelling
- Self-contained double bunded tank
- Spill kit
- Fire extinguisher



Fuel Eco Hub

Alternative to the slab, a stand-alone self-contained secure fuel storage facility, see Section 2.5 for where the product can be sourced
Key Points:

- Lockable container
- Double bunded tank
- Spill kit
- Fire extinguisher
- Drip tray to capture drips and spills during refuelling

Conquip Fuel Eco-Hub



Conquip Smart Fuel Tank


Mobile Bowsers

TW specify that mobile bowsers can only be brought on site for temporary periods and only where it is highly impractical to utilise the standard refuelling area.
Bowsers must be fully and integrally bunded to the same requirements as static tanks and meet the following requirements:

- Any taps or valves permanently fixed to the unit through which oil can be discharged must be fitted with a lock.
- Where oil is delivered through a flexible pipe permanently attached to the unit:
- It must have a manually operated pump or a valve at the delivery end that closes automatically when not in use.
- The pump/valve must be provided with a lock.
- The pipe must be fitted with a lockable valve at the end where it leaves the container.
- Drip trays must be used when refuelling.
- A temporary spill pad must be available; and
- Refuelling must **NOT** take place near drains or controlled waters

Refuelling Arrangements for Small Plant

- When refuelling small plant, a drip tray must always be used during refuelling and use a funnel
- Regularly check fuel tank and plant for leaks.
- Always use a self-absorbent liner where plastic or metal trip trays are used
- A more effective alternative to standard drip trays is the 'Plant Nappy'. While containing any drips or spills of oil, the mat freely allows passage of water, such as rainfall, thus eliminating costly emptying of water filled contaminated drip trays after use.

4.2.1 Ground Conditions and Plant Selection Assessments

Using mobile plant in groundworks presents several health risks that require rigorous control and monitoring. Operators face potential exposure to vibration, noise, and exhaust emissions, which can lead to long-term conditions such as hand-arm vibration syndrome (HAVS), hearing loss, therefore, the correct item of plant must be selected by the Groundworks Contractor to prevent exposure to plant operators.

Mobile plant presents significant safety risks that must be carefully managed by Site Management Teams and Groundworks Supervisors. Key hazards include instability from poor ground conditions, incorrect equipment use, inadequate training, and failures in inspection and maintenance. Insufficient traffic management and lack of segregation between plant and pedestrian routes increase collision risks. Behavioural risks, such as unsafe operating practices, must be monitored. Plant selection assessments, risk assessments, training, and daily briefings are essential to reinforce controls through effective monitoring and supervision.

Using mobile plant for groundworks presents environmental risks that must be carefully managed to ensure compliance and sustainability. These include soil contamination from fuel, oil, and hydraulic leaks; air pollution from exhaust emissions and dust; and noise pollution affecting wildlife and communities. Movement of heavy machinery can cause habitat disruption, soil compaction, and damage to tree roots or underground ecosystems. Improper use or storage of materials may lead to water pollution through runoff into nearby watercourses, particularly around spoil heap locations and formation.

Prior to any groundwork activities on site, particularly where plant such as dumpers are being used, the Groundworks Contractor must:

- Carry out an assessment of the topography, particularly gradients, and ground conditions, etc. in respect of the selection and use of suitable plant e.g., dumpers.
- Provide details to the TW Site Manager and Groundworks Supervisor of the assessment and the proposed selection of suitable plant.
- Provide and regularly review a Zone Plan to indicate the permitted operating areas
- Provide details to the TW Site Manager and Groundworks Supervisor of any plant which cannot be used for a task or area e.g., site dumpers.

NOTE: This could be a schedule which details the selected plant for specific tasks / work areas and / or restricted tasks / work areas for certain plant.

Only once the Assessment of Ground Conditions and Selection of Plant has been carried out with details provided to the Site Manager and Groundworks Supervisor who has briefed their site team and plant operators, can the groundworks activities commence.

PLANT SELECTION ASSESSMENT

Shannonside Civil Engineering Ltd

Project:		**Date:**	
Prepared by:		**Title:**	

EXCAVATORS

Item of Plant	Planned use on site	Limitations of machine / Controls	Assessed for the above project and is deemed suitable	
			Yes	No
Hitachi Zaxis 225 US - 25t (zero swing) 	• Excavating material from the ground for foundations, site strip and loading out of dumper. • Levelling materials on ground and movement of stock piles as required	• Lifting carried out on firm and level ground • Never attempt to ascend or descend 35 degrees or steeper slopes • Lifting charts to be followed when lifting any thing • Avoid injury from back and swing accidents • Do not park machine on a gradient	☐	☐
Hitachi Zaxis 210 LC - 21t excavator 	• Excavating material from the ground for foundations, site strip and loading out of dumper. • Levelling materials on ground and movement of stock piles as required • Lifting of bricks and blocks and other materials with the correct attachment	• Lifting carried out on firm and level ground • Never attempt to ascend or descend 35 degrees or steeper slopes • Lifting charts to be followed when lifting any thing • Avoid injury from back and swing accidents • Do not park machine on a gradient	☐	☐

4.2.2 Spoil Heaps and Stockpiles

Category 0: Standard Temporary Works
Stockpiles and spoil heaps do not usually require a design, unless they compromise the health and safety of operatives, there is potential of damage to assets through collapse, surcharging and/or a risk of environmental impact.

Before any stockpiles and spoil heaps can be created, an assessment of suitability must be undertaken by the Groundwork Contractor's Temporary Works Supervisor/Groundwork Supervisor.
Location of the spoil heaps and stockpiles must be indicated on the Groundwork 'Zone Plan' as access is restricted to assessed tracked plant only (no dumpers). See section Section 4.1.9

When assessing a stockpile or spoil heap, the following must be considered:

- Type of material, height & ground bearing
- Angle, gradient, and height
- Location of walkways/traffic routes
- Location to underground/overhead services
- Location to boundary fencing
- Location to excavations
- Location to freshwater courses, land drains and outfalls

Note: Spoil heaps/stockpiles to be entered on to the Temporary Works Register and an ATP – Temporary Works completed where a design is required

Controls for stockpiles and spoil heaps

Prior to the formation of any spoil heaps or stockpiles the Groundwork Contractor must provide a suitable Risk Assessment/Method Statement detailing their system of work for their formation and use, including the following:

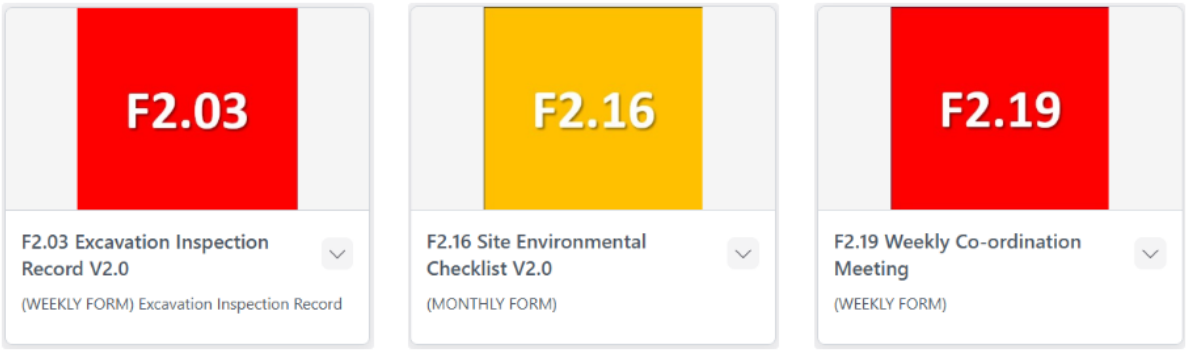
- Restricting access to access tracked plant only
- Dumpers must not access the spoil heap/stockpile
- Dumpers to 'bottom dump' with tracked plant 'dragging' material up to form the spoil heap/stockpile
- Warning signage displayed
- Sides to be battered back to angle of repose when material is removed or added.
- Consideration for dust controls
- Seed with grass if for 6 months or more
- Regular recorded visual inspection

4.2.3 Ongoing Assessment of Ground Conditions and Selection of Plant (Groundworks Contractors HSE Advisor)

Monthly (as a minimum) Site HSE Inspection/Audit must be carried out by the Groundworks Contractor's HSE Advisor. During the Inspection/Audit, an ongoing assessment must be carried out of the existing and forthcoming ground conditions including gradients etc. to determine that the selection of plant is still appropriate, updated in line with any changes to gradients and reviewed in line with ongoing and forthcoming works. The review and findings must be detailed in their Monthly Site HSE Inspection/Audit Report.

Groundworks Contractors and the Groundworks Supervisor are responsible for the plant and equipment they bring on site to perform their site activities. However, the TW Site Management Team must check that the plant and equipment meets with the TW requirements and that all plant and equipment is inspected regularly by the Operators and Groundworks Supervisor with inspection records maintained.

The Groundworks Supervisor is responsible for ensuring all statutory inspections are carried out and the appropriate registers completed.



4.3 control of Excavators

Using mobile plant in groundworks presents several health risks that require rigorous control and monitoring. Operators face potential exposure to vibration, noise, and exhaust emissions, which can lead to long-term conditions such as hand-arm vibration syndrome (HAVS), hearing loss, therefore, the correct item of plant must be selected by the Groundworks Contractor to prevent exposure to plant operators.

Mobile plant (Excavators) can presents significant safety risks that must be carefully managed by our Site Management Teams and Groundworks Supervisors. Key hazards include instability due to poor ground conditions, failure to use the correct equipment; inadequate training; and failures in inspection and maintenance that compromise equipment integrity. Additionally, insufficient traffic management and lack of segregation between plant and pedestrian routes heighten the risk of collisions. Behavioural risks, such as unsafe operating practices, must be monitored, through plant selection assessments, Risk Assessment, training, daily briefings are essential to reinforce controls through effective monitoring and supervision.

Using mobile plant for groundworks presents several environmental risks that must be carefully managed to ensure compliance and sustainability. These risks include soil contamination from fuel, oil, and hydraulic fluid leaks; air pollution due to exhaust emissions and dust generation; and noise pollution, which can disturb local wildlife and communities. Additionally, the movement and operation of heavy machinery can lead to habitat disruption, compaction of soil, and damage to tree roots or underground ecosystems. Improper use or storage of materials may also result in water pollution through runoff into nearby watercourses such as the location and formation of spoil heaps.

4.3.1 Operatives Briefings

Groundworks Supervisors must ensure that their operatives are briefed prior to work on or around plant. The following Site Safe Briefings have been developed for this purpose:

SSB 03 – Refuelling on site
SSB 05 – Safe Operation of Excavators
SSB 17 – Operatives Working Near Operations
SSB 26 – Traffic Management

4.3.2 Key Controls

The following controls and arrangements must be followed by the Groundworks Supervisor:

- All plant to be kept in good working order, with daily inspection being undertaken prior to use by the plant operator, recorded on the plant inspection register, and the necessary thorough examination complete and available for inspection.
- Ensure Machines are suitable for the site conditions (including gradients) and working space e.g., uses of smaller / reduced ‘zero tail swing’ equipment. See Section 4.2.1 Plant Selection Assessment

- Operators never drive while using a mobile phone (including Bluetooth), 2-way radio, music radios, CD Players, iPods, etc. Where there is a need for Site Communication 2-way radios may be utilised, they can only be used when the machine is stationary, and no operations are being carried out.
- Plant must never be left unattended without firstly removing the keys
- Amber flashing beacon fitted to all machines

Key signage to be displayed and maintained, this includes:
'Thumbs Up' Decal: Groundworks Contractors to attach the magnetic 'thumbs up' or adhesive decal reminder signs to all excavators, available from C-Graphics

'Thumbs Up Poster': Groundworks Contractors to use the "thumbs up" poster to raise the awareness of the dangers of operatives approaching the working zones of plant.

4.3.3 Visibility Aids

Excavators must have a recognised blind spot removal system fitted. The operator must be able to see a 1m high object, 1m away from the cab (if in doubt, contact your Site HSE Advisor). Suitable devices include: Rear view camera which must be kept in a fully operational state; and/or convex mirror.

Note: All mirrors to be kept clean and serviceable.

4.3.4 Access for Service/Maintenance of Excavator and Fitting of Security Shutters

Where there is a requirement to access the top of large plant [excavators], e.g., for refuelling, maintenance or fitting of security shutters, measures must be taken to remove the risk of falls from a height:

- Follow the manufacturers guidance to undertake servicing or fit shutters
- Ensure a guardrail system is fitted to the machine; or,
- By access from within the machine i.e., no access to top of machine

4.3.5 Excavator used for Lifting

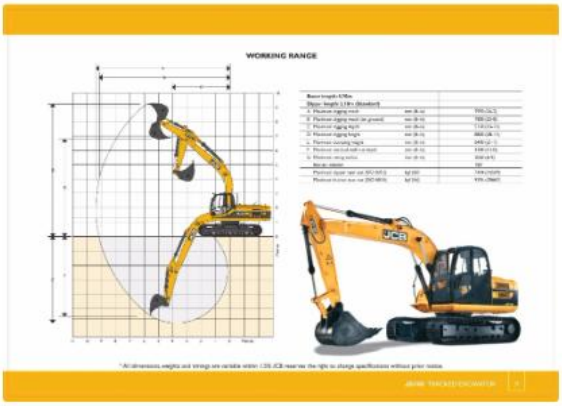
Excavators are regularly used for lifting operations by groundworks contractor, e.g., the handling and use of trench/manhole boxes, or the carrying and placement of concrete products such as pipes.
There are several key controls that must be in place:

- The groundworker's risk assessment/safety method statement must reflect the lifting activity
- A schedule of common lifts, i.e., installing beams on a 'block and beam' floor or concrete manhole rings
- A certificated excavator operator who is familiar with lifting techniques, lifting accessories and the hand signals to be used
- The machine operator must have the rated capacity load radius charts/tables for this activity within the cab, or the operator's handbook available within the cab covering the lifting limits of the machine
- A banksman supervising who is familiar with lifting techniques, lifting accessories and the hand signals to be used; and
- An exclusion zone must be maintained

When a machine is used for lifting, the following is required:

- A 'thorough examination' at least every 12 months
- A 'thorough examination' of accessories at least every 6 months
- Additional safety devices must be fitted, such as check valves and an audible warning device.

Manufacturers duty chart specific to the Excavator



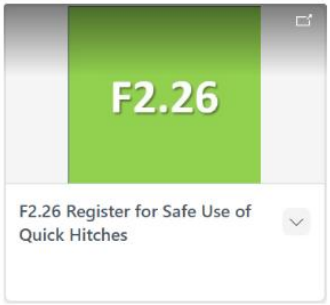
Check valves must be fitted when lifting more than 1000kg. These devices are fitted so that in the event of failure, it reverts to 'fail safe mode'; and

If capable of lifting more than 1000kg, the machine must have a Rated Capacity Indicator fitted to assist the driver to operate within safe limits using audible and visual alarms

Note: where lifting operations fall outside the scope of the common lifts schedule, **F2.11a: Lifting Operations Co-ordination Plan – Mobile Crane** must be completed by the appointed person or Groundworks Supervisor. This form details the lifting method, equipment, accessories, load weights, exclusion zones, and communication arrangements, ensuring all risks are assessed and controlled before work begins.

4.3.6 Safe use of Quick Hitches

A quick hitch (QH) is the latching device that enables an attachment to be connected to the excavator boom. Operatives' Briefing All operators on site (including those with hired machines) must have received training on the use of Quick Hitches and received familiarisation training on the actual type they are operating.



A site-specific register of the training must be maintained by the groundworks supervisor with each operator noted and training verified. A copy must also be given to the Site Manager F2.26 Register for Safe Use of Quick Hitches

Key Controls:

- Operators / Groundworks Supervisor must be able to demonstrate how the QH system fitted on their machine works and if a safety pin is required. This information must be communicated to the Operator by the Groundworks Contractor and recorded on the TW QH register.
- If a safety pin or safety device is required for the QH – it must be inserted
- The operator / supervisor must know what checks are to be made for ensuring the security of the QH

Manual System QH

This requires the operator to change the bucket by either a winding screw thread to open and close the latch or by using a bar to open a spring-actuated latch.

Semi-Automatic QH

(Safety pin about to be inserted) Machine driver must leave the cab to insert the pin. Safety pin and locating hole must be painted / sprayed for ease of identification

Automatic QH

Can be operated from the cab. Must have a method where operator can verify from the cab that the latch is in the closed position. Machine driver must check the locking mechanism by the shake-rattle-and-roll technique

Quick Hitch Signage

The Sticker applicable to the type of hitch must be displayed on the dipper arm of the Excavator

The Sticker applicable to the type of hitch must be displayed on the inside of the window of the Excavator

Reusable Adhesive and Magnetic Signs must be ordered from Communication Graphics.
16 Whitehouse St.
Bristol
BS3 4AY
Tel: 0117 925 6066.

