METHOD STATEMENT
(Continuous Flight Auger Piling)

Project: All Saints Library MMU.

Contract Number: 0812.25



Issue no.:	2
Issue date:	24/09/26
Prepared by:	AC
Signed:	

Project Details	
Project:	All Saints Library, Manchester Metropolitan University.
Contract Number:	0812.25
Project Address:	All Saints Library, Manchester Metropolitan University, Manchester M15 6BH.
Main Contractor:	Kier
M/C Site Manager:	TBC.

Document Control			
Date	**Version**	**Initials**	**Changes**
16/09/26	1	DJ	First issue
24/09/26	2	AC	Revision to include comments on site specific matter notably Groundwater & Aquifer

Appendices	
Appendix A:	Concrete Pumping, Blowout & Cleaning Procedures
Appendix B:	CFA Piling - Rigging & Loading Procedures
Appendix C:	Reinforcement Cage Fabrication & Modification
Appendix D:	MEWP Emergency Rescue Plan
Appendix E:	COSHH Summary
Appendix F:	Re-fuelling and Spillages
Appendix G:	Noise Monitoring & Risk Assessment
Appendix H:	Exclusion Zones
Appendix I:	Concrete Testing Procedures
Appendix J	Inspection and Test Plan

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1. SCOPE OF PILING WORKS

The work comprises the construction of 182no. 450mm & 600mm nominal diameter piles to specified depths / toe levels.

The piles are designed by Foundation Piling Limited (FPL) for loading specified by others.

The pile layout is shown on the following drawings:

Drawing Title	Drawing Ref.	Revision
BHE-ZZ-FN-DR-S-000200	TBC	P02
BHE-ZZ-FN-DR-S-000201	TBC	P01

Pile construction details are detailed in our schedule reference: TBC

The piling platform (PPL) and commencing surface (CSL) level is: TBCmOD

For the purposes of quality control in construction, the depth to the standing water level (SWL) on this site has been established as approximately TBCm below the commencing surface level.

2. MANAGEMENT AND PERSONNEL

The Management Team:

Managing Director:	Stephen Edmondson	07803 857686
Contracts Director:	Tomas Keaveny	07803 857688
Operations Manager:	Colin Kemshead	07717 666111
Construction Manager:	Darren Job	07964 823630
Site Supervisor:	TBA	TBA
SHEQ Manager:	Stephen Daniels	07812 063466

The minimum training / competence achievement for the crew appropriate to their designation are:

Supervisor	SSSTS / SMSTS
Rig Operator	CPCS
Pump Operator	CPCS
Slinger Signaller	CPCS
Operators of any other plant	CPCS

Records for each crew member will be provided on request.

Not more than one member of the crew may be a trainee in his designated role.

3. PERSONAL PROTECTIVE EQUIPMENT

Item	Use	Standard
Safety Helmet	At all times	EN 397
Protective Footwear	At all times	EN ISO 20345
Hi-Viz Clothing	At all times	EN 471 Class 2
Gloves	Manual handling	BS EN 388
Gloves (waterproof)	Handling concrete	BS EN 388
Light Eye Protection	In vicinity concrete pumping	EN 166 1F
Further eye protection	During blow out operation	BS EN 166 1B or 1A
Hearing protection	Refer to noise assessment	BS EN352-1
Harness & lanyard	Working within MEWP	BS EN 354, BS EN 361
Additional PPE will be worn when required for the task being undertaken.		

4. THE SITE



The site comprises an area approximately 80m x 70m and is situated in the grounds of the live Manchester Metropolitan University

The headroom within the working area is not limited.

Access is off Chester Street/Oxford Road, with a minimum access width in excess of 4mts. The minimum access headroom is also not limited.

5. SITE HAZARDS

The piling rig is a self-erecting hydraulic type with a mast height of 32.5mts and will always operate within it's working limits.

Buried services will be located and then diverted or protected by the Customer prior to piling.

There are no overhead cables or the like which restrict rig movement.

The maximum length of reinforcement cage is 10mts

There are no other known hazards on this site.

The Main Contractor or other responsible organisation is to issue a Permit-To-Work before any piling activity commences.

6. FIRST AID ARRANGEMENTS

The Main Contractor will provide first aid facilities

7. COSHH

Site-specific COSHH assessments for substances that will be used are attached.
Material Safety Data Sheets MSDS will be made available on request.

8. ENVIRONMENTAL CONSIDERATIONS

There are no known water courses on this site.

The Main Contractor will provide suitable wash-out areas both for concrete delivery trucks and the concrete pump.

All Foundation Piling rig operators are supplied with spill kits in case of fuel or oil spillages.

9. CUSTOMER'S ATTENDANCE ON THE PILING OPERATION

The attendances on the piling operation include, but are not limited to, the following principal items:

Provision of welfare facilities
Identification, diversion or protection of services
Protection of adjoining buildings and roadways
Traffic management
Provision of 360 excavator in general attendance
Provision and maintenance of access and piling platform(s)
Spoil removal
Certification of the design and construction of the working platform(s)
Pile setting out, level control and checking
Mains water supply
Briefing of other trades in vicinity of piling works in risks associated with piling operations

The Main Contractor is responsible for ensuring competence of attendant plant operators, including lifting operations and quick hitch familiarisation. The Main Contractor is to

ensure that attendant plant operators are briefed in this risk assessment and method statement and attend daily briefings. This includes any changeover of personnel.

10. PLANT AND EQUIPMENT

Piling rig:	Soilmec SF 65 / SR 45 / SR 65 / SR 95 (or similar CFA)
Mast height:	32.5m
CFA dig-depth:	TBCm
Kelly extension:	May/May not be used.
Auger head size:	450mm 600mm
Ancillary plant:	Mecbo crawler mounted combined agitator / pump unit Trailer mounted concrete pump. Static Agitator Compressor MEWP Bowser & Jet wash 40t crawler crane VTH1 cage vibrator

Access to the upper parts of the piling rig will be via the MEWP. A safety harness and fall restraint lanyard will be worn by personnel working at height and within mobile equipment or without edge protection.

Company procedures for concrete pumping, blow-out and line blockage clearance are included as Appendix A.

11. MATERIALS

Concrete will be ready mixed and supplied from a plant registered under the QSRMC or similar accreditation scheme.

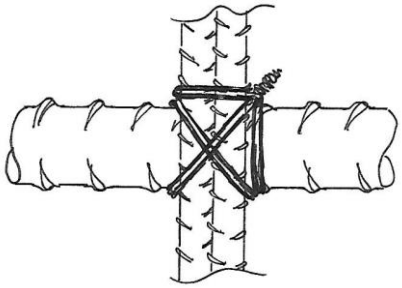
Concreting in cold weather (below 5°C, and including stamped concrete tickets) is permitted, in accordance with ICE SPERW clause B21.7. Concrete temperature will be measured at point of discharge and must be a minimum of 5°C for concreting to proceed. Where pile cut off level is more than 500mm below concrete casting level, the surface of the concrete will be covered with light insulation to maintain temperatures above 5°C during curing.

Concreting in hot weather (above 25°C and including stamped concrete tickets) is permitted. Works will be planned to minimise delays between batching and placement of concrete. Concrete in pump lines will be regularly circulated where there is any pause in piling works. Where pile cut off level is more than 250mm below concrete casting level, the surface of the concrete may be covered in spoil or dampened hessian to prevent surface evaporation.

Reinforcement will be supplied from a CARES registered supplier.

Maximum reinforcement length is 10m and maximum reinforcement weight is 250kg.

Reinforcement cages will be fabricated on site using 16-gauge black annealed tying wire. The top of the cage will be finished with the top two turns of helix fixed with double strand crown ties at each joint (see below). This forms the designated lifting point. The lifting point will be visually inspected prior to lifting.



Reinforcement cages will be visually inspected upon delivery and prior to lifting.

12. SEQUENCE OF PILE CONSTRUCTION

The progression of piling will be determined on site by the Piling Supervisor to a planned sequence designed to avoid damage to newly constructed piles, existing structures and any adjacent services.

The minimum requirements are that for any pile within three diameters of a newly cast pile, unless there exists a previously cast pile in a direct line between them, there shall be a minimum period of 10 hours between completion of concrete placing in the first and commencement of boring.

13. CONSTRUCTION TECHNIQUE

The piling rig will be set up so that the tip of the lead auger hangs centrally over the pile position.

A purpose made disposable ‘bung’ or flap will be fitted to the auger stem exit.

Where compressed air is used to assist flighting of spoil, a disposable bung may not be required. Air lines will be fitted to a designated point on the piling rig or to the concrete pump line inlet at the base of the mast. Air supply will be turned on during boring and air flow will be controlled using chamber valves. Air supply will be controlled against rig penetration to monitor any risk of overflighting.

