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	PILING	Rev:2.0 Approval Date 16/01/2024
	LOADING / UNLOADING RIGS	PGI-MST 1313

Contract Number PR2400276746	Contract Name Cwmavon HC (Heol Crwys)
Signed as Reviewed for Use On This Contract	Print Name Nick Jonathan

1.0 Purpose and Scope

- 1.1 This Method Statement defines the Company Standard Implementation Procedure for the loading/unloading of all Rigs onto/off trailers.

2.0 Health and Safety Controls

- 2.1 All Loading/Unloading operation must take place within a controlled exclusion zone.
- 2.2 Where a Loading/Unloading operation cannot take place on the main site e.g. Public Highway consultation with the PC, Site Agent, RBL Regional Site Management and RBL Site Operatives must take place with hazards identified and control measures detailed/recorded within a Site Specific Risk Assessment approved by the National Piling Operations Manager and reviewed by the SHEQ Department.
- 2.3 Loading/unloading on public highways should be avoided, however, if necessary adequate and appropriate traffic management should be employed as required under the New Roads and Street Works Act (NRWSA) 1991. This should be provided by others and not Roger Bullivant Limited.
- 2.4 SAF-RAS 1001 General Risk Assessment

3.0 Environmental Controls

- 3.1 Operational working hours are stated on the Prestart Site Inspection Form.
- 3.2 COSHH Assessments must be available for all hazardous items used.
- 3.3 Fuel and Oil spill must be cleared as soon as possible. All spills must be reported.
- 3.4 All waste must be disposed of via the correct means.
- 3.1 Vehicle engines must be turned off when not in use.

4.0 Process

- 4.1 Prior to commencing loading/unloading the Site Foreperson must ensure that

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- 4.1.1 The rig operator is a holder of a current Construction Plant Competence Scheme (CPCS) card in a category compatible with the rig being loaded/unloaded.
- 4.1.2 The rig operator is aware that they are responsible for the safe loading/unloading of the rig, (under direction of the transport driver) and for the necessary attachment, stowage, locking of brakes and rig safety devices.
- 4.1.3 The loading/unloading area is sufficiently large to accommodate the movement of the rig without striking obstructions or causing hazards to others.
- 4.1.4 The rig operator liaises with the transport driver to ensure that the transporter is on firm and level ground and correctly positioned with its brakes on.
- 4.1.5 Any ramps are secure and low enough to keep the ramp angle low. If required the transporter should be blocked as a precaution against tipping during the loading/unloading.
- 4.1.6 The rig transmission, steering, clutches, brakes, etc are functioning correctly, (Any unserviceable rig might require the assistance of a transporter winch).
- 4.1.7 The rig operator keeps the rig lined up with the ramps, when loading/unloading, so that the hazardous procedure of turning/slewing on the ramps does not become necessary.
- 4.1.8 The rig operator loads/unloads at the slowest possible speed, particularly at any point of balance. A suitably qualified and competent Rig Attendant shall be in attendance during loading / unloading operations.
- 4.1.9 Any movement of the rig, whilst on the transporter bed, (e.g. to centralise it) is carefully executed.
- 4.1.10 Final positioning of the rig when loaded is to the satisfaction of the transporter driver.
- 4.1.11 Any loose ancillary items, (e.g. Vibro Cones, Piling Hammers) are securely stowed.
- 4.1.12 Any company/mmanufacturer specifications on safety, whilst in transit, are strictly adhered to.

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4.1.13 The transporter driver is fully briefed on the rig's general specification, (e.g. Gross weight, operating length/height, overall width and transport length/height).

4.2 **Choice of Plant Transporter and Arrangement of loads – Point to note**

- 4.2.1 It is the responsibility of the company providing the transporter and trailer, to ensure that there is sufficient load restraint on each load.
- 4.2.2 It is the transporter driver's responsibility/duty to check and ensure that the load is adequately secured at all times, not just at the start of the journey.
- 4.2.3 It is a legal requirement that the maximum permitted axle and gross weight limits are not exceeded.

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	PILING	Rev:2.0 Approval Date 05/10/2023
	ERECTING AND DE-ERECTING THE MASTS ON 5500 SERIES RIGS	PGI-MST 1329

Contract Number	Contract Name
PR2400276746	Cwmavon HC (Heol Crwys)
Signed as Reviewed for Use On This Contract	Print Name
	Nick Jonathan

1.0 Purpose and Scope

- 1.1 This Method Statement defines the Company Standard Procedure for the setting up and taking down of the mast on a 5500 Series Rig.

2.0 Health and Safety Controls

- 2.1 See all relevant Risk Assessments in particular SAF-RAS 1007 – Driven Piling.
- 2.2 Ensure exclusion zone is implemented and enforced of 6 – 11m (dependant on Rig model)

3.0 Environmental Controls

- 3.1 Operational working hours are stated on the Prestart Site Inspection Form.
- 3.2 Fuel and Oil spill must be cleared as soon as possible. All spills must be reported.
- 3.3 Vehicle engines must be turned off when not in use.

4.0 Process

4.1 Erect the Machine

- 4.1.1 Refer to Operator's handbook for rig control.
- 4.1.2 Position the rig on firm, level ground, ensuring clear access to and from rig.
- 4.1.3 Ensure area is clear from overhead obstructions.
- 4.2 An exclusion zone shall be set out around the working area in accordance with SAF-WID 10417 – Rig Restricted Zones and FPS Plant Restricted Zones Handbook.
- 4.2.1 Disengage mechanical slew lock.
- 4.2.2 Start the rig engine and energise the hydraulics as described in the operator's manual.

