BOWMER + KIRKLAND

Victoria Offices, Manchester

Construction Environmental Management Plan

Project Details	
Name	New Victoria Office Block
Address	Victoria Station. Corporation Street Manchester M3 1NX

Approval	Prepared By	Reviewed By	Approved By
Name	Paul Smith, PIEMA	Paul Holt	Manchester City Council through Planning Application ref: 137792/FO/2023
Position	Environment and IMS Manager	Senior Project Manager	
Date	18th December 2023	18th December 2023	

Issue	Date	Reason
P1	3rd November 2023	Issue for Review / Comment
A	7th December 2023	Amendment to review and apporval of MRAP prior to
B	13th December 2023	added Vibration Monitoring Plan
C	18th December 2023	Minor updates to Vibration Management

Contents

1. Introduction
2. Organisation and Responsibilities
3. Scope of Work
4. Construction Impacts
5. Construction Mitigation
6. Noise Management
7. Dust Management
8. Vibration Management
9. Surface Water Management
10. Construction Logistics
11. Waste Management
12. Implementation and Review

Appendices

A - Sensitive Receptors
B - Site Logistics
C - Quality, H&S and Environmental Policies
D - Management System Certificates

1. Introduction

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1. Introduction

This Construction Environmental Management Plan (CEMP) has been developed to identify the environmental mitigation measures and management controls to minimise the construction impact of the New Victoria Office.

Bowmer and Kirkland have implemented a Integrated Management System (IMS) which is externally verified by a UKAS accredited certification body, BM Trada to ISO9001, ISO 14001 and ISO 45001 (See **Appendix C**).

Quality

Bowmer and Kirkland recognise the importance of developing our business through continued improvements in quality. By consistent and effective implementation of a robust Quality Management System (QMS) we believe that we can add value to the project development process for the benefit of Clients and users of our buildings. Our Quality Management System complies with ISO 9001:2015, and delivers the objectives of our Quality Policy (see **Appendix C**)

Environment

Bowmer and Kirkland are committed to sound management practices that minimise the potential effects of building activities on the environment. By encouraging the sustainable use of natural resources, minimising environmental pollution, reducing waste and encouraging recycling, we aim to contribute to improving the world in which we work and live.

We believe that a proactive approach for promoting awareness of environmental issues with our employees, together with our development of various environmental initiatives, helps us to grow an even more sustainable business to the future.

Bowmer and Kirkland's Environmental Policy (see **Appendix C**) sets out the company's strategy for minimising the environmental impact of our site and office operations. Through promoting the prevention of pollution, energy efficiency and the sustainable use of natural resources in all our construction activities and those of our sub-contractors, we endeavour to achieve a high standard of environmental performance.

Our Environmental Management System complies with ISO 14001:2015, and delivers the objectives of our Environmental Policy.

Health & safety and Well-being

Bowmer and Kirkland has the highest regard for the well-being of all persons involved in its activities and others who may be affected by them. We are committed to working with our Clients and external stakeholders to manage and control Health & Safety Risks. It is our belief that all accidents and occupational ill health can be prevented by adherence to our policies and procedures. We take a sensible, positive approach to Health & Safety.

Through the company's Health & Safety Policy (see **Appendix C**) the importance of discharging our statutory obligations and duties, and our leadership and commitment to effective Health & Safety management is defined. Best practice is accepted as a core aim throughout business operations and integral to maintaining a strong, positive safety culture. To facilitate this aim, the company's management system and procedures has gained accreditation to ISO 45001:2018

Corporate and Social Responsibility

Bowmer and Kirkland is underlining its commitment to sustainability through compliance with BS ISO 26000:2010 (see certificate in **Appendix C**). This Standard presents a framework for Bowmer and Kirkland to ensure that socially responsible behaviour is incorporated into its existing policies, procedures, and performance. Bowmer and Kirkland has a strong commitment to ethical practices in its business operations and hopes to strengthen these through a more rigorous assessment of its social responsibility policies. Adherence to the Standard will create multiple benefits, not only improving the company's environmental credentials and enhancing its brand reputation, but also supporting more cost -effective business practice to build a long-term competitive advantage. Engaging staff to improve the company's environmental performance can also improve employee motivation and bring sustainability into mainstream corporate communications. Meanwhile, monitoring environmental performance can present an insight into potential risks and opportunities to the business.

1. Introduction

This Construction Environmental Management Plan will identify the impacts and relevant mitigation that will be implemented by B+K throughout the project to minimise the impact to the local environmental from the construction activities.

This CEMP has been produced to address the following criteria:

- Noise, Dust and vibration management;
- Parking for site operatives and visitors;
- Loading and unloading of plant and materials;
- Storage of plant and materials used in constructing the development;
- Erection and maintenance of security hoarding;
- Details of measures to prevent mud and other such material migrating onto the highway from construction vehicles;
- Waste Management;
- Hours of construction work and delivery restrictions.
- Measures to control overspill of light from security lighting

In addition the measures identified in this CEMP, Bowmer and Kirkland intend to ensure the implementation of sound environmental management practices for all issues by the implementation of their Environmental Management System (EMS) in the project. Bowmer and Kirkland's EMS is registered to meet the requirements of ISO14001:2015 by a UKAS accredited certification body, BM TRADA (Certificate No. 1133 included in **Appendix C** of this document).

2. Organisation and Responsibilities

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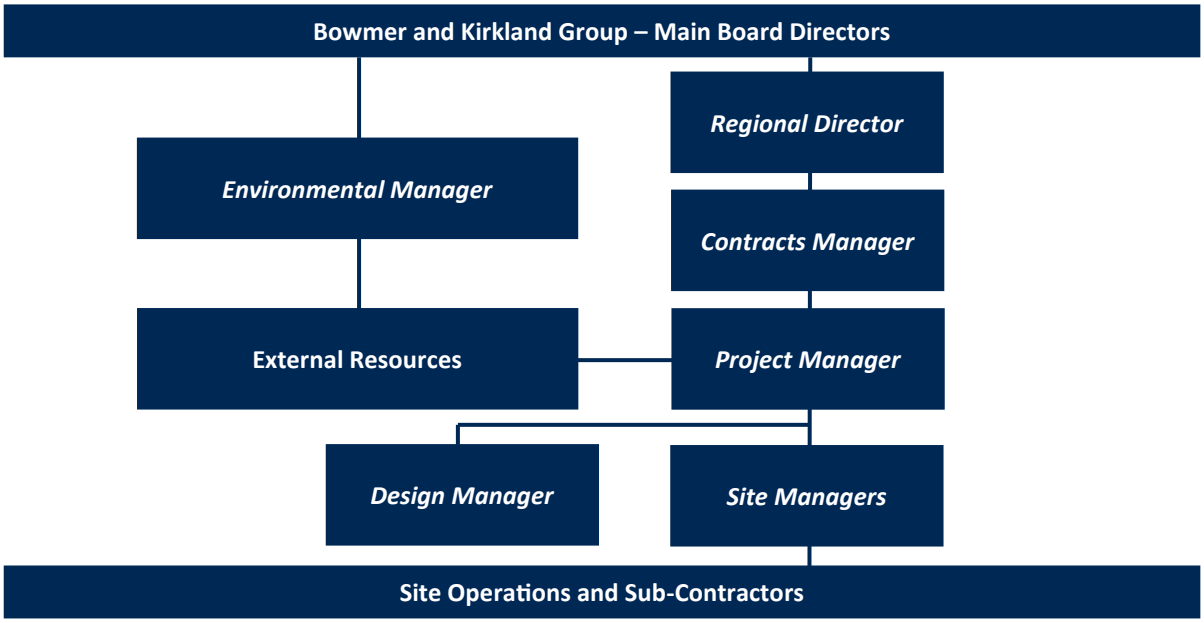

Regional Director

The Regional Director takes overall responsibility for all projects conducted by the construction region responsible for delivering the project and will visit the site on a regular basis.

Contracts Manager

The Contracts Manager (CM) takes Senior Management Responsibility for the overall project. The Contracts Manager will not be permanently on site but will visit the project 1-2 days per week to ensure the requirements of this CMS and Bowmer and Kirkland's IMS are fully implemented and effective. The Contracts Manager will conduct a formal inspection of the Site Operations on a monthly basis to assess the adequacy of Health, Safety and Environmental controls.

The Contracts Manager along with the Project Manager is responsible for liaison with the public and community groups during construction. The Contracts Manager will manage communication with the public and wider community which will include meetings, notices, news-letters and site visits as appropriate. This includes overseeing the resolution of any complaints raised relating to nuisance during the work.

