

TEMPORARY WORKS PROCEDURE

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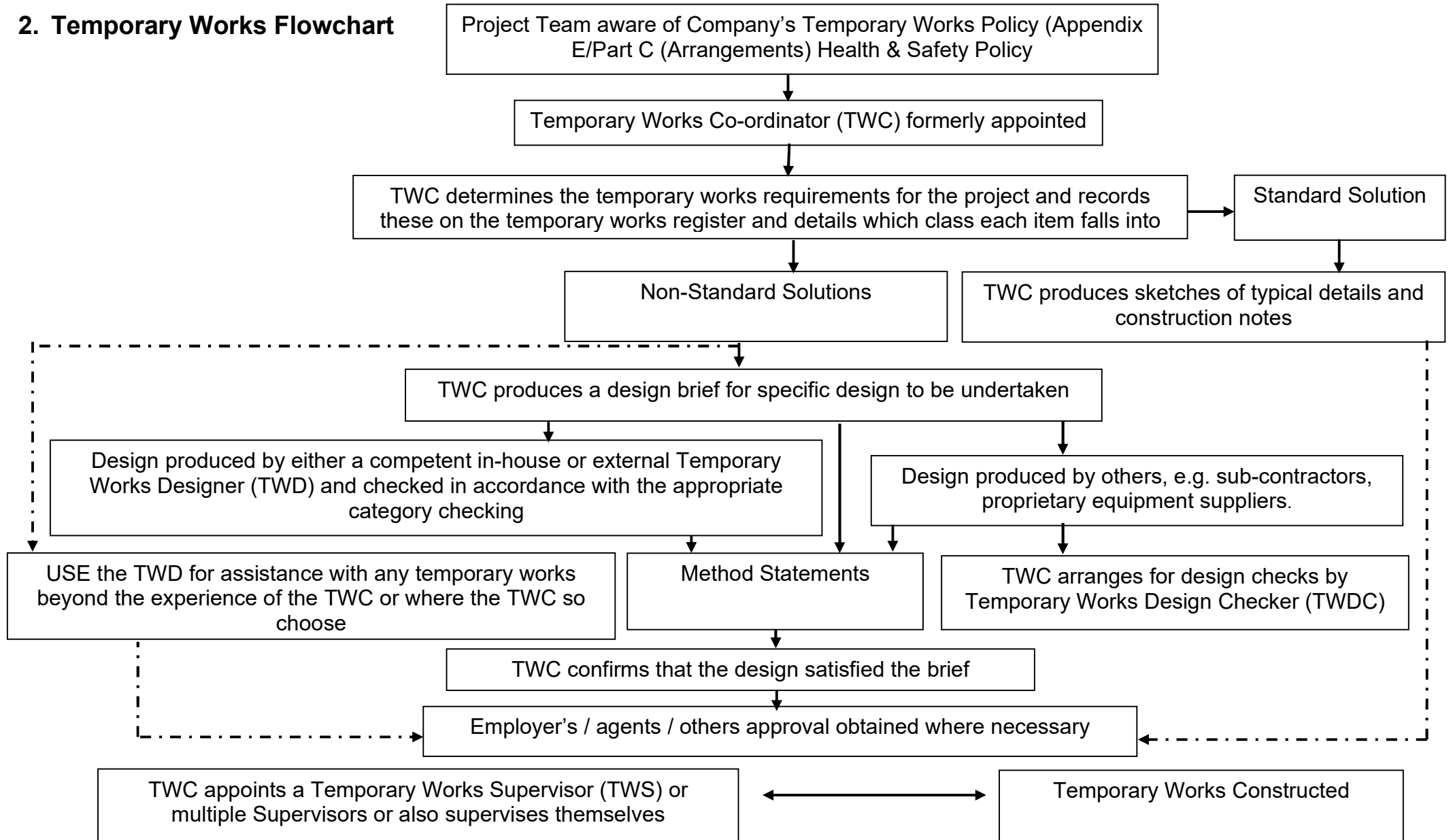
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1. Responsibilities

