Excavations and Earthworks

Contents

1 Introduction 3
2 Scope 3
2.1 Definitions 3
3 Unitas Requirements 4
3.1 Planning 4
3.2 Underground Services 5
3.3 Soils and ground conditions 5
3.4 Ground and Earthwork Support and Temporary Works 5
3.5 Batters, slopes and stepped excavations 6
3.6 Overhead Services 6
3.7 Permits and Checklist 7
3.8 Competency, instruction and training 9
3.9 Access and Egress 9
3.10 Edge Protection and Work at Height 10
3.11 Storage of excavated and other materials, equipment, and use of plant 10
3.12 Confined Spaces 11
3.13 Groundwater, pumping out and disposal of water 11
3.14 Management and Inspections of Excavations 11
3.15 Document references 12
External References 12
Appendix 1 - Angles of repose 13
Appendix 2 - Excavation Support Assessment Toolkit 13
Appendix 3 – Excavation Checklist 13
Appendix 2 – Excavation Support Assessment Toolkit 14

1 Introduction

The purpose of this standard is to provide a process that ensures that excavations and earthworks are planned, and carried out safely, including assessment, control, supervision, monitoring and review.

Excavation and earthworks can be hazardous, high-risk activities that have a number of intrinsic hazards that must be considered in order to produce a suitable safe system of work. Essentially but not exclusively these hazards are:

- Collapse of ground into excavation or on to operatives
- Destabilising and collapse of adjacent structures
- People, vehicles, machinery or materials falling into excavations
- Striking underground services
- Striking overhead lines
- Contamination (ground and air)
- Flooding & the disposal of water from excavations
- Weathering effects
- Slippage of material
- Sudden flooding and free flowing solids (inundation) e.g. running sand, slurry, base heave, soil slip
- Hazardous atmospheres

NOTE: Until excavations are either supported by a permanent structure, or in their final condition, they are "temporary works", and the requirements of the Temporary Works Standard (SHEMS-STD-GR-048) must be followed.

2 Scope

The scope of the SHEMS covers all persons, workplaces and Operations in the UNITAS business.

Exceptions will be documented through a SHEMS Appendix B process (SHEMS-FOR-GR-999), jointly authorised by the Operations Director and Health & Safety Manager responsible for coordinating SHE.

Unitas SHEMS manual (SHEMS-STD-GR-003) provides guidance and signposting for the compliance, implementation, monitoring, audit and review of our systems, and demonstrating continual improvement.

2.1 Definitions

Excavation	The process or result of digging into or through earth, soil, made ground, rock etc. This may be to create a trench, a hole or as part of wider earthworks
Earthworks	The excavation, raising, movement, placing, shaping, landscaping, filling, transporting, compaction or, storage of natural materials (soils and rock) or re-cycled materials. Construction of embankments, cuttings, heaps and stockpiles.
Angle of Repose	The angle measured in degrees to the horizontal which material, if left, will ultimately degrade or slump to become stable. This is the steepest angle of slope relative to the horizontal plane at which material on the slope face is on the verge of sliding. The angle of repose of a particular material may substantially vary, depending on whether the material is wet or dry.
Batter	A uniform slope to an excavation or embankment to reduce the risk of the side(s) collapsing, expressed as one horizontal linear unit to a number of vertical linear units

Temporary Works	Work undertaken to enable other construction work to take place which is usually later removed and does not form part of the final building or structure.
Surcharge	Loadings on an excavation in addition to the normal loads arising from the material within which the excavation is carried out. Normally experienced as side loadings, this can result from stored material, stockpiling, plant, transport, and adjacent earthworks etc.
Level 1 Competency –	For those entering an excavation (see section 3.8)
Level 2 Competency –	For those requiring understanding of the requirements for excavation support, including those inspecting earthworks support and excavations. (see section 3.8)
Level 3 Competency –	For those who manage, or design, temporary works or other control measures for excavations or earthworks (see section 3.8)
Confined Space	A confined space has two defining features: • Substantially (but not always) enclosed • There is a reasonably foreseeable risk of serious injury from hazardous substances or conditions within the space or nearby
Confined spaces include (but are not limited to) the following	A confined space can be any space of an enclosed nature where there is a risk of death or serious injury from hazardous substances or dangerous conditions (e.g. lack of oxygen or inundation). • Spaces with limited openings • Unventilated or poorly ventilated spaces • Enclosed drains, sewers and gullies • Trenches and excavations for foundations • Cut-off trenches, ditches and • Deep excavations and/or contaminated land

3 Unitas Requirements

3.1 Planning

Suitable risk assessments and method statements (safe systems of work) must be produced and accepted in accordance with the Risk and Impact Assessment Standard (SHEMS-STD-GR-014) prior to work commencing.

