CFA Piling – Load Bearing			Date:	05/04/2018
Job:	Hoxton Hotel			
Client:	Garenne Interiors			
Lengths	Length: N/A	Reinforcement: N/A		

BURRAS Ltd
CIVIL ENGINEERING AND PILING CONTRACTORS

RISK ASSESSMENT
&
METHOD STATEMENT

CFA Loadbearing Piles
@
Hoxton Hotel

Issue Date: 05/04/2018

Registered Office: Walton Road, Farlington, Portsmouth, Hampshire Po6 1UJ.
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Directors: M.Burras Vat Registration No. 109222011

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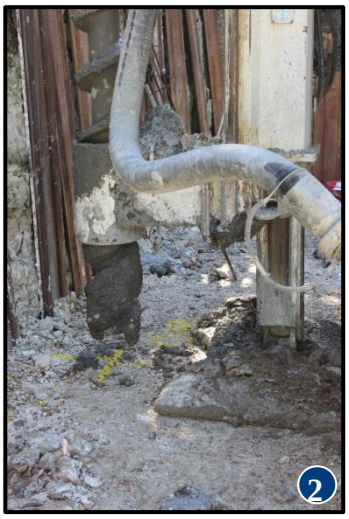
This site specific method statement describes the work carried out in the construction of CFA load bearing pile using a Piling Rig for Hoxton Hotel.
See sequence on section 4 of the full method statement if an obstruction is found

1. Materials & Plant

- Piling Rig –
- Excavator
- Reinforcement cages
- Spacers
- Concrete pump ***(image 1)***
- Concrete drum ***(image 1)***



2. Task 1 – Drilling

a. Mobilise Rig
b. Mark out pile locations
c. Align auger guide over the pile location ***(image 2)***
d. Drill to require depth ensuring that auger stays vertical
e. Remove spoil with mini digger to keep area clear.
f. Once depth is reach signal to pump operator to start pumping concrete
g. Retract auger as concrete is pumped
h. Once the pile is formed the pump operator will release the pressure with 5 back pumps
i. Repeat until desired number of piles are bored

3. Task 2 – Clear hole

a. Ensure the bucket if attached to the excavator
b. Remove all spoil from around the recently bored hole
c. With a graft remove reaming spoil in hole so that the cage can be inserted ***(image 4)***

4. Task 3 - Inserting Cage – by hand

d. Ensure the cages can be safely lifted by one person
e. Attach spacers while cages are on the ground
f. Lift and lower cages into wet concrete ***(image 3)***
g. Ensure cages are placed at the correct depth

5. Task 3 - Inserting Cage – with excavator

h. Ensure the bucket if removed from the excavator
i. Attach spacers while cages are on the ground
j. Lift and lower cages into wet concrete with the excavator
k. Ensure cages are placed at the correct depth

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BURRAS Piling Risk Assessments

Severity		Likelihood		Risk Factors	
Rating 1	No injury or illness	**Rating 1**	Improbable	> 24	Eliminate & discuss with Manager
Rating 2	First Aid injury or illness	**Rating 2**	Remote	24 - 12	Reduce Risk, change works installation method
Rating 3	"3 day" injury or illness	**Rating 3**	Possible	< 12	Reduce as far as reasonably practicable
Rating 4	Major injury or illness	**Rating 4**	Probable		
Rating 5	Fatality, disabling injury etc	**Rating 5**	Very Likely to occur		

Activity	Hazard	S - Severity	L - Likelihood	S x L – Risk Factor	Action To Avoid or Reduce Risk	S - Severity	L – Revised Likelihood	S x L – Revised Risk Factor
Site Access & Egress; Plant and vehicle coming in contact with each other or people and property.	Crushing, serious or fatal injury. Damage to plant equipment & property.	5	3	15	Access to and egress from all site compounds shall under space restriction areas, be controlled by an Appointed Person. At all times pedestrians and vehicles must be segregated with particular attention being paid to restricted and confined space areas. When necessary the correct and appropriate high visibility vests shall be worn. Any approach	5	1	5