Job Title (*)	Responsibilities
Director with responsibility for Health and Safety	Responsible for ensuring that where temporary works are necessary, a Temporary Works Coordinator is appointed. That the process described within this policy has been followed prior to an authorised start on site. Ensuring that all relevant statutory Health, Safety and Environmental regulations and guidelines are planned, observed and implemented during the complete processes associated with temporary works
Design Coordinator	Responsible for liaising with TWC to establish the requirements, the concept and the financial repercussions of temporary works from the tendering process through to start on site, providing due consideration for the risks, the design and methods employed to address the full scope of the works
Temporary Works Coordinator	Responsible for the management and implementation of the temporary works procedures and that all such works are recorded in each site's temporary works register. The co-ordination of all temporary work activities; ensuring that the various responsibilities have been allocated; ensuring that a satisfactory temporary work risk assessment and design is carried out; ensuring that those responsible for on-site supervision receive full details of the design including any limitations associated with it; ensuring that checks are made at appropriate stages covering the more critical factors; ensuring that, during use, all appropriate maintenance is carried out after final check, issue permission to load permit if this check proves satisfactory. When it has been confirmed that the permanent structure has attained adequate strength, issue formal permission to dismantle the Temporary works.
Temporary Works Designer	Responsible for the production of individual temporary works designs and risk assessments which comply with all legislation and regulations
Temporary Works Design Checker	Responsible for an independent appraisal of temporary works produced by appointed temporary works designers, issue certification which will signify that temporary works design is satisfactory. All temporary works which carry the highest risk must be approved by the TWDC. In cases of 'simple' temporary works the TWC may provide standard solutions.
Temporary Works Supervisor	Responsible for ensuring that temporary work are constructed, loaded, altered or dismantled in accordance with the approved temporary works design.

2. Temporary Works Flowchart



3. Temporary Works Control Measures and Considerations

3.1 Introduction

The Temporary Works Procedure describes how the risk and hazards associated with Temporary Works are identified, classified and controlled.

The appointment of staff responsible for identifying, controlling, designing and constructing Temporary Works is described, together with their duties and responsibilities.

The process is shown in a flow chart, which clearly recognises the importance of close management control of the process.

The importance of communication between all parties should be specially noted to ensure safe, practical and economic Temporary Works solutions.

3.1.1 Definition of Temporary Works (TW)

Temporary Works is any temporary structure required to construct a permanent structure or used to support a permanent structure during its erection until it becomes self-supporting. This definition applies to all temporary works including formwork for concrete construction, bridge falsework and erection, cofferdams, structural refurbishment and jacking, facade retention schemes, temporary bridges, de-watering, ground support (including sheet piling and other forms of support scheme) scaffolding, hoarding and fencing. Note should be made that permanent works in an incomplete state may be classified as Temporary Works.

3.1.2 References

- Provision of Use of Work Equipment Regulations 1998
- Construction (Design & Management) Regulations 2015
- Management of Health & Safety at Work Regulations 1999
- BS 5975:2008 + A1: 2011 – Code of Practice for Temporary Works Procedure and the Permissible Stress Design of Falsework
- EN12811-1 – Code of Practice for Access and Working Scaffolding and Special Scaffold Structures in Steel 1993
- CIS56 – Safe Erection, Use and Dismantling of Falsework
- CC & HSE guides – examples – excavation, scaffolding, safety nets
- RR834 - Preventing Catastrophic Events in Construction 2011
- RR319 – Safer Foundations by Design – 2004

3.1.3 Hazard Identification and Risk Assessment

The hazards associated with Temporary Works are usually those of collapse and/or failure of the equipment in place. These failures occur mainly as a result of:

- Lack of effective communication
- Poor design
- Use of unsuitable or insufficient materials and equipment
- Lack of knowledge and inexperience of persons involved in Temporary Works design and/or erection/maintenance.
- In particular the causes of failure fall into a number of well-defined areas
- Incorrect estimation of load to be supported
- Design error or leading programme changed after design completed
- Inadequate maintenance
- Inadequate detailing and/or execution of points of load transfer
- Inadequate horizontal and/or diagonal bracing to resist lateral loads
- Inadequate foundations
- Uncontrolled changes

3.1.4 Risk Checklist

- Risk to persons from collapsing structures (fall into)
- Risk to persons falling from collapsing structures (fall from)
- Risks to persons being hit by falling materials
- Risk of excavation collapse
- Risk of plant/equipment damage arising from any of the above
- Risk to persons handling equipment (manual handling injuries)

3.2 Control Measures

3.2.1 Introduction

The control measures required for the safe operation of all Temporary Works are listed here as headings. The specific details in relation to the controls are contained in procedures, which follow, and the affixed flowchart.

