Network Rail

King's Cross Station Redevelopment Programme Package 6 GRIP 5

Civil Specification Volume 4: Structural Concrete

Job Number 123345-00

Document ref
ENG-SPE-G5-OAP-006-CSTR-0146

Issue 2.0

Issue for Construction

CCMS Number: 6231937

Network Rail

King's Cross Station Redevelopment Programme Package 6 GRIP 5

Civil Specification Volume 4: Structural Concrete

March 2008

Ove Arup & Partners Ltd
13 Fitzroy Street,
London W1T 4BQ
Tel +44 (0)20 7636 1531 Fax +44 (0)20 7755 2044
www.arup.com

Job number 123345

ARUP

Document Verification

Job title	King's Cross Station Redevelopment Programme Package 6 GRIP 5	Job number	123345
Document title	Civil Specification Volume 4: Structural Concrete	File reference	4-05
Document ref	ENG-SPE-G5-OAP-006-CSTR-0146		

Revision	Date				
Issue 1	07/12/07	Filename	ENG-SPE-G5-OAP-006-CSTR-0146.doc		
		Description	Issue for Tender		
			Prepared by	Checked by	Approved by
		Name	Kenneth Wiseman	Derek Smyth	John Batchelor
		Signature			
Issue 2	04/03/08	Filename	Civil Specification Volume 4 Structural Concrete Issue 2.0.doc		
		Description	Network Rail Comments Incorporated. General Review prior to Construction issue. Issued for GRIP 5B Production Information.		
			Prepared by	Checked by	Approved by
		Name	Kenneth Wiseman	Bryan Marsh	John Batchelor
		Signature	Ken Wiseman	B.M.	J Batchelor
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			

Issue Document Verification with Document ✓

Contents

General

i) The specification for the concrete structures shall be the National Structural Concrete Specification for Building Construction (NSCS) Third Edition.

ii) NSCS Part 2 is provided by the Employer and identifies the appropriate information specific to the structure over and above that stated in the NSCS Part 1. Some clauses in Part 1 may be modified by information in Part 2.

iii) Concrete works contracts are subordinate to the Network Rail 12 Contract between Network Rail Infrastructure Limited (the Employer) and the Main Contractor.

iv) The Employer's Representative (ER) is such person(s) as may be nominated by the Employer to act as such for the purposes of the Contract. Refer to the Network Rail 12 Contract for the Works. In this specification, delete all references to "Employer", "Contract Administrator" and "Engineer", and replace with "Employer's Representative".

v) This Specification is to be read together with the General Notes Drawings, and with all other Structural and Civil Specifications and all other Contract Documents. Where exposed concrete finishes are required this Specification shall be read together with the relevant Architectural Specifications.

Definitions

Design drawings	Drawings produced by the ER's design team
GNH	Great Northern Hotel
LPR	Link Plant Room
NTH	The existing Northern Ticket Hall of King's Cross Underground Station
STS	Suburban Train Shed. For the purposes of this specification, this is taken to mean only the South End in the vicinity of Gridlines T1-T3/TA-TB.
WCC	Western Concourse. Several elements make up the Western Concourse and these are referred to as the WCC Mezzanine (including the suspended floor at first level, and the canopy over this floor), the and WCC link bridge (between the WCC Mezzanine and the West Range Buildings). The WCC Roof (including the vertical glazed side walls) refers to the early steelwork package and is excluded from this specification.
Working drawings	Drawings produced by the contractor, or (if referenced "by others") produced by contractors who interface with the works covered by this specification.
WRB	West Range Buildings: The Grade I listed buildings on the west side of the Main Train Shed of King's Cross Station

SECTION P1

Information to be supplied to the SCC

P1.1 PROPOSED WORKS

The Project is the redevelopment of the Railway Station at King's Cross, Euston Road, King's Cross, London, N1 9AL.