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					to vehicles in working condition must be from the front so that drivers can see your presence. Maintenance to be carried out as per Manufacturers Manual			
Underground Services; Electrical Cables, Water Services. Telecom cables, C.A.T.V. services.	Fire, Explosions, Flooding Asphyxiation, Electrocution Disruption of services to the public.	5	3	15	In the event of machinery travelling or working in the area accessed this will be checked for services through surveys, maps, drawings, local authorities, scanning equipment, customer and clients. When necessary a permit to work system shall be implemented between the customer, client and management of persons carrying out the works. Where heavy vehicles have to cross over known areas of water pipes and gas pipes steel plates shall be used to protect against crushing and fracturing. .All supplies may be at risk through crossing of heavy plant shall be clearly marked up by client.	**5**	**1**	**5**
Poor Ground Conditions; Uneven Ground Interface with others	Transport Traction Unsuitable Equipment Damage to plant or property	5	3	15	Ensure ground conditions are capable of withstanding pressures exerted. Ensure Rig Set-up area Level. Ensure that set-up area cordoned to prevent access to others. Clear instructions and signs to be displayed in areas of restricted movement. All vehicle movement to be controlled by an Appointed person. Area checked for overhead obstructions and underground hazards.	**5**	**1**	**5**
Plant Operations; Moving Plant Contact between plant and property.	Serious or fatal injury. Damage to plant and/or property. Increase of danger to public Highway users.	4	3	12	Clear instructions and signs to be displayed in areas of restricted movement. Appointed Person to be provided in all areas of restricted movement. Where possible maximum use must be made of one-way circuits. All plant should be approached so that the Appointed Person /Driver/Banksman/ Slingers are aware of your presence.	**4**	**1**	**4**
Working at Heights;					Where possible works above ground level to be carried out without the			

Working at heights.	Falling resulting in possible fatal injury, serious injury, broken bones, cuts and bruising.	5	3	15	requirement to climb. Ladders shall be secured. Where not practical with ladders operators shall wear a body harness and shall clip on in all cases when working at height where there is no provision of edge protection. Should neither of the above be practical access shall be via a man-rider basket suspended from suitable cranage, a mobile access platform or in extreme cases a scaffold tower. The two later are subject to provision of adequate working area. Where needed personnel will wear a full safety harness attached to a fall arrest reel attached to the crane hook via a separate sling. The lift supervsior is to make himself aware of the site working at height rescue plan for the evacuation of casualties from height.	**5**	**1**	**5**
Use of Ladders; Falls. Slipping. Falling Objects.	Serious or fatal injuries from falls slips or falling objects. Damage to property and equipment.	5	3	15	Ground base for ladders must be firm and level. Ladders must be in good order and inspected prior use. All ladders must be of sufficient length to extend 1.05m above the landing platform or step-off point. Ladders must be set up at the correct angle of 75° or a base to height ratio of 1:4. Ladders must be securely lashed or footed at all times. Over reaching from ladders shall be avoided. Ladder work shall be restricted to operations that can be carried out with one hand. Damaged ladders shall be removed from the place of work immediately. Painted ladders shall not be used. Aluminium ladders shall not be used. Aluminium ladders shall not be used in close proximity to electronic power cables.	**5**	**1**	**5**
Working on Scaffolding Platforms; Height Stability. Fall of materials.	Falling from a height. Collapse of the platform. Materials falling from	4	2	8	All scaffolds shall be erected in compliance with BS5973 and BS5674. Upon erection completion a handover certificate shall be obtained where necessary weekly inspections shall be carried out with the results being recorded in the F91 register. Proper access shall be provided to working platforms at all times. Ladders shall be of suitable length (1.05m above the landing platform)	**4**	**1**	**4**