Prior to starting each bore the rig driver shall check the correct function of the automated monitoring system.

The position of the initial bore will be checked and reworked as necessary.

The bore will be advanced maximising penetration for each revolution of the auger consistent with the operating parameters of the equipment.

Any excess flighting of spoil will be recorded.

If for any reason the pile is not concreted upon achieving depth, the auger will be rotated counter clockwise to refill the bore as the auger is retracted.

Initially the rate of concrete over-supply shall be set at 15%. The Piling Supervisor shall review this quantity and make any appropriate adjustments as the works proceed.

Ready mixed concrete will be pumped through the hollow stem of the auger string. At commencement, the auger string will be raised by approximately 100mm to allow the bung to be displaced. The pile will be re-bored in excess of this amount before auger extraction.

The auger string will be slowly rotated clockwise and progressively withdrawn as pumping continues. Augers will be cleared of spoil as the auger string is withdrawn.

Concrete pumping will be carried out in accordance with Appendix A.

Should the rig operator suspect for any reason that the level of the concrete is below either the tip of the auger and the standing water level, the rig operator shall then be re-bore the pile 0.5m deeper than the suspected anomaly. The zone of re-boring will be recorded.

Where pile depth exceeds the depth limit of the CFA auger string, short-length extension augers are permitted.

If used, as extension augers are removed during concreting, the level of the concrete within the auger stem will be checked as each section is removed to ensure that the level of the concrete remains higher than the standing water level established for the relevant part the site.

The pile will be concreted to ground level with a surplus of material placed so as to avoid contamination with spoil. This surplus will subsequently be scraped away by the attendant excavator to leave a clean profile of fresh concrete. A piling operative will use a shovel to define the perimeter of the pile prior to installation of reinforcement.

Reinforcement cages may be lifted into position by hand depending on weight (manual Handling Regulations); by the spare line of the piling rig; by the attendant excavator or by a service crane. Where the spare line of the piling rig is used, the flights of the auger should be visually checked for spoil before any operative enters an area within 2m of the auger string. Where an attendant excavator is used, the bucket will be removed prior to lifting.

Reinforcement cages will be inserted taking care not to contaminate the shaft concrete with spoil. The cage will be lowered initially under gravity. If required, piling operatives may assist by pushing the cage into the concrete. Operatives are to avoid placing hands through the cage or grabbing any joints which may include sharp wire ends. Piling operatives are to ensure their hands do not get trapped inside the cage as it is lowered.

Plastic wheel type spacers will be fitted during cage installation, unless cages are supplied with skid spacers pre-fitted.

When the concrete provides resistance preventing manual installation, the attendant excavator may provide mechanical assistance using the flat side of the bucket against the top of the cage. All lifting accessories will be removed from the excavator before fitting the bucket. The excavator will carry out a “bump test” on the bucket connection before raising the bucket and will not slew over any operatives. All lifting accessories fitted to the reinforcement cage should be removed or slackened before applying any pressure to the cage with the excavator. The operator will apply pressure to the cage under the direction of the slinger-signaller taking care to ensure that the cage remains vertical.

Foundation Piling may use a purpose made cage vibrator or weight to assist in plunging cages to the required depth. This will be used with the attendant crane. All lifting accessories will be checked prior to the lift. When resistance from the concrete occurs the piling cage vibrator will engage and place cage at finished level.

Reinforcement cages will be inserted after concreting taking care not to contaminate the shaft concrete with spoil. The top of the reinforcement in bearing piles will be left at or above ground level as required. Reinforcement cages to wall piles can only be installed to ground / guide-wall level.

The top of the reinforcement in bearing piles will be left at ground level unless otherwise required by the Main Contractor.

The pile will be covered or fenced off until concrete cures sufficiently to prevent any trips or falls into the wet concrete.

14. PROJECT SPECIFIC MATTERS including GROUNDWATER & AQUIFER PROTECTION

The piles will / may be founded at ‘practical rig refusal’. This is defined as a penetration of 0.1m for ten revolutions.

‘De-bonding’ foam, where supplied, will be fitted to the reinforcement cages as detailed on the Construction Schedule.

Piles nominated as test-piles (TP) will be completed with an integral cap. The reinforcement cage will be finished with two turns of helix and set with nominally 40mm top-cover.

All bearing piles will be integrity tested after trimming. The Main Contractor is asked to provide their requirements for the testing of each batch, as per integrity testing booking procedures which are available upon request.

Review of the Ground Investigation Report and Geoenvironmental Assessment has been undertaken with CFA piling methodology has been considered in relation to the potential creation of preferential contaminant pathways to groundwater.

Procedures to be followed should contaminated groundwater, hydrocarbon contamination, unexpected staining, odours or groundwater inflows be encountered during drilling operations.

Immediate stop-work and escalation procedures for unexpected contamination or groundwater conditions.

Environmental Controls
No concrete washout water, contaminated water, drilling arisings or other potentially polluting materials shall be discharged to ground, drainage systems or groundwater.

Refuelling, maintenance and washout activities shall only take place within designated controlled areas with suitable secondary containment.

Spill kits shall be maintained adjacent to all plant, pumps and fuel storage locations.
Pile arisings and excavated materials shall be managed in accordance with the project Waste Management Plan and any contamination management requirements.

Any pollution incidents shall be immediately reported in accordance with the site environmental procedures.

15. CONCRETE TESTING

Where applicable, concrete testing will be conducted as per the standards shown in the below table and as appendix I

Test	Standard
Cube Samples	BS EN 12390-2
Flow Test	BS EN 12350-5
Slump Test	BS EN 12350-2

16. QUALITY

The Piling Supervisor will notify his Manager of any departure from this Statement. The Manager shall issue a Non-Conformance Report in respect of any such departure.

17. RECORDS

Autographic records will be presented and summarised on our standard daily report sheets.

The records will include:

- Job name
- Reference number
- Nominal diameter
- Date of construction
- Times of boring and concreting
- Bored length from commencing surface
- Rate of auger penetration
- Rate of auger extraction
- Volume of concrete placed
- Reinforcement details

Any delays
Concrete cube samples made

A copy of the record sheet will be presented to the Customer for agreement.

18. ON-SITE TRAINING

The Main Contractor will provide induction training to all personnel on their arrival. The induction is to include site emergency procedures.

The Piling Supervisor will brief all operatives prior to commencement of piling works.

Toolbox talks will be carried out as reasonably required by the Customer.

19. RECORD OF BRIEFING

I confirm that I have read and understood this Method Statement and associated Risk Assessments. I agree to work in accordance with the systems of work as described and as directed by the Company.

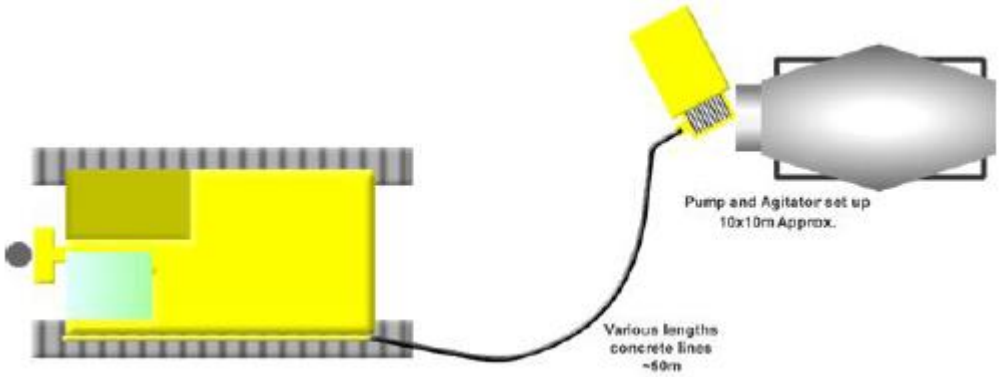
Name	Signature	Company Name (where not Foundation Piling)	Date

