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| Scope |
| This procedure applies to all Company projects, offices, facilities, asset and concession companies and Joint Venture (JV) projects where the Company Management System has been adopted by the JV Board. Where the Company is required to operate another party’s Management System then the requirements of the Joint Venture/Alliance Business Management System (BMS) Assessment (MSC-PR-0002) must be followed in relation to assessing the validity of third party management systems. |

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| Purpose |
| The purpose of this procedure is to provide a consistent approach to the management of excavations to eliminate or reduce risk and harm to people and the environment. It does not cover other forms of ground penetration such as road surface planing, road surface laying operations etc.  This procedure excludes other potentially associated risks as they are managed by other procedures (i.e. underground services, confined spaces, temporary works design of excavations etc.). However those procedures must be read in conjunction with this one.  The requirements in this procedure are considered to be our current standards and must be adopted as part of a safe system of work. However, Projects and Contracts are also encouraged to identify new methods of working as long as these are: developed through rigorous risk assessment, demonstrably improve on current standards, deliver legal compliance and are approved in accordance with the Control of HSES Derogation procedure ([HSES-PR-0004](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6992)). |

Procedural Requirements

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|  | **COMPETENCIES** |
|  | **Excavation Operatives** |
|  | * Skills, knowledge, training and experience on the hazards and necessary precautions for excavation works and safe digging practices |
|  | * Skills, knowledge, training and experience on the relevant excavation method being undertaken |
|  | **Excavation Supervisor** |
|  | * A competent person who fully understands the hazards and necessary precautions for excavation works |
|  | * Skills, knowledge, training and experience on the hazards and necessary precautions for excavation works, safe digging practices and excavation inspections |
|  | * Relevant\* installation of excavation support systems training and experience |
|  | * Minimum safety training of Site Supervisor Safety Training Scheme (SSSTS) or other Company accepted equivalent |
|  | * Selected by the Site Lead |
|  | **Site Lead** |
|  | * Minimum 3 year experience in planning and supervising excavation works |
|  | * Minimum safety training of Site Manager Safety Training Scheme (SMSTS) or other Company accepted equivalent |
|  | * Detailed in the Construction Phase Plan |
|  | **Temporary Works Roles**  See [ENG-PR-0101](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-12508) Management of Temporary Works for the appointment and competencies of the following roles: |
|  | * Temporary Works Designer (TWD) |
|  | * Temporary Works Coordinator (TWC) |
|  | * Temporary Works Supervisor (Excavations) (TWS(Ex)) |
|  | \* Training must be relevant to the type of support system used by the project / site (i.e. timber, steel or proprietary systems) |
|  | **PROJECT DESIGN STAGE** |
|  | Pre-construction information provided by the Client and other relevant parties must be used by the Designer to consider how to minimise risks which could arise from excavation work. |
|  | The Designer must determine what site investigation works must be undertaken as part of the design process, and ensure the information obtained is considered in the design. |
|  | The following factors should be taken into account at the design stage: |
|  | 1. Previous uses of the site |
|  | 1. Location of existing buildings and services on and adjacent to the site |
|  | 1. Location of the new structures |
|  | 1. The amount of storage and working space necessary for the excavation and the construction |
|  | 1. The types of soils and their characteristics, taken from soil investigation |
|  | 1. The level of the water table and the permeability of the soil |
|  | 1. Ground contamination |
|  | 1. How much of the excavated material can be reused and the means of disposal of the remainder |
|  | 1. Identify methods of safe access/egress |
|  | 1. Any temporary support of the excavation |
|  | The Designer must ensure: |
|  | * The Project Design Hierarchy (Table 1) is followed |
|  | * Pre-construction information is passed onto the Site Lead |
|  | * That option for redesign to avoid excavating is discussed with the Site Lead |
|  | Where the risk of an excavation cannot be avoided, that the residual risk is communicated to the Site Lead. |