Before undertaking work with excavations assess other options to eliminate or reduce the need to work in open excavations. Consider methods such as trenchless technologies and patch repair, and consult with clients, designers and Principal Designers to assess the options for no dig solutions.

The Temporary Works Control Register (SHEMS-FOR-GR-060) should be used to record anticipated excavations more than 500mm deep (or significant earthworks) and retained with the Project Register (SHEMS-REG-GR-090), or equivalent (e.g. works order file). In place of a register, on reactive works a record of where excavation is required shall be kept with the relevant works order.

Before commencing excavation, ensure that adequate resources are available, including those required for emergencies. Examples include:

- Competent personnel
- Current, relevant, service location plans
- Service location and verification equipment (eg CAT & Genny)
- Trench / excavation support materials and means of access

- Appropriate insulated hand tools
- Roadworks signage
- Lighting

3.2 Underground Services

The Unitas Underground Services Standard (SHEMS-STD-GR-059) must be followed.

All underground services must be identified, located, exposed by hand digging, and clearly marked by suitable means. PAS 128 provides the specification for underground utility detection, verification and location.

Services plans shall be made available to the operational teams which are current (normally less than three months old), of a suitable scale, in colour.

The permit to dig must take into account underground services.

Where a service is disturbed by excavation it must be supported as appropriate.
see Underground Services Standard (SHEMS-STD-GR-059) for more details.

3.3 Soils and ground conditions

For planned works an appropriate survey of the type of soil, other material and general ground conditions should be carried out prior to excavation. Depending on the scale and nature of earthworks and excavations anticipated the survey may range from a full contaminated land survey to an on-site assessment by a competent person. The survey will usually provide sufficient information for a suitable method of excavation and support to be determined and implemented.

For responsive / reactive works an assessment of the ground conditions shall be made and reviewed as work proceeds by the team carrying out the excavation.

Particular attention should be given to the varying properties of soil dependant on saturation, weather conditions and surcharging. The proximity of loads from adjacent works, features or loadings must always be taken into consideration.

3.4 Ground and Earthwork Support and Temporary Works

All excavations (including trenches) must be assessed to identify the requirement for earthwork support. When considering excavation / trench depth account must be taken of any surcharge.

The Unitas Temporary Works Standard SHEMS-STD-GR-048 must be followed. This defines appointments and responsibilities, and covers design, installation, maintenance and removal of temporary works. Temporary works include shoring, sheeting, propping, trench boxes etc. and associated installations.

All excavations of 500mm or more, or where entry is required which could result in crushing are to be assessed and recorded by a level 2 or level 3 competent person using the Excavation Assessment Tool (Appendix 3) or equivalent.

Where it is not reasonably practicable for excavations to be directly supported, the person making the assessment must apply other appropriate protection methods such as battered or stepped excavations (see section 3.5)

If conditions do not allow normal support measures to be installed (e.g. where there are obstructions, in bedrock, close to structures or where the safe working zone is restricted) a level 3 competent person (having sought appropriate technical advice where necessary), must complete a site specific excavation assessment to state any additional measures which will be utilised to prevent the excavation from failing.

Excavations must not undermine adjacent buildings, roads, paths, railway lines etc, or destabilise nearby slopes or embankments.

Reference should be made to CIRIA Report 97 when proposing or carrying out trench works.

Additional guidance is provided in Unitas Technical Guidance Notes (see Unitas Temporary Works Standard, and listed in the Standard)

A checklist for excavation and trench support (SHEMS-FOR-GR-143) is included in the Temporary Works Standard, and should be used as part of the inspection process (section 3.7)

Where proprietary support systems are employed it is essential that they are installed, maintained and used in full accordance with the manufacturers design criteria and instructions.

3.5 Batters, slopes and stepped excavations

Restrictions in space around the work area, existing underground services and existing structures and properties (including roads, paths and railway lines), must be taken to account.

