

Knowsley
Redevelopments Ltd
Former Contract
Chemicals, Knowsley

Piling Risk Assessment

September 2025



Document Control

Project: Former Contract Chemicals, Knowsley – Piling Risk Assessment

Site Address: Penrhyn Road, Knowsley, L34 9HY

Client: Knowsley Redevelopments Ltd

Author: G&J Geoenvironmental Consultants Ltd

Report Reference: GJ224-06-R001-PRA-V1

Brief Description of Contents Assessment of the risks from Controlled Modulus Columns in terms of preventing pollution and managing risks to site workers and structures.

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1.0 INTRODUCTION

G&J Geoenvironmental Consultants Ltd (G&J) was commissioned by Knowsley Redevelopments Ltd to prepare a Piling Risk Assessment to evaluate the land contamination risks associated with the use of Controlled Modulus Columns (CMCs), which are the chosen ground improvement solution for a proposed industrial development at the former Contract Chemicals site in Knowsley. CMCs are not pile foundations, but a penetrative ground improvement technique which increases the bearing capacity of the soil to support shallow foundations and floor slabs. However, they share many similar characteristics with piles, which are used as deep foundations.

1.1 Sources of Information

Previous investigations, by G&J and others, have identified contamination in the soil and groundwater at the site associated with the past site use, primarily in the form of 1,2-dichlorobenzene, although other contaminants are present.

G&J have also produced a Detailed Quantitative Risk Assessment (DQRA) and a Remediation Strategy for the site in the context of the proposed development. The findings of the previous ground investigations, the DQRA and Remediation Strategy are detailed in the following reports:

- *'Preliminary Contaminated Site Investigation Contract Chemicals Ltd, Knowsley'*, Cremer & Warner Ltd, Report ref: C397/1, April 1993.
- *'Integrated Pollution Prevention and Control, Pre-Authorisation Desk Study of Contract Chemicals Ltd'*, AIG Consultants Ltd, Report ref: UK99/A1421, July 1999.
- *'Contract Chemicals Ltd, Trade Effluent Overspill Sampling, Final Interpretive Report'*, Entec UK Limited, Report ref: 11002il, January 2011.
- *'Bromododecane Spillage Investigation, Contract Chemicals Site, Knowsley'*, AMEC Environment & Infrastructure UK Limited, Report ref: 32144, September 2012.
- *'Former Contract Chemicals Ltd, Knowsley – Interpretative Desk Study'*, G&J Geoenvironmental Consultants Ltd, Report Ref: GJ224-DTS-V1, February 2021.
- *'Former Contract Chemicals Ltd, Knowsley – Site Investigation Interpretative Report'*, G&J Geoenvironmental Consultants Ltd, Report Ref: GJ224-SI-INT-V1, January 2022.
- *'Former Contract Chemicals Ltd, Knowsley – Detailed Quantitative Risk Assessment'*, G&J Geoenvironmental Consultants Ltd, Report Ref: GJ224-03-R002-V1, April 2025.

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- *'Former Contract Chemicals Ltd, Knowsley – Remediation Strategy and Verification Plan'*, G&J Geoenvironmental Consultants Ltd, Report Ref: GJ224-03-R003-V1, April 2025.

1.2 Scope of Works

This report presents an assessment of the risks from CMCs, in accordance with guidance from the Environment Agency, contained within the following document:

- *'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination'*, CL:AIRE, Report Reference: ISBN: 978-1-905046-51-5, March 2025

1.3 Terms and Conditions

This report has been prepared for Knowsley Redevelopments Ltd in consideration of the current use of the site and the proposed future development. Much of the environmental information relates to the site in its present state and should not be used in a different context without reference to G&J.

1.4 Limitations

The opinions conveyed in this report are based on the current information available to G&J. This report is based on the available information for the site and interpretative comment in terms of current contaminative status of the soil and groundwater at the site.

Although every effort has been made to ensure the accuracy of the information contained herein, no checks have been carried out to ensure the accuracy of information obtained from and collated by third parties and no liability can be accepted for any errors or misinterpretation of the third party information where it has been incorporated into this report.

Future changes in legislation and advances in current best practises or provision of more detailed design proposals or additional investigation data, may result in this report requiring review and possible further assessment after the date of issue.

2.0 SITE SETTING

2.1 Site Location and Description

The site is located off Penrhyn Road, Knowsley, approximately 1km east of Junction 4 of the M57 motorway. The site is approximately centred on National Grid Reference 342970, 396725; the site location and current layout are shown in Figure 2.1.

Figure 2.1 Site Location and Layout



Contains Ordnance Survey data, © Crown copyright 2025

2.2 Site Description

The site covers an area of approximately 3.5ha and is approximately rectangular in shape. Prior to the demolition and clearance works the central and eastern portions of the site comprised disused chemical processing plants and tank farms, with warehousing and storage in the west and office space and car parking in the south. The details of the former layout and specific features are presented in G&J's previous desk study.

The site has now been cleared and comprises predominantly rough open ground, with stockpiles of crushed demolition rubble. Some of the site roads remain in place.

The site slopes very gently down to the south, with ground levels of approximately 32mAOD in the north and 30mAOD in the south, a gradient of approximately 1 in 90.

To the immediate north of the site is the embanked A580 'East Lancashire Road' with the Brintonwood Trading Estate beyond. The southern boundary is formed by Penrhyn Road, with an area of rough ground beyond. To the west of the site is a distribution warehouse where a number of businesses operate. To the east is a chemical works operated by Algal Omega 3 Ltd, including an electricity sub-station.

2.3 Site History

The site was largely undeveloped agricultural land/rough ground until around 1980, when development of the current chemical site commenced. Knowsley Brook was shown to run east to west across the site but was culverted when the site was developed. The site saw some development between 1988 and 2003, the most significant being the construction of a building (the Bonner building) in 1997.

Anecdotal evidence suggests that during the Second World War period the site was occupied by Nissan Hut accommodation for workers at the Royal Ordnance Factory Kirby, which was located to the north of the A580.

The history as a chemical works and the wide variety of chemicals and processes used during its operation resulted in several potential contamination sources. The most prominent of these were the main processing areas such as the Surfactant Hall, Bonner building, Diol Plant, Technical Development Centre (TDC) and adjacent tank farms, located across the central part of the site. Offices, car-parking and warehousing were located in the south of the site, with ancillary buildings such as the boiler house, water tanks, valve house, stores, substations, fuel tank and pump house located in the north.

A plan of the former works is presented in Figure 2.

Figure 2.2 Former Chemical Works Layout



2.4 Geology and Hydrogeology

The site is shown to be underlain by Devensian Till in the north and the Shirdley Hill Sand Formation in the south, and then a bedrock consisting of the sandstone of the Chester Formation. A surficial layer of Made Ground is anticipated due to the past uses and development of the site.

The Shirdley Hill Sand Formation is classed as Secondary (A) Aquifer by the Environment Agency (EA), and the Devensian Till deposits as a Secondary (undifferentiated) Aquifer. The underlying Chester Formation is classed as Principal Aquifer. The site is within Zone 3 (total catchment) of a Groundwater Source Protection Zone. The closest active groundwater abstraction is a potable abstraction approximately 980m to the east of site, where water is taken from a number of boreholes. Another potable abstraction is present approximately 2km to the west.

The G&J investigations found Made Ground throughout the site to depths of between 0.4m and 3.0mbgl, but typically between 1.0m and 2.0mbgl. The material commonly comprised reworked natural soils, with entrained man-made materials such as brick and concrete fragments, and was predominantly

cohesive, although granular horizons were also present. Organic odours were noted in some locations within the Made Ground.

Beneath the Made Ground, predominantly cohesive deposits considered to be Glacial Till were encountered with thicknesses from 0.3m to >4.75m where present (Glacial Till was not recorded in several locations, predominantly in the north-east of the site).

Beneath the Glacial Till, or directly beneath the Made Ground where the Till was absent, strata considered to represent the Chester Formation were encountered, at depths of between 0.4m and 6.5mbgl. Both sandstone and mudstone were encountered, with the weathered strata being both granular and cohesive.

Perched groundwater was encountered within the Made Ground / Glacial Till, generally as minor seepages. The surface of the deeper groundwater within the Chester Formation was recorded at between approximately 1.0 – 5.5mbgl. The highest groundwater levels were recorded close to the centre of the site, from where flow appears to be strongly towards the south-west, and to a lesser degree to the north. Regional groundwater flow is expected to be towards the west, but locally this may be affected by the potable groundwater abstraction to the east of the site.

2.5 Hydrology

Knowsley Brook flows within a culvert beneath the site, having historically flowed east to west at the surface across the site. The culvert enters the site in the north-east and flows westwards towards the north-western corner of the site, where it turns southwards flowing along western edge of the site. It then turns to flow westwards again, leaving the site close to the south-western corner of the site.

2.6 Proposed Development

It is proposed to redevelop the site for commercial use, as shown in the potential layout in Figure 2.3.

Figure 2.3 Proposed Development Layout



3.0 CONTAMINATION

The contamination identified during the ground investigations is described in detail in the G&J Ground Investigation and DQRA reports referenced in Section 1.1. The following is a summary of the main contamination sources identified in soil and groundwater.

3.1 Soil

During the investigation works, organic odours were noted in a number of locations, generally associated with the Made Ground within the former process area, which covers much of the northern half of the site. However, while contamination was identified within the soil from a number of organic compounds, none of the recorded concentrations were above the human health generic assessment criteria (GAC) for a commercial land use (although it should be noted that for many contaminants the commercial GACs represent very high concentrations, and obvious odours / staining can be present without the GAC being exceeded). Therefore, the risks from soil contamination were considered primarily in terms of the potential impact on the groundwater (although it was recognised there was potential for concentrations above the GAC to be encountered during future remediation and validation works).

Based on the information collected during the investigations, the main contaminant of concern in the soil was considered to be 1,2-dichlorobenzene, as this had been recorded at significant concentrations in both the soil and ground water. While other contaminants were recorded at significant concentrations in the soil (e.g. 1,2,4-trimethylbenzene), they had not been recorded in the groundwater.

1,2-dichlorobenzene was found to be widespread in the soil, having been detected in 25 out of 30 samples tested over the course of both phases of investigation, although primarily at low concentrations.

3.2 Groundwater Contamination

Contamination was identified in both the shallow groundwater within the Made Ground and cohesive superficial deposits, and in the deeper groundwater within the Chester Formation. Again, the most notable contaminant was 1,2-dichlorobenzene which was recorded at its highest concentration in the deep groundwater from the centre of the site but was generally more widespread in the shallow groundwater.

While other organic contaminants have been identified, they were generally either at low concentrations and / or very localised (e.g. chlorobenzene), or were otherwise only associated with the elevated concentrations of 1,2-dichlorobenzene.

Cyanide and bromide were both identified at significant concentrations in both the shallow and deep groundwater, but were generally localised.

3.2.1 Summary of Main Contaminants of Concern

Table 3.2 presents a high level summary of the distribution of the primary contaminants of concern in soil (where relevant) and groundwater, in terms of maximum and average concentrations over both phases of investigation by G&J. With regards groundwater contamination, the summary is based on results from all the boreholes (both shallow and deep), again over both phases of investigation.

Table 3.2 Summary Distribution of Contaminants of Concern

Substance	Summary of soil concentrations (mg/kg)				Summary of Groundwater Concentrations (ug/l)			
	Max	Mean*	Median	No of locations detected (out of /X)	Max	Mean*	Median	No of locations detected (out of /X)
1,2-dichlorobenzene	512	19	0.051	25/30	62490	3729	25	20/27
Chlorobenzene	0.1	N/A	<0.005	8/30	9583	485	<5	11/27
Cyanide	ND	ND	ND	0/30	250	N/A	<5	8/27
Bromide	No tests			-	500	80	28	17/17

*Where results are below the LoD, a figure of 0.5 x LoD is used in the calculation of the mean
ND-Not Detected. N/A-Insufficient data

1,2-dichlorobenzene is shown to be commonly present throughout the soil and groundwater, although in the majority of locations this is at low concentrations. Chlorobenzene is present in only very low concentrations in soil and in only in localised significant concentrations in groundwater.

Cyanide has not been recorded at all in the soil, but has been detected in approximately one-third of the groundwater samples, while bromide is present in all groundwater samples (although low concentrations may be naturally expected).

3.3 Remediation

Remediation and validation works are proposed to address the identified contamination, with specific reference to the risks to the groundwater. The DQRA determined a remedial target of 41mg/kg for 1,2-dichlorobenzene in soil, with targets for other organic contaminants based on human health generic assessment criteria for a commercial land use (although these had not been exceeded during the previous investigation phases). In addition, where significant staining, free product or strong odours were noted during the remediation works, such affected soils would also be subject to remediation.

The remediation works were to comprise the excavation of affected soils, followed by ex-situ bioremediation prior to re-use. A programme of validation was to be undertaken, whereby sampling would to be carried out based on a 10 to 20m grid in order to identify and delineate contamination hotspots.

Active remediation of groundwater was not deemed necessary, but the effects of soil remediation and natural attenuation were considered likely to result in an improvement in groundwater quality. As part of the verification works, groundwater sampling and analysis is to be undertaken from existing monitoring standpipes.

4.0 ASSESMENT OF RISKS FROM CONTROLLED MODULUS COLUMNS (CMCs)

4.1 Controlled Modulus Columns

Controlled Modulus Columns (CMCs) are a ground improvement technique used to increase the bearing capacity of soft or loose soils and comprise concrete columns that laterally displace soils, thereby increasing their density.

CMCs are formed by a specifically designed auger tool which rotates and penetrates the ground, displacing soils laterally as it progresses. Once the target depth is reached, the auger is slowly withdrawn and concrete is pumped through the centre of the tool, filling the augered hole. The process produces a minimal amount of spoil. A site-specific Method Statement describing the CMC process in greater detail is included in Appendix A.

It is anticipated that approximately 2700 CMCs will be installed, with approximately 1 per 1.5m² beneath the foundations and 1 per 3.0m² beneath the slab. The CMCs will extend to between 2.5 – 4.5mbgl and will have a diameter of 280mm.

4.2 Risk Identification and Mitigation

There are a number of mechanisms by which piling or penetrative ground improvement can increase the risks from contamination, most significantly by creating or modifying exposure pathways. CMCs have specifically been selected as they are considered to offer less risk in terms of contamination compared to other ground improvement techniques such as stone columns.

The 2025 guidance document published by CL:AIRE (*Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination*), referenced in Section 1.2, is an update of earlier guidance published by the Environment Agency (EA) and highlights 7 potential source-pathway-receptor pollutant linkages that can be created / modified by penetrative piling or ground improvement techniques, as follows:

- Creation of preferential pathways, through a low permeability layer (e.g. an aquitard that transmits water at slower rates than an aquifer), to allow potential contamination of an underlying aquifer;
- The driving of solid contaminants down into an aquifer during pile driving or ground improvement;

- Contamination of groundwater and, subsequently, surface waters by turbidity, support fluids, concrete, cement paste or grout;
- Direct contact of the piles or engineered structures with contaminated soil or leachate causing degradation of pile materials (where the secondary effects are to increase the potential for contaminant migration);
- Creation of preferential pathways, including through a low permeability layer, to allow upward migration of landfill gas, soil gas, mine gas or contaminant vapours (e.g. VOCs) to the surface;
- Causing off site migration of ground gas or increased vertical emissions as a result of vibration or other effects from the pile installation process;
- Direct contact of site workers and others with contaminated soil arisings which have been brought to the surface.

4.2.1 Creation of preferential pathways, through a low permeability layer, to allow potential contamination of an underlying aquifer

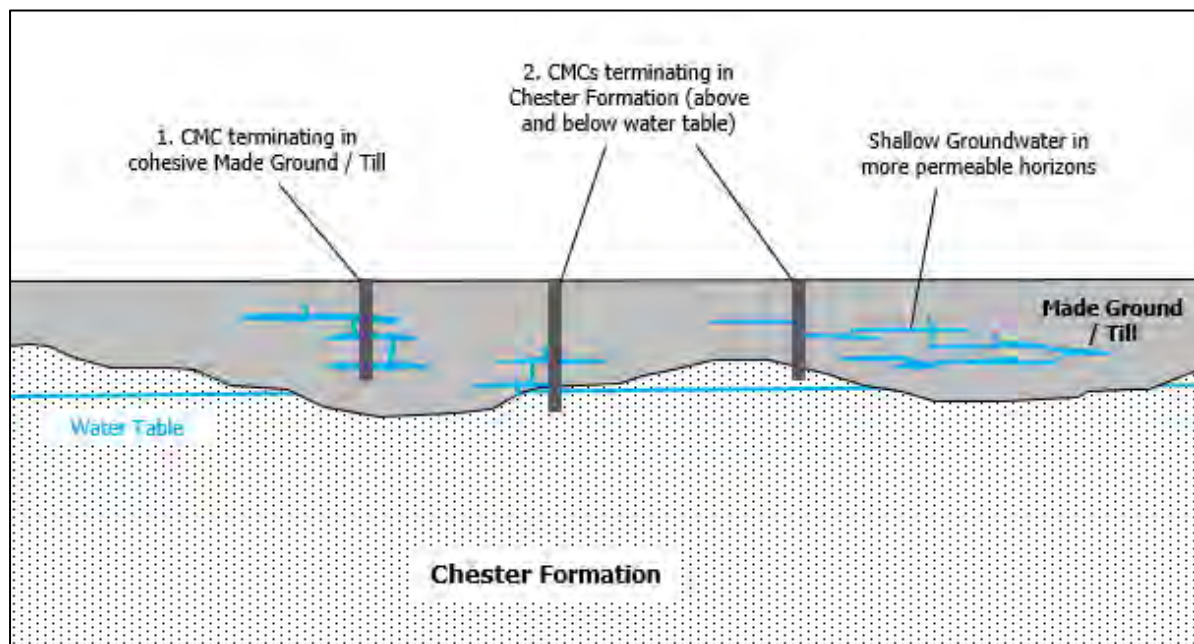
The geology underlying the site comprises Made Ground and Glacial Till overlying the sandstone of the Chester Formation. The Made Ground and Glacial Till are predominantly cohesive in nature, although some more granular horizons were encountered. The Chester Formation was encountered as sand / sandstone and also as mudstone. However, it is assumed to be predominantly granular and of high permeability, being classed as a Principal Aquifer.

The Made Ground and Glacial Till are both cohesive of generally low permeability and are considered to offer some protection to the aquifer from the downward migration of contamination. However, given elevated contaminant concentrations have been recorded in the groundwater within the sandstone, these deposits are clearly not preventing contamination reaching the aquifer. Nevertheless, penetrating these deposits has the potential to form preferential pathways for contaminants in the Made Ground and shallow (perched) groundwater to reach the aquifer.

The CMCs will be of varying depths, while the cohesive deposits (Made Ground / Till) are of varying thickness. As such, it is possible that some CMCs will terminate in the Made Ground / Till, while the majority will likely terminate within the Chester Formation.

Figure 4.1. is a conceptual model showing how the CMCs will interact with the underlying ground.

Figure 4.1 Conceptual Model



The mechanisms by which piles or ground improvement columns can create a preferential pathway are via the column material itself, at the interface of the column and the soil, or by disturbing the soil close to the column. The greatest risks are where the piles / columns fully penetrate the low permeability deposits, as in example 2 in Figure 4.1, above.

Neither of these mechanisms should be significant for CMCs. The columns are formed of concrete, which is essentially impermeable and will therefore not form a pathway. As the column is formed by injecting concrete through the auger, it will form a tight bond with the surrounding soil before it sets and is therefore very unlikely to create a preferential pathway down the sides of the column. In terms of the surrounding soils, the CMCs will increase the density of the soil in close proximity to the columns, and is therefore more likely to reduce the permeability of the Made Ground and Glacial Till.

4.2.2 Driving of solid contaminants down into the aquifer during ground improvement

Contamination is known to be present within the Made Ground and Glacial Till, with odours being commonly noted at locations within the former process area. However, the chosen ground improvement method does not present a high likelihood of pushing contaminated soil downwards. The CMC auger is designed to displace soils laterally and does not force materials downwards in the way techniques such as pre-cast driven concrete piles might.

As such, there is not considered to be a significant risk of contaminated material being driven into the Chester Formation aquifer.

4.2.3 Contamination of groundwater by turbidity, support fluids, concrete, cement paste or grout

The CMCs are formed of concrete injected through the auger and will therefore come into contact with the groundwater prior to setting, in locations where the CMCs penetrate the full thickness of the Made Ground and Glacial Till. Otherwise, there are no other fluids used during the installation.

The CL:AIRE guidance document notes that the loss of wet concrete is only likely to be a potential concern where there is fast flowing groundwater, likely within fractured rocks such as Chalk or Limestone, or in coarse gravel formations. The CMCs will be relatively shallow, and where they penetrate the cohesive Made Ground and Till, will terminate in the weathered Chester Formation, which is encountered as fine grained, slightly clayey sand or very weak sandstone. While permeable, the sandstone is not considered likely to support fast flowing groundwater that may be expected in coarse gravel or fractured rock and would be required to leach wet concrete. There are also no nearby receptors that could realistically be affected by leaching / turbidity, with the nearest groundwater abstraction being nearly 1km away.

4.2.4 Direct contact of the engineered structures with contaminated soil or leachate causing degradation of materials

The CMCs will be in contact with contaminated soils within the Made Ground and Glacial Till, and with contaminated groundwater within the Chester Formation. Certain chemicals / substances can react with concrete to degrade or weaken it, and in turn increase permeability and / or reduce performance. In terms of concrete, the most common risk is from aggressive ground conditions related to the sulphate content and pH of the soil and groundwater. In addition, organic chemicals such as hydrocarbons can affect the performance of concrete, such as reducing the strength gain of fresh concrete in contact with heavily contaminated soil (usually where non-aqueous phase liquid (NAPL) is present). Creosote can affect the long-term strength of hardened concrete.

Given that the CMCs are designed to increase the bearing capacity of the ground and are not a foundation solution themselves (i.e. piles), the implications of concrete degradation are less significant. However, the concrete mix will be appropriate for the ground conditions in terms of sulphate and pH. The ground investigation found that the majority of the soil samples were consistent with DS-1 / ACEC-1 (as defined by BRE Special Digest 1:2005), with the exception of 1 sample of Made Ground and 1 of Glacial Till that conformed to DS-2 / ACEC-2. The groundwater was consistent with a DS-1 / ACEC-1 classification.

While organic contamination was present, no evidence of NAPL was noted during the investigation, nor was any evidence of creosote encountered.

Overall, there is not considered to be a significant risk of chemical degradation of the CMCs.

4.2.5 Creation of preferential pathways to allow upward migration of landfill gas, soil gas, mine gas or contaminant vapours (e.g. VOCs)

Ground gases are not considered to represent a significant risk at the site. Elevated concentrations of methane and carbon dioxide have been recorded at the site, but these are largely considered to be the result of the degradation of organic contamination in the Made Ground and Glacial Till. There is no evidence of significant ground gas sources, such as waste or other readily degradable materials. However, a conservative classification of Characteristic Situation 2 (BS8485:2015+A1:2019) has been assumed which requires basic gas protection measures in the new building. As previously described, organic contamination (which may be the source of vapours) is present in the Made Ground and Glacial Till, but not generally at concentrations that represent a significant risk to human health via vapour inhalation.

As detailed in Section 4.2.1, the CMCs are of low permeability and will not create preferential pathways for water or gas migration. As such, there is not considered to be any significant risk of the CMCs allowing upward migration of ground gases or vapours.

4.2.6 Causing off site migration of ground gas or increased vertical emissions as a result of vibration or other effects from the pile installation process

The CMCs will result in the densification of the ground and could potentially result in a reduction in air voids and the displacement of any gas / vapour within these voids. However, no significant source / reservoir of gas has been identified during the investigations and any effect is likely to be very minor and short-lived. It is not expected that the CMCs will have any impact on the potential for gas to enter the new building, nor have any impact beyond the site boundary.

4.2.7 Direct contact of site workers and others with contaminated soil arisings which have been brought to the surface

The Made Ground and Glacial Till is known to be impacted by contamination. Remediation works will be undertaken prior to the CMCs being installed, but contamination will remain at concentrations below the remedial targets, which are protective of human health based on a commercial land use. All groundworkers will be expected to follow work procedures and wear appropriate PPE as determined by the contractor risk assessments. However, the CMCs themselves will not increase the potential for

exposure of site workers to contaminated soils, as the affected soils are assumed to be present in the near surface soils anyway, and the CMCs do not generate any significant spoil or arisings.

4.3 Monitoring

Overall, the potential for the proposed CMCs increasing the risks from contamination at the site, most notably to groundwater, are considered to be low to negligible, and may even reduce certain risks by increasing the density and reducing the permeability of the upper soils. However, as part of the remediation strategy, groundwater monitoring will be undertaken after completion of the remedial works, and this will likely encompass the installation of the CMCs. This should provide additional evidence to demonstrate that there is no negative impact on groundwater quality.

5.0 SUMMARY

In order to provide a suitable founding strata for a proposed industrial building at the former Contract Chemicals site in Knowsley, it is proposed to utilise Controlled Modulus Columns to increase the density and bearing capacity of soils in order to support shallow foundations and floor slabs. The proposed methodology comprises the following:

- Approximately 2700, 280mm diameter CMCs installed to between 2.5 – 4.5mbgl, depending on local ground conditions
- CMCs spaced at approximately 1 per 1.5m² beneath foundations and 1 per 3.0m² beneath floor slabs

The site is affected by contamination, and remediation works will be undertaken before the CMCs are installed, but contamination will remain at concentrations below the remedial targets.

Based on the assessment described in the previous sections, the potential for increasing the risks from contamination by utilising CMCs, as detailed above, is considered to be low to negligible, and may even reduce the possibility of contaminant migration by reducing the permeability of the soil. The chosen methodology is considered appropriate for the site, and is preferred to other methods, such as vibro stone columns and driven piled foundations, in terms of contamination risks.

In order to mitigate any risks, the following actions will be taken:

- The CMCs will be undertaken in accordance with the method statement (Appendix A)
- Site works will follow work procedures and wear the necessary PPE as detailed in the contractor risk assessments
- The concrete mix will be suitable to resist aggressive ground conditions in terms of sulphate and pH

6.0 REFERENCES

1. CL:AIRE (2025): Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination'
2. BS 5930: (2015): Code of Practice for Site Investigation. British Standards Institution
3. BS 10175: (2011): Code of Practice for the Investigation of Potentially Contaminated Sites. British Standards Institution
4. LCRM (2020): Land Contamination Risk Management. Environment Agency
5. CL:AIRE (2014): SP1010 – Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination
6. Land Quality Press (2015): The LQM/CIEH S4ULs for Human Health Risk Assessment (S4UL3312)
7. Environment Agency (2002): The Effects of Contaminant Concentration on the Potential for Natural Attenuation
8. CL:AIRE/AGS/EIC (2010) - Soil Generic Assessment Criteria for Human Health Risk Assessment

APPENDICES

A – Contractor Method Statement



menARD

METHED STATEMENT

CONTROLLED MODULUS COLUMNS

Contract Name	PENRHYN ROAD, KNOWSLEY
Contract No.	V30570

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Document Control & Sign Off Sheet

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	Job Title	Business Engineer
	Signature	
Client Approval: (when required by the contract)	Name	
	Job Title	
	Signature	

Version	Date of Issue	Brief Detail of Revision	Revision By
First Issue			

I confirm that the relevant sections (RAMS, site rules etc.) of this works package plan have been briefed to me by the Menard management representative and I fully understand my responsibilities and the safe systems of work detailed herein, in order for me to undertake my duties in a safe manner. I have read and understood this documentation prior to commencing work:

Name	Job Title	Signature	Card No.	Date



Signature:

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Appendix F – COSHH Data Sheets

1. Scope of Works

This works package plan covers the installation of controlled modulus columns (CMC's) to improve the bearing capacity of the existing soils beneath the foundations of the proposed *****. A total of *** no. columns are to be installed beneath the pads/strips/slab of the structure, inclusive of ** no. load tests.

The Principal Contractor (our client) for the site is ****.