|  | Table 1 Project Design Hierarchy   |  |  |  | | --- | --- | --- | | **Level** | **Description** | **Risk Control Measures** | | **Eliminate** | Remove the risk of an excavation | * Avoid the need to excavate by using different techniques | | **Minimise** | Minimise the risk of an excavation causing harm | * Avoid the need for people to enter the excavation * Reduce the depth of the excavation needed * Reduce the number of excavations needed * Incorporate permanent works to provide support to the excavation and installing from ground level | | **Mitigate** | Remaining risk must be mitigated through a robust safe method of work | * Identify when and where excavation works are required * Pass on all relevant information to the Site Lead | |
|  | **PROJECT MOBILISATION STAGE** |
|  | Where required as part of the project delivery, the Site Lead shall ensure the following appointments have been identified and recorded in the Health & Safety or Construction Phase Plan: |
|  | * Temporary Works Designer |
|  | * Temporary Works Coordinator |
|  | * Temporary Works Supervisor (Excavations) |
|  | If a TWS (Ex) is not available, the role must be undertaken by the appointed TWC working in conjunction with the TWD. |
|  | Utilising third party excavations that are partially complete must be treated as a new excavation. |
|  | Utilising a completed excavation undertaken by a third party must be inspected by a Competent Person before use as defined by the Excavation Design Category. |
|  | **PLANNING TO EXCAVATE** |
|  | All necessary approvals, consents and notices must be obtained before commencing excavation operations. |
|  | Planning works that involve excavations must include all relevant parties, including management teams, Temporary Works team, Clients, utility owners, relevant authorities, land owners (where applicable) contractors and those carrying out the task. |
|  | Prior to commencement of works, the TWC must allocate a design category for the planned works in accordance with [ENG-PR-0101](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-12508) Management of Temporary Works. The category will establish the complexity of the temporary works design and approvals needed. |
|  | **RISK ASSESSMENT** |
|  | The Site Lead shall ensure a suitable and sufficient risk assessment, method statement / WPP and task briefing is available prior to the works being undertaken in accordance with the ‘Setting People to Work’ procedure ([HSES-PR-0011](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8591)). The extent and complexity of these will be dependent on the size and complexity of the task/project. |
|  | As a minimum the risk assessment shall consider the following: |
|  | * Ground movement. Possible modes of ground failure potential for collapse of the excavation, water table causing ground boiling |
|  | * Plant & vehicles. Proximity of any heavy road and site traffic and the potential for collapse of the excavation, side surcharging, damage to adjacent properties |
|  | * Members of the public. Consider cyclists, pedestrians, and disability scooters etc. and the use of road plates or footway boards |
|  | * Method of excavating. Protection of person(s) who are installing the support system |
|  | * Avoiding Services. Safe location, verification and protection of underground and overhead services (see ‘Avoiding Danger from Services’ procedure ([HSF-PR-0015](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8637)) |
|  | * Access & egress. Safe entry and exit from the excavation both in normal operation and in emergency. (Refer to Table 3 Excavation Access Hierarchy) |
|  | * Toxic gases and oxygen deficiency. The potential for hazardous gases or vapour to build-up in the excavation, e.g. from vehicle exhausts, confined spaces etc. |
|  | * Contaminated land, contaminated excavated material and associated health risks. The potential for working in contaminated ground, contamination of surrounding areas and invasive weeds ([ENV-RM-0036c](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8750) and [ENV-AL-0035c](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-9333)). |
|  | * Waste Material - Waste Management ([ENV-RM-0035a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8609)) |
|  | * Ground & surface water. De-watering the excavation, if necessary, consider discharge points and settlement tanks, surface water run off contaminating surrounding areas, ground prone to flooding and movement of fines behind sheet piles (running sand) |
|  | * Type and condition of ground. Wet / dry or rock / made ground / sand / silt / clay / peat / structural properties of the soil |
|  | * Duration of exposure, the prevailing weather and its effects |
|  | * Stability of adjacent structures and services, subsidence, railway track buckling, adjacent walls, street furniture etc. |
|  | * Edge protection. To prevent falls of people, plant and materials into the excavation |
|  | * Depth of the excavation |
|  | * Temporary storage of spoil and associated surcharging considerations |
|  | * Sites of Special Scientific Interest (SSSI) |
|  | There may be additional hazards created as part of the excavation that are not covered by this procedure. Therefore, please refer to the associated procedures shown below for the relevant hazard (Note: this list is not exhaustive): |