Battered excavations should not be steeper than the angle of repose of the material (see appendix 1 for further detail). In cases where this is not possible the stability of the batter should be calculated and have a suitable factor of safety following the Temporary Works Standard SHEMS-STD-GR-048.

Stepping of an excavation can also be used to prevent failure and protect workers within the excavation. If a trench is to be stepped back the height of the step(s) must not exceed 1.2m and the overall shape must not exceed the overall angle of repose. The bottom “step”, where forming the side of the trench, or excavation, shall be dealt with as section 3.4 above.

Access into battered or stepped excavations must be by appropriate height steps cut into the batter or stepped sides, by stairs or alternative ladder access, and not by use of the stepped excavation (unless intermediate steps have been incorporated – see section 3.9).

The site specific excavation inspection will be undertaken by a competent person (level 2 – see section 3.8) and will state the correct angle of repose and/or maximum depths of the stepping. Geotechnical information should be present to enable the competent person to determine the correct safe angle of repose and monitoring ground conditions.

3.6 Overhead Services

The presence of overhead power cables may not allow adequate clearance for the safe use of plant, or some trench support measures to be installed.

The Unitas Overhead Services Standard (SHEMS-STD-GR-031) must be followed.

The apparatus owner of the cables is to be contacted prior to any works carried out within 7 metres of overhead cables to provide details of adequate safe clearance zones. Once this information is established, plant selection can be made, and a temporary works design can be formulated to determine a suitable form of trench support.

If the Distribution Network Operator (DNO) does not, after recorded request, provide the relevant information, a “competent person” shall determine the appropriate clearance zones, subject to authorisation by the local SHE director.

The temporary works design and type of equipment required to install, maintain and dismantle the support system must then be agreed with the apparatus owner and included within the site specific GS6 Document or equivalent site specific risk assessment and method statement.

3.7 Permits and Checklist

The purpose of any permit to break ground / excavate / dig is to make sure that:

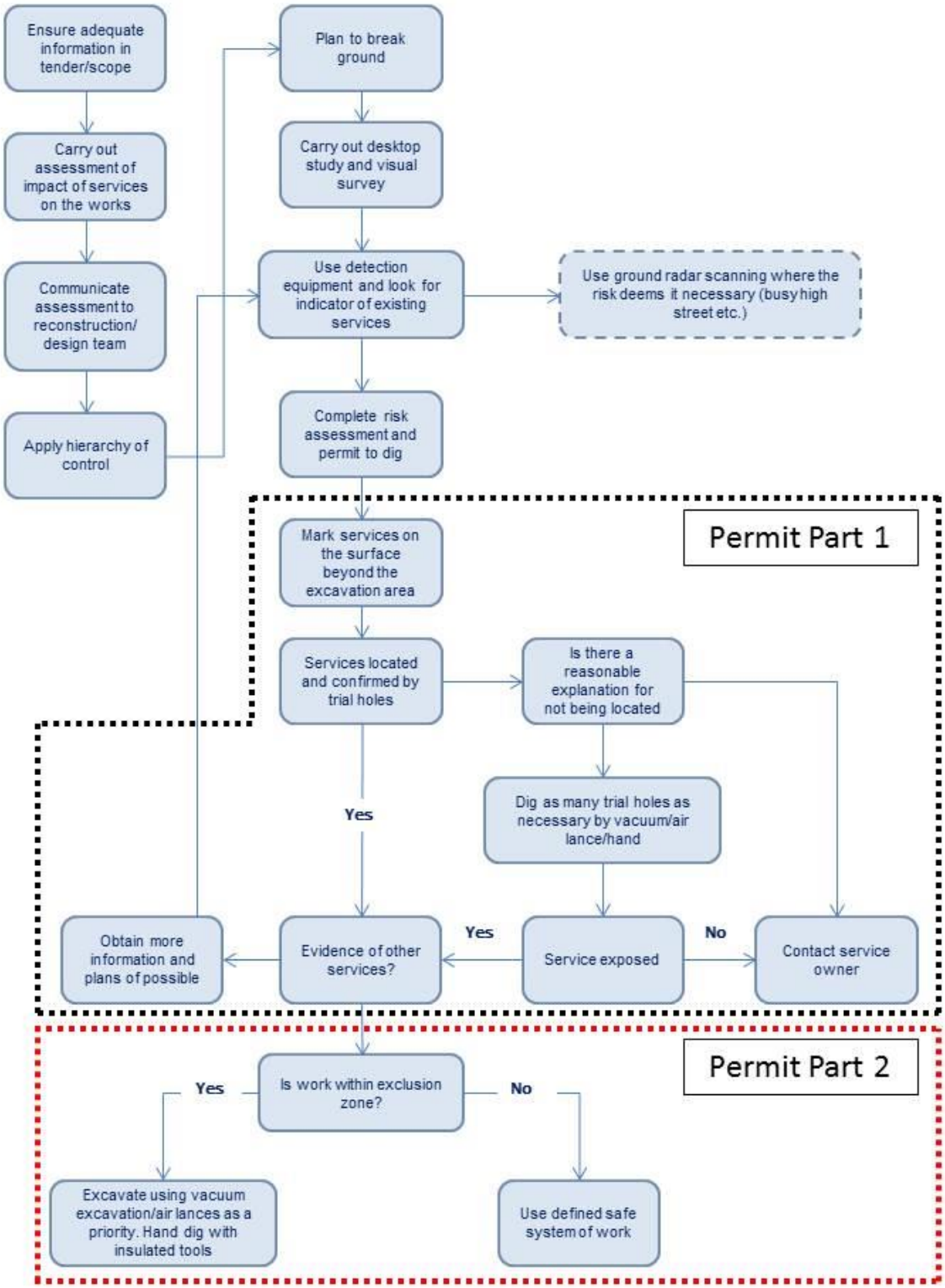
- people are protected from harm;
- existing assets including underground services are protected;
- people methodically follow the correct steps;
- roles and responsibilities are correctly defined and understood; and
- contents and restrictions defined in the permit are properly discussed and communicated to all people involved in the excavation activity.