These elements of the project involve:

- A new "Western Concourse" to be built to the west of the West Range Buildings of King's Cross Station over the top of the existing Northern Ticket Hall. Apparently a long-span steel structure, this will include substantial amounts of concrete, including:
    - Piled foundations and capping beams around the perimeter of the NTH. These will contain cast-in holding-down bolts for the tree columns of the WCC long-span roof. The tree columns transmit substantial overturning forces onto the foundations via the bolts, and horizontal shears which must find a load-path axially through the radial and circumferential ground beams to the roof of the NTH.
    - Lengths of "cut and cover" subway tunnel linking the NTH to the remains of the Parcels Tunnel and to the WRB, in the north-east. These are to be in water-resisting concrete.
    - A ground level slab to form the floor of the public railway concourse. This consists of portions of reinforced concrete slabs spanning between ground-beams, of ground-bearing slabs on grade, and ground-bearing slabs on the roof slab of the NTH
    - Lift shafts between the NTH at ground level and the proposed WCC Mezzanine at first floor level. These act as shear elements to laterally stabilise the Mezzanine floor and its local roof canopy.
    - Composite light-weight concrete on profiled metal decking to form the first floor of the WCC Mezzanine, supporting retail spaces and public area.
- A remodelled south end to the STS. This will involve demolition of the existing south gable wall and construction of a new steel portal frame roof to connect between the STS and the new WCC. The steel portal will be founded on concrete piles and pile caps, and the roof slab will be formed from composite lightweight concrete on profiled metal decking. These works will be closely associated with a new mezzanine floor with glazed roof to a pub proposed in the West Range Buildings (WRB). This will also involved concrete foundations and composite suspended slabs.
- Various interventions, modifications or strengthening to the existing Grade 1 listed WRB. These range from very significant works at the south end and immediately north of the "Bomb Gap" (where substantial portions of the existing buildings are being demolished, requiring significant temporary works to support the adjacent retained elements, and new reinforced concrete frames are being inserted to change the structural arrangement of the building), through to minor works such as new concrete lift shafts, stairs and reconstructed floors.

P1.2 DESIGN

i. The design is in accordance with BS 8110.

ii. General loading and other design data:

Refer to the loading plans for design loads

Design Data	Units	Location Buried Concrete	Location Ground Bearing	Location Suspended concrete	Location Lightweight concrete
Fire rating	mins	N/A	N/A	60 or 120 – see drawings	60
Durability	BS8500-1 Table A.1	XC3/4	XC1	XC1	XC1 (XC3/4 on roofs)
Design life	years	120 for new works			
Maintenance/ replacement assumptions		No maintenance will be undertaken			
Other		Water Resisting			Lightweight
Notes					Where indicated on the Drawings

P1.3 DRAWINGS and CALCULATIONS

Item		Preparation		Tender issue	Acceptance issue		Construction issues	
Type	**Type of construction (*2)**	**Prepared by**	**Format P: paper E: electronic**	**Number of copies**	**Number of copies**	**Period before construction (weeks)**	**Number of copies**	**Period before construction (weeks)**
General arrangement drawings	RC	ER	P (E on request)	[2]			[5]	[11]
Design Information drawings	RC	ER	P (E on request)				[5]	[11]
Erection drawings	RC	Contractor	P	[2]			[5]	[11]
Design calculations	RC	ER						
Specialist drawings†	RC	Not required						
Reinforcement drawings and schedules	RC	ER	P (E on request)				[5]	[5]
Coordinated builders work drawings	All	Contractor	P		[3]	[4]	[5]	[2]
Temporary works drawings and/or calculations	All	Contractor	P		[3]	[4]	[5]	[2]
As-built drawings	All	Contractor	P and E – Cad drawings to Project Standard				[3]	[3] months after completion

Notes
1. Default values are shown in [ ]. Changes should be entered leaving the default value to show the change.
2. *Delete as appropriate.
3. †Enter details as required.
4. ** Types of Construction:-
   RC: Reinforced concrete.
   PCC st: Precast concrete standard products.
   PCC sp: Precast concrete special purpose-made products.
   PSC: Prestressed concrete.

P1.4 MATERIALS

P1.4.1 Concrete

There are no specific requirements for materials: special aggregates, cement sources, etc.