Project Manager

The Project Manager is responsible for the day to day management of the project and will be permanently on site during the works. This includes the selection of competent sub-contractors and the inclusion of control measures in their sub-contracts. The Project Manager, in conjunction with the Site Managers, will monitor the works on a daily basis to ensure the specified controls are implemented and effective. In addition, the Project Manager will ensure that the project is inspected on a weekly basis for compliance with Health, Safety and Environmental compliance. The Project Manager will assist the Contracts Manager in liaison with the public and community groups during construction. The Project Manager will assist in communication with the public and wider community which will include meetings, notices, news-letters and site visits as appropriate. This includes assisting with the resolution of any complaints raised relating to nuisance during the works.

Design Manager

The Design Manager is responsible for the management of the design consultants to ensure that the project specification is established in accordance with project requirements, building regulations and relevant standards. The Design Manager will be permanently on site during the early stages of the project and will visit site regularly during the later stages of the project. The Design Manager will liaise with relevant parties on the final scheme design and ensure advice is provided to the Project Manager on the potential impact of proposed construction methods.

2. Organisation and Responsibilities (Continued)

Site Managers

Site Managers are based permanently on site during the works, the number of site managers will vary depending on the construction output. The Site Managers are responsible for monitor ing the implementation and effectiveness of the specified controls on a day to day basis. This includes the induction of all sub-contractor's operatives and liaison with their management; should improvements be required. The Site Managers, under instruction from the Project Manager, will formally inspect the works on a weekly basis for compliance with Health, Safety and Environmental compliance.

Environmental Manager

The Environmental Manager takes overall responsibility for the organisational legal compliance of the Bowmer and Kirkland Group of Companies. This includes ensuring our EMS recognises current regulatory and other requirements and the specified controls are effective in achieving compliance, preventing pollution and reducing the environmental impact of the organisation. The Environmental Manager will monitor the compliance of the project from information provided by external resources (see below) and site visits, ensuring the project is audited internally at least once.

External Resources

The following resources are employed by the Bowmer and Kirkland Group:

RG Wilbrey Consultants – conduct Health, Safety & Environmental inspections of the project bi-weekly

Adler & Allen – provide pollution response 24/7 mobilising resources where required

Cardinal Environmental – provide legislation updates and specialist legal advice where required.

Complaints Procedure

Although the measures set out within this CMS are intended to minimise the impacts of construction activities on the local community by ensuring that neighbouring residents are informed of the construction programme and timescales through either door step introduction, newsletters and regular communication during the works, it is possible that complaints may be raised concerning construction activities. As previously detailed, contact details and information concerning construction will be provided to local residents, and the Site Managers will be available to meet and explore issues with concerned parties directly via appointment.

Any complaints received will be taken seriously and addressed immediately by the construction team and designated Site Managers. All complaints that are received will be reviewed in regular site meetings to ensure that any required actions are communicated to all employees, as appropriate.

B+K use Work Wallet on site as a means of members of the public to report issues both positive and negitive, these are reported directly to B+K Head Office and reviewed by H&S / Business Development for action. A QR Code for the site will be displayed on the site entrance.

WORK WALLET

Records of complaints are recorded within our Management System as well as through Considerate Constructors Scheme of whom B+K have been a Partner Member for the last 10 years.

CONSIDERATE CONSTRUCTORS PARTNER 10 YEARS

3. Scope of Work

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3. Scope of Work

Erection of a 12 storey building (inc. Ground + Mezzanine) + 11 storeys, basement and roof terrace and plant, comprising office accommodation, a ground floor retail unit, roof terraces, plant, cycle parking, hard and soft landscaping, access and servicing and other associated works.

Fig 1 – Aerial View (source: www.google.com/maps)

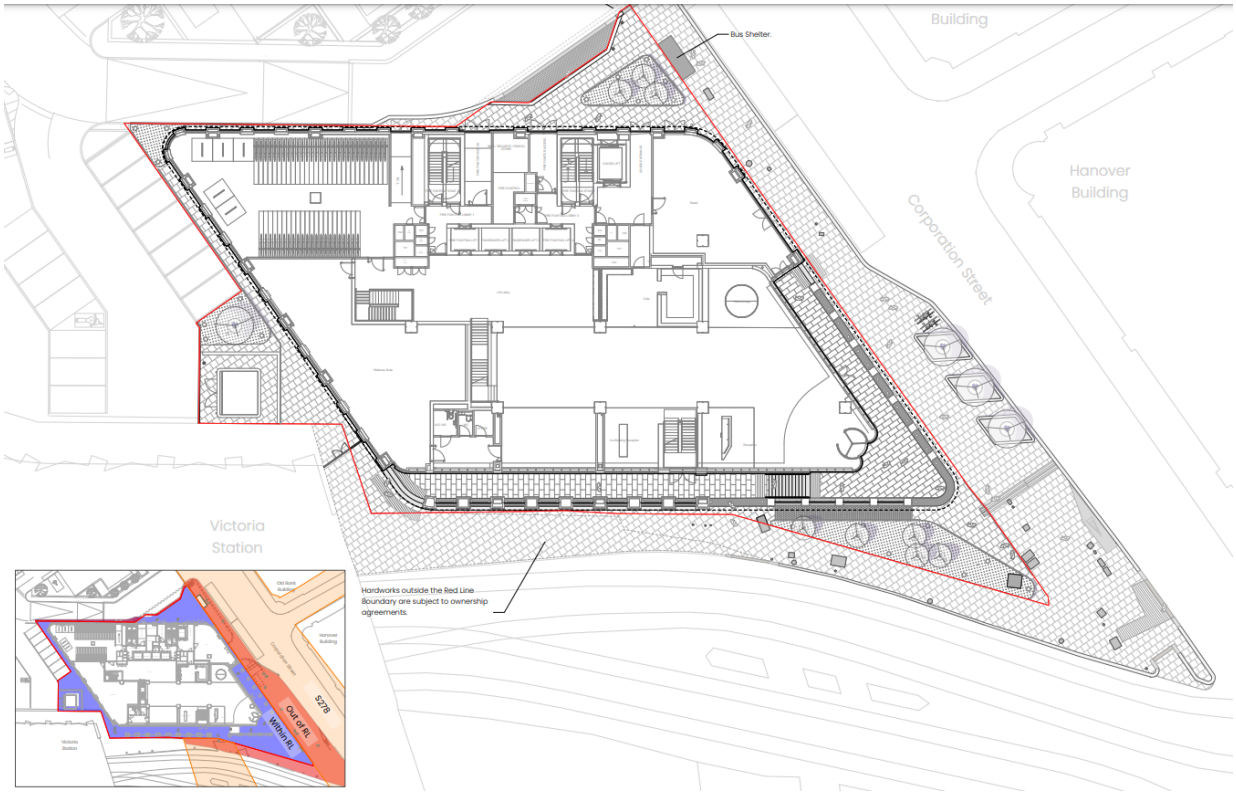

Fig 2 – Proposed Site Plan

4. Construction Impacts

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4. Construction Impacts

The following table summarises the current key features on and around the development site which may be impacted by Bowmer and Kirkland's operations. In assessing the significance of the impact potential on these receptors we have taken into consideration reports received to date and publicly available information.

		Potential Impact Severity								
Receptor	**Description**	**Noise**	**Vibration**	**Dust**	**Fumes**	**Visual**	**Physical Harm**	**Flooding**	**Pollution**	**Heritage**
General Community	The site is located just north of Manchester city centre directly next to Victoria Station. The adjacent land use is as follows: North East: New Victoria Phase 1, North West: Culverted section of the River Irk and Victoria Station beyond.; South East: Corporation Street with, predominantly, commercial properties; South West: Metrolink tram lines.	M	L	M	L	M			L	
Residential Areas	The nearest residential property are the recently completed Phase 1 Apartments to the North east of the site, 8m from the proposed New Victoria Office	H	M	H	L	H				
Ground Conditions	Phase 2 Site Investigation GRM, the site is general comprised of made ground from previous development Ground water has not been countered in any trial pits or rotary boreholes. Waste Classification to WM3 has been carried out of the 25 samples 14 returned results as Hazardous will remaining as Non-hazardous, the hazardous soils are associated with the made ground, deeper natural soils are considered to be inert. Based on WM3 and WAC, excavated made ground from basement dig will be removed from site as hazardous waste to an approved landfill site.			L					M	
Ecology	Due to the site use as a compound the ecology surveys did not identify any evidence of protected or priority species within the site boundary. No further mitigation is required.						L			
Watercourse	The nearest watercourse is the culverted River Irk that runs along the north boundary, proposed construction works will be carried out within 8m of the culvert as such a Flood Risk Activity Permit in accordance with Schedule 25 of the environmental permitting regulations will be required.						L			

KEY:		Insignificant		Low		Medium		High

4. Construction Impacts

The following tables summarises impacts to the receptors on and around the development site which may be impacted by construction activities and the overall risk to receptors from noise, dust and vibration.