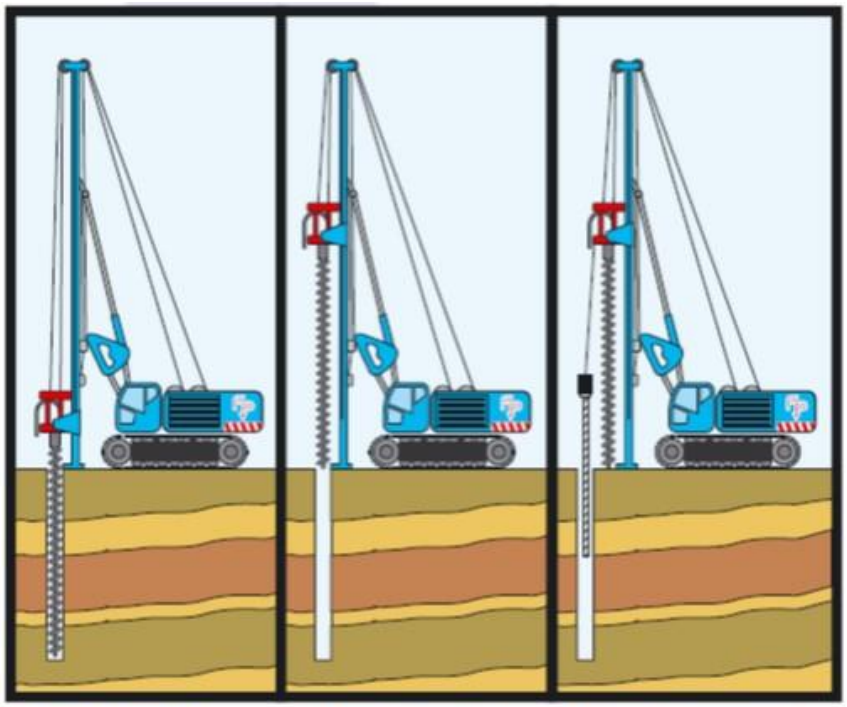
Appendix A
Concrete Pumping, Blowout & Cleaning Procedures

Refer to:

- Federation of Piling Specialists (FPS) guidance, “Best Practice Guidance - Pumping Concrete to Form Piles” dated 2021
- Construction Plant Hire Association (CPA) guidance “Safe Use of Concrete Pumps” dated 2013

CFA piling is a specialist application of concrete pumping. A typical rig and pump setup is shown below.





1. Pile is bored to founding depth with a hollow stem continuous flight auger.

2. Auger is extracted depositing soil at surface while concrete is pumped through hollow stem to replace it.

3. Spoil is removed from around the pile and cage installed, sometimes using a cage vibrator.

A typical concrete placement process for CFA piling is as follows:

- Concrete is delivered to site by readymix lorry. Concrete may be discharged directly to an agitator by use of a ramp to elevate the delivery lorry, or pumped into the agitator using a 2 way changeover valve and side pipe
- Concrete is then pumped to the piling rig, up the mast of the rig, and down through the hollow stem of the auger string
- To allow the auger to move up and down the rig mast, the rig will include a steel pipe up the side of the mast to a 180° bend termed the “elbow”. From this, there is a loop of rubber hose connecting to the “swan neck” on the rotary table atop of the auger assembly. This hose is termed the “loop-hose” or “drop-hose”
- The rate of auger extraction must match the rate of concrete delivery. This requires direct and continuous communication between the pump operator and the rig operator.

Planning

- The pump should be located convenient to the site entrance yet generally centrally to the piling operations. A single location for the duration of the project, where practical, will reduce lifting operations.
- The plant used for concrete pumping will be selected by a competent person to suit the general site conditions and work being performed.
- The hoses to the rig should be routed so they will not be driven or tracked over. Where road crossings are necessary, hose bridges should be used, or the hose buried in a shallow trench.
- The pumping area should be segregated by the Main Contractor from other site activities by fencing or other robust demarcation. Within this area, a safe and non-slip working environment is to be provided and maintained.
- The pump might be in position for many weeks and will be cleaned daily. If there is a risk of wash water finding a route to a sensitive receptor, including groundwater, the area should be lined or a bund formed by the Main Contractor.
- Additional PPE (eye protection, waterproof gloves, hearing protection where required by noise assessment) will be worn by operatives working with wet concrete and/or concrete pumping equipment.
- Other trades working in the vicinity of pumping operations must be briefed in associated hazards by the Main Contractor.

Pipelines

- Pipelines will be 100-125mm diameter (4”-5”) and will be specified for a pressure exceeding the maximum capability of the concrete pump.
- Foundation Piling typically use snap-quick release couplings. Couplings will be fitted with a rubber seal, securing split pin and whip checks.
- Where required, designated crossing points will be provided by the Main Contractor to protect hoses.
- Elevated pipelines (fitted to the piling rig) will be provided with a “double bag” shrouding to capture any concrete released from a ruptured hose.
- The minimum bend radius for flexible rubber hoses should be at least 6 times the hose diameter (600mm radius / 1200mm diameter for 100mm / 4” hoses, 750mm radius / 1500mm diameter for 125mm / 5” hoses)
- When laying pipelines, care will be taken to avoid sharp turns close to the pump where the greatest kickback occurs, and to avoid pipelines passing over any abrasive surfaces.

- Movements of the pipelines are to avoid excessive abrasion to the outer protective coating and kinks or sharp bends which may damage the internal structure of the hose. This includes delivery and storage.
- Pipelines will be inspected by the Pump Operator as part of their daily inspections.
- Pipelines fitted to the piling rig will be inspected by the Rig Operator as part of their daily inspections. Concreting swivels are to be greased daily to minimise the risk of failure.
- Damaged hoses should be replaced and put into quarantine or discarded.

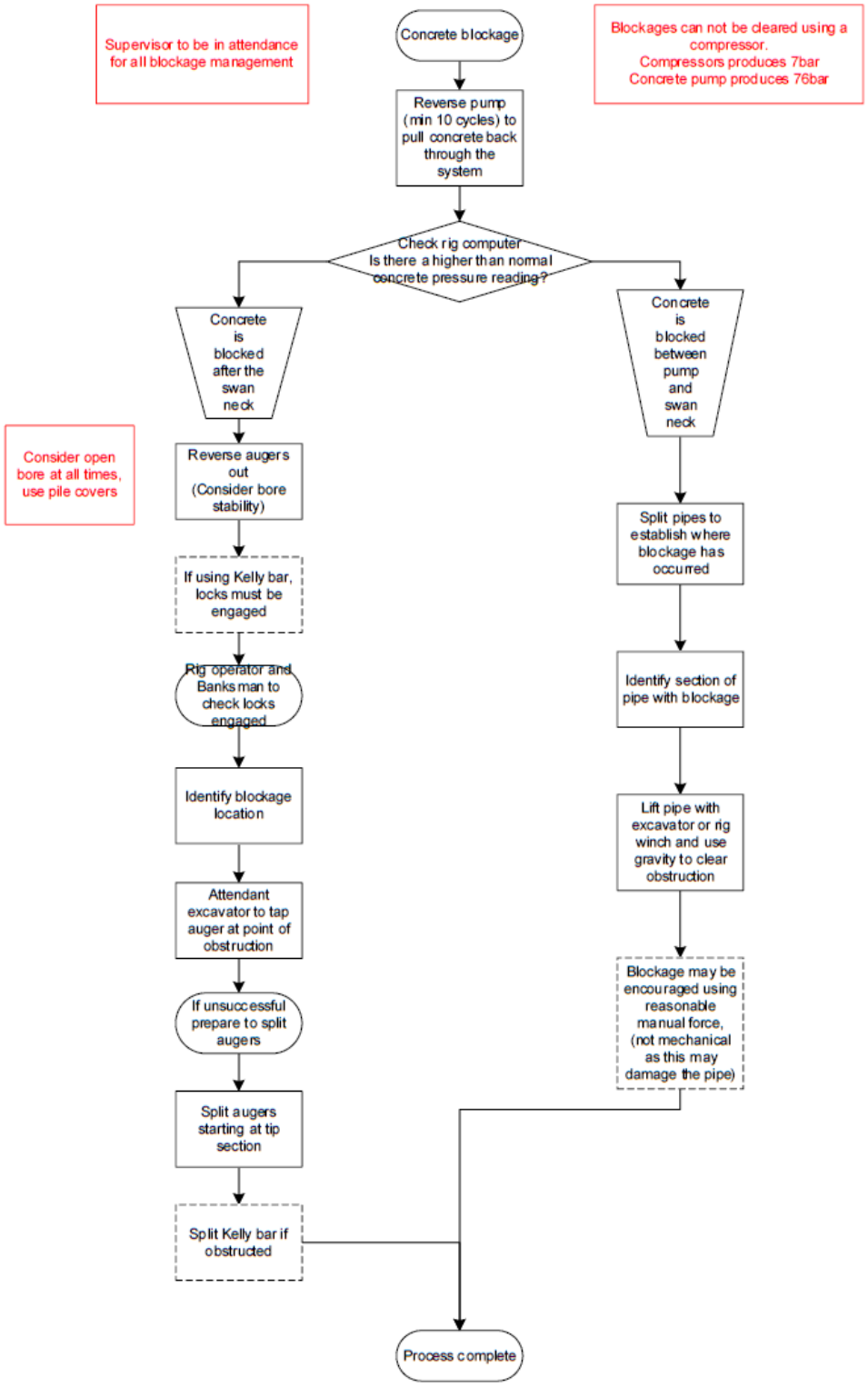
		
Coupling	Portable crossing point	Crossing point

Preparation and Pumping

- Pipelines will be primed using either a specialist pump priming product or a cementitious grout mix.
- During pumping, continuous communication will be maintained between the Pump Operator, Piling Rig Operator and Slinger Signaller. The Slinger Signaller or another operative may assist where there is no direct line of sight, the horn of the piling rig may be used, or 2-way radios may be used.
- The progress of the concrete through the pipelines will be monitored by the Slinger Signaller or another competent Piling Operative. In the event of any blockage pumping will cease and procedures for clearing blockages will be followed.
- No plant is permitted to cross the pipelines during pumping of concrete.

