

Risk Assessments and Method Statements for piling works at Cranwood, 100 Woodside Avenue, Haringey

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No piling shall take place until a Piling Method Statement (detailing the depth and type of piling to be undertaken and the methodology by which such piling will be carried out, including measures to prevent and minimise the potential for damage to subsurface sewerage infrastructure, and the programme for the works) has been submitted to and approved in writing by the Local Planning Authority in consultation with Thames Water. Any piling must thereafter be undertaken in accordance with the terms of the approved piling method statement.

Reason: The proposed works will be in close proximity to underground sewerage and water utility infrastructure.

1. DESCRIPTION OF WORKS AND CONTRACT TEAM

1.1 The site is situated in 100 Woodside Avenue, Haringey. Our contracts team, including management, have experience of similar construction schemes. The SFA piling system adopted for this scheme has no percussive elements and has very little vibration and as such is the least intrusive of any piling system. The piles when drilled down to depth are pumped with concrete from the bottom up under pressure through the middle of the auger. The bored pile is never left empty, so no collapsing of bore holes is possible.

1.2 Start date for the piling works is TBC, programmed for a period of TBC days.

2. SCOPE OF METHOD STATEMENT/WORKS

2.1 This method statement confirms the proposals for the installation of TBC No. TBC diameter, hollow stem SFA bearing piles.

3. DRAWING REFERENCES

3.1 Please refer to drawings listed below.

Piling layout: TBC

Pile design: TBC

4. ACCESS

4.1 Site establishment will be confirmed at the pre-start meeting. Access for all plant and equipment will be via the main site entrance is in 100 Woodside Avenue, Haringey. Deliveries will be a low loader for the rig and pre-slung rigid HIAB craned lorries for the rest of the equipment.

4.2 Banksman are to be made available by the main contractor where necessary, for manoeuvring vehicles from the road on to site and to offer safety to pedestrians and all parties and to avoid damage to property and vehicles.



5. PLANT, EQUIPMENT AND TOOLS

5.1 Anticipated Plant Requirements

Klemm 709-2 with a 10m mast Piling Rig delivered by a low loader.
Putzmeister concrete pump, lifted in place by a Hiab Craned rigid lorry
Hymix Agitator, lifted in place by a Hiab Craned rigid lorry
Kaeser 2 tool air compressor, lifted in place by a Hiab Craned rigid lorry
13-tonne 360° tracked excavator (supplied and operated by the main contractor)
All plant will have spill kits and static plant will have plant nappies.

5.2 Anticipated Small Tools

Shovels to remove spoil from around pile head.

5.3 Other equipment

Lifting strops.

Safety harness.

Fall arrester.

Metal washout tray.

6. LABOUR AND SUPERVISION

All our operatives hold relevant CPCSCS qualifications/cards.

All our Foremen hold SSSTS certificates and are responsible for ensuring compliance with the agreed scope of work. To the best of our knowledge are fit to perform the duties required of them.

Operations Manager: Keith Taylor (07741 314 767)

Contracts Manager : James Simporis

Piling Operator: TBC

Piling Operative: TBC

Piling Labourer: TBC

Steel Fixer: TBA

7. HEALTH, SAFETY AND WELFARE

7.1 First Aid

No first aid certificates are held so we will be working under the main contractor's site first aider.

7.2 Risk Assessments

The safest method of works will be assessed and implemented, so far as is reasonably practicable. To do so will be reflected in our Risk Assessment prepared for the contract which also identifies the significant risks and their mitigating control measures.

7.3 Welfare Facilities

Site welfare and first aid arrangements will be provided by the main contractor.

7.4 P.P.E.

All site operatives will wear the following P.P.E. at all times while on site.

Safety Boots, Hi-Vis Vests or Jackets, Hard Hats, Gloves conforming to EN388, Eye Protection conforming to EN166 mandatory unless in heavy rain, then at Site Manager's discretion; EN166B for blowing out operations and abrasive wheel usage.

Gloves conforming to EN374-2 to be worn when handling concrete.

7.5 COSHH

Sample data sheets for the following materials are attached. Concrete, Gas Oil, Engine Oil and Hydraulic Oil.

7.6 Waste

No waste licences are held so we will be working under the main contractor's provision.

8. TESTING AND RECORDS

8.1 Plant is covered by Annual Examination; Certification is retained by the Rig Operator or available from our head office, telephone 01273 493 863.

8.2 No material tests are required. Integrity testing of the piles will be carried out when the piles are cut down to their finished level. A separate method statement, if required, will be forwarded at a later date.

9. PROPOSED METHOD STATEMENT

9.1 All Southern Piling operatives will have attended the site safety induction with Main Contractor and will have been briefed as to the nature of the works. The contracts team will monitor the progress of the works and will review the risk assessment and method statement to ensure best practice is maintained. Amendments will be reviewed by Keith Taylor and recorded by way of a suffix taking the form of “_Rev(letter)”.

9.2 All deliveries will access and egress the site as detailed in item 4. Vehicles will manoeuvre in a safe manner, observing any site speed limits, under the supervision of S.P. personnel.

9.3 Before allowing the piling rig to enter site, ensure that there are no overhead cables or obstructions which could be damaged by rig movements.

9.4 Before Piling commences Southern Piling Foreman must:

9.4.1 Review the site-specific risk assessment, noting any special requirements and ensure that all piling operatives have received the necessary training to carry out their work.

9.4.2 Following site induction, the foreman shall brief the piling operatives and steel fixer on the site health and safety requirements and check that they have all of the necessary PPE; the excavator driver shall adhere to briefings and instruction issued by the main contractor.

9.5 Ensure that the site has been suitably prepared and the pile mat is level and compact, any services have been clearly identified, protected and diverted as necessary and a permit to work has been signed by the main contractor. If other trades are working near the piling area the Main Contractor is to provide fencing to segregate the piling area from other operations - the Southern Piling Foreman can stop piling works if it is deemed that follow on trades are working too close and affecting the safety of himself and others.

9.6 Ensure that Southern Piling employers and public liability insurances have been made available to the client.

9.7 Ensure that no personnel, other than Southern Piling, are in close proximity of the piling works.

9.8 Ensure that the piling drawing is the latest issue, including any revisions, and that the site is set out with the pile positions clearly marked.

9.9 Take delivery of concrete and decant into holding drum using the changeover valve and pump.

9.10 Position the piling rig over the first pile position, as decided by the rig foreman unless otherwise directed. Any pile positions close to adjacent buildings will be positioned straight on, with the machine tracks at 90 degrees to the face of the building for maximum stability.

9.11 Check that the mast of the rig is vertical and adjust as necessary and insert auger bung.

9.12 Commence boring, ensuring stability of rig throughout.

9.13 Mix the primer pump up in the concrete pump hopper and send down the concrete hose line to lubricate ready for the concrete.

9.14 Bore to designed length as indicated on the Southern Piling job sheet, adding 2m long sections of augers as necessary using the auxiliary winch and dolly, having first ensured that only Southern Piling personnel are within the work area. Record final depth on Pile Record Sheet.

9.15 9.15 When augers need to be added, the piling assistant will knock out the pin holding the top auger to the motorhead drive. The motorhead will then be raised and side shifted over. The winch will be lowered and the hex lifting dolly inserted into the next section of auger to be added. The locating pin will then be replaced, and when all personnel are a safe distance away, the winch will be activated and the section of auger lifted. When the new auger section is at the correct height, it will be lowered onto the hex drive of the existing string of augers, and the pin will be replaced between these 2 sections. The pin will then be removed from the lifting dolly, the dolly removed, and the hex drive on the motorhead will be re-inserted into the new auger section. The top pin will then be replaced, and the piling can continue.

9.16 Start concrete pump and begin to discharge concrete into hopper, ensuring that only Southern Piling personnel are within the work area.

9.17 Send concrete down the auger to knock out auger bung.

9.18 Commence pumping concrete whilst raising the auger, maintaining a steady pressure, stopping the pump to remove augers as necessary. Remove auger from drill head and place on piling mat.

9.19 When removing augers, the motorhead will be raised enough to expose the top 2 metre section of auger. The auger catch plate will be placed into the string of augers, resting on the top of the auger guide. This will prevent the string of augers falling back down the bore when the bottom pin is removed. The motorhead will then be raised, lifting the top section of auger from the remaining string. When clear, the motorhead will be side shifted and lowered onto the top of the existing string of augers. The top pin is then removed and the motorhead raised. The auger will then fall sideways, away from where piling crew are standing. The auger section will then be moved out of the way using the excavator, the motorhead re-positioned into the top of the remaining augers, and the process repeated.

9.20 Repeat this process until the concrete has reached the top of the pile.

9.21 Move rig away from the finished pile ensuring stability of the rig whilst tracking and using a banksman as appropriate.

9.22 The excavator clears the pile spoil away carefully down to pile mat level, clear any spoil that may still be in the top of the concrete with a shovel. The reinforcement cage is then either manually lifted into position or lowered by the excavator or the rig service line into the wet concrete and pushed down by stepping on the helical binder. Should the reinforcement cage not enter the concrete by this means the excavator will be used to press it into the wet concrete. Banksman will ensure correct projection and cover spacers are in place.

9.23 Set up over the next pile position and repeat from 9.10.

9.24 The auger teeth will periodically wear out and should be replaced to prolong the life of the auger section. They should be replaced thus: Raise the auger and lay the mast backwards slightly, to allow access to the cutting head and teeth. Using a metal drift along with a copper faced hammer, knock the cutting tooth out of the side of

the tooth carrier. Place the new tooth into the top of the tooth carrier and again, using the copper faced mallet, knock the replacement tooth into place. Repeat the process until all of the cutting teeth have been replaced.