	the platform. Overloading of the platform.				and be adequately secured. No platform shall be overloaded by equipment. All ladders shall be removed at the end of each working day. Scafftag System shall be implemented.			
Loading & Off Loading Vehicles; Contact and/or collision between vehicles and people. Contact & / or collision between vehicles & plant or Property.	Serious or fatal injury from trapping crushing and falling objects.	3	2	6	Only the minimum number of persons to be engaged during the operation. Ensure no public interface during operations - make use of barriers, tape etc. Vehicles must be in good efficient state and repair. Loading/un-loading to be controlled by an Appointed Person. Vehicles shall not be overloaded, only carrying the capacity that it was designed for, No vehicle shall be loaded to such an extent that it may interfere with the safe driving or operation.	**3**	**1**	**3**
Use of Lifting & Pulling Gear; Chains, Slings, Straps, Shackles, Lifting beams, eye bolts	Equipment failure Incorrect Slinging Incorrect Use Accident Falls Cutting & Bruising of hands Damage to equipment Crush injuries to personnel	4	2	8	All lifting gear to have relevant test & inspection certification in order and available for inspection. All lifting gear shall be clearly marked with identity numbers and safe working load. All lifting gear shall be subject to visual examination prior to and after use. All lifting equipment shall be protected from sharp edges No lifting equipment to be overloaded All chain sling hooks to be fitted with safety catches. All lifting gear to be checked for security & correct fitment prior to lifting pulling.	**4**	**1**	**4**
Use of Hand Tools; Broken handles and shafts. Splinters from impact.	Eye injury. Injury to hands, feet and body.	3	2	6	All hand tools must be fit for purpose in the environment in which used. All tools shall be in good condition with damaged equipment taken out of service. Eye protection shall be used whenever work is done using cold chisels, drills, grinders and other tools where there is a risk of flying particles or pieces of the tool breaking off. Also when any air operated	**3**	**1**	**3**

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Sharp blades and edges. Sparks from impact.	Fire. Explosion.				tool is in use. Open blade knives, screwdrivers and other sharp tools are to be carried out and used so as not to cause any injury to users or others. Non-ferrous (spark free) tools are to be used in flammable atmospheres. Insulated tools must be used where there is a possibility of live electrical work.			
Manual Handling; Lifting Pushing Pulling of Materials and Equipment.	Injury to hands, feet and back through cuts, bruising, sprains, and strains.	3	2	6	Where possible making use of mechanical means such as cranes shall eliminate the requirements to manual handle, hoists, forklifts, sack barrows, and other propriety lifting, pushing and pulling tools. Where lifting, pushing and pulling cannot be avoided assessment shall identify a safe system of work, which shall include the use of more than one person to carry out the required operation. Suitable periods of work and rest in order to prevent fatigue shall be planned into all operations. Use shall be made of Kinetic Lifting Techniques. Appropriate personal protective equipment shall be worn at all times.	**3**	**1**	**3**
General Works-Environmental; Viruses, Bacteria, Fungi, Anthrax, Leptospirosis	Contact with any of the hazards may result in suffering through related diseases.	4	3	12	Beware of any growing organisms or spores. Beware of any bird droppings, which may have been allowed to accumulate. Beware of water, which has been left standing and become stagnated. Beware of any area, which has been subject to rat infestation. Ensure all cuts and grazes are covered over. Ensure a high standard of personal hygiene when working in any of the above conditions. Ensure that all personal protective equipment issued is worn. Seek medical advice should you become ill.	**4**	**2**	**8**
Near Miss Action; Any situation that may have come close to an incident, which could have caused damage or an accident that, could have caused injury.	Fatal injury. Serious injury. Damage to site staff and/or the general	3	2	6	All situations deemed to be of a “near miss” situation shall be investigated with results made known to the workforce along with revised methods to ensure no recurrence of the situation. Any employee who sees or witnesses a ‘near miss’ situation is duty bound to report it to his immediate supervisor or a member of the management team of ……..	**3**	**1**	**3**

