

C&G Concrete Pumping Ltd

Rosecroft New Road Charney Bassett OXON OX12 0ER

Telephone: 01235 868855

Mobile: 07766503595

www.cgconcretepumping.co.uk

Email:- paul@cgconcretepumping.co.uk

Method Statement Title: Concrete Pumping

Method Statement No.: MS-0001

Date Compiled:

Review Date:

Expiry Date:

Compiled By:

Competency:

Main Contractor:

Site Managers:

Site Address:

Site Operatives:

Reg'd Office: Vicarage Court, 160 Ermin Street, Stratton, Swindon. SN3 4NE

Company No: 6494408 VAT Reg. No. 930 4008 65



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Truck Mounted Mobile Concrete Pump Significant Risk Identification / Control Measure Statement

The mobile truck-mounted concrete pump is designed to convey concrete from the machine's delivery hopper to a point designated by the hirer/site management.

This is achieved via a hydraulically powered pump, through pipe sections attached upon an articulated boom, to a suspended flexible rubber delivery hose, solid 'tremmie' pipe, or via a steel pipeline laid on the ground or fixed vertically.

Data Sheets detailing pump dimensions, outrigger loadings/ positioning, boom type/ reach, and pumping delivery pressures/ volume outputs are available upon request from C&G Concrete Pumping Services, or from our website - www.cgconcretepumping.co.uk

Information, Instruction, Training, Monitoring - All C&G Concrete Pump Operators (C&GPO's) are issued with a detailed Operators Procedure Guide (OPG). Every C&GPO holds a current CPCS card/NPORS certificate for concrete pumping operations. C&GPO's are assessed periodically, and are also subject to unannounced 'spot checks', in order to ensure safety, quality, & operating standards are maintained and developed. Encouragement by site management of this progress would be appreciated. This enables us as a company to comply with our employers legal requirements.

British Standard BS 8476:2007 'Code of practice for the safe use of concrete pumps' is recommended to hirers and interested parties as a reference document detailing the general minimum requirements in respect of the operation of concrete pumping equipment. Copies of the standard are available from BSI – www.bsi-global.com

Safe Systems of Work –C&G Concrete Pumping Ltd have assessed all aspects of its operations, and have developed procedures and safe systems of work that aim to reduce and control risks to safety, health, and the environment.

Significant Risks As an overview, the significant risks that are present in respect of concrete pumping activities are noted below, along with appropriate control measures. Any additional risks have been assessed and are recorded within our company (C&GCPS/RAMS/) Method Statement.

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REFERENCE No. : MS- 0001

OPERATION: Concrete pumping using boom pump/ Line Pump

LOCATION:

NOTE: This method statement must be fully explained to all employees involved in the operation prior to commencement of the works. They are to sign the signature box end the end of the statement to acknowledge receipt of the information

1 Scope of Work

Description and sequence

Use of vehicle mounted boom pump for placement of concrete into floors above ground level.

Method

Before leaving depot

Walk-round inspection of vehicle, to ensure road worthiness, to include:- general visual check of pump turret and fixed steel pipes, hydraulic hoses (to check for any leaks), tyres, mirrors & lights, operation of remote control operator's system, hopper guard grid is secure and serviceable.

Fill water tanks.

Defrost all windows (during winter conditions) to provide good all-round driving visibility.

Allow engine to "warm-up" and idle for 10mins prior to departure, to build up air reservoirs for brakes.

Arrival on site

Park safely outside site and report to site manager.

Go through site induction process.

Fill out plant inspection record sheet/book.

Walk to area designated for pump setup area, and visibly assess environment. Check for ground stability (responsibility for suitable preparation is down to the site manager/hirer); overhead obstructions; visibility to work area; access conditions and route for delivery lorries.

Establish a code of signals between the pump operator and concrete laying gang/foreman prior to commencement of pumping works.

Pump setup

Deploy machine stabilisers (using sole plates if necessary).

Level up and support the pump using the hydraulic jack stabilisers.

Unfurl boom and manoeuvre into pour starting position.

Check wire safety lanyards are attached between end of boom (knuckle bend) and first flexible pipe.

Remove steel and rubber pipes (necessary to reach pour starting point) from bed of pump, and carry to lay-out position.

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Layout necessary pipes in approximate assembly locations.

Join pipes together using couplings with rubber sealing rings.

Position any mobility pans under couplings (as necessary) to aid with hose movements during pour.

Fix suitable rope handling cord onto last section of pipework ready for work to commence.

Once all hoses have been connected, conduct a final walk-through check of all hoses and couplings starting at point of pour and finishing at pump hopper.