3.2.2 Control of Temporary Works

The allocation of duties and responsibilities to competent staff for all Temporary Works activities. The formal appointment, in writing of persons to carry out individual duties.

The maintenance of a Temporary Works register.

The preparation of the concept and design brief based on hazard identification and risk assessment.

The formal allocation of individual responsibilities to:

- (a) Temporary Works Co-ordinator
- (b) Temporary Works Designer
- (c) Temporary Works Design Checker
- (d) Temporary Works Supervisor

The checking of all materials for adequacy, prior to erection.

The formal checking of the Temporary Works design and inspection before any works or loadings commence.

3.2.3 Temporary Works Procedures

Duties and Responsibilities of Staff for Temporary Works

It is essential that those involved with Temporary Works at any state in the process are fully aware of their duties and responsibilities. These must be clearly defined by the Temporary Works Co-ordinator when they appoint the individuals concerned.

The Main Items of Responsibility

- Responsibility must be allocated for the following key elements of the Temporary Works:
 - (i) The concept of the scheme
 - (ii) The design brief
 - (iii) The design – drawings and specification etc.
 - (iv) Checking of the design
 - (v) Integration of the Temporary Works design with the Project design
 - (vi) Adequacy of materials used
 - (vii) Communicating details to those who need to know
 - (viii) Site control of erection, maintenance and dismantling
 - (ix) Checking of site control
 - (x) Authority to use or remove
- Formal appointment of Persons to Carry out Individual Duties
- Must appoint suitably experienced individuals to carry out all the key elements of the Temporary Works.
- The appointment will be confirmed in writing to each individual, giving clear instructions on their duties, responsibilities and authority
- Trade Contractors' personnel may be appointed as TWC or TWS. However, when appointing trade contractors' staff, management should

assure themselves as to the competence of the individual in relation to the role they are expected to fulfil, this should involve some element of performance appraisal. Once appointed, individuals must be formally briefed with regard to all aspects of their responsibilities and the content of this policy.

- The following appointments must be made for every Contract, or for separate parts of the Contract depending on the nature and extent of the Temporary Works:
 - (i) Temporary Works Co-ordinator (TWC)
 - (ii) Temporary Works Designer (TWD)
 - (iii) Temporary Works Design Checker (TWDC)
 - (iv) Temporary Works Supervisor (TWS)

It will normally be the case on large projects that the TWC and TWS are based on site. However, on medium size and small projects the individuals may be appointed on a visiting basis.

3.3 Temporary Works Register

3.3.1 Introduction

The TWC will maintain an up-to-date register of all the items of Temporary Works on the site with each item classified as defined. An example of a Temporary Works Register is attached at Appendix A of this procedure.

The purpose of the register is to ensure that each item of Temporary Works, is formally identified, designed and checked.

The register shall be established at each contract handover meeting and updated as necessary by the TWC throughout the duration of the contract.

3.3.2 Classification of Temporary Works

A Risk Assessment will be carried out for all Temporary Works. All Temporary Works will be designed and checked. Those Temporary Works which are so minor as not to require registering e.g. Shallow trenches for drainage below 1200mm in depth; formwork less than 1200mm in height need not be defined.

Each item of Temporary Works shall be assessed and classified by the TWC as defined below, to fix the level of design and checking necessary.

Categories of Design Check (taken from BS 5975:2008)

Category	Scope	Comment	Independence of Checker
0	Restricted to standard solutions only, to ensure the site conditions do not conflict with the scope of limitations of the chosen standard solution	This applies to the use of standard solutions and not the original design which will require both structural calculations and checking to category 1, 2 or 3 as appropriate	Because this is a site issue, the check may be carried out by another member of site or design team.
1	For simple designs. These may include: formwork, false work (where top restraint is not assumed), needling and propping to brickwork openings in single storey construction	Such designs would be undertaken using simple methods of analysis and be in accordance with the relevant standards, supplier's technical literature or other reference publications	The check may be carried out by another member of the design team
2	On more complex or involved designs. Designs for excavations, for foundations, for structural steelwork connections, for reinforced concrete	Category 2 checks would include designs where a considerable degree of interpretation of loading or soils' information is required before the design of the foundations for excavation support or slope	The check should be carried out by an individual and not consulted by the designed
3	For complex or innovative designs, which result in complex sequences of moving and/or construction of either the temporary works or permanent works	These designs include unusual designs or where significant departures from standards, novel methods of analysis or considerable exercise of engineering judgement are involved	The Check Should be carried out by another organisation

*See Appendix F for practical examples of works in each category

3.4 The Concept and Design Brief for Temporary Works

3.4.1 The Concept

The Concept of the Temporary Works will be established by the TWC and a Risk Assessment will be carried out in conjunction with the TWC and TWD following full consultation with the TWS as to the preferred method of construction, the choice of materials or systems, plant and labour and any access problems which may exist.