Blockages

- Where a blockage exists at height, a MEWP may be required to access. Where this is required, the Piling Supervisor will ensure that any expelled concrete does not endanger the MEWP operator, other operatives, or any member of public.
- Exclusion zones will be established around any section of the pipeline that is considered to present a risk of expelling pressurised concrete.
- The process below should be followed in the event of any blockage:



In the event of a blockage please report it via the QR code below.

Blockage Reporting

Cleaning / blowing out of Pipelines

- Exclusion zones of 15m or reasonably practical will be established around any section of the pipeline that is considered to present a risk of expelling pressurised concrete. Ball catchers and blowout chambers will be used.
- 1 Person is allocated overall responsibility to control the blowing out operation with designated additional roles as stated in the daily breifing.
- All members of the site team to be fully conversant with the work instructions and should be competant.
- The piling supervisor should be present during the operation.
- Personel not directly invovled with the process **must not** be inside the exlcusion zone.

- The compressor must have a maximum pressure of 7 bar, if it has more than one option this should be the lower one.

- The blow out operator and second operative confirm together that all hoses clamps and safety slips are in place and the exlcusion zone is clear.

- Only after both operatives have confirmed the above procedures have been followed can the compressor be turned on and the lines charged.

- Concrete should be blown out into a suitable blow out chamber. The chamber must be held in place by the excavator arm, machine isolated and the operator to have left the cab and exlusion zone.

- If at any time a blockage becomes apparent, the piling supervisor will take control.
- The inlet valve is put in the closed position, and the exhaust valve to the open position.
- The second exhaust valve can be used if the ball blocks the first valve to release further compressed air from the system.
- The rig operator checks the instrumentation and confirms it is not showing an increase in pressure.
- Any increase in pressure would indicate that the augers swaneck or pipelines are potentially blocked.
- Blockage clearance procedures will be followed as per the above flow chart
- In the event this is unsuccessful, the hoses may need to be left and a remedial plan put in place.











- The process below should be followed to clear rig hoses:



At no point until the sponge ball has been pushed through the concrete system and located must a clevis pin be removed from a concrete clamp or a concrete clamp opened.



Blow through rig

Place minimum of two balls into the pipe at the air source

Reconnect hose to rig

Position rig auger string into a blow out box / chamber

Slowly introduce air into the system

Ball blows through to chamber

Fill hose at air source with water

Place another ball into the pipe at the pump

Slowly introduce air into the system

Ball blows through rig to chamber

Process complete



Pressure gauges must show zero pressure before clamps are released



Cleaning of Tracked Pump and agitators.

- Exclusion zones will be established around any section of the pipeline that is considered to present a risk of expelling pressurised concrete. Ball catchers and blowout chambers will be used.



- Blowing out the tracked agitators and tracked pumps using a double valve blowout cannon and reducing bend.
- Attach reducing bend (green) to T-piece
- Insert Blowout Ball into Bend
- Attach Blowout Cannon to Bend
- Blow out to agitator
- Turn off Air at compressor and open relief valves checking pressure gauge reads 0 before removing blowout cannon
- pour 2 x 5-gallon buckets of water into bend insert blowout ball into bend and re attach blowout cannon.
- Blowout water to clean to agitator. Turn off Air at compressor and open relief valves checking pressure gauge reads 0 before removing blowout cannon.
  Move change over valve to go to rig. Repeat steps 1 to 7 to blow lines out through rig.

Appendix B
CFA Piling - Rigging & Loading Procedures

PERSONNEL

The tasks of de-rigging, loading, off-loading and rigging described in the procedure are to be carried out under the direct supervision of trained personnel appointed by the Company (Foundation Piling Limited) to do so.

All machine movements are to be carried out under control of a suitably experienced and qualified banksman.

APPLICATION

This procedure applies to all hydraulic piling rigs in the Foundation Piling Fleet.

This method statement should be read alongside the manufacturer's guidelines.

WORKING AT HEIGHT

All tasks, wherever possible, should be completed from ground level. Where necessary, access to the upper parts of the piling rig will be via a properly supported and secured ladder and behind purpose built edge protection (eg, rig walkways and guarding) or via a MEWP (eg to access the mast). A safety harness and fall restraint lanyard will be worn by personnel working within a MEWP or working at height without suitable edge protection.

Delivery lorries other than low loaders must be provided with edge protection where access at height is required to offload.

GENERAL PROCEDURE

Rigging

1. The rig should be stood on firm level ground in an area free of overhead obstructions.
2. All safety devices required for transportation will be removed. Routine safety checks will be performed before rigging commences.
3. The mast extension will be aligned with the main element. The extension must be supported close to the cathead until locked in position. Power & instrumentation plugs will then be connected (MEWP may be required).
4. Ropes will be positioned such that they do not hinder the raising of the mast (MEWP may be required).
5. The mast will be raised into the vertical position. Special care will be taken to avoid any damage caused by snagging ropes. Should the mast move in either direction this will be corrected before raising the mast further.
6. When vertical, the bottom section of the mast will be connected to the main element. The transportation frame will be removed.
7. The undercarriage crawlers will be extended and locked in place.
8. All ropes will be checked and arranged so that they are easily identifiable.

9. Augers and concrete hoses will then be connected as required for the piling works (MEWP may be required).

De-rigging

1. The rig should be stood on firm level ground in an area free of overhead obstructions.
2. Augers and hoses will be removed (MEWP may be required).
3. The rotary head will be lowered and rested on the bottom pads. The telescopic foot pad will be retracted to transport configuration. The turret and undercarriage will then be aligned as required for transportation.
4. Undercarriage crawlers will be retracted and locked in place.
5. The mast will be lowered to the horizontal position. Special care will be taken to avoid any damage caused by snagging ropes. Should the mast move in either direction this will be corrected.
6. The mast will be aligned and rested upon the mast lifting boom.
7. The mast extension pin and instrumentation plugs will be disconnected. The extension will be folded and fixed into transport configuration (MEWP may be required).
8. Any ropes remaining along the mast are to be secured (MEWP may be required).
9. All safety devices required for transportation will be reinstated. The plant operator will complete a visual check of the rig.

Haulage

1. Before loading, all spoil will be removed from the tracks and undercarriage.
2. Where the rig is tracked on the highway or any permanent surface, tracking boards or other protection shall be used. All necessary road closures, partial closures, traffic management to be provided by Main Contractor.
3. Once on the vehicle the rig is to be secured by the haulier and the cab lock engaged.
4. The machine and lorry bed are to be checked for any unsecured or loose objects prior to departure.
5. The procedure is reversed to off-load following visual checks of the work area and specifically the suitability of the piling platform.
6. The rig driver shall carry out and record an inspection of the rig and attachments in accordance with the Company's procedures prior to putting the rig to work.

ADDITIONAL NOTES

Haulage will be selected by office-based staff for the planned task and vehicles will normally be the smallest available. Field personnel are to report any perceived deficiencies as soon as they become apparent.

The activities of loading and unloading the piling rig will usually be completed within one to two hours.

Appendix C
Reinforcement Cage Fabrication & Modification

CLIENT / MAIN CONTRACTOR'S ATTENDANCE

For these tasks, the attendances on the piling operations include the following principal items:

- Provision of a hot works permit
- Provision of welfare facilities
- Identification and protection of any flammable materials within the working area
- Provision of 360 excavator for any lifting that is required
- Provision of Crowd Barriers for segregation

MATERIALS AND EQUIPMENT

12" petrol grinder (or similar)
Dry powder fire extinguishers
Trestles
Knipex (end cutters)
16 Gauge tying wire

Reinforcement will be supplied from a CARES registered supplier.

CONSTRUCTION METHODOLOGY

Cages will be fabricated on purpose made heavy duty trestles.

Straight bar reinforcement will be lifted in bundles onto the trestles by the attendant excavator.

Helical steel will be threaded onto the main bars and, if not supplied pre-pitched, pulled to the desired pitch.

Tying wire will be used to attach the individual bars to the helical steel.

The partially constructed cage will be rotated in order to tie the subsequent bars.

The helical steel will be overlapped at each joint.

The completed cage will be lifted from the trestles by the attendant excavator and stored or placed directly into the pile.