4.3.7 Bucket Changing Areas

Bucket changing area must be set up to keep operatives clear when changing buckets.
The following controls must be in place:

- Buck Changing area must be positioned away from pedestrian walkway
- Buckets must be segregated by Hera's fencing to prevent unauthorised access
- Signage must be displayed on the front of the bucket changing area

4.4 - Control of Dumpers

Using mobile plant in groundworks presents several health risks that require rigorous control and monitoring. Operators face potential exposure to vibration, noise, and exhaust emissions, which can lead to long-term conditions such as hand-arm vibration syndrome (HAVS), hearing loss, therefore, the correct item of plant must be selected by the Groundworks Contractor to prevent exposure to plant operators.

Mobile plant (Dumpers) can presents significant safety risks that must be carefully managed by our Site Management Teams and Groundworks Supervisors. Key hazards include instability due to poor ground conditions, failure to use the correct equipment; inadequate training; and failures in inspection and maintenance that compromise equipment integrity. Additionally, insufficient traffic management and lack of segregation between plant and pedestrian routes heighten the risk of collisions. Behavioural risks, such as unsafe operating practices, must be monitored, through plant selection assessments, Risk Assessment, training, daily briefings are essential to reinforce controls through effective monitoring and supervision.

Using mobile plant for groundworks presents several environmental risks that must be carefully managed to ensure compliance and sustainability. These risks include soil contamination from fuel, oil, and hydraulic fluid leaks; air pollution due to exhaust emissions and dust generation; and noise pollution, which can disturb local wildlife and communities. Additionally, the movement and operation of heavy machinery can lead to habitat disruption, compaction of soil, and damage to tree roots or underground ecosystems. Improper use or storage of materials may also result in water pollution through runoff into nearby watercourses such as the location and formation of spoil heaps.

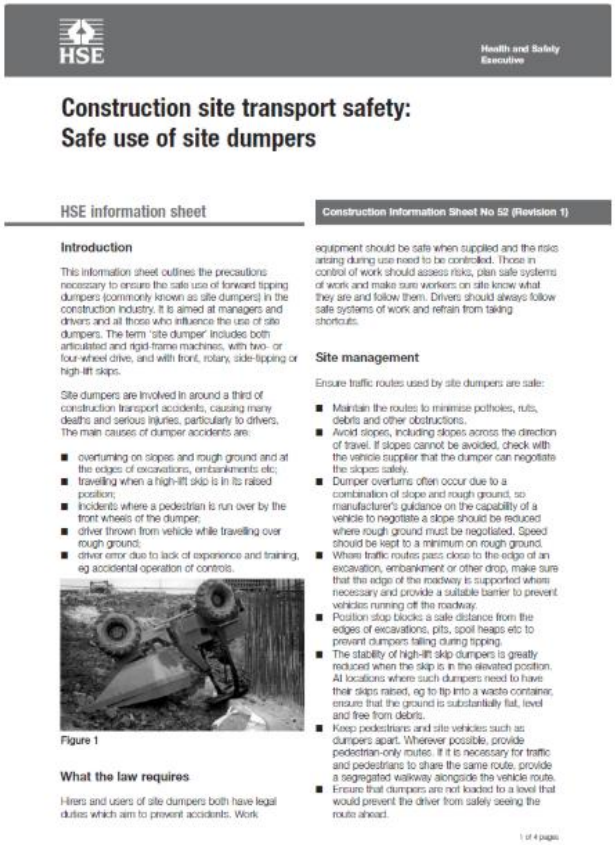
4.4.1 Operatives Briefings

Dumper Operators Training
Groundworks Supervisors must ensure that only trained and authorised persons are permitted to operate dumpers (contact your Regional / Site HSE Advisor, if in doubt). Evidence of training must be through the provision of a training card from an organisation such as CPCS, NPORS or other approved dumper training provider (contact your Regional / Site HSE Advisor, if in doubt). The Site Manager must request to see the card and either have it noted on a copy of the Groundworks Contractors Training Matrix or take a copy of the operator's training card.

Familiarisation
The Dumper Operator must have been provided with familiarisation of the controls of the specific machine being operated. This can be via the supplier, hire-company, or the Groundworks Supervisor (if

suitably trained). The Groundworks supervisor must keep a record of the familiarisation briefing given.

Groundworks Supervisors must ensure that their operatives are briefed prior to work on or around plant. The following Site Safe Briefing have been developed for this purpose:



HSE

Health and Safety Executive

Construction site transport safety: Safe use of site dumpers

HSE information sheet

Construction Information Sheet No 52 (Revision 1)

Introduction

This information sheet outlines the precautions necessary to ensure the safe use of forward tipping dumpers (commonly known as site dumpers) in the construction industry. It is aimed at managers and drivers and all those who influence the use of site dumpers. The term 'site dumper' includes both articulated and rigid-frame machines, with two- or four-wheel drive, and with front, rotary, side-tipping or high-lift skips.

Site dumpers are involved in around a third of construction transport accidents, causing many deaths and serious injuries, particularly to drivers. The main causes of dumper accidents are:

- overturning on slopes and rough ground and at the edges of excavations, embankments etc;
- travelling when a high-lift skip is in its raised position;
- incidents where a pedestrian is run over by the front wheels of the dumper;
- driver thrown from vehicle while travelling over rough ground;
- driver error due to lack of experience and training, eg accidental operation of controls.

Figure 1

What the law requires

Hirers and users of site dumpers both have legal duties which aim to prevent accidents. Work equipment should be safe when supplied and the risks arising during use need to be controlled. Those in control of work should assess risks, plan safe systems of work and make sure workers on site know what they are and follow them. Drivers should always follow safe systems of work and refrain from taking shortcuts.

Site management

Ensure traffic routes used by site dumpers are safe:

- Maintain the routes to minimise potholes, ruts, debris and other obstructions.
- Avoid slopes, including slopes across the direction of travel. If slopes cannot be avoided, check with the vehicle supplier that the dumper can negotiate the slopes safely.
- Dumper overturns often occur due to a combination of slope and rough ground, so manufacturer's guidance on the capability of a vehicle to negotiate a slope should be reduced where rough ground must be negotiated. Speed should be kept to a minimum on rough ground.
- Where traffic routes pass close to the edge of an excavation, embankment or other drop, make sure that the edge of the roadway is supported where necessary and provide a suitable barrier to prevent vehicles running off the roadway.
- Position stop blocks a safe distance from the edges of excavations, pits, spoil heaps etc to prevent dumpers falling during tipping.
- The stability of high-lift skip dumpers is greatly reduced when the skip is in the elevated position. At locations where such dumpers need to have their skips raised, eg to tip into a waste container, ensure that the ground is substantially flat, level and free from debris.
- Keep pedestrians and site vehicles such as dumpers apart. Wherever possible, provide pedestrian-only routes. If it is necessary for traffic and pedestrians to share the same route, provide a segregated walkway alongside the vehicle route.
- Ensure that dumpers are not loaded to a level that would prevent the driver from safely seeing the route ahead.

1 of 4 pages

4.4.2 Key Controls

The following controls and arrangements must be followed by the Groundworks Supervisor:

- All plant to be kept in good working order, with daily inspection being undertaken prior to use by the plant operator, recorded on the plant inspection register, and the necessary thorough examination complete and available for inspection.
- Ensure Machines are suitable for the site conditions (including gradients) and working space. See Section 4.2.1 Plant Selection Assessment
- Operators never drive while using a mobile phone (including Bluetooth), 2-way radio, music radios, CD Players, iPods, etc. Where there is a need for Site Communication 2-way radios may be utilised, they can only be used when the machine is stationary, and no operations are being carried out Amber flashing beacon fitted to all machines
- Plant must never be left unattended without firstly removing the keys

Key signage to be displayed and maintained, this includes:
'Thumbs Up' Decal: Groundworks Contractors to attach the magnetic 'thumbs up' or adhesive decal reminder signs to all excavators, available from C-Graphics

4.4.3 Slopes and Gradients

Prior to commencement of groundworks activities on site, the Groundworks Contractor must carry out an assessment of any gradients on site in respect of the selection of site dumpers,
(See Section 4.2 re: assessment of gradients and ground conditions).
As a minimum, any ramps constructed for dumpers must be set at minimum gradients, well within the safe working capabilities of the dumper, and include bunds at least half the height of the dumper wheel at each side of access routes (prevents the dumper going too near the edge).
Ramps must be regularly machine graded and maintained to avoid deep rutting or cross levels.
NB. No dumpers are to access any spoil heaps.

4.4.4 Spoil Heaps and Stockpiles

Category 0 Temporary Works
Prior to the formation of any spoil heaps or stockpiles the Groundwork Contractor must provide a suitable Risk Assessment/Method Statement detailing their system of work for their formation and use, including the following:

- Restricting access to access tracked plant only
- Dumpers must not access the spoil heap/stockpile
- Dumpers to 'bottom dump' with tracked plant 'dragging' material up to form the spoil heap/stockpile
- Warning signage displayed
- Sides to be battered back to angle of repose when material is removed or added.
- Consideration for dust controls
- Seed with grass if for 6 months or more
- Regular recorded visual inspection

4.4.5 Seat Belt Warning System

Dumper Operators must always wear a retractable seat belt to help ensure that they are held within the 'Roll-Over Protection System' in the event of overturning. All dumpers on TW Sites are to be fitted with a 'Seat Belt Warning System' consisting of:

- An interlock on the ignition system that prevents the Dumper from being started before the Operator's seatbelt is activated.
- A green flashing beacon, mounted on the Dumper, is also included to indicate that the seatbelt has been attached.

Alternative systems have been developed by some manufacturers which apply the same principles e.g., for the JCB Drive Inhibit System (DIS) the sequenced system requires that the operator performs a set series of events before the machine will drive and pull away. In this case, the following sequence must be followed in order:
1. Seat presence switch – the operator must be sat on the seat before the engine can be started.
2. Lap belt engagement switch – the operator must engage the lap belt into the buckle after sitting on the seat.

3. The transmission must be in neutral gear.
4. Following the above sequence in the correct order, machine drive will then be available with forward or reverse gear selected.

4.4.6 Additional General Controls and Arrangements

Operators must ensure that the routes used are safe, consider gradients, potholes, ruts, slopes, excavation sides, etc.
• Operators must never travel with the skip raised.
• Operators must apply the handbrake when stationery and tipping.
• Dumpers must never be left unattended without the keys being removed.
• Operators must always dismount the dumper when it is being loaded including cabbed dumpers.
• Dumpers must never be overloaded, unevenly loaded, or loaded such as to obscure forward visibility.
• Plant inspections, including tyre pressures, hand brake and service brakes must be checked regularly and recorded weekly in the Groundworks Contractors Work Equipment and Lifting Equipment Inspection Record
• Operators must never drive while using a mobile phone (including Bluetooth), 2-way radios, music radios, CD Players, iPods, etc. Where there is a need for Site Communication, 2-way radios may be used if authorised by the Site Manager and only when the machine is stationary, and no operations are being carried out.
If there are any concerns over the safe use of a dumper, STOP use immediately and review the safe systems of work with your Site/Regional HSE Advisor

4.5 - Control of Truck Mounted Concrete Pumps

Using Truck Mounted Concrete Pumps presents several health risks that require rigorous control and monitoring. Operators face potential exposure to vibration, noise, and exhaust emissions, which can lead to long-term conditions such as hand-arm vibration syndrome (HAVS) and hearing loss. Therefore, the correct item of plant must be selected by the Groundworks Contractor to minimise exposure. Additionally, contact with wet concrete can cause significant chemical burns to the skin.

Operating a truck-mounted concrete pump involves significant safety risks that must be effectively managed. Key hazards include boom collapse, contact with overhead power lines, hose whipping, and pipe bursts from high-pressure concrete delivery. The pump truck may overturn if not set up on stable, level ground with fully deployed outriggers. Additional risks include slips, trips, and falls around wet concrete, exposure to moving parts during maintenance, and entrapment or crushing injuries

when positioning the boom. Mitigation requires strict adherence to manufacturer guidelines, pre-use inspections, exclusion zones, and competent operator training.

Using truck-mounted concrete pumps presents environmental risks that must be carefully managed to ensure compliance and sustainability. These include soil contamination from fuel, oil, concrete, and hydraulic fluid leaks; air pollution from exhaust emissions and dust; and noise pollution affecting wildlife and nearby communities. The movement of heavy machinery can cause habitat disruption, soil compaction, and damage to tree roots or underground ecosystems. Improper use or storage of materials may also result in water pollution through runoff into watercourses, particularly from poorly located or unmanaged spoil heaps.

Lorry-mounted concrete pumps are used where concrete needs to be conveyed to large areas or areas that are difficult to access. The weight of laden machines can be very significant and therefore require similar checks and controls as with bringing a mobile crane onto site.

Before any operation is carried out with a lorry-mounted pump, the following must be considered.

When the pump arrives at site the following documentation must be available prior to the start of the pumping operation.

- Inspection Certificate/ Certificate of Conformity if less than 12 months old.
- Operators CPCS card (or another equivalent scheme).
- Daily /weekly check sheets.
- Evidence of operator's medical fitness

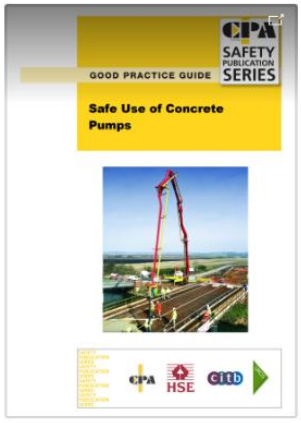
4.5.2 Additional Key Controls

Access & egress from the pumping site suitable for the size of the machine
Sufficient space for the machines stabilisers to be fully deployed

- Sufficient ground conditions for the loads imposed by the machine's stabilisers
- Underground & overhead restrictions or obstructions such as buried services, OH cables or scaffold structures
- The reach of the boom to the most remote point of the concrete pour
- Access for the ready-mixed concrete truck to the receiving hopper of the concrete pump

- The need for a signaller where the pump operator cannot see the receiving end of the pipeline
- Protection of the permanent works from potential damage by the concrete placing boom
- Any additional pipeline to supplement the reach of the boom pipeline and any support the pipeline may require
- The need for any additional labour for the pipeline work

The position of the machine must be determined by the Site Manager after discussion with the Owner, bearing in mind the ground conditions, the distance to the concrete pour, suitable access for the concrete delivery lorries and the working position of the concrete pump operator as well as any exclusion zones required for the operation.
This requirement is confirmed to the concrete pump operator on site during a pre-start briefing.
Underground voids, e.g., new drainage trenches and manholes, must be avoided when determining the positions of stabilisers



4.5.3

Lifting Arrangements Truck Mounted Concrete Pumps

TW Lifting Operations Co-ordination Plan – Lorry-Mounted Concrete Pump (Construction HSE Plan, Folder 2, F2.11c) must be completed by the Supervisor in charge of the operation along with the Site Manager. The plan includes an assessment of:

- Operative's training
- Ground bearing information, e.g., need for support. Minimum of 1.5m x 1.5m x 18mm steel plates unless CBR results, and assessment require more
- Location, size and reach of pump required
- Method of communication
- Any obstructions such as scaffold or form work
- Need for exclusion zones
- Traffic management arrangements; and
- Supervision and monitoring of the operation.

A specific Risk Assessment will be required when work is carried out in or near sensitive areas to address additional hazards and ensure appropriate control measures are implemented.
Contact your Regional/Site HSE advisor to assist with this assessment where necessary.

4.6.1 Other General Plant

Using mobile plant in groundworks presents several health risks that require rigorous control and monitoring. Operators face potential exposure to vibration, noise, and exhaust emissions, which can lead to long-term conditions such as hand-arm vibration syndrome (HAVS), hearing loss, therefore, the correct item of plant must be selected by the Groundworks Contractor to prevent exposure to plant operators.

Mobile plant can presents significant safety risks that must be carefully managed by our Site Management Teams and Groundworks Supervisors. Key hazards include instability due to poor ground conditions, failure to use the correct equipment; inadequate training; and failures in inspection and maintenance that compromise equipment integrity. Additionally, insufficient traffic management and lack of segregation between plant and pedestrian routes heighten the risk of collisions. Behavioural risks, such as unsafe operating practices, must be monitored, through plant selection assessments, Risk Assessment, training, daily briefings are essential to reinforce controls through effective monitoring and supervision.

Using mobile plant for groundworks presents several environmental risks that must be carefully managed to ensure compliance and sustainability. These risks include soil contamination from fuel, oil, and hydraulic fluid leaks; air pollution due to exhaust emissions and dust generation; and noise pollution, which can disturb local wildlife and communities. Additionally, the movement and operation of heavy machinery can lead to habitat disruption, compaction of soil, and damage to tree roots or underground ecosystems. Improper use or storage of materials may also result in water pollution through runoff into nearby watercourses such as the location and formation of spoil heaps.