9.25 When piling is complete, remove all plant and equipment from site, taking into account the points as listed in 4.

10. BLOWING OUT

10.1 When blowing out the foreman/banksman is to be located at the piling rig. The pump operator is to be located at the compressor, next to the blow out cannon. All other operatives to be clear of blow out area prior to commencement of task.

10.2 A clear line of sight is required and must be maintained for communication between the pump operator and the site operative attending the rig.

10.3 The compressor is to be started and the air is gradually released to the blow out cannon.

10.4 The blow out cannon valve is then released to move the concrete along the concrete hose - the air pressure is to be controlled by the pump operator to allow the sponge ball to exit the auger tip in a controlled way.

10.5 The concrete hose is to be monitored by the banksman / foreman and when the concrete has passed through the last host in the line, the foreman / banksman will signal the pump operator to turn off the air supply to the blow out cannon.

10.6 When the piling rig drop hose lifts and moves the foreman is to signal the pump operator at the compressor and blow out cannon to release the remaining air in the concrete hose through the blow out cannon release valve, maintaining enough pressure to allow the sponge ball to pass through the auger and exit the tip. Any splashing / debris will be contained by the positioning the auger in a spoil bund.

10.7 The concrete hoses and augers will now be empty of concrete. The foreman / banksman will communicate to the pump operator that the blowing out procedure is complete.

10.8 After completion of blowing out the blow out cannon is to be disconnected from the concrete hose. Two or three buckets of water are to be poured into the open end of the concrete hose followed by a wet sponge ball.

10.9 Blow through the soft ball once more using the same procedure as before.

10.10 Disconnect the blow out cannon from the concrete hose and retrieve the sponge blow out balls.

10.11 Wash down all equipment in to Southern Piling's metal washout tray.

11. REINFORCEMENT

11.1 Fixing Area

Assembly of reinforcement cages in a stoned area, fenced off from other site traffic, provided by the Main Contractor.

11.2 Cage Fixing

11.2.1 Steel is to be delivered direct from the supplier. Unloading shall be undertaken by the driver under the supervision of main contractor's site agent.

11.2.2 The leading steel fixer is to be given details of the cages required

11.2.3 The bars and helical will be assembled into cages using purpose made stands onto which bars are loaded to give stability. As each cage is completed it is removed from the assembly stands by excavator.

11.2.4 After fabrication, the cages are to be stored on timbers or clean hardcore to avoid contamination by soil.

11.2.5 Heavyweight cages need to have strengthened lifting points to enable them to be moved and lifted safely. This will normally consist of three turns of helical securely wired or welded to each main bar. Note: Heavyweight cages will generally be prefabricated and delivered to site.

11.2.6 Attendant excavator to be utilised to move cages to the piling rig.

12. PROPOSED METHOD STATEMENT FOR INSTANCES OF CONCRETE HOSE BLOCKAGE/BURST

12.1 The pump operator should immediately shut down the concrete pump and reverse pump to prevent the possibility of the hose bursting, and de-pressurise the lines.

12.2 All non-essential operatives, other contractors and members of the public will be moved as far away from the blocked hose as feasibly possible.

12.3 The hoses will then be unclipped, and each section raised in the air with the excavator, using one of Southern Piling's suitable, certificated lifting strops. The hoses will then be shaken to remove the blockage.

12.4 Hoses will also be pressure washed from each end to remove any concrete, into the washout stray and ultimately disposed of into the spoil heap. Repeat until the hoses are clear.

12.5 To clear the rigid pipes and the swan neck on the rig, the augers will be drilled into the ground, to enable the mast to be laid flat. The pipes will then be disconnected and washed out using the pressure washer into the washout stray and ultimately disposed of into the spoil heap, until clear of concrete.

12.6 When all hoses are free from concrete, they should be visually inspected for any damage. Any which look sub-standard should be taken out of service and replaced.

12.7 The hoses will then be clipped together and reconnected to the piling rig.

12.8 The foam ball should then be run through the hoses, as per the piling method statement. This ball should be fired through and washed out and contained in a hole made in an earth bund.

12.9 When the pump operator is satisfied that the blockage is totally clear. The pipes will be re-primed with the Prime-a-Pump, and piling will continue.

LIFTING PLAN (NON-CRANE)

Work Supervisor	Site Foreman				
Brief description of the work	Loading and unloading Plant and Equipment delivered to and loaded away from the site. Lifts by lorry Hiab (specified below) and excavator. Lifting of equipment and materials during piling operations by excavator. Lifting equipment and materials using the Piling Rig auxiliary Winch. See notes regarding restrictions on this equipment.				
Schedule of 'routine' lifts					
Description	Approx. weight	Load characteristic	Method of lifting	Centre of gravity	Lifting points/method of slinging
Reinforcing cages	25 kg Max	Cylindrical	Horizontal: two chain lift	Central	2 leg chains/nylon slings
Reinforcing cages	25kg Max	Cylindrical	Vertical: secure points to be provided	Central	Secure at tied intersection of helical and main bar
Reinforcement (straight bars)	Up to 1000kg	Bundled steel bars	Horizontal: two chain lift	Central	2 leg chains
Reinforcement (helical)	Up to 1000kg	Bundled helical	Horizontal: two chain lift	Central	Chain to pass through, bundling wires not to be used.
Drilling auger	Up to 1,000kg	Up to 6.0m long	Horizontal: two chain choke lift	Central	2 leg chains
Concrete pump	4,200kg	Engine-hopper	Lifting point on top	Central	Chain
Agitator (HIAB lift)	6,000-9,000kg	Cylinder on frame	4 No. lifting points	Central	4 leg chain
Diesel bowser	1,500kg	Cube	4 No. lifting points	Central to tank	4 leg chain
Generator/compressor/power pack	2,000kg	Steel box	Lifting points on top	Central	Nylon slings or chain

Equipment to be used for the lift	
<i>Excavator</i>	
Make, Model, Attachments, Test Certificates, etc	Excavator supplied by main contractor. It is their responsibility for checking all documentation before releasing it to work to Southern Piling.
<i>HIAB (Lorry Loader – Max boom length 12.5m)</i>	
Make, Model, Attachments, Test Certificates, etc	HIABs supplied by Southern Piling who is responsible for checking all equipment and documentation before releasing it to work.
<i>Piling Rig Auxiliary Hoist</i>	
The ancillary winch on the Piling Rig is designed to assist in “normal piling operations”, including assembling and de -rigging the auger string and lifting rebar cages into the bore; the capacity of the winch is noted as 2.0 tonnes, however Southern Piling limits this to 1.0 tonnes.	
Date of last inspection	See LOLER Book.
Date of last examination	Covered by Rig Annual Examination; Certification is retained by the Rig Operator or available from the Office and Foreman’s Folder on site.
<i>Hazards Identified / Known on Site</i>	
Refer to general Risk Assessments	
<i>Unloading of Lorries / where crash mats are required for unloading lorry’s Double-Click to supply.</i>	
Attach chains to load from ground where possible. Access to lorry bed by footed or fixed ladder. All Southern Piling equipment to be delivered on lorries fitted with handrails and rebar to be pre-slung in 1tonne (max.) bundles.	
<i>Expected competencies</i>	
Excavator driver	The competence of the driver supplied by main contractor or their subcontractor will be checked by the main contractor prior to releasing the operative to attend Southern Piling.
HIAB operator	Southern Piling is responsible to ensure the driver supplied is competent to operate the hi-ab on his machine.
Rig driver	The Rig Driver will be a holder of a CPCS or CSCS (Piling Operations) card. The card will be available from the driver.
Slinger Signaller	All the site crew involved in slinging and signalling operation will be holders of a CSCS Slinger/Signaller card, which will be presented on request.

INSPECTION & TEST PLAN

Inspection categories

A	Approve/Authorise Work to be approved or authorised
I	Inspection Contractor and/or Southern Piling should carry out the necessary inspection(s) and/or test(s) to ensure conformance to the drawings, specifications, contract requirements and related codes and standards
R	Review Review of all results of inspections, examinations and tests, designs and installation logs.
S	Surveillance Monitor the status of the work and carry out periodical analysis of records.
W	Witness If agreed between the Contractor and Southern Piling, any mandatory items of testing, examinations or inspection will be carried out by the relevant inspection authority. If this authority is not available at the required time, the work may continue, to enable adherence to the construction programme.