In preparation for the works, a working platform shall be installed by the Principal Contractor to accommodate the rig bearing loads and associated equipment. A signed platform certificate shall be issued to Menard before commencement (see the requirements in section 4.2). The working platform must cover the footprint of the working area plus 2m beyond, including access routes, ramps, and laydown areas. The platform should receive sufficient testing to validate the success of its installation.

The setting out of all column positions is to be the responsibility of the Principal Contractor. All steel pins must receive protective caps.

The anticipated duration of the work is ** days.

The work will be carried out in 1 no. visit.

2. Site Details, Organisation & Emergency Contacts

Site Address:	
Nearest Hospital Address:	

[Insert map directions]

In the event of an emergency, telephone 999.

Reportable Safety Accident / Incident: Please refer to document SAF PRO 9 (CAI)

Major Environmental Incident: EA & SEPA **0800 807060** (24hr helpline)

The Principal Contractor must brief Menard personnel within the site induction on the site-specific emergency procedures.

Menard Organisation

Site Supervisor – Mobile No:
Responsible for site safety, site labour and site operations

Contracts Engineer – Mobile No:
Project Manager and liaison with Principal Contractor

Operations Manager – David Rickson Mobile No: 07715 484197
Management of operations and resource allocation

Health & Safety Advisor – John Martin Mobile No: 07845 055132

Quality & Environment Manager – Dafydd Belshaw Mobile No: 07854 817617

Principal Contractor Organisation

Site Manager – Mobile No:
Management of site, site specific safety and induction, and liaison with Menard staff

Project / Contracts Manager – Mobile No:
Management of project / contract and liaison with Menard staff

3. Safety Responsibilities and Control of Site Risks

3.1 Menard Safety Responsibilities

Menard staff will adhere to and promote the company Health & Safety policy. All works will be undertaken in accordance with relevant method statements and performed with due care and attention. All Menard personnel are encouraged to actively report any unsafe conditions and near misses via site management and internal reporting systems.

A site-specific induction from the Principal Contractor shall be attended by all Menard site staff, subcontractors, and visitors prior to the commencement of works. All Menard site staff and visitors must sign in with the Principal Contractor at the start of the shift. Daily start of shift briefings, new starter / agency worker inductions and site walkovers will be conducted by the Site Supervisor before work commences.

New starters and agency workers shall receive a company induction from the Menard Site Supervisor or engineer on the first day of site, prior to any works. New operatives must receive familiarisation training with the plant they intend to operate prior to use.

Toolbox talks shall be undertaken through the duration of the project at a rate of 1 per week on a subject relevant to the works. Emergency drills shall be undertaken on projects with a duration of 4 weeks or greater in accordance with procedure SAF PRO 40.

Site safety inspections shall be performed by Menard as follows;

Site Supervisor – Daily site walkover

SHEQ Advisor – Visiting as required

Summary of identified hazards associated with Controlled Modulus Column works;

Hazardous Activity	Associated Risk
Movement of plant	Equipment striking personnel or other plant.
Ground Improvement equipment working on site	Insufficient working platform provided for equipment. Unidentified soft spots or backfilled excavations.
Rigging/de-rigging equipment	Malfunction of equipment causing injury to persons or damage to equipment.
Potential unidentified underground services	Electrocution, gas leak, damage to services or UXO.
Modification of equipment	Malfunction of equipment causing injury to persons or damage to equipment.
Items falling from height	Persons injured through falling objects
Working with Concrete	Skin burns through contact with concrete.
Pressurised Concrete	Injury to persons through high pressure concrete contact.
Restricted access into site	Injury to public or equipment through road traffic incident.
Slips and Trips	Minor muscle/ligament damage.
Excessive driving	Fatigue causing lack of concentration of person undertaking works.
Unprotected setting out pins	Injury to personnel if fell upon.
Manual Handling	Back / muscular damage.
Diesel spillage	Entry into watercourse damaging environment.
Contaminated material	Illness or poisoning through contact with skin and / or mouth.
Exposure to noise	Damage to hearing.
Exposure to vibration	Structural/Feature damage through vibration caused by works.

Full risk assessments for observed hazards can be found within Appendix A.

3.2 Principal Contractor Safety Responsibilities

The Principal Contractor must provide a site-specific induction for all Menard personnel which should include the site rules, welfare arrangements, emergency procedures and site-specific hazards.

The Principal Contractor is to provide a safe place of work including the provision of statutory welfare facilities in line with schedule 2 of the Construction (Design and Management) Regulations 2015. Provision of which must include with sufficient space;

- Ventilated toilet and hand washing facilities
- Drying Room
- Potable drinking water
- Rest and messing area
- Washing facilities including a supply of clean hot and cold water, soap or suitable cleaning product and towels or other means of drying

3.3 PPE Requirements

All Menard personnel will be supplied the following PPE in line with the company requirements:

- Safety Helmet conforming to EN397, with chin strap
- High-Visibility Vests (or Jackets) conforming to EN471
- High-Visibility Trousers conforming to EN471
- Safety Footwear with steel toe cap and mid-sole protection confirming to EN20345 (No Rigger boots)
- Safety Gloves (specific to activity, see Appendix E) conforming to EN388
- Safety Glasses conforming to EN166
- Appropriate Hearing Protection (ear-defenders or earplugs)
- Task specific PPE (as identified in the risk assessment)

Any specialist or specific PPE in addition to the above must be supplied by the Principal Contractor.

3.4 Plant Inspections

All plant and equipment will be periodically inspected as required under PUWER and LOLER regulations, evidence of these checks will be provided to the Principal Contractor on a weekly basis.

All Menard plant (including subcontractors) will be subject to the same daily checks and periodic maintenance. Examples of the plant required to be inspected include:

- Controlled Modulus Column Rig
- Concrete Pump
- Excavator / Pre-auger Rig (where used)
- MEWP
- Compressor/Generator (where used)

3.5 Restricted Zones and Safe Working around Menard Equipment

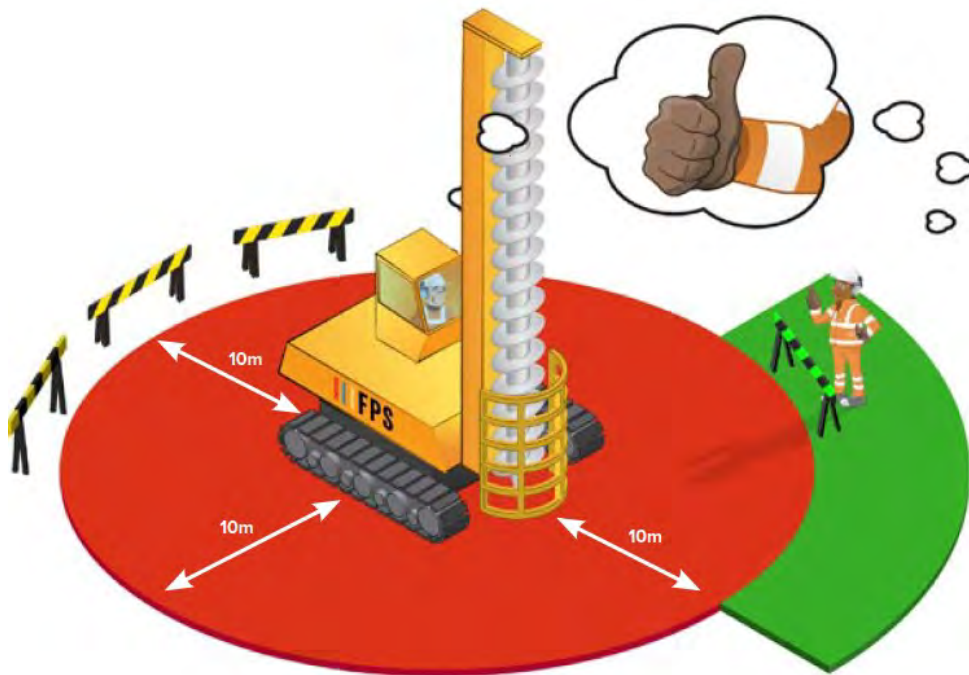
Menard require that no other trades encroach within 20m of our works, this should be implemented, maintained, and communicated to other trades by the Principal Contractor. Where necessary, physical segregation fencing should be used and managed around our working area.

Restricted zones will be established around our equipment where only authorised persons can enter or stand during normal operations to undertake specific related activities. Physical barriers (crowd barriers or cones with beams) shall be deployed by Menard locally around the works to define our 'restricted zone' as a deterrent. Should any unauthorised person encroach our restricted zone, works must stop immediately, and the person requested to leave.

The distances in metres (m) are set as a minimum, however may change due to the site logistics and site set up. It is important to understand that sufficient space is provided to enable safe operations and the effective separation of people and operational plant.



Controlled Modulus Column Rig



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



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

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

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

Authorised personnel are permitted to enter the restricted zones to undertake routine tasks with a safe system of work.

For all non-routine tasks, the line manager must be consulted for a further review of the task and control measures that are to be put in place.

Concrete Pump



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



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

Excavator



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



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

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

Mobile Elevated Working Platform (MEWP)



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



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

Lorry Mounted Crane



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



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

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

Do not walk beneath elevated loads.

3.6 Traffic Management & Site Logistics

The Principal Contractor shall make suitable, safe and unimpeded access for all transport and deliveries in and out of site.

Where access for equipment deliveries cannot be made in to site and that the equipment has to be taken off on the highway; traffic management is to be provided by the Principal Contractor. No deliveries will be unloaded until traffic management has been put in place. All necessary personnel, permits and protection to the road / kerbs are to be provided by the Principal Contractor. See section 6.2.

The site traffic management plan should be briefed to all Menard personnel by the Principal Contractor within the site induction. Menard require that satisfactory access be made from the site entrance to our working area to allow the safe transport of equipment and material deliveries.

Pedestrian access must be made from the welfare area to the working area with adequate segregation from site traffic.

Transport and deliveries shall follow the traffic management plan to the entry point of our working area. Menard shall take responsibility of deliveries from the entry point of our working area to our place of work.

The rig and shovel shall each be fitted with a flashing amber light and an audible reversing alarm.

Any attendant mobile plant working under the control of the Principal Contractor must have flashing amber lights, reversing aids and audible alarms.

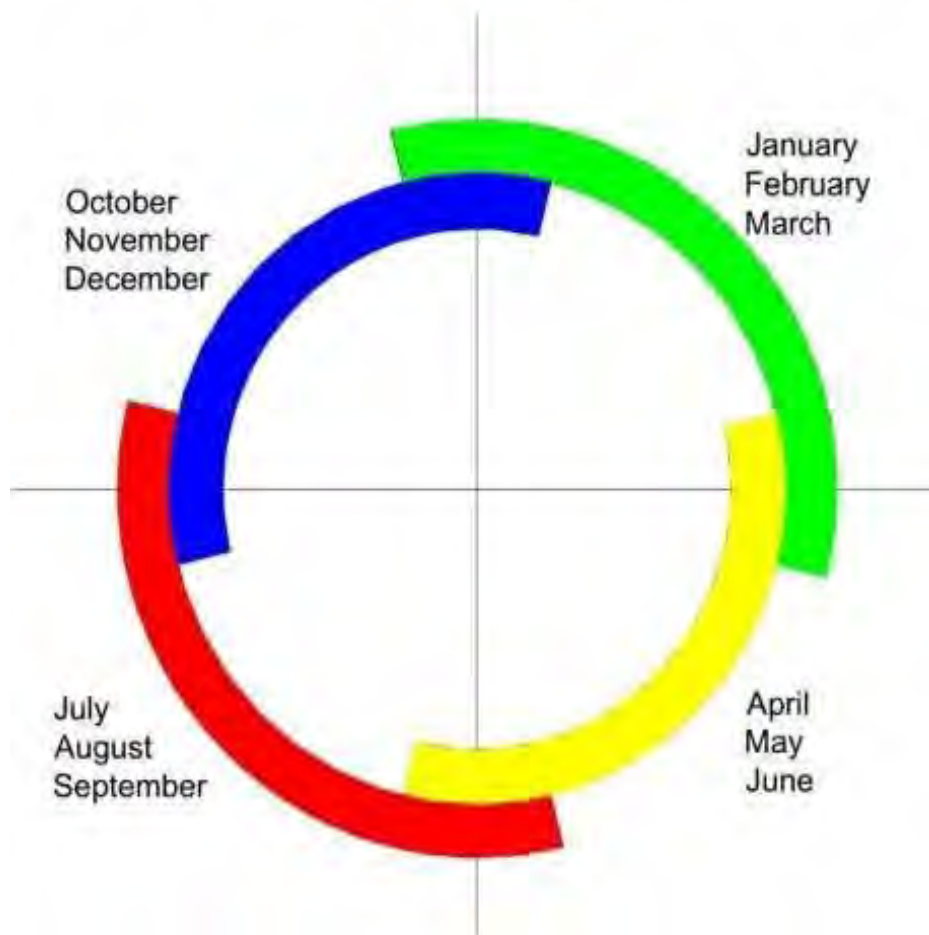
3.7 Lifting Operations

There are planned lifts on this project. A lift plan shall be produced and issued to the Menard lift supervisor in preparation for the lift.

Plan Reference	Plan Description
01	Use of Auxiliary Line
02	Use of Excavator
03	Use of Lorry Loader

All lifting accessories are to be inspected on a three-monthly basis and color coded for visual inspection. All lifting accessories will be inspected for defects prior to each use by the slinger signaler. An inspection color code key can be seen below.

**ONLY USE LIFTING ACCESSORIES DISPLAYING A
COLOUR TAG FOR THE APPROPRIATE MONTH SHOWN BELOW**



**NOTE: TO ALLOW LIFTING ACCESSORIES TO BE EXAMINED AT ALL
SITES, A TWO WEEK PERIOD IS REQUIRED EITHER SIDE OF THE
CHANGE OF COLOUR. THEREFORE DURING THIS CROSSOVER
PERIOD EITHER COLOUR IS PERMITTED.**

4. Permits

4.1 Permit to Break Ground

A permit to break ground must be completed by the Principal Contractor and issued to the Menard Site Supervisor prior to the commencement of the works. All known services are to be identified on the permit and physically identified on site, protected (as required) by the Principal Contractor for the duration of our work.

The permit must specify the areas and gridlines that Menard are authorised to work in. Service location drawings should be obtained and checked by the Principal Contractor prior to signing off the permit. All necessary CAT scanning of the working area is the responsibility of the Principal Contractor.

The permit shall remain valid for a recommended period of no more than 5 working days. Once the permit has expired or the works are completed, the permit must be closed by the Principal Contractor and if required, a new permit issued.

4.2 Working Platform Certificate

Menard require a completed Working Platform Certificate prior to the mobilisation of plant. Details of the designer (part 1) should be completed along with a sign off by an authorised representative of the Principal Contractor to state that the platform has been installed satisfactory to the design (part 2). The form should clearly state the areas and gridlines for which the working platform is valid (use a drawing as necessary). Copies of the validation testing must also be appended to the certificate.

The certificate must cover the prepared working areas (plus 2m), access routes, ramps and laydown areas for the equipment.

The maintenance inspection record must be completed following any modification or repair. Should a working platform be extended or provided to us, a new working platform certificate should be produced clearly stating the area and gridlines as reference (use a drawing as necessary).

4.3 Hot Works Permit

Where welding is required as part of repair or maintenance, a hot works permit is to be issued by the Principal Contractor to Menard. The working area must be agreed with a check on all precautions before any hot works can proceed.

Once the permit has expired or the works are completed, the permit must be closed by the Principal Contractor and if required, a new permit issued.

5. Method Statement

5.1 Pre-start Checks

Prior to the commencement of any works on site, the following will be in place:

- A signed Working Platform Certificate with associated drawings and test results/locations (FPS).
- A signed valid permit to break ground issued by the Principal Contractor.
- Current Certificate of Thorough Examination for the Rig, Concrete Pump & Excavator.
- Current lifting certification for chains, slings and shackles and other lifting equipment.
- All personnel to attend the project site induction.
- All site operatives briefed on the Works Package Plan, Lift Plans, Project Requirements, and ITP's.
- A signed Start of Shift Briefing.
- Project documentation (drawings, startup instructions, forms etc.).

5.2 Receiving Equipment on Site

The delivery of equipment shall be made through the site entrance as agreed with the Principal Contractor and received by a nominated and trained Menard person. The rig shall be delivered on a low loader transport with the sundry equipment delivered on step frame transports and a lorry loader transport.

The equipment shall then be taken to the designated laydown or working area, this is typically our working platform or access road. The laydown area must be level and free from other trades, restricted zones around the equipment should be set up as necessary.

The equipment shall be taken off the wagons by a trained and authorised operator. The lorry loader shall offload the equipment in the designated lifting area, this may be the working platform and/or agreed area on site

5.3 Rigging of Equipment on Site

The rig shall be rigged up by a trained and experienced operator familiar with that item of plant. This shall be done in accordance with the rigging/de-rigging procedure and operations manual.

The rig must be rigged up on a firm level platform and free from other trades, restricted zones should be set up as necessary.

The rigging up involves the erection of the fixed mast to the vertical position, the fitting of tooling and extension pieces where required. No persons must be within 10m of the rig mast when this operation is undertaken.

5.4 Material and Fuel Deliveries

Readymix concrete is delivered to site by mixing trucks and is discharged directly to our concrete pump. Mixing trucks are to wash out at designated wash out points on site provided by the Principal Contractor.

Delivery vehicles shall follow the site traffic management plan from the site entrance and be met at the entrance to our working area by the banksman which is identified as the loading shovel operator. The wagon must be banked when reversing to the designated tipping area. Vehicle movements must be kept to a minimum on the working platform.

Fuel deliveries shall be made direct to the equipment and/or fuel bowser which is fitted with a pump.

5.5 Use of a Mobile Elevated Working Platform (MEWP)

The MEWP is to be used for rigging/de-rigging the rig, access to concrete hoses and rotary table at height in the event of a concrete blockage. It may also be used to allow access to plant at height in the event of a breakdown or maintenance.

At the start of the job (or change of operator), the MEWP operator must provide familiarisation training to an authorised operative on how to safely bring down the MEWP in the event of the operator or MEWP upper controls becoming immobilised at height. This must be recorded in the MEWP rescue plan contained within Appendix B.

The MEWP operator shall possess a valid IPAF or CPCS certificate and must wear a valid fall restraint harness clipped on to the clip on point of the MEWP at all times when working at height.

Prior to operating the MEWP a valid working platform must be in place for the area of work. A visual inspection of the MEWP working area must be done by the operator prior to operation to ensure the platform is firm, level and free from surface obstructions. The MEWP is to be operated at the least possible working radius for the task to increase the stability of the equipment.

5.6 Controlled Modulus Column Operations

Preparation of works

The working sequence is to be agreed on site between the Menard Site Supervisor and Site Manager.

The ground treatment work involves the installation of controlled modulus columns (CMC's) at locations indicated on Menard layout drawing. Site specific information has been issued to the Site Supervisor in the form of start-up Instructions, these detail the scope of work to be carried out and the specific design / quality requirements for the works.

In preparation for the works, the setting out of column positions is the responsibility of the Principal Contractor. All steel pins must receive protective caps.

The rig is set up in the working area and the restricted zones are to be established as set out in section 3.5. Barriers or cones shall be deployed around our working area and at key areas such as access points, between other trades or interfaces. A check that any unauthorised persons are out of the restricted zone must be undertaken by the rig operator. The rig can then be started up in accordance with the operations manual.

Set up of the concrete hoses

Flexible concrete hoses shall be connected between the concrete pump and the swan neck fitted at the rotary table on the rig. All hose connections must be fitted with a suitable rubber gasket and correct size hose clamp with a retaining pin fixing it in place. All hoses off the ground must be fitted with a whip check at the connection.

The long hose from the swan neck is to be bagged and longer in length to avoid joints at height. A hose sock must be fitted at the connection with the swan neck onto a designated fixing point.

The set up of the equipment should be ideally so that the concrete pump operator is in full view of the rig and its operator. Deliveries to be made with easy access to avoid blind spots and tracking over trimmed columns or hoses.

Prior to the pumping of concrete the hoses shall be primed with either a product or mortar to lubricate the inside of hoses and prevent concrete sticking in the lines. This is put into the hose lines ahead of the concrete.

Quality control

Prior to any concrete placed, a suite of calibration drillings will be undertaken at or close to CPT positions within the working area as determined from previous site investigation. This information shall be provided to the Site Supervisor. This is a quality check to ensure that the anchorage criteria in the rig aligns to the anticipated anchorage criteria in the design report. Calibration positions can be working columns or sacrificial column positions, however must be either backfilled or concreted up once completed.

The first load of the day shall receive a slump test, thereon a slump test shall be undertaken every 3 wagons. The slump test shall be undertaken in accordance with BS EN 12350-2. The concrete mix shall also be visually inspected by the pump operator for pumpability, any mix out of slump specification or visibly unsuitable shall be rejected and the supplier notified to rectify.

1 set of 5 cubes shall be taken per rig, per day. Concrete for the cube making shall be taken from the middle of the batched wagon and the test cubes shall be made in accordance with BS EN 12390-2.

Load tests shall be performed on completed CMC's at locations as agreed on site between the Menard Site Supervisor and the Principal Contractor. The test frequency is set out by the design report and contract. Test CMC's are typically installed in the early stages of the works to optimise the works programme in view of a satisfactory period for curing.

CMC Operation Methodology

1. The rig is set up in the working area, the CMC tool is positioned directly over the set-out column position. A positional tolerance of 150mm in plan of the intended position shall be worked to. A verticality check on the rig mast is done by the operator.
2. The rig operator will start the data recorder and a check that all unauthorised persons are removed from the restricted zone.
3. The specially designed CMC auger tool is rotated and penetrates the ground by equipment with high crowd and torque capability. The soils are displaced laterally as the tool enters the displacement stage of its length with virtually no spoil or vibration. The designed flap over the opening remains closed under the pressure of the tool. The termination depth of the CMC is determined by a torque resistance, drilling speed or drilling energy at the anchorage depth.
4. Once the anchorage depth is achieved, the auger tool is lifted proud of the base by 100mm to allow the release of the flap. The rig operator shall then begin the concreting stage by either activating the pump on the rig computer or notifying the pump operator to commence the pumping of concrete.
5. The readymix concrete is pumped through the flexible hose and through the CMC tool to the base of the augered hole. Once the sufficient amount of concrete is placed at the base of the CMC, the rig operator extracts the auger tool at a set rate to maintain a positive pressure of concrete in the CMC.
6. Towards the end of the concreting stage the operator shall stop the flow of concrete via the computer or signal to the pump operator. The stage which this is done should allow for the residual concrete to fill the upper part of the CMC under gravity from the tube. At the completion of the CMC, the data logger shall be stopped to complete the position.
7. The rig then moves on to the next position in sequence for the above process to be repeated.

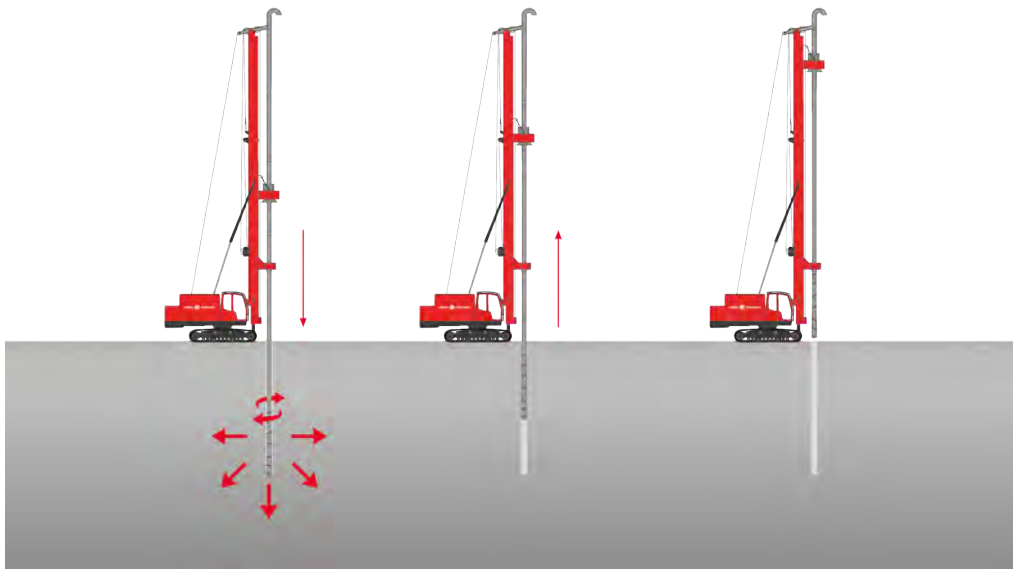


Figure 1: CMC execution process

8. Upon the completion of the days production, Menard shall clean out the pump and hoses using compressed air through the rig on the working platform. A blow out chamber shall be used to catch the blow out ball. The method statement for cleaning out the concrete lines shall be followed. Concrete wagons shall wash out at the designated wash out point on site.
9. Completed working areas shall be handed back over to the Principal Contractor once tested and safe to do so.
10. Upon completion of the works, the equipment shall be parked in a safe position to be collected by the transport.

Obstructions

1. Where an obstruction is encountered during installation, the position shall be recorded and concreted up to the surface.
2. Menard shall attempt a re-position 500mm next to the original position. Subject to location and foundation type, this may require an additional column on the opposite side to bridge the position.
3. All re-positions shall be marked on our as-built drawing.
4. Where a re-position cannot be achieved, we would require that the obstruction be removed, and the subsequent excavation be backfilled with suitable granular material in accordance with our upfill specification.
5. Where a re-position cannot be achieved and the obstruction is at depth and cannot be removed. We may require to re-adapt the grid of the column arrangement and a review of the foundation may be required to allow satisfactory coverage of the CMC.

Trimming of CMC's

Once an amount of CMC's have been installed, the trimming of the CMC's can be undertaken. The timing of the trimming shall be determined by the Menard Site Supervisor to ensure a safe distance between the CMC rig and the trimming operation.

The detail of the trimming depths shall be determined by the Principal Contractor in view of the foundation requirements and load distribution mattress requirements. Further clarification can be found in the CMC design report.

Trimming must be undertaken in accordance with the 'guidance on the trimming of controlled modulus columns' (VM/PROC/4028) document. This must be reviewed by the party responsible for the trimming operation.

The trimming operation must be undertaken by a competent excavator operator with a toothless bucket to achieve the required depth.

Where the rig is required to track over installed CMC's that have been trimmed, these areas must be recompacted in line with the temporary works design for the working platform to

maintain its integrity. The CMC's must be trimmed a minimum 300mm or a protective granular layer of 300mm be placed where traffic is required over completed columns.

The General Sequence of Works & Responsibilities

1. Installation of a temporary works designed working platform for our CMC equipment – The Principal Contractor
2. Execution of CMC's – Menard Limited
3. Trimming of CMC's – The Principal Contractor
4. Carry out plate load test – Menard Limited
5. Re-grading, re-compaction of the working platform and installation of the Load Transfer platform – The Principal Contractor

5.7 Rig Movements

The rig can move without a banksman only within the restricted zone with barriers when accessing column positions in an agreed sequence of works.

Where the rig is required to travel a larger distance >20m, between working areas, on access roads or to the designated loading area; the rig must be moved only with the assistance of a banksman.

Extra care must be taken if required to track the rig over areas of the platform that have been excavated for the trimming operation. In this case the working platform must be recompacted to a condition as set out in the temporary works design for the working platform.

5.78 Changing the Tool & Welding

The tooling may be changed through the project due to wear and tear, damage or change in configuration. No unauthorised persons are to be within the restricted zone during this task.

Welding repairs may be required on the vibro tool, in this regard a how works permit will need to be issued to Menard before this work can commence. The equipment will be put in a place of safety to undertake this task.

5.89 De-rigging & Transport of Equipment out of Site

The rig shall be de-rigged by a trained and experienced operator familiar with that item of plant. The tracks of the equipment shall be cleaned practically in the working area prior to placing on the transport.

The plant and equipment shall be loaded on to the transport to the satisfaction of the wagon driver. Items of plant must be made secure and fit for transport on the highways, suitable chains and strops should be used as necessary to secure loads.