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- 4.2.3 Leave the engine speed at it's pre-set operating speed.
- 4.2.4 On the main control box, turn the Erect Cylinder rotary switch counter clockwise to the EXTEND position.
- 4.2.5 Adopt a position to observe rig, mast, steel wire ropes and hydraulic hoses.
- 4.2.6 Depress and hold down handset button "7" until the erect cylinders are fully extended. If the mast veers to one side, use "Rake" function to correct position.
- 4.2.7 On the main control box turn the Erect Cylinder rotary switch back to the off position.
- 4.2.8 Operate left and right "Rake" controls to move mast into the vertical position.

4.3 **De-Rig the Machine**

- 4.3.1 Refer to Operator's handbook for rig control.
- 4.3.2 Position the rig on firm, level ground, ensuring clear access to and from rig.
- 4.3.3 Ensure area is clear from overhead obstructions.
- 4.3.4 Start the rig engine and energise the hydraulics as described in the operator's manual
- 4.3.5 Leave the engine speed at its pre-set operating speed.
- 4.3.6 Operate "Main Winch Lower" to lower hammer assembly until lower slide pack engages with mast physical stops.
- 4.3.7 Move hammer stop bars to "Transport" position.
- 4.3.8 Ensure the mast foot is fully raised.
- 4.3.9 Operate left and right "Rake Retract" controls and fully retract the rake cylinders.
- 4.3.10 On the Main Control box, turn the Erect Cylinder rotary switch to the RETRACT position.
- 4.3.11 Depress and hold handset button "7", until erect cylinders are retracted.

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- 4.3.12 Observe mast and operate "Rake" functions if required to ensure that mast lands on the mast rest.
- 4.3.13 On the Main Control box, turn the Erect Cylinder rotary switch to the off position.
- 4.3.14 Engage mechanical slew lock.

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	UNLOADING PILING MATERIALS	PGI-MST 1316

Contract Number PR2400276746	Contract Name Cwmavon HC (Heol Crwys)
Signed as Reviewed for Use On This Contract	Print Name Nick Jonathan

1.0 Purpose and Scope

- 1.1 The purpose of the Method Statement is to describe the procedure to be used when unloading piling materials.

2.0 Health and Safety Controls

- 2.1 All Loading/Unloading operation must take place within a controlled exclusion zone.
- 2.2 Where a Loading/Unloading operation cannot take place on the main site e.g. Public Highway consultation with the PC, Site Agent, RBL Regional Site Management and RBL Site Operatives must take place with hazards identified and control measures detailed/recorded within a Site Specific Risk Assessment approved by the National Piling Operations Manager and reviewed by the SHEQ Department.
- 2.3 Loading/unloading on public highways should be avoided, however, if necessary adequate and appropriate traffic management should be employed as required under the New Roads and Street Works Act (NRSWA) 1991. This should be provided by others and not Roger Bullivant Ltd.
- 2.4 SAF-RAS 1001 General Risk Assessment.

3.0 Environmental Controls

- 3.1 Operational working hours are stated on the Prestart Site Inspection Form.
- 3.2 Fuel and Oil spill must be cleared as soon as possible. All spills must be reported.
- 3.3 COSHH Assessments must be available for all hazardous items used
- 3.4 All waste must be disposed of via the correct means.
- 3.5 Vehicle engines must be turned off when not in use.

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	UNLOADING PILING MATERIALS	PGI-MST 1316

4.0 Process

4.1 Unloading Steel Pile Sections

- 4.1.1 Establish an exclusion zone and ensure that the risk assessment reflects the conditions relevant to the site.
- 4.1.2 Agree area with the Site Agent for the unloading and stacking of piles which should be adjacent to the area of piling operations. Area should have suitable access from the highway for 40' articulated Lorries and be of sufficient size and bearing to allow for the unloading from both sides and storage of piles.
- 4.1.3 Position vehicle to be unloaded on firm level ground.
- 4.1.4 Decide on format that piles are to be stacked, where possible access should be made available to both sides of stacked piles.
- 4.1.5 Check weight of load to be lifted and assess state of load to be unloaded i.e. is tube loosely stacked or banded tube.
- 4.1.6 If tube is loosely stacked greater care should be taken to unload as the risk of individual tube sliding off forks is greater and if possible tube grabs should be used.
- 4.1.7 If tubes are greater in length than 8 metres then a mechanical aid should be used to unload these singularly.
Note: Only personnel carrying a CPCS card that is valid to drive a Forklift is able to do so.
- 4.1.8 Drive towards trailer positioned central of tack of piles to be unloaded, raise forks into position, as to enter space between pile layers. Proceed forward until fork ends are beyond furthest pile layer, then lift the sections using vertical lever until clear of remaining stack, then use tilt lever to tilt layer slightly backwards.
- 4.1.9 After checking for pedestrians and vehicles, if neither are obstructing route away from vehicle proceed backward until clear of vehicle then lower layer of piles to a suitable travel height.
- 4.1.10 Proceed to stacking or laying down area keeping to the site speed limit. Using timber chocks if available stack steel to safe height and secure to avoid stack collapsing.
- 4.1.11 Repeat until the vehicle is totally unloaded, sign relevant paperwork.