Details of other general plant, not specific to Groundworkers, and how it is managed is provided in the following Sections, including:

- Intermediate Bulk Containers (see Section 2.1.4)
- Telehandlers (see Section 8.2).
- Cranes (see Section 8.3)
- Tipper vehicles (see Section 8.6.1); and
- Disc cutters and abrasive wheels (see Section 8.6.2)

4.7 - Excavation and Ground Penetration

Excavation work exposes workers to health hazards beyond physical risks. Dust, especially silica, can cause respiratory illnesses like silicosis and chronic obstructive pulmonary disease (COPD). Noise from machinery may lead to hearing loss without protection. Manual handling increases musculoskeletal injury risk, while vibration from tools can cause hand-arm vibration syndrome (HAVS). Contact with contaminated soil or groundwater may result in skin irritation or infection. To reduce these risks, implement dust suppression, provide suitable PPE, and follow safe work practices consistently.

Excavation work involves serious hazards that must be controlled. The greatest risk is ground collapse, which can cause entrapment or fatal injuries. Other dangers include striking underground services such as gas, electricity, or water, leading to explosions, electrocution, or flooding. Falling materials, plant operating near edges, poor access, and water ingress increase accident risks. To mitigate these, use proper shoring or benching, maintain safe plant distances, detect services before digging, and enforce exclusion zones and emergency procedures.

Excavation activities can have significant environmental impacts if not properly managed. Disturbing soil can lead to erosion, sediment runoff, and contamination of nearby watercourses. There is also a risk of releasing pollutants or hazardous substances from previously contaminated ground. Improper storage of excavated material can damage vegetation and wildlife habitats, while noise, dust, and vibration from machinery can affect local communities and ecosystems. To minimize these risks, implement silt control measures, manage spoil responsibly, monitor for contamination, and follow site-specific environmental management plans.

4.7.1 Ground Contamination

When carrying out excavations or other operations which involve breaking ground on a remediated site, there remains the potential to encounter contamination such as Asbestos, Hydrocarbons (oils) etc. i.e., contaminated hot spots not identified during the remediation. If the land has had ground contamination remediation / treatment, then the follow action must be taken:

- Discuss at the Groundworks / Piling Contractor pre-start meeting, etc.
- Additional slide to be added to Site HSE Induction, raising awareness for contractors / operatives who may work in the ground or be exposed to soils, e.g., piling contractor, groundworkers or bricklayers, etc. re the remediation carried out and contaminants encountered.
- Inform the contractor / operatives that if contamination is found during any ground-breaking operations / groundworks, to stop all works inform the Site Manager immediately.
- Fence off the area and any exposed materials and contact your Regional or Site HSE Advisor who will be able to advise you on the correct course of action to deal with the contamination, and RSK Advice line.

TW Environmental Advice / Incident Line
0845 003 8752
to be used for ALL Environmental Incidents

4.7.2 Controls for the Prevention of Excavation Collapse

Before commencing an excavation, the Site Management Team and Groundworks Supervisor must identify the hazards associated with the excavation and associated works to be carried out, e.g.:

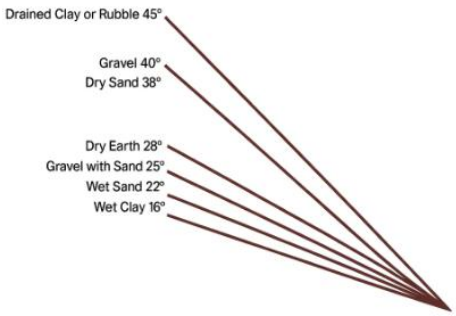
- Collapse of excavation
- Dislodgement of material adjacent to excavation
- Working near underground services; and/ or
- Confined spaces

All excavation works must be under the supervision of the Groundworks Supervisor.
To prevent the dislodgement of material, operative and objects falling into an open excavation the following control measures are necessary.

Battering

- Battering back the excavation sides to a safe angle of repose
- Inspect excavation before operatives enter, at regular intervals and after a change in circumstances, e.g., adverse weather conditions, and record F2.3 Excavations Record

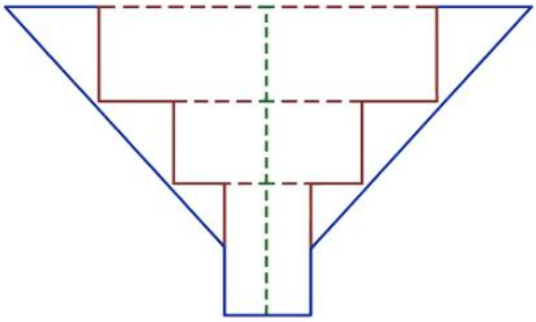
- Battering back the sides of an excavation to a safe angle is a simple and practicable means of preventing instability if assessed as adequate for excavation depth, etc.
- In granular soils, the angle of slope should be less than the natural angle of repose of the material being excavated. In wet ground a considerably flatter slope will be required



Benching - Category 2: Standard Temporary Works

- Benching Step/s to be assessed, but never more than a maximum of 600mm

- Inspect excavation before operatives enter, at regular intervals and after a change in circumstances e.g., adverse weather conditions



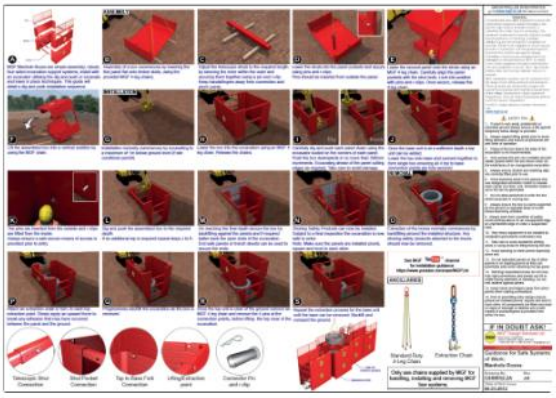
Trench and Manhole Boxes - Category 2: Standard Temporary Works

- Temporary works design information must be in place or detailed manufacturer's data / conformity sheets.
- Groundworks Contractor must ensure Taylor Wimpey Temporary Works Process is followed (**Section 1.7**)
- Inspections of box systems must be carried out before operatives enter, at regular intervals and after a change in circumstances, e.g., adverse weather conditions.

Key Considerations:

- Number of boxes required to ensure an enclosed safe working area.
- Handrail edge protection above ground level.
- Insertion to bottom of excavation (allowing clearance for Pea Gravel Bed); and
- Weight of boxes and Excavator lifting capability

Trench Box



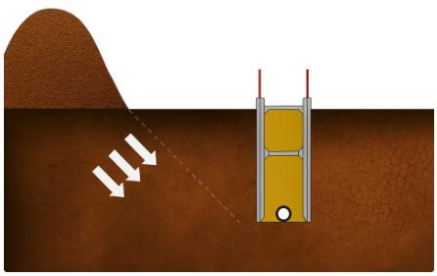
Manhole box

Excavation Box Ends - Category 2: Standard Temporary Works

End stops need to be present to prevent material displacement

Surcharging

- Plant, equipment, and materials must not be located close to the side of an excavation. The distance away from the excavation must be in line with the angle of repose based on the ground conditions.
- The exclusion zone must be determined via the excavation Risk Assessment.



4.7.3 Access / Egress into the Excavation

Suitable means of access to be provided within the confines of the protected boxed area.
Ladders to be secure and of the correct standard (i.e., nonslip profiled rungs).

4.7.4 Edge Protection

Category 0: Standard Temporary Works

Before any excavation work is carried out, measures to prevent people, plant or materials falling into the excavation must be assessed and agreed. Subsequent checks must be made by the Groundworks Supervisor and Site Manager to ensure that suitable edge protection is in place and being maintained. The type of protection used and distance away from the excavation is generally dependent on the depth of the excavation. However, all excavations, no matter how shallow, that interface with pedestrians or vehicles must have appropriate barriers in place.

- Edge protection on and around the excavation to prevent falls.
- The edge protection to be at least 950mm high.

4.7.5 Shallow Excavations

Category 2: Standard Temporary Works

Excavations adjacent to vehicle routes, even shallow ones, must be fenced off to highlight the risk and prevent operatives stepping off or plant driving into them.

Excavation protection must be regularly inspected and kept in a suitable condition to ensure protection maintained until the excavation is backfilled.

4.8 - Excavation and Ground Penetration

Rupturing water mains can create slip hazards and increase the risk of drowning in confined spaces. Additionally, exposure to noise, vibration, and dust during emergency repairs can contribute to long-term health issues. Proper planning, service detection, and use of PPE are essential to minimize these risks.

Excavating near buried services poses serious hazards that can lead to severe injury, and major service disruptions. Striking live electrical cables can cause electrocution or burns, while damaging gas mains may result in leaks, fires, or explosions. Contact with water pipes can lead to flooding and ground instability, and hitting telecom or fiber-optic cables can disrupt critical communications. These risks are often heightened by inaccurate service plans, shallow depths, or poor visibility in the ground. To mitigate these dangers, always review utility drawings, use cable detection equipment, hand-dig near known services, and maintain safe clearance distances.

Excavation near underground utilities can lead to significant environmental impacts if not managed properly. Disturbing old or hazardous waste buried near utilities can introduce substances into soil and groundwater. Additionally, extreme weather conditions increase erosion and sediment runoff, further degrading the environment. Careful planning, utility detection, and adherence to environmental protection measures are essential to prevent these risks

4.8 Backfilling Service Installations

The risk of striking a service significantly increases if the Service is incorrectly installed, poor back fill material is used, or the dig team deviate from the agreed system of work.

For all services installation undertaken from 2026, Prior to backfilling, Groundwork Supervisor/Nominated Responsible Person must complete and confirm the controls detailed in the Authority to Proceed F2.41, and attach photograph evidence.

Temporary Backfilling - Category 0: Standard Temporary Works
Where excavations are backfilled temporarily, i.e., area to be re-excavated for future service connections, then the following must be included:

- Use of a Strike Matz system must be used for all plot connections, where Services have been installed after 2026 to protect the underground services whilst excavating to expose plot connections.
- Back filling with suitable material to aid future excavation such as 'Vac-Ex' where compacted sand must be use to backfill Strike Matz protected plot connections. Sand can be reused for future plot connections, and ensure ease of removal of material and eliminate the need to mechanically excavate using the Vac-ex arm.
- Return area to safe condition, free from large debris.
- Taylor Wimpey Safe System of Work must be adopted by the Groundwork Contractor for temporary backfilling and the subsequent excavation to expose the buried services

Please see video for backfill guidance.
Note: Strike Matz **must** be installed on **all** plot connections that will require revisiting

An Authority to Proceed F2.41 Backfill Service Excavations must be complete by the Groundworks Supervisor who must inspect and record the following information before back fill commences:

- Check the utility installation line and level. If incorrect, the excavation must not be backfilled, and report to the SMT.

- Photo evidence of the service installation must be taken for all plots, and record on the ATP.
- Photo evidence of sand backfill and necessary warning tape has been laid directly above the service and recorded on the ATP.
- Install Strike Matz following the manufacturer's instructions, then take photos of the installation and record on the ATP.
- The GPS coordinates must be recorded on the ATP for both the plot connection, and Strike Matz installation.
- Once complete, and the GWS is satisfied with the installation and recording of the information, the GWS will authorise the excavation to be backfilled using the most appropriate material.
- The GWS and SMT will update the as laid records to demarcate the Strike Matz installation.
- The Backfill ATP will then be sent to the Taylor Wimpey Site Manager for future reference.

- If the GWS supervisor has not correctly completed the Backfill service excavation ATP with the necessary information, the service excavation must be excavated by hand with the GW HSE Advisor present due to the failure to complete the necessary backfill checks correctly.

Example of Correct Service Installation.

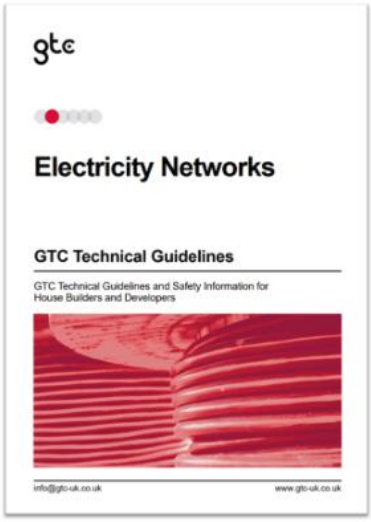
Example of Correctly Installed Service Trench

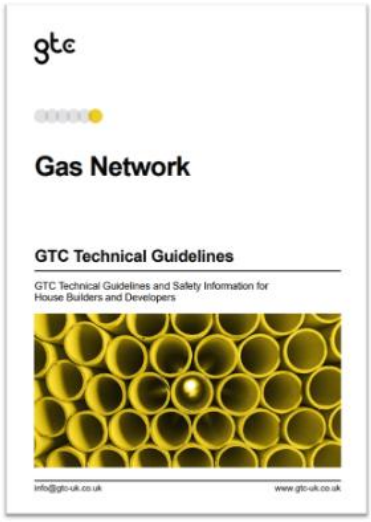
Authority to Proceed - F2.41 Backfill of Service Excavations
Site Management Teams are to provide the Groundworks Supervisor with the ATP. Groundworks Supervisors are to complete each of the ATP actions detailed below, and attach photograph evidence for each action and present it to the Site Management Team when complete.

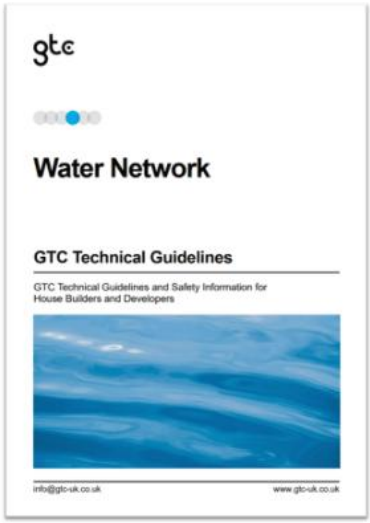
The ATP must be complete for each service Installation, and must be used as a reference for all future Service Excavation works.

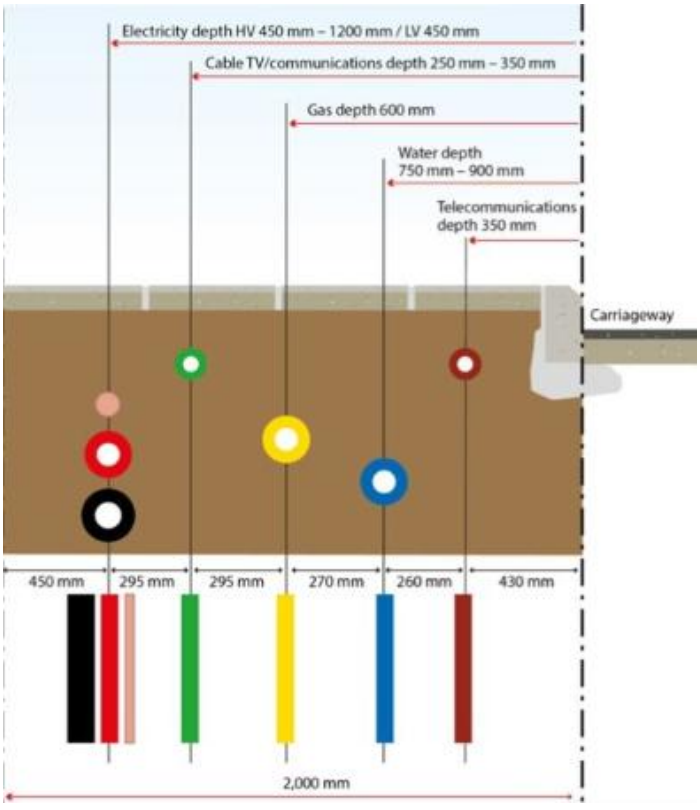
No.	Actions
1.	Include specific information about the section of service being installed, such as its precise location and the services installed. The proposed "as laid" drawing should be obtained and reviewed to confirm that the installation matches the drawing specifications.
2.	Review the service installation is to the correct 'line and level' recording the depth of the service from the floor height when installed. Photo evidence of the entire installation must be taken.
3.	Assess the suitability and quality of the sand backfill material (quarried sand) and verify that

No.	Actions
	the warning tape has been installed correctly. Photo evidence of the entire installation must be taken.
4.	Inspect the service installation and accurately document the locations of any Gas Nipples, Purge Valves, or similar components on the 'As Laid' service drawing. Photos evidence of each Gas Nipple, Purge Valve, or comparable part.
5.	Install Strike Matz system to the exact location of each Plot Connection throughout the Service Installation. Record the exact location on the 'As Laid' drawing, and take photo evidence of each Strike Matz installation.









4.8.1 Backfilling Service Installations - Strike Matz

Strike Matz

Strike Matz is a utility protection system designed to eliminate the need for manual excavating (Hand Dig Method). The system allows the use of mechanical excavation to expose underground service, as it's designed and tested against impact during mechanical excavation.

Once the Strike Matz is exposed and material removed from above, the Strike Matz is simply manual lifted from the ground to expose the services.

The Strike Matz Manual available below must be used by Groundworks Contractors during the installation process and recorded on the ATP Backfill Service Excavations.

