# Appendix 4 Tender Package for Commencement Pile

Project No. 1567

March 2017



constructure

Structural Designers

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REVISIONS: -

Revisions are highlighted in the text

REV	DATE	CLAUSES			NOTES	
	DATE	DELETED	AMENDED	ADDED	NOTES	
T1	01.03.17				Issued for TENDER	

## D30 PILING

To be read with Preliminaries/ General conditions.

NOTE: Where changes have been made to the standard NBS clauses these are identified in **bold** type.

## 005 PROJECT DESCRIPTION

Site Location: 77 AVENUE ROAD

The Works comprise: New build 2-level basement and concrete framed 3 storey house

# 010 INFORMATION TO BE PROVIDED WITH TENDER

- Submit:
  - Information listed in SPERW, table B1.1.
  - · Other information:
    - Choice of piling type in accordance with this specification and appropriate details as listed in standard NBS clauses 140-180. To include confirmation of the pile size/diameter.
    - Three copies of Piling design calculations for use in a submission for Building Regulations approval.

## 020 INFORMATION TO BE PROVIDED BEFORE WORK STARTS

Submit as listed in SPERW, table B1.1 and as required by this specification, at least 5 working days before piling starts; if no other time limit is stated in the SPERW.

- Integrity Test results:
  - · Initial test results: Submit after each test within 24 hours.

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 Full report: Submit after completion of each phase of testing within 5 working days.

#### **GENERAL**

#### 110 PILING SPECIFICATION

- Standard: Comply with the current edition of 'Specification for piling and embedded retaining walls' (SPERW).
- Substitution of British Standard for SPERW requirements: none.
- References to Engineer in SPERW: For the purpose of this contract, interpret such references as being to the person named in section A10 as administering the contract on behalf of the Employer.
- Design working life category: 5

#### 130 PILES

- Standard: To SPERW, sections B2-B6, as appropriate to the pile type.
- Permitted types: Mini-piles, cored and mechanically bonded to existing cap
- SPERW section B1.2 Project Specification information is given as follows; submit proposals as indicated in the relevant clauses:
  - (a) Role of the Engineer See clause 110 and Contract Documents
  - (b) Location and description of the site See clause 005
  - (c) Nature of the works See clause 005
  - (d) Working area See clause 005
  - (e) Sequence of the works and other works proceeding at the same time See clause  $005\,$
  - (f) Contract drawings See clause 210
  - (g) Office and other facilities for the Engineer See the Contract Documents
  - (h) Submission of information (in addition to Table B1.1) See clause 010
  - (i) Responsibility for design, including any division of responsibility See clause  $210\,$
  - (j) Design standards and criteria for the piles or walls including design life See clauses 110 & 210  $\,$
  - (k) Constraints on design None
  - (1) Working platform and commencing surface level See clause 300
  - (m) Schedule of Specified Working Loads or Representative Actions See pile schedule on drawings as noted in clause 210
  - (n) Pile or wall element dimensions Nominal pile sizes are shown on the drawings & see clause  $130\,$

- (o) Preliminary piles and trial bores/drives/panels To be determined by the Contractor see clause 665
- (p) Performance criteria for the structure to be supported on the piles or by the wall See clause 250
- (q) Performance criteria for piles under test or wall elements during service See clause 280
- (r) Sampling and testing of materials (other than concrete) Not required
- (s) Permissible damage criteria for existing critical structures or services None permitted
- (t) Additional temporary works plant and duration of loading for which the working platform should be designed See clause 300. Provide the temporary works co-ordinator with equipments loads proposed
- (u) Site datum and site grid See clause 290
- (v) Restrictions on permissible working hours See the Contract Documents
- (w) Restrictions on noise and vibration levels See the Contract Documents
- (x) Site Investigation including geotechnical and geo-environmental information, and the need for further Site Investigation See clauses 210  $\&\ 230$
- (y) Disposal of excavated material and trimmed excess pile and wall material See clauses 655 & 685
- (z) Other particular technical requirements The Contractor is required to work to a Quality Management system established in accordance with BS EN ISO 9001:2000. Details shall be provided prior to commencement of work on site.