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	MOVEMENT OF STEEL PILES (SITE OPERATIONS)	PGI-MST 1318

Contract Number PR2400276746	Contract Name Cwmavon HC (Heol Crwys)
Signed as Reviewed for Use On This Contract	Print Name Nick Jonathan

1.0 Purpose and Scope

- 1.1 This method statement defines the Company Standard Implementation procedure for the movement of steel piles around the construction site.

2.0 Health and Safety Controls

- 2.1 Prior to commencement the Site Foreman shall ensure that all the safety requirements for the piling operator are in place and in accordance with the Company Health and Safety Policy.
- 2.2 The preparation for piling operatives shall be in accordance with SAF-WID 1045 - Generic Set-up and Planning.
- 2.3 Fuel/ oil spills shall be prevented. Drip trays and emergency oil spill kits shall be used to catch and clean the spills/ leaks. Oil spill kits contain colour coded bags to contain any used spill equipment. These shall be disposed of by a licensed carrier.

3.0 Environmental Controls

- 3.1 Operational working hours are stated on the Prestart Site Inspection Form.
- 3.2 COSHH Assessments must be available for all hazardous items used.
- 3.3 Fuel and Oil spill must be cleared as soon as possible. All spills must be reported.
- 3.4 All waste must be disposed of via the correct means.
- 3.5 Vehicle engines must be turned off when not in use.

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	MOVEMENT OF STEEL PILES (SITE OPERATIONS)	PGI-MST 1318

4.0 Procedure

4.1 Onsite Procedures

- 4.1.1 One tube pallet will be provided. On large contracts an additional tube pallet(s) can be provided if required to allow for one pallet to be in use whilst the second is being restocked.
- 4.1.2 Each tube pallet can be fitted with rubber inserts to suit the various diameter steel piles. The forklift operator must ensure the most appropriate size insert is fitted to suit the tubes to be moved.
- 4.1.3 The forklift operator must adjust the position of the forks of the rough terrain forklift or telehandler to suit the pocket width of the pallet and lift the empty pallet.
- 4.1.4 The forklift operator must position the tube pallet at 90° to the tube stock pile and at a suitable distance to allow for the safe manoeuvring of the rough terrain fork lift or telehandler.



Figure 1.

- 4.1.5 Reverse away from the tube pallet and manoeuvre the forks into the stock pile to collect the tubes. Tube collection can be done individually or collectively depending on the capability of the machine and the lay of the tubes. When collecting the tubes it is important that: **ALL COLLARED ENDS FACE THE SAME WAY WHEN TRANSFERRED TO THE TUBE PALLET.**

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- 4.1.6 Reverse away from the stock pile and drive towards the tube pallet keeping the forks tilted backwards. Once reaching the pallet lower and gently tilt the forks so as to gently and slowly roll the tubes from the forks into the pallet. It may be necessary to reverse away from pallet as the individual tubes are rolling into their respective grooves.



Figure 2.



Figure 3

- 4.1.7 Once the required sections of tube have been transferred to the pallet. Re-position the forks in the fork pockets of the pallet until the pallet is located completely against the upright of the forks. Lift and tilt the forks.

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- 4.1.8 The tube pallet may now be manoeuvred across site taking care when travelling over uneven ground and around obstacles. The first frame can then be positioned presenting the pile sections so that the collared ends are facing the machine.
- 4.1.9 Where an additional tube pallet has been provided this can now be loaded in the same way.

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	DRIVEN TUBULAR STEEL PILING	PGI-MST 1302

Contract Number	Contract Name
PR2400276746	Cwmavon HC (Heol Crwys)
Signed as Reviewed for Use On This Contract	Print Name
	Nick Jonathan

1.0 Purpose and Scope

- 1.1 This method statement defines the Company Standard Implementation procedure for the construction of Driven Tubular Steel piles using various joints offered by the company.

2.0 Health and Safety Controls

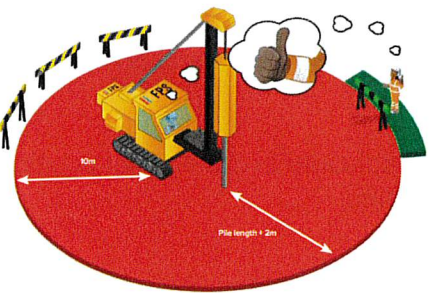
- 2.1 The Site Foreperson shall ensure that all the safety requirements for the piling operator are in place and in accordance with the Company Health and Safety procedures and Risk Assessments.

The preparation for piling operatives shall be in accordance with GEN-WID 1045 - Generic Set-up and Planning

- 2.2 PGI-PMS 1318 – Movement of Steel Tubular Steel Piles (Site Operations)
- 2.3 SAF-WID 1047 – Restricted Zone
- 2.4 FPS Plant Restricted Zones Handbook
- 2.5 Inspection of all lifting equipment before use.

DRIVEN PILING RIGS /VCC/DCIS RESTRICTED ZONE

5



 **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 loads being lifted by the rig and the increased risk of falling objects and plant movements from other plant such as excavators and dumper trucks.



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3.0 Environmental Controls

- 3.1 Operational working hours are stated on the Prestart Site Inspection Form.
- 3.2 COSHH Assessments must be available for all hazardous items used.
- 3.3 Fuel and Oil spill must be cleared as soon as possible. All spills must be reported.
- 3.4 All waste must be disposed of via the correct means.
- 3.5 Vehicle engines must be turned off when not in use.