P1.4.2 Other materials

Refer to the Technical Preliminaries for any materials supplied by the Employer:

P1.5 PROJECT REQUIREMENTS

i) The following special requirements apply:

Part 1 Clause reference	Change N: New D: Deleted M: Modified	Description
Definitions	M	*Temporary Works drawings;* Add: "**and all special stability requirements**" after "**propping**".
1.2.1	M	*Add the following:* **The SCC shall be a registered member of SpeCC (www.specc.co.uk/)** in Sector 1.
2.4 iv)	M	Delete: "**or faces of excavations**" and add "**or as shown on the drawings**" after "**CA**".
2.4.1	N	**Work below Ground** • Vertical faces of strip footings, bases and slabs may be cast against faces of excavation, provided that "GEN2" back-blinding is applied to the face to provide a stable face and to compensate for any overdig. Coat the face of the back-blinding with 1 coat of bitumen paint to isolate the structural concrete from shrinkage effects. • Faces of walls must be cast against formwork.
3.1.2 iii)	M	Replace: "**……quality management system to ISO 9002…**" with "**…management system to BS EN ISO 9001**"
3.1.4 ii)	M	Remove: "**…..shall be registered members of the UK CARES Quality Assurance scheme…..**" and replace with "**…..shall hold a relevant valid CARES certificate of approval…**"
3.1.4 iii)	N	All couplers shall be covered by a relevant CARES Technical Approval or other relevant product approval from an appropriate UKAS accredited product certification body.
3.1.5	M	Add: "**Continuity strips shall be covered by a relevant CARES Technical Approval**."
3.2.1	M	Delete: "**prior written**" before "**agreement**".
3.2.2	M	Tying and Welding should be separated into the two components as they are really quite separate in terms of content [and importance]. 3.2.2 becomes 'Tying'.
3.2.2 ii)	D	Delete: Sub-clause ii).
3.2.4	N	Add: New clause "**Welding**".
3.2.4.1	N	**General** Welding of reinforcement shall be carried out in accordance with the requirements of BS EN 287-1, BS EN 288-3 and BS EN 1011-2, and Appendices 6 and 10 to the CARES Steel for the Reinforcement of Concrete Scheme. Welding procedures and welder qualifications shall be subject to the agreement of the ER.

Part 1 Clause reference	Change N: New D: Deleted M: Modified	Description
3.2.4.2	N	**Tack Welding** Tack welding on site will not be permitted, other than in particular circumstances for which special approval must be sought. Only firms that have achieved certification to CARES Appendix 6 – Quality schedule for the tack welding of reinforcing steel, shall be permitted to bid for or undertake contracts to supply pre-assembled tack welded fabrications. Where tack welding is proposed for reinforcement with a Carbon Equivalent greater than 0.42, the appropriate procedures in BS EN 1011 must be followed.
3.2.4.3	N	**Semi-structural/structural welding** Only firms that have achieved certification to CARES Appendix 10 – Quality and operations assessment schedule for the manufacture of pre-assembled welded fabrications using welded semi-structural and/or structural joints, shall be permitted to bid for or undertake contracts to supply pre-assembled welded fabrications.
4.6.2.1	M	Replace: "**levelled**" with "**levelled and screeded**"
7.1 iv)	N	In the following clauses values of PD are modified where relevant by those given in 7.5.
7.2.2	M	Amend existing clause to read: "**The linear dimension L of formed elements (including beams, columns, walls, openings etc) shall be accurate to……..**"
7.5 i) and ii)	M	Amend diagrams to show offset from outside face
7.6	M	i) Delete: "**and an allowance ……..for deflection**". ii) Amend: "**15mm**" to "**25mm**". iv) Amend: "**15mm**" to "**10mm**". v) Amend: "**10mm**" to "**6mm**". For many projects it will be appropriate to delete: "**are for…….finishes and**" .
7.6 v)		"**Slabs/beams as shown on the drawings are to be precambered by the amount shown on the drawings.** **Unless agreed otherwise floor panels are to be cambered in two directions to produce a 'dome' ".**
7.7	M	Amend heading**:** "**CAST-IN FIXINGS, CAST-IN SLEEVES, PIPES ETC**". Replace: "**10mm**" by "**6mm**".