Acquire 50kg of cement (client to supply) for every 20m of pipeline to be used, for pipe grouting, and position by hopper prior to delivery lorry arrival.

Priming hoses

On arrival of 1st delivery lorry, mix up grout for lining pump hoses.

Empty ½ a bag of cement into bucket containing @ 20lts. of water and mix using a small paddle to combine water and cement into a flowable grout.

Pour mixture into top of connecting knuckle on rear of hopper.

Repeat above steps for remaining cement.

During works

Reverse concrete delivery lorry up to hopper ready for discharge.

Ensure that hopper grid is in lowered position, prior to approach of mixer lorry, and at all times during discharge and pumping operations.

Allow delivery vehicle to agitate mixer drum for a couple of minutes to avoid initial aggregate separation on discharge.

Discharge concrete into hopper to check slump and suitability of concrete prior to starting to pump through hoses.

Establish a suitable position of work – to be able to see concrete discharge into hopper and point of delivery from hose. This may involve the use of the remote control pack.

Should a remote control pack be used, then any other operating controls, mounted on the pump body, must be disabled.

Commence pumping of concrete at a suitable rate to allow for site operators to spread concrete; and for lorry to discharge concrete at a rate to keep hopper ¾ full.

Until concrete is flowing smoothly out of the end of the delivery hose, or when a blockage occurs in the boom pipeline, all personnel should remain clear of the delivery hose and the placing boom.

(The danger zone is the area around the delivery hose in which the delivery hose can strike out. The diameter of the zone is twice the length of the delivery hose).

If a blockage occurs during the pour, the concrete pump operator must stop pumping immediately and instruct personnel to move to a safe position before attempting to remove the blockage.

If the concrete pump operator needs to open the delivery pipeline to clear a blockage, he must first release the pressure inside the pipeline as much as possible, e.g. by reversing the pumping action.

The pipeline must be treated as being pressurised at all times. Appropriate and adequate eye protection must be worn when opening the pipeline.

The hirer is to ensure that site personnel **DO NOT** under any circumstance open or attempt to open the pipeline under pressure.

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Use horn to signal to concrete lorry driver to stop discharge if the need arises to move hoses, disconnect hoses, or to stop pour for any other reason.

Move boom as necessary to making a suitable progress across pour area.

On completion of lorry discharge lower boom to allow end of delivery hose to rest on floor.

At the end of discharge of each load remove any disconnected hoses and wash out immediately to avoid concrete drying inside hoses and pipes.

If the concrete pump has to be left unattended, the operation of the boom and pump must be isolated.

Between concrete lorry deliveries

Agitate the contents of the hopper should the need arise – long intervals between delivery vehicles, rise in ambient temperature, etc.

On completion of works.

Concrete in the hopper should be discharged until the only a small amount is left in the hopper (just covering the ram inlet chambers)

The pressure in the pipeline should be released by retracting concrete into the hopper.

The access point in the rear knuckle (immediately after the hopper) should be opened, a wetted sponge ball inserted into the line, and the access cover re-secured.

A cage, or protective back board, should be erected at the end of the delivery hose (to receive and confine the cleaning ball).

The end of the discharge hose should be secured to avoid any whiplash.

All laying gang members should be moved away from the discharge hose, to a safe area.

The cleaning ball should then be advanced through the remaining pipes and hose, At reduced engine revs, until it emerges at the discharge point.

The ball should then be recovered and thoroughly cleaned and washed off.

All hoses should be thoroughly washed out and stored on the lorry bed.

All couplings should be cleaned, washed and stored on the lorry bed.

The boom should then be retracted and stored on the purpose-made cradle on the lorry bed.

A suitable site for emptying the remaining concrete from the hopper should be identified, and the pump moved to this location.

The retaining lever on the lower door of the hopper is then released, and the door swung away to allow the remaining concrete to be discharged from the hopper.

Flush out all the intake rams, pistons and thoroughly rinse all concrete and grout from the hopper.

Once fully flushed, close the lower door of the hopper and secure with the retaining level.

Ensure all pipes, clips, hoses, wash out lines sole plates are stowed in their respective areas on the lorry bed, and ready for road travel

Complete client receipt and present to client's representative.

Sign out (if required) from site and return to depot.

2

Location

Time/Duration

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Access Routes

Access for Emergency Services and others.

The works will not impact on access for the emergency services or others.

3 Lighting

All work is to be carried out in daylight hours. The hirer is to supply any additional lighting required.