Strike Matz feet (single & double) are to be positioned to interlock into the Strike Matz boards to enable them to be connected. Feet should be placed on compacted sand to ensure stability and rigidity prior to boards being installed. Feet are NOT to be positioned directly above any service to prevent damage when any weight or dynamic force is applied. The Black Feet have a 50% Iron Content that can be detected by a Magnetometer.
Prior to the installation process being undertaken all Strike Matz components must be visually inspected for wear and tear, damage etc and a written record maintained. If found to be damaged in any way then these should be disposed of (recycled) and replaced for new.

Example of Service Ducting & Strike Matz Installation.

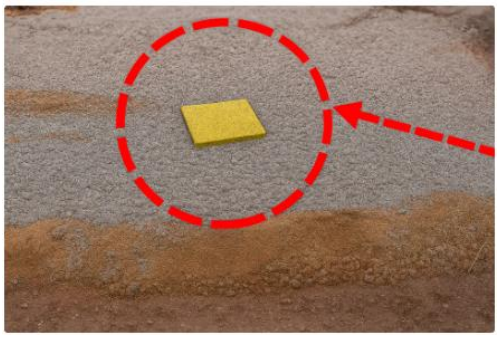
Strike Matz Installation Guide

System is available from Strike Matz @ Home | StrikeMatz

Contact:
0161 486 3241
enquiries@strike-matz.co.uk

4.8.2 Demarcation of the Strike Matz Installation

All plots connections fitted with Strike Matz system will have a clearly demarcated Yellow paving flag laid on the surface of the backfill material, directly in the centre of the Strike Matz system.



4.9 Controls for Works Near Underground Services

A ruptured water mains can create slip hazards and increase the risk of drowning in confined spaces. Additionally, exposure to noise, vibration, and dust during emergency repairs can contribute to long-term health issues. Proper planning, service detection, and use of PPE are essential to minimize these risks.

Excavating near buried services poses serious hazards that can lead to severe injury and major service disruptions. Striking live electrical cables can cause electrocution or burns, while damaging gas mains may result in leaks, fires, or explosions. Contact with water pipes can lead to flooding and ground instability, and hitting telecom or fiber-optic cables can disrupt critical communications. These risks are often heightened by inaccurate service plans, shallow depths, or poor visibility in the ground. To mitigate these dangers, always review utility drawings, use cable detection equipment, hand-dig near known services, and maintain safe clearance distances.

Excavation near underground utilities can lead to significant environmental impacts if not managed properly. Disturbing old or hazardous waste buried near utilities can introduce substances into soil and groundwater. Additionally, extreme weather conditions increase erosion and sediment runoff, further degrading the environment. Careful planning, utility detection, and adherence to environmental protection measures are essential to prevent these risks

4.9.1 Planning the Work

There are three critical elements that support a Safe System of Work, when working near or adjacent to live underground services:

- Planning the work e.g., service drawings/surveys, (for services laid after 2026 review of ATP F2.41 Backfill of service Excavations)
- Locating and identifying the location, run and depth of the buried services.
- Safe excavation / safe digging practices.

Before any work is carried out near or adjacent to live underground services steps must be taken to determine if the live service can be terminated during the works. If not, then the information on the actual type and location of the underground services must be reviewed and the interface with the planned groundworks identified and noted (ATP).
The Site Management Team must have provided with site service information in CDM Folder 1 (Pre - Construction Information) and if HV/High/Med pressure services on site, these must be detailed within the 'Site Service Pack' provided by the BU Technical Team.
For Services laid after 2026 ATP F2.41 Backfill of Service Excavations and appendix information must be provided.

Definitions	
High Voltage Electric (HV)	Electricity cables that carry voltage over 1000 volts (>1kV)
Medium / High Pressure Gas	Medium pressure mains operate between 75mbar and 7-bar and can be constructed from steel, polyethylene, cast iron or ductile iron pipe High Pressure Gas Mains operate at 7-bar and above and normally constructed of steel.
Low Voltage Electric (LV)	Electricity cables that carry voltage up to 1000volts (<1Kv)
Low Pressure Gas	Low pressure mains operating at approximately 30-mbar and up to pressures of 75-mbar and are constructed of polyethylene, cast iron or ductile iron pipe.
Other Service	Water, BT, Virgin Media, Cable, or Fibre Optic

4.9.2 Backfilled Service Excavations -Strike Matz

Temporary Backfilling - Category 0: Standard Temporary Works

Where excavations are backfilled temporarily, i.e., area to be re-excavated for future service connections, then the following must be included:

- Use of a Strike Matz system must be used for all plot connections installed after 2026 to protect the underground services whilst excavating to expose the service.
- Back filling with suitable material to aid future excavation such as 'Vac-Ex', quarried sand must be use to backfill Strike Matz protected plot connections.
- Return area to safe condition, free from debris
- Taylor Wimpey Safe System of Work must be adopted by the Groundwork Contractor for temporary backfilling and the subsequent excavation to expose the buried services

The backfill ATP will hold the following information that must be reviewed prior to works within proximity to buried services:

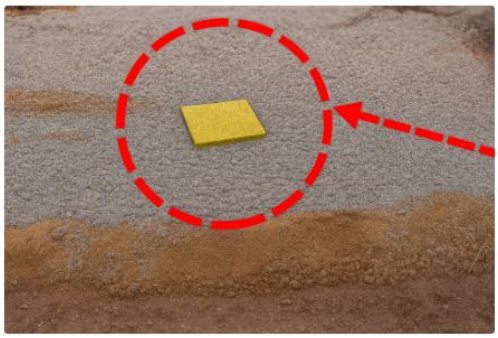
- Utility installation line and level
- Photo evidence of the service installation for all plots.
- Photo evidence of sand backfill and necessary warning tape laid directly above the service.
- Photo evidence of Strike Matz installations.
- The GPS coordinates of the strike Matz installation.
- Details of the appropriate backfill used e.g. Sand.

Authority to Proceed - F2.41 Backfill of Service Excavations

Site Management Teams are to provide the Groundworks Supervisor with the ATP. Groundworks Supervisors are to complete each of the ATP actions detailed below, and attach photograph evidence for each action and present it to the Site Management Team when complete.

No.	Actions
1.	Include specific information about the section of service being installed, such as its precise location and the services installed. The proposed "as laid" drawing should be obtained and reviewed to confirm that the installation matches the drawing specifications.
2.	Review the service installation is to the correct 'line and level' recording the depth of the service from the floor height when installed. Photo evidence of the entire installation must be taken.
3.	Assess the suitability and quality of the sand backfill material (quarried sand) and verify that the warning tape has been installed correctly. Photo evidence of the entire installation must be taken.
4.	Inspect the service installation and accurately document the locations of any Gas Nipples, Purge Valves, or similar components on the 'As Laid' service drawing. Photos evidence of each Gas Nipple, Purge Valve, or comparable part.
5.	Install Strike Matz system to the exact location of each Plot Connection throughout the Service Installation. Record the exact location on the 'As Laid' drawing, and take photo evidence of each Strike Matz installation.

All plots connections fitted with Strike Matz system will have a clearly demarcated Yellow paving slab laid on the surface of the backfill material, directly in the centre of the Strike Matz system.



Locating Buried Strike Matz

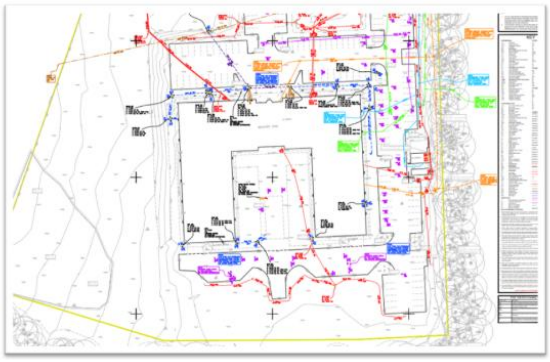
Once satisfied with the location of the service and Strike Matz has been identified, the operatives are to use line spray to demarcate the location of the service before excavation work

4.9.3 Site Service Packs

Surveys and information obtained to identify existing underground services must be identified within the Pre-Construction Information. Full details including PAS 128 survey and applicable service drawings must be provided to the Site Management Team by the BU Technical Team prior to start on site. The 'Site Service Pack' must be provided in hard copy.

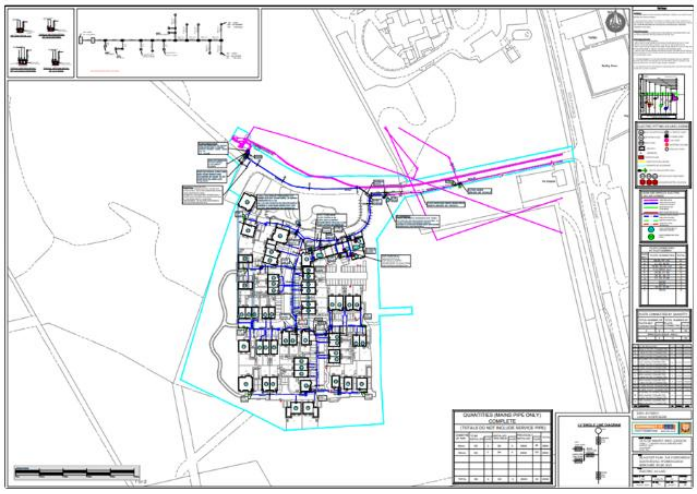
If groundworks (e.g., ground-breaking activities) on site are going to interface with any live HV Electric or Medium/High Pressure Gas services on site and you have not been provided with a 'Site Service Pack' the Groundworks (ground-breaking activities) cannot commence until you have received your site specific 'Site Service Pack' and the Site Management Team and Groundworks Supervisor have been briefed on the contents.



4.9.4 PAS 128 (Level 4) Compliant Utilities/Service Surveys

A PAS128 survey must be carried out before work commences on site to locate and determine location, run and depth of existing underground services. The PAS 128 survey must be carried out by a specialist contractor (engaged by the BU Technical Team), and they must provide a survey report compliant to PAS128 or Level 4 (Survey Association) standard.

The PAS128 survey must be consulted when completing the ATP for breaking ground and must be attached to the ATP. Details of the survey findings are provided by your BU Technical Team within your 'Site Service Pack'



4.9.5 Service Review Meeting

Where the services are complex or critical, the Site Manager must hold an additional Service Review Meeting, prior to works starting, with the Production Manager, Technical Department, Contractor, RHSEA or SHSEA and service provider(s) in attendance (as appropriate) covering the suggested agenda.

Service Review Meeting Agenda

- Scope of Works.
- Information review, service surveys / drawing. Were the services are complex or critical, the Site Manager must hold an additional Service Review Meeting, prior to works starting, with the Production Manager, Technical Department, Contractor, RHSEA or SHSEA and service provider(s) in attendance (where necessary) covering the suggested agendas.
- Site Service Pack (where applicable)
- Proposed Service Location and design.
- Supervision and Operative Training Records.
- Risk Assessments, Method Statements, 'Authority to Proceed – Excavations and Ground Penetration'.

Service Requirements

All mains and private / plot services (both gas and electric) must have the appropriate 'Warning Marker Tape' laid above the service
Refer to Technical Guidelines for gas and electric services provided for further detail If no detail provided in Pre-Start Pack, contact your Technical Team

4.9.6 Locating and Identifying Buried Services

The identification of the location run and depth of buried services and subsequent 'marking-out' of the services is a critical step in preventing the occurrence of a possible service strike. The Site Management Team, Groundwork's Supervisor and responsible operatives working near or adjacent to a service must be involved in the arrangement to:

- Locate any underground services near or adjacent to the excavation / ground-breaking activity
- Mark out the service location, run and depth
- Identify all services e.g.

- High Voltage electrical (HV) cables
- Medium / High pressure gas mains
- Low Voltage electrical (LV)
- Low pressure gas
- Water mains and other services e.g., BT, Virgin Media, etc

Locate and Mark Existing Service Locations
It is important to recognise that in most cases there will be no surface indication of the presence of existing underground cables. Therefore, the following actions must be taken.

- Don't assume that the plans are to scale - they may have been copied (several times). There is no guarantee that they are accurate. Be especially careful where topographical changes made since the plans were drawn
- Only Cable Avoidance Tools Categorized GPS 'GCAT 4+' must be used to locate services with the ability to record and log data
- Make sure that a competent trained person using a calibrated Cable Avoidance Tool (CAT) and Genny locates all cables/pipes shown on these plans • Mark the location, run and depth (if known) of services on the ground surface with waterproof road paint or another permanent marker.
- Frequent repeated use must be made of Cable Avoidance Tools throughout the 'dig'.

Note the 'CAT' locator may locate, but not identify multiple service runs e.g., running in parallel or close to each other. Care must be taken to identify all individual services within the area / service run

Always assume that services are live unless you have been informed otherwise in writing.

- By hand, with fully insulated tools, dig trial holes to locate the exact position of all cables / pipes.
- Where a service is encased in concrete there is a greater risk of service damage and arrangements must be made to consult with the service utility re isolation of the service or other precautionary measures

4.9.7 Authority to Proceed - Excavations / Ground Penetrations

The Site Manager and Groundworks Supervisor must complete an **Authority to Proceed – Excavations/Ground Penetration (Construction HSE Plan – Folder 2, F2.4)**, including service location drawings for the area, prior to any excavation or ground penetration where measures are required to prevent danger to any person from:

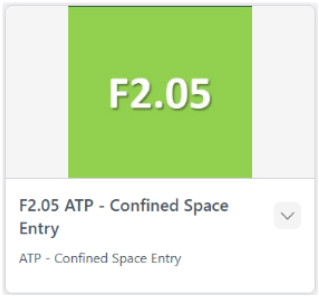
- A fall or dislodgement of material; and/or
- Underground services

NOTE: All Authorities to Proceed must be completed by the Site Management Team and Groundworks Supervisor prior to works commencing and signed off once works are complete. The Site Manager must also log each Authority to Proceed in the Authority to Proceed – Ground Penetration Log (Construction HSE Plan – Folder 2), with each ATP assigned a log number

Note: When planning any excavation for plot connections (installed after 2026), it is essential to review and discuss the Authority to Proceed for Backfill of Service Excavations (ATP F2.41) alongside the Authority to Proceed for Excavations/Ground Penetration.
This ensures that all service installations and protective measures required for backfilling, such as Strike Matz placement and correct backfill material, are understood before works commence
By incorporating ATP F2.41 into pre-start discussions, the Site Management Team and Groundworks Supervisor can confirm that previous installations are compliant and that photographic evidence and “as laid” records are available.

Authority to Proceed

It is critical that the Contractor / Groundworks Supervisor:
• Has assessed the requirements for supporting or securing the sides of excavations.
• If there are underground services in the area, has ensured that appropriate actions have been taken to mark the line of the service (See Section 4.9.4); and
• Has assessed whether there are any Confined Spaces requiring an Authority to Proceed – Confined Space Entry (Construction HSE Plan - Folder 2, F2.5). (See Section 4.14). Copies of the completed Authority to Proceed
Excavations/Ground Penetration forms along with the supporting dig permits should be retained in a Construction HSE Plan for reference to previous activities for subsequent operations.
Where High Voltage Electric or Medium / High Pressure Gas mains are identified - the Process / Control measures outlined in Section 4.8 must be followed.



4.9.8 Authority to Proceed - Ground Penetration Log

The Authority to Proceed – Ground Penetration Log must be completed each time an Authority to Proceed is issued. Each Authority to Proceed must be given an 'ATP Number', recording the number on the ATP.

Taylor Wimpey

Authority to Proceed – Ground Penetration Register

TW Business Unit:		Site Name:	

		Services					
Date	Location of excavation	HV or MP/HP Gas? Y/N	LV, LP gas or Other? Y/N	Is Access Required into the Excavation? Y/N	Estimated Duration of Works?	ATP Required? Y/N	ATP Number

CDM F2.04a (01/01/23) Vers.1 ATP - Excavations / Ground Penetration

4.9.9 Dig Permit Boards

Where services are located within or adjacent to where excavation work is planned a 'Dig Permit Board' must be displayed to clearly identify the higher level of control required.

To assist the Site Manager and Groundwork Supervisor to control excavation work involving either exposing or adjacent to known services, the operatives involved must be 'briefed' by the Groundworks supervisor and a Dig Permit Board completed and displayed at the point of work.

Nominated service-dig operatives must always display the Dig Permit Board within the excavation work area.
If the ground conditions, services, scope of works or dig operatives change, the Site Manager and Groundwork Supervisor must reassess the work and review the Authority to Proceed – 'Excavations and Ground Penetration'.

4.9.10 No Mechanical Digging Zone

During any excavation works exposing or adjacent to any Services the control measures detailed in the Service Excavation Procedure (See Section 4.8) must be followed.

As part of the process, an 'No Mechanical Digging Zone' must be established by the Groundworks Supervisor or Groundworks Nominated Responsible Person prior to any excavation work commencing.

The 'No Mechanically Digging Zone' normally:

- Extends to a minimum of 500mm either side of the service line
- However, this distance can be greater for higher voltage or higher pressure cables
- The specific distance must be assessed as part of the Authority to Proceed – Excavations and Ground Penetration (See section 4.9.1).
- Consider reference to the Service Provider's specification, for example no mechanical digging within 3m of an intermediate pressure gas main; and
- Be marked out by the Groundwork Supervisor or Groundworks Nominated Responsible Person once the line of the service has been established.