Part 1 Clause reference	Change N: New D: Deleted M: Modified	Description
7.9 ii)	M	Replace: Headings to table by "**Specified D**" and "**Permitted Deviation mm**". Replace: "**?**" in diagram with "**D**".
7.10	M	Delete: "**but at…… face**".
7.13		

ii) The timings given in Part 1 apply to all approvals except as noted below, or as defined in the Technical Preliminaries.

Part 1 Clause reference	Item	Requirements
1.1.4	Response by ER to approval request	[1 week]
1.3.1	Copies of test results	[3 No.]
1.3.3	Proposal and response time for work rectification	[1 week & 1 week]
3.2.1	Notice to ER for site changes to reinforcement	[1 day]
4.3.2	Duration of special protection	[Contract]
4.5.1	Notice to ER for concrete pour inspection	[1 day]

P1.6 WATER-RESISTING CONSTRUCTION

The required performance for water-resisting construction is to be achieved by the use of materials and details listed below, or the equivalent as approved by the Employer's Representative, and as shown on Design Drawings.

Location	Item	Manufacturer	Product
Raft Slabs and walls of "cut and cover" tunnels	Waterproofing membrane to outside	Grace Construction Products	Preprufe 300R
	Waterstop to construction joints/movement joints	Grace Construction Products	Serviseal K320
	Movement Joint Filler	Grace Construction Products	Aerofil 1 + Vertiseal
Suspended Slabs over "cut and cover" tunnels	Waterstop at Construction/ movement joints at horizontal suspended slab / vertical wall junction	Grace Construction Products	Custom jointing piece by manufacturer between Serviseal K320 and Servitite 305
	Waterstop to construction joints/movement joints	Grace Construction Products	Servitite 305
"Cut and cover" tunnels	Construction joints with existing construction	Grace Construction Products	Two layers of Adcor 500S

Ground bearing slabs in Western Concourse and West Range Buildings; new or replacement ground-bearing basement slabs in West Range Buildings	Damp-proof membrane	Visqueen High Performance DPM	Visqueen High Performance Damp Proof Membrane laid on blinding and coverd by Visqueen Protection Board before concreting.
	Movement Joint Filler	Grace Construction Products	Aerofil 1 + Vertiseal
Ground bearing slabs in West Range Building Basement	Construction joints with existing construction	Grace Construction Products	Two layers of Adcor 500S
Foundation slabs and pits in West Range Building Basements	Waterstop to construction joints/movement joints	Grace Construction Products	Serviseal K320
	Construction joints with existing construction	Grace Construction Products	Two layers of Adcor 500S
Roof slab over Network Rail Plant Room (NRPR)	Waterproofing membrane to outside	BASF Construction Chemicals (UK) Ltd	Conipur M810 spray-applied membrane with 2.0mm thick DFT covered in red GRC warning tiles bedded in bitumen.

P1.7 SURFACE FINISHES

Refer to the Architectural Specification ENG-SPE-G5-OAP-KX6-CBSA-1020 for *Finishes to In Situ Concrete - Architectural Requirements* for exposed surfaces where aesthetic or slip resistance considerations apply. Elsewhere, unless noted otherwise on the construction drawings, provide:

- Formed finishes where concrete surface is visible (including where painted): Type B
- Other formed finishes: Type A
- Unformed finishes buried: Type U1
- Unformed finishes to tops of upstands, plinths and recesses: Type U3
- Unformed finishes elsewhere: Type U2

P1.8 CONCRETE

P1.8.1 Designated concrete

In accordance with BS 8500-2:2002

1.	Concrete designation (Ref BS 8500-1:2002 Clause A.4)	RC40	GEN1	FND3
2.	Maximum aggregate Size(mm) Enter 10 or 40 if required)	20	20	20
3.	Consistence class – slump			
4.	Special restrictions on cement types (enter reference if required)	None	None	None
5.	Special requirements for aggregates (enter reference if required)	None	None	None
6.	Use of RCA permitted Maximum mass fraction of total coarse aggregate where allowed enter a higher mass fraction of total coarse aggregate (Ref BS 8500-1 Clause 4.2.3c)	No	Yes 20%	Yes 20%
7.	Requirements for accelerated or retarded set			
8.	Special colour requirements			
9.	Type and closage of fibres	None	None	None
10.	Chloride class (enter Cl0,20 if SRPC is specified or Cl0,10 for prestressed or heat cured concrete)	Cl0.30	Cl0.10	Cl0.10
11.	Minimum air content			
12.	Method of placing concrete			
13.	Requirement for finishing concrete	See P.1.7	See P.1.7	See P.1.7