Sections

- 1: Pre-activity checks
- 2: Boring of piles
- 3: Site construction
- 4: Concrete sampling and testing
- 5: Post-construction

1: Pre-activity checks

1.1 Check pile drawing				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check latest construction drawing	Supplied by engineer	Prior to commencement	Southern Piling Contracts Manager/Supervisor or	Latest revision
Southern Piling		Main Contractor		Engineer
R		R		
Remarks				
Ensure latest revision				
1.2 Verify RAMS approval				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check	Approved and accepted by client	Prior to commencement	Main Contractor	RAMS
Southern Piling		Main Contractor		Engineer
R		R		
Remarks				
RAMS to be approved prior to commencement of piling				
1.3 Verify mix design approval				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check	Approved and accepted by engineer	Prior to commencement	Main Contractor/Engineer	Mix design
Southern Piling		Main Contractor		Engineer
R		R		R
Remarks				
Mix design to be approved prior to commencement of piling				
1.4 Verify pile design approval				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check	Approved and accepted by engineer	Prior to commencement	Engineer	Pile design
Southern Piling		Main Contractor		Engineer
R		R		R
Remarks				
Pile design to be approved prior to commencement of piling				

1.5 Steel reinforcement				
<i>Inspection/Test</i>	<i>Acceptance criteria</i>	<i>Frequency</i>	<i>Person responsible</i>	<i>Verifying document</i>
Check	Approved and accepted by engineer	Prior to commencement	Engineer	Pile design
<i>Southern Piling</i>		<i>Main Contractor</i>		<i>Engineer</i>
R				R
<i>Remarks</i>				
Steel to be supplied by CARES approved supplier				
1.6 Check PPL against COL				
<i>Inspection/Test</i>	<i>Acceptance criteria</i>	<i>Frequency</i>	<i>Person responsible</i>	<i>Verifying document</i>
Check	Supplied by engineer	Prior to commencement	Main contractor	Pile schedule
<i>Southern Piling</i>		<i>Main Contractor</i>		<i>Engineer</i>
R		R		
<i>Remarks</i>				
Check latest edition of all drawings				
1.7 Steel fixing sub-contractor start up				
<i>Inspection/Test</i>	<i>Acceptance criteria</i>	<i>Frequency</i>	<i>Person responsible</i>	<i>Verifying document</i>
Check competency	CPCS/CSCS	Prior to commencement	Southern Piling Contracts Manager	CPCS/CSCS card
<i>Southern Piling</i>		<i>Main Contractor</i>		<i>Engineer</i>
R/I				
<i>Remarks</i>				
Ensure that the correct cards are held, and are valid				
1.8 Approval of testing				
<i>Inspection/Test</i>	<i>Acceptance criteria</i>	<i>Frequency</i>	<i>Person responsible</i>	<i>Verifying document</i>
UKAS accredited	On accredited list	Prior to commencement	Main contractor	Certificates
<i>Southern Piling</i>		<i>Main Contractor</i>		<i>Engineer</i>
		R		
<i>Remarks</i>				
Testing house to be UKAS registered				

2: Boring of piles

2.1 Notification of piling				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
n/a	Minimum one day prior to commencement	Prior to commencement	Southern Piling Contracts Manager	n/a
Southern Piling		Main Contractor		Engineer
A/R				
Remarks				
Main contractor to be kept informed regarding the commencement of piling				
2.2 Permit to Dig approved				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check service drawings & scan piling area	Completed and approved by main contractor	Prior to commencement	Main contractor	Permit to Dig
Southern Piling		Main Contractor		Engineer
		I/R		
Remarks				
Main contractor to complete and sign Permit to Dig				
2.3 Construction drawing				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
As 1.1, check latest edition	Supplied by engineer, via main contractor	Prior to commencement	Main contractor/Engineer	Construction drawing
Southern Piling		Main Contractor		Engineer
R		R		R
Remarks				
Ensure latest edition and revision				

2.4 Piling platform				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check piling platform has been constructed correctly (BRE 470)	Firm and level, and able to accept bearing pressures	Daily informal inspection as to condition	Southern Piling Supervisor	Pile mat design
Southern Piling		Main Contractor		Engineer
I/R				
Remarks				
Piling platform must be designed and installed correctly				
2.5 Setting out				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Engineering check	Within specified tolerance: Check design	Each pile	Engineer/Surveyor	As-built survey
Southern Piling		Main Contractor		Engineer
		A		
Remarks				
Normally by main contractor				
2.6 Monitoring of boring progress				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Southern Piling Method Statement	As programme	Daily	Southern Piling Contracts Manager/Supervisor or	n/a
Southern Piling		Main Contractor		Engineer
Remarks				
Ensure the programme is adhered to and report any obstructions or hold ups				

3: Site construction

3.1 Sequence of work				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Ensure not drilling near recently cast piles	No damage to adjacent piles	Each pile	Southern Piling Supervisor	n/a
Southern Piling		Main Contractor		Engineer
I				
Remarks				
Adjacent piles to be monitored during pile installation				
3.2 Rig positioning				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check verticality and position of rig mast	ICE table B1.4	Each pile	Front/Banksman	n/a
Southern Piling		Main Contractor		Engineer
I				
Remarks				
Position and verticality to be corrected until within tolerance				
3.3 Pile positioning				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check auger position	Within 25mm	Each pile	Front/Banksman	n/a
Southern Piling		Main Contractor		Engineer
R				
Remarks				
Position to be corrected until within tolerance				
3.4 Pile toe achieved as per pile design				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Pile depth to be checked pile design	To level to be at or beyond designed length	Each pile	Rig operator	Pile record sheet
Southern Piling		Main Contractor		Engineer
I				
Remarks				
Check against pile schedule				

3.5 Concrete delivery				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check delivery ticket, prior to acceptance, to ensure correct grade and spec.	Correct concrete mix	Each delivery	Pump operator	Delivery ticket
Southern Piling		Main Contractor		Engineer
R				
Remarks				
Reject any non-conforming or out of specification concrete				
3.6 Workability				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Visual inspection of concrete	n/a	Each delivery	Pump operator	n/a
Southern Piling		Main Contractor		Engineer
Remarks				
Reject any non-conforming or out of specification concrete				
3.7 Pile cages				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Specification and condition	Compliance with design	Each cage	Frontman/Supervisor or	n/a
Southern Piling		Main Contractor		Engineer
I/R				
Remarks				
Number, size and spacing of bars, diameter of cage, pile spacers and debonding length				
3.8 Cage installation				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check cage has been installed at the correct level and is central to the pile	As specification and design	Each pile	Southern Piling Supervisor	n/a
Southern Piling		Main Contractor		Engineer
I				
Remarks				
Ensure the heave bar (if specified) is central to the pile				

4: Concrete sampling and testing

4.1 Concrete strength				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Concrete to be sampled and cubes to be taken, number as specified in client order	BS EN 12390 (part 2)	As per client specification, minimum one set per day	Southern Piling Quality Assurance department	Cube test results
Southern Piling		Main Contractor		Engineer
W				
Remarks				
Cubes will be stripped and labelled, then stored in a heated cube tank (20°C +/- 2°C)				

5: Post-construction

5.1 All piles completed				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Check all piles have been installed	Pile drawings and schedule	End of piling	Southern Piling Supervisor	Pile installation log
Southern Piling		Main Contractor		Engineer
Remarks				
Copy to be sent to main contractor				
5.2 Pile integrity				
Inspection/Test	Acceptance criteria	Frequency	Person responsible	Verifying document
Integrity testing	Zero defects	Each pile	Arranged through Southern Piling Quality Assurance department	Integrity test report
Southern Piling		Main Contractor		Engineer
W				
Remarks				
Copy to be sent to main contractor				

PERMIT TO WORK

Contract No.				
Rig No.				
Foreman				
Site address				
Main/Principal Contractor				
The Main/Principal Contractor confirms that				
Piling area scanned with CAT and Genny by competent person			Yes	No
Are there known services within the Piling Area			Yes	No
<i>If yes, is it</i>	<i>Gas</i>	<i>Water</i>	<i>Waste</i>	<i>Electricity</i>
Is it exposed			Yes	No
Service location drawing available			Yes	No
Copy attached			Yes	No
Visual inspection of site and piling platform				
Is the piling platform constructed with suitable material			Yes	No
Level (within steel tolerance of +150/-50mm)			Yes	No
Piling platform level confirmed as (MOD)				
Setting out				
Southern Piling		Client		
If Southern Piling has this been checked		Yes	No	
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6. Thames Water Assets

As noted in Section 2.6 of this report, Thames Water have key assets running beneath the site which will have an impact on how this site can be developed.

6.1 Building Near Thames Water Trunk Water Mains

A tunnel holding three large diameter trunk mains (16", 20" and 30") runs across the site from west to east. A workshop held on 22 October 2020 has taken place with, among others, Alex Birguan of Thames Water Developer Services – Civil Engineering Major Projects. During this workshop, it was agreed that the horizontal easement around the tunnel could be reduced from the standard 5m to 3m from the outer face of the tunnel.

The tunnel has been surveyed to confirm its exact location and in turn identify the 3m easement on each side, see Figure 42 and Figure 43. It was agreed with Thames Water that the thickness of 0.5m should be assumed for the tunnel wall. A total easement of 3.5m has been shown from the surveyed inside face of the tunnel.