4.0 Process

4.1 Prior to Commencing Construction

- 4.1.1 The Site Foreperson shall ensure that all the safety requirements for the piling operator are in place and in accordance with the Company Health and Safety Policy.
- 4.1.2 An exclusion zone should be set out around the working area in accordance with SAF-WID 1047 – Exclusion Zones and the FPS Plant Restricted Zones Handbook.
- 4.1.3 Before starting work the piling Foreperson should plan a sequence of work that will allow the safe delivery of piles to the rig, including the hoisting of piles into the rig to avoid where possible previously installed piles.

4.2 Piling Procedure

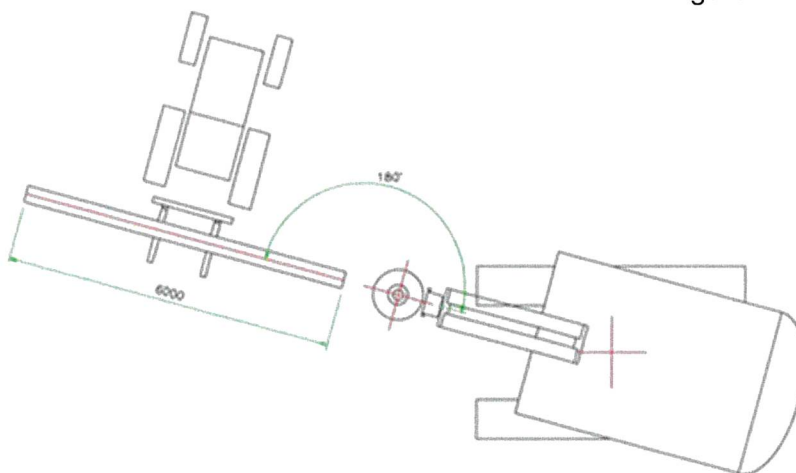
- 4.2.1 An exclusion zone should be set up around the working area in accordance with SAF-WID 1407 – Rig Restricted Zones and the FPS Restricted Zone Guidance.
- 4.2.2 The piling rig shall be precisely located at the position where the pile is to be driven, normally set out by others. The Rebar Safety Cap should be removed from the setting out pin by hand as late as possible ahead of the rig getting to the pin but before the rig is positioned above the pin.
- 4.2.3 The piling rig mast shall be adjusted to the vertical position checked in two places at 90° to each other.
- 4.2.4 The steel pile sections shall be presented using the tube pallet, as described in PGI-PMS 1318 horizontally to the piling rig by a fork truck in a position as close to 180° as possible to the centreline of the body of the piling rig, see figure 1. Consideration should be given to

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ensuring that the pile section can be safely pulled into the rig, without being obstructed by pre-installed piles etc.

Figure 1



- 4.2.5 Before attaching the sling to the pile section a visual inspection of the sling and all lifting equipment is required if there is any damage/wear or the lifting certificate is out of date this must be replaced. Sufficient slack must be allowed in the winch rope to prevent snatching. The sling should be positioned between 800mm to 1200mm (Dependant on the pile length) from the head of the pile. The piling hammer must be **stopped** and remain stationary before any slack is taken up on the hoist rope and whilst the pile section is being hoisted into the piling helmet.
- 4.2.6 Whilst hoisting a pile section into the rig all personnel should retreat a minimum distance of 2.0m away from the toe of the pile section and ensure that they do not enter the zone between the rig and pile.
- 4.2.7 Using the pile hoist rope, the pile shall be lifted into a near vertical position and the pile head located into the piling helmet. When lifting pile sections longer than 4.0m the pile section should NOT be allowed to enter the driving helmet until the toe of the pile is within 2.0m of the foot of the rig, see figure 2.

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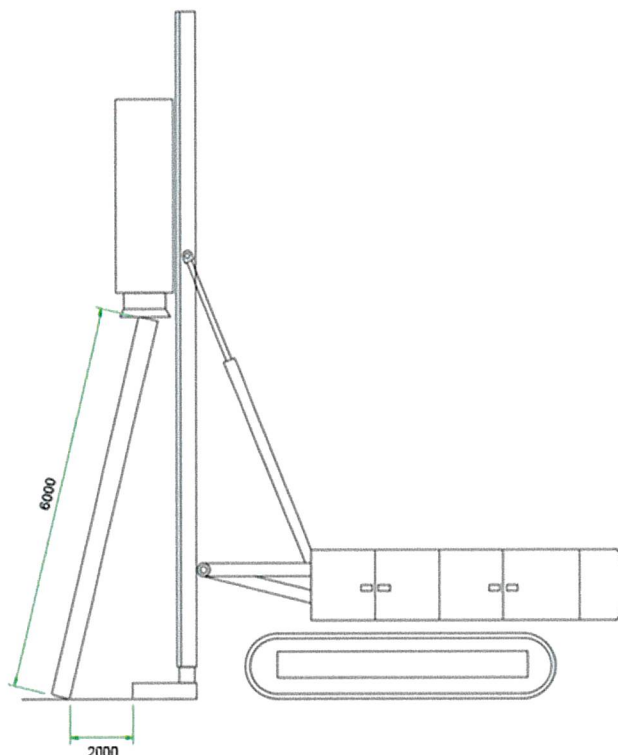


Figure2

4.2.8 The Piling Foreperson shall ensure the steady unhindered progress of the hoist through careful observation and control. During the hoist the rig attendant may enter the restricted zone after receiving the thumbs up signal from the rig operator, but must be at least 2.0m away from the toe of the pile section until the pile section is at the point of entering the helmet. At this stage, the Rig Attendant may assist in manoeuvring the pile section into the helmet.