## 180 AUGURED CAST-IN-PLACE PILES

- Standard: To SPERW, section B4.
- Method of construction: Bored mini-pile
  - Splitting of auger: To sucontractors approved method statement
- Filling:
  - Material: RC40
  - Placing: Inject through hollow stem of auger.
  - Control of concreting/ grouting: Subcontractor designed
- Pile group designation: North core
  - Diameter: 220mm mini-piles (subcontractor to submit alternative proposals for approval if different to the above)
  - Length: Subcontractor designed
  - Reinforcement:
- Quantity: Subcontractor designed

• Extent: Subcontractor designed

• Other requirements: Mechanical bonding to pile-cap (existing)

Extent: North core (existing) only

## SYSTEM PERFORMANCE

- 210 CONTRACTOR DESIGN
  - Standard: To 8004.
  - Design responsibility:
    - Piles: Complete design in accordance with SPERW, clause B1.4, option 2.
    - Other: To be installed through existing pile-cap
  - Pile layout: as drawing 1028/101 T1
  - Site investigation: Confirm as adequate or propose further investigation as considered necessary with tender submission.
  - Performance criteria for piles:
    - · Minimum factor of safety: 3
- 230 GROUND INVESTIGATION
  - Report: Prepared by To be carried out
- 250 PERFORMANCE CRITERIA FOR STRUCTURE TO BE SUPPORTED ON THE PILES
  - Permitted settlement at working load (maximum): 5mm
- 260 SPECIFIED WORKING LOADS FOR PILES
  - · 400KN (sls)
- 290 SETTING OUT PILES
  - · Agree site datums and basic grid with main contractor and CA.
  - The piles are set out from the drawn grid on the AutoCAD drawings. The piles are located on the drawings to scale.
- 300 COMMENCING SURFACE AND PILING MAT
  - N/A
- 320 PILE LENGTH TOE LEVEL
  - Pile cut-off level: generally 75mm above pilecap formation level see drawings (note - pile-cap is existing, therefore exact formation level not known).
  - Depth of pile toe beneath site datum (minimum): To subcontractor design
  - Other requirements: None

## PRODUCTS

400 GENERALLY

The contractor is to provide the CA with details of any special products proposed for use in accordance with clause 20 and any requirement given in clauses 410 to 460.

## 470 CONCRETE GENERALLY

- Standards: To BS 8500-2 and SPERW, section B19.
- Project compressive strength testing of concrete:
- Exchange of information: Provide concrete producer with information required by BS 8500-1, clauses 4 and 5.

## 475 DESIGNATED CONCRETE FOR PILES

- Designated concrete: RC40
- Reinforcement/ embedded metal: Yes
- · Aggregates:
  - Size (maximum): 20mm.
  - Recycled coarse aggregates: Permitted to 20% mass fraction.
  - · Other requirements: None.
- · Other requirements for cement and combinations: None
- · Consistence class: Minimum \$3.
- Chloride class: C10.40. (TBC)
- Other requirements for admixtures: Details of proposed admixtures to be give to the CA allowing two weeks for comment by the CA before their use in the concrete.
- · Other requirements: N/A

# 530 REINFORCEMENT GENERALLY

- Steel reinforcement: To BS 4449.
- Type/ Grade: 500B.
- · Cutting and bending: To BS 8666.
- Supplier: Obtain from companies holding valid certificates of approval for product conformity issued by the UK Certification Authority for Reinforcing Steels (CARES).

# 540 COVER TO REINFORCEMENT

- Cover (nominal): 75mm.
- Method of ensuring correct cover: Submit details.

# 550 LAPS IN REINFORCEMENT

- Length (minimum): 600mm.
- 570 SONIC LOGGING DUCTS
  - Material: Contractors' choice.