A final check of the equipment / plant must be undertaken by the wagon driver prior to leaving site and moving on to the highways.

6. Site Specific Requirements

6.1 Environment

Site Opening Hours are to be: **07:30** to **18:00** hours, Monday – Friday. Menard's working hours are to be: **08:00** to **18:00** Monday – Friday. Out of hours testing requirements are to be arranged in line with the contract requirements **(TBC)**.

The Principal Contractor must brief site staff and visitors on the site environmental requirements, hazards, and emergency procedure in the site induction. Menard require to be informed of any sensitive flora, fauna, neighbours, or watercourses in which our works may have an impact upon.

Specific environmental considerations with controls on our works are detailed within the environmental risk assessment ENV.01 (Appendix A).

The site must be secured with satisfactory fencing to prevent any unauthorised access.

In the event of a significant environmental emergency, Menard staff are to follow the procedure as set out in SAF PRO 9 (CAI).

Fuel bowzers will be double skinned and must be positioned a minimum 10m away from any nearby watercourses and drains. Re-fuelling must be undertaken away from watercourses and drains with spill kits made available.

Menard will supply spill kits and be made available within a close distance to equipment and fuel bowzers. In the event of a spillage, spill kits shall be deployed immediately to contain the spill. All spills must be reported internally and to site management. Waste spill kits shall be disposed of either through the site waste management plan or through waste removal procedure under a licensed waste carrier.

Plant nappies shall be placed under all generators and deployed when filling bowzers. They will also be used when undertaking maintenance on the plant.

Oils and fluids shall be stored within the secured stores container on drip trays. Hazardous waste will be transported back to the Menard yard under a waste carriers' licence. A form shall be completed by the Site Supervisor and carrier prior to transferring the waste.

Domestic waste shall be put into skips provided by the Principal Contractor. Welfare and working areas shall be kept clean and tidy.

Construction materials required for the works shall be stockpiled within the working area close to the works. Any waste material shall be stockpiled and identified to the Principal Contractor for removal.

Dampening down of material stockpiles, working areas and access roads is the responsibility of the Principal Contractor to suppress the generation of dust. This must be monitored during our works to prevent dust exposure to workers and to neighbours.

Rig noise assessments are included within Appendix C of this document.

6.2 Access

Access/Egress from the site shall be achieved off *****.

The Principal Contractor must make Menard aware of any weight, height or other access restrictions which may prohibit the safe delivery of our equipment or material deliveries into the site.

Where required, traffic management on the highway is to be implemented and managed by the Principal Contractor to allow the safe access/egress of our equipment into site. This is to be put in to place in preparation for the access/egress of our equipment which may require a temporary stop of the traffic.

Should plant be required to offload/load outside the site, all necessary protection measures including traffic management, sheet boards and kerb protection must be provided by the Principal Contractor. Road protection should be made available ready for the arrival of our transport and any assessments of the road to be taken in advance. Any required permits from the authorities to enable the access of the equipment in/out of site is to be obtained by the Principal Contractor.

Site boundaries and access routes from the highway will be clearly defined and fenced as necessary by the Principal Contractor.

The Principal Contractor is to provide satisfactory access/egress to our working areas. These routes must be clearly defined and suitable for tracked and wheeled vehicles including our rig and delivery lorries, with segregated pedestrian walkways.

Suitable access and egress shall be installed and maintained for our equipment with ramps no less than a ratio of 1:12. The working platform at the top and base of ramps must be reinforced with a thickness of at least 1.5x the design thickness. Working platforms for our rig must be made at a gradient level no less than a ratio of 1:100.

All sub-surface manholes, chambers etc are to be located, removed, fenced off, remediated, or adequately bridged. The Principal Contractor must check for services and obstructions within our working areas (including access) prior to the mobilisation of plant, these must be brought to the attention of Menard.

6.3 Working Area

The working area should be clearly defined, access routes and pedestrian routes to the working area must be advised within the site induction. Any change or deviation to the planned routes must be communicated to Menard immediately as they occur.

Trades must be coordinated on site as such that they do not encroach on working areas, see item 3.5 for restricted zone requirements. The working area for each trade should be clearly identified within the start of shift briefings to Menard and other contractors working on the site.



The Principal Contractor must make Menard aware of any known services present within or close to the working area. Any services must be detailed on the permit to break ground along with all necessary precautionary measures and be physically demarcated on site.

The Principal Contractor must make Menard aware of any open excavation within a 10m distance, along with putting in place the necessary physical exclusion barriers.

Physical edge protection must be provided by the Principal Contractor at the limit of the working platform at the crest of any embankment.

Suitable background lighting is to be in place from the site compound to the working area, as required. Menard shall provide task lighting on the equipment.

Any obstructions encountered should be removed and the remaining void back filled with suitable material in accordance with our upfill specification.

7. Labour, Equipment and Material Resourcing

7.1 Anticipated Menard site labour force:

- 1 no. Site Supervisor
- 1 no. Rig Operator
- 1 no. Concrete Pump Operator

The Site Supervisor shall be suitably experienced and qualified with SSSTS/SMSTS training.

All plant operators shall possess the relevant CPCS training cards appropriate for that item of plant.

7.2 Equipment supplied to site by Menard:

- 1 no. Controlled Modulus Column rig
- 1 no. Concrete Pump
- 1 no. Fuel Bowser
- 1 no. 20ft Stores Container
- 1 no. MEWP
- 1 no. Excavator
- 1 no. Generator
- 1 no. Compressor
- 1 no. Pressure Washer Bowser

7.3 Equipment supplied to site by the Principal Contractor:

- 1 no. tracked excavator with operator (when required)

7.4 Welfare Provision

Welfare shall be provided to Menard in line with schedule 2 of the Construction (Design and Management) Regulations 2015. This shall include, but not be limited to:

- Sanitary conveniences with washing facilities
- Potable drinking water
- Accommodation for changing, storing, drying clothing and supply of hot and cold water with cleaning products and drying facilities.
- Rest and messing area (including means of preparing food and boiling water plus arrangements to protect non-smokers).

7.5 Deliveries

Deliveries where possible will be made between 08:00 hours and 18:00 hours.

We anticipate that *** m³ of ready-mix concrete will be delivered to site over the duration of the works. Deliveries will be made via mixing trucks and staggered throughout the day to suit the demand of the works.

Wheel washing facilities are to be supplied and operated by the Principal Contractor.

8. Quality Control

Concrete Supply

Concrete cubes shall be made for strength testing: 5 UKAS cubes per 100m³ shall be prepared, 2 of them tested at 7 days, 2 of them at 28 days and 1 spare. Cube making shall be done in accordance with BS EN 12390-2.

One slump test per three lorries shall be undertaken on the mix in accordance with BS EN 12350-2.

Calibration Drillings

Calibration drillings shall be undertaken close to existing site investigation locations to check the conforming drilling parameters at the target anchorage depth. The location of calibration drillings shall be determined by the Menard Design Engineer. Calibration drillings can be witnessed by the Menard Engineer or Site Supervisor.

Quality Records

The ITP (Appendix C) details the key hold/witness points associated with the works.

The execution of each CMC is controlled by the rig operator and is recorded by a data logging computer. The verticality of the mast is checked before each column installation.

The onboard data logger records; Job Name, Job Number, Date/Time, Column ID, drilling energy/torque, column depth, column diameter and concrete volume. The data shall be collated by the Menard Site Engineer to check and prepare for issue to the client. 1 of every 10 data recordings are issued to the Principal Contractor weekly after the execution of the works.

As-built drawings shall be prepared as the works progress.

Vertical Load Test

**** Vertical load tests up to 1.5 times the nominal load of the CMC or to a maximum load of 40t as set out in the design report. The load test comprises of a 600mm circular plate which is positioned centrally over a CMC on a thin layer of sand. The load is applied centrally to the plate by a hydraulic jack using the CMC rig as a "reaction block".**

The settlement measurements are made using a Benkelman beam extending to the center of the test plate. A gauge is set up at the end of the beam which measures the displacement as settlements are achieved.

The loading stage for the tests is as follows:

Load Stage	Load applied	Comparator reading times
1	10% Q _{max}	1 and 5 min
2	0% Q _{max}	1 and 5 min
3	20% Q _{max}	1, 2, 4, 8 and 15 min
4	40% Q _{max}	1, 2, 4, 8 and 15 min
5	60% Q _{max}	1, 2, 4, 8 and 15 min

6	80% Qmax	1, 2, 4, 8 and 15 min
7	100% Qmax	1, 2, 4, 8, 15, 30 and 60 min
8	50% Qmax	1, 2, 3, 4 and 5 min
9	0% Qmax	1, 2, 3, 4 and 5 min

- The load stages are to be carried out for not less than the times specified above or until the settlement is equal or less than 0.02mm per minute.
- Load tests may be undertaken on additional CMC's installed for this purpose.
- Vertical load test to be undertaken a target 7 days after CMC installation (unless reviewed by the design engineer).

Testing of the CMC works will be undertaken in accordance with the contract.

The Principal Contractor shall assist with the preparation of the test which may include the excavation of the upper part of column for the test depth.

Where dummy footing tests or zone tests are required, stages of these tests require some out of hours working for which the Principal Contractor should accommodate.

APPENDIX A - RISK ASSESSMENTS

Site Specific Risk Assessment
Controlled Modulus Columns
Working with Concrete
Cleaning Out Concrete Hoselines
Lifting Operations
Safe Use of a MEWP
Site Access and Egress
Rigging/De-rigging
Vehicle Movements
Environmental
Use of Subcontractors
Overhead Services
Underground Services
Hot Works
Workplace Noise & Ground Borne Vibration
Re-fuelling and fuel/oil storage
Manual Handling
Contaminated Land & Personal Health
HAVS
Plate Load Testing



	RISK ASSESSMENT
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Contract Name		Contract Number		Date	
Assessed By		Activity	CONTROLLED MODULUS COLUMN OPERATIONS		

Score	1	2	3	4	5	Score	Likelihood	Score	Severity	<u>Acceptable Risk</u> No further action – Maintain Control	1-6
1	1	2	3	4	5	1	Very Unlikely	1	Minor Injury (No Lost Time)		
2	2	4	6	8	10	2	Unlikely	2	Minor Injury (Lost Time)	<u>Adequate Risk</u> Monitor Controls & Review where necessary	7-12
3	3	6	9	12	15	3	Likely	3	Over 7 Day Injuries (Lost Time)		
4	4	8	12	16	20	4	Very Likely	4	Major Injuries	<u>Unacceptable Risk</u> Stop Activities & Improve immediately	13-25
5	5	10	15	20	25	5	Certain	5	Death		

SITE SPECIFIC

[illegible]

RISK ASSESSMENT

CMC OPERATIONS

Hazard	Persons affected = X			Pre-Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
							GENERAL CONTROL MEASURES All Menard staff have been inducted, trained, and authorised to work on this site. All staff have been issued with company standard PPE.			
Striking or entrapment of a person by the CMC rig, excavator, MEWP, or the concrete pump.	X	X		3	5	15	A 20m works exclusion zone between Menard works and other trades is to be managed. The limits of our working area must be communicated to other trades by the Principal Contractor. Any unauthorised personnel entering the Menard working area, the works must stop immediately, and the incident reported to the site manager. A restricted zone around the rig is to be established with barriers when in operation. These should be set up intermittently around the planned working area for the rig, a minimum of 10m from the rig and a maximum of 30m in the direction of travel. Anyone requiring access to the rig must approach from the cab side of the rig giving the rig operator full visibility. If safe to do so, the rig operator will then acknowledge by giving a 'thumbs up' to approach. Any person who enters the restricted zone without authorisation from the rig operator; the works must cease immediately, and the incident reported to the Site Supervisor.	1	5	5

RISK ASSESSMENT

							The pump operator/banksman must always remain in clear view of the rig operator. The banksman/pump operator must always stay behind the green crowd barrier. Menard ancillary plant should be positioned outside the restricted zone, unless when in use. The excavator and MEWP should only enter the restricted zone once acknowledgement has been given by the rig operator in preparation for the task. The concrete pump should be kept out of the restricted zone to avoid striking of plant and/or concrete delivery wagons with the rig. The pump operator/banksman must not leave their position whilst the CMC works are in operation. If required to leave, the rig operator must be informed, and the rig operation must cease. The pump operator/banksman is responsible for ensuring the housekeeping and ground conditions are in good order at all times and free from trip hazards. Below are the tasks that have been identified where only authorised persons may enter the restricted zone: - Rigging/De-rigging of equipment, including MEWP access - Connecting/Disconnecting concrete hoses and checking connections - Clearing blockages, including MEWP access - Excavator moving concrete hoses - Closing the concrete flap - Re-fuelling & adblue filling - Maintenance and repair to equipment			
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RISK ASSESSMENT

							- Daily plant inspections - Setting Out - Witnessing of calibrations / test probes - Removal of arisings - Trimming - Testing - Banking of rig between working areas - Re-positioning barriers A minimum 600mm between the rig at maximum slew radius and any fixed feature on site should be made. Rig operator must check that persons are clear of rig prior to slewing. Physical barriers must be placed at pinch points to avoid any persons entering these areas.			
Striking or entrapment of a person by the concrete wagon.	X	X	X	3	5	15	All delivery wagons must adhere to the site speed limits. A restricted zone around the rig is to be in established with barriers when in operation. Anyone requiring access to the rig must approach from the cab side of the machine giving the rig operator full visibility. If safe to do so, the rig operator will then acknowledge by giving a 'thumbs up' to approach. Concrete wagons shall be taken from the entrance of our working area to the concrete pump. The wagons shall be guided by the concrete pump operator or banksman. The pump operator/banksman must always remain in clear view of the concrete delivery driver and give clear hand signals during reversing operations. If the pump operator/banksman cannot be seen, the driver	1	5	5

RISK ASSESSMENT

							must stop immediately. The pump operator/banksman is responsible for ensuring the housekeeping and ground conditions are always in good order and free from tripping hazards. The concrete pump and delivery wagon must be outside the restricted zone a minimum 10m from the rig to avoid any striking of plant. Barriers to be placed between the concrete pump and rig as a visual aid.			
Entrapment or entanglement of person in the moving or rotating CMC tool	X	X		2	5	10	A 20m works exclusion zone between Menard works and other trades is to be managed. The limits of our working area must be communicated to other trades by the Principal Contractor. Any unauthorised personnel entering the Menard working area, the works must stop immediately, and the incident reported to the site manager. A restricted zone around the rig is to be established with barriers when in operation. These should be set up intermittently around the planned working area, a minimum of 10m from the rig and a maximum of 30m in the direction of travel. Anyone requiring access to the rig must approach from the cab side of the rig giving the rig operator full visibility. If safe to do so, the rig operator will then acknowledge by giving a 'thumbs up' to approach. Any person who enters the restricted zone without authorisation from the rig operator; the works must cease immediately, and the incident reported to the Site Supervisor. No persons to stand within 5m of the CMC tool unless the rig is switched off and isolated. Under no circumstances must anyone touch or handle the CMC tool under operation.	1	5	5

RISK ASSESSMENT

							When the CMC works are in operation, the pump operator/banksman must be in clear view of the rig operator especially when working at the front of the rig. Walkie talkies can be used to communicate between pumpman/banksman and rig operator. The pump operator/banksman must not leave their position whilst the CMC works are in operation. If required to leave, the rig operator must be informed, and the rig operation must cease. Only authorised persons are to be within the Menard working area.			
Collision or entrapment from the movement of CMC rig between positions	X	X		4	4	16	Prior to moving the rig, the rig operator must check that all unauthorised persons are removed from the restricted zone. With a check that all persons are clear, the rig can move within the restricted zone. The rig must only be moved under the direction of a banksman, at all times. Walkie talkies can be used to communicate between pumpman/banksman and rig operator. A Banksman will direct and control all movement of the CMC rig. Any plant should be moved from the path of the rig prior to moving the rig to avoid pinch points or potential striking of plant. A minimum clearance distance of 600mm must be made between the furthest radial point of the rig and any static wall or feature. Rig operator must check that persons are clear of rig prior to slewing. Physical barriers must be placed at pinch points to avoid any persons entering these areas.	1	4	4

RISK ASSESSMENT

							Where the rig is to track between working areas, the banksman shall review and undertake a visual assessment on the working platform on access routes, access ramps and working area prior to directing movement of rig. Long distance movements should be walked by the banksman prior to moving the rig to ensure route is suitable and clear of obstructions. Any issues must be immediately addressed to the Principal Contractor. NOTE: Rig cameras to be clean, functioning and used by rig operator. These must not be solely relied on as the main control measure. The responsibility lies with the operator and banksman to communicate with each other for safe plant movement.			
Collision when placing the CMC tool at the CMC position and opening the concrete delivery flap.	X	X		4	4	16	The rig must only be moved under the direction of a banksman, always. Careful guidance must be made where positions are close to features such as existing structures, services etc. At the intended CMC position the banksman must provide direction to the rig operator to place the CMC tool at the intended position whilst being in a position of safety. Walkie talkies can be used to communicate between pumpman/banksman and rig operator. The rig operator to position rig ready for operation with no rotational movement of the CMC tool. The CMC tool can then carefully be lowered to the platform level at the intended CMC position. If required, the banksman can use a length of rebar at a distance to hold the flap closed when lowering the CMC tool to the platform level at the CMC position. The CMC tool must only be rotated once the banksman has left the front of the rig.	1	4	4

RISK ASSESSMENT

Failure of concrete hoses during concrete pumping	X	X		3	4	12	Hose connections to have correctly fitted clamps and gaskets with retaining pins attached. A check that all connections are secure should be done daily. Whip checks to be fitted to concrete hose connections anywhere above ground level including at the pump outlet. The long bagging hose must be retained by a wire rope sock grip or fall restraint attached to the swan neck. Its attachments should be checked prior to use and daily. Regular inspection of hoses and pipelines for wear or damage. Hose clamps and whip checks inspected prior to starting work each day. 6m concrete hoses to be pressure tested every 6 months. Long bagging hoses are to be replaced every 6 months. Avoid traffic on the hoses that could damage the core of the hose. Persons to avoid standing near or over hoses always.	1	4	4
Skin and eye injuries from Contact with wet concrete	X	X		4	3	12	Company PPE must always be worn including safety glasses and gloves. Under no circumstance must persons contact wet concrete with bare hands. The pump operator shall wear impervious hand protection when working with concrete. The pump operator shall wear long sleeved shirts / jackets at all times. Any PPE or clothing that has become wet from concrete residue must be removed immediately and the affected part of the body soaked in water to remove residue.	1	3	3

RISK ASSESSMENT

							When there is a risk of concrete splashes entering the eye. All operatives working with concrete shall wear eye protection. It is the site supervisor's responsibility to ensure the site team have the correct PPE relevant to their activities. Request PPE from the office.			
Overturning of rig due to platform failure.	X	X		4	5	20	A working platform should be installed by the Principal Contractor to accommodate the bearing pressure of Menard's equipment in accordance with FPS recommendations. A signed working platform certificate (WWBD/4d) must be completed and issued by the Principal Contractor prior to work commencing. The working platform is to be monitored during the progress of the works and before each shift to ensure continued suitability. Any issues must be immediately addressed to the Principal Contractor. Any maintenance, repair, reinstatement, or modification to the working platform must be recorded on the working platform daily inspection log. The working platform certificate must cover the working area, access road and access ramps. The base of access ramps must be strengthened as necessary to accommodate the higher bearing pressure imposed by the rig. The working platform should cover the building footprint plus 2m beyond. The limit of the working platform should be clearly defined by the Principal Contractor. Banksman to review working platform on access routes, access ramps and working area prior to directing movement of rig for a visual assessment. Any issues must be immediately addressed to the Principal Contractor.	1	5	5

RISK ASSESSMENT

Malfunction or Misoperation of CMC rig.	X	X		3	5	15	Rig operator must possess a valid CWBDS card for the category of piling rig. Rig operator must have read and understood the operations manual and be familiar with its controls and operation prior to use. Rig to be operated in accordance with the operations manual. A restricted zone around the rig is to be established with barriers when in operation. These should be set up intermittently around the planned working area, a minimum of 10m from the rig and a maximum of 30m in the direction of travel. Plant daily inspection forms to be completed detailing any observations. These must be reviewed by the rig operator and site supervisor prior to use. Any issues must be recorded on the inspection form. Critical issues must be reported to the plant manager immediately for further guidance prior to operation. CMC rig must have a valid 12 monthly thorough inspection test certificate. Visual inspection of the plant before operation by the operatives and prior to mast erection. This should be done by the rig operator and fitter (where present), if not this should be undertaken by the rig operator and site supervisor. Only trained and competent persons are to make the necessary repairs.	1	5	5
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RISK ASSESSMENT

Access on and off the CMC rig.	X			2	5	10	Operator must gain access/egress via. the access ladder ensuring both hands are always on the access handles. 3-point contact must be made. The running boards and the safety edge protection must be deployed and secured to gain access on the rig. Where running boards or edge protection is not present, access to engine compartments must only be done with the aid of a MEWP.	1	5	5
Noise generated from CMC rig.	X	X	X	2	4	8	Ear protection must be worn when within 15m of the rig. Signage to be fitted to the rig to warn staff they are entering a hearing protection zone. Rig to be maintained regularly.	1	4	4
Concrete hoses pulled tight by rig or concrete pump causing damage to either rig or pump.	X			3	3	9	Pump Operator to ensure that there is enough concrete hose for the working radius. Limit of working area to be defined to control rig movements. Once reached, pump to be moved within limits of the rig, or additional concrete hoses to be added to the overall length.	1	3	3

RISK ASSESSMENT

Malfunction or mis-operation of tracked concrete pump	X	X		3	5	15	Pump operator must possess a valid CWBDS card for the category of pump. Pump operator must have read and understood the operations manual and be familiar with its controls and operation prior to use. The pump must be operated in accordance with the operations manual. Plant daily inspection forms to be completed detailing any observations. These must be reviewed by the pump operator and site supervisor prior to use. Any issues must be recorded on the inspection form. Critical issues must be reported to the plant manager immediately for further guidance prior to operation. Pump must have a valid 12 monthly thorough inspection test certificate. Siting and movement of the pump must be planned and carefully co-ordinated so as not to exert excess pull or strain on the concrete line at the rotary head or swan neck.	1	5	5
Moving parts on concrete pump.	X			2	4	8	Ensure all safety guards are fitted and maintained. Grill on discharge hopper must always be fitted on the pump. If a safety grill is lifted, the pump must cut out. Under no circumstances must persons put body parts in the concrete hopper. Visual check of reception chamber is to be undertaken that all is working, and safety systems are in place. Plant daily inspection forms to be completed detailing any observations. Report any defects for repair.	1	4	4

RISK ASSESSMENT

Access on / off the tracked concrete pump and movement.	X			2	3	6	Pump operator must gain access/egress via. the access ladder ensuring both hands are always on the ladder. Once on the control platform, the safety edge protection must be secured in place prior to any movement. The pump operator can move the pump over short distances within the MENARD works exclusion zone without a banksman if the area is clear. The pump must have an audible alarm when tracking with amber flashing light. Under no circumstance must persons stand on the hopper grill.	1	3	3
Noise from concrete pump during pumping operation	X	X	X	2	4	8	Ear defenders must be worn when working around the concrete pump within 15m. Plant must be maintained timely and correctly.	1	4	4
Poor Housekeeping	X	X		2	3	6	All personnel will ensure, daily, that a clean and tidy working area is maintained. Items not in use to be stored correctly. Waste to be placed into bins provided by the Principal Contractor.	1	3	3

RISK ASSESSMENT

Attendant vehicles.	X	X		2	5	10	Attendant muckaway vehicle operators to receive a daily briefing on works along with risks for the day. Vehicles to adhere to site speed limits and access routes. Where vehicles are required to access Menard working area, a traffic management plan should be in place. Where vehicles are required to access Menard working area and are reversing, a banksman should be in place. Audible alarm must be operational on attendant machines.	1	5	5
Unauthorised use of Menard plant and equipment.	X	X	X	2	5	10	Only authorised operators that possess a valid CWBDS card for the category of the equipment may operate the plant or equipment. Keys to be removed from the machine during breaks or long periods of rest. Site and working area to be kept secure, any unauthorised persons must be advised to keep out of working area. Report any unauthorised persons on site to the site manager immediately.	1	5	5
Slip and trip hazards	X			4	2	8	Good housekeeping to be maintained on site, any uneven ground or loose items to be tidied to avoid accidents. Oil spills to be cleaned up immediately. Pedestrian routes to be made and regularly monitored for clear access and level ground.	2	2	4

RISK ASSESSMENT

Dust	X	X		3	2	6	Dust suppression must be employed by the Principal Contractor this may require dampening down. Company PPE must be worn, including safety glasses. RPE (dust masks) to FFP3 must be made available if the dust becomes a nuisance.	1	2	2
Exhaust fumes	X	X	X	4	2	8	Equipment to be switched off when not in use. Equipment to be operated in open air or well-ventilated premises with sufficient air flow to remove fumes. Regular maintenance to be undertaken on plant to prevent excessive generation of fumes. Persons to avoid standing in path of fumes where possible. Respiratory masks to be worn where practical.	2	2	4
Unprotected setting out pins	X	X		4	2	8	All protruding steel setting out pins to receive a rebar protection cap. Positions to be sprayed as necessary.	2	2	4

RISK ASSESSMENT

Fire on site or on Menard equipment	X	X		5	2	10	All Menard operatives to be aware of the site fire plan, including emergency procedures and muster points in the site induction by the Principal Contractor. Fire extinguishers to be made available in the cab of the equipment. Only put out fire if safe to do so. Site emergency drills to be conducted on contracts that are 4 weeks or greater in duration. To be undertaken every 4 weeks thereafter. Electrical appliances to be PAT tested every 12 months. Smoking must only take place in designated areas.	1	2	5
Working at height	X			2	5	10	Where required to access the back of the rig, ensure that good access on to the rig is always allowed with 2 hands on the access ladders. Edge protection must be in place on the rig. Where edge protection is not in place, a MEWP must be used for access. All open holes must be protected, no open holes must be left overnight. Any excavations must have adequate protection around them. Chin straps must be fitted and secured on hard hat.	1	5	5
Maintenance and repairs on the rig or equipment	X	X		2	5	10	Maintenance and repairs must only be done by trained and competent persons within their level of skill. Operators manual to be referred to for general maintenance. Where necessary a separate risk assessment should be made detailing the hazards and controls of the maintenance/repair work. A plant fitter sheet should be completed in advance of the work.	1	5	5

RISK ASSESSMENT

Items falling off the equipment during transport			X	2	5	10	The equipment must be checked for any loose items prior to leaving site. All panel doors, access doors, containers, hoses, windows, and cables must be secured prior to leaving site. The transport driver must ensure that a final check of their load is done before leaving site.	1	5	5
Lone working	X			2	4	8	Any lone working must be authorised by the Works Manager or Operations Manager, and the site manager beforehand. Contact details to be given to the site manager and line manager. Periodic calls to line manager and once the task has been completed must be done to check all is okay. A second person to be put with the operative with contact number as a precaution.	1	4	4
Fatigue	X	X	X	3	4	12	Long journeys with early starts to be avoided and managed to allow enough time for operatives to rest. This should be notified to the Works Manager or Operations Manager to manage and delay any deliveries or expectations for the following morning. Driving journeys to be broken up to allow enough rest. Persons to advise line manager of fatigue experienced to avoid any responsible operation of plant or driving.	1	4	4



RISK ASSESSMENT

Workplace stress	X	X	X	2	3	6	Discuss any concerns with your line manager to help resolve any stressful situation. If unable to speak with your line manager in confidence, you can speak to the Construction Industry Helpline for assistance on 0345 605 1956. Do not operate any plant if you feel stressed and without concentration on the task.	1	3	3
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RISK ASSESSMENT