4.2.9 NOTE - Under no circumstances should hands be placed on the lifting chain whilst hoisting piles. Should any person enter the restricted zone, or the rig attendant be closer than described above or the pile likely to collide with any obstruction, the Foreperson will immediately stop the auxiliary hoist. Where an obstruction such as a pre-installed pile prevents the pile section from being safely hoisted into the rig the pile section should be safely lowered to the ground, chain disconnected and a forklift used to reposition the pile so that it can be safely hoisted into the rig. Alternatively, where access for a forklift is not available the pile section should be lowered onto a chock on the ground and pinch bared into a position where it could be safely hoisted into the rig.

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- 4.2.10 Once the pile section head is located in the piling helmet the toe of the pile section is lowered to just clear of the catch plate on the footplate and subsequently manually guided and lowered into footplate. To prevent a trapping accident, extreme care should be taken to ensure that the pile does not kick backwards during this procedure.
- 4.2.11 The pile shall be checked for verticality on achieving a penetration of 1.0m; adjustment shall be made for verticality if required.
- 4.2.12 To prevent damage to the pile, care must be taken to ensure the hammer blow is always axial to the pile, and the pile therefore struck square to its axis.
- 4.2.13 The pile driving cycle is continued either at the same location by the addition of further pile sections (see section 4.6), dependent upon the length and/or set specified for the pile, or at a new location. When an addition section is required, top of driven pile should be left at a convenient height to allow the aligning of the joint.
- 4.2.14 When removing the hoist rope hook from the vertical pile section the hammer **must stop** driving the pile. There should be sufficient slack in the winch rope prior to unhooking to determine that the pile is not slipping under its own weight. Once unhooked the rig attendant shall then retreat to a safe position (see FPS Plant Restricted Zones Handbook) and the operator shall retreat to a safe distance of ideally 3m away from the hammer before pile driving re commences.
- 4.2.15 When tracking the piling rig to a new pile location, the Piling Foreperson, assisted by their rig attendant is to physically check and evaluate the risks and decide whether existing precautions are adequate or whether more should be done. Where the rig movement is by radio/remote control the operator is to be situated at such a distance from the machine to enable constant 360° visibility/awareness. The rig attendant is to assist in achieving the safe movement of the rig and guaranteeing segregation of pedestrians and other traffic. Additionally, a close monitoring of the piling mat and its integrity is to be maintained whilst the rig moves to the next pile position.

4.3 **Jointing**

- 4.3.1 Pile sections shall be jointed using collars and threads inherent in the casing, or a spider/spud joint or other joints selected from the range offered by the Company, whichever has been specified.
- 4.3.2 If machined joints are to be used for the jointing of tubes, the following must be followed.

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- 4.3.3 The operatives must offer the joint up to the ends of the tubes to be jointed to determine the wall thickness of the tubes. If there is any doubt over the wall thickness, then different tube section must be selected.
- 4.3.4 Once it is agreed that the joint would locate suitably, the first section is to be winched into place and driven to a maximum of 700mm above platform level.
- 4.3.5 The joint is then placed into the previously driven section and the hammer must be lowered onto the joint, and the joint is to be hammered into the middle ring, the hammer is then raised and the next section winched into place and then lowered onto the secure joint and then continue with driving of the pile.
- 4.3.6 This method must be used on all machine joints used.
- 4.3.7 Where a pile is installed with a spider/spud joint is less than 1m below piling platform level, a record should be made and highlighted to the client to ensure the pile is supported while cropping/cutting activities take place, especially where excavation is required.

4.4 **The Pile Set**

- 4.4.1 In simple terms the final set is a measure of physical performance compared with a calculated requirement, where the depth of pile penetration is measured over a given number of blows (10) by a known force (hammer weight x distance dropped).
- 4.4.2 The required sets and anticipated pile design lengths shall be given to the Site Foreperson in writing prior to the commencement of piling construction.
- 4.4.3 Where instrumentation is available on the rig, this should be used to measure sets, although a daily manual check is good practice
- 4.4.4 Where instrumentation is not available, a manual set should be taken.
- 4.4.5 If a Steel Dolly is required to take a final set, this must be handled by mechanical means i.e., forklift truck or rig auxiliary line. The Dolly must not be moved manually.

4.5 **Measuring a Manual Set**

- a) Stop the Hammer.
- b) The competent machine operator is to mark the Pile in an accessible point i.e. the Pile, frame, or cage, by whatever means, from a firm surface, such as the rig foot.

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- c) The competent machine operator to retire to the maximum distance possible for safety.
- d) Undertake the designated number of blows, (usually 10), at a given hammer drop height.
- e) Cease Operation.
- f) The competent machine operator is to return to the Pile position and physically measure the depth penetration.
- g) Repeat the operation until desired set is achieved. Make Pile entry on Piling Log Sheet.