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#### **EXECUTION**

- 612 PILE TRIMMING: Method of cutting down top of piles: this must minimise the use of hand held tools.
- 615 RECORDS AND SUBMISSION OF INFORMATION DURING THE WORKS
  - Generally: As required in SPERW, tables B1.1, B1.6 and elsewhere, as appropriate for the pile types, materials and tests specified.
  - Amendments to requirements: none.
- 620 WELDING PROCEDURE
  - Requirements additional to SPERW, section B6: none.
- 625 NON-DESTRUCTIVE TESTING OF WELDS
  - Requirements: To SPERW, clause B6.6. Contractor to agree method and scope of testing with CA before piling starts.
- 650 PERFORMANCE OF WORKING PILES
  - Substandard performance: Give notice if the performance of any pile will be less than that of a similar pile whose test behaviour has been accepted.
- 655 TESTING EXCAVATED MATERIAL
  - The contractor is to carry out testing as required by the Local authority to ensure material can be classified as inert or non-hazardous whenever possible.
     See clause 685.
- 665 PREBORING FOR PILES
  - Required for the following: identify and allow removal of any obstructions that may affect subsequent pile installation.
  - Depth (maximum): 10m
  - Diameter (maximum): 100mm
  - Filling to voids: Contractor to provide proposals to suit subsequent pile installation.
  - Restrictions: None
  - · Records: Submit, giving location, depth and diameter of and filling to prebores.

The Contractor shall confirm in his Tender that sufficient time has been allowed in the piling programme for dealing with obstructions in the made ground.

The use of preboring is not specified but is permitted at locations subject to prior approval by the CA. The Contractor shall state in his Tender whether he proposes to use trial bores and his method of backfilling, and that sufficient time has been allowed in the piling programme for dealing with obstructions in the made ground.

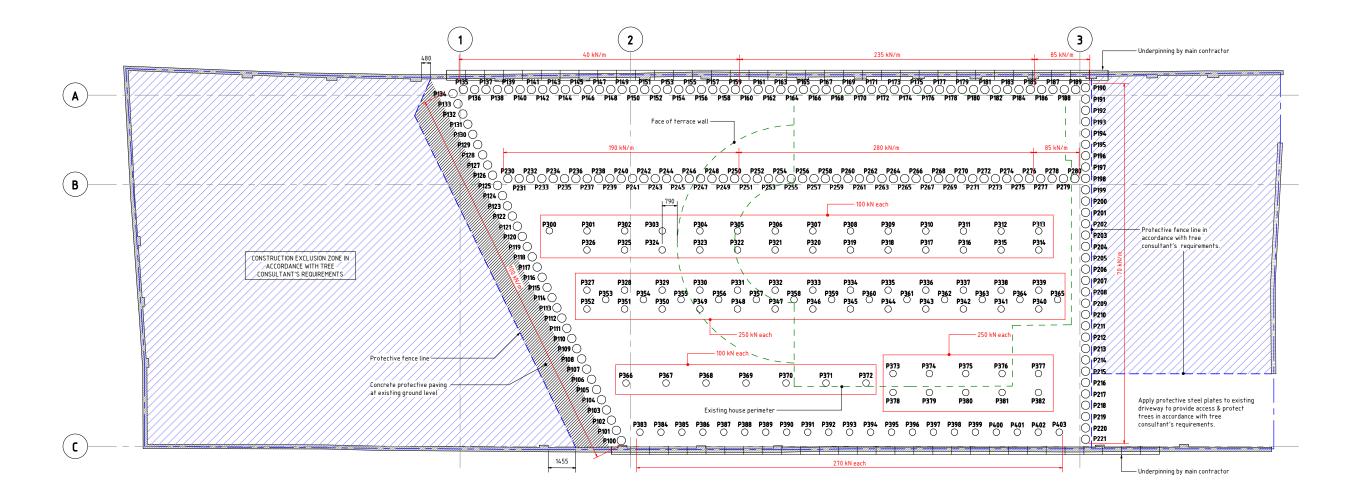
- 680 PROHIBITION OF SUPPORT FLUID
  - Usage: Not permitted.

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- 685 EXCAVATED MATERIAL
  - Disposal: Contractors' responsibility to remove from site.
- 690 DISPOSAL OF PILE HEADS
  - Cutting down and disposal: Contractor's responsibility.
- 700 PLACING CONCRETE IN DRY BORINGS AND CASINGS
  - Requirements SPERW, clause B3.5.2.3. The contractor is to demonstrate their proposals for placing concrete ensure the requirements of the SPERW are met.
- 705 MONITORING CONSTRUCTION OF AUGURED PILES
  - Requirements additional to SPERW, clause B4.4.9 and B4.5:
  - Monitor the following and record with pile records: all new piles to north core
- 710 INSTRUMENT FAILURE
  - Manual monitoring: Use a stop watch.
- 720 PREPARATORY PREBORING FOR LOW FRICTION SLEEVING OR SURROUND
  - Requirement: Carry out to base of low friction treatment.
  - Preboring diameter: to suit sleeving.
- 725 SUPPORT TO PREBORED HOLE FOR LOW FRICTION SLEEVING OR SURROUND
  - Method of achieving temporary stability: submit proposals before piling starts.
  - Depth: To suit sleeving length and ground conditions.

