

## WORKING SAFELY IN EXCAVATIONS

### Introduction

Every year construction workers are hurt when the excavations they are working in collapse.

Many ground types are self-supporting to some extent, but a collapse can occur without warning, resulting in a person being buried, trapped, crushed, or struck by a heavy mass of soil or rock. Over the years, many deaths have occurred in both shallow and deep excavations.

Excavation work has to be properly planned, managed, supervised and carried out to prevent accidents. This information sheet provides advice for those involved in excavation work to help them make sure that their excavations are adequately supported.

### Legal requirements on the Isle of Man

Health and Safety at Work etc Act 1974 as applied to the Island by Order 1998

Construction (Health and Safety) Regulations 1985

Construction (Head Protection) Regulations 1999

This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

**Mandatory requirements under the above Regulations are shown in bold type.**

### Planning

Before digging any excavation, it is important that you plan to cope with the following hazards:

- Collapse of the sides;
- Materials falling onto people working in the excavation;
- People and vehicles falling into the excavation;
- People being struck by plant;
- Undermining nearby structures;
- Contact with underground services;
- Access to and egress from the excavation;
- Fumes, gases and inrushes of water; and
- Accidents to members of the public.

Make sure the necessary equipment as you might need (trench sheets, props, baulks etc) is available on site before work starts:

Remember that unless you have good evidence to suggest otherwise you should regard the ground beside the excavation as an area to be kept free from additional loads. As a rule of thumb for unsupported excavations, use the depth of the trench as the size of the safety zone each side.

### Excavation Collapse

- **Prevent the sides and the ends from collapse by battering them to a safe angle or supporting them with timber, sheeting or proprietary support systems (trench boxes)**
- Do not go into unsupported excavations
- Never work ahead of the support.
- Remember that even work in shallow trenches can be dangerous. You may need to provide support if the work involves bending or kneeling in the trench.

### Materials falling into excavations

- **Do not store spoil or other materials close to the sides of excavations. The spoil may fall into the excavation and any extra loading will make the sides more likely to collapse.**
- **Make sure that the edges of the excavation are protected against falling materials. Provide toe boards where necessary.**
- **Wear a hard hat when working in excavations.**

### People and vehicles falling into excavations

- **Take steps to prevent people falling into excavations. If the excavation is 2m or more deep, or 1 m where water is likely to collect, provide substantial barriers such as guard rails and toe boards.**
- **Keep vehicles away from excavations wherever possible. Use brightly painted baulks or barriers where necessary.**
- **Where vehicles have to tip materials into excavations, use stop blocks to prevent them from over-running. Remember that the sides of the excavation may need extra support.**

## HEALTH AND SAFETY AT WORK INSPECTORATE INFORMATION DOCUMENT: EXCAVATIONS

### People being struck by plant

- Keep workers separate from moving plant such as dumpers or excavators. Where this is not possible, use safe systems of work to prevent people being struck.
- Plant operators should be trained and competent.

### Undermining nearby structures

- **Make sure excavations do not affect the footings of scaffolds or the foundations of nearby structures. Walls may have very shallow foundations, which can be undermined by even small trenches.**
- Decide if the structure needs temporary support before digging starts. You might need to survey the foundations or obtain the advice of a structural engineer.

### Avoiding underground services

- Look around for obvious signs of underground services, eg valve covers or patching of the road surface.
- Use locators to trace any services. Mark the ground accordingly.
- Make sure that the person supervising excavation work has service plans and knows how to use them. Everyone carrying out the work should know about safe digging practices and emergency procedures.

### Access and Egress

- **Provide good ladder access or other safe ways of getting in and out of the excavation.**

### Fumes, gases and water

- **Exhaust fumes can be dangerous. Do not site petrol or diesel-engined equipment such as generators or compressors in or near the edge of an excavation unless fumes can be ducted away or the area can be adequately ventilated.**

- Some excavations may have to be considered as confined spaces, because of the risk of inrush of gases or water (eg near sewer or water courses). Consideration will have to be given for the provision of appropriate equipment, training, safe systems of work, and emergency procedures.
- Working in contaminated ground poses many potential hazards. Seek specialist advice.

### Protecting the Public

- Fence off all excavations in public places to prevent pedestrians and vehicles falling into them.
- Where children might get onto a site out of hours, take precautions (eg backfilling or securely covering excavations) to reduce the chance of them being injured.

### Supervision

- **A competent person must supervise the installation, alteration or removal of excavation support.**
- **People working in excavations should be given clear instructions on how to work safely.**

### Inspecting excavations

- A competent person should inspect excavations:
  - at the start of each shift before work begins;
  - after any event likely to have affected the strength or stability of the excavation; and
  - after any accidental fall of rock, earth or other material.
- A written report should be made after most inspections. Stop work if the inspection shows the excavation to be unsafe.

### References

*Guide to the Construction (Health and Safety) Regulations 1985* HSWI  
*Health and Safety in excavations* HS(G)185 HSE Books ISBN 0717615634  
*Inspections and reports* CIS 47 HSE Books 1997  
*Health and Safety in construction* HS(G)150 HSE Books 1996 ISBN 0717611434  
*Protecting the public: Your next move* HS(G)151 HSE Books 1997 ISBN 0717611485  
*Dumper leaflet*  
*This guide is current as at August 2003.*