WORKING WITH CONCRETE

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Working with Wet Concrete	X	X		2	3	6	Company standard PPE must be worn, including gloves and safety. Correct use of PPE (see COSHH assessment). High standard of personal hygiene. Appropriate welfare facilities to be in place. In the event of contact with wet concrete, wash off immediately with clean water. If any contact with the eye, wash out immediately and with an eye rinse kit.	1	3	6
Defective Hoses / Connections	X	X		2	3	6	Regular inspection of hoses and pipelines for secure connections and wear or damage. Hoses must have an inspection certificate. Hose clamps, clips and whip checks inspected prior to starting work each day. All flexible hose joints used on CMC type rigs to be fitted with safety whip check device where above ground. All steel pipeline couplings made safe with split pin, lock off device.	1	3	3
Wet concrete columns at ground level	X	X	X	3	4	12	A 20m works exclusion zone between Menard works and other trades is to be managed. The limits of our working area must be communicated to other trades by the Principal Contractor. Any unauthorised personnel entering the Menard working area, the works must stop immediately, and the incident	1	4	4

RISK ASSESSMENT

							reported to the site manager. A restricted zone around the rig is to be established with barriers when in operation. These should be set up intermittently around the planned working area, a minimum of 10m from the rig and a maximum of 30m in the direction of travel. Under no circumstance should persons enter the working area where recent CMC's have been installed. CMC's to be trimmed typically 2-4 hours after installation. This involved turning over the upper section of CMC and intermixing it with the platform material.			
Entrapment of hands and fingers in the concrete chute	X			2	3	6	Only appropriately trained and competent persons to be involved in operation. Concrete chute to be extended using handle. All non-essential people to be clear of the area before chute is extended. Concrete chute must be lowered under control of the concreting operative or the lorry driver.	1	3	3
Crushing injuries from reversing concrete wagons	X	X		3	5	15	Only appropriately trained and competent persons to be involved in operation. All non-essential people to be clear of the area before chute is extended. Banksman to be in sight of driver always. Operatives are not to place themselves between the vehicle and concrete pump at any time. Operatives must walk around the plant should they need to access the other side of the Lorry.	1	5	5

RISK ASSESSMENT

CLEANING OUT CONCRETE HOSE LINES

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Site vehicles, plant & personnel encroaching cleaning out operation	X	X		3	5	15	A 20m restricted zone must be established around the equipment with physical barriers. Only authorised personnel are permitted to enter this restricted zone to undertake the cleaning out operation. Physical barriers are to be placed around the rig and equipment at key locations (i.e., close to access points, between other trades) and area must be controlled by a trained and competent Banksman. Any unauthorised person entering the restricted zone and the operation must stop immediately and the person removed. Task to be undertaken within working area. Avoid undertaking operation next to pedestrian access points and access roads.	1	5	5
Cleaning out concrete hoses	X	X		3	4	12	The following procedures must be followed when undertaking the cleaning of concrete lines: VM/PROC/4020 – Cleaning Out Concrete Lines – Liebherr THS 110 D4k VM/PROC/4021 – Cleaning Out Concrete Lines – Hired Pump A 20m restricted zone is to be established for unauthorised personnel around equipment for cleaning out operation (where possible). Only authorised persons are to be within the restricted zone for the task. Barriers must be placed at key positions around the works (i.e., access points, adjacent to trades). Where the rig is not in use, it should be switched off. Use a blowout chamber to catch the ball.	1	4	4

RISK ASSESSMENT

							Only trained and competent persons are permitted to blow out. Area to be controlled by a competent person. Equipment should be cleaned of concrete at the end of every shift to avoid the risk of blockages. Correct use of PPE. (i.e., Gloves, Goggles, Face shields, Full length sleeve overalls). No bare arms. <u>Environmental Considerations:</u> - Cleaning out operation to be undertaken away from water courses where possible - Ensure plant, equipment, and its hoses and fittings are regularly inspected. - Ensure spill kits are deployed near all major plant (e.g., rigs) and fuel tanks. - Waste concrete to be broken up later and used in the working platform or disposed of in accordance with the site waste management plan. Refer to ENV.01 for further information.			
Blockage within concrete lines	X	X	X	3	4	12	In the event of a blockage, follow procedures; VM/PROC/4020 – Cleaning Out Concrete Lines – Liebherr THS 110 D4k VM/PROC/4021 – Cleaning Out Concrete Lines – Hired Pump An attempt to clear the concrete hoses under gravity must be made before using compressed air to avoid making the blockage worse and presenting the risk of building up high pressure in the lines. The lines must be de-pressurised before any attempt to detach the concrete hoses, assume that they are pressurised if in doubt. Under no circumstances should persons attempt to open the hoses under pressure. It should be considered that the hose line is always pressurised and that attempts to release pressure at all stages of the	1	4	4

RISK ASSESSMENT

							procedure must be made. When using a lump hammer to assist with clearing the lines, ensure that no one else is close by and this task is limited to avoid sprains or muscular damage.			
Pressurised concrete striking personnel				3	4	12	A restricted zone is to be established and enforced around Menard works, area must be controlled by a trained and competent Banksman. No other trades are to be within 20m of the operation. A concrete blow out chamber must be used when cleaning out the lines to catch the blow out ball and contain concrete to within a small area. Full face shields and hearing protection must be worn when disconnecting hoses or within close proximity to open end hoses. Do not attempt to clear a blockage with compressed air. An attempt to clear the concrete hoses under gravity must be made. The lines must be de-pressurised before any attempt to detach the concrete hoses, assume that they are pressurised if in doubt. Where using a wash out gun, a check that the gun is clear all the valves are working with pressure gauge before use. Under no circumstance must persons be within 10m of the concrete opening when blowing out. An inspection of concrete hoses must be undertaken daily. Any damaged or faulty hoses must be replaced immediately with new hoses. The long bagging hose is to have sleeve protection to mitigate the risk of pressurised concrete escaping a distance in the event of a hose failure. All concrete hose connections above ground must be fitted with whip checks. All hose joints must have clips correctly fitted with retaining pins.	1	4	4

RISK ASSESSMENT

							Only a trained and competent person to operate the compressor. Use clear hand signals and ensure a good standard of communication.			
Manual handling of concrete hoses	X	X		3	3	9	Use mechanical aids wherever possible to lift hoses. Share the load by team lifting when necessary. Adopt the correct posture when lifting. Use the correct hand tools when placing clips and pins. Wear suitable gloves when handling equipment	1	3	3
Burst concrete hoses	X	X	X	3	4	12	Concrete hoses to be visually inspected every day, any visible damage and the hose section must be replaced. Hanging hose on the rig to be replaced every 6 months regardless of condition. Ground hoses to be replaced every 6 months regardless of condition. 6m bagged hose at the concrete pump to be replaced every 3 months regardless of condition. All concrete hose connections above ground must be fitted with whip checks.			
Noise	X	X		3	4	12	Ensure the compressor is used in accordance with the manufacturer's instructions. Ensure that the compressor has been regularly maintained. Close all hatches / doors on equipment when in use. Operatives using a compressor must wear hearing protection at all times. <u>Environmental Considerations:</u> - The Principal Contractor is to determine whether Planning Conditions apply. - Section 61 consent conditions - Site hours, quiet periods. - Local residents and businesses should be made aware of any works which may create disruption during our works.	1	4	4

RISK ASSESSMENT

							- Reduce noise pollution through careful handling of materials; modern, quiet power tools, equipment, and generators; low impact technologies (where available). - Refer to ENV.01 for further information.			
Ejected ball from blowing out of concrete lines	X	X	X	4	4	16	A restricted zone must be established within the agreed area to undertake the task with physical barriers. These are to be placed around the rig and equipment at key and enforced around Menard works and area must be controlled by a trained and competent Banksman. Any unauthorised person entering the restricted zone and the operation must stop immediately and the person removed. A blowout chamber must be used to catch the ball. Compressed air to be released down the line under control of a trained operative and <u>only</u> when hoses are proven to be clear. Banksman / operative to stand to the rear of the exit when pressure is applied down the line. The lines must be de-pressurised before any attempt to detach the concrete hoses, assume that they are pressurised if in doubt. Under no circumstance must persons be within 10m of the concrete opening when blowing out. Undertake blowing out operation away from site boundary / other trades where possible. Correct use of PPE. (i.e., Gloves, Goggles, Face shields, Full length sleeve overalls). Face Shield must be worn by pumpman when blowing out using a compressor.	1	4	4

RISK ASSESSMENT

Cleaning out the concrete pump				2	4	8	The cleaning out of the concrete pump must be undertaken in accordance with the operations manual and the follow procedures; VM/PROC/4020 – Cleaning Out Concrete Lines – Liebherr THS 110 D4k VM/PROC/4021 – Cleaning Out Concrete Lines – Hired Pump The pump must be cleaned out within the designated working area away from water courses, site boundaries or sensitive features. Always close the cover when pumping backwards. Under no circumstances must anyone climb into the hopper to clean out. Access to the hopper must be granted by the fixed steps with 3-points of contact. Under no circumstance must anyone put hands, body parts or objects into the hopper or beyond the sluice gate where there are moving parts. The pump must be switched off when required to open the sluice gate or hopper grill. Ensure that the remote is stowed away out of sight and access to others. The sluice gate must be closed to allow the swinging S-pipe to be moved across. Correct use of PPE. (i.e. Gloves, Goggles, Face shields, Full length sleeve overalls).			
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RISK ASSESSMENT

Use of a compressor with air lines	X	X		3	5	15	The use of the compressor must only be used by a trained and competent operator familiar with the equipment. The compressor should be checked daily to ensure that it is in good working order. All levers and pressure gauges must be freely working. All connections must be fitted, checked and all must receive whip checks. Air pressure must be gradually increased to allow a slow build of pressure in the lines. Pressure to be kept to a minimum as best possible.	1	5	5
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RISK ASSESSMENT

LIFTING OPERATIONS

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Improper planning of lifting operations	X	X	X	2	5	10	All lifting operations should be planned to ensure that they are carried out safely and that all foreseeable risks have been taken into account. Planning of lifting operations should be carried out by an Appointed Person who has the appropriate knowledge for the lift being undertaken. All lifting should be carried out in accordance with BS 7121. A lift plan should be prepared for all lifts and be in possession of the lift supervisor prior to undertaking the lift. All items to be lifted must be within the capability of the lifting equipment at the required radius taking cognisance of the lifting environment. All persons involved with the lifting operation must review and be briefed on the lift plan by the Lift Supervisor. The lift plan must be signed by all those involved with the lift prior to any lifting. Any change in the planned lift must be reported to the appointed person for approval with an updated lift plan prepared as required. A restricted zone must be set up around the lifting equipment in line with the technique or a minimum of 10m. This restricted zone should be defined with solid barriers around the operation. Avoid lifting around pedestrian access points and site access routes.	1	5	5
Positioning and stability of lifting equipment on the working platform.	X	X		3	5	15	A working platform should be installed by the Principal Contractor to accommodate the bearing pressure of Menard's equipment (including crane/lifting equipment) in accordance with FPS	1	5	5

RISK ASSESSMENT

							recommendations. A signed working platform certificate (WPC/4d) must be completed and issued by the Principal Contractor prior to work commencing. Rig to be level and in position to safely lift. Lift radius as advised in lift plan must not be exceeded. For lorry loaders, outriggers must be fully deployed. Suitable pads must be placed under outrigger feet. Outriggers must not be employed onto a soft platform or over services.			
Proximity hazards such as overhead electric lines, buried services, other cranes, vehicle movements etc	X	X		2	5	10	Steps should be taken by the Appointed Person to eliminate the hazard of overhead power lines. Where this cannot be achieved then the guidance provided in the GS6 notes must be followed. Lifting should be avoided around overhead services as practically possible. Goal posts to be in place to provide physical limits of restricted lifting area. Measures should be in place to protect any buried services against damage. Exclusion zones and clearly defined routes should be established when other cranes / vehicles are present. Outriggers must not be positioned over services. Additional watchers with radio communications to be in place for lifting operations.	1	5	5
Failure of crane / lifting equipment	X	X		2	5	10	All lifting equipment must be fully certified, regularly checked by a competent person and be capable of safely lifting the load. Equipment to be tested in accordance with LOLER & BS7121. Lifting equipment must be rigged up and operated in	1	5	5

RISK ASSESSMENT

							accordance with the manufacturer's operation manual. The lift supervisor must perform the necessary checks as outlined in the lift plan. The crane must receive a daily inspection and copies of past daily inspections should be with the crane for inspection. Any defects or issues must be reported immediately to the owner for advice on the necessary repair. A visual inspection of rig or lifting equipment must be undertaken prior to lifting the mast or boom.			
Attempts at modifying parts of the crane / lifting equipment leading to possible structural weaknesses during operation	X	X		2	5	10	Modifications to any structure, control system or other part of a crane/lifting equipment must only be carried out with written approval of the manufacturer. Where the manufacturer is no longer in existence, a competent engineer familiar with the design of the crane/lifting equipment.	1	5	5
Lifting in adverse weather conditions likely to affect lifting operations i.e., high winds, heavy rains, poor visibility, snow / ice	X	X		2	5	10	Lifting should not be carried out in wind speeds beyond those specified in the machine operating manual. A suitable means of communication should be provided to ensure the safe operation during periods of poor visibility. If the presence of ice is known on the crane/rig then a 5m exclusion zone should be established in order to minimise the risks of falling ice from height.	1	5	5
Leaving the crane/rig unattended with suspended loads	X	X		2	5	10	Avoid leaving the crane/rig unattended with a suspended load; ensure all loads are removed from the lifting attachment/accessory even for short periods of time.	1	5	5

RISK ASSESSMENT

Slips, trips, and falls due to poor housekeeping / maintenance activities	X	X		2	4	8	Keep working and storage areas in a clean and tidy condition. A good standard of housekeeping is essential. Ensure that the path in which the lifting is required is clear of obstructions for both the slinger and the load. Where a person is required to be present on any part of the lifting equipment, e.g., for operational, maintenance or inspection purposes, suitable fall prevention measures should be provided e.g., handrails or use of safety harnesses. A MEWP must be used for working at height where no edge protection is provided.	1	4	4
Slinging/Signalling duties including using slings, chains, wire ropes, strops etc	X	X		2	4	8	Only authorised persons who hold a slinger/signaller card (CPCS) may sling any type of load. Lift plan to be reviewed by the slinger/signaller prior to any lift. A thorough understanding of the recognised hand signals is required by all personnel involved in the operation. Slinger/Signaller to ensure that hands and feet are clear of the load before any signal is given to crane operator. Company PPE must be worn including gloves and safety glasses.	1	4	4
Lifting loads with tag lines	X	X		2	5	10	Suitable tag lines should be used by the slinger/signaller to control any awkward suspended loads	1	5	5

RISK ASSESSMENT

Unloading with Lorry Loader	X	X		3	5	15	Lift plan to be prepared and completed as a point of work assessment by the company employed to move goods and undertake the lifting operation. Loads to be pre-slung with access to lifting accessory connections at the side of the wagon within easy reach at ground level. Where access is required on to the back of a delivery wagon, edge protection must be in place, or the person be connected to an inertia block fixed to a hook block via a harness. Alternatively, a MEWP may be used. Operation and control of lifts with lorry loader to be undertaken by a certificated operator with an ALLMI qualification. Outriggers must be fully deployed. Suitable pads must be placed under outrigger feet. Restricted zone around the lifting operation with barriers must be in place prior to lifting. Company PPE must be worn including Hi-Viz vest, trousers, and gloves.	1	5	5
Lifting of loads on gradients / uneven ground conditions	X	X		2	5	10	Proper planning of site deliveries and lay down points which provide suitable access for cranes to lift from the side wherever possible. Where this cannot be achieved a specific risk assessment should be conducted and must be fully reviewed. Manufacturers operations manual must be read and understood to level the crane/lifting equipment.	1	5	5

RISK ASSESSMENT

Failure of lifting accessories causing falling loads when lifted.	X	X		2	5	10	Only authorised persons who hold a slinger/signaller card (CPCS) may sling any type of load. Only approved and certificated lifting accessories may be used. All lifting accessories must be visually inspected by a trained person every 6 months. Copies of certificates to be included within the lift plan or on site. Slinger/Signaller to visually inspect all lifting equipment before use and store lifting accessories in an approved manner including safe storage of web slings and oiling chains. Any damaged or defect accessories must be disposed of immediately.	1	5	5
Slip or loss of loads	X	X		2	5	10	All slinging is to be undertaken by a trained, qualified, and competent person. Loads and accessories are to be inspected prior to use. Where possible all accessories to be attached to dedicated lifting points. Lifting capacity of accessories is not to be exceeded. Where lifting points are not available, the load is to be double wrapped or choked to prevent slippage.	1	5	5

RISK ASSESSMENT

Poor communications	X	X		2	5	10	Slinger/Signaller must be nominated to the crane operator and the crane operator must only take direction from the nominated Slinger/Signaller. If the Slinger/Signaller is changed then the new Slinger/Signaller must be identified to the crane operator. Walkie talkie radios to be used for communication. The Slinger/Signaller should be visible to the Crane Operator, whenever possible. If this is not achievable then radio communications must be adopted. Ensure that radios have sufficient and are within signal distance.	1	5	5
Slewing & movement of lifting equipment	X	X		2	5	10	Only trained Slinger/Signaller or banksman to signal cranes for movement. Use correct crane signals as published in LOLER 98 & BS7121 A restricted zone to be setup around the crane activity which should include physical barriers. The minimum gap between the further radial point and any fixed object should be 600mm. Where necessary fit a working slew alarm to plant. Company PPE to be worn always including Hi-Viz vest and trousers. Banksman to review working platform on access routes, access ramps and working area prior to directing movement of crane for a visual assessment. Any issues must be immediately addressed to the Principal Contractor. Under no circumstance must loads be lifted over people or over site boundaries.	1	5	5

RISK ASSESSMENT

SAFE USE OF A MEWP

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Overturning of MEWP due to poor ground conditions	X	X		2	5	10	A working platform should be installed by the Principal Contractor to accommodate the bearing pressure of Menard's equipment (including MEWP) in accordance with FPS recommendations. A signed working platform certificate (WPC/4d) must be completed and issued by the Principal Contractor prior to work commencing. Banksman to review working platform on access routes, access ramps and working area prior to directing movement of rig for a visual assessment. Any issues must be immediately addressed to the Principal Contractor. MEWP is not to be operated on uneven ground. Ensure speed restrictions are in place. Operators are to be fully trained, CPCS/IPAF qualified and competent. MEWPs are not to be overloaded and is not to be used as for lifting materials. Keep working radius to a minimum where possible.	1	5	5

RISK ASSESSMENT

Contact with moving vehicles / Site buildings or site workers	X	X		3	5	15	Restricted zones to be in place around working area of the MEWP. Segregate other site traffic (delivery vehicles, dumpers, etc) from the work area. MEWP to follow vehicle access routes. See below example where using MEWP around site traffic.  Ensure a banksman is positioned to warn/stop other traffic entering the area. Banksman to be used when operating near to buildings and site structures. Clearly marked pedestrian walkways around site. Regular TBT's warning of dangers associated with moving plant.	2	5	10
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RISK ASSESSMENT

Contact or entrapment with moving parts	X			3	4	12	Restricted zones to be in place around working area of the MEWP. No unauthorised personnel to interfere with MEWP. Only trained competent persons to undertake maintenance work on the MEWP. Operator must have a valid CPCS or IPAF card.	2	4	8
Crush or trapping of persons within basket (overhead obstructions)	X			3	5	15	All MEWPs to be fitted with anti-crush alarms. MEWPs to have emergency controls at ground level. Do not enter the undercarriage during lowering of the basket. Do not lean over protective cages / barriers during lowering of the basket (boom or scissor). Do not store any materials inside the undercarriage of the machine. During maintenance, all operatives apart from the fitter are to stand clear of the machine, and the fitter is only authorised to have the key. Banksman to stop any staff walking towards the MEWP during lowering.	2	5	10
Falling tools and equipment from basket	X	X		4	4	8	All tools and equipment to be secured and loose items tethered when working within the basket. Exclusion zone to be implemented around the MEWP.	1	4	4
Misuse by unauthorised personnel		X	X	3	5	15	Keys to be removed from the ignition whenever the driver leaves the plant. Plant is to be fully secured at the end of shifts	2	5	10

RISK ASSESSMENT

Contact with overhead power lines or services	X	X		4	5	20	Goal post warning system to be used around overhead power lines or structures. The Principal Contractor is to obtain minimum safe distances from service providers and exclusion zones set up with physical barriers. Task briefings carried out with new plant operators. Watchers stationed at overhead obstruction warning operators.	2	5	10
Lone / remote working	X			3	5	15	No lone work to be undertaken using the MEWP	1	5	5
Falls from height	X			4	5	20	All persons working within the basket must wear a suitable fall restraint harness that is always connected to the basket fixing point. All individuals working within the basket must be trained and competent do so. Rescue of the IP must take place within 5 minutes. If this can't be achieved the site must wait for the emergency services to release the IP as per the rescue plan SAF/PRO40.	2	5	10
Failure of upper control functions while elevated or the operator becomes incapacitated	X	X		3	5	15	Ensure the MEWP has a thorough examination by a competent person at least once every six months; inspections may be more frequent depending on the use and operating conditions (refer to manufacturer's instructions). Inspection intervals should be stated in the examination scheme. Pre-use checks and a weekly inspection with records kept on file. A rescue plan is to be put in place if the operator up in	2	5	10

RISK ASSESSMENT

							the basket becomes incapacitated. Prior to the lift, the IPAF trained operator must ensure that an appointed person at ground level has received familiarization training on the controls of the MEWP if they are required to bring the MEWP down from ground level. Familiarisation training must be recorded. Ensure staff at ground level are familiar with the emergency lowering mechanism on the machine they are using. Ensure an ignition key is always kept at ground level			
Lack of proper maintenance	X	X		2	5	10	Certification for the powered access equipment must be available on site before any operations start. The equipment must have valid test certification and examination certificates available before use. The operator of the powered access platform must also inspect the equipment daily, prior to and after use. The Menard MEWP check sheet must be completed by the operator. Safe working loads must never be exceeded.	1	5	5
Lack of training	X	X		2	5	10	Operators must be aged 18 years and over. Operators to hold valid CPCS or IPAF cards. Fully trained operators must be authorised by site management. No operator may use a powered access platform if fatigue, alcohol, or drugs impairs his competence. Before using the powered access platform, the manufacturer's instruction manual must be read and understood by the operator and supervisor.	1	5	5

RISK ASSESSMENT

Mechanical or Electrical Failure	X	X		2	5	10	The equipment must have valid test certification and examination certificates available before use. The operator of the powered access platform must also inspect the equipment daily, prior to and after use. The Menard MEWP check sheet must be completed by the operator. A rescue plan is to be put in place if the operator up in the basket becomes incapacitated. Prior to the lift, the IPAF trained operator must ensure that an appointed person at ground level has received familiarization training on the controls of the MEWP if they are required to bring the MEWP down from ground level. Familiarisation training must be recorded. No other site personnel should attempt control of the MEWP.	1	5	5
Hydraulic oil spillage			X	2	2	4	Spill kits must be available on site in the event of a hydraulic spillage or leak. Spent spill kits to be disposed of in waste bins as set out in the site waste management plan. Avoid using plant close to sensitive water courses where possible. Refer to ENV01 for further guidance.	1	2	2

RISK ASSESSMENT

SITE ACCESS / EGRESS

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Transport cannot physically gain access into / out of site.	X	X	X	3	2	6	Site visit to be undertaken prior to the works to review the access arrangements with the Principal Contractor. Where it is observed that access cannot be made in to site and that the equipment has to be taken off on to the highway; traffic management is to be provided by the Principal Contractor. All necessary personnel, permits, approvals and protection to the road and kerbs is to be provided by the Principal Contractor. The arrival of the transport should be met by Menard personnel to direct and escort as necessary to the designated offloading area.	2	2	4
Transport cannot physically gain access through public roads to the site.			X	3	2	6	Site address to be passed to the transport company for review prior to the movement of the equipment. Any restrictions or concerns to be communicated back to Menard for review with the Principal Contractor. Site visit to be undertaken prior to the works to review the access roads and arrangements with the Principal Contractor. Consider delivery times. Where it is observed that access cannot be made in to site and that the equipment has to be taken off on to the highway; traffic management is to be provided by the Principal Contractor. All necessary personnel, permits, approvals and protection to the road / kerbs is to be provided by the Principal Contractor.	2	2	4

RISK ASSESSMENT

Delivery Restrictions			X	3	2	6	All known delivery restrictions should be communicated to Menard and in turn this must be planned with the transport company. Considerations into public interface must be made to avoid disturbance and disruption. Plan times of the day to make deliveries to avoid disruption to the traffic. Avoid peak school hours where possible.	1	2	2
Traffic management required at site entrance to temporarily stop traffic / pedestrians to allow transport to gain entry in / out of site.	X	X	X	4	3	12	Site visit to be undertaken prior to the works to review the access arrangements. The Principal Contractor to provide traffic management assistance to temporarily stop traffic / pedestrians whilst accessing site. Where practical, the Site Supervisor should review the access in to site before the arrival of the transport to determine the requirement to temporarily stop traffic to assist access/egress of the transport.	2	3	6
Fumes and congestion generated by delivery wagons	X	X	X	3	2	6	Access/egress arrangements to be made in advance to avoid excessive waiting time contributing to higher fuel consumption and generation of fumes. Equipment NRMM compliant as required. Wagon drivers to switch off engine for sustained periods of waiting.	2	2	4

RISK ASSESSMENT

Equipment tracking on the public highway in to site.	X		X	3	4	12	All necessary personnel, permits, approvals and protection to the road / kerbs is to be provided and put in place by the Principal Contractor. All equipment tracked in to site must be undertaken with the guidance of a banksman. The rig operator must be trained and competent. A review of the route in/out of site must be undertaken prior to taking the equipment off the transport. Such considerations into pedestrian routes, overhead/underground services and overhead obstructions should be made. Considerations into public interface must be made to avoid disturbance and disruption. Plan times of the day to make deliveries to avoid disruption to the traffic. Avoid peak school hours where possible.	2	4	8
Inadequate segregation of plant and vehicle access routes from public.	X	X	X	3	4	12	A plant and vehicle management plan to be in place by the Principal Contractor detailing the interface with public areas and briefed to all Menard personnel at beginning of works. The Principal Contractor to consider making a one way system of traffic around site where possible. Satisfactory security of the site including site hoardings which are of sufficient height and suitable to prevent debris passing over hoarding. Footpaths and roads to be diverted if necessary. Segregated walkways clearly signed and marked. Traffic management system to be in place at the site entrance/exit should this interface with pedestrian walkways.	2	4	8

RISK ASSESSMENT

RIGGING AND DE-RIGGING

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Equipment falling off transport during loading / off-loading operation.	X	X		2	5	10	Only competent and experienced persons familiar with the equipment are to off-load/load the equipment. The operator must possess valid certificates for the item of plant. Loading of equipment must be undertaken with the aid of a banksman. No other trades / operations in close vicinity. All off-loading/loading must be done on a firm and level platform, this should be covered by the working platform certificate. Where required, wooden sleepers to be used to assist the equipment getting on to the transport. Running boards to be wooden, no metal on metal. Where required, use rubber mats to increase friction between tracks and transport bed. Loading/unloading not to take place near watercourses / flora / fauna. Deliveries to be made in designated areas away from watercourses / surface water drains as practically possible. A review of the loading/unloading area to be made with consideration of neighbours and the external environment. Consideration into the time of day.	1	5	5
Personnel accessing / egressing equipment on the transport.	X			2	5	10	Operator to access/egress the rig and shovel with 2 hands on the guide rails at all times. Do not jump from the transport bed. Foot holds to be in place and clean.	1	5	5

RISK ASSESSMENT

							Access can be made up the ramps of the low loader bed or step frame transport to gain access to the equipment. A hand on the equipment at the edge to be made as an additional measure. Aluminium access steps to be deployed on firm level ground to allow persons to gain better access on to transport and/or on to equipment.			
Failure of equipment during rigging / de-rigging due to malfunction or operator error.	X	X	X	2	5	10	Only competent and experienced persons familiar with the equipment are to rig / de-rig. The rigging/de-rigging must be undertaken in accordance with the operations manual and any additional procedural guidance. All personnel must be 10m away from the rig or equipment when rigging/de-rigging. Any persons not involved with the equipment must be kept clear of all rigging/de-rigging operations. Cones with beams or barriers to be set up to define our restricted zone, these must be a minimum 10m from the furthest radial point of the rig. Rig and equipment must have a valid 12 monthly thorough inspection test certification and daily inspections completed. Only authorised operators that possess a valid CPCS card for the category of the equipment may operate the plant or equipment. All spillages to be cleaned using spill kits and waste to be removed in accordance with the site waste management plan. Where required a competent mechanic to assist with the rigging operation. A plant mechanic point of work assessment to be undertaken prior to work.	1	5	5