4.9.11 Safe Dig Practices

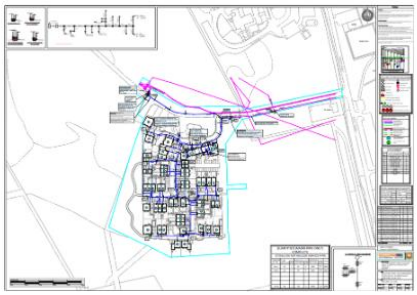
Site Managers must monitor the process of digging near underground services, making use of the HSE Site Control Form (see Section 3.5.5) and the Authority to Proceed – Excavations/Ground Penetration (see section 4.9.1). The process, known as 'safe digging practice', is summarised in the following steps.

A) Refer to drawings / liaise with utilities

Copies of all up-to-date Service Drawings and a 'Site Service Pack' (where applicable) must be available on site. All relevant drawings must be referred to before any work is carried out near or adjacent to live underground services. Note. Conflicting services may be shown on different service / utility drawings. Drawings can come in two formats and must be read in conjunction with each other:

- DNO (District Network Operator) plans which will show all existing services within the site; and
- IDNO (Independent District Network Operator) plans which will show the scheme for the site.

B) Confirm existing services at the site set-up stage



Services must be confirmed at the site set-up stage and recorded on the Site Information Plan (see Section 2.2.4) indicating:

- Compound services (old or new); and
- Record of 'as laid' services, including loops, bends, etc.; depths noted (remember that the temporary surface may be significantly lower than the intended finished surface).

C) Carry out Safe Digging (noting the following key points):

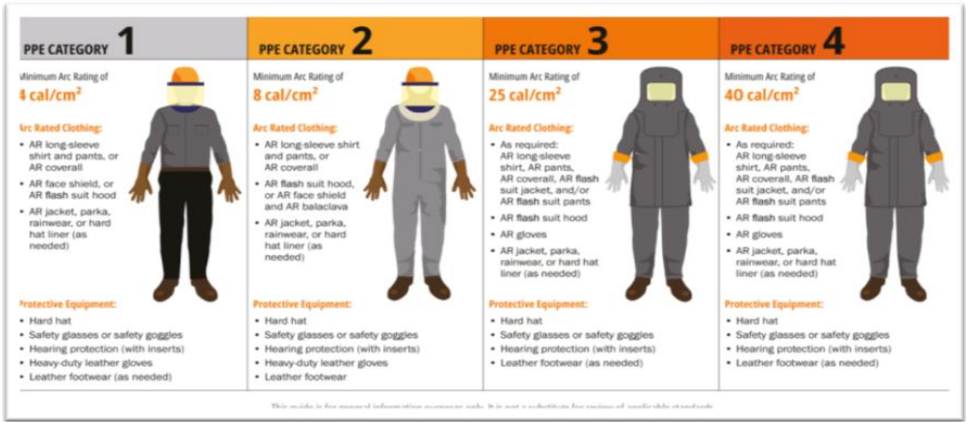
- Frequent repeated use must be made of Cable Avoidance Tools throughout the 'dig' i.e., regular scans from commencing the digging process through to completing the dig or exposing the services
- Always use a spade or shovel. The use of picks, forks and power tool is not permitted within a minimum of 0.5m of a known service. (Consult with your service providers safe digging practice specification).

For work near electrical services, tools must be fully insulated (non-conductive) to protect the user (to BS8020:2011).

- Non-conductive tools to be correctly rated for the task/environment that they are being used
- Tools inspected before use and if the inside colour is visible, they must be replaced
- Look out for ducts, marker tape, sand or service tiles but do not rely on finding these.
- Even if a cable/pipe was originally laid in a duct or with a marker tape, these may have been removed during earlier excavations.
- The use of Cable Avoidance Tools must be used frequently and repeatedly during the work, i.e., regular scans from commencing the digging process through to completing the dig or exposing the services.
- Every effort must be made to excavate alongside a service rather than directly above it. The final exposure of the service/s can then be carried out by horizontal hand digging (the force applied to hand tools can be controlled more effectively).
- Cables / pipes can be flexible and can change direction and depth abruptly. Therefore prior to the use of any mechanical excavators an assessment must be made to ascertain the safe mechanical digging distance based on the service providers specification. There is no mechanical digging within 0.5m of any known underground electricity cable, however this could be extended up to 3m for some intermediate pressure gas pipes and permission from the service provider may be required. Further advice must be sought from your Regional HSE Advisor.
- Kerb lines, roads and buildings may have been moved or altered since the cables were laid.
- Services are ordinarily at least 450mm deep but don't assume this to be the case where you are working, ground levels could have changed.
- Services in areas where tracked machines operate need to be checked regularly to ensure weather conditions and wear have not removed the essential protective top cover.
- Not all services are shown on Service plans, so look for clues such as cables running down poles and bear in mind that all buildings, streetlights, and road furniture are likely to have cables running to them. Cables feeding street furniture may be relatively shallow near to the furniture.
- Cables do not run-in straight lines and often "snake" through the ground avoiding surface and buried obstacles that may not be visible to you.
- Stop if suspect/damaged pipes or cables found and contact the utility company.
- Support any exposed services and never use them as hand or foot supports; and
- Replace warning tape/tile and backfill around pipes or cables with fine material (e.g., sand) properly compacted to prevent compaction damage and never with material that would be hazardous to excavate if the services had to be exposed again (e.g., concrete).

D) The Last Line of Defence – ARC/Flash Protection

When excavating near underground electrical services there is a risk an arc-flash from cable strikes resulting in a release of intense energy.



Suitable and adequate Arc Flash protection (based on the contactors risk assessment) **MUST** be worn by the

operative/s when excavating near underground services, i.e., hand digging, or operating the vacuum excavation hose, air-lance, etc. in the excavation



4.10 Vac-ex near to adjacent to underground services

A ruptured water mains can create slip hazards and increase the risk of drowning in confined spaces. Additionally, exposure to noise, vibration, and dust during emergency repairs can contribute to long-term health issues. Proper planning, service detection, and use of PPE are essential to minimize these risks.

Vac-ex near buried services poses serious hazards that can lead to severe injury and major service disruptions. Striking live electrical cables can cause electrocution or burns, while damaging gas mains may result in leaks, fires, or explosions. Contact with water pipes can lead to flooding and ground instability, and hitting telecom or fiber-optic cables can disrupt critical communications. These risks are often heightened by inaccurate service plans, shallow depths, or poor visibility in the ground. To mitigate these dangers, always review utility drawings, use cable detection equipment, hand-dig near known services, and maintain safe clearance distances.

Vac-ex near underground utilities can lead to significant environmental impacts if not managed properly. Disturbing old or hazardous waste buried near utilities can introduce substances into soil and groundwater. Additionally, extreme weather conditions increase erosion and sediment runoff, further degrading the environment. Careful planning, utility detection, and adherence to environmental protection measures are essential to prevent these risks

4.10.1 Safe Digging Practice & Backfilling of Excavation

The risk of striking a service significantly increases if the Service is incorrectly installed, poor back fill material is used, or the dig team deviate from the agreed system of work.

For all services installation undertaken from 2026, Prior to backfilling, Groundwork Supervisor/Nominated Responsible Person must complete and confirm the controls detailed in the Authority to Proceed F2.41, and attach photograph evidence.

Temporary Backfilling - Category 0: Standard Temporary Works

Where excavations are backfilled temporarily, i.e., area to be re-excavated for future service connections, then the following must be included:

- Use of a Strike Matz system must be used for all plot connections installed after 2026 to protect the underground services whilst excavating to expose the service.

- Back filling with suitable material to aid future excavation such as 'Vac-Ex', quarried sand must be use to backfill Strike Matz protected plot connections.
- Return area to safe condition, free from debris
- Taylor Wimpey Safe System of Work must be adopted by the Groundwork Contractor for temporary backfilling and the subsequent excavation to expose the buried services

The backfill ATP will require the GWS to inspect and record the following information before back fill commences:

- Check the utility installation line and level – if incorrect, the excavation must not be backfilled, and report to the SMT.
- Photo evidence of the service installation must be taken for all plots, and record on the ATP.
- Photo evidence of sand backfill and necessary warning tape has been laid directly above the service and recorded on the ATP.
- Install Strike Matz following the manufacturer's instructions – take photo of the installation and record on the ATP
- The GPS coordinates must be recorded on the ATP for both the plot connection, and strike Matz installation.
- Once complete, and the GWS is satisfied with the installation and recording of the information, the GWS will authorise the excavation to be backfilled using the most appropriate material.
- The GWS and SMT will update the as laid records to demarcate the Strike Matz installation.
- The Backfill ATP will then be sent to the Taylor Wimpey Site Manager for future reference.
- If the GWS supervisor has not correctly completed the Backfill service excavation ATP with the necessary information, the service excavation must be excavated by hand with the GW HSE Advisor present due to the failure to complete the necessary backfill checks correctly.

Authority to Proceed - F2.41 Backfill of Service Excavations

Site Management Teams are to provide the Groundworks Supervisor with the ATP. Groundworks Supervisors are to complete each of the ATP actions detailed below, and attach photograph evidence for each action and present it to the Site Management Team when complete.

The ATP must be complete for each service Installation, and must be used as a reference for all future Service Excavation works.

No.	Actions
1.	Include specific information about the section of service being installed, such as its precise location and the services installed. The proposed "as laid" drawing should be obtained and reviewed to confirm that the installation matches the drawing specifications.
2.	Review the service installation is to the correct 'line and level' recording the depth of the service from the floor height when installed. Photo evidence of the entire installation must be taken.
3.	Assess the suitability and quality of the sand backfill material (quarried sand) and verify that the warning tape has been installed correctly. Photo evidence of the entire installation must be taken.
4.	Inspect the service installation and accurately document the locations of any Gas Nipples, Purge Valves, or similar components on the 'As Laid' service drawing. Photos evidence of each Gas Nipple, Purge Valve, or comparable part.
5.	Install Strike Matz system to the exact location of each Plot Connection throughout the Service Installation. Record the exact location on the 'As Laid' drawing, and take photo evidence of each Strike Matz installation.

4.10.2 Authority to Proceed – Excavations/Ground Penetration

Vac-ex can be used around buried services and other sensitive areas where 'No Mechanical Digging' has been identified.

Vacuum excavation can be an effective tool to reduce the likelihood of damaging services or other fragile existing infrastructure, however, as with all works, it requires careful planning

When exposing any existing services, including any higher-risk services (HV electric, IP/HP gas) vacuum excavation must be considered as part of the pre-planning for the works, i.e., as part of the process of identifying the safest practical way of carrying out the excavation works to expose underground services:

Planning the work

- Operatives involved in vacuum excavation must be trained, briefed, and authorised, i.e., CPCS or NPORS
- Prior to commencing Vac-Ex a pre-dig meeting must be held so that the scope of work, responsibilities and arrangements are clearly understood

Preparing to work

The Site Manager and Groundworks Supervisor must complete an Authority to Proceed – Excavations/ Ground Penetration (Construction HSE Plan - Folder 2, F2.04), including service location drawings for the area, prior to any excavations or ground penetration where measures are required to prevent danger to any person from:

- A fall or dislodgement of material and/or:
- Underground services

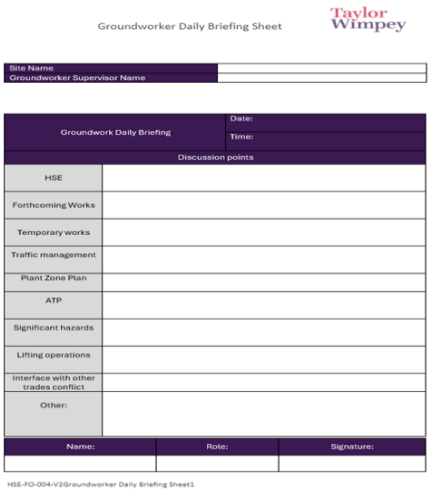
NOTE: All 'Authority to Proceeds' must be completed by the Site Management Team and Groundworks Supervisor prior to works commencing and signed off once works are complete. The Site Manager must also log each Authority to Proceed on the Authority to Proceed – Ground Penetration Log (Construction HSE Plan – Folder 2.04) with each ATP given a log number.

Authority to Proceed

It is critical that the Contractor / Groundworks Supervisor:

- Has assessed the requirements for supporting or securing the sides of excavations.
- If there are underground services in the area, has ensured that appropriate actions have been taken to mark the line of the service (See Section 4.9.4); and
- Has assessed whether there are any Confined Spaces requiring an Authority to Proceed – Confined Space Entry (Construction HSE Plan - Folder 2, F2.5). (See Section 4.14). Copies of the completed Authority to Proceed Excavations/Ground Penetration forms along with the supporting dig permits should be retained in a Construction HSE Plan for reference to previous activities for subsequent operations

Where High Voltage Electric or Medium / High Pressure Gas mains are identified - the Process / Control measures outlined in Section 4.8 must be followed.



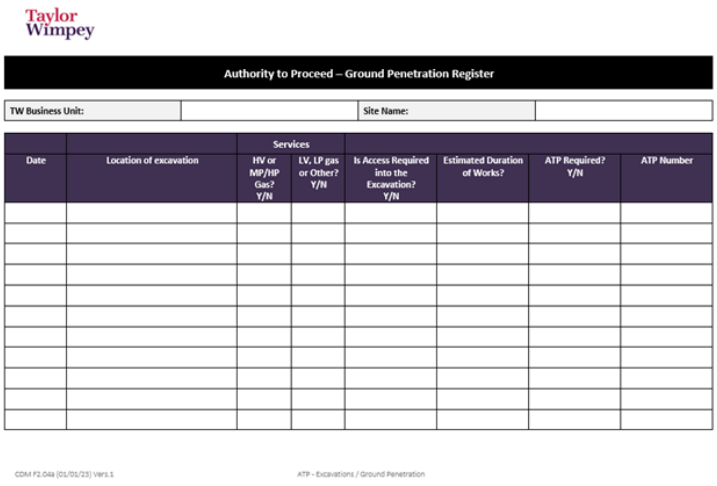
Groundworker Daily Briefing Sheet

Site Name	
Groundworker Supervisor Name	

Groundwork Daily Briefing	Date: / Time:
Discussion points	
HSE	
Forthcoming Works	
Temporary works	
Traffic management	
Plant Zone Plan	
ATP	
Significant hazards	
Lifting operations	
Interface with other trades conflict	
Other:	

Name:	Role:	Signature:

HSE-FO-004-V2Groundworker Daily Briefing Sheet1



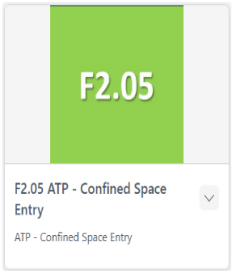
Authority to Proceed – Ground Penetration Register

TW Business Unit:		Site Name:	

Date	Location of excavation	Services: HV or MP/HP Gas? Y/N	Services: LV, LP gas or Other? Y/N	Is Access Required into the Excavation? Y/N	Estimated Duration of Works?	ATP Required? Y/N	ATP Number

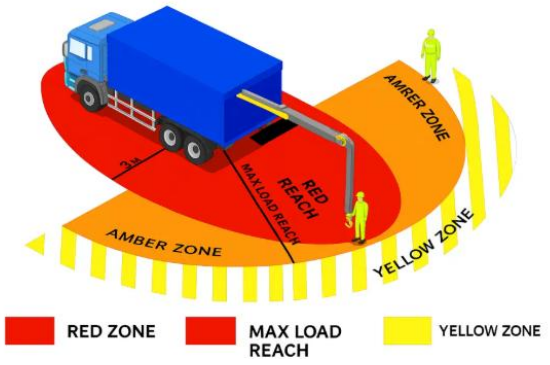
CDM F2.04a (01/01/23) Vers.1

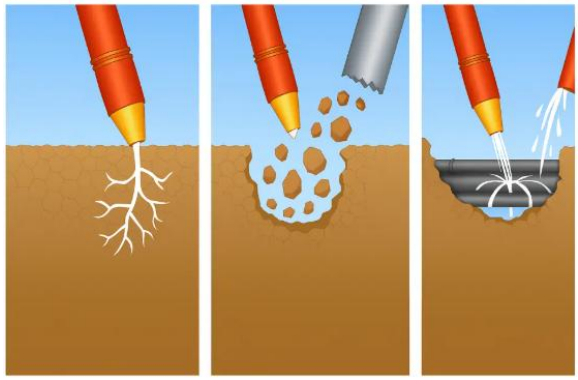
ATP - Excavations / Ground Penetration



4.10.3 Work Zone

Ensure that only authorised operatives are within the designated working zone.





- The air lance fractures the ground and breaks it up to enable removal by the vacuum
- The air lance or the power arm must not make contact with the ground at any time when exposing services.
- Hand digging with insulated shovels is the only appropriate method of engaging the ground as part of the process when within 500mm of services.

4.10.4 Dig Permit Boards

Where services are located within or adjacent to where excavation work is planned a 'Dig Permit Board' must be displayed to clearly identify the higher level of control required.