4.5.1 Where the pile set is achieved at a pile length which varies by more than 1m from the anticipated pile design length the Piling Foreperson shall notify the Operations Supervisor, record the event on the piling records and await instruction regarding the acceptability of the pile as driven. The Operations Supervisor shall treat such events as Site Design Changes in accordance with DES-WID 0401.

4.6 **The Pile Re-strike**

- 4.6.1 A retaking of a pile set undertaken as long as possible after the piles construction, and at least 24hrs after, to ensure that the dynamic resistance of the pile has not decreased over a period of time.
- 4.6.2 An overnight re-strike is not acceptable on contracts of longer duration.
- 4.6.3 A minimum of 5 re-strikes per day will be carried out. On larger contracts a minimum of 5% of the total number of piles will be re-struck.
- 4.6.4 Unless the piles are founded on Rock (including chalk) or Dense Gravel, re-strikes will be taken over 10 blows, on randomly selected piles unless otherwise specified. The re-strike set shall be equal to, or less than the set at end of drive. Only where the piles are founded on Rock (including chalk) or Dense Gravel can the number of blows be reduced to a minimum of 3.
- 4.6.5 In the event that a pile re-strike produces a set which is greater (slacker) than the pile set at end of drive the Piling Foreperson shall notify the Operations Supervisor, record the event on the piling records and await instruction from the Operations Supervisor. The Operations Supervisor shall treat such events as Site Design Changes in accordance with DES-WID 0401.

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4.7 Pile Testing

- 4.7.1 Dynamic Testing - As well as traditional methods of testing, we offer dynamic testing of piles using the Pile Driving Analyser operated by personnel who are experienced in pile testing. This widely used and accepted technique offers an economical and rapid method of pile testing to satisfy any statutory or specified requirements.
- 4.7.2 Static Load Testing - Where testing is included in the Bill of Quantities, we have only allowed for testing vertical piles. Working piles to be tested should be selected clear of obstructions sufficiently early in the contract to enable testing to be carried out and completed during the main piling works.
- 4.7.3 No work by any person shall be carried out on or adjacent to the piles until such times as the Piling Protection Certificate for the Sub-contract works has been issued by Roger Bullivant Limited.

4.8 Visual Inspection

- 4.8.1 Where the rig is to leave site without an as built survey of the pile positions, the Rig Operator must conduct a visual check along the line of piles and call the Area Office if it appears that a pile may require checking.

4.9 Records

- 4.9.1 The Company shall retain copies of all piling records.
- 4.9.2 Where possible the Site Foreperson shall obtain a signature from the Client or their representative on the record sheets as an agreement to the accuracy of the recorded data. If a signature cannot be obtained the Foreperson must notify the area office before leaving site.
- 4.9.3 Penetration records are to be taken of the first pile on every contract. Subsequently, 3% of the total number of contract piles will be recorded in the same manner, with a minimum of 3, but preferably 5.
- 4.9.4 In addition, should any variation in the length occur, further penetration records are to be taken as appropriate

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	TESTING	Rev:1.0 Approval Date 17/11/2022
	DYNAMIC LOAD TEST	TES-MST 1302

Contract Number PR2400276746	Contract Name Cwmavon HC (Heol Crwys)
Signed as Reviewed for Use On This Contract	Print Name Nick Jonathan

1.0 Purpose and Scope

- 1.1 The Purpose of this Method Statement is to ensure that Dynamic Load Testing is carried out in the correct manner.

2.0 Health and Safety Controls

- 2.1 SAF-RAS 1016 – Dynamic Load Testing Risk Assessment refers.

3.0 Environmental Controls

- 3.1 Operation should only take place within specified working hours.
- 3.2 General waste shall be deposited into designated skips.
- 3.3 Fuel/ oil spills should be prevented. Drip trays and emergency oil spill kits should be used to catch and clean the spills/ leaks.
- 3.4 Special waste, such as oil contaminated materials, used oil spill kits, etc. shall be disposed of by a licensed carrier.
- 3.5 All engines must be turned off when not in use.

4.0 Method and/or Process

4.1 Procedure

- 4.1.1 All operatives must have a site induction before commencing work and sign to confirm having read the risk assessments and COSHH assessments relevant to the task in hand.
- 4.1.2 Establish which piles are to be tested. The test piles must be chosen by the site agent or one of his representatives, if unclear contact the Area Office. Test piles must not be selected by site personnel unless