General Construction Activities Risk Assessment

Construction Activity	Dust Emission Risk	Noise Emission Risk	Vibration Emission Risk
CFA Piling	Low	Medium	High
Basement Excavations	High	High	Medium
Working Platform	High	High	Medium
Foundations	Medium	Medium	Low
Ground Floor Slab	Medium	Medium *	Low
RC Frame	Low	Medium	Low
Cladding & Roofing	Insignificant	Medium	Insignificant
Fitout	Insignificant	Low	Insignificant
Soft Landscaping	Low	Medium	Low
Hard Landscaping	Low	Medium	Medium

* dependent on concrete finish to achieve specification and weather conditions.

Construction Impacts to Receptors

Receptor	Dust Emissions	Noise Emissions	Vibration Emissions
Commercial	High	High	Medium
Residential	High	High	Medium
Ecological	Low	Low	Low

5. Construction Mitigation

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5. Construction Mitigation

In order to reduce the impact of the construction phase of the development Bowmer and Kirkland propose to implement our Integrated Management System (IMS) for the project. Our IMS is registered to meet the requirements of the international standard ISO 9001, ISO14001 and ISO 45001 by a UKAS registered certification body, BM TRADA (see **Appendix C** for certificate). Bowmer and Kirkland's IMS includes standard controls to mitigate the impact of our construction activities during normal construction operations. Site specific issues requiring project specific mitigation have been considered and are summarised in the following table:

	Potential Impact								
Description	**Noise**	**Vibration**	**Dust**	**Fumes**	**Visual**	**Physical Harm**	**Flooding**	**Pollution**	**Heritage**
Workings Hours / Delivery Hours Working hours for site will be: Monday to Friday 08:00 – 18:00 Saturday 08:00 – 13:00 There will be no works on Sundays or Bank Holiday, Where normal construction activities are expected to exceed these working hours then EHO will be informed in writing at least 10 days prior to commencing works. Newsletter drops to the local area will also be implemented during construction.	✓	✓	✓	✓					
Statutory Nuisance - Noise To minimise issues caused by noise during construction, Best Practise Means will be employed in accordance with BS5228:2009+A1 2019 Part 1 during each phase of the project. Noise mitigation in accordance with BS 5228 Part 1, see **Section 6 Noise Mitigation**, that will be implemented during construction.	✓								
Statutory Nuisance – Dust The control of dust is a prime concern for all construction projects, particularly during periods of dry and windy weather, there are also ecological receptors which may be impacted by dust. Details of dust mitigation measure can be found in **Section 7 Dust Mitigation**			✓		✓			✓	
Statutory Nuisance - Vibration To minimise issues caused by vibration during construction, Best Practicable Means will be employed in accordance with BS5228:2009 Part 2 that gives guidance on vibration levels that could be used to assess the likely impacts of construction activities, on the environment and people. Piling solutions is for CFA piles and contig wall, this reduces risk of vibration. A Vibration Monitoring & Response Action Plan (MRAP) including recommended mitigation will be implemented prior to construction for monitoring of TfGM assets, this will be subject to review and approval by relevant parties prior to works commencing. Any complaints with regards vibration will be recorded and managed, any additional mitigation will be actioned to reduce the impact for construction activities as per BS 5228, Part 2. Details of Vibration mitigation measure can be found in **Section 8 Vibration Mitigation**		✓							

5. Construction Mitigation (Continued)

Description	Potential Impact								
	Noise	Vibration	Dust	Fumes	Visual	Physical Harm	Flooding	Pollution	Heritage
Lighting Construction phase temporary lighting shall be designed to minimise effects beyond the site boundary. • Site lighting will be LED which virtually eliminates upward glare; • Warm white spectrum (<2700k) lamps to be used; • Lights will be shrouded / pointed downward; • Pointed away for areas of vegetation; • Site Compound will use LED Flood lights; • Site hoarding along footpaths and haul routes will use 10w LED Bulkheads.					✓				
Dewatering Methods for dealing with water within excavations are detailed **section 9 Surface Water Management**								✓	
Waste Management Bowmer and Kirkland will apply the waste hierarchy to the project to minimise waste production and subsequent landfill burden. No waste removed from site will be permitted to leave without the provision of an adequately completed waste transfer note and copy of valid waste carrier licence for the person removing the waste and environmental permit for the site where the waste is being taken. The burning of waste is banned on all B+K construction sites. In order to implement these requirements and monitor the amount of waste being produced by the project a Site Waste Management Plan will be prepared and maintained throughout the course of the construction phase. **See also Section 11 Waste Management**	✓	✓	✓		✓	✓	✓	✓	
Traffic Management Traffic Management Plans have been included in ***Section 10.*** All deliveries will be booked in with Bowmer and Kirkland's Site Management who will avoid slots at peak hours. Roads will be kept clean by the provision of wheel cleaning facilities and road sweepers as required.	✓	✓	✓	✓	✓	✓		✓	✓
Spillage Emergency Planning An emergency plan for spills of fuels, oils or other CoSHH materials will be prepared for the project and briefed to all operatives. All minor spills will be cleared and consigned off site as hazardous waste. An emergency response contractor, Adler and Allan, will be retained to attend site in the event of a major spill or spill which may affect any water course.						✓		✓	
Excavated Soils All excavated soils will be removed from site based on WM3 and WAC tests carried out, made ground from the basement excavation will be removed as hazardous waste, clean natural soils below the made ground are expected to be inert.								✓	

6. Noise Management

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6. Noise Management

Noise Monitoring

Noise monitoring will be carried out for the sensitive receptors nearby and records maintained. Site Management will take noise readings twice per day.

BS 5228:2009 Part 1 Significance Criteria (Table E.1) Residential Properties			
Assessment category and threshold value period (LAeq)	Threshold value, in decibels (dB)		
	Category A	Category B	Category C
Night-time (23:00-07:00)	45	50	55
Evenings (19:00-23:00 weekdays) and Saturdays (13:00-23:00)	55	60	65
Daytime (07:00-19:00) and Saturdays (07:00-13:00)	65	70	75

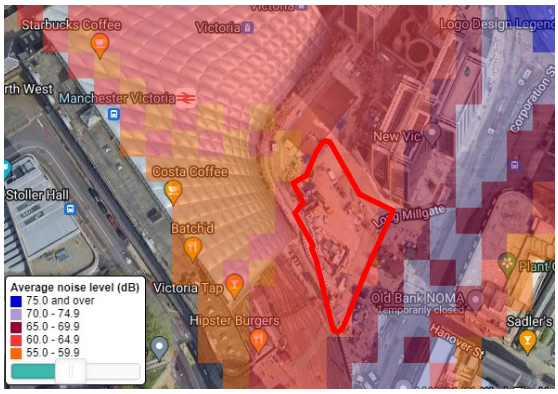
Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

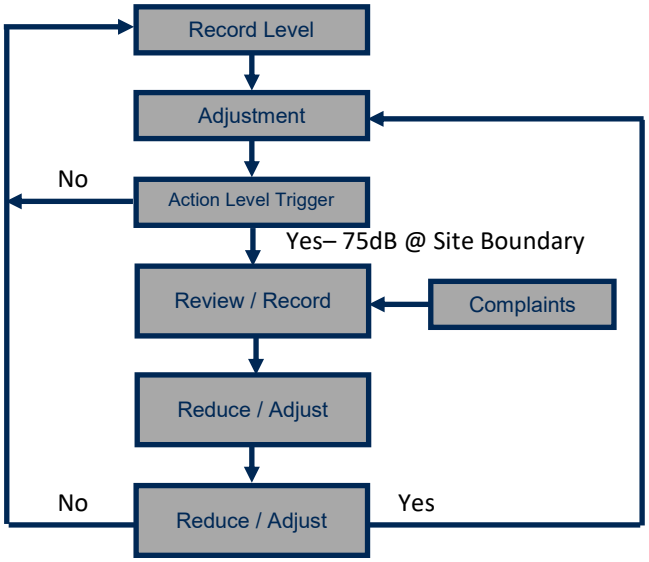
An acoustic assessment of the development site has been undertaken by Sweco, back ground noise levels for the site where recorded between 66dB and 72dB $L_{Aeq,8hr}$, based table E.1, the threshold for significant impact will be set at 75dB.