## COMPLETION

- 910 HEALTH AND SAFETY FILE
  - Requirement: Collate and submit a full set of pile records for inclusion in the health and safety file.
  - Content:
    - Record drawings: With each pile numbered and giving the 'as built' location of each pile relative to the site grid.
    - Records: Copy of each record submitted during the progress of the work.
  - Latest date for submission: 15 working days after the completion of the piling work.
- 920 PILING GUARANTEE
  - Type: Insurance backed. Administered by an independent insurance protection company.
  - Guarantee period (minimum): 12 years.
  - Documentation: Provide certificates/ guarantees at completion of piling works.



STRUCTURAL PILE SCHEDULE						
PILE	Dia.	SWL	CUT OFF LEVEL			
REF.	(mm)	(KN)	(m)			
P100	450	60	+8.50			
P101	450	60	+8.50			
P102	450	60	+8.50			
P103	450	60	+8.50			
P104	450	60	+8.50			
P105	450	60	+8.50			
P106	450	60	+8.50			
P107	450	60	+8.50			
P108	450	60	+8.50			
P109	450	60	+8.50			
P110	450	60	+8.50			
P111	450	60	+8.50			
P112	450	60	+8.50			
P113	450	60	+8.50			
P114	450	60	+8.50			
P115	450	60	+8.50			
P116	450	60	+8.50			
P117	450	60	+8.50			
P118	450	60	+8.50			
P119	450	60	+8.50			
P120	450	60	+8.50			
P121	450	60	+8.50			
P122	450	60	+8.50			
P123	450	60	+8.50			
P124	450	60	+8.50			
P125	450	60	+8.50			
P126	450	50	+8.50			
P127	450	50	+8.50			
P128	450	50	+8.50			
P129	450	50	+8.50			
P130	450	50	+8.50			
P131	450	50	+8.50			

STRU	TURAL	PILE SC	HEDULE
PILE	Dia.	SWL	CUT OFF LEVE
REF.	(mm)	(KN)	(m)
P132	450	50	+8.50
P133	450	50	+8.50
P134	450	50	+8.50
P135	450	50	+8.50
P136	450	50	+8.50
P137	450	50	+8.50
P138	450	50	+8.50
P139	450	50	+8.50
P140	450	50	+8.50
P141	450	50	+8.50
P142	450	50	+8.50
P143	450	50	+8.50
P144	450	50	+8.50
P145	450	50	+8.50
P146	450	50	+8.50
P147	450	50	+8.50
P148	450	50	+8.50
P149	450	50	+8.50
P150	450	50	+8.50
P151	450	50	+8.50
P152	450	50	+8.50
P153	450	50	+8.50
P154	450	50	+8.50
P155	450	50	+8.50
P156	450	50	+8.50
P157	450	50	+8.50
P158	450	50	+8.50
P159	450	50	+8.50
P160	450	140	+9.00
P161	450	140	+9.00
P162	450	140	+9.00
P163	450	140	+9.00

STRU	TURAL	PILE SO	HEDULE
PILE	Dia.	SWL	CUT OFF LEVEL
REF.	(mm)	(KN)	(m)
P164	450	140	+9.00
P165	450	140	+9.00
P166	450	140	+9.00
P167	450	140	+9.00
P168	450	140	+9.00
P169	450	140	+9.00
P170	450	140	+9.00
P171	450	140	+9.00
P172	450	140	+9.00
P173	450	140	+9.00
P174	450	140	+9.00
P175	450	140	+9.00
P176	450	140	+9.00
P177	450	140	+9.00
P178	450	140	+9.00
P179	450	140	+9.00
P180	450	140	+9.00
P181	450	140	+9.00
P182	450	140	+9.00
P183	450	140	+9.00
P184	450	140	+9.00
P185	450	140	+9.00
P186	450	140	+9.00
P187	450	70	+9.40
P188	450	70	+9.40
P189	450	70	+9.40
P190	450	50	+9.40
P191	450	50	+9.40
P192	450	50	+9.40
P193	450	50	+9.40
P194	450	50	+9.40
P195	450	50	+9.40