To assist the Site Manager and Groundwork Supervisor to control excavation work involving either exposing or adjacent to known services, the operatives involved must be 'briefed' by the Groundworks supervisor and a Dig Permit Board completed and displayed at the point of work.
Nominated service-dig operatives must always display the Dig Permit Board within the excavation work area.
If the ground conditions, services, scope of works or dig operatives change, the Site Manager and Groundwork Supervisor must reassess the work and review the Authority to Proceed – 'Excavations and Ground Penetration'.

4.10.5 No Mechanical Digging Zone

Service Excavation Procedure (See Section 4.8) must be followed.
As part of the process, an 'No Mechanical Digging Zone' must be established by the Groundworks Supervisor or Groundworks Nominated Responsible Person prior to any excavation work commencing.
Note, mechanical excavation can only be undertake if Strike Matz and associated controls have been implemented and confirmed prior to works commencement.

The 'No Mechanically Digging Zone' normally:

- Extends to a minimum of 500mm either side of the service line
  However, this distance can be greater for higher voltage or higher pressure cables.
- The specific distance must be assessed as part of the Authority to Proceed – Excavations and Ground Penetration (See section 4.9.1).
  Consider reference to the Service Provider's specification, for example no mechanical digging within 3m of an intermediate pressure gas main; and
- Be marked out by the Groundwork Supervisor or Groundworks Nominated Responsible Person once the line of the service has been established.

4.10.6 Safe Digging Practice

Site Managers must monitor the process of digging near underground services, using the Authority to Proceed – Excavations/Ground Penetration (see section 4.9.1). The process, known as 'safe digging practice', is summarised in the following steps.

QR Code for TW Safe Digging Video
Please use this video as part of a Site Safe Briefing/Take 5 to illustrate and reinforce safe digging practices that must be adopted on all Taylor Wimpey Sites.

A) Refer to drawings / liaise with utilities

Copies of all up-to-date Service Drawings and a 'Site Service Pack' (where applicable) must be available on site. All relevant drawings must be referred to before any work is carried out near or adjacent to live underground services. Note. Conflicting services may be shown on different service / utility drawings. Drawings can come in two formats and must be read in conjunction with each other:

- DNO (District Network Operator) plans which will show all existing services within the site; and
- IDNO (Independent District Network Operator) plans which will show the scheme for the site.

B) Confirm existing services at the site set-up stage

Services must be confirmed at the site set-up stage and recorded on the Site Information Plan (see Section 2.2.4) indicating:

- Review ATP F2.41 Backfill Service Excavations and appendix documents (section 4.8)
- Compound services (old or new); and
- Record of 'as laid' services, including loops, bends, etc.; depths noted (remember that the temporary surface may be significantly lower than the intended finished surface).

C) Carry out Safe Digging (noting the following key points):

- Frequent repeated use must be made of Cable Avoidance Tools throughout the 'dig' i.e., regular scans from commencing the digging process through to completing the dig or exposing the services.
- Always use a spade or shovel – The use of picks, forks and power tool is not permitted within a minimum of 0.5m of a known service. (Consult with your service providers safe digging practice specification).

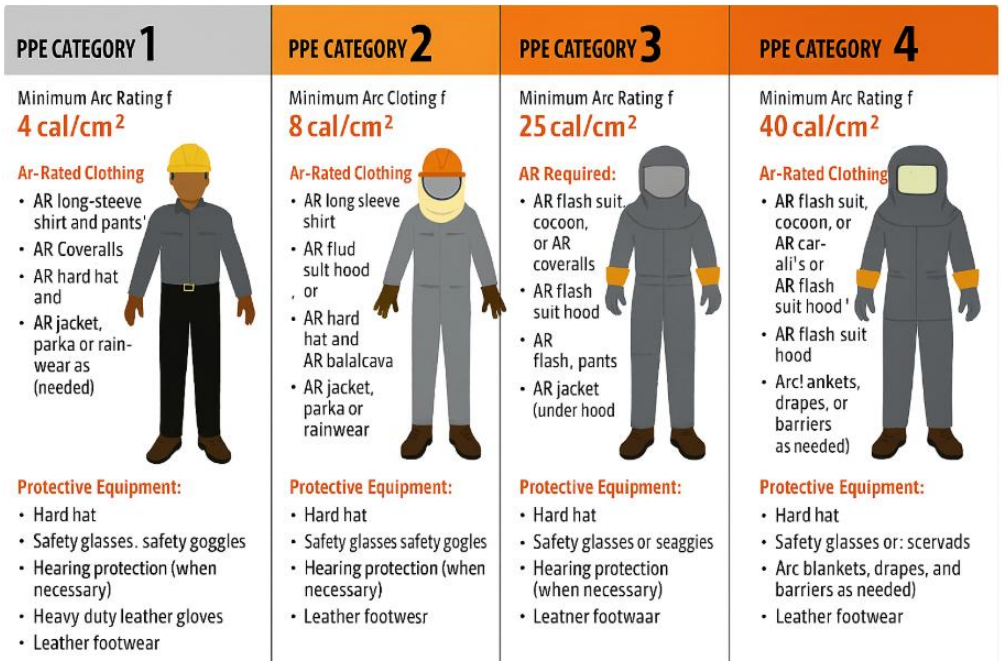
- For work near electrical services, tools must be fully insulated (non-conductive) to protect the user (to BS8020:2011).
- Non-conductive tools to be correctly rated for the task/environment that they are being used
- Tools inspected before use and if the inside colour is visible, they must be replaced
- Look out for ducts, marker tape, sand or service tiles but do not rely on finding these.
- Even if a cable/pipe was originally laid in a duct or with a marker tape, these may have been removed during earlier excavations.
- The use of Cable Avoidance Tools must be used frequently and repeatedly during the work, i.e., regular scans from commencing the digging process through to completing the dig or exposing the services.
- Every effort must be made to excavate alongside a service rather than directly above it. The final exposure of the service/s can then be carried out by horizontal hand digging (the force applied to hand tools can be controlled more effectively).
- Cables / pipes can be flexible and can change direction and depth abruptly. Therefore prior to the use of any mechanical excavators an assessment must be made to ascertain the safe mechanical digging distance based on the service providers specification.
- There is no mechanical digging within 0.5m of any known underground electricity cable, however this could be extended up to 3m for some intermediate pressure gas pipes and permission from the service provider may be required. Further advice must be sought from your Regional HSE Advisor.
- Kerb lines, roads and buildings may have been moved or altered since the cables were laid.
- Services are ordinarily at least 450mm deep but don't assume this to be the case where you are working – ground levels could have changed.
- Services in areas where tracked machines operate need to be checked regularly to ensure weather conditions and wear have not removed the essential protective top cover.
- Not all services are shown on Service plans, so look for clues such as cables running down poles

and bear in mind that all buildings, streetlights, and road furniture are likely to have cables running to them. Cables feeding street furniture may be relatively shallow near to the furniture.

- Cables do not run-in straight lines and often “snake” through the ground avoiding surface and buried obstacles that may not be visible to you.
  Stop if suspect/damaged pipes or cables found and contact the utility company.
- Support any exposed services and never use them as hand or foot supports; and
- Replace warning tape/tile and backfill around pipes or cables with fine material (e.g., sand) properly compacted to prevent compaction damage and never with material that would be hazardous to excavate if the services had to be exposed again (e.g., concrete).

4.10.7 ARC Flash Protection & PPE

Working near live underground electrical services carries a serious risk of arc-flash, which can cause severe burns or electrocution. To reduce this risk, operatives must wear ARC-rated PPE and use insulated tools. The minimum PPE includes Class 1 ARC-rated coveralls, gloves, visor, and boots. Tools must comply with BS8020:2011 and be inspected before use; damaged tools must be replaced immediately.
ARC PPE is required when excavating near HV or LV cables, operating Vac-Ex equipment near live services, or hand digging trial holes where cable status is uncertain. All operatives must be briefed on these requirements during pre-dig meetings



Suitable and adequate Arc Flash protection (based on the contactors risk assessment) MUST be worn by the operative/s when excavating near underground services, i.e., hand digging, or operating the vacuum excavation hose, air-lance, etc. in the excavation

For additional support, advice and details of all Arc rated products please contact.
Lapwing Tel 01386 551 090
Sales@lapwinguk.com
Lapwinguk.com

4.10.8 Summary of Controls for HV and LV

Safety Critical Control - Summary	
High Voltage Electric or Med / High Pressure Gas Main	Low Voltage / Low Pressure Gas Main /Other (including water, BT, fibre)
Services Review Meeting Folder One: Pre-Construction Information re services 'Site Service Pack' Information Authority to Proceed Authority to Proceed-Ground Penetration Log Pre-Dig Briefing to all involved in the dig Display Dig Permit Board Establish Exclusion Zone Groundworkers Supervisor in Attendance always Ongoing Site Management Team monitoring	Services Review Meeting Folder One: Pre-Construction Information re services Authority to Proceed Authority to Proceed-Ground Penetration log Pre-Dig Briefing to all involved in the dig Display Dig Permit Board Always nominated 'Responsible Person' in attendance Ongoing Groundworks Supervisor monitoring

Note: Please refer to Section 4.8 Controls for Back Filling Service Excavations and Section 4.9 Controls for Works Near Underground Services for further information.

4.10.9 Emergency procedures

In the event of any emergency on site, including accidents, incidents, service strikes, environmental incidents, or fire, alert the Site Manager or Assistant Site Manager immediately and call the appropriate emergency services.

- For **Environmental incidents** (e.g., spills), follow the spill response procedure and contact the Environmental Advice / Incident Line (Section 2.3.7, 9.3.4).

(Environmental Advice / Incident Line 0845 003 8752) for ALL Environmental Incidents

- In case of **Service Strikes** and Utility Emergencies:
  - Immediately stop work, clear the area, and establish an exclusion zone. Refer to Section 2.3.6, for further guidance.
  - Contact the relevant utility provider and follow their instructions.
  - Notify the Regional HSE Advisor and Production Director by telephone.
  - Do not attempt to move affected plant or equipment unless there is an immediate risk (e.g., fire).
  - If evacuation from plant is necessary, follow the "bunny hop" technique to avoid electric shock (Section 4.11, 4.13.2).
  -

4.11 Emergency Procedure

Striking a buried service poses serious safety risks that can lead to severe injuries, fatalities, and significant damage. Contact with underground utilities such as electric cables can cause electrocution or arc flash burns, while hitting gas may services result in explosions or fires. Damaging water or sewer services may lead to flooding, contamination, and environmental hazards. Additionally, such incidents often cause service disruptions, financial penalties, and project delays. These risks highlight the importance of thorough utility surveys, use of detection equipment, and adherence to safe digging practices before any excavation work begins..

4.11.1 Contact with Live Electrical Services

a) Underground Electrical Services
The agreed safe system of work must include the procedures to be adopted if any contact is accidentally made with a live cable, particularly by a machine.

If contact is made with a live cable, the Groundworks Supervisor or Site Manager must clear the area and suspend all work within a minimum distance of 5m of the damage. The cable could still be live or could become live again. Contact the utility company immediately.

- **If the machine is still operable:**
  - Driver must lower any raised parts that are controlled from the cab and/or
  - Drive clear of the line if there is no risk of breaking the cable or dragging it.
- **If the machine cannot be moved:**
  - Stay inside the cab and avoid touching any metal parts.
  - Alert the Groundworks Supervisor or Site Manager (radio, mobile, or shouting).
  - Instruct others to stay clear of the machine.
  - Do not exit the cab until the power company confirms it is safe.

- **If there is an immediate risk (e.g., fire):**
  - Jump clear of the machine without touching it and the ground at the same time.
  - Land with feet together and move away using the “bunny hop” technique for at least 15 metres.
  - Warn others not to approach until the utility company confirms safety.

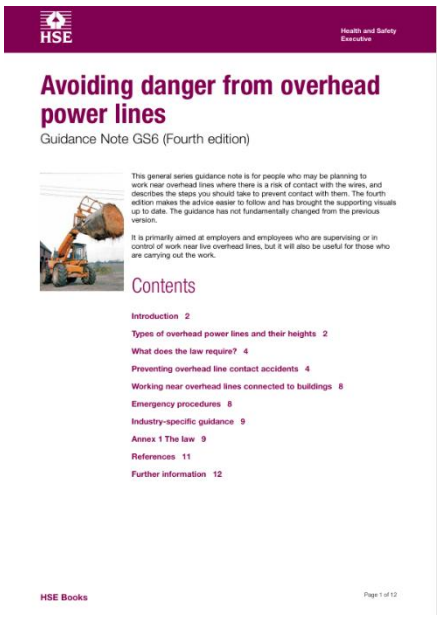
Note: For Post-Service Strike Actions please refer to Section 4.11.4

b) Overhead Electrical Lines (Please also refer to Section 4.13 Overhead Services)
If contact is made with a live overhead line, the Groundworks Supervisor or Site Manager must immediately clear the area and suspend all work within a minimum distance of **10 metres horizontally from the line,** as per HSE GS6 guidance.
The line could still be live or could become live again. Contact the utility company immediately.

- **If the machine is still operable:**
  - Lower any raised parts that are controlled from the cab.
  - Drive clear of the line if there is no risk of breaking the cable or dragging it to the ground.
- **If the machine cannot be moved:**
  - Stay inside the cab and avoid touching any metal parts.
  - Alert the Groundworks Supervisor or Site Manager (radio, mobile, or shouting).
  - Instruct others to stay clear of the machine and maintain the 10 m exclusion zone.
  - Do not exit the cab until the power company confirms it is safe.
- **If there is an immediate risk (e.g., fire):**

- Jump clear of the machine without touching it and the ground at the same time.
- Land with feet together and move away using the “bunny hop” technique for at least 15 metres.
- Warn others not to approach until the utility company confirms safety.

Note: For Post-Service Strike Actions please refer to Section 4.11.4


HSE

Health and Safety Executive

Avoiding danger from overhead power lines

Guidance Note GS6 (Fourth edition)

This general series guidance note is for people who may be planning to work near overhead lines where there is a risk of contact with the wires, and describes the steps you should take to prevent contact with them. The fourth edition makes the advice easier to follow and has brought the supporting visuals up to date. The guidance has not fundamentally changed from the previous version.

It is primarily aimed at employers and employees who are supervising or in control of work near live overhead lines, but it will also be useful for those who are carrying out the work.

Contents

Introduction 2
Types of overhead power lines and their heights 2
What does the law require? 4
Preventing overhead line contact accidents 4
Working near overhead lines connected to buildings 8
Emergency procedures 8
Industry-specific guidance 9
Annex 1 The law 9
References 11
Further information 12

HSE Books

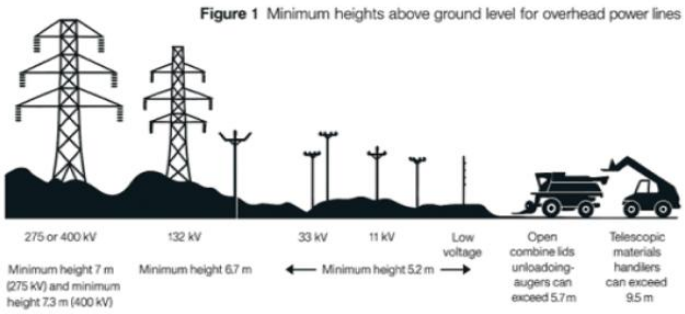


Figure 1 Minimum heights above ground level for overhead power lines

4.11.2 Contact with Live Gas

The agreed safe system of work must include the procedures to be adopted if any contact is accidentally made with a live gas service.
If contact is made with a gas pipe, the Groundworks Supervisor or Site Manager must immediately clear the area and suspend all work within a minimum distance of 5 metres from the point of damage. Gas pipes can leak or ignite, creating a severe explosion or fire risk. Contact the utility company without delay.

- **While waiting for assistance:**
  - Switch off all plant and remove keys.
  - Evacuate personnel and maintain the exclusion zone.
  - Enforce strict **no ignition sources**: no smoking, no naked flames, no electrical devices.
  - Keep all metallic tools and equipment out of the danger zone.
  - Do not use mobile phones within the exclusion zone.
  - Maintain hazard control until the utility company confirms safety.
- **Additional Best Practice Controls:**
  - Establish a **danger zone for 5 m**
  - Ensure service routes were clearly marked before work began and confirm CAT/vacuum excavation was used near pipelines.
  - Record the incident and review monthly CAT usage in the Groundworks Audit.


HSE

Health and Safety Executive

Avoiding danger from underground services

This guidance is aimed at all those involved in commissioning, planning, managing and carrying out work on or near underground services. It will also be of use to the owners and operators of such services.

It outlines the potential dangers of working near underground services and gives advice on how to reduce any direct risks to people's health and safety, as well as the indirect risks arising through damage to services.

It explains the three basic elements of a safe system of work during excavation:

- Planning the work
- Locating and identifying buried services
- Safe excavation

HSG47 (Third edition), Published 2014

This third edition brings the guidance up to date, but the basic requirements remain the same.