Heavy duty wheel spacers are to be clipped onto the helical prior to placement in the pile bore.

All vertically exposed rebar is to be protected with mushroom caps by the Main Contractor.

Where necessary, a 12" petrol grinder may be used by a competent operator to cut steel to length. The operator and any other operatives assisting with manual handling will wear additional PPE (eye protection, hearing protection as required by Noise Assessment). The grinder operator will ensure that neither the blade or sparks may move towards themselves or any other person. When cutting a vertical cage, a sling or holding device will be used to support the cage away from the blade.

Appendix D
MEWP EMERGENCY RESCUE PLAN

This rescue plan has been compiled to comply with current legislation (Work at Height Regulations 2005) for people who work at height. It is to be brought to the notice of those exposed to the risk of working at height and those supervising and managing the same work at height.

What follows is a series of Emergency situations that may arise during the use of MEWP equipment. Adjacent is a proposed action in the event of the relevant emergency.

Emergency	Proposed Action
Failure of upper control functions while elevated	Where the normal upper control functions fail, the operator will use the auxiliary controls from the platform to lower the boom safely to the ground.
Failure of the operator to be able to operate the MEWP functions while elevated due to the following reasons: **A.** Operator incapacitated **B.** Auxiliary functions fail to operate from upper control station.	Where the operator is incapable of lowering the MEWP using the upper controls, an appointed person familiarised in the use of the lower 'ground' controls will lower the platform safely to the ground using the lower ground controls.
Failure of lower ground controls	Where the lower ground controls fail to allow the boom to be lowered safely to the ground, the appointed person will use the auxiliary ground controls to lower the boom safely to the ground.
Failure of ALL normal and auxiliary lowering functions	Where all normal and auxiliary functions have failed, the appointed person on the ground should inform the Site management and Foundation Piling Office. FP management will advise action required in accordance with BS8460 section 6.6 Rescue from Height.

Appendix E
COSHH SUMMARY

The following additional PPE and precautions will be used when using various substances.

Substance	FP Ref	Additional PPE	Further Precautions
WD-40	RA21	 Eye protection Impervious gloves Overalls	Wash hands Provide eyewash station (Main Contractor) No smoking Provide lockable storage
Two stroke oil	RA19	 Eye protection Impervious gloves Overalls	Avoid open flames, ignition sources and smoking Provide lockable storage
Aggregates (after washout)	RA06	 Safety gloves Dust mask where suspended	Provide dust suppression (Main Contractor)
Silicon Anti-Friction Spray	RA17	 Eye protection Gloves	Provide ventilation (use outside) Provide lockable storage
Grease	RA10	 Eye protection Gloves Anti slip boots Overalls	No smoking Provide lockable storage
Diesel Fuel	RA09	 Eye protection Anti slip boots Overalls Impervious gloves	Avoid open flames, ignition sources and smoking Provide fire extinguishers Provide ventilation Provide lockable storage
Pump primer	RA22	 Face mask where suspended	Wash hands Provide eyewash station (Main Contractor) Provide ventilation
Ready-mix concrete	RA04	 Eye protection Impervious gloves Overalls	Wash hands & any splashes off skin Provide eyewash station (Main Contractor)
Welding (occasionally on site)	RA01, RA31	 Heat protective overalls Welding mask Welding gloves	Control access Avoid open flames, ignition sources and smoking Provide fire extinguishers Provide ventilation
Fire extinguisher	RA07	 Eye protection Gloves	Provide eyewash station (Main Contractor) Wash hands Sound alarm
Hydraulic Oil	RA11	 Eye protection Gloves Anti slip boots	Provide lockable storage

Substance	FP Ref	Additional PPE	Further Precautions
Petrol	RA23	 Eye protection Anti slip boots Overalls Impervious gloves	Avoid open flames, ignition sources and smoking Provide fire extinguishers Provide ventilation Prohibit hot works Provide lockable storage

Where operatives are required to wear close fitting masks in line with COSHH requirements they will be 'face-fit' tested and certificates will be provided.

Appendix F
REFUELLING & SPILLAGES

Any spillage of potential contaminants is to be cleared as soon as possible to minimise pollution.

Spill kits including oil absorbent rolls, granules and booms together with chemical absorbent pads will be provided.

When refuelling, ensure a drip tray or plant nappy is positioned under the fuel hose and tank. Spill kit in the immediate vicinity.

In the event of a spill:

- Stop work immediately
- Where spilt material is flammable, extinguish all possible ignitions.
- Identify and stop the source of the spillage.
- Contain the spillage using earth, sand or spill kit rolls to stop it spreading.
- Use booms to contain oil spills that have or may enter a watercourse.
- Do wear appropriate PPE – typically rubber gloves (BS EN 388).
- Protect sensitive areas using earth or sand to construct a bund.
- Clean up the spill using absorbent granules/pads.
- Large pools of oil or spills which cannot be cleaned using spill kits should be contained within a patch of earth and removed from site.
- Dispose of all contaminated materials (soil/absorbent material) and any contaminated water correctly.
- Contact your manager and Main Contractor to notify of spillage and actions taken.

Do not:

- Ignore or hide a spill.
- Hose a spill into the drainage system.

Appendix G
NOISE MONITORING & RISK ASSESSMENT

Survey Details

Location:	Cornwall College, St Austell
Date and time:	20/03/2025 10:30-12:30
Survey by:	Morgan Drury / William Hunter
Reason for survey:	Routine assessment of noise levels
Equipment used:	Precision Gold N05CC sound level meter
Test duration:	20 seconds per location

Rig

Data from survey is presented below.

	Location relative to the Rig								
Distance	**Standing**			**Drilling**			**Concreting**		
(m)	**Auger**	**Cab**	**Back**	**Auger**	**Cab**	**Back**	**Auger**	**Cab**	**Back**
1	76.5	74.5	79.3	89.9	76.5	74.5	79.3	89.1	76.5
5	68.6	70.1	71.9	77.4	68.6	70.1	71.9	77.3	68.6
10	68.1	68.7	70.3	68.5	67.4	79.1	75.6	75.6	79.9

The expected time spent by an operative in each location during each process in a typical working day is detailed below. 5m distance is assumed for the Rig Operator as the cab has sound insulation.

	Rig Activity								
Distance	**Standing**			**Drilling**			**Concreting**		
(m)	**Auger**	**Cab**	**Back**	**Auger**	**Cab**	**Back**	**Auger**	**Cab**	**Back**
5.0	0	1	0	0.5	4	0	0	2.5	0

Both duration and noise levels can then be combined into the HSE noise calculator to output a Daily Noise Exposure.

	Noise Level (L_{Aeq} dB)	**Exposure duration (hours)**	**Exposure points (job/task)**	**Exposure points per hour**
Task 1 - standing	70	1	0	0
Task 2	77	0.5	0	0
Task 3 - drilling	77	4	8	2
Task 4 - concreting	77	2.5	6	2.4
Total	=	8		
Daily Noise Exposure ($L_{EP,d}$)		**76 dB**	**14 points**	

As these noise levels will be consistent throughout the week the weekly exposure is also 76dB.

Pump and Agitator

Data from survey is presented below.

	Location wrt Pump / Pump Activity					
Distance	**Operator position**		**Front of pump**		**Agitator engine**	
(m)	**Running**	**Pumping**	**Running**	**Pumping**	**Running**	**Pumping**
1.0	90.5	92.6		96.6	84.5	90.4
5.0	80.5	83.2		78.9	74.2	85.7
10.0	72.6	80.4		74.3	71.3	75.8

The anticipated duration of operatives in the vicinity of the pump is included below. The key person in this area is the Pump Operator and their direct proximity to the pump and agitator.

	Pump Activity					
Distance	**Operator position**		**Front of pump**		**Agitator engine**	
(m)	**Running**	**Pumping**	**Running**	**Pumping**	**Running**	**Pumping**
1.0	1 .0	2.5	0.0	0.0	0.0	0.0

As before this information is put into the HSE calculator to produce the below table.

	Noise Level (L_{Aeq} dB)	**Exposure duration (hours)**	**Exposure points (job/task)**	**Exposure points per hour**
Task 1	91	1	50	50
Task 2 - Pumping	93	2.5	199	79.6
Total		3.5		
Daily noise exposure ($L_{EP,d}$)		**89 dB**	**249 points**	

100 points is the Upper Exposure Action value. Control measures must be put in place to ensure safe working for the Pump Operator.

Control Measures

- Foundation Piling will make hearing protection available to all employees on request.
- Rig Operators are in a sound insulated cabin and therefore are not required to wear hearing protection, but it will be made available if requested.
- Slinger Signaller does not spend sufficient time above the exposure limit to require hearing protection but it will be made available if requested.
- Pump Operators will be provided with hearing protection and instructed to wear it at all times while operating the concrete pump.
- It is the responsibility of the Piling Supervisor to ensure that all persons are wearing the correct PPE.