Notes
1. All sections of the specification must be completed before it is passed to the producer. The person sending the final specification to the producer must send copies of the document to the ER as appropriate who have contributed to the specification.
2. Where 'None' is entered in the table this is a default value to ensure that the specification is complete. All those involved in completing the specification need to check if 'None' is appropriate.
3. Guidance on specification of designated concrete can be found in BS 8500-1 section 4.2.

P1.8.2 Designed Concretes

In accordance with BS 8500-2:2002 and BS EN 206-1:2000

	Concrete designation	**C40WR**	**LC35**	**C05FC**
2.	Strength class (see BS8500-1:2002 table A20)	C32/40	LC35/38	C3/5
3.	Maximum water-cement ratio	0.55		
4.	Nominal maximum size of aggregate (mm) (enter 10 or 40 if required)	20	20	
5.	Minimum cement content kg/m ^{3}	300		
6.	DC-Class where appropriate	DC-3		
7.	a. Permitted cement types b. Cement group for sulfate resistance c. Cement group for chloride resistance	CIIIB or CII/B-V (min 30% fly ash)		
8.	Chloride class (enterCl0,20 if SRPC is specified or Cl0,10 for heat cured concrete)	Cl0.30	Cl0.30	
9.	Target density/density class (for lightweight and heavyweight concrete)	N/A	D1.8	
10.	Consistence class – slump (mark one value)			
11.	Method of placing concrete			
12.	Requirement for finishing concrete	See P.1.7	See P.1.7	
13.	Special requirements for cements			
14.	Special requirements for aggregates			
15.	Type and dosage of fibres			
16.	Minimum air content			
17.	Special requirements for temperature of fresh concrete			
18.	Special requirements for strength development			
19.	Special requirements for heat development during hydration			
20.	Special requirements for retarded stiffening			
21.	Special requirements for resistance to water penetration			
22.	Special requirements for resistance to abrasion			
23.	Tensile splitting strength	Not required	Not required	
24.	Other special technical requirements	None	None	
25.	Additional requirements See BS 8500-1:2000 Clause 4.3.3 Maximum drying shrinkage	0.075%	0.075%	
26.	Identity testing: Identity strength testing required (If yes then details to be added into P1.10 in accordance with BS 8500-1:Section 3 2003)	Yes	Yes	

	Concrete designation	RC40WR	LC35	C05FC
27.	Use of RA permitted If YES:- Maximum acid – soluble sulphate. Method for determination of the chloride content classification with respect to asr. Method for determination of alkali content. Any limitations on use in concrete, e.g. exposure classes, maximum mass fractions etc.	No	No	
28.	Use RCA permitted If YES:- Maximum mass fraction of total coarse aggregate. Where allowed enter a higher mass fraction of total coarse aggregate	Yes 20%	No	

Notes
1. All sections of the specification must be completed before it is passed to the producer. The person sending the final specification to the producer must send copies of the document to the ER as appropriate who have contributed to the specification.
2. Where 'None' is entered in the table this is a default value to ensure that the specification is complete. All those involved in completing the specification need to check if 'None' is appropriate.
3. Guidance on specification of designed concrete can be found in BS 8500-1 Section 4.3.

P1.8.3 Prescribed concrete

In accordance with BS 8500-2:2002 and BS EN 206-1:2000

Prescribed concrete is not required.