RISK ASSESSMENT

Items falling from the rig mast or equipment when raising the mast or moving the equipment.	X	X	X	2	5	10	Rig mast and equipment to be visually inspected for any loose items and these are to be either secured or removed prior to the rig mast being erected or equipment being moved. The visual inspection should be done by the rig operator and fitter (where present), if not this should be undertaken by the rig operator and site supervisor. All personnel must be 10m away from the rig or equipment when rigging/de-rigging. Any persons not involved with the equipment must be kept clear of all rigging/de-rigging operations. Cones with beams to be set up to define our restricted zone, these must be a minimum 10m from the furthest radial point of the rig. Company PPE to be worn by all Menard personnel, including hard hat and safety boots. Any observed spillages must be dealt with with protection to the prevent spillage onto the platform and into the wider environment.	1	5	5
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RISK ASSESSMENT

Overturning of rig, collision or collapse of equipment during rigging / de-rigging operation.	X	X	X	2	5	10	Rigging/de-rigging operation must take place on a level firm working platform covered by the working platform certificate. Any concerns regarding the platform integrity must be reported to the Principal Contractor and either the platform be reinstated or an alternative area be used. Rigging/de-rigging to be undertaken away from traffic routes where possible. Satisfactory segregation to be put in place to avoid site vehicles or persons impacting on rigging/de-rigging operation. Only competent and experienced persons familiar with the equipment are to rig/de-rig. The rigging/de-riggin must be undertaken in accordance with the operations manual or procedural guidance. Rig and equipment must have a valid 12 monthly thorough inspection test certification and daily inspections completed. Only authorised operators that possess a valid CPCS card for the category of the equipment may operate the plant or equipment.	1	5	5
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RISK ASSESSMENT

Accessing the rig at height.	X			2	5	10	Where required to gain access on the rig, ensure that 2 hands are placed on the access ladders as a 3-point of contact. Edge protection must be in place on the top of rig when accessing at height. Where access is required on the rig or mast beyond the access points, a MEWP must be used. Where no edge protection is in place on top of the rig, a MEWP must be used. Where a MEWP is required, MEWP RA must be reviewed and in place to be briefed by the site supervisors to all personnel involved. All MEWP operators must hold a valid IPAF card or equivalent and a rescue plan must be put in to place.	1	5	5
Trapping of hands or fingers during rigging / de-rigging operation.	X			3	3	9	Only competent and experienced persons familiar with the equipment are to rig/de-rig. Movement of equipment or parts must be done only when hands and body parts are kept clear of parts/equipment. A clear line of communication must be made by all involved with the rigging / de-rigging operation. Company PPE to be worn by all Menard personnel, including safety gloves.	1	3	3
Contact with hot parts, oils, water or steam.	X			3	2	6	Only competent and experienced persons familiar with the equipment are to rig/de-rig. Where access on hot components are required, do not touch and wait until cooled. Company PPE to be worn by all Menard personnel, including safety gloves.	1	2	2

RISK ASSESSMENT

Contact with pressurised hydraulic oil.	X			2	5	10	Under no circumstance must persons put hands or any body part in the path of pressurised hydraulic oil. Pressure must be reduced prior to working on the hose or component. Any exposure to pressurised hydraulic oil must receive immediate medical attention to ensure that no oil has entered the bloodstream which could cause clotting. Only experienced and competent persons should attempt any repair/maintenance on hydraulic components.	1	5	5
Spillages / leakages of hydraulic oil when rigging/de-rigging	X	X	X	3	4	12	Where necessary ensure the required spill kits, plant nappies are used / placed correctly to minimise spillages and potential leakages to watercourses, flora/fauna and habitats. Undertake rigging/de-rigging away from water courses as practically possible. Dispose of used spill kits responsibly.	1	4	4

RISK ASSESSMENT

VEHICLE MOVEMENTS

Hazard	Persons affected = X			Pre – Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Moving Site Vehicles	X	X		3	5	15	Plant/Vehicle operators to adhere to the designated access routes within the traffic management plan. Vehicles to adhere to the site safe speed limit. The Principal Contractor to set up and maintain vehicle access routes. Adequate pedestrian walkways with physical segregation to be made where practical and in areas of frequent traffic. A 20m works exclusion zone is to be enforced around Menard works. This must be communicated to other trades by the Principal Contractor. Cones and barriers to be set up around / limit of works to delineate our exclusion zone. Company standard PPE to be worn, including Hi-Viz top and bottoms. A competent banksman to be in place when vehicle is reversing. Ensure that driver can see banksman when reversing.	1	5	5
Unauthorised Movement of Plant	X	X		3	5	15	Plant operator to operate plant within working area only. Any requirement to travel outside the working area must be done under the guidance of a banksman / loading shovel operator with notice given to other trades as necessary. These routes must be suitable to accommodate the equipment bearing loads and covered under the working platform certificate. Operator/driver must have the appropriate driving license/CPCS competency card for the vehicle being operated	1	5	5

RISK ASSESSMENT

Pedestrians & Vehicles In Close Proximity	X	X		2	5	10	Principal Contractor to set up and maintain vehicle access routes. Adequate pedestrian walkways with physical segregation to be made where practical and in areas of frequent traffic. A minimum clearance distance of 600mm must be made between the furthest radial point of the rig and any static wall or feature. Rig operator must check that persons are clear of rig prior to slewing. Physical barriers must be in place at pinch points to prevent persons entering. Keep route between material stockpiles & work area clear of pedestrians – stockpile to be inside the exclusion zone. Do not overfill loading shovel or excavator buckets. Clear visibility to be maintained by the operator. Plant/Vehicle operators to adhere to the site traffic management plan. Vehicles to adhere to the site safe speed limit. Pedestrians to adhere to the site pedestrian walkways. Audible alarm and rig cameras (where fitted) must be operational on plant. NOTE: Rig cameras to be clean, functioning and used by rig operator. These must not be solely relied on as the main control measure the responsibility to check around the equipment lies with the operator and banksman to communicate with each other for safe plant movement.	1	5	5
Broken Down Plant / Site vehicles	X	X		2	5	10	Drivers must place hazard warning lights on all vehicles when broken down and report to the supervisor. Driver/operator must position himself in a place of safety until help arrives. Operator/drivers must wear hi-visibility clothing when	1	5	5

RISK ASSESSMENT

							outside their vehicle Driver/operator must seek assistance immediately			
Uneven access routes and limits of access road edge	X	X		2	5	10	The condition of access routes must be maintained by the Principal Contractor. Any issues must be reported for immediate repair to allow the safe use by plant and vehicles. Where tracking equipment along access routes, these must be covered under the working platform certificate and receive adequate compaction/material to accommodate the bearing loads. The access route must be walked prior to taking equipment over a distance to check and identify any issues (ruts, deterioration, width) prior to tracking equipment across. The limits of the access roads must be clearly defined to prevent vehicles from travelling too close to the edge potentially driving off the edge or shearing the edge of the road making the vehicle/plant unstable. Vehicle stop blocks must be placed at a suitable distance from the edge of any excavation or compaction point. Operators / drivers must be vigilant whilst travelling along access routes adhering to the speed limits and respecting other users.	1	5	5
Loading Shovel Operator Flung from Seat Whilst in Operation	X	X		2	5	10	Loading shovel operator must wear a seatbelt whilst operating the loading shovel. Green indicator light to be working on shovel to indicate that the operator is wearing the seat belt. Shovel operator adhere to site safe speed limits, limit speed to a minimum and pay particular attention to any uneven ground.	1	5	5

RISK ASSESSMENT

Rig Operator moving out of seat in operation	X			2	5	10	Rig speed limited to max 2mph when travelling. Deadman in place that cuts off rig in event of being lifted.	1	5	5
Plant / Vehicles falling in to excavations, water courses or embankments.	X	X	X	2	5	10	Physical barriers to be placed against around excavations, water courses of embankments to delineate the limit of the safe access / working platform. The edge of the access road or platform must be clearly defined and adequately installed and compacted to this limit. An inspection of the platform / access route must be done prior to tracking equipment close to these features. A competent banksman to be used when moving plant along access routes and when close to excavations, water courses or embankments.	1	5	5
Vehicle movements impact on environment.	X	X	X	4	3	12	Generation of dust from vehicle movements to be controlled by PC through fine water sprays to dampen down site. For more guidance refer to ENV 01. Generation of fumes from vehicle movement and equipment used to be managed by reducing travel as reasonably practicable. Delivery times to be managed to avoid standing vehicles at the entrance or on site. Manage equipment / vehicle use to reduce pollution by switching off machines and minimising idling time when vehicles / equipment are not in use. Where possible minimise vehicle movements on and around site to reduce the risk of spoil movement. Refer to ENV 01 for more guidance.	3	3	9

RISK ASSESSMENT

Vehicle movements close to water courses.	X	X	X	3	4	12	Vehicles to not park up / stop too close to watercourses where emissions could contaminate / pollute watercourses, wildlife and the wider environment. Traffic management plan to consider routes to avoid routing next to water courses.	2	4	8
Presence of flora and fauna.	X	X	X	3	4	12	Ensure vehicles are switched off when not in use where flora and fauna is present. Vehicles to remain on designated access routes to prevent any damage or destruction to the flora/fauna.	2	4	8

RISK ASSESSMENT

ENVIRONMENT

Hazard ⁱ	Pathway ⁱⁱ	Receptor ⁱⁱⁱ	Consequence ^{iv}	Pre-Control			Control Measures	Post-Control		
				Likeli-hood	Severity	Risk Rating		Likeli-hood	Severity	Risk Rating
Waste Management	Contaminated runoff / windblown litter / vermin	Surface water/Ground water/Community	Pollution of water course (surface/ground), Litter	3	4	12	- Separate waste types into labelled bins, recycle when possible. - Ensure that we are clear who is responsible for waste disposal on site. - Where waste segregation facilities have been provided these must be used to encourage the recycling of as much waste as possible. - Where waste removal is our responsibility, ensure that the correct waste removal documentation is completed i.e., waste transfer notes for non-hazardous waste and waste consignment notes for hazardous waste. Complete and maintain Site Waste Management Plan (ENV 11)	1	4	4
Plant and Equipment maintenance	Air, Spillage	Surface / Ground Water, Soil, Atmosphere	Soil Contamination, Ground/Surface Water Pollution, and air Pollution	3	4	12	- Designate an area within the site for plant storage and routine / equipment maintenance. Ensure that the area is on hardstanding and is remote from surface water drains as water runoff from plant may include pollutants such as oil. - Carry out regular and appropriate maintenance, inspections, and pre-use checks to ensure the efficiency of plant	2	4	8

RISK ASSESSMENT

				Pre-Control				Post-Control		
							and equipment, and to eliminate pollution incidents e.g., caused by blowouts. • Consignment note is to be completed for disposing of wastes arising from maintenance e.g., special care must be taken when disposing of old filters contain oil which are deemed hazardous. • Prepare for spillages. Display the site's emergency response procedure at the plant maintenance area. Ensure a spillage kit is kept in the plant maintenance area and all personnel know how to use it. • Plant nappies / Rhino pads to be placed for all static plant and under plant where servicing / maintenance is taking place.			
Deliveries	Spillage, Visual	Surface/Ground Water, Soil, Community	Soil Contamination, Ground/Surface Water Pollution, Poor reputation / Company profile	3	4	12	• Deliveries to site should be undertaken in accordance with the logistics and traffic management plan. • Deliveries to be made in designated working areas away from water courses or surface water drains. • Planning should consider peak hour traffic, location next to schools or other businesses. • Delivery drivers must be made aware prior to arrival on site, the requirements for any one-way systems, narrow access, schools, and alternative parking arrangements, if they cannot enter site immediately to	1	4	4

RISK ASSESSMENT

				Pre-Control				Post-Control		
							prevent blocking public access routes. • We must be aware of any FORS or CLOCS requirements which are now being rolled out nationwide as required by either the client or PC. • Ensure quality of materials delivered are checked for quality by a Menard representative prior to acceptance to avoid wastage. • Deliveries to be made timely to avoid idling.			
Storage of Materials and Chemicals	Spillage	Surface/Ground Water, Soil	Soil Contamination, Ground/Surface Water Pollution	2	4	8	• Ensure availability of spill kits. • Dispose of used spill kits responsibly. • Ensure all persons are aware of spill kit locations and deployment. • Prior to arrival on site, it is important to be aware of drainage plans, the location of any sensitive receptors such as water courses and/or site restrictions on the storage of fuel or chemicals. • Material storage should be located away from drains and watercourses. • Materials storage can also encompass IBC's, concrete pumps and drums and washout skips. • Spill kits must be placed at strategic locations around site such as COSHH stores, concrete pumps, re-fuelling locations. Spill	1	4	4

RISK ASSESSMENT

				Pre-Control				Post-Control		
							kit refills should be kept on site and all used spill kits disposed of as COSHH waste. • Use non-toxic paints, solvents, and other hazardous materials wherever possible. • Segregate, tightly cover and monitor toxic substances to prevent spills and possible site contamination. • COSHH registers must be kept and maintained in all COSHH storage areas. • Store materials away from waste storage containers and from vehicle movements that may cause accidental damage. • Store valuable materials, or those that are hazardous or attractive to thieves, in a secure area, out of sight of the public. • Storage and use of perishable items (e.g., cement) should follow the "first in first out" rule.			
Appearance / Housekeeping	Visual	Community, Customer	Poor impression/ company profile	3	3	9	• Ensure that equipment is stored away from traffic movements as far as practicable to reduce the risk of damage causing a potential pollution incident or damage to the products. • Site should be maintained in a tidy and ordered fashion to promote a positive impression to both the PC and local residents. • Areas should be kept clear of wind-blown litter and refuse;	1	3	3

RISK ASSESSMENT

				Pre-Control				Post-Control		
							offices should be cleaned and tidy. • Segregate different types of waste as it produced and arrange frequent removal. • Ensure that there is a wheel washing facility provided on site (by the PC) and that it is frequently cleaned. • Smoking should only take place within the designated smoking areas on site as per the site induction and where possible not directly outside of site entrances/exits or any COSHH stores. • Where contractual agreements permit to promote the quality image of Menard, site containers and equipment should be well presented with correct signage indicating the company name.			
Site run-off	Surface Water Sewer or Ditch	Surface Water (Local River, Brook, Stream)	Pollution of water, Damage to habitat or death to flora/fauna that live in/on the water.	3	4	12	• Locate stockpiles of materials where they will not be washed into waterways or drainage areas. • Surface water runoff from plant may contain pollutants e.g., oils. Prevent their release through regular plant inspections and repair to drains and watercourses. • Use non-toxic paints, solvents, and other hazardous materials wherever possible. • Segregate, tightly cover and monitor toxic substances to prevent spills and possible site contamination.	2	4	8

RISK ASSESSMENT

				Pre-Control				Post-Control		
							• Cover up and protect all drains on site (if possible, by PC). • Place silt screens around spoil heaps if carrying out pre-augering activities to trap silt from any surface water runoff (by PC). • When PC damping down using water to suppress dust, ensure that the application does not create excessive mud that can runoff into watercourses.			
Inadequate bunding around tanks	Surface Water Sewer or Ditch	Surface Water (Local River, Brook, Stream)	Pollution of water, Damage to habitat or death to flora/fauna that live in/on the water.	3	4	12	• Ensure tanks are bunded with a minimum capacity of 110% of the volume of the largest tank or 25% of the total storage capacity, whichever is the greater. • Do not allow bunded areas to fill with rainwater. Empty and dispose of any water collected in an appropriate way. • The bund should be impermeable to the substance that is being stored in the tank. • Inspect bunds at least once a week to ensure their integrity. If you find damaged bunds, repair, or replace them immediately. • Ensure fill points are inside the bund.	1	4	4
Flooding	Surface Water Sewer or Ditch	Surface Water (Local River, Brook, Stream)	Pollution of water, Damage to habitat or death to flora/fauna that live in/on the water.	3	3	9	• Protect stores from flood damage or inundation. Ensure COSHH materials are kept well away from watercourses and areas prone to flooding on site. • PC to avoid stripping large areas of site and minimise the areas exposed of soil. Keep soil exposed for as short time as possible. This will minimise the	2	3	6

RISK ASSESSMENT

				Pre-Control				Post-Control		
							amount of silt laden run-off which will minimise blocked drains. • PC to consider having swales or retention ponds on flood prone sites.			
Vandalism	Surface Water Sewer or Ditch	Surface Water (Local River, Brook, Steam)	Pollution of water, Damage to habitat or death to flora/fauna that live in/on the water.	3	4	12	• Ensure valuable plant/equipment and COSHH materials are kept away from public view as reasonably possible. • Fuel bowsers and stores to be sited away from water courses as practicably possible. • Storage system valves, taps, hatches or lids and delivery hoses should be fitted with locks and locked when not in use. Where possible materials should be stored in secure containers. • Where possible immobilise plant and equipment overnight.	2	4	8
Fire and contaminated water escaping into the local watercourse or ground	Surface Water Sewer or Ditch	Surface Water (Local River, Brook, Steam)	Pollution of water, Damage to habitat or death to flora/fauna that live in/on the water.	3	5	15	• Ensure all nearby drains are sealed by PC were reasonably practicable. • Where possible prevent contaminated water entering the ground by using covers and barriers or liners. • Ensure that any suspected contamination is characterised and initiate remedial action plan. If contaminated water has entered the ground, consider physical separation of contaminants from the rest of the soil should be considered.	2	5	10

RISK ASSESSMENT

				Pre-Control				Post-Control		
Washout of Concrete Wagon	Surface Water Sewer or Ditch	Surface Water (Local River, Brook, Stream)	Pollution of water, Damage to habitat or death to flora/fauna that live in/on the water.	3	3	9	- Ensure that there is a designated concrete wagon washout area which is at least 10m away from watercourses and drains. - Concrete washout water must be disposed of in accordance with the PC site waste management plan. This may involve being taken away by tanker to be adequately treated and disposed of. - Concrete wash out waste can either be broken out and re-used into the working platform or disposed of in line with the site waste management plan.	2	3	6
Cleaning the concrete pump & hoses	Surface Water Sewer or Ditch	Surface Water (Local River, Brook, Stream)	Pollution of water, Damage to habitat or death to flora/fauna that live in/on the water.	3	3	9	- Ensure plant, equipment, and its hoses and fittings are regularly inspected. - Ensure spill kits are deployed near all major plant (e.g., rigs) and fuel tanks. - Waste concrete to be broken up later and used in the working platform or disposed of in accordance with the site waste management plan. - Concrete pump to be cleaned and washed out away from water courses.	2	3	6
Washdown Area e.g., vehicle wheel wash facilities, welfare cleaning	Surface Water Sewer or Ditch	Surface Water (Local River, Brook, Stream)	Pollution of water, Damage to habitat or death to flora/fauna that live in/on the water.	3	3	9	- Washdown facilities must be considered by the PC in view of the trades on site. - The effluent from washout areas must not be discharged to surface water systems and should be removed to a foul sewer (with the consent of the	2	3	6

RISK ASSESSMENT

				Pre-Control				Post-Control		
							local water authority) or taken away by tanker to be adequately treated and disposed. - Consider recycling the washout for reuse on site and the recover silts to be separately removed as waste. - Facilities should be provided to allow site personnel to clean their boots before leaving site or entering site offices. The silty water from these facilities should be dealt with in the same way as the vehicle washing effluent.			
Generation of noise/vibration from plant and equipment	Air transmission	Wildlife, Local community, Visitors, Customer Reps etc.	Nuisance, hearing damage, disturbance of wildlife.	4	3	12	- PC to determine whether Planning Conditions apply. - Section 61 consent conditions. - Site hours, quiet periods. - Local residents and businesses should be made aware of any works which may create disruption during our works (PC responsibility). - Reduce noise pollution through careful handling of materials; modern, quiet power tools, equipment, and generators; low impact technologies (where available).	3	3	9
Generation of dust from.....e.g., vehicle movements	Disturbance of loose material into the air	Air, Local community	Air Quality	4	3	12	- PC to control dust through fine water sprays used to dampen down the site. - PC to cover open skips with construction materials and continually damp down with low levels of water.	2	3	6
Generation of light	Light emissions from plant	Local community	Light Quality	3	2	6	Position of lighting to be reviewed in respect to neighbours and / or sensitive	2	2	4

RISK ASSESSMENT

				Pre-Control				Post-Control		
							operations (i.e., Network Rail). • Lighting to be switched off when not in use.			
Generation of fumes from Vehicle movement & equipment use	Emission to air	Local air pollution	Air Quality, Climate Change	4	3	12	• NRMM compliant (where applicable). • Manage vehicle movements to reduce travel as reasonably practicable. • Manage equipment use / sequencing to reduce emissions. • Switch off vehicle/equipment when not in use for long periods of time.	3	3	9
CO2 emissions from diesel/petrol plant and equipment	Air	Atmosphere	Increased concentration of CO2 in the Atm. Climate Change.	4	3	12	• Where available and reasonably practicable, alternative means of powering the welfare facilities. • Power units with site feed where available. • Switch off equipment when not in use for long periods of time. • Use of HVO fuels where available.	3	3	9
Concrete Cube Storage (Use of diesel generator)	Air	Atmosphere	Increased concentration of CO2 in the Atm. Climate Change.	4	3	12	• Where available and reasonably practicable, alternative means of powering the welfare facilities. • Power units with site feed where available.	3	3	9
Power for Welfare cabins and drying rooms (Use of diesel generator)	Air	Atmosphere	Increased concentration of CO2 in the Atm. Climate Change.	4	3	12	• Where available and reasonably practicable, alternative means of powering the welfare facilities. • Power units with site feed where available.	3	3	9
Presence of protected fauna (wildlife).	Physical Chemical Damage from Site activities.	Fauna	Habitat Destruction	3	4	12	• PC to advise on working areas and segregate works respecting protected areas. • PC to advise on any protected	2	4	8

RISK ASSESSMENT

				Pre-Control				Post-Control		
Protected Species of site of special scientific interest (SSSI)							species which may be present on site or locality within site specific induction (i.e., great crested newts). • Working areas to be clearly defined with physical segregation. • If any wildlife observed in the working area, works must stop, and incident reported to the PC for further advice. • Any nesting birds on equipment and the rig must not be moved. PC consulted for further advice.			
Presence of protected flora (plants) Protected Species of site of special scientific interest (SSSI)	Physical Chemical Damage from Site activities.	Flora	Habitat Destruction	3	4	12	• PC to advise on working areas and segregate works respecting protected areas. • Working areas to be clearly defined with physical segregation.	2	4	8
Contaminated ground	Spoil being brought to the surface from the drilling activities	Human, Air, Surface Water Run off	Impact on human health, contamination of ground/surface water	3	4	12	• Sites that have had previous industrial occupation should be assumed to be polluted, and tests undertaken by the PC to ascertain the types of pollutant and their levels of concentration. This should be detailed within the site investigation report. • The contract documentation and planning conditions for a project will identify known contamination of the site and the agreed methods for dealing with it. • A review of the technique used needs to be done to reduce the exposure of contaminants to	2	4	8

RISK ASSESSMENT

				Pre-Control				Post-Control		
							people, wildlife, and wider environment. • If our works consists of working with contaminated land, ensure this is covered in our method statement. A contaminated land risk assessment is completed, and the control measures are implemented. • Ensure everyone involved in the work are made aware of the contamination as they must be briefed on the method statement and risk assessment. • Specialist PPE, equipment and working conditions may apply to protect personnel and the wider environment. • Where spoil can arise due to pre-augering activities, when necessary, actions must be carried out to reduce the exposure to people, wildlife, watercourses, and wider environment (i.e., silt screens to be placed around spoil heaps by PC).			
Presence of aquifers	Contaminants leaching into underlying aquifers	Natural water course	Impact on human health, contamination of ground/surface water	3	4	12	• A review of the site investigation to be undertaken to identify the presence of underlying aquifers that may be affected by our works. • A selection of the appropriate technique to be made to reduce the risk of pathways for contaminants to enter the aquifer. • Site controls to be made to avoid penetration into the aquifer.	2	4	8

RISK ASSESSMENT

				Pre-Control				Post-Control		
				3	4	12		2	4	8
Presence of heritage / listed buildings or features	Vibration or physical damage	Buildings or features	Damage to historic buildings / features				- Review of the distances between working areas and heritage / listed buildings or features. - Consider vibration monitoring against sensitive features.			
Information, Instruction, and training	TBT, Start of Shift Briefing, Formal Training			3	2	6	- The Company Environmental policy is to be displayed in the site induction folder pack. - The Environmental risk assessment will form part of the site induction and method statement briefing. - Environmental campaigns are run quarterly to provide information on spill response, storage of materials and waste disposal. - Emergency drills are run on every site running for longer than four weeks. These include environmental drills. - The Works Manager shall review staff training against the training matrix to ensure all appropriate team members have received their environmental training. Appropriate action should be taken to fulfil the training requirements.	1	2	2

RISK ASSESSMENT

USE OF SUBCONTRACTORS OR AGENCY WORKERS

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Subcontractors unaware of site hazards, rules and familiarisation of policies, process, and equipment.	X	X		2	4	8	All subcontractors to receive a site induction from the Principal Contractor. All subcontractors shall receive a 'new starter/agency worker' induction from the Site Supervisor or management representative. They shall also receive a start of shift briefing prior to commencing works. Subcontractors to be issued a Menard 'subcontractor/agency workers induction booklet'. All competency cards of the agency worker or subcontractor must be checked prior to commencing work. A check by the Site Supervisor that the subcontractor or agency worker has the mandatory PPE required for the task.	1	4	4
Subcontractor working in an unsafe manner.	X	X		2	4	8	Subcontractor method statements / risk assessments to be reviewed prior to subcontractor commencing works on site. Subcontractors to comply with CDM regulations 2015. Ensure that adequate supervision is in place for works. Periodically review the subcontractors and agency working methods. If any unsafe or unsatisfactory working is observed, works must stop and be reviewed. This may involve a review of method statements, re-briefing or if in breach of site or statutory rules; a warning or removal	1	4	4

RISK ASSESSMENT

							from site.			
Poor workmanship	X	X		2	3	6	Review method statements and periodically review working methods for compliance. Obtain all necessary quality reports. Ensure that the subcontractor holds valid insurance relevant to the works / equipment.	1	3	3

RISK ASSESSMENT

OVERHEAD SERVICES

Hazard	Persons affected = X			Pre – Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Overhead Services	X	X		2	5	10	Any overhead services within 10m of our working area must be reviewed by the Principal Contractor in accordance with HSE Guidance Note GS6. If possible the overhead services should be switched off. If not possible to switch off, A permit should be provided to Menard detailing the location and minimum exclusion zone of the overhead service. When required to work near overhead services, a minimum safe working distance of 6m (or advised by the service provider) should be made with physical barriers to define this exclusion zone. The Principal Contractor should obtain the voltage and safe clear distance from the service provider. If plant or equipment is required to pass under overhead services, the maximum safe passing height must be established by The Principal Contractor based on the minimum exclusion zone from the nearest overhead line. This exclusion zone must be obtained from the service provider. Physical barriers and goal posts should be used to define the maximum height at a minimum 6m away from the nearest line (or advised by the service provider). Ensure that the rig mast is lowered prior to travelling under overhead services, a banksman must be used. If working under overhead services, the Principal Contractor must obtain a minimum working height to be between our equipment and the lines. In accordance with HS6, the minimum extent of the	1	5	5