Note: For Post-Service Strike Actions please refer to Section 4.11.4

4.11.3 Contact with Live Water

If contact is made with a water pipe, the Groundworks Supervisor or Site Manager must immediately clear the area and suspend all work within a minimum distance of **5 metres from the point of damage, and 10m for high-pressure mains.** Water mains can cause flooding, ground instability, and contamination risks. Contact the water utility provider without delay and do not resume work until the utility company confirms it is safe.

- **While waiting for assistance:**
  - Switch off all plant and remove keys.
  - Evacuate personnel and maintain the exclusion zone using barriers and tape.
  - Enforce strict no ignition sources and no electrical devices within the danger zone.
  - Prevent water from entering excavations or confined spaces where possible.
  - Monitor for flooding, ground instability, or contamination; call emergency services (999) if required.
  - Maintain exclusion zones until the utility company confirms safety.

Note: For Post-Service Strike Actions please refer to Section 4.11.4

4.11.4 Post-Service Strike Actions

Following a service strike caused by deviation from the agreed Safe System of Work, the following actions must be taken immediately. These requirements are mandatory and align with Taylor Wimpey standards as detailed in Section 2.3.6 Setting Up a New Site.

Actions to be taken:

- The dig team involved in the strike will be suspended from excavation works until corrective measures are completed.
- The dig team must attend the one-day **Taylor Wimpey Dig Awareness Training**. (book through HSE-Training@taylorwimpey.com)
- The **Safety Advisor and Contracts Manager** must also attend the same training session.
- The training will take place at the Taylor Wimpey Training Centre in Solihull.
- The session will be delivered at Groundworks Contractor costs.
- Monthly CAT scan usage must be reviewed and recorded in the Groundworks Audit to ensure compliance and prevent recurrence.

Additional requirements:

- Notify the Regional HSE Advisor and escalate the incident as per CDM duties.
- Conduct a full incident review, including root cause analysis and update of RAMS.
- Implement lessons learned through toolbox talks and site briefings before resuming excavation works.

For full details and compliance requirements, refer to Section 2.3.6 Setting Up a New – Actions to be Taken in the Event of a Service Strike.

4.12 Use of Ground Pins

Using ground penetrating pins poses a serious risk of striking underground services, including high-voltage electrical cables, gas mains, and water pipes. Even non-conductive pins can damage insulation or compromise protective layers, leading to electrocution, arc flash, explosions, flooding, or major service disruption. These incidents can result in severe injury, fatalities, and significant project delays. To prevent such hazards, strict controls must be followed whenever pins are used for line and level or shuttering work.

Using ground penetrating pins poses a serious risk of striking underground services, including high-voltage electrical cables, gas mains, and water pipes. Even non-conductive pins can damage insulation or compromise protective layers, leading to electrocution, arc flash, explosions, flooding, or major service disruption. These incidents can result in severe injury, fatalities, and significant project delays.

Case Study 1:

- A Groundworks Supervisor penetrated an 11kV cable with a metal pin while setting line and level for kerbs.

Case Study 2:

- A groundworker penetrated an 11kV cable with a metal pin securing shuttering for a concrete pad foundation.

4.12.2 Mandatory Controls

- Ground penetrating pins must **never be used within 1.0 metre of any known service.**
- **Prior to any use of ground pin**s, a competent person must carry out a service location check using a calibrated CAT & GENNY, with findings recorded and marked on the ground surface.
- Where services are present, alternative securing methods must be used, such as:
  - Surface markers.
  - Weighted supports.
  - Temporary formwork systems.
- All operatives must be briefed on these requirements as part of the Authority to Proceed (ATP) process.
- Controls must be documented in RAMS and communicated during toolbox talks.

4.12.3 Emergency Procedures

If a pin strikes a service, **stop work immediately**, clear the area, and follow the emergency procedures detailed in Section 4.11:

- Maintain the required exclusion zone.
- Notify the Site Manager and the relevant utility provider.
- Call **999** if there is immediate danger to life.
- Do not attempt to remove the pin or repair the damage until authorised by the utility company.

4.13.1 Controls for works near overhead power lines

Working near overhead power lines presents significant safety risks, including fatal electric shocks, severe burns, and arc flash injuries. Even without direct contact, electricity can arc through the air if a person, tool, or equipment comes too close, causing flashovers. These incidents often result in serious injury or death, as well as damage to equipment and disruption of electricity supply. The risk is heightened when using tall machinery, cranes, or ladders, or when handling long materials that could breach safe clearance distances. To mitigate these hazards, it is essential to maintain a minimum 10-metre exclusion zone, carry out a thorough risk assessment, and consult the Network Operator for advice or power isolation before work begins. All work should follow the Electricity at Work Regulations and HSE guidance (GS6), prioritising de-energising lines wherever possible.

Prior to any works being undertaken under or near to overhead power lines, the Site Manager must arrange a co-ordination meeting or meetings with their Regional HSE Advisor, Site Engineer, Power Company, and relevant contractor(s).

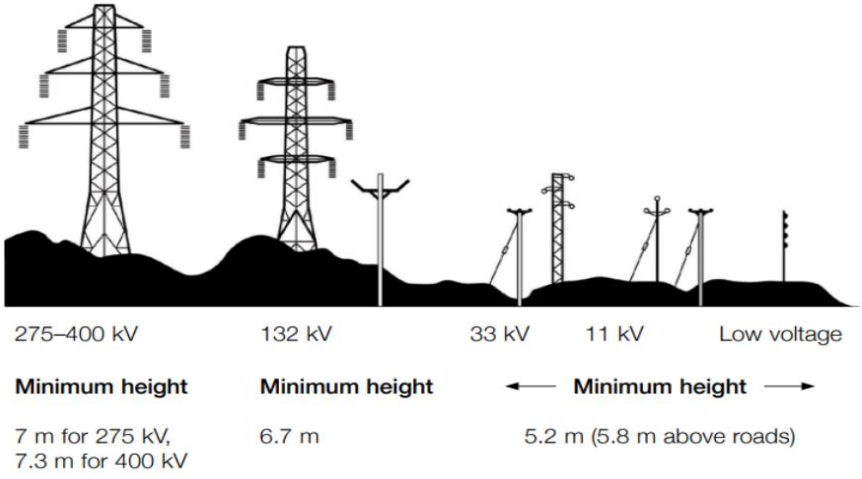
The following options must be discussed/established:

- Can the power line or lines be diverted before the works commence? (Only an option if lines are planned to be diverted or placed underground, etc., and dependent on the level of risk involved).
- Can work under or near the power line or lines be avoided – e.g., locate all storage areas and compound away from the lines.
  Can the power be switched off whilst the work under or near the lines is underway? (May only be possible temporarily and this option depends on the level of risk involved).
- The clearance height under the lines (note that groundworks could raise or lower existing ground levels), the voltage and type of conductors.
  The status of the lines, e.g., 'live'; and
- The radial clearance distance to be maintained from the conductors (if necessary) remembering that electricity can arc (jump) to nearby conductors i.e., Excavator dipper arm

Note: If the site includes work near rail lines there will be a requirement to involve your Regional HSE Advisor and the relevant rail line operator to ensure that adequate assessment of the works and controls have been carried out.

DO NOT START SITE WORKS if the information noted above is not available or the necessary control measures are not in place.

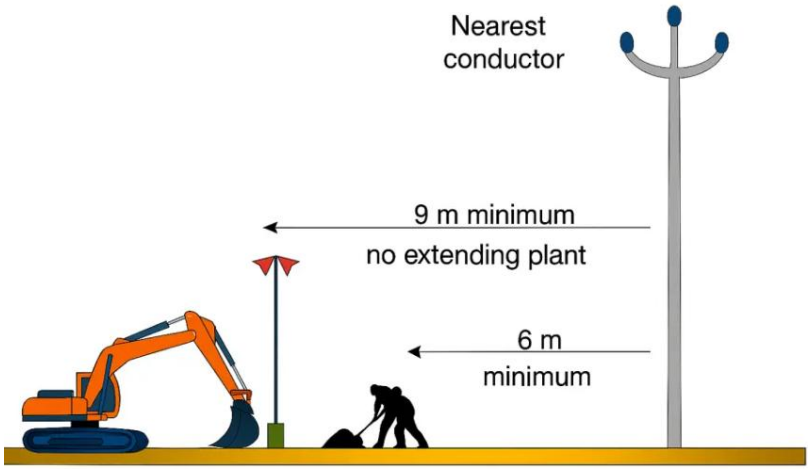
Wherever possible working below or near live overhead lines is to be avoided. However, there may be some circumstances where there is no alternative. In these situations, the proposed work must be discussed and agreed with your Regional HSE Advisor and Power Company before any work commences. This includes temporary storage of materials, parking of vehicles or site compound units. Barriers, with warning signs at suitable intervals, must be erected.



- No work to take place within 6m of the underneath of the nearest conductor (see diagram above) unless a safe system of work has been agreed with the Regional HSE Advisor in discussion with the Power Company.
- Fence off access following the zone detailed in the GS6 Survey beneath the lines with substantial barriers, e.g., earth bund minimum 900mm / orange netting (see diagram above).
- Warning signs to be placed at suitable intervals along the barrier.
- No work with extending plant, e.g., excavator arm / bucket, may take place within 9m of the underneath of the nearest conductor (see diagram above) unless fitted with suitable restrictors to prevent it doing so. The only exception (where identified as necessary) is where a safe system of work has been agreed with the Regional HSE Advisor in discussion with the Power Company. The exclusion zone must be demarcated with bunting as detailed in the GS6 Survey.

Note: in some cases, the exclusion zones may have to increase (or can be decreased). If necessary, this can be discussed in detail with the Power Company at the co-ordination meeting.

All works under or near overhead services are required to obtain a GS6 survey from the asset owners.



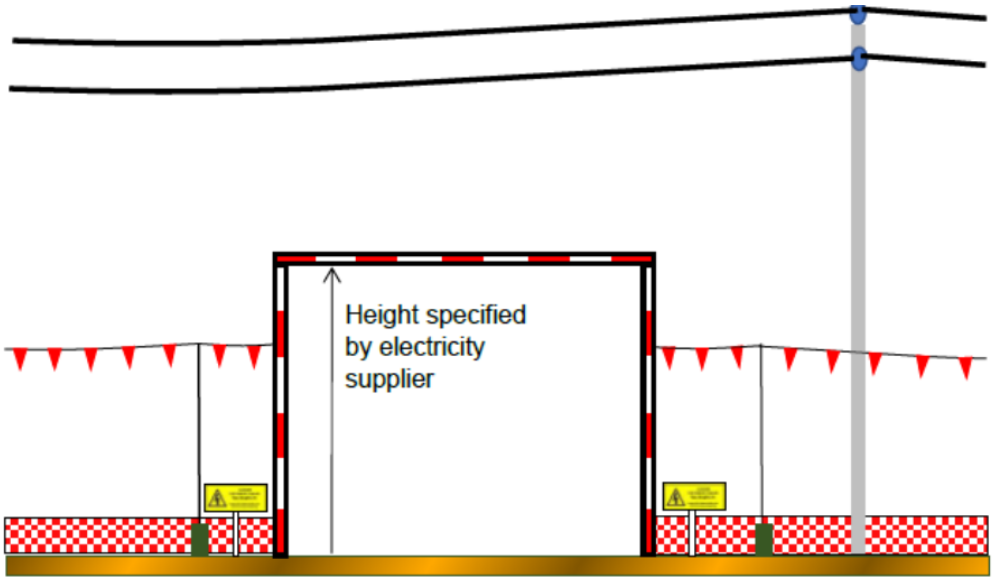
- No work to take place within 6m of the underneath of the nearest conductor (see diagram above) unless a safe system of work has been agreed with the Regional HSE Advisor in discussion with the Power Company.
- Fence off access to the 6m zone beneath the lines with substantial barriers, e.g., earth bund minimum 900mm / orange netting (see diagram above).
- Warning signs to be placed at suitable intervals along the barrier.
- No work with extending plant, e.g., excavator arm / bucket, may take place within 9m of the underneath of the nearest conductor (see diagram above) unless fitted with suitable restrictors

to prevent it doing so. The only exception (where identified as necessary) is where a safe system of work has been agreed with the Regional HSE Advisor in discussion with the Power Company. The 9m zone must be demarcated with bunting at about 3-6m above ground (see diagram above).

Note: in some cases, the exclusion zones may have to increase (or can be decreased). If necessary, this can be discussed in detail with the Power Company at the co-ordination meeting.

All works under or near overhead services are required to obtain a GS6 survey from the asset owners.

4.13.2 Passageway Under Overhead Services



Passageways under power lines must be kept as small as possible and restricted in width to the minimum needed for safe plant crossing following the GS6 survey controls.

The number of crossings points (and crossings) to be kept to a minimum, with crossing the lines at right angles

Solid Goal Posts must be placed on either side, constructed of rigid non-conducting material (e.g., timber) distinctly marked, e.g., red, and white stripes (see diagram above).

Controls must be detailed within the Groundworks Contractors Risk Assessment and communicated to all operatives.

- The crossbar height to be to electricity supplier's agreed specification.
  Warning signs indicating the clearance to be placed at suitable distances either side of the passageway.
- TWSP 03 (see Signage Catalogue)
  Fence off the sides of the passageway with substantial barrier e.g., orange netting.
- Road surface at crossing points to be maintained firm and level to prevent undue bouncing or tilting of equipment passing through.

Note: Don't forget that tipper lorries must have lowered their bodies before passing under overhead lines.

4.13.3 Emergency Procedure (Contact with Overhead Services)

The agreed safe system of work must include the procedures to be adopted if any contact is accidentally made with a live overhead cable, particularly by a machine.

If contact is made with a live overhead line, the Groundworks Supervisor, Site Manager, or other appropriate person must clear the area and suspend all work within a minimum distance of 10m of the damage. **The line could still be live or could become live again.**

- **If the machine is still operable:**
  - Lower any raised parts that are controlled from the cab.
  - Drive clear of the line if there is no risk of breaking the cable or dragging it to the ground.
- **If the machine cannot be moved:**
  - Stay inside the cab and avoid touching any metal parts.
  - Alert the Groundworks Supervisor or Site Manager (radio, mobile, or shouting).
  - Instruct others to stay clear of the machine and maintain the 10 m exclusion zone.
  - Do not exit the cab until the power company confirms it is safe.
- **If there is an immediate risk (e.g., fire):**
  - Jump clear of the machine without touching it and the ground at the same time.
  - Land with feet together and move away using the "bunny hop" technique for at least 15 metres.
  - Warn others not to approach until the utility company confirms safety.

Note: For Post-Service Strike Actions please refer to Section 4.11.4.

4.14 Confined Space

Confined space entry on construction sites involves serious safety risks that must be strictly controlled. A confined space is any substantially enclosed area where hazardous substances or conditions could cause serious injury or death. Common examples include manholes, tanks, pits, and sewers. The main danger is not just the enclosure, but foreseeable risks such as lack of oxygen, harmful gases, fire, explosion, drowning, or engulfment. Risk assessments, safe systems of work, and emergency procedures are essential, and all entry must be authorised by Site Management.

Confined space work poses significant occupational health risks that require strict management. Operatives may be exposed to hazardous gases causing respiratory issues, and heat stress is common due to poor ventilation and physical effort, leading to dehydration or heatstroke. Noise and vibration from equipment can harm hearing and musculoskeletal health, while restricted movement increases the risk of musculoskeletal disorders. To control these risks, environmental controls must be included in the risk assessment and method statement (RAMS) and authorised by the Site Management Team.

Confined space work can create environmental risks as well as health and safety hazards. Leaks or spills of hazardous substances may contaminate soil or groundwater, and improper disposal of waste can pollute watercourses or drainage systems. If ventilation fails, gases or vapours may be released into the air. Activities such as cleaning or maintenance often generate waste that must be managed correctly. Work near watercourses or sensitive habitats can disrupt wildlife if not planned carefully. Environmental controls must be included in the RAMS and authorised by Site Management Team.

4.14.1 Confined Space Definition

A "*confined space*" means any place, including any chamber, tank, vat, silo, pit, trench, pipe, sewer, flue, well or other similar space in which, by virtue of its enclosed nature, there arises a reasonably foreseeable specified risk:

"*Specified risk*" is defined as a risk of:

- serious injury to any person at work arising from a fire or explosion
- the loss of consciousness of any person at work arising from an increase in body temperature
- the loss of consciousness or asphyxiation of any person at work arising from gas, fume, vapour or the lack of oxygen
- the drowning of any person at work arising from an increase in the level of liquid; or
- the asphyxiation of any person at work arising from a free flowing solid or the inability to reach a respirable environment due to entrapment by a free flowing solid.

"*System of work*" includes the provision of suitable equipment which is in good working order

A 'confined space' must have both of the following defining features:

- it must be a space which is substantially (though not always entirely) enclosed, and
- one or more of the specified risks must be present or reasonably foreseeable.