A Permit to Excavate / Break Ground / Dig [SHEMS-FOR-GR-059] must be issued prior to work commencing. Any restrictions must be communicated, accepted by the recipients and its requirements strictly adhered to.

Those carrying out work are responsible at site level for making sure that the permit covers the activities and its surroundings. In the event of any deviation from the conditions described those carrying out the work must stop and obtain instructions from their supervisor / line manager.

The Permit to Locate / Dig SHEMS-FOR-GR-059 is a two-part form, which covers the location (verification) of services and obstructions in Part 1 and breaking ground / excavation in Part 2.

The process for locating /verifying underground services and obstructions is as the following flow-chart in the Underground Services Standard (SHEMS-STD-GR-059).



On reactive / responsive works, checklists shall be used by Operatives / Chargehands/ Gangers, to identify that the permit and safe system of work can be followed, or if there are additional risks apparent. If the permit or safe-system of work cannot be safely followed, or if there are other risks apparent, work shall stop and the responsible supervisor shall provide further instructions.

3.8 Competency, instruction and training

Only suitably trained and competent personnel shall be engaged to undertake excavation work.

Relevant information and instruction must be produced and communicated to all those involved prior to any work starting
Unitas designate three levels of competent persons when working in or in association with excavations:

Level 1	Those working in excavations or on earthworks, having received sufficient instruction and information, to recognise the hazards and risks that may be encountered. Holders of EUSR Utilities Excavation Scheme Level 2, or CSCS operative level meet the general requirements at this level.. **No person shall enter an excavation requiring support or battering until it has been inspected and approved for entry by a level 2 competent person.**
Level 2	Those working in or supervising work associated with excavations or earthworks that require trench support / battering, having received sufficient instruction and information to recognise the hazards and risks that may be encountered within excavations, the types of trench support available, permit procedures, an appreciation of confined spaces and the associated controls. They are equipped to carry out site specific excavation inspections and apply protection measures such as earthwork support and stepping/battering back to safe angle of repose. They are equipped to carry out statutory inspections. Holders of CSCS Excavation and Re-instatement or Temporary Support Skilled Operative cards (NVQ Level 2) and EUSR Utilities Excavation Scheme Level 3 satisfy this requirement.
Level 3	Engineers / site agents (or similar) who are competent, following training, to manage, or design where necessary, temporary works or other control measures for excavations or earthworks (See Temporary Works Standard (SHEMS-STD-GR-048) for details).

3.9 Access and Egress

Where it is reasonably practicable to use remotely operated plant such as rollers and compactors, to prevent the need to access excavations this should be considered.

Safe means of access and egress must be in place for all excavations no matter what the depth.