RISK ASSESSMENT

							exclusion zones must be adhered to: low-voltage line – 1 m 11 kV and 33 kV lines – 3 m 132 kV line – 6 m 275 kV and 400 kV lines – 7 m <u>In any case, these must be checked with the service provider in advance of the works.</u> Works must be undertaken with a banksman and no lifting / extending beyond the maximum working height. Where appropriate erect physical barriers, signage and goal posts to allow plant to safely cross underneath or where working in the vicinity to highlight the potential risk. Do not store equipment or materials underneath the services nor within the exclusion zones.			
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RISK ASSESSMENT

UNDERGROUND SERVICES

Hazard	Persons affected = X			Pre – Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Underground Services	X	X	X	3	5	10	All relevant information regarding the presence of underground services within or close to (<6m) our working areas must be provided to Menard prior to mobilisation. Service layout drawings to be obtained, checked and issued by the Principal Contractor. A method of working in close proximity to any services to be discussed with Menard. Where services are known, the precise location of services affected by our operations must be physically identified on site. Assume all services are live unless notification is given by service provider. Principal Contractor to CAT scan working area to be satisfied that none are present within working area. Particular care should be taken with working areas are directly next to footpaths / boundaries. Where our works are required within 6m (not limited to) of an existing service, we would require to understand the type of service and would recommend that 21.2.1 non-negligence insurance be sought for our works by the Principal Contractor. The Principal Contractor to undertake a dilapidation survey prior to the works. Consideration into the diversion, grouting up or exposure of services to be taken by the Principal Contractor. A permit to break ground must be completed by the Principal Contractor and issued to the Menard Site Supervisor prior to the commencement of the works. All known services are to be identified on the permit and physically identified on site, protected (as required) by the Principal Contractor for the duration of our work.	2	5	5

RISK ASSESSMENT

							The permit must specify the areas and gridlines that Menard are authorised to work in. Service location drawings should be obtained and checked by the Principal Contractor prior to signing off the permit. All necessary CAT scanning of the working area is the responsibility of the Principal Contractor. The permit shall remain valid for a recommended period of no more than 5 working days. Once the permit has expired or the works are completed, the permit must be closed by the Principal Contractor and if required, a new permit issued. The setting out of positions should not proceed until a permit to dig has been issued.			
Creation of discharge through contact with services causing flooding and/or waste run off.	X	X	X	2	4	8	Permit to dig to be completed and services physically identified to prevent accidental damage to services that could cause the potential to pollute or flood the site. Review control measures above. The Principal Contractor should review the works in such proximity and have a plan to understand the shut off valves for water supplies. Refer to RA ENV01 for further precautions.	1	4	4

RISK ASSESSMENT

HOT WORKS

Hazard	Persons affected = X			Pre – Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
							General Control Measures · All personnel have been inducted, trained, and authorised to work on this site. · All personnel have been issued with company standard PPE. · Additional task specific PPE will be identified and supplied. · A valid Hot Works Permit (Menard or client's permit) to be issued to operatives undertaking works. The permit must be closed out after the hot works task has been completed.			
Welding works causing fire	X	X	X	2	4	8	Fire extinguishers to be provided before works commence, and to be at hand throughout duration of works. Good housekeeping standards are to be maintained at all times to prevent flammable materials igniting. Fire watch to be conducted after works have been completed. All flammable substances and materials to be stored correctly. Flammable substances and materials to be stored away from sources of heat.	1	4	4

RISK ASSESSMENT

							Minimal quantities of flammable substances and materials to be stored on site. Flammable gases and liquids should not be mixed. Refer to the Client or the H&S Department for safe segregation distances. Suitable PPE must be worn including overalls, suitable flame retardant gloves and specialist welding masks with positive air feed.			
Explosion	X	X	X	3	5	15	All flammable substances and materials to be stored correctly. Flammable substances and materials to be stored away from sources of heat. Minimal quantities of flammable substances and materials to be stored on site. Flammable gases and liquids should not be mixed. Refer to the Client or the H&S Department for safe segregation distances.	1	5	5
Harmful gases	X	X	X	3	5	15	Hot works must be undertaken away from other works, trades, and the public. Suitable area to be identified on site for the task. Forced air masks RPE must be used for the welding task. A check on the mask and that positive air pressure is achieved prior to undertaking the task. Where possible all hot works to be undertaken in the open air. Avoid undertaking welding works within a confined area, ensure that there is good air circulation.	1	5	5

RISK ASSESSMENT

							Extractors or local exhaust ventilation to be used when natural ventilation is not possible.			
Transfer of heat.	X	X		3	5	15	Where possible all hot works to be undertaken in the open air. Walls and partitions to be cooled with water before, during and after hot works. Hot works within building should be done away from partition walls. Regular check of possible transfer routes to be undertaken and checks to be completed a minimum of 1 hour after work finishes.	1	5	5
Burns to the welder or other workers' skin or eyes during hot works from sparks/direct heat.	X	X		4	4	16	All staff to wear suitable eye protection such as high impact goggles for grinding/cutting or welding screens during welding operations. Screens to be used during welding to prevent arc eye type injuries to other workers. Exclusion zones to be erected around work area.	1	4	4
Untrained / unauthorised use of equipment	X			4	4	16	All persons to be fully trained and competent to undertake hot works. Only authorised persons to undertake hot works on site.	1	4	4
Manual handling injuries	X			3	3	9	All personnel have been trained in manual handling training techniques. Where possible, mechanical means of lifting should be used in place of manual handling.	2	3	6

RISK ASSESSMENT

							Items of hot works equipment should have appropriate lifting and carrying handles. Individuals to make assessment of weight prior to manual handling. Where weight exceeds individual capacity, team lifting should be considered.			
Contact with other plant or equipment when conducting hot works	X	X		4	5	20	When staff are conducting hot works, they should be clear of vehicle traffic and be working within an exclusion zone. If staff are required to bend or stoop to complete hot works, they should have suitable barriers or signs to alert others of their presence.	1	5	5
Damage to eyes from welding works	X	X	X	3	4	12	Welding screens to be set up and managed around the welding task to prevent harmful light being seen by others around. Welder must wear suitable mask which reduces the light onto the eyes. Set up welding area away from busy areas, access points and close to boundaries which could affect the public.	1	4	4
Damage to fauna or flora			X	3	4	12	Undertake hot works within site and away from site boundaries where wildlife could be harmed. Any observed wildlife and the task must cease, and the welding area reviewed. Undertake hot works within site and away from flora which could get harmed.	1	4	4

RISK ASSESSMENT

WORKPLACE NOISE AND GROUND-BORNE VIBRATION

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Workplace Noise	X	X	X	4	4	16	As a standard precaution, hearing protection must be worn when within 15m of the working equipment. Noisy areas or items of plant where persons have to raise their voices to speak to someone 1m away shall be designated as possible hearing damage areas. These noisy areas should be accurately defined and identified to site operatives within the site specific induction along with all control measures to mitigate exposure. Menard generates noise with the work operations and this is typically around the Menard rig and equipment. The persons at risk are Menard operatives, other site operatives and where applicable, the public. The Principal Contractor must inform Menard of any section 61 construction noise requirements. When notified that works are within a noise sensitive environment, further noise control measures should be considered, these include closing plant engine covers and removing personnel from around working area with exclusion zones. Further measures erecting noise barriers, placing noise producing equipment behind plant to reduce direct noise exposure etc. If high level noise cannot be engineered away as a last resort solution ensure persons exposed to noise be provided with and use suitable ear protectors in the form of plugs or muffs. The plugs and muffs must be properly maintained and replaced as necessary. Items of plant to have a noise assessment, details of	2	4	8

RISK ASSESSMENT

							which are found within the Works Package Plan. The assessment provides sound guidance on sound levels recorded at given distances, the steps to be taken are as follows; The lower exposure level is 80db, for which hearing protection must be made available. The upper exposure level is 85db, for which hearing protection must be worn.			
Ground borne vibration	X	X	X	4	3	12	The Principal Contractor to consider the proximity of structures, features or services adjacent to Menard works. If within 6m of the vibropiling works, control measures should be considered to reduce vibrations against it. Vibration sensitive structures, features or services must be considered further. We would recommend that 21.2.1 non-negligence insurance be sought for our works by the Principal Contractor. Use a vibration monitor to assess vibration levels transmitted by the works at given distances / boundary. Obtain site specific background vibration levels with monitor away from affected area to gain likely vibration levels. Principal Contractor to provide a PPV level to work up to during the works. PPV level may be supplied by property or service provider (i.e. Network Rail, English Heritage, Service provider). Where practical, Principal Contractor to dig an isolation trench between our works and the affected structure/feature/service to minimise level of vibrations transmitted. Trench to be dug ideally to a depth relative to the underside of the adjacent foundation/service. Service may be exposed for safety and effective measures. Pre-Auger positions against structure/feature to minimise duration of vibrations in the ground.	2	3	6
Generation of noise / ground borne vibration from plant and equipment			X	4	3	12	The Principal Contractor is to determine whether planning conditions apply.	3	3	9

RISK ASSESSMENT

and it's affect on environment							Local residents and businesses to be made aware of any works which may create disruptions by the Principal Contractor. If noise emissions could cause pollution, a noise impact assessment should be completed by the Principal Contractor. Reduce noise pollution through careful handling of materials, use modern quiet power tools and low impact technologies where applicable. Refer to ENV 01 for more guidance for plant / equipment.			
Impact of noise on SSSI / natural reserve			X	4	3	12	Consider noise impact on habitats. Lower frequencies of noise to be considered to protect species with sensitive hearing. If necessary, the Principal Contractor is to have a noise management plan (NMP) and to consult environmental agencies. For more guidance please refer to: https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits/noise-and-vibration-management-environmental-permits	3	3	9

RISK ASSESSMENT

RE-FUELLING AND FUEL/OIL STORAGE

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Re-Fuelling	X	X		2	5	10	All oils/fuels/substances must be kept in the correct type of container that is clearly identified and labelled. No refuelling is to take place in the vicinity of any forms of ignition. Engines must be switched off and no use of mobile phones. Ensure that no other persons or trades are present within 5m of the re-fuelling operation. Do not use improvised containers or funnels. i.e old oil drums, water fountain containers. Use mechanical fuel pump on rig, if unavailable re-fuelling can be done manually with suitable hand pump. Re-fuelling must be undertaken away from any watercourses. Fire extinguishers and spill kits to be made available close to operation. Before any refuelling / use of oils and lubes takes place, suitable spill kits, plant nappies or drip trays must be available and placed below the re-fuelling point of the plant or vehicle being refuelled. Refuelling to be carried out in a well-ventilated area only. Company PPE to be worn including protective gloves and safety glasses. COSHH registers must be kept and maintained in all COSHH storage areas.	1	5	5

RISK ASSESSMENT

Noxious Gases And Fumes	X	X		2	5	10	Re-fuel or decant outside in a well ventilated area. To eliminate a surge of fumes or vapours, fuel caps or lids are to be removed slowly and at arm's length to release any build up of pressure slowly. Once the pressure has been released the product can then be handled. Company PPE to be worn including protective gloves and safety glasses. As a minimum, Impervious gloves, and footwear, suitable clothing to protect the skin, and eye protection must be worn when handling chemicals or substances. Ensure washing facilities are available including eye wash and clean water. Respiratory PPE to be used as necessary. Personnel to be face fit tested. Refer to COSHH data sheets for relevant details. Over exposure to fuel or gasses must be reported to site supervision. COSHH registers must be kept and maintained in all COSHH storage areas. Review location of using substance to reduce/remove risk of exposure to public.	1	5	5
Fire and Explosion	X	X		2	5	5	No Smoking within or around refuelling points. Remove heat sources away from refuelling points. No storage of other chemicals or hazardous substances near to refuelling points. All fuels to be kept in the correct type of container as specified by fuel provider and banded. A review of the COSHH data sheet to be done to store correctly.	1	5	5

RISK ASSESSMENT

							Combustible materials are not to be stored near to refuelling points. Firefighting equipment to be located near to refuelling point.			
Accidental Spillage	X	X	X	2	1	2	All bulk fuel storage in large capacity tanks with bund walls must be double skinned and have lockable delivery points and locked when not in use. All hoses to be kept within the bowser when not in use. Any mobile fuel bowzers must be twin axled. Any spillage must be reported immediately to site supervision. Spill kits should be deployed immediately to absorb spilt oils. Any significant environmental incidents must be reported following SAF PRO 9 (CAI). Avoid re-fuelling close to drains or water courses. Plant nappies / Rhino pads must be used when re-fuelling equipment or bowzers. Spill kits must be made available with items of plant. Plant nappies to be available with large items of plant. Oils, grease and other contained substances to be contained within Menard stores container. Drip trays to be present within container. Suitable waste bins are positioned for waste disposal by the Principal Contractor. Refer to ENV01 risk assessment for further guidance.	1	1	1
Dermatitis through contact with fuels and oils	X	X		2	4	8	Impermeable gloves are to be always used when refuelling plant and tools.	1	4	4

RISK ASSESSMENT

or ingestion of fuel and oils							Good personnel hygiene following refuelling operations. Wash hands after re-fuelling to remove any substance. No eating or drinking around refuelling operations. Washing facilities to have hot and cold running water and soap.			
Fuel bowsers struck by site traffic	X	X		2	5	10	All containers are to be stored away from vehicle and pedestrian routes where practically possible. Storage areas to be adequately secured with barriers where practical. Dedicated refuelling points established clearly marked. Banksman to be used when reversing fuel delivery wagons. Plant and site traffic to be banked at all times.	1	5	5
Damaged hoses or pipes	X	X		2	2	4	Hoses to be inspected prior to use. Do not use any defective hoses. Hoses are not to be left lying around on the ground. Damaged or faulty hoses are to be removed and replaced.	1	2	2
Vandalism	X	X	X	3	4	12	Ensure valuable plant/equipment and COSHH materials are kept away from public view as reasonably possible. Storage system valves, taps, hatches or lids and delivery hoses should be fitted with locks and locked when not in use. Where possible materials should be	2	4	8

RISK ASSESSMENT

							stored in secure containers. Where possible immobilise plant and equipment overnight. Store valuable materials, or those that are hazardous or attractive to thieves, in a secure area, out of sight of the public.			
Storage of materials and chemicals	X	X	X	4	4	16	COSHH registers must be kept and maintained in all COSHH storage areas. Store materials away from waste storage containers and from vehicle movements that may cause accidental damage. Store valuable materials, or those that are hazardous or attractive to thieves, in a secure area, out of sight of the public. Storage and use of perishable items (e.g., cement) should follow the "first in first out" rule. Refer to ENV01 risk assessment for further guidance.	1	4	4

RISK ASSESSMENT

MANUAL HANDLING

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Lifting, lowering, pushing, pulling, levering, manipulating, twisting, holding supporting etc.	X	X		3	4	12	Where possible, the use of mechanical aids should be adopted. If not available or practical, ask a colleague for assistance. Assess the lift – Is help required? Manual handling training to be undertaken. Could the load be made smaller or lighter (i.e. Divisible loads could be split down into smaller loads). Good manual handling techniques should be adopted. The legs and thigh muscles should be used. Always maintain the natural shape of the spine. Ensure there are no obstructions to hinder the lift and check that the pathway is clear. Place the feet slightly apart to give a balanced and stable posture for lifting. Adopt a good posture, get a firm grip of the load and keep the load close to the body. Avoid carrying the load for long periods.	1	4	4
Poor housekeeping, wet surfaces, uneven floors, obstructions	X	X		3	4	12	Store all surplus and waste materials appropriately. Keep areas tidy and do not allow materials and equipment to block or cross pedestrian routes. Keep a clear view of your direction at all times. Avoid wet or slippery surfaces. Clear spillages immediately.	1	4	4
Sharp edges, rough surfaces.	X	X		3	3	9	Assess the surface of the object or load for sharp edges and remove or cover them were possible. Wear the necessary PPE at all times, particularly Gloves, Boots, Hard Hat etc.	1	3	3

RISK ASSESSMENT

CONTAMINATED LAND AND PERSONAL HEALTH

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Poor Hygiene	X	X		3	4	12	Hands must be washed before eating or smoking. Cuts/ scratches must be attended to immediately by a first aider, if they happened on site or not. A waterproof dressing must be used to cover the wound. Separate containers or holders must be provided for work and non-work clothes. When leaving site all PPE must be put in lockers or placed away tidily.	1	4	4
Inhaling harmful dust.	X	X	X	3	4	12	The Principal Contractor to advise Menard of any known contaminants within the ground Dust suppression including dampening down the site must be undertaken by the Principal contractor where airborne dust is realised. Suitable respiratory equipment to be used if there is a possibility of air borne contaminants. Where practicable dust suppression should be used. A review of the works by the Principal Contractor must be done considering the generation of dust and wind direction to prevent dust being blown into public areas. The Principal Contractor to cover waste material as practically possible to prevent dust.	1	4	4
Inhaling harmful fumes.	X	X	X	3	4	12	Smoking is prohibited on site. Designated areas for smokers will be clearly marked.	1	4	4

RISK ASSESSMENT

							Equipment to be NRM compliant (where applicable). Manage vehicle movements to reduce travel as reasonably practicable. Switch off vehicle when not in use for long periods of time. Personnel should position themselves on site to avoid inhaling fumes from plant as best possible. Report any exhaust fume issues with plant on daily inspection sheets.			
Skin coming into contact with contaminants.	X	X		3	4	12	The Principal Contractor to advise Menard of any known contaminants within the ground. Persons not to handle soils where possible, thereafter hands must be washed with cleaning product. Hands must be washed before eating or smoking. Cuts/scratches must be attended to by a first aider, if they happened on site or not. A waterproof dressing must be used to cover the wound. Company PPE including gloves must be worn at all times. When leaving site all PPE must be put in lockers. Disposable coveralls will be provided as necessary.	1	4	4
Ingesting contaminated material.	X	X	X	2	4	8	The correct PPE must be worn at all times. A high standard of personal hygiene must be maintained at all times. Hands must be washed before handling food and / or smoking. The consumption of food is strictly forbidden on site and should be done in designated welfare provided or own vehicles. Washing facilities to have hot and cold running water and soap.	1	4	4

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Presence of Asbestos	X	X	X	2	5	10	The Principal Contractor to advise Menard of any known asbestos on the site and if so the type, quantity and measures taken to minimise the risk of exposure to site operatives. This may include removal, dampening down, specialist PPE (including dust masks and overalls) and washing down facilities. Any specialist PPE, training or precautionary measures are to be notified and provided to Menard in advance of the works. Menard operatives to have completed basic asbestos awareness training. Any observed asbestos must be reported immediately to the client for removal/remediation.	1	5	5
Contaminated soils entering water courses and/or environmentally sensitive areas			X	2	3	6	A review of the system should be done to minimise as practically possible the generation of arisings bringing contaminated soils to the surface. All waste material is to be disposed of to designated waste storage areas as set out in the site waste management plan. Measures to prevent run off of contaminated soils entering water courses or environmentally sensitive areas. Avoid storing materials close to watercourses or environmentally sensitive areas. Refer to ENV01 for further guidance.	1	3	3

RISK ASSESSMENT

HAND ARM VIBRATION SYNDROME (HAVS)

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Using Vibrating Hand Tools	X			2	4	8	Use a different method where possible. Only use low vibration tools- below 2.5m/s A(8) if possible. Under no circumstances exceed 5.0 m/s A(8) Ensure that the wheels are of the correct type. Vibration assessment to be undertaken on tools. Make sure abrasive wheels are stored correctly and to be inspected prior to use, check that there are no chipped edges that may cause the wheel to become unbalanced. Make sure that the grinder has been serviced. Source grinders with anti-vibration handles where possible. The operator should take regular breaks. Use an operator rotation system where at all possible. The operator should keep hands warm to ensure good blood supply to fingers. Do not use excessive force on handles of grinder and apply in correct direction of use. Do not press down with excessive force. Wear gloves to keep hands warm. Calculate exposure 'points' with HSE ready reckoner.	1	4	4

RISK ASSESSMENT

PLATE LOAD TESTING

Hazard	Persons affected = X			Pre - Control			Control Measures	Post-Control		
	Worker	Other Site personnel	Public	Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Failure of jack	X	X		2	5	10	Check the safe working load jack and ensure it is sufficient for the load. Ensure loads are free from obstructions Ensure that jack and plate setup is correct and securely and centrally placed to load. Go under the load only for setup purposes only. Vehicle traffic shall be diverted so as not to disturb the load test.	1	5	5
Hit by moving traffic / plant	X	X		2	4	8	If using the rig as kentledge, once the rig is positioned over the test it must be switched off and isolated prior working under rig and undertaking the test. Exclusion zone to be set up around the location of the test. If testing next to areas of traffic/operations, physical fencing should be established.	1	4	4
Failure of hydraulic lines while placing jacks for pressure test and applying pressure.	X	X		3	3	9	Visual inspection of hose lines before use. Slowly increase the pressure. Exclusion zone must be in place. Fenced off with clear signage. Availability of a spill kit nearby in case of oil leakage. Company PPE to be worn including gloves and safety glasses.	1	3	3

RISK ASSESSMENT

							Environmental Considerations:			
							- Undertake testing away from watercourses where possible. - Clean up any hydraulic spill immediately.			
Manual handling of the test plate and equipment.	X			3	3	9	Where available, always use a mechanical aid. Where practical, use 2 people to undertake the lift. As a guide, 25kg can be lifted at the waist. However this must be assessed by the person undertaking the lift. Plan the route of the lift and avoid twisting. Keep legs apart and use your legs to power the lift taking care to avoid bending over as practically possible. Use loading shovel to transport the plates where possible.	2	3	3
Misuse by unauthorised personnel		X	X	2	4	8	Site security must be maintained at all times during testing. Briefing to be undertaken by the Principal Contractor to other site personnel regarding associated hazards.	1	4	4

Appendix B – MEWP Rescue Plan

MEWP RESCUE PLAN GUIDANCE

1. Purpose

- Under normal circumstances, back-up systems built into the MEWP will allow an operator to bring the platform of the machine to ground level under controlled conditions. It is extremely unusual for these systems to fail.
- To ensure that a safe method of rescue is available when all other back-up systems for returning personnel to ground level have failed, the following procedures can be used.

2. Standard Operating Procedure

- Ensure that all normal emergency lowering procedures have been activated. This requires the ignition key to be left in the base machine at all times and full access to the engine compartment where the base machine controls are located.
- Contact the site manager to report failure of back-up emergency lowering systems and request engineering back-up.
- If, after inspection by the engineer, it is not possible to effect a repair to allow the machine to be brought to the ground, the site manager must be contacted for permission to carry out basket to basket rescue.

3. Code of Practice for Mid Air Rescue

- The details of the risk assessment carried out shall be recorded onto the site-specific risk assessment form.
- The rescue machine must be positioned so as to enable the rescue procedure to be carried out without compromising the safety of personnel involved in the rescue.
- The platforms of both machines must be adjacent to each other with a minimal gap between them unless exceptional circumstances mean this is not possible. (Where this is not possible, the circumstances shall be recorded onto the risk assessment form.)
- A double lanyard must be attached to the person being rescued and the anchor points on both machines before the rescue takes place.
- Care must be taken not to overload the rescue machine. This may mean making more than one journey to complete the rescue.

4. Where alternative emergency systems are not possible, consideration should be given for the use of an emergency evacuation system, examples of which are: control descent systems, crane basket rescue (this is not exhaustive).

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

Emergency Situation

Proposed Action

Failure of upper control functions while elevated

Where the normal upper control functions fail, the operator will use the auxiliary controls from the platform to lower the boom safely to the ground.



RISK ASSESSMENT

Failure of the operator to be able to operate the MEWP functions while elevated due to the following reasons: A. Operator incapacitated B. Auxiliary functions fail to operate from upper control station.	Where the operator is incapable of lowering the MEWP using the upper controls, an appointed person familiarised in the use of the lower 'ground' controls will lower the platform safely to the ground using the lower ground controls.
Failure of lower ground controls	Where the lower ground controls fail to allow the boom to be lowered safely to the ground, the appointed person will use the auxiliary ground controls to lower the boom safely to the ground.
Failure of ALL normal and auxiliary lowering functions	Where all normal and auxiliary functions have failed, the appointed person on the ground should refer to BS8460 section 6.6 Rescue from Height. If, after inspection by the engineer it is not possible to effect a repair to allow the machine to be brought to the ground, a second machine will be brought to site where a basket to basket rescue will be carried out. If the operator is incapacitated, in an emergency situation or the equipment's provider is unable to attend site in a timely manner, the emergency services will be contacted to retrieve the operator from height.

NOTE: Any operatives using MEWPS on site must read the control measures and rescue plan arrangements contained within this Risk Assessment. They must sign to say they understand what the requirements are for planning, operating and the emergency rescue arrangements.



Appendix C – Inspection Test Plan (ITP)

Site Name:		Project Number:		Revision Number:	00
Inspection and Test Plan Description:	Ground Improvement by Controlled Modulus Columns			Principal Contractor:	The Principal Contractor
Issuing Company Name:	Menard	ITP Written By:		ITP Checked By:	
		Date:		Date:	
Inspection and Sample Codes					
H	Hold Point	W	Witness Point	R	Review Document
Approval Point					
Inspector Codes					
CE	Contracts Engineer (MENARD)	DE	Design Engineer (MENARD)	SS	Site Supervisor (MENARD)
MENARD	Menard				
PM	Project Manager (P/C)	SM	Site Manager (P/C)	CoE	Consultant Engineer
PC	Principal Contractor				
RO	Rig Operator	PO	Pump Operator (MENARD)	OM	Ops Manager (MENARD)

Item Number	Operation/Activity	Responsibility	Frequency	Verifying Documents/Parameters	Acceptance Criteria				
					MENARD		PC		
					Code	Authority	Code	Inspector	
1.0	Approval of working drawings	PC	Prior to site start	Approved Drawings	H	CE/DE	R/A	PM/CoE	PC to ensure drawings are based on the latest issue foundation drawings and temp work designs. Construction issue drawings are produced by Menard.