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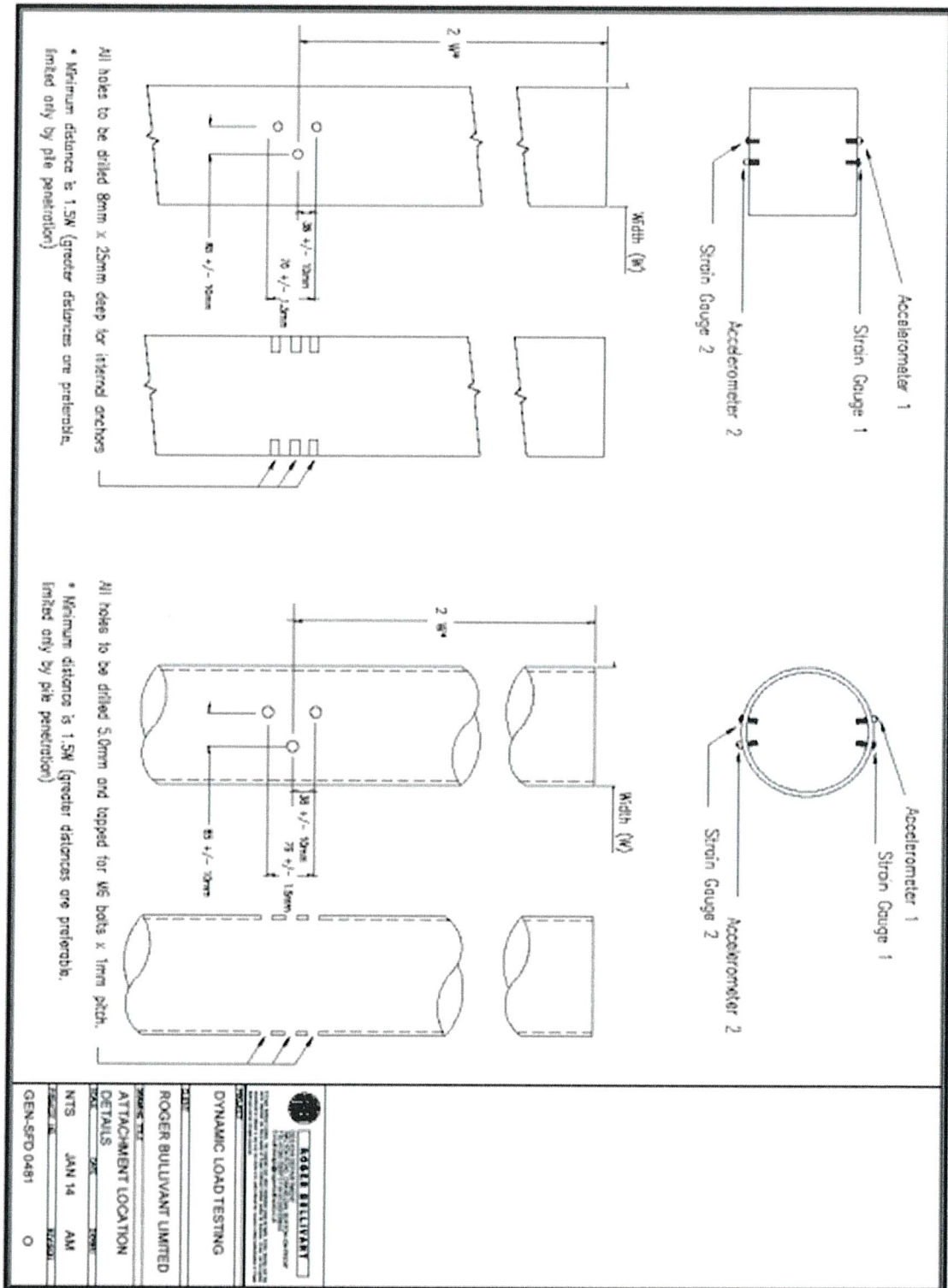
specifically instructed by the Area Office. Note on the site record who has selected the test piles and how this had been communicated.

- 4.1.3 Ensure pile to be tested has adequate safe working space all around the testing area, as well as suitable rig access.
- 4.1.4 Using the appropriate safety equipment, drill holes and place anchors at two diameters down from pile head. Spacing and orientation to be in accordance with drawings in GEN-SFD 0481, below.
- 4.1.5 Ensure mounting points are symmetrical, on opposing smooth faces and parallel to pile axis.
- 4.1.6 Attach one strain gauge and one accelerometer to each face of the pile, and then correctly attach the gauges to the test equipment.
- 4.1.7 Appropriate data records must be taken prior to test commencement and entered both on the test record sheet and into the test equipment.
- 4.1.8 Position piling rig over the test pile ensuring the hammer is positioned to strike evenly and in line with the pile axis.
- 4.1.9 If it proves necessary a pile dolly can be used to facilitate testing, provided it is composed of the same material as the pile itself.
- 4.1.10 Having completed input of data, ensure calibration figures for each of the gauges are correct.
- 4.1.11 Set the test equipment to receive data and strike the pile using the piling rig.
- 4.1.12 Record results on the Dynamic Load Test sheet.
- 4.1.13 In the case of an anomaly in the test result the Testing Supervisor is to be informed. In the event the results obtained are below those expected the Area Office Engineer is also to be informed before leaving site. The nature of the anomaly, the person(s) informed and any further actions taken are to be recorded on the site record sheet.
- 4.1.14 Remove test equipment and gauges from the test pile and position on the next pile if required.

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4.1.15 When testing has been completed, the white sheet will be left on site with the client representative, and a copy emailed to the Area office.



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	METHOD STATEMENT	Page 1 of 4
	MINI-PILING AND RESTRICTED ACCESS PILING	Rev:3.0 Approval Date 17/01/2024
	PERMANENTLY CASED PILES FORMED USING OVERBURDEN DRILLING SYSTEM	MRA-MST 1309

Contract Number	Contract Name
PR2400276746	Cwmavon HC (Heol Crwys)
Signed as Reviewed for Use On This Contract	Print Name
	Dan Roberts

1.0 Purpose and Scope

- 1.1 This Method Statement describes the process for the installation of the installation of permanently cased ODS Piles.