|  | |  |  | | --- | --- | | Confined Spaces. | [HSF-PR-0020](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6929) | | Avoiding Danger from Services. | [HSF-PR-0015](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8637) | | People, Plant & Vehicle Interface. | [HSF-PR-0047](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7815) | | Biological Hazards. | [HSF-PR-0067](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6989) | | Demolition. | [HSF-PR-0022](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-1113) | |
|  | |  |  | | --- | --- | | Work at Height. | [HSF-PR-0063](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8232) | | Lifting Operations. | [HSF-PR-0039](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8085) | | Contaminated Land and contaminated excavated material. | [ENV-RM-0036c](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8750) and [ENV-AL-0035c](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-9333) | | Temporary Traffic Management. | TBC | | Client Specific requirements. | N/A | |
|  | **EXCAVATION DESIGN CATEGORIES** |
|  | The Design Category of the excavation governs the design checks and approval stages required in the process. All excavations must be allocated a Design Category by the TWC, in accordance with [ENG-PR-0101](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-12508) Management of Temporary Works.  Table 2 Excavation design categories   |  |  |  |  | | --- | --- | --- | --- | | **Category** | **Design** | **Approval to Load** | **Classification & Restrictions** | | **Cat 0** | Specified by the Excavation Supervisor using Standard Solutions only. Where required, in agreement with the TWS(Ex). | TWS(Ex) or Excavation Supervisor acting as a TWS when delegated by the TWC. | Please refer to [ENG-PR-0101](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-12508). | | **Cat 1** | Specified by the TWS(Ex) using Standard Designs.  Where required, the TWC will be consulted for more complex design requirements that don’t fall within the TWS(Ex) using [HSF-TF-0016a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8594) remit. | TWS(Ex) using [HSF-TF-0016a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8594) or the Excavation Supervisor acting as a TWS when delegated by the TWC. | Please refer to [ENG-PR-0101](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-12508). | | **Cat 2 or 3** | Bespoke design provided by TWD in consultation with TWC. | TWC or TWS (when acting within the parameters of their authority). | Please refer to [ENG-PR-0101](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-12508). |   If during the excavation process, it becomes clear that the design is no longer suitable, the works must immediately stop until the TWC or TWS (Ex) has been consulted. See Section 19. |
|  | **BATTERING AND STEPPING** |
|  | In many situations battering or stepping back the sides of a Cat 1-3 excavation, in accordance with a Temporary works design (Standard or bespoke), are the simplest and safest ways of ensuring stability and should receive first consideration. The standard details give typical safe slope angles, however regular monitoring and inspection of the excavation must be conducted to ensure the integrity of the sides. Refer to Inspections and Reports (Section 20). Shallow, unsupported, Cat 0 excavations must be risk assessed in accordance with the relevant SBU TW procedure to determine whether they require stepping or battering. |
|  | Battered and stepped excavations shall be inspected by the Excavation Supervisor prior to use |
|  | * Category 0 temporary works must be inspected |
|  | * Category 1 temporary works inspections must be recorded on [HSF-TF-0016a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8594). Where required, the TWC will be consulted for more complex design requirements that don’t fall within the ‘TWS(Ex) using [HSF-TF-0016a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8594)’ |
|  | * Category 2 and 3 temporary works inspections must be recorded on an SBU specific Record of Inspection Permit to Load |
|  | **TEMPORARY SUPPORT SYSTEMS** |
|  | Where the need for a temporary support system is identified, it shall be specified and approved: |
|  | * Category 0 – by the Excavation Supervisor |
|  | * Category 1 - by the TWS (Ex) |
|  | * Category 2 + - by the TWD in accordance with Temporary Works Design |
|  | Temporary Support systems must be checked prior to installation and be free from defects, of adequate strength, of good construction and properly maintained. |
|  | All temporary support systems shall be erected, altered and dismantled by personnel, who have been briefed on the manufacturer’s or System Designer’s instructions, under the supervision of an Excavation Supervisor. Temporary works inspections shall be deployed and undertaken by the TWS (Ex)/TWC and the permits to load, proceed or dismantle shall be issued prior to the relevant stages commencing. |
|  | Upon completion of the installation the temporary support systems shall be inspected and signed off in accordance with [ENG-PR-0101](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-12508) by the: |
|  | * Category 0 – Inspection by the Excavation Supervisor |
|  | * Category 1 - Inspection and sign off by the Excavation Supervisor / TWS (Ex) |
|  | * Categories 2-3 – Inspection and sign off by TWC/ TWS |