STRU	TURAL	PILE SO	HEDULE
PILE	Dia.	SWL	CUT OFF LEVI
REF.	(mm)	(KN)	(m)
P196	450	50	+9.40
P197	450	50	+9.40
P198	450	50	+9.40
P199	450	50	+9.40
P200	450	50	+9.40
P201	450	50	+9.40
P202	450	50	+9.40
P203	450	50	+9.40
P204	450	50	+9.40
P205	450	50	+9.40
P206	450	50	+9.40
P207	450	50	+9.40
P208	450	50	+9.40
P209	450	50	+9.40
P210	450	50	+9.40
P211	450	50	+9.40
P212	450	50	+9.40
P213	450	50	+9.40
P214	450	50	+9.40
P215	450	50	+9.40
P216	450	50	+9.40
P217	450	50	+9.40
P218	450	50	+9.40
P219	450	50	+9.40
P220	450	50	+9.40
P221	450	50	+9.40
P230	450	115	+6.30
P231	450	115	+6.30
P232	450	115	+6.30
P233	450	115	+6.30
P234	450	115	+6.30
P235	450	115	+6.30

PILE	Dia.	SWL	CUT OFF LEVEL
REF.	(mm)	(KN)	(m)
P236	450	115	+6.30
P237	450	115	+6.30
P238	450	115	+6.30
P239	450	115	+6.30
P240	450	115	+6.30
P241	450	115	+6.30
P242	450	115	+6.30
P243	450	115	+6.30
P244	450	115	+6.30
P245	450	115	+6.30
P246	450	115	+6.30
P247	450	115	+6.30
P248	450	115	+6.30
P249	450	115	+6.30
P250	450	115	+6.30
P251	450	170	+6.30
P252	450	170	+6.30
P253	450	170	+6.30
P254	450	170	+6.30
P255	450	170	+6.30
P256	450	170	+6.30
P257	450	170	+6.30
P258	450	170	+6.30
P259	450	170	+6.30
P260	450	170	+6.30
P261	450	170	+6.30
P262	450	170	+6.30
P263	450	170	+6.30
P264	450	170	+6.30
P265	450	170	+6.30
P266	450	170	+6.30
P267	450	170	+6.30

PILE	Dia.	SWL	CUT OFF LEVEL
REF.	(mm)	(KN)	(m)
P268	450	170	+6.30
P269	450	170	+6.30
P270	450	170	+6.30
P271	450	170	+6.30
P272	450	170	+6.30
P273	450	170	+6.30
P274	450	170	+6.30
P275	450	170	+6.30
P276	450	170	+6.30
P277	450	70	+6.30
P278	450	70	+6.30
P279	450	70	+6.30
P280	450	70	+6.30
P300	350	100	+3.60
P301	350	100	+3.60
P302	350	100	+3.60
P303	350	100	+3.60
P304	350	100	+3.60
P305	350	100	+3.60
P306	350	100	+3.60
P307	350	100	+3.60
P308	350	100	+3.60
P309	350	100	+3.60
P310	350	100	+3.60
P311	350	100	+3.60
P312	350	100	+3.60
P313	350	100	+3.60
P314	350	100	+3.60
P315	350	100	+3.60
P316	350	100	+3.60
P317	350	100	+3.60
P318	350	100	+3.60