Some confined spaces are fairly easy to identify, for example sewers and closed tanks used to store chemicals. However, identification may not always be so easy, as a confined space is not necessarily:

- enclosed on all sides. Some, such as vats, silos and ships' holds, may have open tops or sides small and/or difficult to work in. Some, like grain silos and ships' holds, can be very large
- Difficult to get in or out of. Some have several entrances/exits, others have quite large openings or are apparently easy to escape from; or
- A place where people do not regularly work. Some confined spaces (such as those used for spray painting in car repair centres) are used regularly by people in the course of their work.

A place not usually considered to be a confined space may become one if there is a change in the conditions inside or a change in the degree of enclosure or confinement, which may occur intermittently. For example, an enclosed space may be free of contaminants and have a safe level of oxygen but the work to be carried out in it may change this, such as:

- welding that would consume some of the oxygen;
- a spray booth during paint spraying; or
- using chemicals for cleaning purposes which can add contaminants.

In such cases the space may be defined as a confined space while that work is ongoing and until the level of oxygen recovers or the contaminants have dispersed by ventilating the area.

A foreseeable risk of drowning in a space not usually considered confined. The space may be defined as a confined space because of the work being carried out in it, and may cease to be a confined space when the 'specified risk' is removed and the atmosphere tested as safe, e.g. if the specified risk is due to fumes when cleaning with chemicals, the space may cease to be confined when the fumes have been removed by ventilation. Actions taken to mitigate a risk should be monitored to ensure they are working effectively and continue to do so throughout the task.

4.14.2 Confined Space Entry Consideration

It is unavoidable to do the work without entry into the Confined Space.
An Authority to Proceed - Confined Space Entry (Construction HSE Plan -Folder 2, F2.05) is completed to record safe system of work including a risk assessment (all hazards considered), a written safety method statement to include emergency and rescue procedures.
The contractor can demonstrate that his workforce is trained, and the gas/oxygen monitoring equipment calibrated, inspected / tested, and working; otherwise, a specialist contractor must be used.

Trained workforce of adequate size to effect rescue (normally at least a gang of three, e.g., one at the bottom, one at the top and one to help).
Atmospheric tests are completed with continuous monitoring during works.
Suitable PPE and equipment as detailed on the safety method statement is available on-site including gas detector, escape breathing apparatus and rescue equipment.
Petrol driven equipment must not be used in areas where fumes can build up and cause asphyxiation, e.g., disc cutters in excavations or generators inside plots.
Emergency rescue plan has been developed and communicated.
Traffic Management arrangements have been developed and communicated.
If you have any concerns about the way the contractor intends to carry out work in a confined space, seek advice from your Site HSE Advisor.

Before entering a confined space, you must:

- Confirm entry is unavoidable
- Complete the Authority to Proceed – Confined Space Entry (F2.05)
- Prepare a risk assessment and written method statement (including rescue plan)
- Ensure all workers are trained and equipped
- Calibrate and test gas/oxygen monitoring equipment
- **Arrange for a trained rescue team**
- Continuously monitor the atmosphere during works
- Use only approved PPE and equipment
- Do not use petrol-driven equipment in confined spaces
- Ensure no plant or vehicles are operating near the entry point that could direct exhaust fumes into the confined space..

4.14.3 Authority to Proceed - Confined Space Entry

No access will be permitted into a confined space without an Authority to Proceed - Confined Space Entry (Construction HSE Plan -Folder 2, F2.05) being completed by the contractor and submitted to the Site Manager, demonstrating that the appropriate measures are in place. Contractors are responsible for providing risk assessments and, where necessary, safety method statements for any hazardous activity they carry out on site and managing any control measures. If you are concerned about the way the contractor intends to carry out work in a confined space, seek advice from your Site HSE Advisor.

4.15 Foundations and Piling

Excavation and piling can expose workers to contaminated soil, hazardous substances, and dust, including silica, which may cause respiratory illness. Noise and vibration from piling can lead to hearing loss and stress, while manual handling and awkward postures increase musculoskeletal risks. Additional hazards include chemical exposure from concrete additives and fuels, plus heat stress or fatigue. Contractors must carry out risk assessments and implement safe systems of work, which must be authorised by Site Management.

Excavation and piling present serious safety hazards that require strict control. Key risks include excavation collapse from unstable ground or poor shoring, contact with underground services causing electrocution, explosion, or flooding, and struck-by incidents or equipment failure involving heavy machinery. Uneven or soft ground increases plant instability. Inaccurate soil analysis or improper load distribution can lead to foundation failure and structural collapse. Risk assessments and safe systems of work must be managed by the Contractor and authorised by the Site Management Team.

Excavation and piling can create significant environmental risks if not controlled. Heavy machinery may compromise groundwater, allowing chemicals, lubricants, or sediment to pollute aquifers and waterways, harming health and aquatic life. Piling generates high noise and ground vibrations, disturbing communities and wildlife, and may damage nearby structures. Dust and particulates from excavation affect air quality, posing respiratory risks to workers and residents. Dust suppression and environmental controls must be included in risk assessments and safe systems of work, managed by the Contractor and authorised by the Site Management Team.

4.15.1 Foundations

Strip foundations are the most common type of foundation

Before starting the excavation:

- Refer to service drawings to determine if services are present. (See Section 4.9). If services are present, excavation ATP must be followed.
- CAT Scan the area prior to digging
- Suitable barriers are placed around the excavation to prevent unauthorised access.
- Ensure suitable pedestrian access is provided to access the work area.
- Spoil to be loaded into a dumper and stockpiled in an agreed location.
- Levels to be checked from a safe position, no access into the foundation
- If deep excavations and material spill present e.g., earth lumps, these must be crushed/levelled from a safe distance using rakes etc. No access into the excavation.
- Proprietary system or other suitable access to be used if access is required to cross the trenches.
- The concrete lorry to discharge the concrete directly into the trench from a safe distance. When not be possible the concrete is placed by concrete skip/ excavator.

4.15.2 Heave Protection - Clay Master

Claymaster is the used when foundations need to be protected against ground heave.

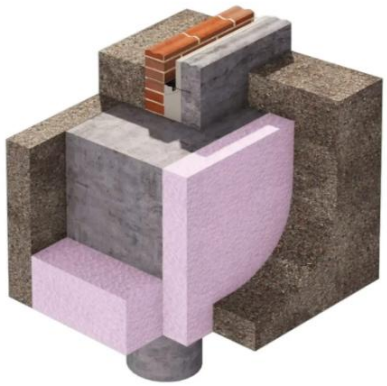
Method 2:

Step 1: Excavate Trench

- Excavate the foundation trench to the required depth and width in accordance with design specifications.

Step 2: Install Polythene

- Lower the polythene sheet into the trench, ensuring a reasonable quantity rests on the bottom.
- Secure the polythene to the bank at the top, away from the edge of the trench.



Step 3: Install Polythene

- Pour concrete into the trench to a depth of approximately 500 mm from the bottom.
- Ensure concrete is placed carefully to avoid displacement of the polythene.

Step 4: Install Polythene

- Insert Claymaster (compressible polystyrene) behind the polythene, tight against the trench wall and the initial concrete pour.
- Ensure correct alignment and full coverage as per design requirements.

Step 5: Final Concrete Pour

- Pour the remainder of the foundation concrete, ensuring the Claymaster remains in position and the polythene is not disturbed. crete.

Step 6: Pour rest of foundation.

- If you are concerned about the way the contractor intends to install ‘clay master’ seek advice from your Regional HSE Advisor.

4.15.3 Piling

Temporary Works - Category 3: Non-Standard Temporary Works

To carry out Piling operations safely non-standard temporary works in the form of piling platforms (mats), access roads and ramps are required. Please see Section 1.5 for further details of the Non-standard Temporary works procedures.

All Non-standard temporary works must have designs for mats, roads, and ramps, etc. provided by an ‘approved and competent designer’ and presented to the Piling Contractor before piling work commences.

Delivery and Set-up
Prior to the arrival of a piling rig or rigs consideration needs to be given how they are delivered to site for example:

- Proximity of overhead lines, adjacent to railways, any low bridges, etc.
- Safe means of 'off-loading' from low-loaders, etc.
- Use of MEWPS for setting and rigging of the piling rig

Traffic Management and Segregation

When piling operations are being undertaken the following arrangements must be in place:

- Exclusion zone established to keep unauthorised people from the work area
- Designated walkways/access routes to specific areas such as material storage, cage/reinforcement assembly areas, static agitators
- Use of banksmen/traffic marshals for manoeuvring piling rigs and controlling concrete deliveries
- Updated Traffic Management plan, communicated to all operatives

4.15.4 Common types of Piling

Continuous Flight Auger (CFA)
Key controls:

- Piling Rig to have safety gate fitted around the auger
- Mechanically clean auger wherever possible.
- Cover new, bores as soon as practicable (e.g., concrete on cover).
- Securely fit rebar caps on exposed steelwork ends as soon as cages in position.

Drop Hammer Method of Pile Driving (Preformed Piles)
Key Controls:

- Traffic routes for pile delivery to be considered.
- Lorry unloading and transport methods to be agreed
- Attachment of concrete piles to rig detailed within the method statement

Breaking down of piles (Pile Cap)

- Pile Caps to be broken down with an attachment on an excavator where possible.
- An exclusion zone to be put in place.
- When exposed, Rebar ends should be protected with securely fitting rebar safety caps (e.g., mushroom cap).
- Cages for the ring beam are to be formed in a controlled environment considering the size of the sections and weight of steel e.g., manual handling considered.
- Cages to be lifted to the working area by mechanical means wherever possible.

Welding and Hot Works

- A Hot Works Permit must be issued before any welding, cutting, or grinding begins.
- Ensure fire prevention measures are in place (fire watch, removal of combustibles, fire blankets).
- Use appropriate PPE: flame-resistant clothing, gloves, eye protection, welding shields.
- Provide adequate ventilation or fume extraction when welding in confined spaces.
- Segregate the area with barriers and signage to prevent unauthorised access.
- Keep fire extinguishers and first-aid kits readily available.
- Conduct a fire watch for at least 60 minutes after completion of hot works.

4.16 Building to Oversite

Building up to oversite involves manual handling of heavy blocks and beams, increasing musculoskeletal injury risk. Cutting blocks generates silica dust, which can cause respiratory illness, while wet cement may lead to dermatitis or burns. Noise from mechanical cutters and vibration from handling beams add further strain. To mitigate risks, plan work to minimise lifting, use mechanical aids, ensure safe stacking and clear access, and implement dust suppression and good housekeeping. PPE such as gloves, masks, and hearing protection should only be used as the final control measure.

Activities present safety risks from manual handling, slips, trips, and working near plant. To reduce hazards, ensure designated footpaths and segregation from plant are in place, prepare level access around foundations, and spread blocks close to laying points to minimise lifting. Stack materials safely to prevent collapse and maintain clear walkways. For block and beam floors, use lifting plans, secure work areas with barriers, and cover voids with cones and signage. Administrative controls and safe systems of work must precede PPE as the final measure.

Building up to oversite can generate waste materials such as broken blocks, packaging, and polystyrene offcuts. Poor storage of cement or mortar can lead to water pollution through runoff. Noise from cutting and handling beams may impact local surroundings. To mitigate, plan deliveries to reduce surplus, store materials on level ground away from drains, segregate waste for recycling, and maintain clean work areas. Cover materials during adverse weather to prevent contamination and ensure compliance with site waste management plans.

4.16 Building to Oversite

Key Controls:

- Plot is to have clear designated foot paths in place for the bricklaying operatives.
- Segregation from plant working in the vicinity must be in place.
- Good level access around the foundation to be prepared for the blockwork to be laid.
- Blocks to be spread around the plot to minimise the manual handling of materials.
- Care to be taken about height and location of stacks.

4.16.1 Block and Beam Floors

Traditional concrete block

- A Method statement to be prepared for placing beams, including lifting plan or included on a schedule of common lifts.
- Work areas to be segregated with suitable pedestrian barriers.
- Blocks and beams to be located close to the point of laying as possible.
- Beams to be stacked on level ground and the intermediate supports placed directly one above each other.
- Weight of the blocks to be determined
- Safe manual handling techniques to be agreed
- Blocks to be located as close to the point of laying as possible.
- Voids (i.e., blocks left out for services) to be covered with cones and signage placed warning of the risk of trip hazards.
- Areas requiring cut blocks to be progressively filled to reduce the amount of openings/ trip hazards.

Jet-Floor

- ‘In fill’ polystyrene blocks to be no less than 300m long.
- Expanded polystyrene blocks/ ‘Jet-floor’ must not be walked upon or loaded out.
- Access, for example, to construct the internal blockwork screed rails etc. to be provided with plywood or a similar proprietary platform (minimum 600mm wide).
- Warning signage to be placed on the floor preventing access.

4.17 Inspection Chamber Covers

Securing manhole covers during construction is critical to prevent serious safety hazards. Unsecured or poorly fitted covers can lead to falls into open or unstable access points, causing severe injuries. They also create trip hazards for workers and pedestrians, and in high-traffic areas, can result in vehicle damage or accidents.
To mitigate these risks, rated, lockable covers must be secured to all manholes, at all times.

Groundwork contractors must ensure:

- That any covers specified have suitable fixings for securing to the frame.
- That the fixings are provided with the cover; and
- That the fixings are used **immediately on installation** (following the manufacturer's instructions).

Protected Inspection Chambers with brightly coloured markers to highlight location (e.g., to prevent being damaged by plant, etc.).

4.17.1 Road / Footpath Ironworks Protection

Prior to an area becoming occupied, an inspection of footpaths, roads, walkways, etc. must be carried out in areas where there is an interface with the public and customers' homes to ensure that all potential trip hazards have been assessed and appropriate remedials taken, e.g., haunching at footpath service covers, manholes, other road iron works and ramps at differing kerb levels, etc

Easy Ramp Footpath

Easy Ramp Road Ironwork

Mortar haunching

Easy Ramps are designed to provide a safe, temporary transition over inspection chamber covers, manholes, and other ironworks during construction. Their use is essential for protecting both site operatives and the public from trip hazards, falls, and vehicle damage, especially where level changes or exposed covers are present.

Installation Procedure:

1.Prepare the Area:

- Sweep and clear debris around the inspection chamber cover.
- Ensure the ground is level and free from obstructions.

2. Position the Ramp:

- Align the ramp so it fully covers the chamber cover or ironwork.
- For larger ramps (e.g., 1220×675 mm), use a two-person lift

3. Place the Ramp:

- Lower the ramp carefully into position, do not drop.
- Make sure the ramp sits flush and stable with no rocking or movement.

4. Check Fit and Visibility:

- Confirm high-visibility markings are facing traffic and clearly visible.
- If bolts are used, check they are secure; bolts should be visually checked every 7 days and re-tightened if necessary.

5. Final Inspection

- Inspect the ramp for cracks, damage, or instability before use.
- Remove and replace any ramp that is damaged or does not sit securely.

Note: Only trained operatives should install or move ramps.

- Use correct manual handling techniques at all times.
- Easy Ramps are reusable, reducing waste and the need for temporary asphalt.

System is available via **Easy Ramp** www.easyrampuk.co.uk
Contact: 102-105 Lichfield Street Tamworth B79 7QB
hello@easyrampuk.co.uk

4.18 Mechanical Kerb Lifting

Lifting and setting kerbs poses significant health risks, primarily due to the heavy weight of kerb units (often exceeding 70 kg), the repetitive nature of the task, and awkward postures involved. These factors create excessive strain on the musculoskeletal system, leading to injuries such as back pain, sprains, and long-term musculoskeletal disorders (MSDs). Poor handling techniques and prolonged manual work increase the likelihood of chronic conditions affecting muscles, joints, and tendons. To reduce these risks, employers should eliminate or minimize manual handling by using lighter kerb units, mechanical lifting aids (such as vacuum lifters or grabs), and ensuring workers are trained in safe handling practices. Compliance with the Manual Handling Operations Regulations is essential to protect workers' health.

Lifting and setting kerbs presents significant manual handling risks due to the heavy weight of individual units (often exceeding 70 kg), the repetitive nature of the task, and awkward postures involved. These factors can lead to musculoskeletal disorders (MSDs), including back injuries, strains, and long-term damage to muscles and tendons. Risks increase when kerbs are manually handled without mechanical aids, especially over prolonged periods. To reduce these hazards, employers should prioritise eliminating or reducing manual handling by using lighter kerb units, mechanical lifting devices (such as vacuum lifters or grabs), and safe handling techniques when manual work is unavoidable. Proper planning, training, and supervision are essential to prevent injuries and ensure compliance with the Manual Handling Operations Regulations.
When carrying out kerbing works on site, consideration must be given to the weight of the items being lifted and the associated potential Manual Handling issues (see Section 3.8.6).

Kerbs must not be lifted without a suitable mechanical lifting aid.

Prior to commencing any kerbing works the following must be reviewed:

- Weight of items being lifted
- Repetitiveness of the task
- Travel distance for placing items

The Kerb Lifter, or mechanical kerb grab, is designed for the safe handling of kerbs, steps and other pre-formed sections.
It can be machine lifted, by a central lifting point, or manually lifted using the handles.

The type of mechanical lifter used will depend on the conditions present, however the main principle is that the weight of the items being placed are supported mechanically and only the final positioning is undertaken by the operatives.