A review of the Noise Map from Extrium shows that the site is impacted by road noise from Corporation Street of upto 75dB, this has been taken into account when setting threshold for impact from construction activities



Source: http://www.extrium.co.uk/

Noise Monitoring and Action Process



Construction Activity	Plant Type	LAeq at 10m (BS 5228:1)	Nearest Receptor	Distance from Nearest Construction Activity	Adjustments: Distance (-dB)	Adjustments: Screening (-dB)	Adjustments: Reflection (+dB)	Resultant LAeq	Duration of activity (hrs)	Correction to Laeq (F.5)	Activity LAeq	Threshold for Significant Impact Mon-Fri 8am to 6pm	Predicted Combined Noise Levels
Enabling Works													
Excavation	Tracked excavator (25t)	77	Victoria Apartments	15	2	0	3	78	5	3	**75**	**75**	**79**
Working Platform	Roller	79	Victoria Apartments	15	2	0	3	80	5	3	**77**		
Materials movement	Telehandler	79	Victoria Apartments	15	2	0	3	80	3	5	**75**		
Foundations													
Excavation	Tracked excavator (25t)	77	Victoria Apartments	15	2	0	3	62	4	4	**58**	**75**	**76**
Piled Foundations	Crawler Mounted Rig	79	Victoria Apartments	15	2	0	3	62	5	3	**59**		
Pumping Concrete	Concrete pump + concrete mixer truck (Discharge and Pump)	75	Victoria Apartments	15	2	0	3	76	4	4	**72**		
Concrete Pours	Concrete Vibrating Poker	78	Victoria Apartments	15	2	0	3	79	4	4	**75**		
Structural Frame													
Lifting operations	Tower Crane	77	Victoria Apartments	30	4	5	3	71	8	1	**70**	**75**	**70**
Envelope													
Materials movement	Telehandler	79	Victoria Apartments	20	3	0	3	79	5	3	**76**	**75**	**76**
Installation of Façade	Mast Climber	69	Victoria Apartments	20	3	0	3	69	4	4	**65**		
Fit-Out													
Materials movement	Telehandler	79	Victoria Apartments	20	3	0	3	79	4	4	**75**	**75**	**75**
External Works													
Excavation	Tracked excavator (15t)	79	Victoria Apartments	20	3	0	3	79	4	4	**75**	**75**	**79**
Laying base course	Vibratory roller 12t	80	Victoria Apartments	20	3	0	3	80	4	4	**76**		
Paving	Asphalt paver 12t hopper	75	Victoria Apartments	20	3	0	3	75	4	4	**71**		

6. Noise Management

Summary of Predicted Noise Levels

Predictions for noise from construction to the nearest residential receptors being Victoria Apartments have been calculated, noise levels to receptors during construction are predicted to be wihtin +5dB of threshold for significant impact of 75dB, with a majority of construction being similar or below background levels for the site and noise impact from Corporation Street, should complaints on noise be received, B+K will review construction activities and where suitable review noise mitigation measures being implemented.

Noise Mitigation Measures - General

The quietest and lowest impact processes that are reasonably practicable will be employed on -site in the undertaking of all construction works and in accordance with the best practise under BS5228:2009+A1 2014, Part 1. Suitable mitigation measures will be implemented as a means of minimising noise include:

Construction Mitigation

- Main structure being Reinforce concrete frame, this is quieter means of construction compared to structural steel.
- Newsletter drops to local residents that will include works up and coming, progress, specific activities that may generate increased noise.
- Construction working hours will be carefully managed to ensure normal working hours are adhered to, with the exception for some construction activities that will may exceed normal working hours, examples include abnormal deliveries and concrete curing.
- Keep internal haul routes well maintained;
- Minimize drop height of materials;
- Radios and other noise-generating devices are not permitted on site.
- Keep voices and conversation outside of the perimeter of the site to a minimum and low in volume.
- Use of work equipment designed to reduce noise should be consider by sub-contractors.
- Specific construction activities maybe required to achieve the specification finish and as such may cause extended periods or works.
- Noise monitoring will be used on site boundary and assessed periodically during construction, to identify effectiveness of noise mitigation measures on site.
- Avoid nosier activities at the start of the working day.
- Use of alternative demolition methods such as cutting slabs rather than breaking up.
- Use of noise barriers to site hoarding.

Site Plant

- Use of battery and flybrid punch power systems for Tower Cranes instead standard generators, these are quieter operation and significant reduced emissions
- The quietest vehicles, tools and machinery shall be used as far as is reasonably practicable
- Early connection to temporary builders supply (TBS) to reduce use of generators.
- Use of Ultra Quite generators.
- Avoid unnecessary revving of engines and switch off equipment when not required;
- Start up plant and vehicles sequentially rather than all together
- No machinery will be permitted to start up on-site before 08:00.
- Plant to be fitted with effective silencers
- No engines left running whilst vehicles are stopped on-site;
- Local residents and businesses will be advised of the start and finishing dates and times of particularly noisy activities and these will be timed to minimise the disruption to local residents as far as possible.

Enclosures

The use of enclosures can significantly reduce noise. These range form localised enclosures to the erection of noise reducing fencing around larger activities. Enclosures will be designed in accordance with BS5228:2009+A1 2014, Part 1, Appendix A.

Examples of Enclosures:

Plant	Enclosure Type	Noise Reduction
Site Generators	Ventilated acoustic enclosure	Up to 20dB
Pneumatic breakers, drills	Portable or Fixed enclosure	Up to 20dB
Rotary Drills, Diamond Drilling	Ventilated Acoustic Shed	Up to 15dB
Pumps	Acoustic enclosure with allowance for engine cooling and exhaust	Up to 20dB
Large Plant	Acoustic Screen / Fence	Dependant on design
Scaffolding Acoustic Sheeting	Acoustic Sheeting to Scaffolding Elevations	Up to 19dB

7. Dust Management

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7. Dust Management

Dust Mitigation Measures

During construction and demolition, it is anticipated that the primary air pollution emissions will be associated with dust generated from plant movement on site. The following mitigation follows the principals of IAQM "*Guidance on the assessment of dust from demolition and construction*".

Site Management

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Record and respond to all dust and air quality pollutant emissions complaints;
- Make a complaints log available to the Local Authority when asked;
- Carry out regular site inspections to monitor compliance with air quality and dust control procedures, record inspection results, and make an inspection log available to the Local Authority when asked;
- Increase the frequency of site inspections by those accountable for dust and air quality pollutant emissions issues when activities with a high potential to produce dust and emissions are being carried out and during prolonged dry or windy conditions; and
- Record any exceptional incidents that cause dust and air quality pollutant emissions, either on or off the site, and ensure that the action taken to resolve the situation is recorded in the log book.

Preparing and Maintaining the Site

- Plan the site layout so that machinery and dust-causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Install green walls, screens or other green infrastructure to minimise the impact of dust and pollution;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below;

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using recycled water where possible and appropriate;
- Use enclosed chutes, conveyors and covered skips;
- Minimise drop heights from loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/ soil stockpiles to stabilise surfaces as soon as practicable;
- Only remove the cover from small areas during work, not all at once.
- Use bowser water dust suppression on haul roads and traffic areas through the site.

Measures Specific to Construction

- Ensure aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place;
- For supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
- Loading of excavated material onto tarmac area where possible instead of driving onto site.

7. Dust Management

Dust Mitigation Measures

Measures Specific to Track Out

- Regularly use a water-assisted dust sweeper on the access and local roads, as necessary, to remove any material tracked out of the site;
- Wheel (Jet) Wash on exit to site during basement excavation
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Access gates should be located at least 10 m from receptors, where possible; and
- Apply dust suppressants to locations where a large volume of vehicles enter and exit the construction site.

Waste Management

- Reuse and recycle waste to reduce dust from waste materials; and
- Bonfires and burning of waste materials is banned on all B+K sites.
- Skips on site are to located away from site boundary and are to be covered where necessary to prevent the escape of waste.
- Stock piles of materials soils are to be seeded if there are being retained for use later in the project.
- Stock piles of aggerates are to be kept dampened down during periods of dry and windy weather.
- All skips / wagons leaving site are to be covered.

8. Vibration Management

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8. Vibration Management

Introduction

Bowmer and Kirkland will seek to maximise any opportunities to influence the decisions made during the design stage of construction projects to reduce the levels of vibration leaving site or impacting on existing structures. Where possible, vibration will be minimised through design, specification and the use of alternative methods particularly where there are sensitive receptors adjacent to the works, e.g. schools, public areas, sites of special scientific interest (SSSI's) and listed buildings.