Access points must be established where access cannot be achieved by suitably stepped sides. Access should be by proprietary stairs, steps cut into the batter or where not reasonably practicable by a suitably secured ladder. All access must be appropriately inspected as part of the excavation inspection regime, and maintained.

Access points must be inspected and stairs / rungs cleared of debris prior to use, fencing and/or edge protection should be in place around access points to prevent falls from height. Stairs must be secured against unauthorised access and ladders removed from the excavation when the site is left unattended.

There are a number of systems available which enable access points to be incorporated into trench support systems.

3.10 Edge Protection and Work at Height

Edge protection - There are a number of proprietary systems available to provide adequate edge protection to open excavations. Hand/Guard-rail systems which are attached to excavation supports should be used where reasonably practicable and should extend at least one metre above ground level. otherwise guardrail systems independent of the supports shall be used. Suitable infill panels must be affixed to edge protection systems where there is a risk of materials/objects falling into the trench.

Trench support systems can be extended above the excavation where appropriate to provide suitable edge protection to personnel working at ground level.

If excavations are being battered back to a safe angle of repose or stepped there should be secure fencing in place around the upper edges of the excavation to prevent falls.

Where members of the public may be present or able to gain access to excavations, specific consideration must be given to prevent access and falls.

Stop blocks or suitably constructed and positioned bunds (min 1/3 wheel diameter), without risk of being pushed into excavation) should be considered where plant needs to operate in close proximity to an excavation.

When working adjacent to (or within) highways or traffic routes, appropriate measures to prevent vehicles leaving designated traffic routes and falling into, or pushing materials into the excavation. should be put in place so far as reasonably practicable taking into account the nature and scale of the risks from relevant vehicles, and other management arrangements in place,. This may include highways traffic management arrangements and physical traffic safety barriers. edge protection and warning, signage etc.

3.11 Storage of excavated and other materials, equipment, and use of plant

Excavated material (arisings) should (unless otherwise stated in the temporary works design for the excavation) be placed at least 1.5m from the edge of deep excavations or equal to the depth of the excavation if shallower than 1.5m. This distance is measured from the nearest base of the arising to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement also ensures that loose rock or soil from the temporary spoil will not fall on people in the excavation.

Where possible excavated material is to be stored in a designated area away from open excavations.

Excavated material which is to be located adjacent to open excavations for long durations should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.

Materials and equipment should be stored a safe distance away from open excavations to prevent materials & equipment falling into the excavation. This should normally be at least the depth of the excavation or 1metre, whichever is greater.

Plant and equipment which emits fumes (such as excavators, dumpers, pumps and generators) should be sited a safe distance away from the excavation. to prevent fumes being running into the excavation Wind conditions should be monitored to ensure that such equipment is situated downwind of the excavation.

Site traffic routes and plant operating away from excavations, need to be kept back a suitable distance to reduce surcharging of the excavation.

When operating plant in the proximity of an excavation, physical measures to provide edge protection (see above) should be in place.

3.12 Confined Spaces

An excavation can easily become a confined space, for example when there is a lack of oxygen, a build-up of fumes or vapours/gas or inundation/flooding.

The Unitas Confined Space Standard SHEMS-STD-GR-036 must be followed, including requirements for assessing risks and managing them.

A competent person must assess the environment and the actual task or activity being carried out.

Where reasonably practicable the requirement to enter a confined space should be eliminated. If entry is required it should be reduced as far as is reasonably practicable.

3.13 Groundwater, pumping out and disposal of water

Build-up of water, whether from groundwater or rainfall can have an adverse effect on any excavation, the levels of groundwater should be established prior to works commencing. If ground water levels are high and could have an effect on the excavation measures such as a sump or de-watering should be used.

Discharge points are to be agreed and are to be established to ensure that groundwater being removed is not channelled back into the excavation or the surrounding ground.

Before pumping out , installing well-points or disposing of any water from an excavation, refer to the Pollution Prevention Standard SHEMS-STD-GR-064, and the relevant Divisional Pumping Out minimum standard SHEMS-MST-DPS-044 there may be a requirement to obtain authorisation or extraction licences from the relevant regulatory authority.

3.14 Management and Inspections of Excavations

Before work commences, and at the beginning , a Register of Excavations should be produced and kept up to date as work proceeds, this could be in the form of the Temporary Works Control Register (SHEMS-FOR-GR-060).
On responsive works, in place of a register, a record of where excavation is required shall be kept with the relevant works order. This should be maintained as relevant, appropriate to the nature of the work being undertaken (e.g. utilities, term contracts etc.), and as agreed with the responsible director.