|  | All supports must be fully secured to prevent any displacement. Refer to Inspections and Reports (Section 20). |
|  | Utilities spanning along or across a trench shall be adequately protected and supported. Consult the TWC/TWS(Ex) about any additional utilities found. See the ‘Avoiding Danger from Services’ procedure ([HSF-PR-0015](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8637)). |
|  | **ACCESS AND EGRESS** |
|  | Where possible, the need for entry into an excavation should be eliminated. Where entry is necessary, all excavations must have a safe means of access and egress. See Table 3 Excavation Access Hierarchy. |
|  | Table 3 Excavation Access Hierarchy   |  |  |  | | --- | --- | --- | | **Level** | **Description** | **Risk Control Measures** | | Eliminate | Remove the need to enter | * No person entry excavation, trial holes, test excavations, remote access equipment (e.g. remote trench compactor etc.) | | Minimise | Entry required (Restrict who needs to enter, how often and the type of excavation) | * Restrict entry to competent persons, those undertaking the work (e.g. for final connections)   + Prefabricated jointing above ground   + longer pipe lengths to reduce the number of joints required | | Mitigation | Entry required using access equipment | * Person riding basket * Scaffold * Fixed ladder * Proprietary systems * Mobile ladder * Gated access with landings | | Mitigation | Where no access equipment is suitable such as very shallow excavations in stable ground | * Safe System of Work including:   + Means of escape   + Clear landing points   + Adequate lighting   + Instructions on carrying equipment   + Additional supervision | |
|  | Where entry is required, Specified Hazards of Confined Spaces must be considered as part of the risk assessment and method statement / WPP. See ‘Confined Spaces’ procedure ([HSF-PR-0020](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6929)). |
|  | Wailings, buried services and struts must not be used to access or egress the excavation. |
|  | Any excavation requiring access must be suitable for use and assessed to ensure that the risks of failure have been adequately mitigated. |
|  | **NO PERSON ENTRY EXCAVATIONS** |
|  | No person entry excavations must follow the same methodology detailed in section 6.1. |
|  | A ‘NO ENTRY INTO EXCAVATION’ safety sign or tag must be positioned where it can be clearly seen close to the excavation. |
|  | Risk assessments must be undertaken to determine the level of protection in line with Section 13. |
|  | **GROUND MOVEMENT** |
|  | The potential for ground movement to cause the collapse of an excavation will vary dependent on a number of factors such as soil type, size of the excavation and weather conditions etc. |
|  | It is the responsibility of the Excavation Supervisor to monitor for ground movement during works. Where there is evidence of ground movements this must be reported to the TWC/TWS (Ex) with the immediate removal of all personnel from the excavation. |
|  | **GROUND AND SURFACE WATER** |
|  | Consideration shall be given to the potential for water to enter the excavation either through the ground or from the surface or pipelines (i.e. heavy rain fall, streams etc.). The presence of water has the potential to affect the stability of the excavation and restrict the amount of effective working space, as well as wash contaminants into it. The excavation must be monitored and inspected as required and as defined in the design where applicable. |
|  | The Excavation Supervisor is responsible for monitoring and assessing the prevailing weather conditions and deciding if additional precautions are needed (e.g. suitable dewatering arrangements, prevention of surface water run-off entering the excavation), which may include the immediate removal of all personnel from the excavation. See section 19. |
|  | The location for the discharge point for dewatering shall be agreed with the approved authority or land owner where appropriate. Refer to relevant Environmental procedures. |
|  | **EDGE PROTECTION** |
|  | Suitable steps in accordance with Table 4 Edge Protection Hierarchy (or other external authoritative guidance) shall be taken to prevent a collapse under the weight of the vehicle. |
|  | Table 4 Edge Protection Hierarchy   |  |  |  | | --- | --- | --- | | **Level** | **Description** | **Risk Control Measures** | | Eliminate | Remove the risk of falling into an excavation | * Backfill * Cover the excavation (with suitable and secure material for the load | | Minimise | Minimise the risk of falling into an excavation | * Reduce the number of excavations * Guard rail with toe board * Edge safe * Extended sheet piles * Proprietary system * Cordon off where works are taking place | | Mitigation | Tasks that require essential personnel to work in or around an excavation | * Robust specific risk assessment and safe system of work required * Signs, lighting and guarding to protect the public in accordance with the Safety at Streets and Road Works ACOP   + Reduced depth of excavation   + Fall restraint systems | |