Vibration Risks

- High vibration levels over sustained periods can cause damage to buildings, roads and utilities.
- Lower vibration levels can cause nuisance to residents.
- Vibration may also cause disruption to wildlife and damage to geological and archaeological sites.
- Vibration is a safety critical issue adjacent to railway lines.

Evaluate the Potential for Vibration

- MRAP report compiled by Byland Engineering identified nearby vibration receptors as the culverted River Irk and network rail assets.
- Some construction activities will cause significant vibration through the ground, e.g. piling, plant and vehicle movements.
- The transmission of vibration is highly dependent upon ground conditions, where there is underlying sloping hard strata this can transmit vibration underground undetected for several hundred metres until the strata is nearer the surface.
- Activities causing low levels of vibration could become significant in occupied buildings / work on party walls, e.g. power floating, minor demolition and strip out. This can become an issue for sensitive building occupiers, e.g. libraries, laboratories.
- Liaise with Regulatory bodies and other interested parties including, RMBC, CRT, Environment Agency etc. (there may be time / seasonal restrictions).
- Monitor conditions before work starts for sensitive structures / neighbours

Construction Vibration Assessment Criteria - Overview

BS 5228-2:2009 'Code of practice for noise and vibration control on construction and open sites – Part 2', gives guidance on vibration levels that could be used to assess the likely impacts of construction activities, including piling, on the environment and people. The main vibration impacts could arise from piling activities or heavy construction vehicle movements near sensitive receivers (typically within 20m).

Annex B of BS 5228 Part 2 gives guidance on the significance of vibration effects in terms of human response to vibration and structural response to vibration.

BS5228 Part 2 Guidance on Human Response to Vibration Levels

Vibration Level	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration
0.3 mm/s	Vibration might be just perceptible in residential environments
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation is given to residents
10 mm/s	Vibration is likely to be intolerable for any more than a brief exposure at this level

BS5228 Part 2 Transient vibration guide values for cosmetic damage

Type of Building	Vibration Level 4 Hz to 15 Hz	Vibration Level > 15 Hz
Reinforced or framed structures Industrial	50 mm/s at 4 Hz and above	50 mm/s at 4 Hz and above
Heavy commercial buildings		
Unreinforced or light framed structures	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 4 H z increasing to 50 mm/s at 15 Hz
Residential or light commercial buildings		

8. Vibration Management

Vibration Mitigation

To manage vibration risk, mitigation will be implemented to reduce the impact including:

- The Monitoring & Response Action Plan (MRAP) is currently being developed by Byland Engineering and will be subject to review and approval by Network Rail and TfGM prior to commencement, the approved MRAP will take precedence over this CEMP.
- Vibration monitoring to be implemented (as per approved MRAP) proposals are extracted in the tables and plans within this section.
- Inform Neighbours - consult residents or workers in the vicinity of the works to explain the type and duration of the works.
- It might be possible to schedule the work to avoid particularly sensitive times, with works that generate vibration restricted to 08:00 to 17:00.
- Should complaints be received then B+K will assess the works undertaken and propose further suitable mitigations required, this may include were appropriate vibration monitoring.

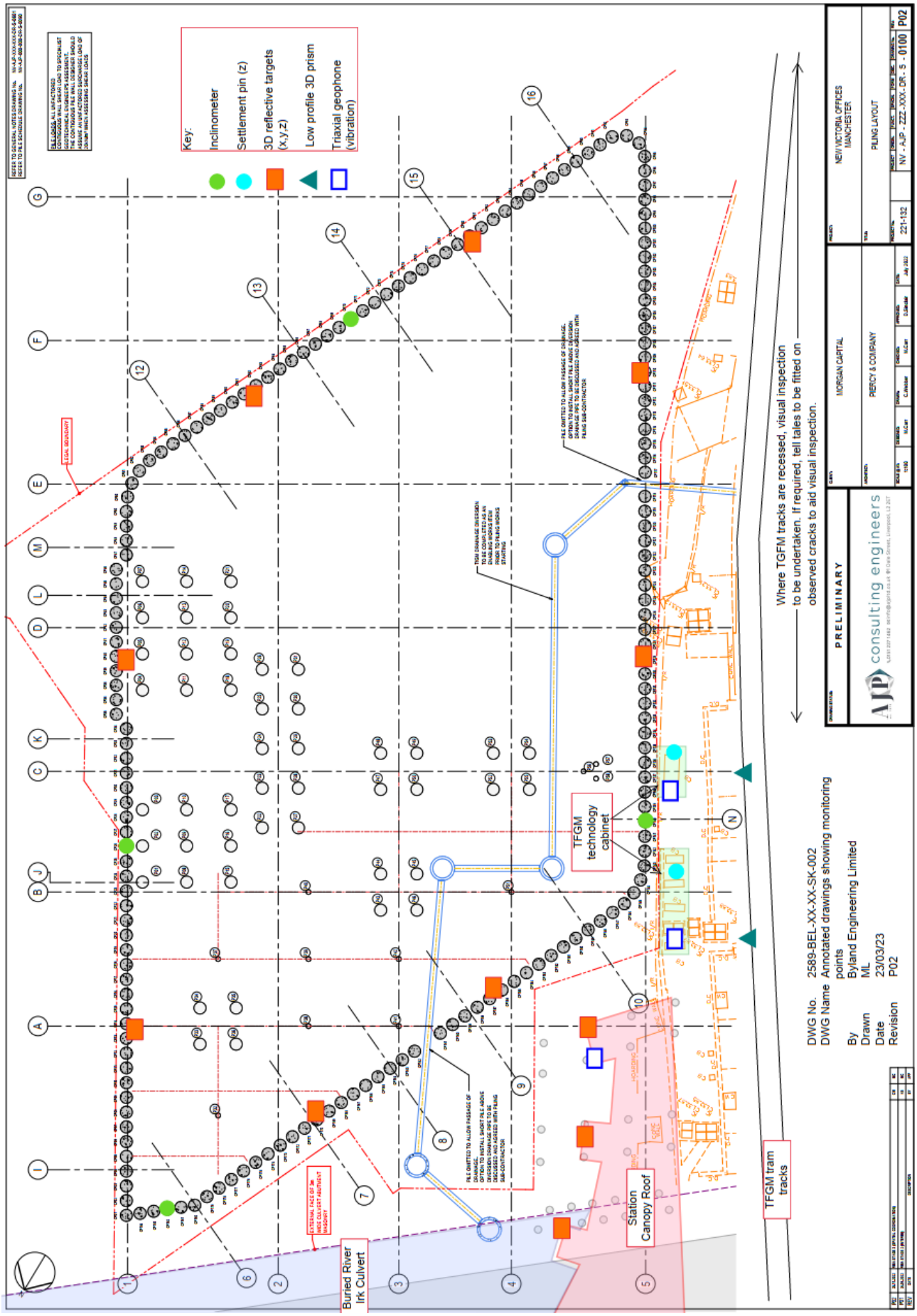
Extracts from MRAP Draft Report:

Asset	Guidance	Monitoring	Proposed PPV limit for transient vibration (mm/s)
Buried River Irk Culvert	1. For underground services, transient PPV of 30mm/s is recommended 2. For elderly and dilapidated brickwork sewers (similar to culvert) these values should be reduced by 20 to 50% 3. The culvert is in good condition and is of robust construction so 30% reduction is considered reasonable	Not required, Low risk	N/A
Station roof	1. 50mm/s for framed structures (industrial & heavy commercial structures) 2. 15mm/s for light framed structures (residential or light commercial buildings Note: Reduce the above values by up to 50% for continuous vibration.	1 No. triaxial geophone (vibration) to be installed on the closest Manchester Victoria Station concrete buttress	30
TFGM Technology box	1. No significant guidance. To be determined on a site basis Technology box is thought to be resistant to nominal vibration due to proximity to tram tracks and roads which are also vibration sources	2 No. triaxial geophone (vibration) to be installed on the TFGM technology box concrete pad foundations	30

Monitoring Requirements:

Site activity	Type of monitoring required	Level of risk (high, medium, low)	Required frequency of monitoring
Piling platform construction	Vibration	High	Continuous
Piling	Vibration	Medium	Continuous
	Movement	Low	3D targets: weekly Visual track inspection(1): weekly
Pile cropping & capping beam construction	Vibration	High	Continuous
	Movement	Medium	3D targets: weekly Visual track inspection(1): weekly
Basement excavation	Vibration	Low	Continuous
	Movement	High	3D targets: three times a week Visual track inspection(1): weekly Inclinometers: weekly(2)
Substructure construction up to basement slab construction	Movement	Medium	3D targets: weekly Visual track inspection(1): weekly Inclinometers: every 2 weeks
Remaining substructure construction	Movement	Low	3D targets: every 2 weeks Visual track inspection(1): every 2 weeks Inclinometers: every month