Support systems must be used and maintained in accordance with their design and / or manufacturers requirements, with particular attention to avoiding removal or omission of any component.

It should be recognised that open excavations as well as trenches require design and management. A specific risk assessment is required for all excavations (including those less than 500mm deep) and should identify whether the full temporary works procedures should be followed.

Work must not be carried out in an excavation where any supports or battering have been provided unless—
(a) the excavation and any work equipment and materials which affect its safety have been inspected by a competent person—
(i) at the start of the shift in which the work is to be carried out;

(ii) after any event likely to have affected the strength or stability of the excavation; and

(iii) after any material unintentionally falls or is dislodged; and

(b) the person who carried out the inspection is satisfied that construction work can be carried out there safely.

Written records of inspections must be kept at intervals not exceeding 7 days or when there are matters of concern. The SHE Project Register (SHEMS-REG-GR-090) provides guidance and details of statutory inspection requirements. Excavation Inspection Form (SHEMS-FOR-GR-165) (which includes a simple technical checklist) should be used and, the report or a copy of the report shall be left with the Site Manager, for filing in the Site Register (or contract filing where there is no site register).

A checklist for excavation and trench support (SHEMS-FOR-GR-143) is available and is included in the Temporary Works Standard and in Appendix 3 of this standard. It should be used as part of the inspection process, supplemented by any further requirements of the temporary works designer or Temporary Works Co-ordinator.

3.15 Document references

Unitas Standards

Temporary Works Standard (SHEMS-STD-GR-048)
Overhead Services Standard (SHEMS-STD-GR-031)
Underground Services Standard (SHEMS-STD-GR-059)
Archaeology and Heritage (SHEMS-STD-GR-060)
Earthworks and Contaminated Land Standard (SHEMS-STD-GR-061)
Pollution Prevention (SHEMS-STD-GR-064)

Forms

Permit to Dig / Locate – Group and Business Unit variant
Temporary Works – Excavation Trench Support (SHEMS-FOR-GR-143)
Report of Inspection – Excavation inc Checklist (SHEMS-FOR-GR-165)

Guidance
TGN TW04 – Battered and Benched Excavations.