|  | Where plant or vehicles are used to tip materials into an excavation, or whilst extracting materials from an excavation, suitable measures shall be used to prevent the vehicle entering the excavation. (Refer to [HSF-PR-0047](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7815)). In accordance with the Temporary Work design/assessment they shall be placed at a suitable distance from the edge of the excavation to prevent breaking away under the weight of the vehicle, the distance to be agreed with the TWC/TWS (Ex). |
|  | Where there is a risk of injury due to falling into an excavation, the edges shall be protected in accordance with the Table 4 Edge Protection Hierarchy. A suitable type of edge protection/restraint shall be identified through the risk assessment. All materials and equipment required shall be available and inspected before work starts.  Edge protection must only be installed by a competent person. Edge protection must be inspected as part of the excavation inspection. See section 20. |
|  | Scaffold poles used for edge protection rather than distance guarding must be installed by a suitably trained and competent Scaffolder. Depending on complexity this may also require a TW design, inspection and approval by the TWC. See the Work at Height procedure ([HSF-PR-0063](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8232)). |
|  | BS EN 13374:2013 Temporary Edge Protection Systems is available for reference when planning edge protection systems. This document is available via IHS Markit [here](https://home360.balfourbeatty.com/kc/EngTech/Pages/IHS.aspx). |
|  | Sites shall be secured preventing unauthorised access to the works. These arrangements may be over and above the protection to the excavations. Open unattended excavations in high risk locations determined by the risk assessment, will require a minimum of 2m Heras panels or hoarding where practicable.  [HSES-PR- 0007](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6986) Site Establishment is available for reference when planning a site set up. |
|  | If excavations need to be crossed by pedestrians a secure and safe crossing must be provided and may require design if proprietary system is not available. |
|  | Excavations in the public highway must have barriers installed in accordance with Safety at Streets and Road Works Code of Practice. |
|  | **EXCAVATED MATERIAL (SPOIL)** |
|  | Materials, spoil and equipment shall be kept away from the edge of the excavation by a distance equal to the depth of the excavation subject to a Temporary Works assessment considering short and long term durations. These distances apply unless a temporary works design allows it to be less in stable ground or provides support to the excavation to overcome the surcharge load as well as additional protection to prevent the load falling into the excavation. The height of the spoil must be kept to a minimum to reduce any residual hazards. |
|  | Where spoil is not going to be re-used on site it should be removed as soon as reasonably practicable. |
|  | **STABILITY OF ADJACENT STRUCTURES** |
|  | Design and risk assessment must consider the proximity of the excavation to structures such as property foundations, bridges, rail track, garden walls and street lighting columns and the like. Excavating too close to these could cause excessive settlements and undermining of the structure leading to its collapse.  Suitable controls include but are not limited to: |
|  | * Moving the excavation away from the structure |
|  | * Providing adequately designed temporary support for the structure |
|  | * Monitoring arrangements agreed with the TWC/TWS (Ex) |
|  | * Obtaining further advice from a TWC before the excavation continues |
|  | **STREET WORKS** |
|  | All excavation works in public highway shall have a Notice or Permit in place in accordance with the New Roads & Street Works Act 1991 ([NRSWA](http://www.legislation.gov.uk/ukpga/1991/22/contents)) and the Traffic Management Act. |
|  | Any Temporary Traffic Management (TTM) used to protect excavations in the public highway shall comply with the [Safety at Street Works and Road Works Code of Practice](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/321056/safety-at-streetworks.pdf) |
|  | All excavations in public highway shall be signed, lit and guarded in accordance with the Safety at Street Works and Road Works Code of Practice as a minimum standard.  Any deviation shall form part of a risk assessment/method statement / WPP and be agreed by the Site Lead. |
|  | **EMERGENCY EVACUATION** |
|  | All construction sites with planned or open excavations shall have suitable and sufficient arrangements for dealing with any foreseeable emergency in accordance with the Emergency Arrangements procedure ([HSES-PR-0003](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-5162)). These arrangements shall take into account the size of the site, location, access, type of work undertaken, equipment or materials being used and the foreseeable emergencies as listed in section 17.3. |
|  | The Emergency Plan will be based upon the requirement to contact the Site Lead who will alert others (as required) to provide additional assistance. The activities undertaken will depend on the nature of the foreseeable emergency. The foreseeable emergencies will be highlighted in the risk assessment. |