Figure 42 Thames Water trunk mains tunnel easement

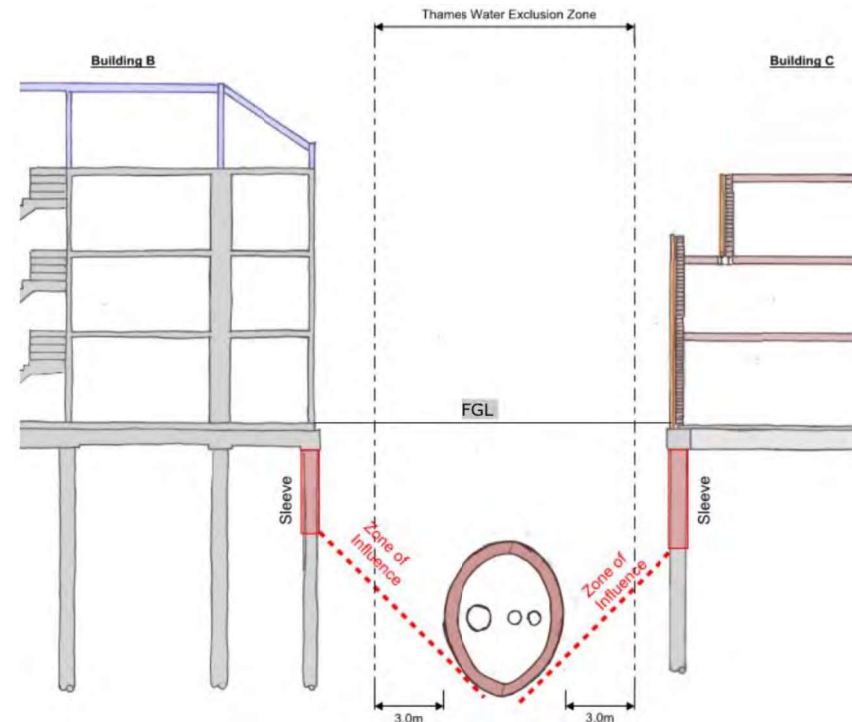


Figure 43 - Extract of drawing showing 3.0m easement from the outer face of the Thames Water trunk main culvert

The presence of this tunnel has implications on the layout of buildings A, B and the design of the substructure of building C. Thames Water have set out guidelines which must be followed to ensure that designers meet their obligations under Section 174 of the Water Industry Act 1991.

The Thames Water document 'Guidance on piling, heavy loads, excavations tunnelling and dewatering' states that-

- An impact assessment must be carried out if piling is planned within 15m of Thames water pipes.
- It is required that the proposed works-
 - I. Do not interfere with the delivery of services to customers both during and after the completion of our activities
 - II. Do not reduce the whole life value of Thames Water apparatus

III. Do not inhibit or prevent maintenance and repair to our apparatus.

Due the proximity of adjacent structures and the urban nature of the site, Continuous Flight Augured (CFA) piles will be the most applicable foundation technique for this development. Specific information on piling given in the Thames Water Document is summarised below-

- 'Bored or augured piles shall be at least three metres or 1.5 times the diameter of the pile, whichever is greater, from the pipe measured between the outside face of the pile and the outside face of the pipe'
- 'Piles adjacent to a pipe must be founded at a level not less than 1.5 m below the underside of it. Any frictional resistance of the pile above a line drawn upwards at 45 degrees from the underside of the pipe should be ignored when calculating the load carrying capacity of the pile'
- 'All boring operations must be controlled to ensure that the minimum of vibration is transmitted to the apparatus. A peak particle velocity (PPV) of 10mm/s is the maximum that should be recorded at the face of the apparatus.'

Other points from the document which may be relevant to the proposed development include the information on demolition as the existing Care Home is to be demolished.

- All demolition operation must be controlled to ensure that vibration transmitted to the pipe is kept to a minimum. The peak particle velocity (PPV) measured at the face of the apparatus must be limited to 10mm/s.
- Ground movement analysis shall be undertaken to determine the potential ground movement

A pre and post construction condition survey is required as part of the Thames Water Engineering Impact Assessment to assess if any damage to their assets has been done during the works. The pre-construction survey has been conducted and a report was issued by the survey contractor McAllister and is located in Appendix 6.

Figure 44 provides an overview of the Thames Water Working Near Assets process which has been undertaken to date and what is still required as the project progresses.

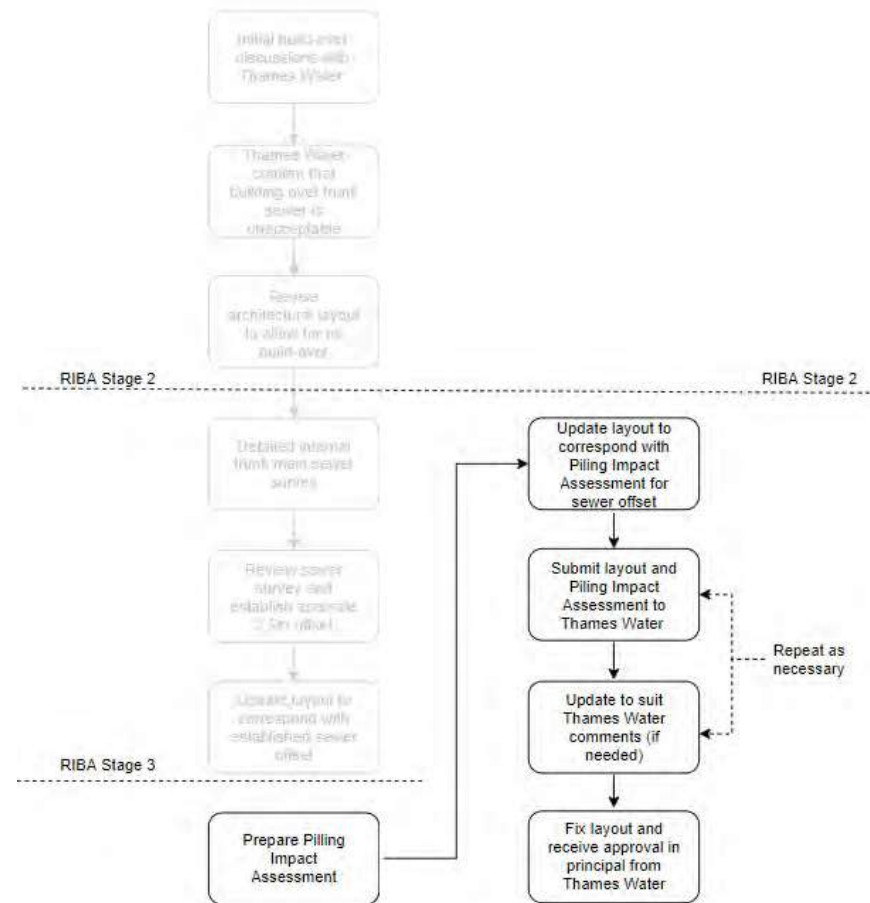


Figure 44 – Thames Water Working Near Assets process flow chart

6.2 Thames Water Foul Sewer Build-Over Agreement

A 305mm diameter Thames Water foul water sewer runs diagonally from the north-west of the site through to just south of the Parkland Walk underpass. The sewer is at a depth ranging from 7 to 10m below ground level with invert levels ranging from 83.856m to 82.956m. See Figure 45 for the proposed extent of the Build-Over Agreement.

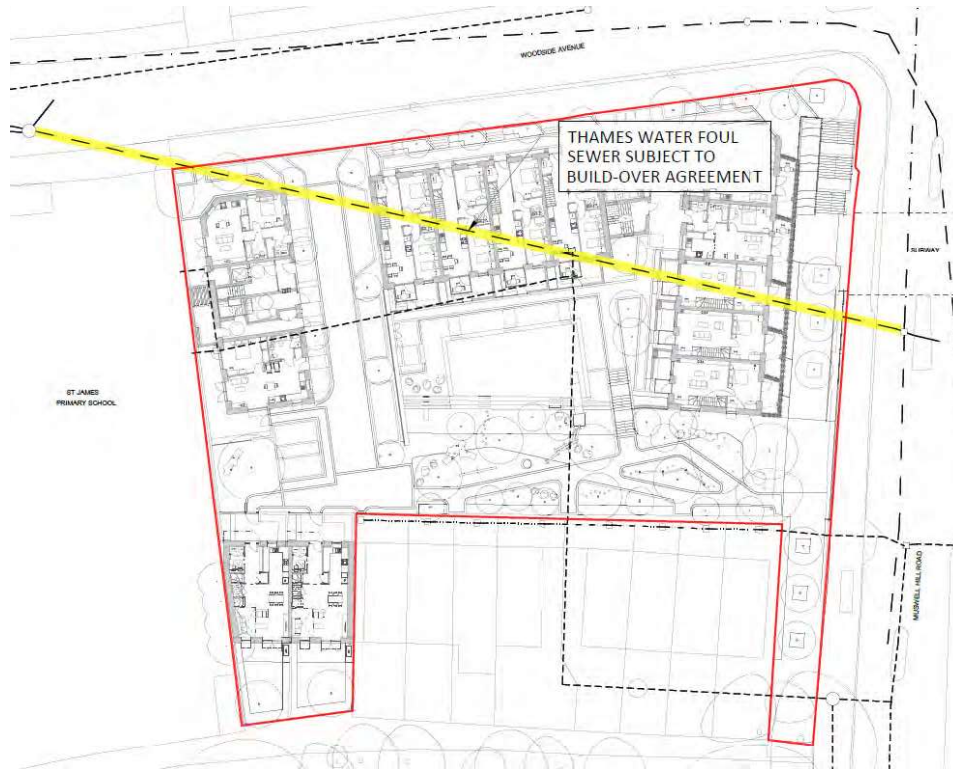


Figure 45 Build-Over Agreement extent

It has been agreed in principle with Thames Water for Haringey Borough Council to enter into a Build-Over Agreement for this asset and that a horizontal easement of 1.5m and a vertical easement of 0.5m should be used, see Figure 46. The Build-Over Agreement application is underway with reference DS409709.