8. Vibration Management



8. Vibration Management

Vibration Mitigation - Trigger Levels

Monitoring type	Vibration (mm/s)	Movement (mm)		
Structures / Trigger levels	All structures	TFGM tram tracks & Station Roof	TFGM technology cabinets & capping beam	Tell tales (if required) on TGFM tram tracks
Green	15	5	10	3
Amber	15 to 30	5 to 10	10 to 15	4
Red	> 30	> 10	> 15	5

1. Green = works will continue as normal. Monitoring frequencies will remain as stated.

2. Amber = measured value approaching the maximum expected value. Works may continue pending results of review meeting. The main contractor shall alert the role holders. A monitoring report shall be produced and circulated. The reasons for the amber limit being reached shall be investigated and instrument functionality and reading frequency reviewed. The main contractor shall organise a meeting to discuss and agree actions that are to be taken which may comprise none, some or all of the following:

a. Check instrument functionality and reliability

b. Determine reasons for the exceedance

c. Need to increase monitoring frequency

d. Need to inspect the assets

e. Need to adjust construction activities

f. Need to revise trigger levels

g. Need to increase temporary propping force

3. Red = measured value exceeds the maximum expected value, works to cease. The main contractor shall alert the role holders immediately. The source of the exceedance shall be identified and reported to all relevant parties. A monitoring report shall be produced and circulated. The main contractor shall organise a meeting within 2 working days to discuss and agree actions that are to be taken which may comprise none, some or all of the following

a. Check instrument functionality and reliability

b. Determine reasons for the exceedance

c. Need to increase monitoring frequency

d. Need to inspect the assets

e. Need to adjust construction activities

f. Need to revise trigger levels

g. Need to increase temporary propping force

9. Surface Water Management

B+K

9. Surface Water Management

General Mitigation:
Excavated ground and exposed ground

Due to the on-going nature of the work it is generally not possible to protect exposed surfaces until the project is completed. That said there are measures that can be adopted to mitigate contamination / sedimentation referred to below.

The following mitigation can be used to protect from runoff during construction:

- Gulley Guards - These will be placed in all existing gulley's that could receive surface water run off and from tracking out. The guards will be inspected daily and cleaned as appropriate to ensure that silt or debris collected in the guards do not impede the flow of water into them
- Use of silt doctors to dewater rain water from open excavations.

Stockpiles

Stockpiles will be located away from existing drainage points to prevent the leaching of contaminants.

- Seeding of stock piles can significantly prevent silt runoff once grass has established.
- Sheeting of stockpiles can reduce dust and protect from heavy rain fall and run off.
- Keep stock pile levels low to reduce impact from wind.

Existing access ramps & roads

Haul roads (including roads that are in process of construction partially sealed) will be sprayed regularly to keep down dust. If any section of a haul road is hard surfaced, then it will be swept on a regular basis to prevent accumulation of dust and mud.

Once constructed, there could be a residual risk of silt run off from haul roads and stone surfaces. These risks will be controlled by;

- Constructing suitable channels on haul roads to channel water away from any watercourses, surface drains, or green areas.
- Regular environmental inspections of these areas to ensure controls are effective.
- Suitably sized spill kit will be available with spill action plan.

Wheel Wash

A jet wash will be provided at the site exit to ensure that wheels and chassis have majority of mud removed before leaving the site, these are typically trailer mounted bowsers rated at 3000psi.

Oils and Hydrocarbons

Simple measures can be taken to prevent oil and hydrocarbons becoming pollutants, such as:

- Maintenance of machinery and plant
- Drip trays
- Regular checking of machinery and plant for oil leaks
- Correct storage facilities
- Check for signs of wear and tear on tanks
- Care with specific procedures when refuelling
- Designated areas for refuelling
- Emergency spill kit located near refuelling area

Weather / Storm

Weather warnings allow preparation time before any significant rainfall event, weather conditions are reviewed on a weekly basis for the planning of works:

- Early connection of roof outlets to surface water drainage system for discharge off site, will reduce the amount of rainwater impacting the ground.
- Stockpiles of stone and aggregates will be located as far as practical away from surface water drains. Ideally this will be on level ground.
- Fuel and COSHH substances will be stored in a designated area. They will be in double bunded units with 110% capacity and appropriate spill kit. The designated area will be 10m away from any watercourses, surface water drains.

Concrete wash out

Simple measures can be taken to ensure no concrete wash out pollutes the ground around:

- Discharge of water into a lined or proprietary concrete washout skip
- Concrete washout skip is to be placed in it's own bunded area
- Sediment skip positioned within a larger skip (to act as a dual slit trap & bund)

9. Surface Water Management

Surface Water Management During Construction

The management of surface water during construction will be dependant on the specific site factors. The table below identfies the sources of flooding risk and there impact on the site and if mitigation is required:

Source of Risk	Impact to Site	Risk	Mitigation Required
Ground Water	No groundwater water was encountered during intrusive investigation	**Low**	No further mitigation required
Fluvial Flooding	The site is within flood zone 1.	**Low**	No further mitigation required
Pluvial Flooding	Flooding may occur during high rainfall events.	**Medium**	Dewatering of excavation after rainfall events maybe required this should be managed by where contamination is a risk the made ground discharge to foul under trade effluent consent, For clean rain water via silt doctors or similar and discharged to surface water, the discharge must be un-contaminated and suspended solids removed (visible clear).
Sewers	The sewer network around the site may have limited capacity which could be exceeded in an extreme storm event.	**Low**	Monitor sewer levels in extreme storm events.

The following actions will be implemented to manage surface water during construction. The actions required will be dependant on the amount of rainfall / groundwater that the site will be subject to.

- Low rainfall (normal weather) - site will experience normal rainfall that results in some rainwater collecting in excavations.
- Medium Rainfall (yellow/amber weather warning) - The amount of rainfall is prolonged, with open ground being waterlogged that will reduce the effectiveness of dewatering to soakaway.
- Heavy Rain Fall (red weather warning) - significant rainfall that will cause high levels of surface water on site.
- Groundwater - Dependent on presence of ground water that will be perched.

	Method for Dewatering			
Source	**1. Site Soakaway**	**2. Direct to SUDS**	**3. Dewater to Surface Water**	**4. Dewater to Foul Sewer**
Low (Normal weather)	Yes	Yes	Yes (comply with RPS)	Not required
Medium Rainfall (yellow/amber warnings)	Yes	Yes	Yes (comply with RPS)	Not required
Heavy Rainfall (red warnings)	Yes	Yes	Yes (comply with RPS)	**Temporary Discharge Consent Required**
Groundwater	N/A - No Groundwater detected			

9. Surface Water Management

Dewatering Activities during Construction

The following defines the activities that can be carried out for the control of surface water during construction. The method used will be determined by the source and extent of water onsite.

Activity	Permit	Amount of water	Actions
1. Discharge off site - Clean Rainwater (eg roofs pile caps)	No	Low Volume	Early works to attenuation tanks and drainage runs will allow the connection of clean rain water from roofs that is permitted to be discharged direct to surface water systems. This will reduce the amount of surface water on site during construction.
2. Dewatering rain water to soak away on site.	No	Low Volume	The dewatering of rainwater from construction areas can be carried out effectively by pumping to a designated soak away area on site that will not pose a risk, this is the normal preferred method to eliminate need to discharge offsite.
3. Dewatering of wholly or mainly rainwater to a watercourse.	RPS	Medium/High Volumes	Excavations can be dewatered direct to surface water system under the Environmental Agency Regulatory Position Statement for "*Temporary dewatering from excavations to surface water*" a permit is not required If: • A short term (max 3 months), temporary discharge of uncontaminated water which is wholly or mainly rainwater, from an excavation to surface water (such as pumping water out of excavations on a building site) • Comply with all the conditions in this Regulatory Position Statement (RPS) - **See page 13**
4. Discharge groundwater to soak away.	No - Exempt Activity .	Medium/High Volumes	Discharge groundwater that meets drinking water quality standards onto ground when: • Discharge activity is temporary and is for a maximum duration of 30 consecutive days • Quality of the groundwater is either naturally at drinking water quality standards, or is groundwater of mains quality that has been treated to drinking water quality standards (see test results in phase 2 SI) • Location (ground) where the discharge is to occur is free from any obvious sources of contamination • Volume and rate of discharge will not cause pollution or any other adverse environmental impacts, including flooding, to the underlying groundwater or any adjacent surface waters or habitats.
5. Dewatering excavations of groundwater for discharge to a watercourse. (>6mths)	Permit	Medium/High Volumes	The dewatering of groundwater from excavations that is to be discharged off site via watercourse or foul. • No exemption or permit required for <20m3 per day • Exemption (schedule 5) with regards the abstraction of up to 100m3 per day. • Temporary abstraction licence >100m3 per day • Part B6 bespoke water discharge activity and groundwater (point source) activity permit. **See page 23 & 24 for EA Requirements.**
6. Discharge Silty Rainwater to foul.	Yes	High Volume and Contaminated Water	Foul/combined sewers can be used for the discharge of dirty water, this will be under a trade effluent consent and treatment prior to discharge would be required such as reduction of suspended solids. Discharges to foul will be restricted including contamination levels (suspended solids) and flow rate, a discharge rate of 3 to 5 litres per second is the norm this will be defined in the consent. **See page 23**
7. Removal of contaminated water as waste	Waste Disposal	Contaminated Water	The management of contaminated water may be required to be removed by tanker from site. This is often used for remediation of contaminated land, where it is not permitted to be discharged to foul to due the contamination levels.