4 Plant and Equipment.

Schedule of equipment

Lorry mounted concrete pump

Test Certificates

Operator to possess either a CPCS or NPORS certificate for operation of concrete pumps

Specialist Equipment

N/A

5 Materials

Materials to be used

Ready mixed concrete

COSHH Implications

See attached COSHH data sheet

Fire Implications

N/A

6 Risks and Controls

See attached hazard identification sheet and control measures.

7 Training

All employees are to have this method statement, and associated risk, COSHH and manual handling assessments explained to them prior to commencing work. The briefing register is to be signed by each employee on all documents.

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The pump operator is to be in possession of a valid training certificate.

8. Organisation

P. Johnson, L. Green , T Fletcher A Harding, J Simpson, D Cull, W Holden, N Grant

9. Housekeeping

Removal

All residual concrete shall remain on site and is the responsibly of the client to dispose of.

Resources

N/A

Frequency

N/A

Storage

N/A

10. Briefing Register

The briefing register for this operation is attached

11. Personal Protective Equipment

The following PPE will be worn by all operatives involved in this operation:

Safety Hats

High Visibility Vests

Safety Boots

Gloves

Safety glasses

Ear defenders (if required due to site conditions)

Issue, Maintenance and Recall

All PPE will be issued to employees by the contracts Manager prior to their commencement on site.

The foreman is to inspect all employees PPE prior to the operation to ensure it is serviceable.

12. Power

N/A

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13. Working Platforms

N/A

14. Welfare

Welfare facilities are provided by main contractor.

15. 3rd Party Protection

N/A

16. The Environment

Noise

See method statements

Air Omissions

N/A

Aqueous/effluent discharge

All concrete washed from hopper, pipes and hoses shall be contained on-site and not allowed to contaminate any drains or water courses. The responsibility for this containment lies with the client/hirer

Waste Generation

N/A

3rd Parties

N/A

17. Temporary Works

N/A

18. Monitoring

Air Sampling

N/A

Health Surveillance

N/A

Noise/Vibration Sampling

N/A

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19. General

First Aid

The first aider for the project will be the site manager or a person appointed by the hirer.

Fire.

No fire risk will be present during this operation.

Exposure to hazardous substances

See COSHH assessments

Oxygen enriched / deficient atmosphere

N/A

Adverse weather conditions

Adverse weather conditions should not effect this operation

Spillage

Should any fuel or oil spillage occur it would be contained using subsoil which will subsequently disposed of as contaminated waste.

20 Communications

Radio

N/A

Telephone

Mobile available with site foreperson and pump operative.

Verbal

This method statement and the associated risk assessment will be verbally explained to all employees involved in the operation prior to its commencement.

Hand Signals

All hand signals to reversing vehicles will be in accordance with the Health and Safety (Safety Signs and Signals) Regulations 1996.

Code of hand signals between pump operator, lorry drivers and concrete laying gang members to be agreed prior to works commencing.

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HAZARD AND RISK IDENTIFICATION SHEET																
HAZARD	EFFECTED AREA													RISK VALUE		
	ARM	HEAD	TRUNK	EAR	EYE	FOOT	SHOULDER	HAND/WRIST	INTERNAL	LEG	TOE	OTHER	PUBLIC	SEVERITY	PROBABILITY	SEVERITY X PROBABILITY
SERVICES																
Overhead	X	X	X			X	X	X	X	X	X			2	2	4
FALLS																
From Height	X	X	X			X	X	X	X	X	X			2	2	4
Same Level/Trip	X	X	X			X	X	X	X	X	X			2	2	4
MACHINERY IN MOTION																
Drawn in	X	X	X			X	X	X	X	X	X			2	2	4
Flying objects	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	9
VEHICLE IN MOTION																
Fall From	X	X	X			X	X	X	X	X	X	X		3	2	6
Trapped Between Machinery/ Vehicles	X	X	X			X	X	X	X	X	X			3	2	6
Hit By Machinery/ Vehicles	X	X	X			X	X	X	X	X	X			3	2	6
Hit By Burst Hoses/ Flying Material	X	X	X	X	X	X	X	X	X	X	X	X	X	3	2	6
COSHH																
Irritant	X	X			X	X		X	X	X				4	4	16
GENERAL																
Manual handling	X	X	X			X	X	X	X	X	X			2	2	4
Explosions																

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Electricity	X	X	X			X	X	X	X	X	X	X		2	2	4
Hand tools	X							X						1	2	2
Noise				X										2	2	4
Falling objects	X	X	X			X	X	X	X	X	X	X	X	3	3	9