P1.8.4 Standardised prescribed concrete

In accordance with BS 8500-2:2002 and BS EN 206-1:2000

NOT REQUIRED

P1.8.5 Proprietary concrete

In accordance with BS 8500-2:2002 and BS EN 206-1:2000

NOT REQUIRED

P1.9 CONSTRUCTION PLANNING

Note: the information here is largely reproduced from the Contract Documents to assist the Contractor in the preparation of Section P2. The Contractor should notify the ER if any discrepancy is identified between the Contract Documents and the Specification.

i) Site details:
Will be provided by the ER

ii) Positions of datum level and setting-out lines, width and level of access, level of the prepared working area for site traffic, cranes and pumps, and areas available for storage and site accommodation are shown on drawing numbers:
Will be provided by the ER

iii) Availability of site services and any pre-arranged procedures for sole or shared use:
Will be provided by the ER

iv) Restrictions on dimensions and/or weights of units to be delivered to site:
Will be provided by the ER

v) Factors affecting construction sequence, or which may create an unusual hazard:
Construction planning requirements are described in detail in the report ENG-REP-G5-OAP-006-SWNS-0025 Construction Strategy Report. The contractor's attention is drawn to:

- The need to keep the station operational at all times. This will be particularly significant for works around the STS where passengers will continue to use the platforms and safe routes of access for the public and critical Network Rail activities will have to be maintained.
- The interface with the NTH project. Fit-out of the NTH will still be in progress when these works commence, meaning that the NTH roof slab will only be released at a later date, and that access routes into the NTH will need to be maintained.
- The interface with the WCC roof erection. Roof erection cannot start until the concrete foundations described above are completed. Once roof erection is in progress a substantial amount of staging will be required, likely to completely obstruct the NTH roof slab apart from limited access corridors and preventing construction of the concrete slabs over this roof, and also the erection of the Mezzanine. This means that construction of the Mezzanine slab and lift shafts will have to be undertaken once the main WCC roof is complete, enclosing the Mezzanine area. Mezzanine works will have to be undertaken using mobile cranes and so forth underneath the main roof.
- The existing WRB and STS buildings are historic Grade 1 listed structures. All works which interface with the fabric of these structures require approval from English Heritage. Prepare submissions of drawings, technical literature, method statements etc as required by English Heritage for approval by them. Allow for these activities in the construction programme.
- The nature of the WRB and its protected status will place significant limitations on entrance into and working space inside it. Particularly, opportunities to use large items of plant and cranes will be limited. Many operations will involve carrying items into position by hand.
- No detailed as-built information is available for the STS and WRB structures. In order to develop the Package 6 design a number of assumptions have had to be made about the nature and arrangement of the existing structure. These are documented on the design drawings in the ENG-DWG-OAP-WRB-CXP-*0000* series. Understand the limitations of the information on these drawings and the consequent risks to safety, cost and programme. Compare the assumptions on these drawings with the arrangements found on site. Report significant departures to the ER before proceeding with works.
- Precise dimensions of proposed works cannot be determined until detailed measurements of existing structural arrangements are known. Undertake all site measurements or surveys as required to confirm the dimensions and details of all new elements to be fabricated and installed, prior to commencing production.
- Network Rail has particular requirements for the design and checking of temporary works. Allow for these activities in the programme.

vi) Underground services, overhead cables, adjacent buildings, site obstructions or other constraints on the Contractor:
Will be provided by the ER

vii) Known working restrictions on time or special nuisance (including noise):
Will be provided by the ER

viii) Requirements/restrictions at the interface between the structure and following trades:
Holding-down bolts and tops of concrete works to receive steelwork are to be cast in to the tolerances specified in the National Structural Steelwork Specification, 5th Edition.

The Contractor is to review all architectural and building services design drawings and the working drawings of other packages (such as cladding and building services) and provide all cast in items, inserts and fixings indicated.

ix) Requirements for temporary propping:
The Contractor's attention is particularly drawn to the interaction of the MTS roof structure and the Western Range Building (WRB) and Eastern Range Building (ERB) – refer to the Technical Preliminaries.

Other temporary propping requirements envisaged by the ER are on the design drawings.