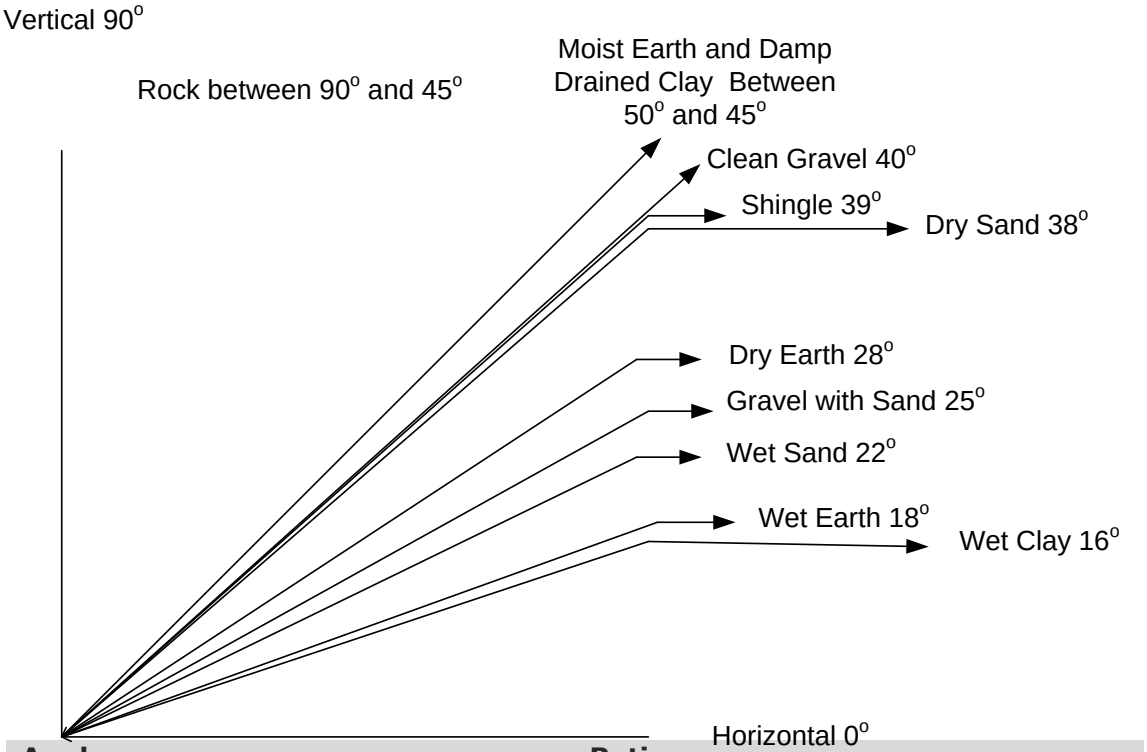
External References

Code of Practice for Earthworks BS6031
CIRIA Report 97 - Trenching Practice.
Construction Site Safety GE700
Health and safety in construction HSG150
Avoiding Danger from Underground Services (HSE) HSG47
Avoidance of Danger from overhead electrical power lines (HSE) GS6
Inspection and reports (HSE) cis47
Safe Work in Confined Spaces (HSE) L101
What you need to know as a busy builder (HSE) CIS64

Appendix 1 - Angles of repose
Appendix 2 - Excavation Support Assessment Toolkit
Appendix 3 – Excavation Checklist

Appendix 1 -

ANGLES OF REPOSE



Angle	Ratio
90°	1:0
50 °	1:0.8
45°	1:1
40°	1:1.2
39°	1:1.2
38°	1.1.3
28°	1.1.9
25°	1.2.1
22°	1:2.5
18°	1:3.1
16°	1:3.5

Appendix 2 – Excavation Support Assessment Toolkit

Guidance for Determining the Need for Excavations Support:

- The guidance described in this document is provided to assist management and teams to determine the need for excavation support.
- If local conditions are significantly different from those described in this document or, if there is any doubt about the need for excavation support, competent advice is required.
- This document does not provide guidance on other hazards associated with excavations. These include (but not restricted to), confined spaces, work at height, falling objects, etc.
- This document should be used in conjunction with the risk assessment that has been prepared for the work.
- As an alternative to excavation support, the sides of the excavation can be battered or stepped. Further guidance on this and the recommended Angle of Repose for different soil types are contained in Appendix 1.
- The excavation should be monitored as works progress. If conditions change (or are likely to change), stop work and re-evaluate the need for excavation support.

The need for adequate support to excavations depends on the following key factors: A) Depth of excavation B) The nature of the ground C) Ground water conditions D) Surcharge (side loadings) of the sides of the excavation from stockpiles, materials, plant movements etc. E) Personnel entering the excavation	**HOW TO USE THE GUIDANCE:** In all cases decision are arrived following a thorough assessment from a level 2/3 competent person ▪ Using the table below, determine a score for each of the 5 key factors. ▪ Add the scores together to come up with a total score. ▪ Score up to 5 – Excavation may proceed without need for excavation support. ▪ Score 6 to 7 – Excavation support, battered or benching required. ▪ Score 8 to 15 – Excavation support definitely required. Temporary works likely to be required from level 3 competent person.

		SCORE	Comments
A	Depth of excavation		
B	The nature of the ground		
C	Ground water conditions		
D	Surcharge		
E	Personnel entering the excavation		
	TOTAL		
	Action to be taken		