|  | Foreseeable emergencies may include: |
|  | * Excavation collapse |
|  | * Ground boiling |
|  | * Flooding (ground, surface, mains or supplied water) |
|  | * Ingress of gases |
|  | * Incapacitated individual |
|  | * Structures |
|  | * Vehicles entering excavations |
|  | * Fire |
|  | * Train derailment due to subsidence of track buckle (where applicable) |
|  | * Any combination of the above |
|  | Note: This list is not exhaustive. |
|  | The Emergency Plan must address the following aspects, as a minimum: |
|  | * Evacuation (e.g. loss of an egress route) |
|  | * Assess danger caused by the emergency |
|  | * Rescue |
|  | * Emergency services and first aid |
|  | * Secure the site |
|  | * Notify the relevant third parties (e.g. utility owners, highways) |
|  | Evacuations shall be planned and practiced appropriate to the type of works. Casualties should not be moved unless they are in danger and it is safe to do so or in extreme cases to prevent further injury. Arrangements shall be in place to retrieve casualties from excavations. The requirements will depend on the depth of the excavation. It is not acceptable to rely solely on the emergency services as an emergency plan. |
|  | The Emergency Plan must be briefed to the site team and be available on site at all times. |
|  | **BACKFILL AND REINSTATEMENT** |
|  | All excavations must be backfilled and reinstated in accordance with the current Client / industry specifications. |
|  | Consideration must be given to the use of remote controlled compaction equipment in preference to pedestrian operated equipment. |
|  | Temporary support systems shall be inspected and permitted to be removed by the TWS (ex) prior to removal in accordance with [ENG-PR-0101](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-12508) and ‘TW design’ / manufacturer instructions. |
|  | **CHANGE CONTROL** |
|  | Any change to the excavation necessitated by a change in the ground conditions, weather, duration of exposure, size of excavation etc. will require: |
|  | * The work to be stopped and re-assessed |
|  | * Update risk assessment and method statement if necessary |
|  | * Re-brief the team |
|  | * Record changes |
|  | If any aspect of the temporary design cannot be implemented or there are changes on site which require a new or a redesign of the temporary works, this must be referred to the TWC/TWS (Ex). All associated works will be stopped until the new temporary works have been designed, checked, approved and then implemented. |
|  | **EXCAVATION INSPECTIONS AND REPORTS** |
|  | Excavations must be inspected by an Excavation Supervisor: |
|  | * Visually before entry, records of the visual excavation inspections are not always mandatory (also see section 21) however may be recorded |
|  | * A recorded excavation inspection every 7 days following installation of shoring, battering or benching and authorisation of entry |
|  | * After any event likely to have affected the strength or stability of the excavation or any part of it; e.g. adverse weather, extending excavation, damage to excavation wall or surface; and |
|  | * After any accidental fall / dislodgment of rock, earth or other material |
|  | * If required by the TW design |
|  | Recorded excavation inspections shall be carried out using one of the following: |
|  | * Single excavations - [HSF-SF-0016a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8592) 7 Day Excavation Inspection Report |
|  | * Multiple excavations on same site – [HSF-SF-0016b](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8593) Excavation Inspection Register |
|  | The Excavation Supervisor shall decide whether the excavation is safe or not (in consultation with the TWS (Ex) where necessary) and implement any rectification required to make the excavation safe before use. |
|  | In addition they must understand whether or not the ground is as assumed by the TWC or TWS (Ex) who may liaise with the TWD where required. |
|  | The Site Lead shall regularly check that the excavation inspection reports are being completed correctly and that the records are kept on site until work is complete. |
|  | After completion of works the Site Lead shall ensure the excavation inspection reports are returned with all relevant site documents. |
|  | For vacant excavations the requirement for daily excavation inspection will be subject to an assessment of the risk due to the surrounding environment, soil type, weather conditions etc. however the 7 day excavation inspection must still be completed. |
|  | If the excavation is to be handed over to a third party the third party must be informed of the Company’s intention to hand over the excavation making them responsible for further inspections. This handover must be recorded with times, dates and acceptors name. |
|  | Where it is expected that the third party will hand back the excavation on completion of their works the Company may maintain responsibility for the inspection regime. This may be by Company inspections or by third party inspections, If the third party has satisfactorily shown themselves to be competent to carry out the inspections. |