Rev Date Drawn Eng Amendment

PIL F	Dia.	SWL	CUT OFF LEV
REF.	(mm)	(KN)	(m)
P319	350	100	+3.60
P320	350	100	+3.60
P321	350	100	+3.60
P322	350	100	+3.60
P323	350	100	+3.60
P324	350	100	+3.60
P325	350	100	+3.60
P326	350	100	+3.60
P327	350	250	+3.60
P328	350	250	+3.60
P329	350	250	+3.60
P330	350	250	+3.60
P331	350	250	+3.60
P332	350	250	+3.60
P333	350	250	+3.60
P334	350	250	+3.60
P335	350	250	+3.60
P336	350	250	+3.60
P337	350	250	+3.60
P338	350	250	+3.60
P339	350	250	+3.60
P340	350	250	+3.60
P341	350	250	+3.60
P342	350	250	+3.60
P343	350	250	+3.60
P344	350	250	+3.60
P345	350	250	+3.60
P346	350	250	+3.60
P347	350	250	+3.60
P348	350	250	+3.60
P349	350	250	+3.60
P350	350	250	+3.60

1	PILE	Dia.	SWL	CUT OFF LEVEL
	REF.	(mm)	(KN)	(m)
	P351	350	250	+3.60
	P352	350	250	+3.60
	P353	350	250	+3.60
	P354	350	250	+3.60
	P355	350	250	+3.60
	P356	350	250	+3.60
	P357	350	250	+3.60
	P358	350	250	+3.60
	P359	350	250	+3.60
	P360	350	250	+3.60
	P361	350	250	+3.60
	P362	350	250	+3.60
	P363	350	250	+3.60
	P364	350	250	+3.60
	P365	350	250	+3.60
	P366	350	100	+3.60
	P367	350	100	+3.60
	P368	350	100	+3.60
	P369	350	100	+3.60
	P370	350	100	+3.60
	P371	350	100	+3.60
	P372	350	100	+3.60
	P373	350	250	+3.60
	P374	350	250	+3.60
	P375	350	250	+3.60
	P376	350	250	+3.60
	P377	350	250	+3.60
	P378	350	250	+3.60
	P379	350	250	+3.60
	P380	350	250	+3.60
	P381	350	250	+3.60
	P382	350	250	+3.60

STRUCTURAL PILE SCHEDULE

STRUC	TURAL	PILE SC	HEDULE
PILE	Dia.	SWL	CUT OFF LEVE
REF.	(mm)	(KN)	(m)
P383	350	270	+3.60
P384	350	270	+3.60
P385	350	270	+3.60
P386	350	270	+3.60
P387	350	270	+3.60
P388	350	270	+3.60
P389	350	270	+3.60
P390	350	270	+3.60
P391	350	270	+3.60
P392	350	270	+3.60
P393	350	270	+3.60
P394	350	270	+3.60
P395	350	270	+3.60
P396	350	270	+3.60
P397	350	270	+3.60
P398	350	270	+3.60
P399	350	270	+3.60
P400	350	270	+3.60
P401	350	270	+3.60
P402	350	270	+3.60
P403	350	270	+3.60



Notes :  1. This drawing is to be read in conjunction with all	Legend :  - Existing structure.	NOTES:  a. Pile loads shown are unfactored permanent downward		Project 77 AVENUE ROAD	Drawing No. 1567/00	Rev T2	2
relevant Architect's, Engineer's and Specialist's drawings and specifications.	- Structure under.	loads only. Pile designer to derive lateral loads due to soil, water & surcharge from buildings adjacent and in accordance with main contractor's propping levels.		TT AVENUE NOAD	Scale @ A1 1:100	Scale @ A3 1:20	200
<ol> <li>This drawing is the copyright of Constructure Ltd and is not to be used or reproduced without permission.</li> </ol>	Reinforced concrete section.      Reinforced concrete surface.	Hydrostatic uplift to apply tension to piles in accordance with assumed groundwater level as at			Drawn TC	Engineer PL	
<ol> <li>Do not scale from this drawing in either paper or digital form. Use written dimensions only. To check drawing has been printed to the intended scale the width of the</li> </ol>	- Mass concrete.	theoretical 1m below ground level. Allow 125 kN/m per pile.	TENDER ISSUE	PILE LAYOUT	construc	ture	
column should be 100mm wide @ A1 or 50mm wide @ A3.	- Blockwork.	c. Pile cut-off datum: Proposed GF slab = +10.00m	T2 21.04.17 TC PL Revised Tender Issue			constructure.co.uk	$\dashv$
	//// - Brickwork.		T1 01.03.17 TC PL Issued for Tender  Rev. Date. Drawn Fng. Amendment		Structural Designers	office@constructure.co	o.uk