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	public.							
Accidents & Injuries Slips Trips Falls	Personal Injury to person Serious Injury to person Cuts & Bruising Broken Bones	2	3	6	Any personnel who requires first aid is to seek help from & report the incident to the site nominated first aiders, if required help with the first aid and evacuation of the casualty from the working area First aiders will be identified during site induction. If needed emergency services to be called used 999 or 112 numbers. As much information as possible to be given to the emergency services when contacted. Care to be taken by all to ensure first aid not required.	**1**	**3**	**3**
House Keeping; Slips Trips Falls Hygiene	Personal Injury Disease and Contamination	5	2	10	All tools and equipment to be properly stored immediately after use. All unwanted packing materials to be correctly disposed off. All tripping obstructions to be cleared from work area. Appropriate lighting to be available for all relevant works. Maximum use to be made of all waste disposable facilities. All work areas to be cleared on completion of work daily. All welfare facilities to be kept in a clean and tidy condition.	**5**	**1**	**5**
Working Near Power Lines; Overhead Power Lines	Shock Explosion Fire Electrocution through contact by people, plant, metal objects and arching.	5	3	15	All overhead lines shall be considered live unless a certificate from the plant owner declares it otherwise. Barriers and goal posts shall be erected as required and agreed with the line owners with all appropriate warning signs being displayed. Where circumstances require it a permit to work shall be put into use i.e. – where rigs, long metal objects are used. All movement of vehicles, which are at risk, shall be strictly controlled. Plant owners, must always be consulted on safe working distances from overhead power cables.	**5**	**1**	**5**
Noise;	Noise induced deafness to operatives				Every effort shall be made to reduce noise levels to less than the first action level of 80dB (A). Noise level assessment shall be carried out on			

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Noise levels exceeding 80dB(A)	and others who may be exposed to high levels of noise. Noise pollution, which may affect the working conditions of others.	5	2	10	all equipment when necessary. Any area which reaches the 2nd action level of 85dB (A) shall be clearly marked with the appropriate signs. Where levels cannot be maintained at or below the 1st action level, ear protection to B.S.5108. At levels 85dB (A) and over ear protection shall be worn.	5	1	5
Dealing with Fire; Overheating of mechanical parts. Accumulation of rubbish. Sparks from welding operations. Discarded cigarette ends. Failure of electrical equipment.	Explosion of fuel oils. Trapping in burning buildings. Explosion from industrial gases. Major injury, death, burns, suffocation.	4	3	12	All mechanical plant shall be correctly maintained and fitted with either an internal fire fighting system or carry the appropriate type of fire extinguisher. Rubbish shall not be allowed to accumulate in buildings. All buildings shall have a full compliment of fire fighting equipment. All flammable materials shall be removed from areas where welding operations are carried out. Each welding plant shall carry the appropriate type of fire extinguisher. Areas of welding operations shall be checked half an hour after works are complete. Cigarettes should only be smoked in and extinguished in the areas provided for smoking. Electric sockets shall not be overloaded and extension leads must be fully laid out to eliminate heat build up.	4	1	4
Burning / Cutting / Welding; Oxygen Propane Acetylene	Explosions Burns Fire Asphyxiation	5	3	15	All welding gases shall be stored in proper suitable areas. All welding plants shall be equipped with flashback arresters. Screens shall be used to protect others from welding glare. All flammable materials shall be removed from the area of welding / cutting works. All cylinders shall be secured in the upright position with a suitable fire extinguisher available at work site. No works shall be carried out in areas of confined or restricted space	5	1	5