The Contractor is responsible for determining the need for and designing all other temporary works required to support works in the construction condition until the final configuration is achieved and the concrete has reached its design strength.

x) Special requirements for headroom:
Will be provided by the ER

xi) A programme showing clearly any phased requirements and the earliest and the latest release dates of work to following trades or to the Employer is shown on drawing numbers:
Will be provided by the ER

xii) Access will be made available to the Contractor on:
Will be provided by the ER

xiii) Other information considered relevant to the Contractor:
Will be provided by the ER

P1.10 FURTHER INFORMATION

Where further information is required to expand data given in Clauses P1.1 to P1.9, list here and attach as necessary, stating the clause to which it relates.

Identity testing is required. Minimum rates of sampling should be:

- Columns & cantilevers: one sample per 10m³ or 10 batches
- Other elements: one sample per 20m³ or 20 batches

At least one sample should be taken of each grade of concrete on each day that concrete is place.

SECTION P2

Information to be supplied by the SCC

at least six weeks' before concrete construction commences.

P2.1 GENERAL

Project

Name: .....
Address: .....
Tel. no: ..... E-mail: .....

SCC

Name: .....
Address: .....
Contact name: .....
Tel. no: ..... E-mail: .....

Designer's name: .....
Tel. no: ..... E-mail: .....

Temporary works coordinator name: .....
Tel. no: ..... E-mail: .....

Other specialist contractors to be used by SCC:
Name: .....
Tel. no: ..... E-mail: .....

Name: .....
Tel. no: ..... E-mail: .....

Name: .....
Tel. no: ..... E-mail: .....

P2.2 DESIGN

Details of any SCC-designed structure:

.....
.....
.....

P2.3 DRAWINGS, CALCULATIONS and REINFORCEMENT SCHEDULES

i) Details of any proposed variation of values in P1.3 and other specification changes:

.....
.....
.....

ii) An information requirement schedule, based on the construction programme and this specification is to be issued to the ER within two weeks of SCC being appointed.

P2.4 MATERIALS

i) List any alternative materials proposed by SCC:

.....
.....
.....

ii) List materials to be provided under SCC-specified supply:

.....
.....
.....

P2.5 FALSEWORK and FORMWORK

i) Construction joints and pour sizes
SCC to give any alternative sizes proposed.

---

ii) Water-resisting construction
If the SCC is responsible for the detailed design of water-resisting construction the following materials will be used:

Detail	Location	Waterstops	Separation membranes	Joint fillers
Manufacturer				
Material				
Type	Slabs - horizontal construction joints			
	Slabs - horizontal movement joints			
	Wall - horizontal slab/wall junction			
	Wall - vertical construction joint			
	Wall - vertical movement joint			

P2.6 REINFORCEMENT

i) Reinforcement supplier: ---------- * / to be provided 4 weeks before first delivery*
UK CARES certificate: Yes/No*

ii) Coupler details and supplier: ---------- * / to be provided 4 weeks before first delivery*
UK CARES certificate: Yes/No*

** Delete as appropriate*

P2.7 CONCRETE and CONCRETING

i) Accredited third party certification of proposed plant:
---------- * / to be provided 4 weeks before first delivery*

** Delete as appropriate*

ii) Any proposed concrete specification variations:

P2.8 CONSTRUCTION PLANNING

i) A construction method statement including pour sequence for each section of work

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ii) A detailed construction programme (to be updated during the progress of construction).

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iii) Quality assurance certification: Yes/No*

** Delete as appropriate*

P2.9 PRECAST CONCRETE

This table is included for the information to be provided for precast concrete works.

Details to be provided		At tender	Y/N	8 weeks before construction	Y/N
Production plant	Details				
	QA certification				
Lifting	Method				
	Equipment details				
	Design of lifting point/devices				
	Location of lifting devices				
Handling	Minimum age				
	Additional reinforcement				
	Storage details				
	Transport storage details				
Erection	Method statement				
	Temporary supports/details				
	Details of protection				
Connections	Details				
	Preparation				
	Grouting/packing				
	Removal of temporary shims etc.				
Concrete	Designation				
Finishes	Samples of finishes				
	Details of spacers				
	Formwork details				

P2.10 FURTHER INFORMATION

Where further information is provided to expand data given in Clauses P2.1 to P2.8, list here and attach as necessary, stating the clause to which it relates.