|  | Copies of third party inspection records should be forwarded to the Company within agreed timescales. |
|  | **EXCAVATION TAGS** |
|  | For Category 2 excavations and above an Excavation Tag will be used and will remain visible at all times at or adjacent to the entrance of the excavation. See [HSF-TB-0016a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8595). |
|  | The Excavation Supervisor, following their visual inspection, will sign off and date the Excavation Tag on a daily basis. The Site Team will not be allowed to enter the excavation unless the Excavation Tag is valid for that shift. |
|  | **DUAL RESPONSIBILITIES** |
|  | Dual responsibilities is acceptable as long as the individuals clearly understand the requirements for each role and can undertake these roles without having any of their decisions affected/biased due to other responsibilities. |

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| ACRONYMS and Definitions | |
| **EXCAVATION** | A cavity formed in the ground by the act of cutting and/or digging, using manual or mechanical means. |
| **EXCAVATION SUPERVISOR** | A competent person who fully understands the hazards and necessary precautions involved in excavation works. Responsible for supervising the operational aspects of the excavation, undertaking inspections, assessing environmental conditions and controlling access. |
| **SITE LEAD** | The person directly responsible for the Health and Safety of all employees, subcontractors and third parties, and for the care of the environment, affected by our works. |
| **TEMPORARY SUPPORT SYSTEM** | Excavation support systems which are temporary earth retaining structures that allow the sides of the excavation to be cut vertical or near vertical. |
| **TW** | **Temporary Works**  Structural works designed, checked and erected specifically to facilitate the safe construction of the permanent works but which are not normally intended to form part of, and/or sequence necessary for the construction of permanent works. These do not normally include temporary electrics, temporary power systems, traffic management arrangements etc. Note: Temporary Works also includes stepped / battered excavations. |
| **TWD** | **Temporary Works Designer**  Responsible for the design, and design check including calculations, sketches, drawings specification, preparation of a design risk assessment and where appropriate a Designers Sequence of Works and hold points for the TW scheme and ensuring Design Check Certificates are issued.  Work with the TWC to prepare adequate design briefs and carry out checks on other designs.  For full duties including competencies refer to relevant SBU Temporary Works procedure. |
| **TWC** | **Temporary Works Coordinator**  Coordinate all temporary work activities by managing organisational interfaces to ensure effective communication between all parties. Working with the TWD to prepare the Temporary Works Register and ensure design briefs are prepared when required. Ensuring design risk assessments are carried out on every item of TW and the undertaking of temporary works inspections and issuing of permits to; proceed, load, strike or dismantle (This can be delegated in writing to the TWS)  For full duties including competencies refer to relevant SBU Temporary Works procedure. |
| **TWS (Ex)** | **Temporary Works Supervisor (Excavations)**  Responsible for engaging with the Site Team to identify temporary work activities specifically for excavations and importantly the undertaking of temporary works inspections and issuing of permits to; proceed, load, strike or dismantle, prior to works being undertaken in these regards (As delegated by the TWC).  For full duties including competencies refer to relevant SBU Temporary Works procedure. |
| **VACANT EXCAVATION** | Any completed open excavation where no work is being carried out and is pending further activity. |
| **WPP** | A Work Package Plan is similar in purpose to a Method Statement and encompasses a safe system of work for company activities to include Hold Points and specifically Temporary Works permits necessary at each key stage. |
| **REASONABLY PRACTICABLE** | Balancing the level of risk against the measures needed to control the real risk in terms of money, time or trouble. However, you do not need to take action if it would be grossly disproportionate to the level of risk. |
| **RED TEXT** | Not yet available, use current BMS for relevant document |

| INPUTS | | |
| --- | --- | --- |
| **Reference** | **Type** | **Title** |
| 1991 c.22. | Legislation | [New Roads and Street Works Act 1991](http://www.legislation.gov.uk/ukpga/1991/22/contents). |
| COP Fourth Edition, October 2012 | Guidance | [New Roads and Street Works Act 1991 Code of Practice.](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/321056/safety-at-streetworks.pdf)  Department of Transport. ISBN 978 0 11 553251 1. |
| SI 2015 No. 51 | Legislation | [The Construction (Design and Management) Regulations 2015](http://www.legislation.gov.uk/uksi/2015/51/contents/made). |