	Cold Burns Inhalation of toxic fumes. Serious or fatal injury				without the provision of fumes extractors and circulation for fresh air. Do not allow grease to come in contact with oxygen supplies. Gauges and valves shall have frequent inspections for leaks and damage. Appropriate eye, head, body, hand and foot protection shall be worn at all times during work operations. Oxygen cylinders shall be stored at least 3m away from propane/acetylene cylinders.			
Hazardous Materials; Asbestos. Lead. Chemicals. Acids. Paints. Sprays. Oils. Fuels. Old drums and empty containers.	Pollution. Fire. Explosion. Burns. Poisoning. Inhalation and ingestion of fumes/dusts/ Fibres. Skin contact casing diseases.	5	3	15	Upon discovery of any un-identified substances take the following action:- Where necessary cordon of the area/keep people clear of area, display warning signs or post sentries. Where safe to do so remove container drums etc to one area bringing your actions to the attention of a supervisor or member of management who shall make arrangements for identification and safe removal. Spillage of any liquids should be contained by use of sand/dirt etc. Splash from any liquids should be washed off immediately, seek medical advice if necessary. Where necessary the assistance of consultants shall be used to identify substances and advise of correct disposal procedures. Appropriate P.P.E shall be worn at all times. If in doubt - leave - call assistance.	**5**	**1**	**5**
Disposal of Waste Materials; Contact with dangerous material.	Disease from contact. Pollution to ground/rivers etc. Build up of potential	5	3	15	All waste materials shall be placed in appropriate skips/containers. Where possible skips/containers should be emptied daily or alternatively ensure they are covered or sealed to prevent spillage etc. All waste shall be removed from site and deposited in landfill sites. Materials identified as unacceptable to normal landfill sites shall be disposed off in suitable approved tips.	**5**	**1**	**5**

Damage to environment. Incorrect disposal procedure.	fire and explosive situations. Attraction of vermin.				Transfer notes shall be retained for all waste removed from depots and sites. They shall be kept for a minimum period of 2 years. Appropriate PPE shall be worn at all times whilst handling waste materials. Where burning is allowed a fire extinguisher shall be available.			
Handling & Storage of L.P.G; Acetylene. Propane. Butane. Oxygen.	Leaking cylinders. Fire. Explosion. Asphyxiation.	4	2	8	Cylinders must not be lifted by the valves. Cylinders must not be rolled or used as a roller. All valves to be closed when not in use. All valve connections to be inspected or damage and leaks prior to use. Never allow grease to come into contact with oxygen valves. All cylinders to be stored in a well ventilated secure storage area. All must be in the upright position and out of direct sunlight away from sources of ignition. Empty and full cylinders should be stored separately. All areas to be marked with the appropriate warning signs. Oxygen shall be stored at least 3m away from L.P.G. cylinders unless a fireproof wall separates them. Fire fighting equipment shall be available.	**4**	**1**	**4**
Working Near Electricity; Electricity Poor insulation High voltage Poor maintenance Water	Shock Electrocution Fire Explosion Damage to equipment	5	3	15	All portable appliances shall have an identifying number and be tested annually. All high voltage systems shall be suitable marked. Where possible only 110V tools shall be used on sites. Extreme care shall be exercised when working around water. All damaged or non-working tools shall be labelled as such and placed in a quarantine area to await repair/replacement.	**5**	**1**	**5**
Protection of the Public	Public entering into the				The areas in which the piling operation shall be completely barriered off			

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Public Interface Unauthorized persons Entering work site/pilling areas.	works area. Public suffering injury due to gaining entry into the work area. ontact with moving machinery, struck by moving machinery, struck by piling rig, hit by falling spoil from piling rig.	5	3	15	to prevent the public gaining access. Warning signs shall be displayed at prominent places warning the public of danger from piling operations. The lifting operations shall be halted immediately if any member of the public gains access inside the barriered area. Particular attention to be paid to the presence of children. All piling operatives will communicate with any persons unauthorized in the piling areas. Only authorized personnel will be permitted into the piling/ work areas.	**5**	**1**	**5**
Pile set our pins	Injury by tripping or falling onto pin	4	4	16	Pins will be clearly marked with tags and or spray line; a protective cap will be fitted over the exposed ends.	4	2	8
Fluid, hydraulic, water level checks on piling rig and concrete pump etc. checks for hydraulic or air entrapment within pipe lines.	Noise, fumes, dermatitis	4	4	16	Hearing, eye, respiratory, hand and foot protection must be worn. Fuel will be contained in a suitably constructed catchment bund or a double skinned bowser with drip tray.	4	2	8
Injury by being struck from delivery vehicles, piling rig or excavator.	Rig overturning- Impact, personal injury, damage to property. Struck by moving machinery	5	3	15	Piling rig will be set on approved platform. A qualified banksman will direct vehicular movements in accordance with the Principal Contractor. All personnel will wear Hi-Visibility clothing at all times during vehicle movements.	**5**	**2**	**10**