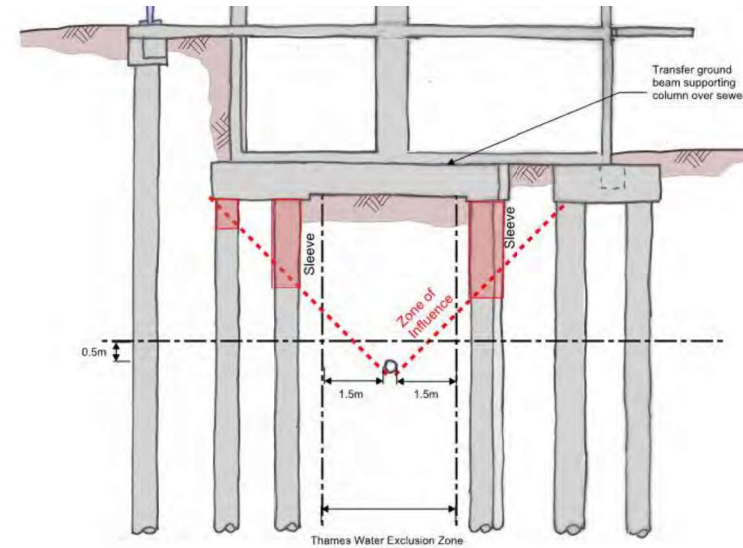


Figure 46 - Extract from drawing 1223-01-(SK)206 showing ground beams spanning over Thames Water combined sewer exclusion zone.

As part of the Build-Over Agreement, a pre and post construction condition survey is required for Thames Water to assess if any damage to their assets has been done during the works. At the time of the CCTV surveys, the surveyors from McAllister were unable to survey the foul water sewer due to a blockage in the pipe. McAllister have been instructed to return to site to clear the blockage from the sewer, re-survey the drainage run and issue the line and level as well as the pre-construction condition survey reports.

In parallel with the build-over agreement a Thames Water Engineering Impact Assessment will need to be submitted in relation to the sewer. This assessment will follow the same process as per the trunk mains, described in Section 6.1. A flow diagram of the process is shown in Figure 47. As part of the submission detailed foundation plans, sections and details will need to be submitted to Thames Water in order for them to accept the proposals. It is anticipated that this information will be submitted at the next stage of the design.

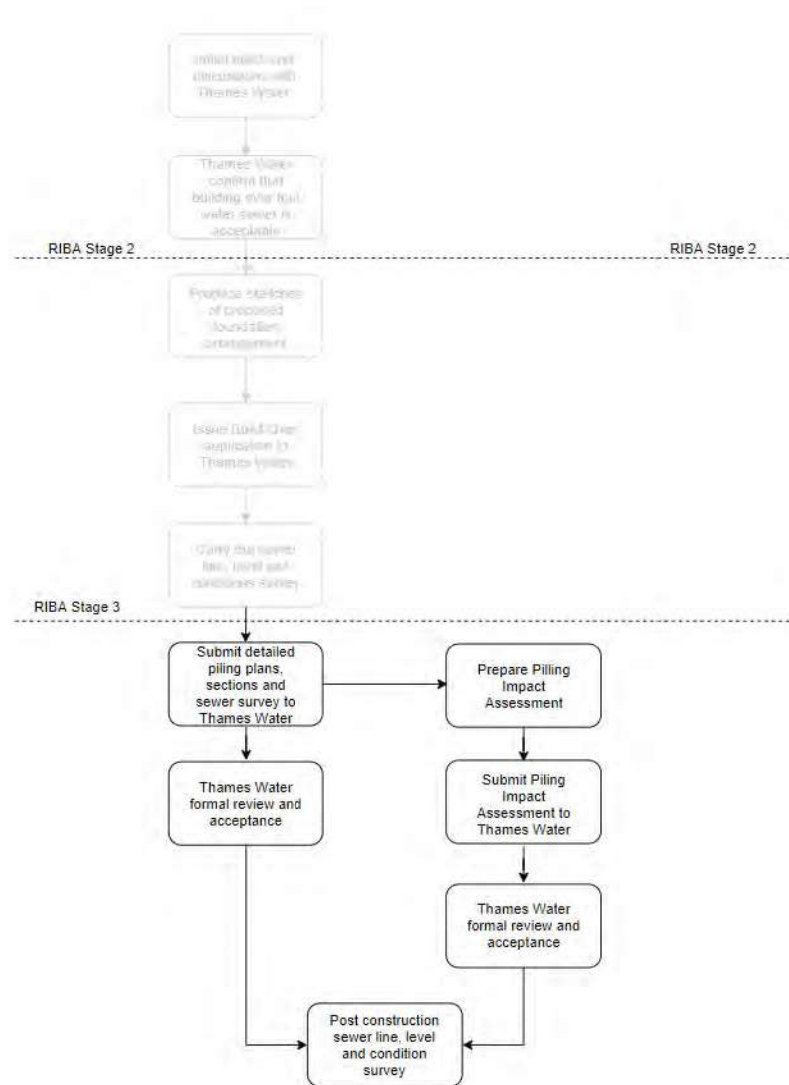


Figure 47 – Thames Water Build-Over and Engineering Impact Assessment for foul water sewer

6.3 Private Surface Water Sewer Diversion

Two 300mm diameter surface water sewers enter the site from St James Primary School to the West before joining into a single 300mm sewer running below Cranwood House and connecting into the Thames Water foul water sewer described in Section 6.2, see Figure 48.

It is proposed to divert these two surface water sewers at the western edge of the site and to reconnect into the Thames Water foul sewer upstream of its existing connection point. Survey works have identified the two surface water sewers to be in poor condition and impossible to survey upstream, it is therefore not possible to confirm if they are serving more than one property and they are not shown on the Thames Water asset plans.

It is assumed that they are both private sewers, not under the ownership of Thames Water, and therefore do not require a Thames Water Section 185 Sewer Diversion application. A Thames Water Section 106 Sewer Connection application will be required for the diverted sewer to be reconnected into the existing Thames Water foul water sewer.



Figure 48 Extract from drawing showing private surface water sewer diversion

6.4 Thames Water Surface Water Sewer Diversion

A 300mm diameter sewer is assumed to run from south to north connecting the existing terrace houses into the Thames Water foul sewer crossing the site. It is also assumed that the sewer is connected upstream to a Thames Water surface water sewer, see Figure 49.

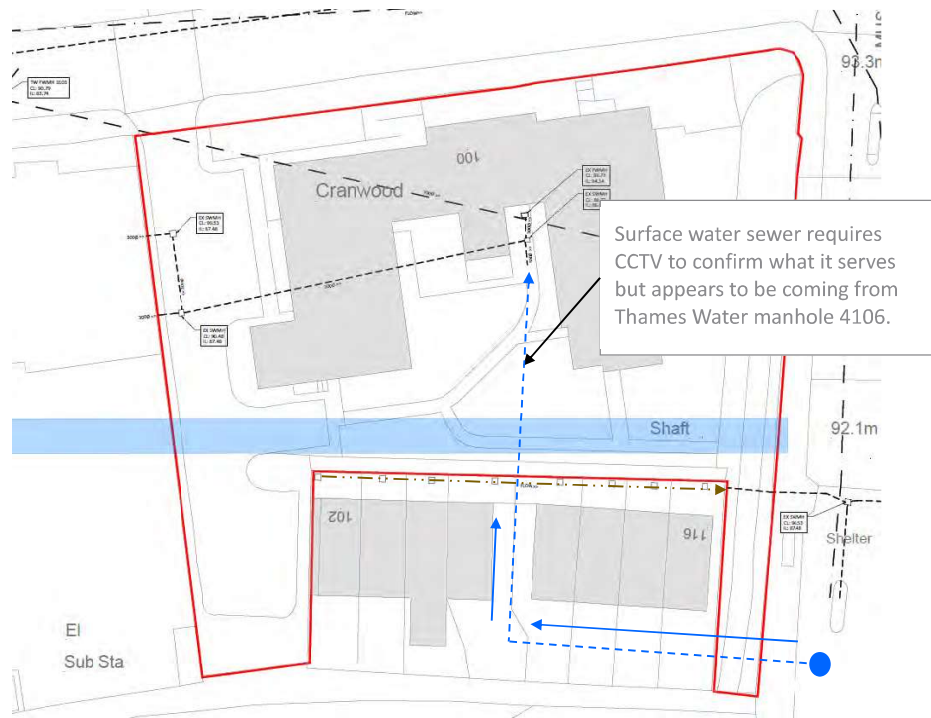


Figure 49 Plan showing assumed route of Thames Water surface water sewer

At the time of the CCTV surveys the surveyors, McAllister, were unable to survey the surface water sewer due to a blockage in the pipe. McAllister have been instructed to return to site to clear the blockage from the sewer, re-survey the drainage run and establish the upstream route in order to confirm the above assumptions.

Based on the above assumptions it is proposed to divert the sewer into the existing Thames Water foul water sewer which is located in the front gardens of the terrace houses, see



Figure 50. The existing upstream Thames Water manhole, located in Muswell Hill Road, is shown to have an existing connection into the foul water sewer in the highway. It is therefore considered that proposing a connection into the Thames Water foul water sewer will not be rejected.