Appendix H
EXCLUSION ZONES

Refer to Federation of Piling Specialists (FPS) guidance, “Plant Restricted Zones” dated February 2021.

Segregation & Signage

The Main Contractor is to provide crowd barriers to maintain segregation of the work area. Foundation Piling will position barriers and provide signage to maintain exclusion zones around the piling rig and concrete pumping area. Barriers will not be continuous so as to permit access for spoil removal, delivery of reinforcement cages to pile positions, and concrete deliveries.

Roles and Responsibilities

Role	Responsibilities
Rig Operator / Plant Operator	• Responsible for the safe operation of the piling rig or plant equipment. • Must ensure the piling rig or plant equipment is placed in a safe condition, before authorised personnel enter the Red Zone. • Must not move the rig or plant equipment unless they are under the direction of the Slinger - Signaller. • Must give the ‘Thumbs up’ to the person requiring access into the zone and receive a ‘Thumbs up’ response before they enter.
Slinger-Signaller / Rig Attendant	• This is the person in control of all rig and plant movements within the piling areas. • The Slinger-Signaller must receive a ‘Thumbs up’ confirmation from the Rig Operator/Plant Operator before entering a Red Zone. • Preventing unauthorised personnel entering the Red Zone and to ensure that authorised personnel only enter the Red Zone from the Green Zone.
Authorised Person	• An Authorised Person is a member of the piling or attendance crew who has been authorised to work within the piling works area and carry out piling specific duties.

Exclusion Zones

A **red zone** may only be entered by authorised persons, and only once the plant has been placed in a safe condition. The authorised person may only enter once receiving a thumbs up from the operator.

A **green zone** is a position with good line of sight to the plant operator and outside of potential rig movements and spoil fall zone.

Exclusion Zone - Piling Rig



Red Zone: The Rig Operator must ensure the rig is placed in a safe condition before an Authorised Person enters the Red Zone. The operator must give a 'Thumbs up' to the Authorised Person wanting access confirming it is safe to enter before they enter the Red Zone.

Green Zone: Rig Operators sight line (safe approach), optimum Rig Attendant position.

Note: People entering the Red Zone must be aware of and consider the increased risk of falling objects and plant movements from other plant such as excavators and dumper trucks.

Due to the worksite layout, it might not be possible to maintain a 10m barrier distance behind the counterweight of the rig. In these situations a minimum distance of 2m must be established at all times.

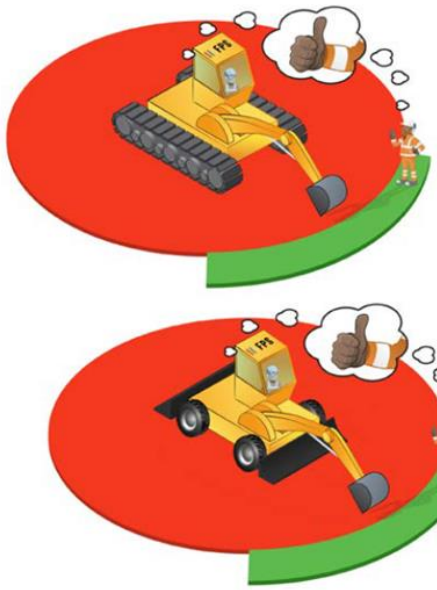
Exclusion Zone - Concrete Pump



Red Zone: Authorised Person only (pump operator) - this zone must include barriers to demarcate the area. 2m controlled zone from the outer edge of the concrete vehicle when reversing.

Green Zone: Always signal 'Thumbs up' to the pump operator and or concrete delivery driver and receive a positive 'Thumbs up' response before entering. Keep in driver's line of site when reversing the truck, always get the 'Thumbs up' before entering Red Zone.

Exclusion Zone - Attendant Excavator



Red Zone: To be determined by the boom length and slew radius. No personnel to enter area unless the attachment is on the ground and the machine is placed in a safe condition.

Green Zone: Safe area - Plant Operators line of sight. Always signal 'Thumbs up' to the Plant Operator and receive a positive 'Thumbs up' response before entering Red Zone.

Note: The slew radius of the machine will vary dependant on the machine type and size.

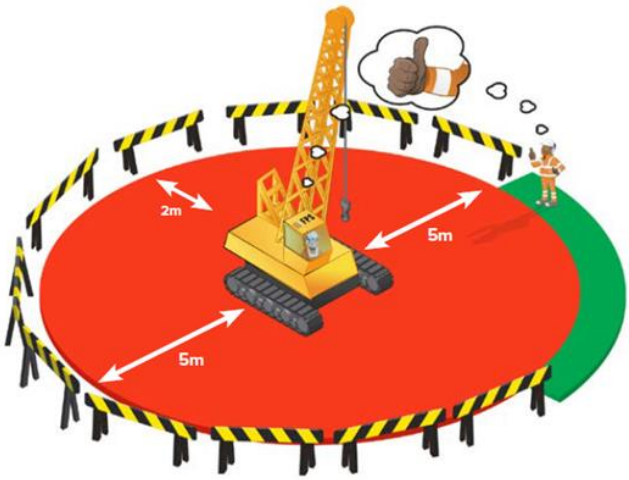
Exclusion Zone - MEWP



Red Zone: Keep out of this area at all times. Except in emergency situations.

Green Zone: Always signal a 'Thumbs up' to the Plant Operator and receive a positive 'Thumbs up' response before entering Red Zone.

Exclusion Zone - Crawler Crane

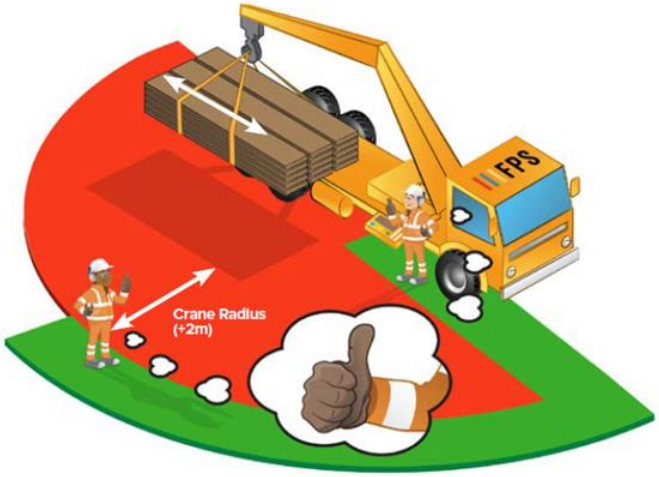


Red Zone: The crane operator must ensure the crane is in a safe condition before an Authorised Person can enter the Red Zone. The Red Zone includes all areas below the hook and the mast during lifting activities which may extend past 10m.

Green Zone: Slinger/signaller must be within the line of sight to the operator during lifting operations. Give the 'Thumbs up' recognition to the crane operator and receive a positive 'Thumbs up' response before entering the Red Zone. Ideally the load should be grounded before entering Red Zone.

Note: Under no circumstances should anyone stand below a raised load during lifting operations. Barriers are only required when the crane is static and not tracking. A minimum distance of 2m must be established at all times behind the counterweight.

Exclusion Zone - Hiab



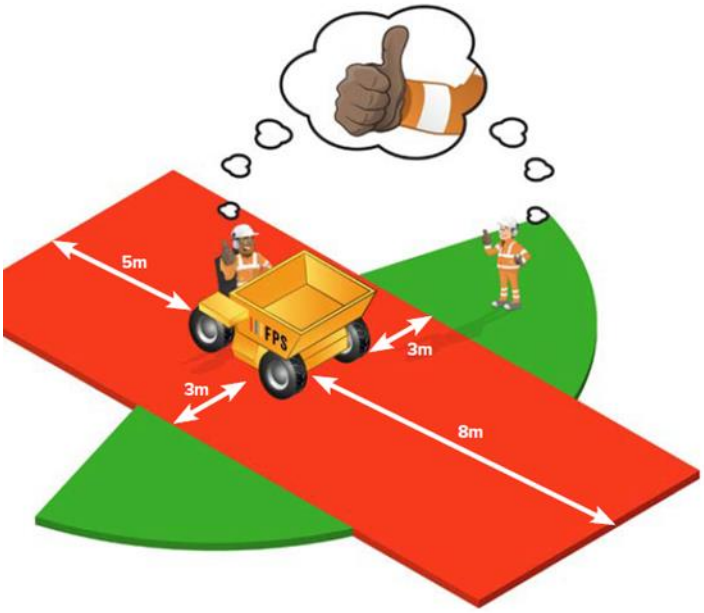
Red Zone: Keep out of this area at all times. Authorised Person (slinger/signaller) only. This zone should be determined by the working radius of the lorry mounted crane plus 2m (factor load size - ie piling cages length).