KEY:		Applicable to Site		Optional to Site		Not Applicable to Site

9. Surface Water Management

Temporary dewatering from excavations to surface water (Regulatory Position Statement)

When discharging clean rainwater (wholly or mainly) to surface water systems the following must be adhered to in accordance with the Regulatory Position Statement.

The discharge must:

- be clean water, for example clear rainwater or infiltrated groundwater which has collected in the bottom of temporary excavations
- not result in water containing fine or coarse suspended solids (silty water) entering surface water
- not last more than 3 consecutive months (the activity may stop and restart but the clock does not restart) - if the activity is likely to go over 3 consecutive months then you need to apply for a permit
- be made to surface water drainage system
- have a method statement that minimises the risk of pollution.

The discharge must not:

- pollute surface water
- contain any chemical dosing agents, flocculants or coagulants
- be from a site which is contaminated by oil, metals, hydrocarbons, solvents or pesticides or other polluting substances
- result in the spread of non-native invasive species, parasites or disease
- cause flooding from surface water
- cause erosion of the banks or bed of the receiving watercourse
- contain concrete wash water even if it has been treated
- contain site drainage from surface areas such as haul roads, storage or working areas
- be from a site with naturally elevated concentrations of substances which exceed environmental quality standards

Before starting work on site:

- plan how to minimise the level of contaminants such as silt entering the excavation
- plan how to dispose of water that enters the excavation
- plan not to use machinery in excavations while dewatering is taking place
- minimise water entering the excavation, for example from rainfall, runoff, groundwater ingress or high water table
- consider using sustainable urban drainage construction methods

The discharge must not be located within, or less than 500 metres upstream of:

- Sites of Special Scientific Interest (SSSI)
- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)
- candidate SACs, possible SACs, potential SPAs and sites of community importance
- internationally designated Ramsar sites
- other nature conservation sites, such as ancient woodlands, local and national nature reserves
- local wildlife sites

A bespoke permit will be required where the conditions in the RPS can not be achieved.

9. Surface Water Management

Discharge to Foul / Combined Sewer

All discharges to a foul / combined sewer will be defined as a trade effluent and will require a Trade Effluent Consent from a sewerage undertaker. Due to the market being opened up to competition, these should be applied for through a 'Retailer', this can delay the application process.

Discharge to foul, will include specific requirements that will be defined by the local water authority.

Trade Effluent Consents normally take around 4 – 6 weeks to grant, these are less likely to be granted during periods of heavy rainfall.

To apply for a Trade Effluent Consent you will need the following information:

- The source of the trade effluent
- Any treatment processes that will be applied.
- The amount of water that will need to be discharged (volume per day and maximum flow rate)
- Any known contaminants that will be in the trade effluent (for ground water refer to SI)
- The drain which you want to discharge to and how the amount discharged will be measured

The Trade Effluent Consent will apply limits to what can be discharged, these will normally be:

- Maximum quantity discharged in 24 hour period (typically 50 M^3 – 150 M^3)
- Maximum flow rate of discharge (typically 2 l/s – 5 l/s)
- Amount of suspended solids (typically 200 mg/l – 1,000 mg/l)
- No hydrocarbons (oils)
- Limits on any known contaminants

The discharge needs to be sampled and monitored to ensure the limits are adhered to as follows:

- Discharge quantity must be measured, usually by a water meter, and volumes given regularly to the sewerage undertaker (they will use this information to charge for the discharge)
- A sample must be taken and tested by a UKAS laboratory against the limits of the Trade Effluent Consent before any water is discharged
- Regular sampling may be required (frequency to be agreed with sewerage undertaker)
- Before each discharge a sample should be taken and assessed for visual clarity (see below)

If there are no known contaminants then visual monitoring for suspended solids and oil is acceptable using the following procedure:

- Take photograph of sample(s) sent to UKAS laboratory against a surface of regular colour (e.g. wall of site cabin) – this is used as a controlled sample
- Take photograph of sample(s) before discharge in sample bottle of same dimensions against the same surface as the control sample
- Compare the photographs of the current sample and control sample
- If the current sample is lighter than the control and there are no visible signs of oil then discharge can commence

10. Construction Logistics

B+K

10. Construction Logisitics

Site accommodation will be located in nearby rented office space, there will be limited welfare on site (**Appendix B**).

Due to the site location solid hoarding will be erected to the boundary. (see full site phasing plans see **Appendix B**).

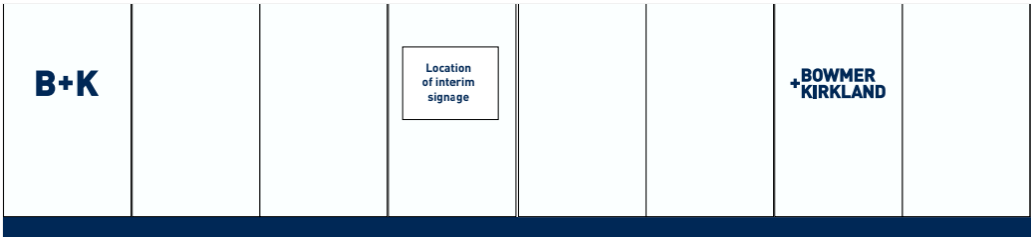
All site fencing including site boundary will be inspected on a daily basis by B+K Site Management and records maintained.

Site Security

Site Gate's will be manned at all times throughout the construction period to ensure minimum impact to local highways for deliveries in accordance with the working hours.

The Site will be secured at all times. A separate pedestrian access gate will be provided. Access to site will be controlled via biometrics turnstile control.

B+K Standard Hoarding Design



B+K Standard Pedestrian Access gate

Representative example of B+K Site Entrance.

10. Construction Logisitics (continued)

The Gate Cabin will be the focal point for all vehicles entering / leaving the site. This will be the operational base for our security personnel who will manage access and egress from the site alongside the biometric system.

In order to reduce disruption to neighbouring businesses and residents during the construction periods we will take several steps to ensure as little impact as possible on the roads surrounding the site. These will include the following.

- All subcontractors will be advised of the requirement for site tidiness, and enforcement of this rule will take place.
- Newsletter drops to local community informing of progress and planned works.
- Should any complaints arise, they will be dealt with promptly and courteously, and suitable compromises agreed wherever practicable, subject to the normal restrictions of construction sites, (see Complaints Procedure, page 6)
- There will be limited parking on site, the nearest public car park is 0.3 miles from the site.
- Operatives will not be permitted to park on Park Lane.
- Minimise the accumulation of loose materials on site road by regular sweeping.
- Ensure bulk deliveries/collections are sheeted (where appropriate).
- Provide wheel washing facilities at site exit.

Due to the location of the project it is imperative we reduce the risk of any mud on the surrounding roads due to the construction process.

Due to scope of works and use haul roads there will be limited tracking out of mud from the site. Should this occur the following methods can be used:

1) A jet wash can be used at the exit from the construction area to ensure that vehicles wheels are cleaned before tracking onto the school access road.
2) Road sweepers may be used to keep the school access roads clear, especially during site strip and soil removal.
3) Gully Guards (or similar) can be used to protect existing road gullies from silt, and will be subject to regular inspections. These will be checked daily during wet weather periods.

Storage of Materials

The storage of materials will be limited to the site boundary, as the building progresses the ground floor will be used for construction materials storage.
A lay down and storage are is also located within the site compound.