2.0 Health and Safety Controls

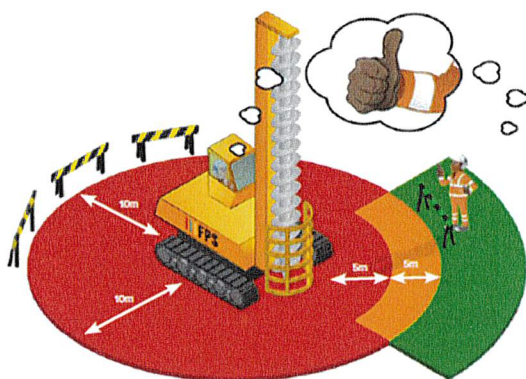
- 2.1 SAF-RAS 1001 – General Risk Assessment
- 2.2 SAF-RAS 1008 – Bored Piling Risk Assessment
SAF-RAS 1009 – MRA & UMP Risk Assessment.
- 2.3 The safety method statement for operation of auger rigs (Ref: **MRA-MST-1341**) must be on site and have been read and understood by all Operatives before any works commence.
- 2.4 Before any piles can commence an Underground Services Permit to Dig / Avoidance of Overhead Services Permit to Work must be completed by the Client / Main Contractor.
- 2.5 The piling foreman will be responsible to ensure that no unauthorised personnel are within the piling exclusion zone.
- 2.6 The piling foreman is to that personnel are using the required PPE.
- 2.7 SAF-WID 1047 – Restricted Zones.
- 2.8 FPS Plant Restricted Zones Handbook.
- 2.9 Inspection of all lifting equipment before use.

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SFA/RIGID INCLUSIONS RESTRICTED ZONE

1



Red Zone: The rig must be isolated (isolated means the rig cannot slew or track and the hydraulics are not able to operate) to prevent movement or rotation before entering this area. Authorised personnel only (rig attendant).



Amber Zone: 5-10m piling exclusion zone. Authorised personnel only (rig attendant). Authorised persons can enter only when driver/operator has acknowledged you and it is safe to do so. Do not enter the Red Zone from this area.



Green Zone: Drivers sight line (safe approach) optimum rig attendant position.

Note: The measurement for the Red Zone starts from the widest part of the machine-auger/tracks.

FPS

3.0 Environmental Controls

3.1 Refer to ENV-MST 0001 – Environmental Controls During Onsite Operations.

4.0 Process

4.1 Prior to Starting Work

4.2 A restricted zone shall be set up around the working area in accordance with SAF-WID 1047 – Restricted Zones and FPS Restricted Zone Guidance.

4.3 The Site Foreperson shall ensure that all the safety requirements for the piling operations are in place and in accordance with the Company Management System procedures including non-RBL personnel that may be affected by the works.

4.4 The preparation for piling operations shall be in accordance with reference 2.1.

4.5 Method

4.5.1 All plant and materials will be delivered to site using a wagon and off loaded and placed in the specified areas.

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- 4.5.2 The permanently cased ODS pile is formed by driving a welded steel casing into the ground using an air flushed over-reaming hammer drill. Once the rock head is reached the over-reaming is replaced with a standard DTH hammer to form a rock socket.

NOTE: Before any piling can commence an Underground Services Permit to Dig / Avoidance of Overhead Services Permit to Work must be completed by the Client / Main Contractor.

- 4.5.3 Set up piling rig on the pile position.
- 4.5.4 Weld the driving shoe to a section of steel casing. This forms the lead casing. (**Note:** During welding operations a suitable fire extinguisher **MUST** be located within easy reach of the welder. The work area **MUST** be cleared of all flammable substances.
- 4.5.5 An excavator in attendance with rod handler attached will be used to lift all drill rods and casings onto drill rig.
- 4.5.6 Connect the air flushed over-reaming hammer drill to rig and insert hammer into the pile casing.
- 4.5.7 Drive and drill the starter casing to required depth.
- 4.5.8 Add subsequent lengths of casing and additional drill rod extensions. The casings are added using a welded connection. (**Note:** During welding operations a suitable fire extinguisher **MUST** be located within easy reach of the welder. The work area **MUST** be cleared of all flammable substances.
- 4.5.9 Continue to drive / drill the pile until rock head is reached.
- 4.5.10 Extract the over-reaming hammer and connect standard DTH hammer. Drill rock socket to required depth.
- 4.5.11 Extract DTH hammer and check the pile bore.
- 4.5.12 Trim the casing to the cut off level using appropriate cutting equipment. (During the cutting process, the area **MUST** be cleared of all flammable substances and a suitable fire extinguisher **MUST** be readily available within easy reach.
- 4.5.13 Place the steel reinforcement into the casing as required, using spacers as necessary.

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4.5.14 Fill the pile with concrete from an approved supplier or tremmie grout depending on ground conditions. Adhere to handling requirements of COSHH.

4.5.15 Move to a new pile position and repeat steps 1-12.

4.5.16 All protruding vertical reinforcement bars to have end caps fitted until such times as piles are to be incorporated into the beams/slab/pile caps.

4.6 **Aborted pile position and exposed pile excavations**

4.6.1 If a pile position is aborted, the piling rig will be backed away from the pile position and the open bore protected with a pile cover.

4.6.2 The client and/or groundworker is to be immediately notified that the pile position requires suitably backfilling to meet the requirements of the working platform design.

4.6.3 Under no circumstances are RBL workers to leave site with open or exposed piles excavations.

4.6.4 The RBL Foreman is to ensure that these are backfilled before workers leave.

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