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					All vehicles will have flashing warning lamps operational.			
Commencement of auguring works.	Entanglement in rotating augers, cuts, bruising, severed limbs or fatality.	5	2	10	The driver will be responsible for the activities of the piling gang working in front of the rig at all times and in association with the banksman. The auger gate will be kept closed at all timed during drilling process. The auger cleaning mechanism will be in place and used during drilling operations. Protective gloves will be worn during the handling of the augers, protection to the body will be provided by a coverall/boiler suit.	**5**	**1**	**5**
Contact with human excrement/animal/human bones or other harmful substances.	Wells Disease, anthrax, tetanus, fatality. Immediately cease work and contact the Site Foreman, Contract Manager Health and Safety Adviser or Site Agent.	4	2	8	All personnel will cover any cuts or skin abrasions with suitable medical dressing prior to starting work. The site Foreman will ensure that PPE is worn at all times during working operations, Hygiene standards will be monitored by the Site Foreman. Area or work will be cordoned off with steel road pins and hazard warning tape.	**4**	**1**	**4**
Removal of spoil	Slips, trips and falls due to the spoil heap in	5	2	10	The work areas will be kept clear of excess spoil.	**5**	**1**	**5**

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Falling spoil	close proximity of the bored holes. Collision with plant				The spoil will be removed by the excavator and a dumper to a designated area, in co-ordination with the Principal Contractor. Suitable PPE will be worn at all times during working operations. All plant operatives will be competent and qualified. A banksman will be in attendance at all times during vehicular movements.			
Handling of augers	Manual handling injuries, loose spoil, cuts to hands and arms during handling.	5	2	5	Augers will be stacked away from the general work and personnel routes/away from work areas. A lifting appliance will be used to lift the augers, typically the excavator with certificated chain attached, PPE will be worn at all times during auger movements, i.e. gloves foot protection, goggles/eye protection	**5**	**1**	**5**
Open pile/augured holes	Entrapment of feet in open bored holes resulting in falls or personal injuries.	5	2	5	Open holes will be covered if borehole is not to be filled immediately. Use suitable metal or timber cover plates.	**5**	**1**	**5**
Handling of reinforcement cages or bars.	Cuts to hands/arms during the handling of reinforcement bars.	4	3	12	Gloves, head and foot protection will be worn and arms. Body covered during lifting cages into position. Guide ropes will be used at all times. The lifting ropes will be used planned by the Site Foreman.	**4**	**2**	**8**

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	Striking personnel.				A qualified banksman will be used to control lifting operations. The lift areas will be inspected for overhead obstructions before lifts take place. No loads will be lifted over personnel. No loads will be lifted within 6 meters of overhead electrical cables. Adequate lighting will be available, should the light levels fall below an acceptable level.			
Working with concrete	Burns from wet concrete, noise from pump, fumes from pump.	4	3	12	Gloves, eye protection and overalls will be worn at all times during concreting operations to guard against splashes. Hearing protection will be used if acoustic panels are not adequate. Exhaust will be directed away from personnel.	**4**	**2**	**8**
Authorized By:	**M Burras for Burras Ltd.**							

Method Statement

See also, site specific method statement at the front of this document

1. General Safety Induction

A representative of the Principal Contractor will carry out a site safety induction for Burras Ltd site operatives. The safety induction will highlight the hazards and risks related to the site and work areas also items such as smoking/non-smoking areas, fire precautions and means of access and egress etc.

2. Facilities: The Principal Contractor will provide the following facilities

- Water supply equivalent to ¾ inch supply at mains pressure located adjacent to the piling areas.
- Prepare and maintain all weather hard-standing for the piling rig, delivery vehicles, access and egress areas.
- Welfare facilities.
- Access ramping for concrete holding drum and its subsequent removal, if required.
- Fencing/hoarding as necessary to protect adjacent structures and the public areas from splashing as necessary.
- Location of existing utility services and diversion/making safe as necessary.