	LOW RISK (SCORE= 1)	MEDIUM RISK (SCORE = 2)	HIGH RISK (SCORE = 3)		NOTES
A) DEPTH OF EXCAVATION	▪ From 500mm to <1.2 metres deep	▪ 1.2 metres to 1.6 metres deep	▪ 1.7 metres to 3.0 metres deep	**NOTE: A temporary works design will be deployed on excavation where the assessment has determined the requirement. Temporary designs on excavations must only be carried out by those competent to do so.**	▪ If it is necessary to increase the depth below that originally planned, then the need for excavation support must be reviewed.
B) NATURE OF THE GROUND	▪ Good ground conditions, no evidence of recent disturbance (e.g. recent excavation). ▪ Soil type: moist earth or drained clay. ▪ Only one soil type, consistent throughout excavation.	▪ Good ground conditions, possibility of recent disturbance but well compacted. ▪ Soil type: gravel, shingle or dry sand. ▪ Only one soil type, consistent throughout excavation.	▪ Poor ground conditions or recently disturbance, not well compacted. ▪ Soil type: dry earth, gravel with sand, wet sand or wet clay. ▪ More than one soil type present within the excavation		▪ If it is not possible to determine the soil type, the worst case scenario must be assumed.
C) GROUND WATER	▪ Ground water level below depth of planned excavation.	▪ Ground water level encroaching at bottom of excavation.	▪ Ground water level higher than depth of excavation.		▪ In addition to ground water, also need to consider other factors such as proximity of watercourses or heavy rains (especially where it can run off land or down roads)
D) SURCHARGE (SIDE LOADINGS)	▪ No surcharge (side loadings). ▪ Anything likely to affect surcharge is deemed to be far enough away as to not affect excavation.	▪ Some surcharge (side loadings) but deemed to be acceptable for depth of excavation.	▪ Surcharge (side loadings) likely to adversely affect integrity of excavation.		▪ Traffic can affect surcharge (particularly HGV's, traffic volumes, plant & equipment, and spoil, etc). ▪ Consider increasing distance between traffic and sides of excavation.
E) PERSONNEL ENTERING THE EXCAVATION	▪ Personnel entering the excavation at thigh height	▪ Personnel entering the excavation at chest height	▪ Personnel entering the excavation overhead height		▪ Where personnel are entering into the excavation below 500mm, there is a '0' score
ACTION TO BE TAKEN	▪ Score up to 5. ▪ Site team to review the need for excavation supports or benching etc…. ▪ Monitor conditions as works progress.	▪ Score 6 to 7. ▪ Unless advised otherwise by a L2 competent person benching and/or shoring to be used ▪ Monitor conditions as works progress	▪ Score 8 to 15. ▪ Excavation support required. ▪ Monitor conditions as works progress.		

Appendix 3 – Excavation checklist

No	Item	
1	Is the surface clear of plant, spoil heaps, materials, etc. for at least 1.5m from the edge of the excavation (or at least the depth of the excavation if less than 1.5m deep)?	✓ ✗
2	Are spoil heaps properly controlled and will they remain stable in wet weather?	✓ ✗
3	Is the trench/excavation clear of personnel while the spoil heap is being worked on?	✓ ✗
4	Is the space between the trench/excavation and the spoil heap clear of material, tools, etc?	✓ ✗
5	Is the work properly fenced off, “signed” guarded and lit during the night?	✓ ✗
6	Is access adequate, without anyone having to step/jump across the trench?	✓ ✗
7	Are foot bridges with guard rails available and being used?	✓ ✗
8	Are stairs being used where reasonably practicable, otherwise are ladders available and being used?	✓ ✗
9	Is the trench/excavation safe from exhaust gases from machines working in the trench or nearby?	✓ ✗
10	Does everyone know where the buried services are and are they clearly marked?	✓ ✗
11	Are the requirements of the Underground Services Standard (SHEMS-STD-GR-059) being followed?	✓ ✗
12	Are those excavating and shoring this trench competent and experienced in this sort of work?	✓ ✗
13	Can personnel work at a safe distance from each other whilst still within the trench support where this is needed?	✓ ✗
14	Is the ground as the design assumed?	✓ ✗
15	Is there any movement or deterioration of the ground that may put adjacent services, roads or structures at risk?	✓ ✗
16	Is the area unaffected by any lasting or other heavy vibrations?	✓ ✗
17	Does the pumping arrangement avoid drawing material from behind sheeting?	✓ ✗
18	Is the work being done in accordance with the drawings or sketches? If not, has the variation been approved by the designer / passed by the TWC ?	✓ ✗
19	Are un-sheeted faces safe, with no sign of peeling away, etc?	✓ ✗
20	Are materials used the correct design, sizes and quality?	✓ ✗
21	Are waling and struts spacing within ± 100mm?	✓ ✗
22	Are struts horizontal and positioned squarely to the walings (within 1 in 40)	✓ ✗
23	Are frames supported against downward movement (by hangers or lip blocks, puncheons and sole plates)?	✓ ✗
24	Have correct pins been used in steel trench struts?	✓ ✗
25	Is the method of withdrawing sheeting and support during backfill a safe one?	✓ ✗
26	Is work tidy?	✓ ✗
27	Are stops provided for mobile plant?	✓ ✗
27	Is visibility adequate in the trench?	✓ ✗