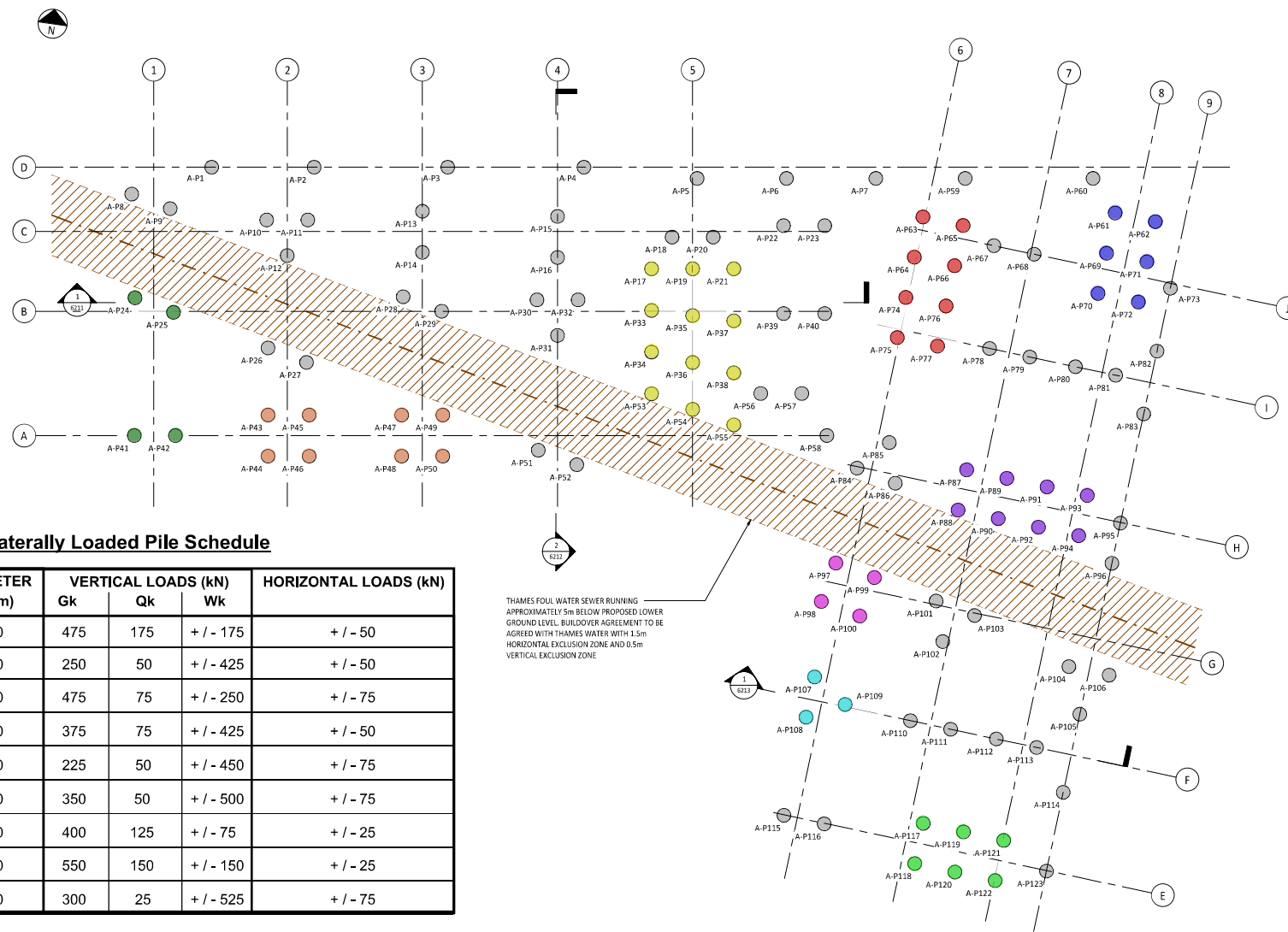
Following the additional CCTV information being issued a Thames Water S185 Sewer Diversion application can be submitted.



Figure 50 Extract from drawing showing Thames Water surface water sewer diversion

6.5 Thames Water Pre-Development Agreement

A Thames Water pre-development application has been submitted to Thames Water (Ref. No. DS6081544). The pre-development application was submitted on the basis that the site surface water discharge rate would be restricted to 5l/s, provided that the LLFA agreed to this. The foul water flow rates were based on 42No. flats and were accepted by Thames Water. The pre-development agreement dated 3rd March 2021 is valid for 12 months. If proposals change or the expiry date is passed the pre-development application will need to be resubmitted.



Laterally Loaded Pile Schedule

PILE TYPE	DIAMETER (mm)	VERTICAL LOADS (kN)			HORIZONTAL LOADS (kN)
		Gk	Qk	Wk	
Red	600	475	175	+ / - 175	+ / - 50
Blue	600	250	50	+ / - 425	+ / - 50
Green	600	475	75	+ / - 250	+ / - 75
Orange	600	375	75	+ / - 425	+ / - 50
Yellow	600	225	50	+ / - 450	+ / - 75
Purple	600	350	50	+ / - 500	+ / - 75
Magenta	600	400	125	+ / - 75	+ / - 25
Cyan	600	550	150	+ / - 150	+ / - 25
Bright Green	600	300	25	+ / - 525	+ / - 75

Note: All other piles to have 600mm diameter and be designed for a safe working load of 900kN

KEY

300mm DIA.

FOUL WATER PIPE

EASEMENT AREA

- Standard Notes
1. This drawing is to be read in conjunction with all relevant Architect's and Engineer's drawings and the specifications.

2. This drawing should not be scaled.

3. All dimensions are to be verified by the contractor on site.

4. All discrepancies should be reported to C.A. prior to the commencement of works.

- Notes and Keys
1. FOUNDATION DESIGN BASED ON SOLITECHNICS GROUND INVESTIGATION REPORT. ASSUMED SAFE WORKING LOAD OF 600mm PILE = 900kN

2. PILING CONTRACTOR TO DETERMINE DESIGN COMBINATIONS FOR GEOTECHNICAL DESIGN IN ACCORDANCE WITH BS EN 1991 AND BS EN 1997.

3. WORST CASE ACTION OF WK TO BE CONSIDERED FOR PILE DESIGN.

4. HORIZONTAL SHEAR DESIGN FORCE TO BE CONSIDERED ACTING AT TOP OF PILE AND IN DIRECTION THAT GENERATES WORST CASE DESIGN ACTION.

16.04.21

PO2

RIBA STAGE 3 ISSUE

LG

KW

Date

Rev

Description

Drawn

Chkd

Civic Engineers

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LONDON

Reeds Wharf, 38 Wile Street, London E12 2NF, Tel: 020 7233 3297

GLASGOW

Tower Wharf, 100 St. John St, Glasgow, G1 1JF, Tel: 0141 2023 120

GLASGOW

Graham Chambers, 45 West Wall St, Glasgow, G3 7PF, Tel: 0141 570 1879

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Project

CRANWOOD HOUSE

Title

BLOCK A PILING LAYOUT GA

Status

RIBA STAGE 3

Project Number

1223-02

Scale @ A3

1:50

Date Created

JAN 21

Drawn

LG

Checked

KW

Suitability

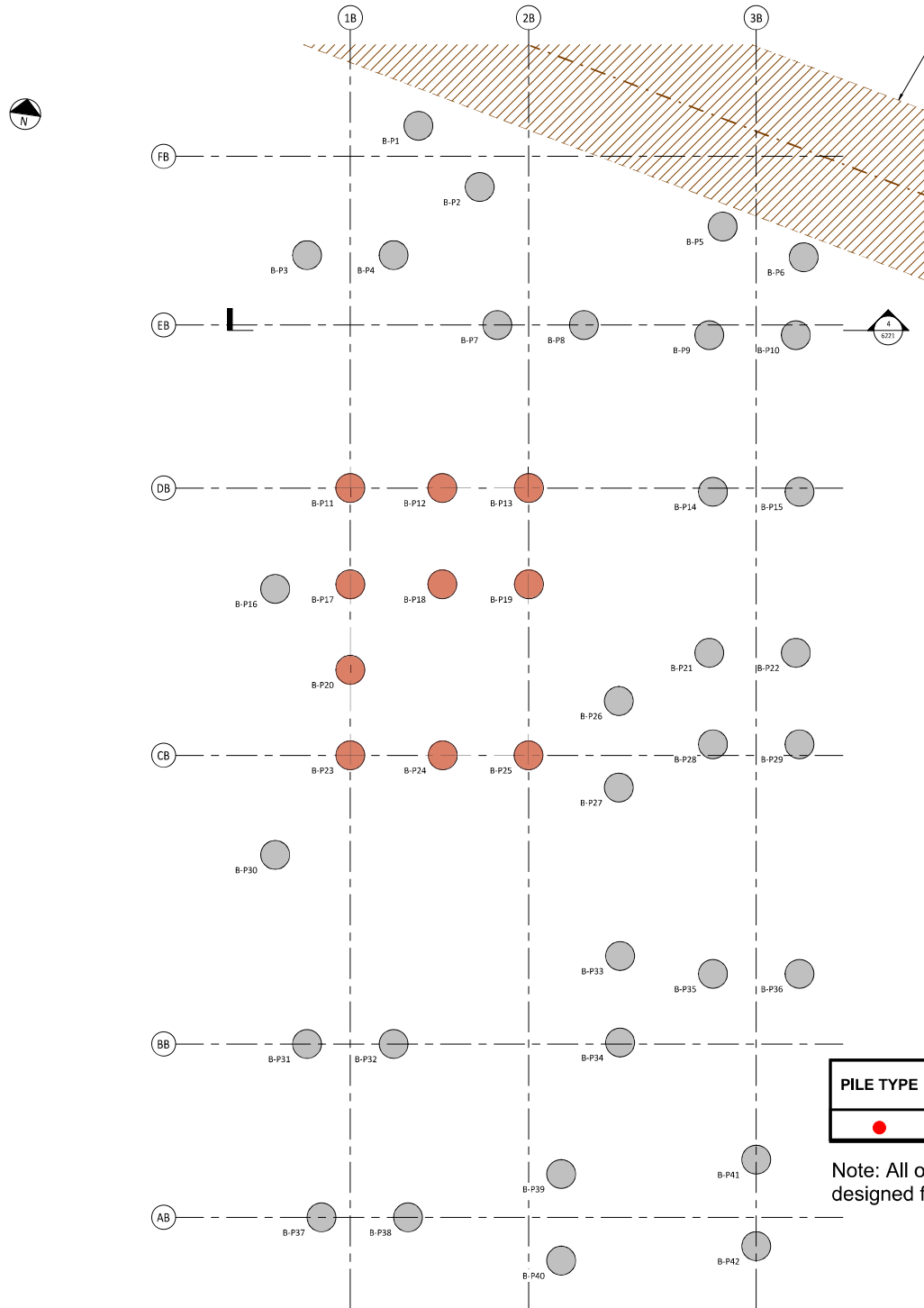
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Drawing Number