3. Pre-Commencement Operations

3.1 All site operatives will sign in/out on a daily basis at the site office or at a designated location.

3.2 It is essential that the piling platform is firm level, where necessary steel road plates will be installed to ensure the safe working of the rig during construction of the piles and on site traversing. The principal contractor will undertake this in accordance with Burras Ltd Guidance.

3.3 It will be the responsibility of the Principal Contractor to administer a permit to lead system on the piling mat and rig operating areas.

3.4 Prior to piling works it is the responsibility of the Principal Contractor to ensure that the ground is suitable/free from obstruction and services, which will subsequently hamper or delay the pining operations.

3.5 The Principal Contractor will ensure that a Permit to Excavate is issued to Burras Ltd; this should be completed prior to ground breaking operations commencing.

3.6 Any health and safety issues raised during the safety induction will be discussed with the Principle Contractor before work commences.

3.7 All Burras Ltd operator training certificated will be copied and issued to the Principal Contractor before works commence.

3.8 All Burras Ltd personnel are competent and trained for the function sand work being carried out.

4. Sequence of Pile Construction for CFA Piling

Sequence of works if an obstruction is found.

- Mark out pile location
- Use breaker on small excavator to breakout an 800mm square through tarmac and subbase.
- Probe pile location to a depth of 1m to ensure there are no obstructions
- Align piling rig over position and drill to required depth
- The rig has high penetration pressure and unless the obstruction is reinforced concrete then it is likely to penetrate any old brickwork or unreinforced concrete with little vibration
- If obstructions are found in top 4m of made ground that the rig cannot penetrate an auger drive attached to a 21t excavator will first try to penetrate the obstruction as this will produce less vibrations than a hydraulic breaker
- If this is unsuccessful the area will have to be locally excavated and a small breaker will be used to remove any obstruction
- Temporary shoring will be used if it is seen necessary onsite
- Vibration monitoring to be carried out by others

4.1 Access and Egress to site

4.1.1 Access for both the piling rig and materials will be via site entrance during normal working hours and in accordance with the Principal Contractors instructions.

4.1.2 Materials will be unloaded and stored in the designated areas as advised by the Principal Contractor.

4.1.3 Delivery times will be undertaken in agreement with the Principal Contractor.

4.1.4 Deliveries of materials and plant will be checked against those itemised in the quality plan/start up documentation.

4.1.5 Any damaged or missing materials/plant will be logged on the delivery sheets.

4.1.6 All plant will be checked for operability before delivery vehicles leaves site.

4.1.7 Any defects, breakdowns or problems with plant will be reported to the Burras Ltd plant engineer.

4.2 The Setting up of the Self-Propelled Piling Rig

4.2.1 The piling rig will arrive on site in a mobilised position, before work can commence the rig must be assembled.

4.2.2 The machine operator will unbolt the mast extension and with the aid of an excavator or telehandler and lifting strop will swing the mast to a straight position and then bolted up.

4.2..3 The excavator will then assist in slightly lifting the mast so the stabilising bolt can be taken out.

4.2.4 The mast will then be hydraulically raised to and upright position and the necessary bolts will be positioned.

4.2.5 At this stage the augers will be attached, firstly the lead auger will be placed under the rotary table and connected to the machine, this will allow the pin to be inserted and drill into the ground.

4.2.6 The lead will be disconnected from the rotary and took out of the way the second section of auger will be lifted with the auxiliary winch, it will be slotted into the top of the lead, the banksman will then climb the ladder until he is in line with the connection of the winch line, at this point the banksmans' harness to a connection on the rig above head height, the banksman will unattach the rig and climb carefully down from the rig.

4.2.7 The rotary is then positioned over the augers and drilled into the ground, this is carried out until all augers are in place on the machine.