Green Zone: Always signal 'Thumbs up' to the Plant Operator and receive a positive 'Thumbs up' response before entering Red Zone. The Red Zone is determined by the operators position (some may have remotes).

Note: Red & Green Zone illustrated may differ depending which side the load is being lifted.

Do not walk beneath elevated loads.

Exclusion Zone - Forward Tipping Dumper

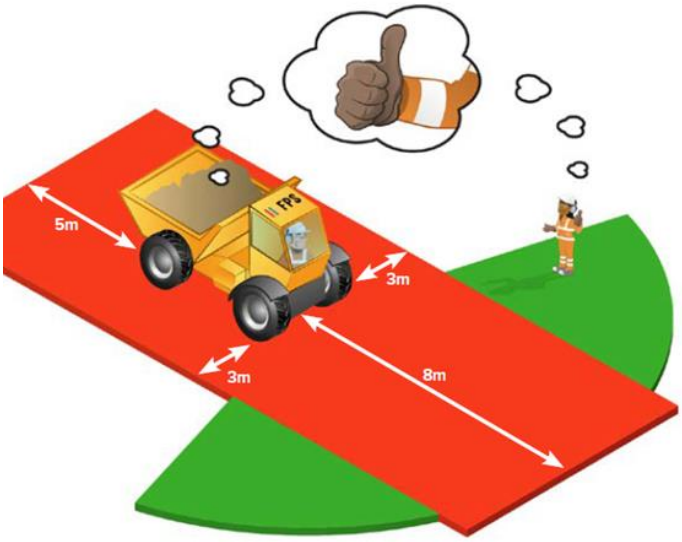


Red Zone: Keep out of this area at all times - 8m to front, 3m to each side, 5m to rear.

Green Zone: Always signal 'Thumbs up' to the Plant Operator and receive a positive 'Thumbs up' response before entering Red Zone. Keep in Plant Operators line of sight.

Note: Larger dumpers such as a 9 ton may require an extended Red Zone.

Exclusion Zone - Rear Tipping Dumper



TRAVEL & LOADING

Red Zone: Keep out of this area at all times - 8m to front, 3m to each side, 5m to rear.

Green Zone: Always signal 'Thumbs up' to the Plant Operator and receive a positive 'Thumbs up' response before entering Red Zone. Keep in Plant Operators line of sight.

Appendix I
CONCRETE TESTING PROCEDURES

Sampling

The standard composite sample
BS EN 12350-1

To ensure it is representative of the whole truck load a standard sample consists of scoopfuls taken from four different parts of the load and collected in buckets.

Scoopfuls must be taken through the moving stream, as the load is discharged, sampling the whole width and depth – not just the top part. The size of sample taken should be 1½ times the estimated volume required for testing.



- Let very first concrete go
- Take a scoopful from part 1
- Take a scoopful from part 2
- Take a scoopful from part 3
- Take a scoopful from part 4
- Let the last concrete go

Complete a sampling certificate and record which sampling method was used.

The alternative spot sample
BS EN 206-1:2000, clause 5.4.1

Do not use this method to make cubes

For an early check on the consistence of concrete delivered in a truck mixer, this alternative method of spot sampling from the initial discharge may be used. Additional tolerances will be applicable for concrete sampled by this method.

Scoopfuls must be taken through the moving stream sampling the whole width and depth.

- Let very first concrete go
- Take six scoopfuls from the next 0.3 m^3
- Take six scoopfuls after the first 0.3 m^3 has been discharged

The slump test *BS EN 12350-2*

Step 1
- Empty the sampling buckets onto the mixing tray
- Scrape each bucket clean

Step 2
- Thoroughly remix the sample, shovelling into a heap
- Turn the heap over to form another
- Do this three times



Step 3
- Flatten the final heap by repeatedly digging-in the shovel vertically
- Lift the shovel clear each time

Step 4
- Ensure the slump cone and base plate are clean and damp
- Place the metal plate on solid level base away from vibration or other disturbance
- Place the cone on the plate and stand on the foot-pieces



Step 5
- Fill the cone in three equal depth layers
- Use the standard slump rod
- Rod each layer 25 times
- Spread the blows evenly
- Heap the concrete above the top of the cone before rodding the third layer over the area
- Make sure the rod just penetrates the layer below

Step 6
- Top up if necessary
- Use the rod with a sawing and rolling motion to strike the concrete level with the top of the cone



Step 7
- Carefully clean off spillage from sides and baseplate whilst maintaining foot pressure

Step 8
- Carefully lift the cone straight up and clear, to a count of between 5 and 10 seconds



Step 9
- Lay the rod across the upturned slump cone
- Measure the distance between the underside of the rod and the highest point of the concrete – the true slump
- Record the distance to the nearest 10 mm
- Check and record the kind of slump
- If the slump isn't true, take a new sample and repeat the test
- If the second slump isn't true, get advice
- Complete the sampling and testing certificates



There are three kinds of slump



You will need this equipment
(always clean and dry the equipment after use)

- ✔ Small scoop
- ✔ Slump rod
- ✔ Square-mouthed shovel
- ✔ Mixing tray
- ✔ Buckets or wheelbarrow
- ✔ Sampling and testing certificates
- ✔ Steel rule
- ✔ Damp cloth
- ✔ Sampling scoop
- ✔ Slump cone and rigid metal plate

The flow test *BS EN 12350-5*

First find a suitable location for the flow table. It must be placed on a firm, flat and level surface. It may be necessary to prepare an area for the table.

Step 1
- Empty the sampling buckets onto the mixing tray
- Scrape each bucket clean

Step 2
- Thoroughly remix the sample as described for the slump test

Step 3
- Ensure the mould and table are clean and damp
- Place the mould on the centre of the table and stand on the foot-pieces
- Fill the mould in two layers, tamping each layer ten times with the tamping bar
- If necessary add more concrete to fill the top layer
- Use the tamping bar to strike the top layer level with the top of the mould



Step 4
- Carefully clean off spillage from around the mould and table top

Step 5
- Wait 30 seconds from striking off
- Carefully lift the mould straight up and clear to a count of between 3 and 6 seconds

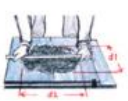


Step 6
- Stabilise the flow table by standing on the toe board at the front of the table

Step 7
- Slowly lift the table top by the handle until it reaches the upper stop
- Allow the table to fall freely
- Repeat this cycle to give a total of 15 drops
- Each cycle should take about 4 seconds



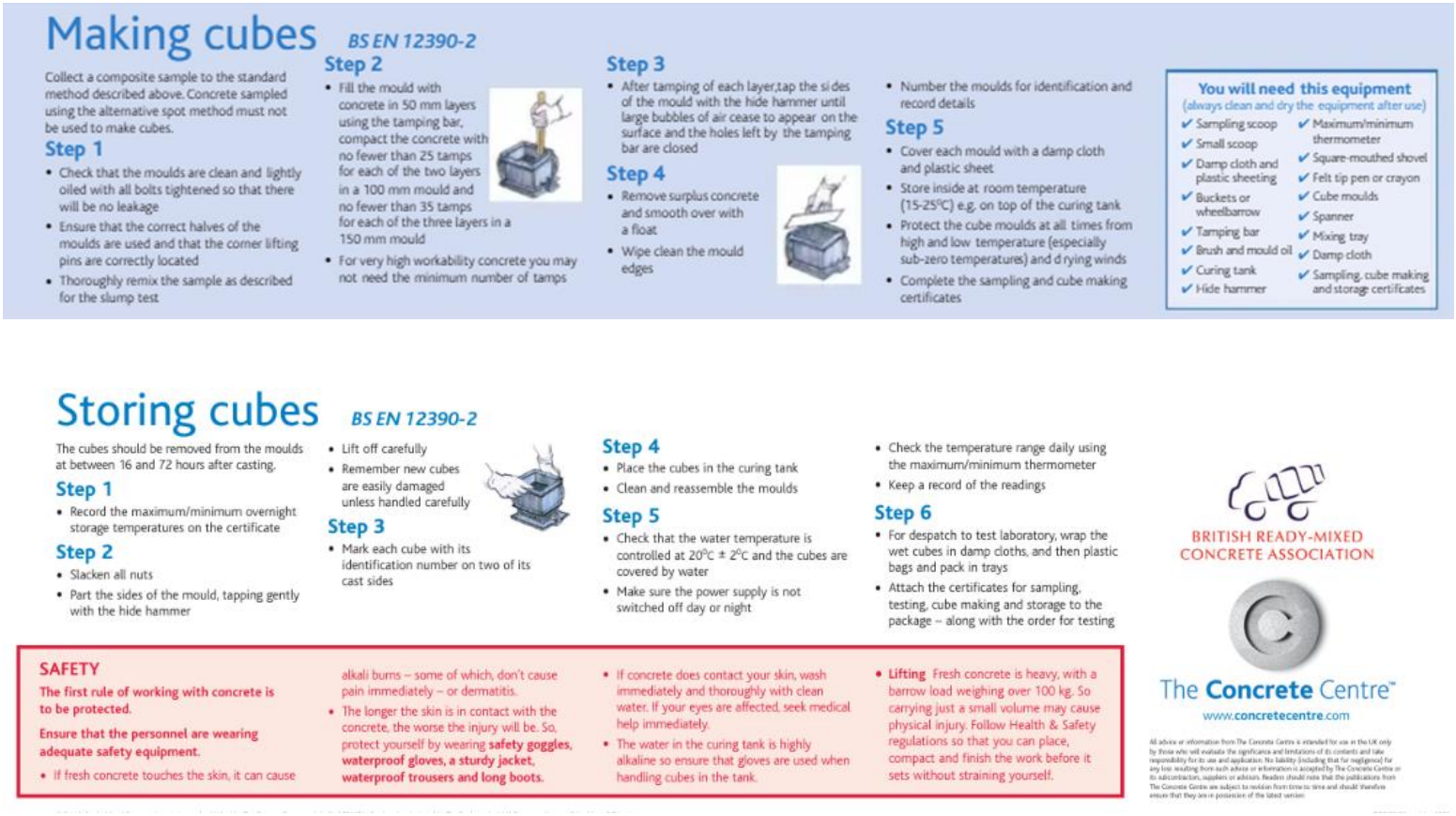
Step 8
- Measure the largest dimension of concrete spread in two directions, parallel to the table edges