1223-02-CIV-01-B3-DR-S-5013

Revision

PO2



THAMES FOUL WATER SEWER RUNNING
APPROXIMATELY 5m BELOW PROPOSED LOWER
GROUND LEVEL. BUILD OVER AGREEMENT TO BE
AGREED WITH THAMES WATER WITH 1.5m
HORIZONTAL EXCLUSION ZONE AND 0.5m
VERTICAL EXCLUSION ZONE

Laterally Loaded Pile Schedule

PILE TYPE	DIAMETER (mm)	VERTICAL LOADS (kN)			HORIZONTAL LOADS (kN)
		G _k	Q _k	W _k	
●	600	300	50	+ / - 500	+ / - 50

Note: All other piles to have 600mm diameter and be
designed for a safe working load of 900kN



- Standard Notes
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 3. WORST CASE ACTION OF WK TO BE CONSIDERED FOR PILE DESIGN.
 4. HORIZONTAL SHEAR DESIGN FORCE TO BE CONSIDERED ACTING TOP OF PILE AND IN DIRECTION THAT GENERATES WORST CASE DESIGN ACTION.

16.04.23	P02	RIBA STAGE 3 ISSUE	LG	KW
Date	Rev	Description	Drawn	Chkd



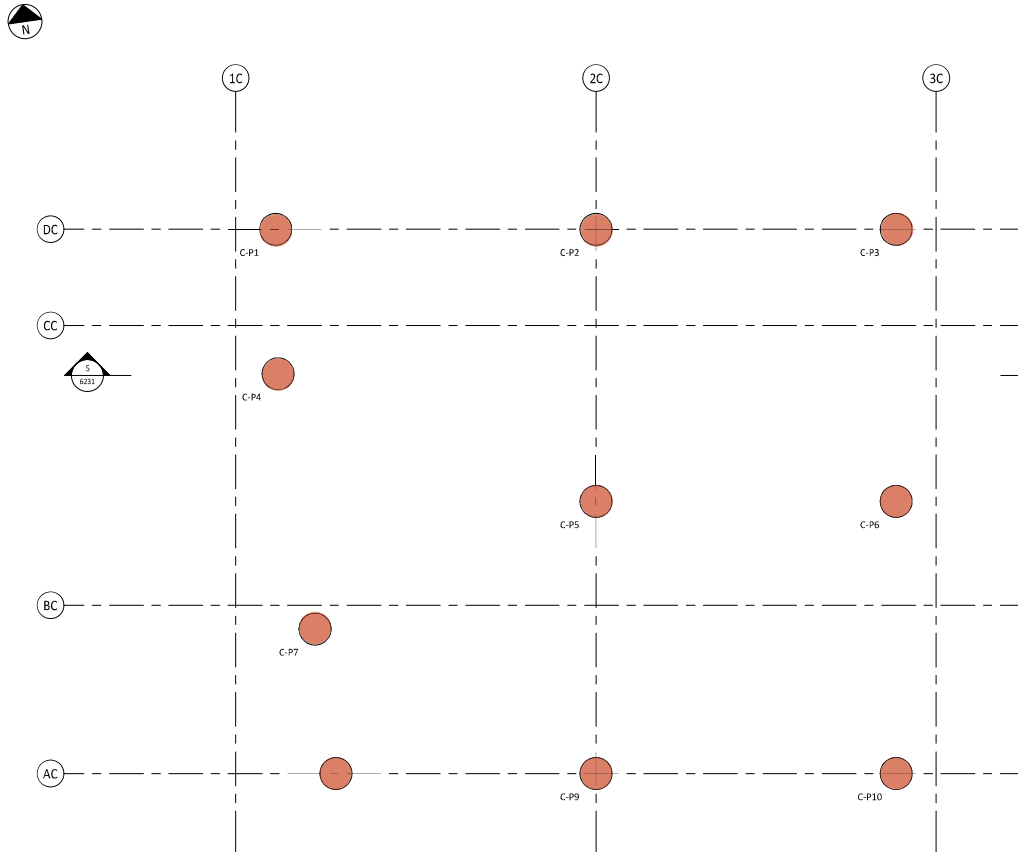
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LONDON Road's Wharf, 33 W1F Street, London W1F 3NF, Tel: 020 7233 3277
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Project
CRANWOOD HOUSE

Title
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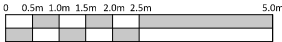
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1223-02	1:50	JAN 21	LG	KW	-
Drawing Number					Revision
1223-02-CIV-02-B2-DR-S-5022					P02



Laterally Loaded Pile Schedule

PILE TYPE	DIAMETER (mm)	VERTICAL LOADS (kN)			HORIZONTAL LOADS (kN)
		G _k	Q _k	W _k	
●	600	400	125	+ / - 200	+ / - 50

Note: All other piles to have 600mm diameter and be designed for a safe working load of 900kN



Scale Bar 1:50

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16.04.21	P02	RIBA STAGE 3 ISSUE	LG	KW
Date	Rev	Description	Drawn	Chkd



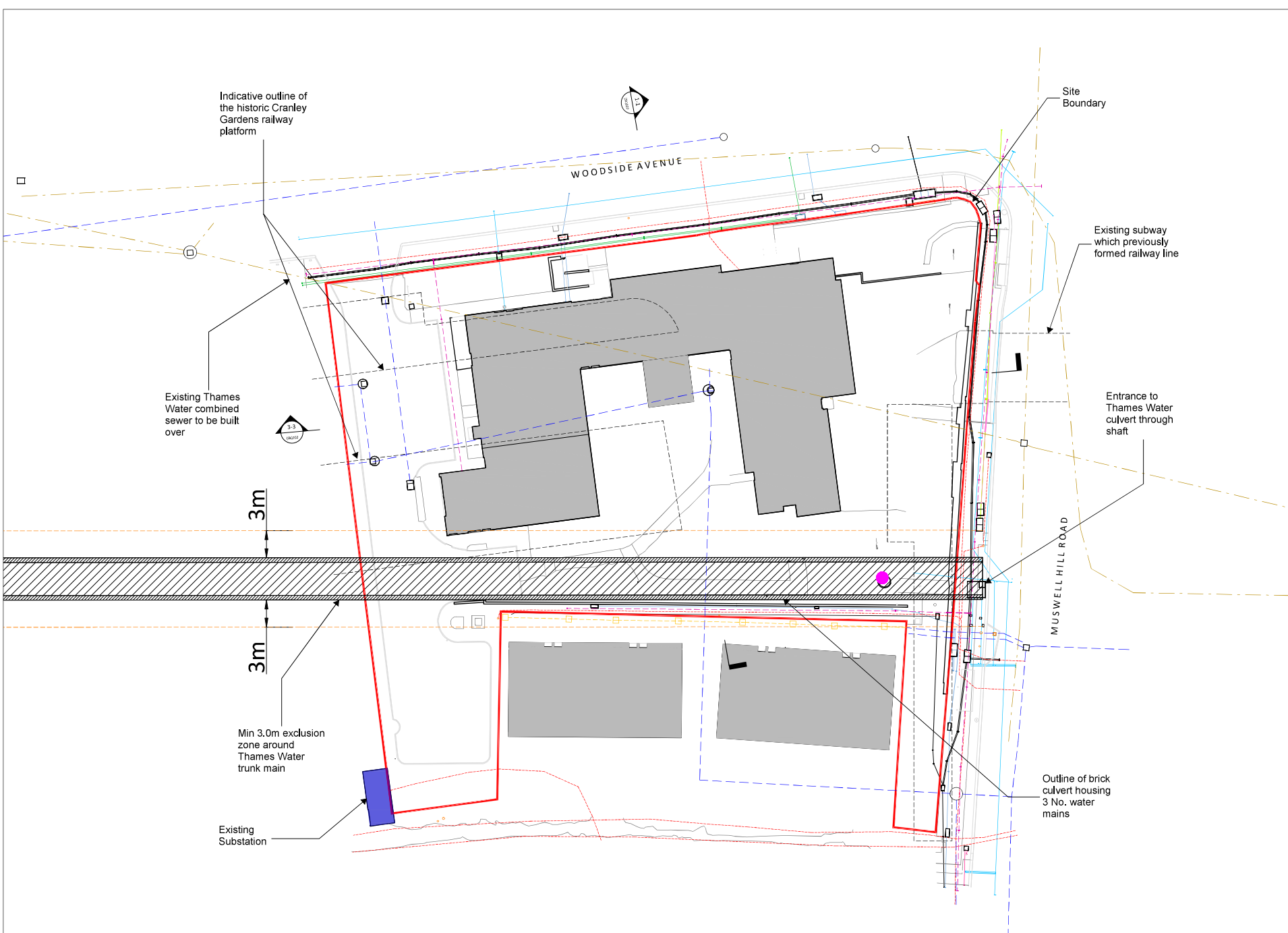
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Project
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Title
BLOCK C PILING LAYOUT GA

Status RIBA STAGE 3				
Project Number 1223-02	Scale @ A3 1:50	Date Created JAN 21	Drawn LG	Checked KW
Drawing Number 1223-02-CIV-03-B2-DR-S-5032				Revision P02



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2. This drawing should not be scaled.
3. All dimensions are to be verified by the contractor on site.
4. All discrepancies should be reported to the C.A. prior to the commencement of the works.