4.2.8 The piling rig is now ready for inspection by the rig operator, who will carry out the final safety checks.

4.2.9 All rig set up will be in accordance with the machine manufactures instructions.

4.3 Setting up of Pile Position and Rig Location

4.3.1 The pile positions will be set out by Burras Ltd in conjunction with the Principal Contractor. Using 300mm long steel pins and suitable tagging with the pile numbers as defined in the pile layout drawing.

4.3.2 The Principal Contractor will advise Burras Ltd on the pile sequence in accordance with the Permit to Excavate (where applicable.)

4.3.3 The piling rig will be tracked into position in accordance with the Principal Contractor instructions due to the nature of the work environment.

4.3.4 The auger will be centred over the pile position, at this point the mast of the rig will be checked in the vertical planes in both directions (piles will be constructed at a sufficient distance so that recently cast piles will be unaffected).

4.4 Boring the Pile

4.4.1 The piles will be constructed using a diesel/hydraulic track mounted continuous flight auger piling rig with a computerized monitoring system.

4.4.2 Piles will be constructed using the specified diameter auger using continuous length augers until the specified depth is reached.

4.4.3 Spoil generated from the pile bore will be removed from the immediate piling area to enable reasonable access to the front of the rig by the Banksman. Burras Ltd will then remove the spoil at agreed intervals. An excavator shall be in attendance to perform this function.

4.5 Forming the Pile

4.5.1 Aggregate grading from fine to 10mm will be used.

4.5.2 Piles will be formed by retracting the augers after the correct depth of hole has been reached. Ready mixed concrete will be pumped via a trailer mounted concrete pump through the stem of the auger as it is being

retracted. Concrete will be stored on site in a skid mounted rotating agitator drum

4.5.3 At the achieved depth the reinforcement will be inserted into the wet concrete.

4.6 Placing Reinforcement – Wet Bore

4.6.1 The Site Foreman, Site Agent/Engineer will inspect the reinforcement cages prior to insertion in the pile bore hole.

4.6.2 The reinforcement cages will be fabricated on site by Burras Ltd, these will be lifted into position and lowered into the bore hole by the excavator. The levels will be decided as the job progresses, the protruding bars will be covered with protection caps, and the client will expose the piles at a later date and gun them to the required depth.

4.6.3 The above process will be repeated for each pile.

4.6.4 During the lifting and positioning of the reinforcement cages, guide ropes will be used. This will assist in the safe movement of the cages.

4.6.5 The main bars and helical reinforcement will be manufactured in accordance with the relevant British Standards, it will be supplied by a CARES (UK Certification Authority from Reinforcing Steels) supplier.

4.6.6 Pile cages will be fabricated on site in accordance with the requirements of the pile design.

5. Testing – by main principle contractor

5.1 Two sets of 4 in number 150mm concrete cubes will be taken each day of pilingto be tested one at 7 days, one at 14 days, one at 28 days and one spare.

5.2 The delivery ticket for each load of concrete will be checked and held onsite to ensure the correct mix has been delivered.

5.3 Slump tests will be carried out by the principle contractor to determine concrete workability

6. Materials to be Stored on Site

6.1 Diesel contained within bunded area.

6.2 Rebar (pile reinforcement).

6.3 Wheel spacers.

7. General Site Safeties

7.1 Personal protective Equipment (PPE) will be provided for all personnel, as a minimum the following will be available:

Safety Head Protection.
Safety Footwear.
Hand Protection.
Eye/Face Protection.
Hi-Visibility Clothing.
Overalls.

It is the responsibility of all personnel to wear the protective equipment provided, as defined by the risk assessments, the site Foreman will enforce this policy and ensure that the correct equipment is worn when required.

8. Plant Details

8.1 Piling Rig.
8.2 Excavator.
8.3 Trailer mounted concrete pump.
8.4 Concrete holding drum.
8.5 Bunded tank holders.
8.6 Secure stores.
8.7 Assorted ancillary piling equipment.

9. Site Supervision

9.1 The site Foreman is responsible for all aspects of the site operations and will ensure that the works are undertaken in accordance with the procedures set out within this document.

Authorized By: **M Burras for Burras Ltd.**

I have read and understood the above document

Name	Signature	Date