Hazard Severity & Probability	
Severity	Probability
1 Negligible	1 Not likely
2 Slight	2 Possible
3 Moderate	3 Quite possible
4 High	4 Likely
5 Severe	5 Almost a certainty

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<u>Risk</u>	<u>Professional Control</u>	<u>Site Management and Hirer Considerations & Controls</u>
Contact with overhead power cables	C&G Pumping follow industry guidance (GS6) – 6m from electric services mounted on wooden poles and 11m from services mounted on metal pylons.	Ensure the pump is sited so that neither the pump, or boom, encroaches within these limits.
Fall from height whilst checking pump, filling water tanks, unloading pipes	Ensure footwear is clean and free from mud, debris, etc. Short duration tasks only (retrieving fittings, etc). Long duration tasks (changing seals, etc. require a harness and separate method statement Unload pipes, 1 at a time, from side of lorry.	Keep site clean as practicable. Do not allow non C&GPO operatives to access the pump deck of the lorry.
Collapse or settlement of pump due to ground conditions/ inadequate ground support	Sole plates are provided for placement below outrigger feet to support the pumps outriggers/ reduce surface damage these are designed for use on firm, level standing	Ensure ground conditions at set-up position are adequate for imposed load of pump provide sufficient extra support (timbers, steel sheets, etc.) as
Drawn into machinery in motion	Ensure hopper grating is lowered and secured during pumping operations	Keep unauthorised personnel away from working area
Vehicle Movements (reversing) – crushing / trapping of persons by delivery vehicles	Where possible the C&GPO will direct the mixer truck during the manoeuvre onto the concrete pump hopper	Provide a competent banksman to direct concrete mixer trucks (especially when the C&GPO is required to operate the boom/pump.

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<u>Risk</u>	<u>Professional Control</u>	<u>Site Management and Hirer Considerations & Controls</u>
Injury to people, or property from spillage/splatter from hoses	Pump all concrete from hoses prior to moving boom. Lower boom so hose sits on floor between loads. Direct hose away from edge of shutters, etc. whilst discharging concrete	Ensure suitable edge protection to slab/pour. Recet debris netting is likelihood of overspill or splatter.
Potential blockage at start or restart of pump	Agitate concrete in hopper between loads	
Hose “whipping” when flexible hose used off end of boom	C&GPO request everyone remain clear end of discharge hose on restart. Steel security lanyard used on joint between boom and flexible hose. Only single ended hose used off boom	Ensure laying gang members keep clear of end of hose on restart.
Bursting of pipelines under pressure	Only pipes, hoses & clips of sufficient safety rating to be used. Wear and damage to hoses and pipes should be checked frequently and replaced as necessary.	
Forceful ejection of concrete from end of hose	Pipe seals maintained correctly. Level of concrete in hopper controlled correctly	If C&GPO operates pumps using remote control unit a secondary banksman should be appointed to watch levels of concrete in hopper (to avoid air being pumped into pipework)
Pressurised concrete release – dismantling hoses	Release pressure in pipeline before releasing joining clips	Non C&GPO operatives NOT to release clips without C&GPO instruction/ direction/

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<u>Risk</u>	<u>Professional Control</u>	<u>Site Management and Hirer Considerations & Controls</u>
COSHH: Cement - Irritant	Gloves to be worn when handling pipe, hoses, grout or washing out.	
Blockages (and why they occur)		
Segregation of aggregate during pumping	Use appropriate amount of primer / grout to line pipeline	Consider length of pipeline used (site setup position of pump)
Inappropriate concrete mix	Check and adjust slump as necessary	Ensure "pump mix" specification on design mix.
Stiffening of concrete in boom pipeline, water bleeds from concrete, incorrect dosage of plasticiser (flash set)	C&GPO shall agitate concrete in hopper and move concrete in pipeline if delays are envisaged	Deliveries should be time managed to avoid delays or waiting times
Flexible hoses kinked or trapped	Suspend vertically if off the boom and layout straight if used as horizontal pipework	
Foreign objects delivered form mixer drum	Monitor the discharge of the concrete into the hopper	Banksman to assist if C&GPO is using pump via remote control box.
Flexible hoses kinked or trapped	Suspend vertically if off the boom and layout straight if used as horizontal pipework	
Foreign objects delivered form mixer drum	Monitor the discharge of the concrete into the hopper	Banksman to assist if C&GPO is using pump via remote control box.

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This is to certify that I have read and understood the above method statement, risk assessment and control measures.

PRINT NAME	SIGNATURE	DATE	PRINT NAME	SIGNATURE	DATE

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