2.0	Approval of concrete design	MENARD/PC	Prior to site start	Mix Design	H	DE	R	PM/CoE	Menard to approve specified strength, aggregate size and slump. PC/CoE to confirm mix is compliant with specification for sulphate resistance.
3.0	Satisfactory working platform installed to support MENARD equipment	PC	Prior to site start	Working platform certificate Rig bearing loads Platform to extend 2m past working areas and should be level and capable of supporting the rig bearing loads supplied	H	SS/CE	A	SM	Satisfactory testing results as stipulated in the temporary works design Sign-off of working platform certificate Daily inspections of working platform.
4.0	Setting out of all CMC positions – Survey Control	PC	Prior to installation of CMC	Site engineer to check coordinates for key setting out points Check of base stations Check of column positions on the ground	H	SS	H	SM	Visual Inspection Accurate setting out to be carried out PC
5.0	Checking and setting out of service locations	PC	Prior to site start	Service drawings Permit to dig CAT scanning of working area carried out by PC	H	SS	A	SM	Permit to dig signed off per area with service drawings attached.
6.0	Installation tolerance	MENARD	Each CMC position	Installation tolerance of 150mm all directions in plan on set out CMC position.	H	SS/RO	W	SM	Visual Inspection – rig banked into position by banksman ensuring CMC auger is sighted directly on setting out point. Controlled in real time by the rig operator, recorded on the rig computer and checked by the supervisor.
7.0	Calibration drillings/Calibration of CMC equipment with existing	MENARD	Prior to installation of CMC and undertaken	CPT/BH logs Calibration with design engineers interpolation from	R/A W	DE/CE RO/SS	W	CoE/ SM	Findings of soils in line with CPT logs and anticipated depths.

	site investigation logs.		sectional through the duration of the works	existing SI logs.					
8.0	Boring ground to required depth. Definition of a practical refusal criteria based on site investigation and preliminary calibration drilling	MENARD	Throughout the works/Each CMC position	Relevant Site Investigation Logs Start Up Instruction Document Daily quality sheets Calibration Drillings Monitored in real time by the RO on the rig computer	H	SS/CE	R	SM	Required anchorage achieved in anchorage layer based on calibration drillings and design report.
9.0	Columns formed with the required concrete volume	MENARD	Throughout the works / each CMC position	CMC Auger tool diameter must be measured to check correct diameter. Concrete pump calibrated at the start of the contract. This must also be done where there is a change in concrete mix, batching plant source or equipment. Satisfactory concrete pressure achieved during construction. Monitored real time by the RO who ensures positive concrete pressure throughout the extracting process. Consistent column profile constructed using correct number of pump strokes for the volume required.	H	RO/SS/CE	R	SM/PM	Daily quality sheets issued within as built package.
10.0	Concrete Slump	MENARD	1 st wagon of the day. 1 in every 3 deliveries per rig or as seen	Slump test undertaken in accordance with BS EN 12350-2 and recorded on concrete record sheet.	H	PO/SS	W	SM	Concrete flowing through the lines correctly. Slump to be within tolerance. No segregation of mix.

			necessary by the PO/SS. Where there is a change in mix design.	Slump to be S4. Pump man to inspect mix for bleeding/segregation. Wagon rejected if does not meet specification/approved mix design.					
11.0	Concrete Strength	MENARD	1 set of 5 cubes per rig, per day. Cubes to be tested 2x 7 days, 2x 28 days & 1x spare	Concrete Cube Tests to be undertaken in accordance with BS EN 12390-2 Testing to be in line with quality plan. Sample to be taken from the middle of the load.	H	PO/ SS / CE	R	SM	Concrete cube tests achieving target strength at 28 days. 7-day strength test to show trend positively achieving the design requirement.
12.0	Obstructions encountered	MENARD	Each obstruction encountered	Each obstruction to be reviewed for depth, location, and size by the DE. Where possible Menard to re-position CMC 500mm to the side of original CMC position. Should this fail, a re-position 500mm to the opposite side of the original position be undertaken. Should this fail, additional CMC positions shall be attempted beyond 500mm with additional CMC's installed on the opposite side to cover the design.	H/R	RO/SS/ CE/DE	H/R/A	SM	CMC's installed to provide coverage to satisfy the design. Redesign reviewed by all parties prior to installation of additional columns. As-built drawing to be updated to record any re-positioned CMC's.
13.0	Load Testing	MENARD	600mm plate on prepared CMC head. Locations as agreed on site. Target 7 days after	Plate Load test to 1.5 times nominal load or 40t max following 9 steps as described in Menard Method Statement.	H/R	SS/DE/ CE	R	SM	Settlement complies with Menard design report document. Load Test Results

			CMC installation	Menard Load Test Report.					
14.0	Trimming of CMC's	PC	CMC's to be trimmed when concrete fresh after installed to correct level.	Excavator to trim the upper section of CMC from working platform level when concrete fresh and mix with granular material to place back on top. Guidance on trimming to be followed at all times. Undertaken to protect top of CMC and allow a sufficient level of granular distribution material above head of CMC. Trimming should be to the underside of the load distribution mat or underside of foundation. Distribution mat as detailed in the design report. Level checks to be undertaken by PC	H	SS	H/R	SM	CMC's trimmed to correct level and mixed with granular material. Minimum thickness of required load distribution mattress to be achieved. Trimming to be done on the day of installation.
15.0	Inspection and handover of works	MENARD	Upon release of sections of work	A visual inspection undertaken on site prior to handover. Quality sheets and as-built drawings produced by Menard to be issued and reviewed.	R	SS/CE/DE	R	SM	Upon satisfactory review of works, working area to be handed over to PC.
16.0	Remedial Works (if applicable)	MENARD	If Required	NCR process (if applicable) Repair of non-conformance work (if applicable). Further test results	H	SS/CE/DE/OM	R	PM	Re-tests comply to specs and design.

Appendix D – Working Platform Certificate

Project Name	
Work area covered by this certificate	

(A sketch or marked up pile layout drawing may be attached to this certificate. Include haul roads and gridlines.)

Part 1 – WORKING PLATFORM DESIGN (INCLUDING RAMPS AND ACCESS ROUTES)

Equipment to be used on site.	
Maximum plant loading	

(Note: BR470 'Working Platforms for Tracked Plant: Good practice guide to the design, installation, maintenance and repair of ground-supported platforms' is available from IHS BRE Press – Tel 01344 328 038)

Designer Name		Tel No.
Designer Organisation		
Specification of testing required to verify the design		

Part 2 – VERIFICATION BY PRINCIPAL CONTRACTOR

The working platform detailed above has been designed, installed to the design and, if specified, tested to safely support the equipment detailed in Part 1 above. The limits of the platform have been clearly identified on site as necessary.

The working platform will be REGULARLY INSPECTED, MAINTAINED, MODIFIED, REPAIRED, and REINSTATED to the as-designed condition after any excavation or damage, throughout the period when the equipment is on the site. A completed copy of this certificate signed by an authorised person from the Principal Contractor shall be given to each user of the working platform prior to commencement of any works on site.

Name & Position		Date
Organisation	Signature	

The HSE has worked closely with the FPS to develop this initiative and supports the principle of reducing accidents by the certification of properly designed, prepared and maintained working platforms

Working Platform Regular Inspection Log

(To be completed by an authorised representative of the Principal Contractor)

The working platform has been inspected *prior to handover and provides safe access for people and plant*. All necessary maintenance, modification, repair or re-instatement of the working platform is to the as-designed installed condition. If necessary, a revised Working Platform Layout Drawing has been issued to the specialist contractor.

Date	Organisation	Name & Position	Signature	Comments (include key details of alteration, modification, maintenance, repair, date of next inspection, and whether or not revised drawing issued etc. as appropriate)

Guidance on working platforms for tracked plant

1. Design

- 1.1. The HSWA 1974 and CDM Regulations 2015 require the Principal Contractor to appoint competent Designers in respect of Working Platform design. This legislation explains how competence can be assessed by reference to professional qualifications or professional memberships and by reference to practical experience of the design of working platforms. Principal Contractors must be satisfied that a competent Designer has been appointed by them in accordance with the relevant legislation before they complete and sign the WPC.
- 1.2. The stability of tracked plant is fundamentally dependent upon the provision of a suitable and sufficient working platform. It must be properly designed and installed to a recognised standard. Whilst the same type of rig may be operated by different companies, the design bearing pressures may differ due to the specific operating configuration of the rig and/or any modifications. Details of the plant to be used and bearing pressures will be provided by the specialist contractor in advance of work commencing.
- 1.3. Working platform design is extremely sensitive to the bearing pressure and type of fill used in the platform. (For example, changing the angle of friction of the fill from 35 degrees to 45 degrees can halve the platform thickness.) It is therefore advised that the Designer may have to adopt conservative/cautious estimates of platform shear strength unless higher values can be demonstrated by testing or with reference to appropriate published data.
- 1.4. The working platform must be *safe for pedestrian access* and free draining to prevent the build-up of water and slurry. It must be free from harmful materials and contaminants. In the case of fine-grained sub-grades, a separation/filter membrane should be installed beneath the platform material to inhibit 'pumping' and infiltration of the fine-grained soils up into the platform material during wet weather (which can impair platform performance and increase maintenance costs).
- 1.5. Proof testing of the platform can be carried out with a suitably sized circular plate subjected to the maximum design loading. Such testing, as part of an appropriately designed testing regime, should highlight any gross inconsistencies in platform performance. Potentially, significant savings in platform thickness and cost may be realised by adopting a more detailed testing strategy.
- 1.6. The working platform must have a design life which starts before delivery of the piling equipment and ends on completion of all piling works. This includes load testing, integrity testing, investigation of non-conformances and any remedial works.
- 1.7. The specialist contractor is to advise the Principal Contractor at the earliest practicable opportunity should the specialist contractor become aware of any circumstances relating to the working platform that renders it unsafe.

2. Installation

- 2.1. The FPS Working Platform Certificate is mandatory for all sites where a rig or attendant plant operates. It must be signed by an authorised representative of the Principal Contractor. This signature confirms that the legal duties required under CDM have been carried out.
- 2.2. If the working platform is to be constructed or removed in phases while piling works are ongoing, then the extent of the platform must be clearly defined on the certificate and, in accordance with good practice, physically on site. This is particularly important where the platform material is removed from an area previously made available to the specialist contractor.
- 2.3. The working platform *must* provide *safe* access for all plant deliveries, sub-contractors and personnel associated with the specialist operations. Properly designed and installed, the working platform could also provide suitable and safe access for following trades for the whole project.
- 2.4. Poor definition of the edge of the working platform is a major cause of tracked plant instability. It is good practice that the working platform should extend at least 2m beyond the pile position/edge of the building to ensure sufficient safe working area for the specialists personnel and attendant plant. Where having to work within this 2m zone is unavoidable the Designer is to be informed of the requirement to design the platform for working up to its edge.
- 2.5. Where access ramps are used to move between working levels these must be of sufficient gradient and width to allow the plant to move safely with the stability constraints of the machine. Ramps must be in a straight line between working areas. Rigs and cranes cannot change direction on ramps. Where a change in direction is required, this must be on a flat level platform.

3. Maintenance, modification, repair and reinstatement

- 3.1. The working platform must be kept free draining. Water and slurry which is allowed to build up on the working platform can hide such hazards as recently constructed piles, trip hazards, uneven or unstable ground, services and excavations. Slurry can be transferred to work equipment which increases the risk of slips on steps as well as difficult handling of work tools.
- 3.2. Obstructions encountered during installation of the piling works will generally require excavation to remove them. This can create a 'soft spot' which can result in the rig overturning. It is essential, therefore, that any excavations made in the working platform are reinstated to the designed standard, including any reinforcement and separation filter/membrane.
- 3.3. The working platform shall be subject to regular inspection by a competent individual appointed by the Principal Contractor (e.g. the Temporary Works Co-ordinator) throughout its design life and after any reinstatement or any works which might have modified it. Any damaged or inadequate areas identified must be reinstated to the designed standard. Following the regular inspection, the Working Platform Regular Inspection Log shall be signed by an authorised representative of the Principal Contractor and issued to the specialist contractor with a layout drawing of the working platform amended as appropriate.

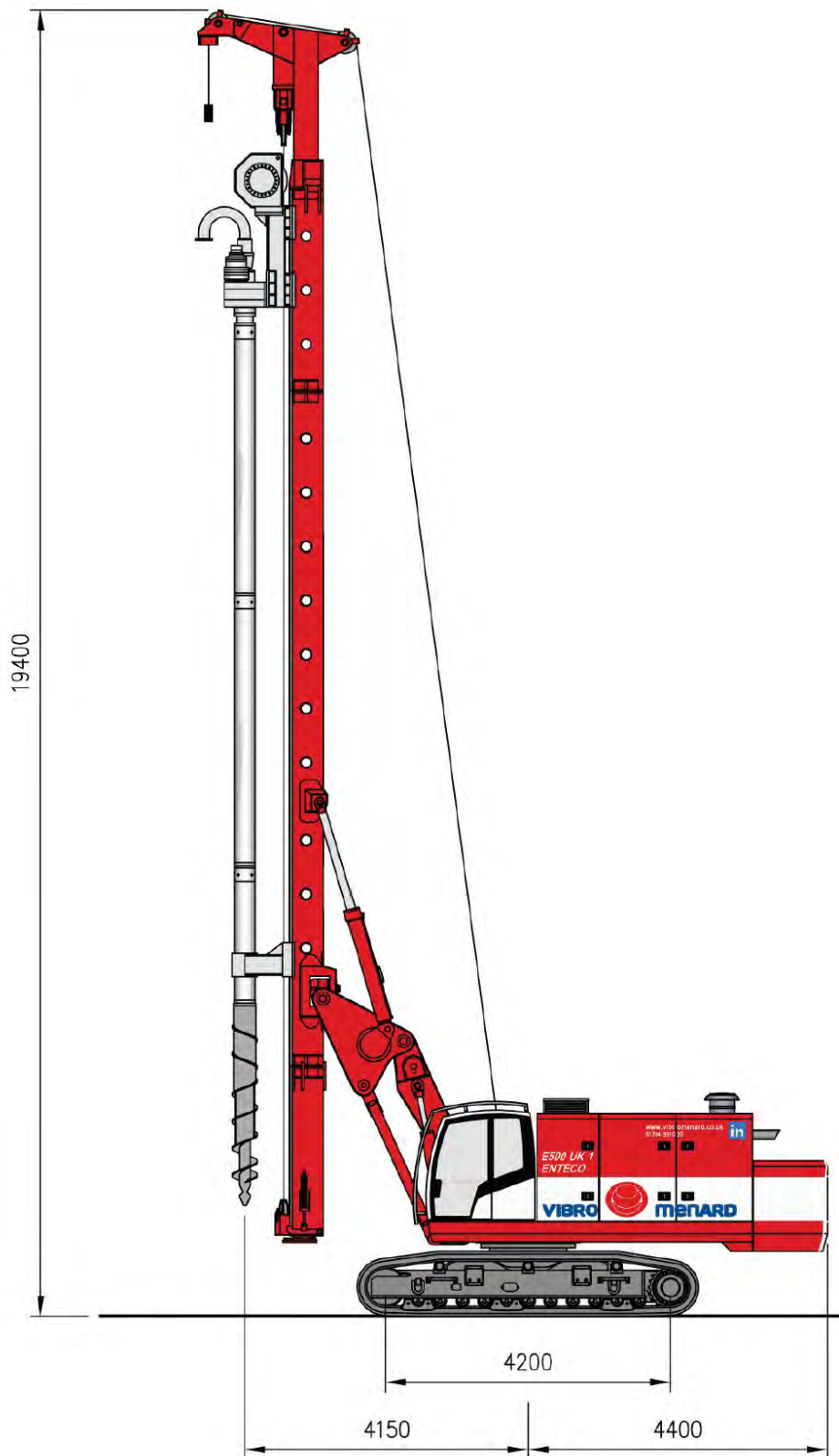
4. Working Platform Layout

- 4.1 Items that must be included and properly located on the working platform layout drawing and be notified by the Principal Contractor to the specialist contractor would include: detail of platform edges and 2m delineation, trial pits, services or voids, areas of backfilling, known underground basements; areas that are covered by the certificate or permit, test locations (if specified by the Designer of the platform) and any other feature that may affect the safety of operations.

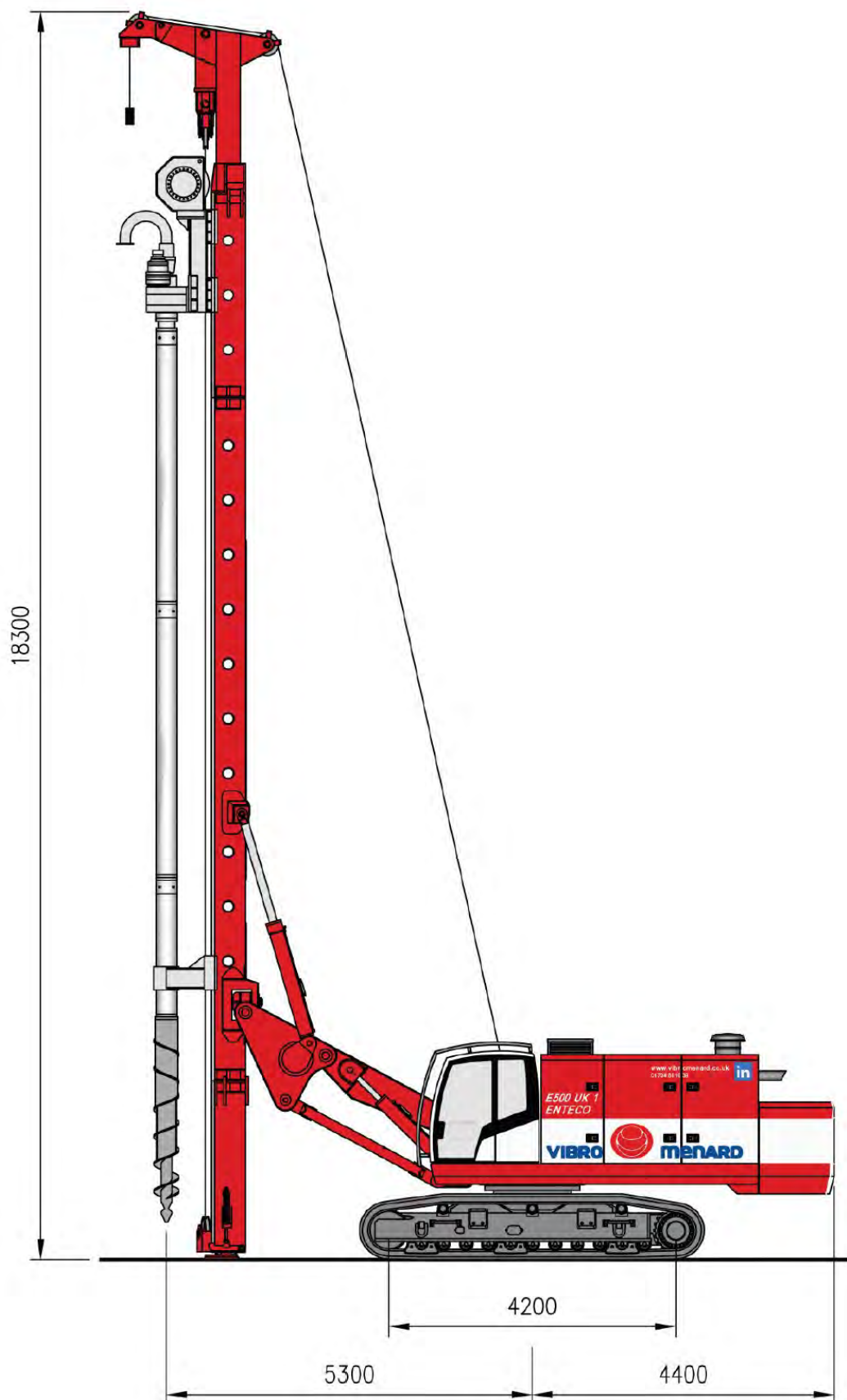
Appendix E - Equipment, Noise & Vibration Data Sheets

Enteco E500 Rig Data – Standard Configuration
Operating Weight = 59Tn

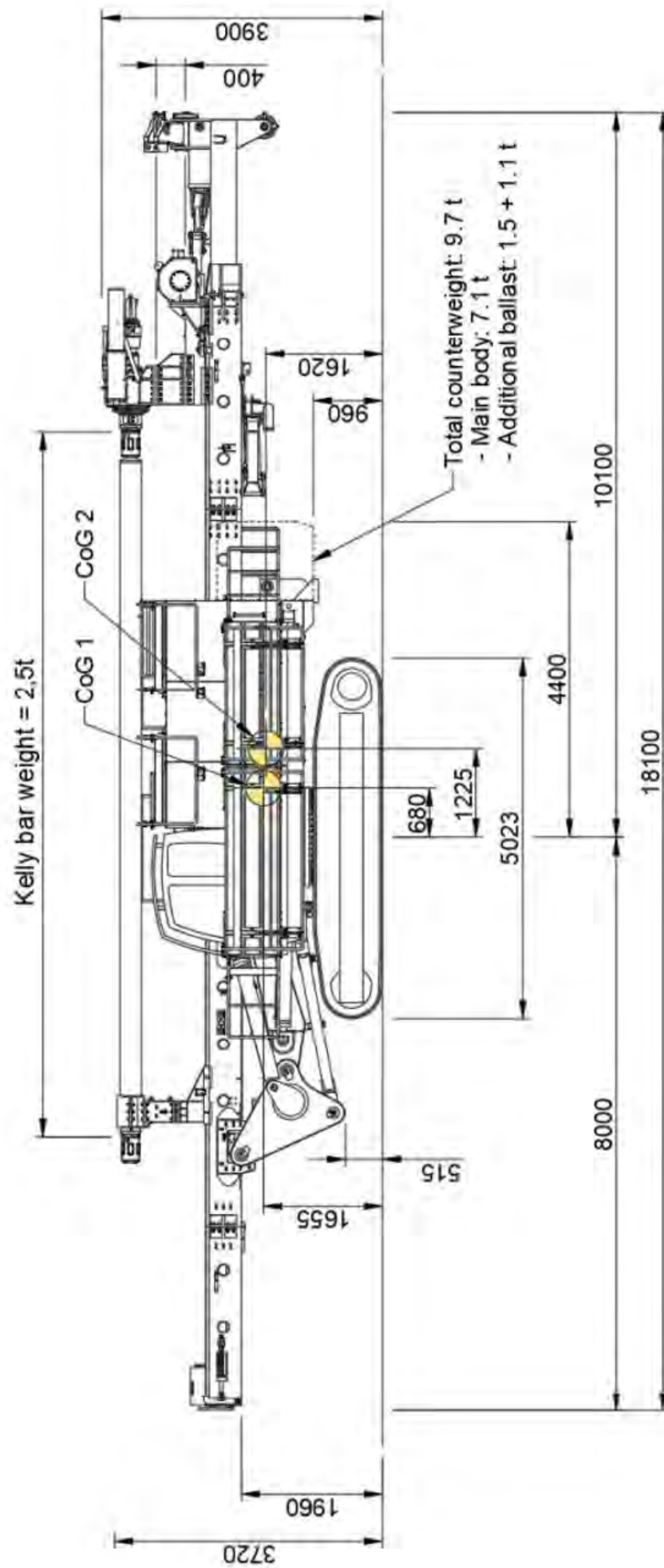
Minimum Working Radius



Maximum Working Radius



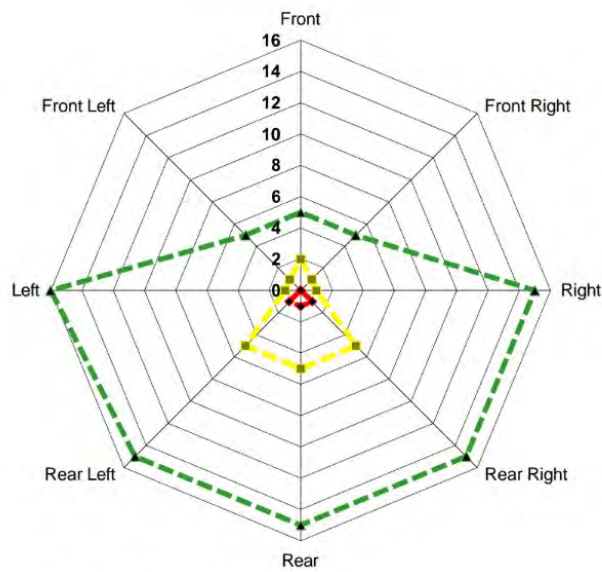
Transport Configuration



Rig Bearing Loads

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures							
Note: The disclaimer on the first worksheet applies to all tables in this workbook							
Rig Manufacturer :		Enteco		Rig Type & Serial No.		E500	0
Operation mode:		Controlled Modulus Columns - 6m Kelly Ext.		Date:		26/03/2024	
Completed by:		David Rickson		Checked by:		David Rickson	
Main Components - Slewing:							
Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)	
Slewing Components Totals/Resultant (with $\theta=0$)							
UPPER WORKS	9,350	92	0.00	4.40	-404	0	
LOWER WORKS	13,220	130	0.00	-0.27	35	0	
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	10,613	104	0.05	5.16	-537	5	
COUNTERWEIGHT	9,600	94	0.00	-4.40	414	0	
OTHER	0	0	0.00	0.00	0	0	
TOTAL/RESULTANT (with $\theta=0$)	42,783	420	0.01	1.17	-491	5	
Foot Pads - Slewing :							
Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension	
	m ²	kN	m	m			
Front Pad 1	0.60	-210	0.00	4.40	1.0 x 0.6m	Rectangular	
Front Pad 2	0.00	0.00	0.00	0.00	None	None	
Rear Pad 1	0.00	0.00	0.00	0.00	None	None	
Rear Pad 2	0.00	0.00	0.00	0.00	None	None	
Forces - Slewing							
		Force	X - Coordinate	Y - Coordinate			
		kN	m	m			
Maximum Extraction Force (kN)		300	0.05	5.16	Must be inline with suspended equip't.		
Maximum Penetration Force (kN)		-300	0.05	5.16	-ve Must be inline with suspended equip't.		
Maximum Auxillary Force (kN)		50	0.40	5.50			
Main Components - Non-Slewing:							
Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)	
Lower Works Non-Slewing (undercarriage/tracks etc)	Tracks & Undercarriage	15200	149	0.00	0.00		
				0.00	0.00		
				0.00	0.00		
TOTAL/RESULTANT (with $\theta=0$)	15,200	149	0.00	0.00	0	0	
TOTAL RIG MASS	57,983						
Tracks							
Track bearing length (m)	4.19		Can the Rig Slew?		YES		
Track pad width (m)	0.80						
Distance between centrelines of tracks (m)	3.20						
Pressure Summary for Platform Design (unfactored)							
MODE	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q_{eq} (kPa)	BRE LOAD CASE (1 or 2)	Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	Algebraic sum of forces (kN)
Standing	2.70	0.80	168	1	0.54	0.41	0
Travelling	2.70	0.80	168	1	0.54	0.41	0
Handling	2.40	0.80	200	1	0.64	0.49	20
Penetrating	1.22	0.80	234	2	0.96	0.73	-100
Extracting	1.91	0.80	274	2	0.81	0.62	300
Other	Not Used	-	-	0	-	-	0
Note: The disclaimer on the first worksheet applies to all tables in this workbook				 Notes - Maximum load to be lifted on auxiliary line is 2Tn. - Mast foot to be on floor when handling with auxiliary line. - Penetration force limited to 11Tn. Operator to be vigilant with force exerted on machine during penetration stage.			