- Record the flow value as d1 + d2 divided by 2
- Report any segregation which may have occurred around the sample edge
- Complete the sampling and testing certificates

You will need this equipment
(always clean and dry the equipment after use)

- ✔ Sampling scoop
- ✔ Small scoop
- ✔ Damp cloth and plastic sheeting
- ✔ Buckets or wheelbarrow
- ✔ Tamping bar
- ✔ Brush and mould oil
- ✔ Curing tank
- ✔ Hide hammer
- ✔ Mixing tray



Making cubes

BS EN 12390-2

Collect a composite sample to the standard method described above. Concrete sampled using the alternative spot method must not be used to make cubes.

Step 1
- Check that the moulds are clean and lightly oiled with all bolts tightened so that there will be no leakage
- Ensure that the correct halves of the moulds are used and that the corner lifting pins are correctly located
- Thoroughly remix the sample as described for the slump test

Step 2
- Fill the mould with concrete in 50 mm layers using the tamping bar, compact the concrete with no fewer than 25 tamps for each of the two layers in a 100 mm mould and no fewer than 35 tamps for each of the three layers in a 150 mm mould
- For very high workability concrete you may not need the minimum number of tamps

Step 3
- After tamping of each layer,tap the sides of the mould with the hide hammer until large bubbles of air cease to appear on the surface and the holes left by the tamping bar are closed

Step 4
- Remove surplus concrete and smooth over with a float
- Wipe clean the mould edges

Step 5
- Number the moulds for identification and record details
- Cover each mould with a damp cloth and plastic sheet
- Store inside at room temperature (15-25°C) e.g. on top of the curing tank
- Protect the cube moulds at all times from high and low temperature (especially sub-zero temperatures) and drying winds
- Complete the sampling and cube making certificates

You will need this equipment
(always clean and dry the equipment after use)
- ✔ Sampling scoop
- ✔ Small scoop
- ✔ Damp cloth and plastic sheeting
- ✔ Buckets or wheelbarrow
- ✔ Tamping bar
- ✔ Brush and mould oil
- ✔ Curing tank
- ✔ Hide hammer
- ✔ Maximum/minimum thermometer
- ✔ Square-mouthed shovel
- ✔ Felt tip pen or crayon
- ✔ Cube moulds
- ✔ Spanner
- ✔ Mixing tray
- ✔ Damp cloth
- ✔ Sampling, cube making and storage certificates

Storing cubes

BS EN 12390-2

The cubes should be removed from the moulds at between 16 and 72 hours after casting.

Step 1
- Record the maximum/minimum overnight storage temperatures on the certificate

Step 2
- Slacken all nuts
- Part the sides of the mould, tapping gently with the hide hammer
- Lift off carefully
- Remember new cubes are easily damaged unless handled carefully

Step 3
- Mark each cube with its identification number on two of its cast sides

Step 4
- Place the cubes in the curing tank
- Clean and reassemble the moulds

Step 5
- Check that the water temperature is controlled at 20°C ± 2°C and the cubes are covered by water
- Make sure the power supply is not switched off day or night
- Check the temperature range daily using the maximum/minimum thermometer
- Keep a record of the readings

Step 6
- For despatch to test laboratory, wrap the wet cubes in damp cloths, and then plastic bags and pack in trays
- Attach the certificates for sampling, testing, cube making and storage to the package – along with the order for testing

SAFETY

The first rule of working with concrete is to be protected.

Ensure that the personnel are wearing adequate safety equipment.
- If fresh concrete touches the skin, it can cause alkali burns – some of which, don't cause pain immediately – or dermatitis.
- The longer the skin is in contact with the concrete, the worse the injury will be. So, protect yourself by wearing **safety goggles, waterproof gloves, a sturdy jacket, waterproof trousers and long boots.**
- If concrete does contact your skin, wash immediately and thoroughly with clean water. If your eyes are affected, seek medical help immediately.
- The water in the curing tank is highly alkaline so ensure that gloves are used when handling cubes in the tank.
- **Lifting** Fresh concrete is heavy, with a barrow load weighing over 100 kg. So carrying just a small volume may cause physical injury. Follow Health & Safety regulations so that you can place, compact and finish the work before it sets without straining yourself.

BRITISH READY-MIXED CONCRETE ASSOCIATION

The Concrete Centre™
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Appendix J
INSPECTION & TEST PLAN

No.	Material / Operation	Type of Test / Inspection	Frequency	Acceptance Criteria
1	Reinforcement quality assurance	CARES certificate provided	Before placing reinforcement order	CARES approval
2	Concrete quality assurance	Supplier approved by QSRMC / Kitemark or similar QA scheme	Before placing concrete order	QSRMC / Kitemark approval (or similar)
3	Concrete mix suitability	Mix design verified against (FP) pile designer requirements	Prior to concrete call off	(FP) pile designer approval
		Mix design provided to, and approved by client	Prior to concrete call off	Client approval

No.	Material / Operation	Type of Test / Inspection	Frequency	Acceptance Criteria
4	Pile platform levels	Check platform level (main contractor)	Prior to commencement of piling	Client to ensure pile platform level is as per FP design
5	Pile platform bearing capacity	Check pile platform material / bearing tests	Prior to commencement of piling	Pile platform material is as per temporary works design; platform certificate to be provided by main contractor
6	Pile diameter	Check auger diameter and check for wear	Daily	Diameter is as per schedule +/- 10mm
7	Pile location (bearing)	Check setting out check (main contractor)	Prior to commencement of each pile	0mm
		Setup auger stem over pin (stem dia 100-125mm, radius 50-63mm)	At commencement of each pile position and throughout pile construction	+/- 75mm in plan
8	Pile verticality	By rig instrumentation and/or spirit level for all piles.	At commencement of each pile position and throughout pile construction	1:75 verticality
		Split and inspect auger verticality	Daily	1:75 verticality
9	Pile depth	Monitored by rig computer / visual check of auger level	Prior to concreting pile	Pile depth is as per construction schedule.

No.	Material / Operation	Type of Test / Inspection	Frequency	Acceptance Criteria
10	Reinforcement cage fabrication	Visual inspection	Prior to concreting pile	Cage is as per construction schedule and fabrication drawings.
11	Reinforcement cover	Prefabricated cages – visual inspection	Prior to concreting pile	Cage is as per fabrication drawings; Cover provided by spacers
		Site fabricated cages- visual check of spacers being fitted to reinforcement	During reinforcement installation	Cover provided by spacers
12	Concrete mix compliance	Check delivery tickets correspond to approved mix design	Prior to discharging concrete	Mix is as per mix design
13	Concrete strength	Concrete sample cubes	4no per rig per day, tests at 7, 28, 28, 56/spare days	Concrete achieves required characteristic strength
14	Pile compressive capacity (working piles)	Pile depth is achieved as per schedule	Refer to item 9	Refer to item 9
14	Pile compressive capacity (working piles)	Load testing not required by client	N/A / 1:100 static / 1:50 dynamic	tbc / 10mm / 20mm
15	Integrity of pile shaft (Client to request through FP)	Pile integrity testing (Main Contractor)	Every pile after pile cropping	No defects reported