The nature and scope of the Permanent Works will also be a major consideration in the choice of scheme – particularly any stated sequence of working or time related restrictions called for in the project. It is important therefore that the Designers and the relevant Statutory Bodies are consulted where appropriate during the formulation of the concept to prevent adoption of unacceptable methods and materials.

3.4.2 The Design Brief

The TWC will prepare the design brief and carry out a Risk Assessment and confirm its sufficiency with the TWD.

The full details of the Permanent works, site ground conditions, possible change to ground conditions (e.g. after rain), adjacent overhead or underground services and any other relevant information, should form a complete statement of the working performance required of the Temporary Works and the circumstances affecting them.

The design brief should also include a control programme, which will define who provides what and when.

All communication must be channelled through the Temporary Works Co-ordinator, who is authorised to apply and progress the requirements of the brief and the programme.

At all stages, from design brief to dismantling of the Temporary Works, it is necessary to check that the information being used is correct and that the work is carried out as specified. Changes in the requirements of the design brief should be recorded as well as being incorporated in the design drawings.

As specialist equipment suppliers accept virtually no responsibility for the use of equipment, particular attention should be given to the physical and functional interfaces between these suppliers and any Temporary Works controls defined.

The health and safety aspects of design need to be communicated to, and where necessary discussed with, the Principal Designer so as to:

- (i) Avoid or reduce risks arising from any interaction with the works of other involved in design and planning
- (ii) Enable the information to be incorporated into the Health and Safety Plan

The person responsible for communication this information will be the Temporary Works Co-ordinator.

3.4.3 Design Brief Checklist

- Drawings of Permanent Works, including relevant specification
- Soil and ground water conditions
- Details of site conditions, including services and access
- Preferred methods of construction and dismantling
- Available materials, equipment and plant
- Particular loads, including impact
- Control programme
- Acceptance of tolerances

3.5 The Temporary Works Co-ordinator

Who is suitable?

- (i) Formally qualified (e.g. Structural Engineer)
- (ii) Sufficiently experience to recognise the need for Temporary Works (TW)
- (iii) Acknowledged experience and knowledge of the construction methods to be used.
- (iv) Who recognises limits to their technical abilities and when to request assistance
- (v) A competent communicator and administrator

Responsibility to carry out:

- (i) Control and co-ordination of all TW activities
- (ii) Communication of information amongst all the parties involved in TW
- (iii) Registration and recording of all correspondence and documents relating to TW
- (iv) Preparation of a meaningful and comprehensive design brief
- (v) Progress monitoring at all stages
- (vi) Verification of the design and the construction methods

To ensure that:

- (i) The design is checked
- (ii) The methods and materials satisfy the requirements of the design
- (iii) Changes and corrections are designed, verified and carried out as required.
- (iv) Inspections are carried out at critical stages during construction and before loading
- (v) The strength of the Permanent Works is adequate to permit removal of the TW
- (vi) Formal permits to Load/Dismantle are issued

(vii) Liaison exists with the Principal Designer

Authority to enforce the requirements of:

- (i) The Company Safety Policy
- (ii) The Contract
- (iii) The design brief
- (iv) The design approval

3.6 The Temporary Works Designer

Who is suitable?

- (i) An appropriately qualified and experienced consultant
- (ii) A supplier's or sub contractor's design office which has appropriately qualified and experienced staff

Responsibilities to produce:

- (i) A conforming design – which satisfies all the requirements of the design brief
- (ii) Detailed documents – comprehensive and easily understood by those using them
- (iii) Resolutions to technical queries
- (iv) Design changes – as requested by the TWC
- (v) An appreciation of the effects of the TW on the Permanent Works
- (vi) Design notes to highlight all critical stages of construction and necessary checks

Duties:

- (i) To conform to codes of practice and design standards appropriate to the Works
- (ii) To produce a safe, economic design within the timescale of the programme
- (iii) To liaise fully with the TWC to resolve any queries
- (iv) To consult recognised specialists when required to expedite the design, as agreed with the TWC
- (v) To liaise with the CDM Principal Designer, through the TWC
- (vi) To advise the TWC of any risks (erection, use, dismantling) not obvious to a competent contractor

3.7 The Temporary Works Design Checker

The Temporary Works Design Checker must be independent of the Temporary Works Designer.