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- Notes and Keys
- Existing site features and service key
- Existing Vodafone
 - Existing surface water sewer
 - Existing foul water sewer
 - Existing combined water sew
 - Existing telecom
 - Existing Virgin Media
 - Existing water main
 - Existing service route TFL
 - Electric
 - Gas
 - BT
 - Air vent shaft
 - Existing Building
 - Assumed extent of former Buildings
1. The layouts of buildings and services shown are based on information provided by Plowman Craven.
 2. The layouts of historic buildings shown are based on historic ordnance survey maps of the site and surrounding areas.
- Existing Substation

36.04.23	P02	RIBA Stage 3 Issue	AF	EL
26.03.23	P01	Issued as part of draft Stage 3 Report	ZTP	FR
Date	Rev	Description	Drawn	Chkd

WILDCRESTER
1250000
1250000
1250000

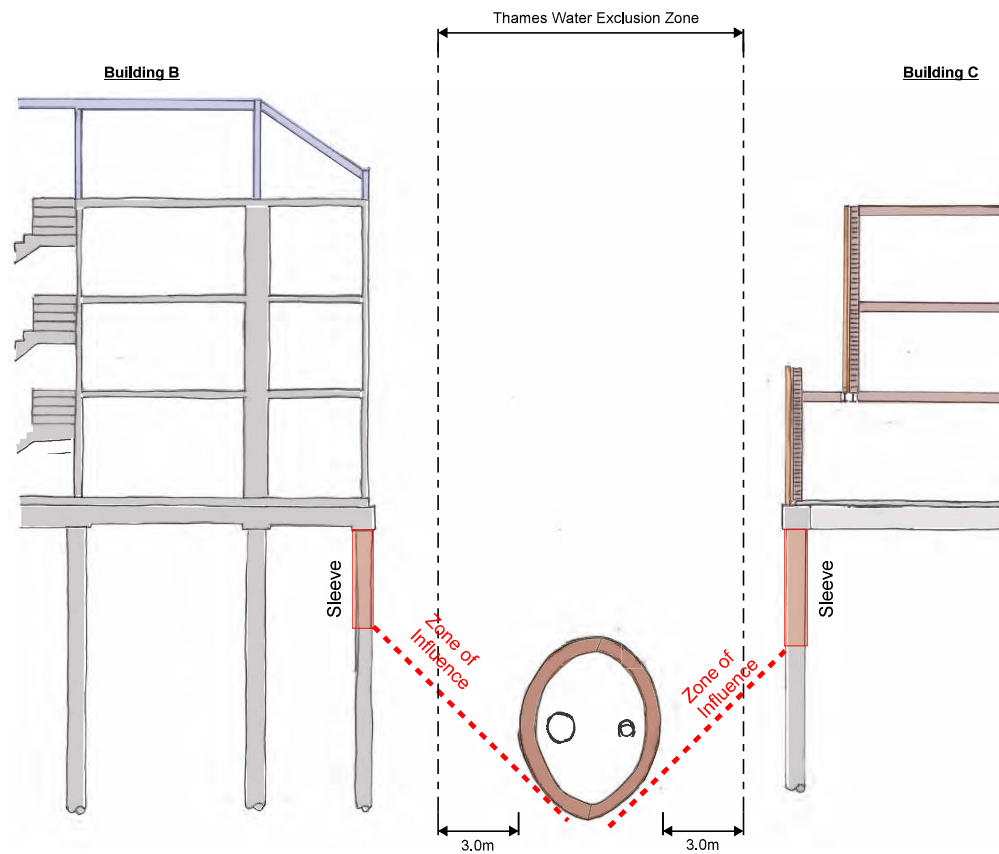
Civic's Head Office: 17 Oak Street, Manchester, M1 4BT, Tel: 0161 2761171
Email: info@civic-engineers.com, sales@civic-engineers.com
Civic's Midlands Office: 100-102, The Quadrant, Lutterworth, Leicestershire, LE15 1AA, Tel: 01549 870100
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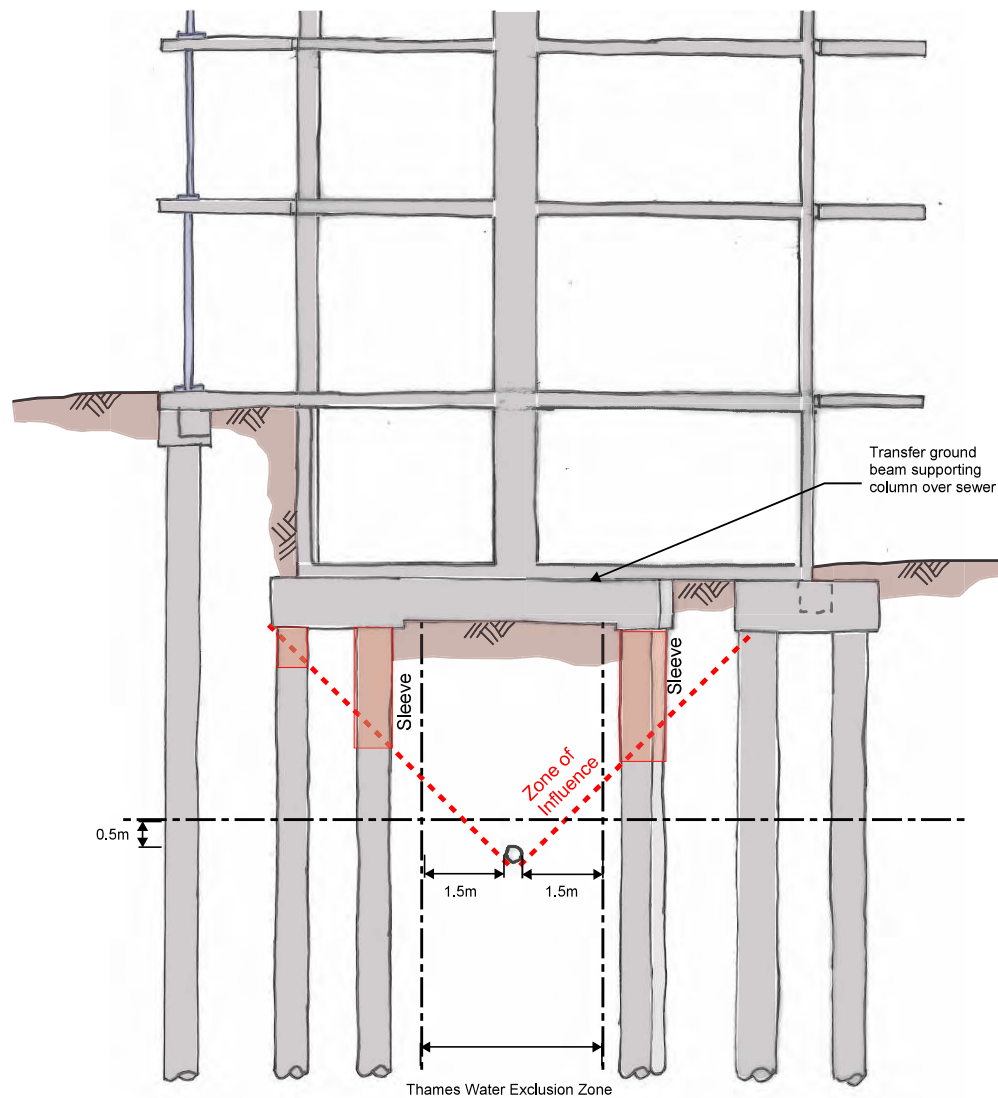
Project
**Cranwood House
Haringey**

Title
Site Constraints Plan

Status					FOR INFORMATION				
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1223-02	1:200	MAR 21	ZTP	EL	1223-02	1:200	MAR 21	ZTP	EL
Drawing Number					Revision				
1223-02-(EX)001					P02				



26.03.21	P01	Issued for Information	TH	KW
Date	Rev	Description	Drawn	Chkd
 Civic Engineers				
Project				
Cranwood House				
Title				
Thames Water Culvert Exclusion Zone Sketch				
Project Number	Drawing Number	Scale @ A3	Revision	
1223-02	(SK)205	1:200	P01	



26.03.21	P01	Issued for Information	TH	KW
Date	Rev	Description	Drawn	Chkd
 Civic Engineers				
Project				
Cranwood House				
Title				
Thames Water Buildover Agreement Sketch				
Project Number	Drawing Number	Scale @ A3	Revision	
1223-02	(SK)206	1:100	P01	