Noise Assessment



NOISE ASSESSMENT
RIG: ENTECO E500 UK1
DATE: FEBRUARY 2023
TIME:12:00
ASSESSOR: M MEARNs
POSITION: H&S MANAGER

Radial scale in metres
from centre

Noise Levels

--- 80dB(A)
 --- 75dB(A)
 --- 60dB(A)

Cab dB(A)
 Door Open: 66
 Door Closed:62

Noise Level Readings

	80dB(A)	75dB(A)	60dB(A)
Front	0	2	5
Front Right	0	1	5
Right	0	1	15
Rear Right	1	5	15
Rear	1	5	15
Rear Left	1	5	15
Left	0	1	16
Front Left	0	1	5

Rev: 02

Appendix F – Gloves Guidance



menARD

Glove Guidance



ACTIVITY / DEPARTMENT	PERSONS AT RISK	POTENTIAL INJURY TYPE(S)	SUGGESTED GLOVES FROM CLAD	CONTACT GLOVES (NO CUT RESISTANCE)	HEAVY DUTY (RIGGER)	HEAVY DUTY NON SLIP	CHEMICAL RESISTANT	THERMAL GLOVES	CUT RESISTANT L5	CUT RESISTANT L4	CUT RESISTANT L3	FLAME RETARDANT
CMC's & VCC's												
General Wear	Supervisor & Operator	Abrasion	AX-011 	Yes								
Setting Out	Supervisor	Abrasion	AX-011 	Yes								
Lifting test plate & equipment	Supervisor & Operator	Abrasion	AX-011 	Yes								
Rigging / De-Rigging	Supervisor & Operator	Abrasion, Puncture & Cut	ABS-WG718 		Yes		Yes		Yes			
Equipment Maintenance	Operator	Abrasion, Puncture & Cut	ABS-WG718 		Yes		Yes		Yes			
Re-fuelling	Supervisor & Operator	Hazardous material protection	ACO-GO10 	Yes			Yes					
Cold weather working	Supervisor & Operator	Cold numbing of hands	AX-078 		Yes			Yes				
Heavy duty oil / fuel / grease handling	Supervisor & Operator	Hazardous material protection	AX-075 	Yes	Yes		Yes					
Delicate oil / fuel / grease / liquid handling	Supervisor & Operator	Hazardous material protection	ACO-GO10 	Yes			Yes					
Working with Concrete	Operator	Hazardous material protection	AX-075 	Yes	Yes		Yes					

Appendix G – COSHH Data Sheets

COSHH Register

Diesel
Hydraulic Oil
Engine Oil
Gear Oil
Adblue
Readymix Concrete
Prime-a-pump
Mould Oil
Aggregates
Dust
Antifreeze

COSH SUMMARY SHEET				www.alcumusgroup.com	
FACILITY	BSL	MAIN	01	SUB	102
MATERIAL/PROCESS READY MIX CONCRETE HIGH HAZARD LIQUID SUPPLIER CEMEX UK OPERATIONS LTD KEYWORD Cement CONTENTS Portland Cement (<2PPM CR VI), Respirable Silica < 10.00%, Chromium (VI) compounds				 HEALTH HAZARDS Causes serious eye damage Causes skin irritation Prolonged skin contact with wet cement can cause burns/skin ulceration Skin contact with wet cement can cause irritant contact dermatitis May cause ill health if ingested in quantity CONSIDERATIONS 	
SIGNAL WORD DANGER EXP LIMIT Portland Cement (<2PPM CR VI) 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL					
METHOD Pouring	AREA Outside	EXPOSURE TIME 4 to 8 hours per shift		SPILLAGE	
HIGH RISK - FULL EXPOSURE				Ventilate area Wear heavy duty impervious gloves Suitable eye protection must be worn Wear protective overalls & chemical proof footwear Scoop or scrape up and place in suitable container Dispose or recycle of spillages in a controlled manner	
CONTROL MEASURES				FIRST AID	
HIGH RISK - INDIVIDUAL ACTIVITY				Ensure access to eyewash station for emergency use Ingestion - do not induce vomiting Ingestion - wash out mouth with water If feeling unwell consult your doctor immediately Eye contact - irrigate using eyewash & get immediate medical attention Skin - remove contaminated clothing In case of burns immerse affected area in water Get prompt medical attention	
 KEEP SKIN COVERED  HEAVY DUTY IMPERVIOUS  WET CEMENT  BS EN166 GRADE 3   WASH AFTER CONTACT  IF SOILED 				FIRE Isolated small scale fire: Water fog - carbon dioxide - powder - foam Large fire - evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing	
 ACTIVITY COMMENTS Wet cement.				This assessment was compiled by Alcumus Sygol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464 Printed 25/02/2016	
DATE ASSESSMENT REVIEWED 12/03/2016				LATEST SAFETY DATA SHEET REFERENCE 11/2011	
COSH SUMMARY SHEET				www.alcumusgroup.com	
FACILITY	BSL	MAIN	01	SUB	42187
MATERIAL/PROCESS PRIME-A-PUMP MEDIUM HAZARD SOLID SUPPLIER CONCRETE PUMPING PRODUCTS LTD KEYWORD Additive CONTENTS Sodium carbonate 30-50%				 HEALTH HAZARDS Causes serious eye irritation May cause ill health if ingested in quantity Skin - irritation and dermatitis may result from prolonged contact When using do not eat, drink or smoke CONSIDERATIONS	
SIGNAL WORD WARNING EXP LIMIT Sodium carbonate 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL					
METHOD Mixing	AREA Outside	EXPOSURE TIME Up to 1/2 hour per shift		SPILLAGE	
LOW RISK - FULL EXPOSURE				Ventilate area Wear nitrile gloves Wear eye protection (bs en166) Wear RPE with particulate filter p if significant dust generated Wear protective clothing if whole container is split Do not dry sweep - either suppress dust or clear using hepa vacuum Collect into a container, close lid Dispose or recycle of spillages in a controlled manner	
CONTROL MEASURES				FIRST AID	
LOW RISK - INDIVIDUAL ACTIVITY				Inhalation - remove to fresh air and rest After a significant exposure or if feeling unwell call for medical assistance immediately Ingestion - do not induce vomiting Ingestion - give plenty of water in sips If feeling unwell consult your doctor immediately Eye - irrigate with water for at least 15 minutes Skin - wash with soap/cleaner and rinse with water If irritation persists then consult a doctor	
 KEEP SKIN COVERED  NITRILE  AND  LEV OR  FILTER TYPE P2  WASH AFTER CONTACT  IF HEAVILY SOILED  VACUUM UP DUSTS  OR STORE WITH ACIDS 				FIRE Isolated small scale fire: Use extinguishers suitable for other materials involved in fire Large fire - evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing Toxic fumes are produced when material is involved in a fire	
 ACTIVITY COMMENTS Mixing large quants with water.If dust generated Use RPE as interim pending monitoring, or for one-off tasks.If LEV used, monitor to verify it controls to below the OEL.				This assessment was compiled by Alcumus Sygol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464 Printed 10/10/2017	
DATE ASSESSMENT REVIEWED 10/10/2017				COSH SUMMARY SHEET REFERENCE 11/2011	

COSHH SUMMARY SHEET				www.alcumusgroup.com		
FACILITY	BSL	MAIN	01	SUB	72922	
MATERIAL/PROCESS					HEALTH HAZARDS May cause ill health if ingested in quantity May cause eye irritation Skin - irritation and dermatitis may result from prolonged contact Mechanically degraded mineral oil may cause skin cancer When using do not eat, drink or smoke	CONSIDERATIONS
MOULD OIL						
MEDIUM HAZARD						
LIQUID						
SUPPLIER VARIOUS						
KEYWORD Oil (Mineral)						
CONTENTS Not classified as hazardous under the CLP regulations: 100%, Mineral oil *						
SIGNAL WORD NONE						
EXP LIMIT 5mg/m3 15mSTEL,10mg/m3 8hrTWA oil						
METHOD	Hand applying	AREA	Outside	EXPOSURE TIME	Up to 1/2 hour per shift	SPILLAGE
CONTROL MEASURES			HIGH RISK - FULL EXPOSURE			Ventilate area Wear nitrile gloves Wear eye protection if splash likely Wear protective clothing if whole container is split Absorb in sand or inert absorbent material Collect into a container, close lid Dispose or recycle of spillages in a controlled manner
LOW RISK - INDIVIDUAL ACTIVITY						
						
KEEP SKIN COVERED			NITRILE			IF SPLASH LIKELY
						WASH AFTER CONTACT
						IF SOILED
						FIRST AID Inhalation - remove to fresh air and rest After a significant exposure or if feeling unwell call for medical assistance immediately Ingestion - do not induce vomiting Ingestion - give plenty of water in sips If feeling unwell consult your doctor immediately Eye - irrigate with water for at least 15 minutes Skin - wash with soap/cleanser and rinse with water If irritation persists then consult a doctor
						FIRE Isolated small scale fire: Powder - foam - carbon dioxide (CO2) Do not use water Large fire: evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing Toxic fumes are produced when material is involved in a fire
Alcumus Your Trusted Partner			Alcumus Your Trusted Partner			
DATE ASSESSMENT REVIEWED 10/10/2017			LATEST SAFETY DATA SHEET REFERENCE 29/02/2008			

COSHH SUMMARY SHEET				www.alcumusgroup.com		
FACILITY	BSL	MAIN	01	SUB	72922	
MATERIAL/PROCESS					HEALTH HAZARDS May cause ill health if ingested in quantity May cause eye irritation Skin - irritation and dermatitis may result from prolonged contact Mechanically degraded mineral oil may cause skin cancer When using do not eat, drink or smoke	CONSIDERATIONS
MOULD OIL						
MEDIUM HAZARD						
LIQUID						
SUPPLIER VARIOUS						
KEYWORD Oil (Mineral)						
CONTENTS Not classified as hazardous under the CLP regulations: 100%, Mineral oil *						
SIGNAL WORD NONE						
EXP LIMIT 5mg/m3 15mSTEL,10mg/m3 8hrTWA oil						
METHOD	Hand applying	AREA	Inside Well Ventilated	EXPOSURE TIME	2 to 4 hours per shift	SPILLAGE
CONTROL MEASURES			HIGH RISK - FULL EXPOSURE			Ventilate area Wear nitrile gloves Wear eye protection if splash likely Wear protective clothing if whole container is split Absorb in sand or inert absorbent material Collect into a container, close lid Dispose or recycle of spillages in a controlled manner
HIGH RISK - INDIVIDUAL ACTIVITY						
						
KEEP SKIN COVERED			NITRILE			IF SPLASH LIKELY
						WASH AFTER CONTACT
						IF SOILED
						FIRST AID Inhalation - remove to fresh air and rest After a significant exposure or if feeling unwell call for medical assistance immediately Ingestion - do not induce vomiting Ingestion - give plenty of water in sips If feeling unwell consult your doctor immediately Eye - irrigate with water for at least 15 minutes Skin - wash with soap/cleanser and rinse with water If irritation persists then consult a doctor
						FIRE Isolated small scale fire: Powder - foam - carbon dioxide (CO2) Do not use water Large fire: evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing Toxic fumes are produced when material is involved in a fire
Alcumus Your Trusted Partner			Alcumus Your Trusted Partner			
DATE ASSESSMENT REVIEWED 10/10/2017			LATEST SAFETY DATA SHEET REFERENCE 29/02/2008			

MATERIAL/PROCESS

GENERIC - DIESEL

SUPPLIER VARIOUS

KEYWORD Fuel (Diesel)

SIGNAL WORD DANGER

MEDIUM HAZARD

LIQUID

METHOD	AREA	EXPOSURE TIME	ACTIVITY COMMENTS
Pouring	Outside	Up to 1/2 hour per shift	
MEDIUM RISK - FULL EXPOSURE			
LOW RISK - INDIVIDUAL ACTIVITY			

CONTROL MEASURES

KEEP SKIN COVERED

POLYTHENE OR NITRILE

IF CONTACT LIKELY

WASH AFTER EXPOSURE

IF SOILED

CLOSE ALL CONTAINERS

FLAMMABLE / ACUTE

HEALTH HAZARDS

Flammable liquid and vapour

May be fatal if swallowed and enters airways

Suspected of causing cancer

May cause damage to organs through prolonged or repeated exposure

Harmful if inhaled

Causes skin irritation

May cause eye irritation

Toxic to aquatic life with long lasting effects

MATERIAL/PROCESS

GENERIC - DIESEL

SUPPLIER VARIOUS

KEYWORD Fuel (Diesel)

SIGNAL WORD DANGER

MEDIUM HAZARD

LIQUID

METHOD	AREA	EXPOSURE TIME	ACTIVITY COMMENTS
Pouring	Inside Well Ventilated	Up to 1/2 hour per shift	
MEDIUM RISK - FULL EXPOSURE			
LOW RISK - INDIVIDUAL ACTIVITY			

CONTROL MEASURES

KEEP SKIN COVERED

POLYTHENE OR NITRILE

IF CONTACT LIKELY

WASH AFTER EXPOSURE

IF SOILED

CLOSE ALL CONTAINERS

FLAMMABLE / ACUTE

HEALTH HAZARDS

Flammable liquid and vapour

May be fatal if swallowed and enters airways

Suspected of causing cancer

May cause damage to organs through prolonged or repeated exposure

Harmful if inhaled

Causes skin irritation

May cause eye irritation

Toxic to aquatic life with long lasting effects

COSH SUMMARY SHEET				www.alcumusgroup.com	
FACILITY	BSL	MAIN	01	SUB	16396
MATERIAL/PROCESS SHELL TELLUS OIL 46 MEDIUM HAZARD LIQUID SUPPLIER SHELL UK OIL PRODUCTS LIMITED KEYWORD Oil (Mineral) CONTENTS Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 100% Gas oils (petroleum) hydrosulphurised 1 - 3%, Additives SIGNAL WORD NONE EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA HEALTH HAZARDS Harmful to aquatic life with long lasting effects Mechanically degraded mineral oil may cause skin cancer May cause ill health if ingested in quantity May cause eye irritation CONSIDERATIONS 					
METHOD Pouring HIGH RISK - FULL EXPOSURE		AREA Inside Well Ventilated MEDIUM RISK - INDIVIDUAL ACTIVITY		EXPOSURE TIME 1/2 to 2 hours per shift SPILLAGE Ventilate area Wear polythene or nitrile gloves Wear eye protection if contact likely Wear respiratory protection for large spills in poorly ventilated areas Wear protective overalls and footwear for large spillages Absorb in sand or inert absorbent material Small spills - wipe up with cloth Collect into a container, close lid Dispose or recycle of spillages in a controlled manner	
CONTROL MEASURES KEEP SKIN COVERED POLYTHENE OR NITRILE IF CONTACT LIKELY WASH AFTER USE IF SOILED CLOSE ALL CONTAINERS CHRONIC HAZARD				FIRST AID Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill Ingestion - do not induce vomiting, wash out mouth with water If feeling unwell consult your doctor immediately Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor FIRE Isolated small scale fire: Carbon dioxide - powder - foam - inert material Large fire: evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing Toxic fumes are produced when material is involved in a fire	
ACTIVITY COMMENTS				This assessment was compiled by Alcumus Sygol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464 Alcumus Your Trusted Partner Printed 27/02/2018 VIBRO WESTPILE	
DATE ASSESSMENT REVIEWED 17/10/2017				LATEST SAFETY DATA SHEET REFERENCE 09/03/2017	

COSH SUMMARY SHEET				www.alcumusgroup.com	
FACILITY	BSL	MAIN	01	SUB	16396
MATERIAL/PROCESS SHELL TELLUS OIL 46 MEDIUM HAZARD LIQUID SUPPLIER SHELL UK OIL PRODUCTS LIMITED KEYWORD Oil (Mineral) CONTENTS Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 100% Gas oils (petroleum) hydrosulphurised 1 - 3%, Additives SIGNAL WORD NONE EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA HEALTH HAZARDS Harmful to aquatic life with long lasting effects Mechanically degraded mineral oil may cause skin cancer May cause ill health if ingested in quantity May cause eye irritation CONSIDERATIONS 					
METHOD Pouring HIGH RISK - FULL EXPOSURE		AREA Outside LOW RISK - INDIVIDUAL ACTIVITY		EXPOSURE TIME 1/2 to 2 hours per shift SPILLAGE Ventilate area Wear polythene or nitrile gloves Wear eye protection if contact likely Wear respiratory protection for large spills in poorly ventilated areas Wear protective overalls and footwear for large spillages Absorb in sand or inert absorbent material Small spills - wipe up with cloth Collect into a container, close lid Dispose or recycle of spillages in a controlled manner	
CONTROL MEASURES KEEP SKIN COVERED POLYTHENE OR NITRILE IF CONTACT LIKELY WASH AFTER USE IF SOILED CLOSE ALL CONTAINERS CHRONIC HAZARD				FIRST AID Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill Ingestion - do not induce vomiting, wash out mouth with water If feeling unwell consult your doctor immediately Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor FIRE Isolated small scale fire: Carbon dioxide - powder - foam - inert material Large fire: evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing Toxic fumes are produced when material is involved in a fire	
ACTIVITY COMMENTS				This assessment was compiled by Alcumus Sygol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464 Alcumus Your Trusted Partner Printed 27/02/2018 VIBRO WESTPILE	
DATE ASSESSMENT REVIEWED 17/10/2017				LATEST SAFETY DATA SHEET REFERENCE 09/03/2017	

COSH SUMMARY SHEET				www.alcumusgroup.com	
FACILITY	BSL	MAIN	01	SUB	863
MATERIAL/PROCESS GENERIC - ENGINE OIL				HEALTH HAZARDS Mechanically degraded mineral oil may cause skin cancer May cause ill health if ingested in quantity May cause eye irritation	
MEDIUM HAZARD LIQUID				CONSIDERATIONS  	
SUPPLIER VARIOUS KEYWORD Oil (Engine) CONTENTS Highly refined mineral oil (IP 346 DMSO extract < 3 percent),				SIGNAL WORD NONE EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA	
METHOD Decanting	AREA Inside Well Ventilated	EXPOSURE TIME Up to 1/2 hour per shift	SPILLAGE		
LOW RISK - FULL EXPOSURE			Ventilate area Wear polythene or nitrile gloves Wear eye protection if contact likely Wear respiratory protection for large spills in poorly ventilated areas Wear protective overalls and footwear for large spillages Absorb in sand or inert absorbent material Small spills - wipe up with cloth Collect into a container, close lid Dispose or recycle of spillages in a controlled manner		
CONTROL MEASURES			LOW RISK - INDIVIDUAL ACTIVITY		
 KEEP SKIN COVERED  POLYTHENE OR NITRILE  IF CONTACT LIKELY  WASH AFTER EXPOSURE  IF SOILED  CLOSE ALL CONTAINERS  CONTROLLED STORE /WASTE			FIRST AID Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill Ingestion - do not induce vomiting, wash out mouth with water If feeling unwell consult your doctor immediately Eye - irrigate with water until irritation subsides Skin - wash with soap/cleanser and rinse with water If irritation persists then consult a doctor FIRE Isolated small scale fire: Water fog - carbon dioxide - powder - foam - inert material Do not use water jet Large fire: evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing Toxic fumes are produced when material is involved in a fire		
Alcumus Sygol CMS				Alcumus Sygol CMS	
DATE ASSESSMENT REVIEWED 02/07/2015				LATEST SAFETY DATA SHEET REFERENCE Derived	

COSH SUMMARY SHEET				www.alcumusgroup.com	
FACILITY	BSL	MAIN	01	SUB	229842
MATERIAL/PROCESS ENDURATEX SHC 220				HEALTH HAZARDS Not classified as hazardous under the CLP regulations (EC/1272/2008) May cause ill health if ingested in quantity May cause eye irritation Skin - irritation and dermatitis may result from prolonged contact When using do not eat, drink or smoke	
LOW HAZARD LIQUID				CONSIDERATIONS	
SUPPLIER PETRO-CANADA LUBRICANTS INC. KEYWORD Oil CONTENTS Not classified as hazardous under the CLP regulations. This product has been classified as per the suppliers safety data sheet,				SIGNAL WORD NONE EXP LIMIT	
METHOD Pouring	AREA Outside	EXPOSURE TIME Up to 1/2 hour per shift	SPILLAGE		
LOW RISK - FULL EXPOSURE			Ventilate area Wear nitrile gloves Wear eye protection if splash likely Wear protective clothing if whole container is split Absorb in sand or inert absorbent material Collect into a container, close lid Dispose or recycle of spillages in a controlled manner		
CONTROL MEASURES			LOW RISK - INDIVIDUAL ACTIVITY		
 KEEP SKIN COVERED  NITRILE  IF SPLASH LIKELY  WASH AFTER CONTACT  IF HEAVILY SOILED 			FIRST AID Inhalation - remove to fresh air and rest After a significant exposure or if feeling unwell call for medical assistance immediately Ingestion - do not induce vomiting Ingestion - give plenty of water in sips If feeling unwell consult your doctor immediately Eye - irrigate with water for at least 15 minutes Skin - wash with soap/cleanser and rinse with water If irritation persists then consult a doctor FIRE Isolated small scale fire: Use extinguishers suitable for other materials involved in fire Large fire: evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing Toxic fumes are produced when material is involved in a fire		
Alcumus Sygol CMS				Alcumus Sygol CMS	
DATE ASSESSMENT REVIEWED 25/03/2014				LATEST SAFETY DATA SHEET REFERENCE 9/11/2013	

COSH SUMMARY SHEET			www.alcumusgroup.com		
FACILITY	BSL	MAIN	01	SUB	110208
MATERIAL/PROCESS			HEALTH HAZARDS		
ADBLUE			Not classified as hazardous under the CLP regulations (EC/1272/2008) May cause ill health if ingested in quantity Skin - irritation and dermatitis may result from prolonged contact May cause eye irritation		
LOW HAZARD			CONSIDERATIONS		
LIQUID					
SUPPLIER DUREAU					
KEYWORD Additive					
CONTENTS					
Urea 31.8 - 33.2%					
SIGNAL WORD NONE					
EXP LIMIT					
METHOD Pouring			EXPOSURE TIME Up to 1/2 hour per shift		
AREA Outside			SPILLAGE		
LOW RISK - FULL EXPOSURE			Ventilate area Wear polythene or nitrile gloves Wear eye protection if contact likely Wear respiratory protection for large spills in poorly ventilated areas Wear protective overalls and footwear for large spillages Absorb in sand or inert absorbent material Small spills - wipe up with cloth Collect into a container, close lid Dispose or recycle of spillages in a controlled manner		
CONTROL MEASURES			FIRST AID		
LOW RISK - INDIVIDUAL ACTIVITY			Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill Ingestion - do not induce vomiting; wash out mouth with water If feeling unwell consult your doctor immediately Eye - irrigate with water until irritation subsides Skin - wash with soap/cleanser and rinse with water If irritation persists then consult a doctor		
AVOID SKIN CONTACT			FIRE		
POLYTHENE OR NITRILE			Isolated small scale fire: Water - carbon dioxide - powder - foam - inert material Large fire: evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing		
IF CONTACT LIKELY					
WASH AFTER EXPOSURE					
IF HEAVILY SOILED					
CLOSE ALL CONTAINERS					
CONTROLLED STORE /WASTE					
ACTIVITY COMMENTS			This assessment was compiled by Alcumus Sypol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464		
Alcumus® Your Trusted Partner			Alcumus® Your Trusted Partner		
DATE ASSESSMENT REVIEWED 03/05/2017			LATEST SAFETY DATA SHEET REFERENCE 20/01/2014		

COSH SUMMARY SHEET			www.alcumusgroup.com		
FACILITY	BSL	MAIN	01	SUB	230496
MATERIAL/PROCESS			HEALTH HAZARDS		
AGGREGATES, ROAD BASE, SAND AND FILL			May cause ill health if ingested in quantity May cause eye irritation Skin - irritation and dermatitis may result from prolonged contact Prolonged inhalation may lead to long term lung damage When using do not eat, drink or smoke		
MEDIUM HAZARD			CONSIDERATIONS		
SOLID					
SUPPLIER HANSON CONSTRUCTION MATERIALS					
KEYWORD Aggregate					
CONTENTS					
Respirable silica <10%, Crushed Stone, Gravel: 0-100%					
SIGNAL WORD NONE					
EXP LIMIT Respirable silica 0.1mg/m3 8hTWA WEL					
METHOD Mixing			EXPOSURE TIME 1/2 to 2 hours per shift		
AREA Outside			SPILLAGE		
MEDIUM RISK - FULL EXPOSURE			Ventilate area Wear heavy duty gloves Wear suitable eye protection if large quantities of dust generated Wear RPE with particulate filter p if significant dust generated Wear protective clothing if whole container is split Do not dry sweep - either suppress dust or clear using hepa vacuum Collect into a container, close lid Dispose or recycle of spillages in a controlled manner		
CONTROL MEASURES			FIRST AID		
MEDIUM RISK - INDIVIDUAL ACTIVITY			Inhalation - remove to fresh air and rest After a significant exposure or if feeling unwell call for medical assistance immediately Ingestion - do not induce vomiting Ingestion - give plenty of water in sips If feeling unwell consult your doctor immediately Eye - irrigate with water for at least 15 minutes Skin - wash with soap/cleanser and rinse with water If irritation persists then consult a doctor		
KEEP SKIN COVERED			FIRE		
HEAVY DUTY			Isolated small scale fire: Water fog - carbon dioxide - powder - foam Large fire: evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing Toxic fumes are produced when material is involved in a fire		
IF CONTACT LIKELY					
AND					
PORTABLE OR					
FILTER TYPE P3					
WASH AFTER CONTACT					
IF HEAVILY SOILED					
THEN SWEEP					
ACTIVITY COMMENTS			This assessment was compiled by Alcumus Sypol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464		
Alcumus® Your Trusted Partner			Alcumus® Your Trusted Partner		
DATE ASSESSMENT REVIEWED 06/11/2017			LATEST SAFETY DATA SHEET REFERENCE 01/11/2010		

COSH SUMMARY SHEET				www.alcumusgroup.com	
FACILITY	BSL	MAIN	01	SUB	52639
MATERIAL/PROCESS				HEALTH HAZARDS	
GENERIC - NUISANCE DUST				Excessive inhalation may cause ill health May cause irritation to the respiratory system May cause ill health if ingested in quantity Skin - irritation and dermatitis may result from prolonged contact May cause eye irritation	
MEDIUM HAZARD SOLID				CONSIDERATIONS	
SUPPLIER NOT APPLICABLE KEYWORD Dust (Nuisance) CONTENTS Hazardous components as follows, Nuisance dust				 	
SIGNAL WORD NONE EXP LIMIT 4mg/m3(lnh) 10mg/m3(Resp) 8hTWA dust OEL					
METHOD	Cleaning Up (Spill)	AREA	Outside	EXPOSURE TIME	1/2 to 2 hours per shift
MEDIUM RISK - FULL EXPOSURE				SPILLAGE	
CONTROL MEASURES				If dust produced see below: Wear respirator with particulate filter type p3 or equivalent Wear eye protection if contact likely Wear protective overalls and footwear for large spillages Do not dry sweep - either suppress dust or clear using hepa vacuum Scoop up, sweep or vacuum residue (h type), avoid dust creation. Collect into suitable container avoiding dust generation Dispose or recycle of spillages in a controlled manner	
MEDIUM RISK - INDIVIDUAL ACTIVITY KEEP SKIN COVERED HEAVY DUTY AND OR FILTER TYPE P3 WASH AFTER EXPOSURE IF HEAVILY SOILED SWEEP OR VACUUM CONTROLLED STORE /WASTE				FIRST AID Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill Ingestion - do not induce vomiting, wash out mouth with water If feeling unwell consult your doctor immediately Eye - irrigate with water until irritation subsides Skin - wash with soap/cleanser and rinse with water If irritation persists then consult a doctor FIRE Isolated small scale fire: Water fog - carbon dioxide - powder - foam Large fire- evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing	
Alcumus Sygol CMS DATE ASSESSMENT REVIEWED 26/06/2015				This assessment was compiled by Alcumus Sygol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpline on 01296 678464 Printed 25/02/2016 Alcumus Sygol CMS LATEST SAFETY DATA SHEET REFERENCE Derived	

COSH SUMMARY SHEET				www.alcumusgroup.com	
FACILITY	BSL	MAIN	01	SUB	52237
MATERIAL/PROCESS				HEALTH HAZARDS	
KILFROST 400				Harmful if swallowed May cause damage to organs through prolonged or repeated exposure if swallowed Skin - irritation and dermatitis may result from prolonged contact Excessive inhalation may cause ill health May cause eye irritation	
MEDIUM HAZARD LIQUID				CONSIDERATIONS	
SUPPLIER KILFROST LTD KEYWORD Anti-Freeze CONTENTS ethane-1,2-diol < 50.00%,				 	
SIGNAL WORD WARNING EXP LIMIT ethane-1,2-diol 52mg/m3 Vap8hTWA 104mg/m3 Vap15mSTEL 10mg/m3					
METHOD	Dosing	AREA	Outside	EXPOSURE TIME	Up to 1/2 hour per shift
LOW RISK - FULL EXPOSURE				SPILLAGE	
CONTROL MEASURES				Ventilate area Wear polythene or nitrile gloves Wear eye protection if contact likely Wear respiratory protection if spill is in a poorly ventilated space Wear respiratory protection if whole container is split Wear protective overalls and footwear for large spillages Absorb in sand or inert absorbent material Small spills - wipe up with cloth Collect into a container, close lid Dispose or recycle of spillages in a controlled manner	
LOW RISK - INDIVIDUAL ACTIVITY AVOID SKIN CONTACT POLYTHENE OR NITRILE IF CONTACT LIKELY WASH AFTER EXPOSURE IF HEAVILY SOILED CLOSE ALL CONTAINERS ACUTE HAZARD				FIRST AID Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill Ingestion - do not induce vomiting, wash out mouth with water Ingestion - give plenty of water in sips Ingestion - get immediate medical attention Eye - irrigate with water until irritation subsides Skin - wash with soap/cleanser and rinse with water If irritation persists then consult a doctor FIRE Isolated small scale fire: Water - carbon - inert - water fog - foam - powder Large fire- evacuate area, call fire brigade or follow site procedure Wear self-contained breathing apparatus and protective clothing	
Alcumus Sygol CMS DATE ASSESSMENT REVIEWED 15/07/2015				This assessment was compiled by Alcumus Sygol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpline on 01296 678464 Printed 25/02/2016 Alcumus Sygol CMS LATEST SAFETY DATA SHEET REFERENCE 10/10/2011	

i the hazard – for example dust, spillage, litter, type of visible emission

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- ii the pathways – how the hazard can get to a receptor. The **pathway** is the part of the environment that a pollutant travels along on its journey towards the receptor.
 - iii the receptors – humans (Worker, Other Site personnel or Public), trees, fish, invertebrates, mammals and even non-living items such as a rare monument or building.
 - iv consequences – what harm could be caused