In all cases of Temporary Works design, a suitably qualified and experienced Engineer will be appointed in this capacity.

In the case of 'simple' Temporary Works, the TWDC role may be undertaken by any competent person independent of the Designer.

The qualifications, duties and authority of the TWDC are similar to that of the TWD. The responsibility of the TWDC is to verify the design and confirm that to the TWC.

3.8 The Temporary Works Supervisor

Who is suitable?

- (i) A Contracts Manager, a Project Manager, a General or Trade Foreman or Site Supervisor who:
 - (a) Is suitably qualified and experienced – able to spot potential hazards;
 - (b) Has acknowledged relevant experience of the construction method;
 - (c) Is technically able – can understand the drawings and methods involved.

Responsibilities:

- (i) Safety at all times – especially during erection, use and dismantling of TW
- (ii) To contribute to the design brief – method, skills, plant materials, access, etc.
- (iii) To ensure the standard of workmanship is good – careful attention to detail
- (iv) To supervise erection, loading and removal in the correct sequence
- (v) To activate the checking procedures called for by the design and the Contract
- (vi) To organise the Works – to meet programme

Duties:

- (i) Safety
- (ii) To understand the drawings
- (iii) To ask for more detail from the TWC if not completely sure of what is required
- (iv) To recognise the authority of the TWC and carry out his/her instructions
- (v) Not to change any details or method unless with the written agreement of the TWC
- (vi) To advise the TWC of unforeseen conditions, impractical details etc if they arise.

Authority:

- (i) To organise all construction activities relating to the Temporary Works
- (ii) To enforce the checking regime required by the TW design and the Contract

3.9 Checking of Temporary Works

Checking is essential at every stage of Temporary Works, from initial concept, through design stage, to erection, use and dismantling.

The result of all inspections and checks will be recorded in writing and action taken to correct any faults.

Checking will be carried out in a systematic manner with reference to checklists. Return inspections to verify the correction of faults will follow the same systematic routine to check every feature that could have altered in the intervening period.

Particular care will be taken to ensure that above the obvious technical load bearing properties of the Temporary Works, the safety of the people involved with constructing them is assured. The adequacy of access ways and working platforms and their edge protection measures must be paramount considerations.

Statutory requirements must be met at all stages of the process.

All Temporary Works designed or erected by sub-contractors must be checked by the TWC for the site using the same regime of checks.



Temporary Works Design/Checking Brief

APPENDIX B

Project / Contract Address:	Contract No:				
Name of Person who prepared this brief:	Telephone No:				
	Fax No:				
Temporary Works Scheme Details: (Description of purpose of TW)					
	Class of Temporary Works (0,1,2 or 3):				
Site Information Attached: Location plan showing position of TW Service location plan Details of any adjacent structures	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	List attached documents or state details			
Geotechnical Information Boreholes/trial pits Location Plan Interpretive report/Lab test results Groundwater information	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	List attached documents or state details			
Design Requirements / Considerations Site sketch of proposed TW Relevant permanent works drawings Relevant permanent works specification Special loading Access requirements Construction phasing Duration of temporary works Programme requirements Environmental constraints/considerations Special constraints	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	List attached documents or state details			
Project Preferences Details of any preferred supplier / subcontractor Details of any suitable materials available on site	List attached documents or state details				
Deliverables (Please specify minimum requirements to avoid delays and additional cost)					
Drawing	<input type="checkbox"/>	Calculations	<input type="checkbox"/>	Report	<input type="checkbox"/>
Check Certificates: Third Party	<input type="checkbox"/>	Design & Check Other	<input type="checkbox"/> <input type="checkbox"/>	Please specify:	
Date Required By: (If required)					
Preliminary issue for review: _____			Final issue for construction _____		