| L153. HSE 2015 | [Guidance on Regulations](http://www.hse.gov.uk/pubns/priced/l153.pdf) | The Construction (Design and Management) Regulations 2015. ISBN 978 0 7176 6626 3. |
|  | External Guidance | [Specification for Reinstatement of Openings in Highways 3rd edition](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/11042/sroh.pdf) |
| N/A | External Guidance | [Guidelines for the Opening, Backfilling and Reinstatement of Openings in Public Roads](http://www.rmo.ie/uploads/8/2/1/0/821068/guidelines_for_managing_openings_in_public_roads_september_2015.pdf) (Ireland) |
| HSG 144 | External Guidance | [Safe Use of Vehicles on Construction Sites](http://www.hse.gov.uk/pubns/priced/hsg144.pdf) |
| BS EN13374-2013 | [British Standard](https://home360.balfourbeatty.com/kc/EngTech/Pages/IHS.aspx) (IHS Link) | Temporary Edge Protection |
| BS 5975:2008+A1:2011 | [British Standard](https://home360.balfourbeatty.com/kc/EngTech/Pages/IHS.aspx) (IHS Link) | Code of practice for temporary works procedures and the permissible stress design of false work |
| [CIS47 Revision 1](http://www.hse.gov.uk/pubns/cis47.pdf) | External Guidance | Inspections and Reports |
| HSG150 | External Guidance | [Health and Safety in Construction](http://www.hse.gov.uk/pubns/priced/hsg150.pdf) |
| [GHO/HSEN/SF/018-A01](https://home360.balfourbeatty.com/ghoreferencecentre/GHO%20BMS%20Library/Standard%20006%20-%20Safe%20Excavation%20of%20Trenches.pdf) | Group Standard | Standard 006 – Safe Excavation of Trenches |
| MSC-PR-0002 | Procedure | Joint Venture/Alliance Business Management System (BMS) Assessment |
| [HSES-PR- 0007](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6986) | Procedure | Site Establishment |
| [HSES-PR-0004](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6992) | Procedure | Control of HSES Derogation |
| [HSES-PR-0003](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-5162) | Procedure | Emergency Arrangements |
| [HSF-PR-0063](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8232) | Procedure | Work at Height |
| [HSF-PR-0020](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6929) | Procedure | Confined Spaces |
| [HSF-PR-0047](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7815) | Procedure | People, Plant & Vehicle Interface |
| [HSF-PR-0067](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6989) | Procedure | Biological Hazards |
| [HSF-PR-0022](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-1113) | Procedure | Demolition |
| [HSF-PR-0063](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8232) | Procedure | Work at Height |
| [HSF-PR-0039](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8085) | Procedure | Lifting Operations |
| [HSF-PR-0015](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8637) | Procedure | Working Near Utilities |
| [ENG-PR-0101](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-12508) | Procedure | Management of Temporary Works |
| [ENV-RM-0036c](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8750) | Reference Material | Contaminated Land |
| [ENV-RM-0035a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8609) | Reference Material | Waste Management |
| HSF-RM-0016a | Reference Material | Excavation Protection |
| [HSF-TB-0016a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8595) | Toolbox Talk | Excavation Tags |
| [ENV-AL-0035c](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-9333) | Alert | Management of Contaminated Excavated Material |

| OuTPUTS | | | |
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| **Reference No.** | **Document Title** | **Retention Period** | **Responsibility** |
| [HSF-SF-0016a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8592) | 7 Day Excavation Inspection Report | 3 months | Site Lead |
| [HSF-SF-0016b](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8593) | Excavation Inspection Register |  |  |
| [HSF-TF-0016a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8594) | Excavation Authorisation for Category 1 Excavations | 3 months | Site Lead |
| [HSF-TF-0016a - GW](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-9125) | Excavation Authorisation for Category 1 Excavations - GW | 3 months | Site Lead |
| [HSF-TF-0016a-PTD](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-10170) | Excavation Authorisation for Category 1 Excavations - PTD | 3 months | Site Lead |
| [HSF-TF-0015a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8582) | Authorisation to Work Near Existing Services | Duration of the project | Works Supervisor |
| N/A | SBU specific temporary works permits | Duration of the project | Site Lead |
| [HSES-TF-0011c](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7851) | Risk Assessment | 3 years | Site Lead |
| [HSES-TF-0011d](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7852) | Work Package Plan | Duration of the project | Site Lead |
| [HSES-TF-0011h](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7856) | Method Statement | Duration of the project | Site Lead |
| [HSES-SF-0011a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7848) | Briefing Attendance Record | Duration of the project | Site Lead |