Temporary Works Permit

APPENDIX C

Project Name		Date
Project Address		Permit No.
Name of TWC		Employed by
Address		
Tel. No.		E-mail
Specialist Contractor (where applicable)		
Address		
Tel. No.		E-mail
Name of TWS		
Tel. No.		E-mail
Description of temporary works, or design brief No.		
Temporary works specific location, section, gridline reference, etc.		
Pre-erection arrangement checks:		
Temporary works drawings, specifications, calculations, Risk Assessments, Safety controls, Safe Method of Work		Date
On-site supervision have received full details of the design, including any limitations and guidance notes		Date
Recorded in the Temporary Works Register for the project.		Date
* Proceed. Having checked pre-erection arrangements for the temporary works, I certify that, to the best of my knowledge and experience, the temporary works arrangements are sufficient to allow the temporary works to proceed.		
* Alteration, adjustment, maintenance and use. Having checked the temporary works progression, I certify that, to the best of my knowledge and experience, the temporary works have been altered, adjusted, maintained and used in accordance with design requirements and Method of Work.		
* Load. Having checked the temporary works construction and erection is in accordance with design requirements, permission is given to load the temporary works within the limits of the design.		
* Permit to dismantle. The permanent works, which have been constructed using the Temporary Works as described above, are now sufficiently advanced and have achieved adequate strength and stability. Permission is granted for the dismantling and removal of Temporary Works in accordance with design requirements and Method of Work.		
TWC Signature	Date	Time

*Delete where necessary

APPENDIX D

**CERTIFICATE OF APPOINTMENT
TEMPORARY WORKS CO-ORDINATOR**

We hereby certify that:		
Employed by:		
is appointed for the purposes of planning and co-ordinating all temporary works as set out in the Temporary Works Register attached, for the period of validity of this certificate.		
Date of Issue:	Date of Expiry:	
Contract for which Authorisation is valid:		
<p>Authorised to carry out the following:</p> <ol style="list-style-type: none"> 1. Issue Solutions for Temporary Works 2. Issue Permit to proceed with Temporary Works 3. Issue Permits to Load Temporary Works 4. Issue Permit to Alter Temporary Works 5. Issue Permits to Dismantle Temporary Works 6. Carry out or witness suitability tests (load bearing etc) 		
Designated Company Authoriser:	Date:	
Director (Responsible for Health and Safety):	Date	
Special Remarks		
<p>I certify that I fully understand the limits of my authority as specified above. I undertake to carry out all procedures in accordance with BS5975: 2008 Code of Practice for Temporary Works Procedures.</p>		
Date:	Signed:	

APPENDIX E

**CERTIFICATE OF APPOINTMENT
TEMPORARY WORKS SUPERVISOR**

We hereby certify that:			
Employed by:			
is appointed for the purposes of supervising all temporary works as set out in the Temporary Works Register attached, for the period of validity of this certificate.			
Date of Issue:		Date of Expiry:	
Contract for which Authorisation is valid:			
Temporary Works Coordinator:			Date:
Director (Responsible for Health and Safety):			Date:
Special Remarks			
I certify that I fully understand the limits of my authority as specified above. I undertake to carry out all procedures in accordance with BS5975: 2008 Code of Practice for Temporary Works Procedures.			
Date:		Signed:	

APPENDIX F

RISK CLASSES OF TEMPORARY WORKS

High Risk

- Falsework and formwork over 3m high
- Hoarding and fencing over 3m high
- Facade retention schemes
- Complex designed scaffold
- Complex propping schemes – multiple props and multiple levels
- Needling of structures greater than 2 storeys high
- Working platforms for cranes and piling rigs; tower crane bases
- Ground support schemes greater than 3m deep
- Trenchless construction including heading, thrust bores, mini tunnels
- Cofferdams
- Complex structural steelwork and pre-cast concrete erection schemes

Medium Risk

- Hoardings and fencing up to 3m high
- Simple designed scaffolds
- Falsework up to 3m high
- Formwork for concrete columns and walls up to 3m high
- More complex propping schemes – multiple props at single level
- Needling of structure up to 2 storeys high
- Foundation underpinning not using piles
- Excavations up to 3m deep in good ground
- Safety net systems fixed to robust primary members
- Temporary roofs

Low Risk

- Internal hoarding system and temporary partitions not subject to wind or differential air pressure or crowd loading
- Fencing and hoarding up to 1.2m high
- Standard scaffold
- Formwork less than 1.2m high
- Shallow excavations less than 1.2m deep in good ground
- Simple propping schemes – 1 or 2 props
- Small MEWPs operating on a pavement designed for HGV's or on internal ground bearing slabs and working within the level of tolerances set by the manufacturer.