Site Welfare

Site welfare will be located in a nearby rented office space, due to site restrictions welfare on site will be limited to:

- Toilets
- Storage Containers

Vehicle Dwell Times

Construction delivery vehicles are not anticipated to be required on-site for a period longer than necessary to safely unload, depending on materials being delivered or collected. The Site Manager will allow sufficient times between deliveries to ensure that no vehicles arrive or depart at the same time, to minimise potential disruption to traffic flow on the surrounding local highway network.

Vehicle Compliance

Construction or delivery vehicles must not be parked on any street within the close proximity of site or stop on the access road through the school. The vehicles must not wait or idle-run in the area in order to reduce congestion and vehicle emissions.

Delivery Restrictions

Due to the site being within a live school site deliveries will not be permitted 08:00 till 09:00 and 15:00 till 16:00 during term time, this is to reduce the vehicle movements during peak traffic times reducing the impact to local highways. The exception to this will be for construction critical deliveries such as concrete or abnormal loads.

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10. Construction Logisitics (continued)

Logistics Route

Construction traffic would use strategic roads to access and egress the site as far as possible. Each of these roads are designed to carry high volumes of strategic traffic, including construction vehicles.

What Three words: ///gangs.duty.crisis

From South, West & North (via A6, A34, A56 & M602 - Blue Route)

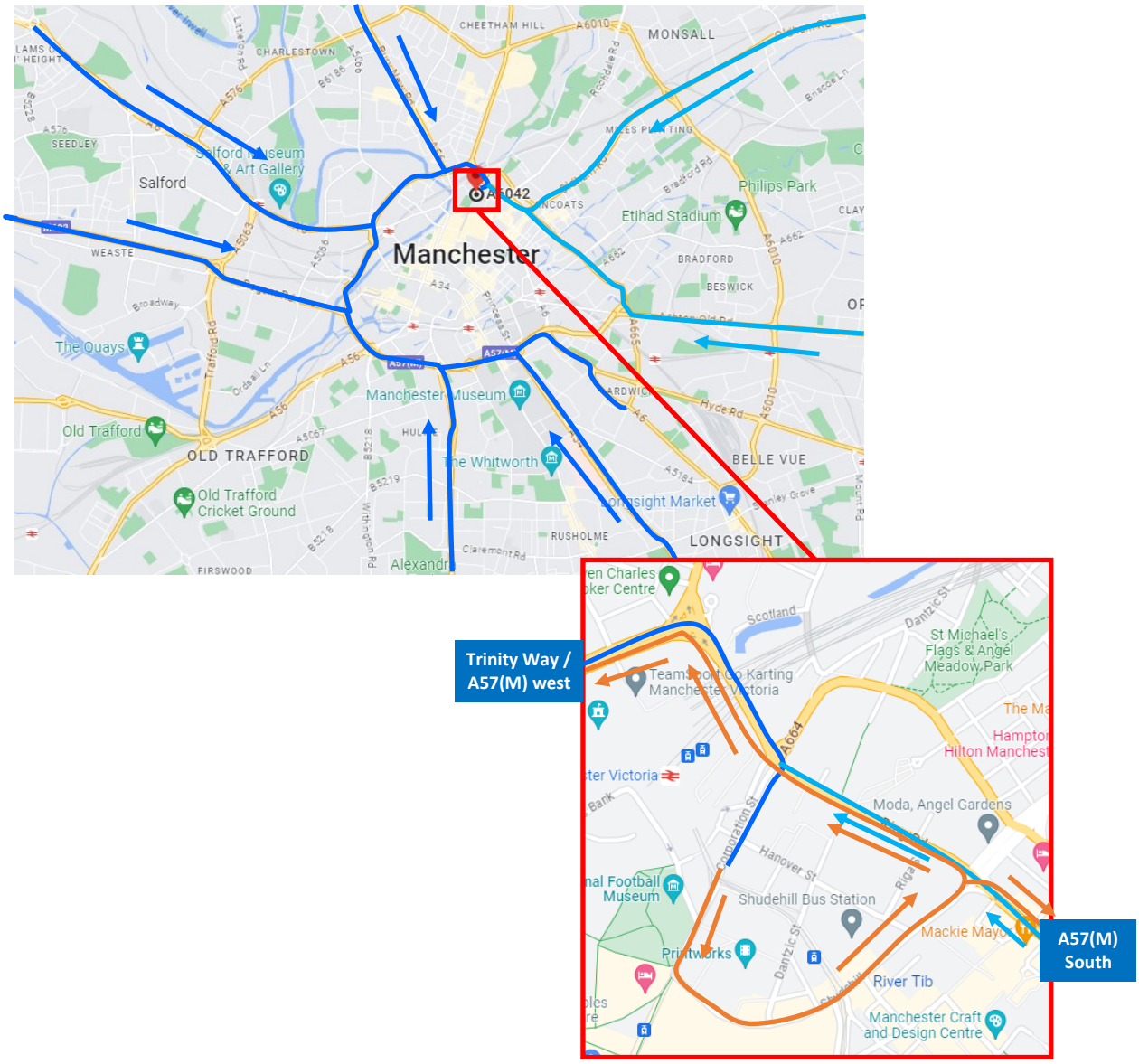
Head towards Manchester on either A6, A34, A56 or M602, at the inner ring road head clockwise (A57(M)/Trinity Way), using the right lane turn right onto Cheetham Rd/A665, then turn right into Corporation Street, for railway station, the site entrance will be on the right

From East (via A62, A635, & A57– Lt Blue Route)

Head towards Manchester on either A62, A635, A6 or A57, at the inner ring road head anti-clockwise on A57(M) the bear slight left onto Great Ancoats/A665, continue straight long the A665/ Ring Road after 1 mi turn left into Corporation Street for Rail Way Station, the site entrance will be on the right

Route From Site (Orange Route)

On leaving the site unloading zone head straight along Corpation Street then follow the one way system on to Withy Grove, continue straight along Shudehill, at the ring road turn left onto Ring Road then follow strategic routes for A664 and south along Ring Road or A665 north via Trinity Way.



10. Construction Logisitics (continued)

Construction Vehicle Movements

The following table details the typical “Large Construction Vehicles” that may be required on site, these numbers will be dependant on the phase of works being undertaken., the numbers stated are indicative of the potential number of vehicle movements and will vary depending on construction programme phasing throughout the project.

For the avoidance of doubt, “Large Construction Vehicle” will be defined as any vehicle larger than a long wheel base transit type van (length 4.1m, width 1.7m, height 1.8m, payload 1200 – 1500kg). Vehicles below these specified dimensions will be defined as “General Construction Vehicles”.

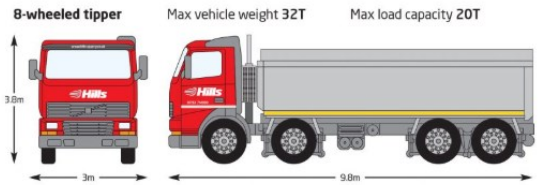
Frequency of Large Construction Vehicles

Construction Activity	Type of Vehicle	Size of Vehicle	Number of Movements (Daily)	Duration
Muck Away	8 Wheel Tipper	10m x 2.5m	30[1]	Medium
Working Platform	8 Wheel Tipper	10m x 2.5m	10[2]	Short
Foundations - Concrete	Concrete Mixer	7.5 x 2.5m	8	Medium
RC Frame	Concrete Mixer	7.5 x 2.5m	10	Long
Roofing	Rigid (<26 ton)	12m x 2.5m	2	Short
Façade	Flatbed / Articulated	16m x 2.5m	6	Long
Building Services & Fit Out	Rigid (<26 ton)	12m x 2.5m	10	Long
Demolition	8 Wheel Tipper	10m x 2.5m	15[3]	Medium
Landscaping	8 Wheel Tipper	10m x 2.5m	10[1]	Short

[1] Dependant on quantity of soils and distance to disposal site
[2] Dependant on quantity of aggregates being imported

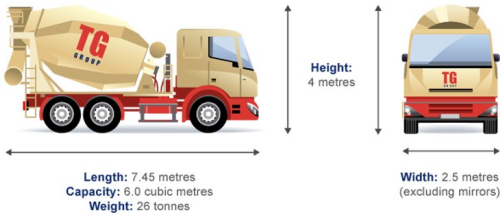
Types of large construction vehicles:

8 Wheel Tipper



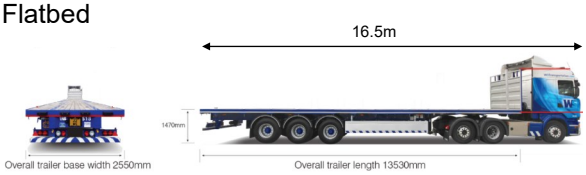
Rigid (<26 ton)

Concrete Mixer



Articulated

Flatbed



11. Waste Management

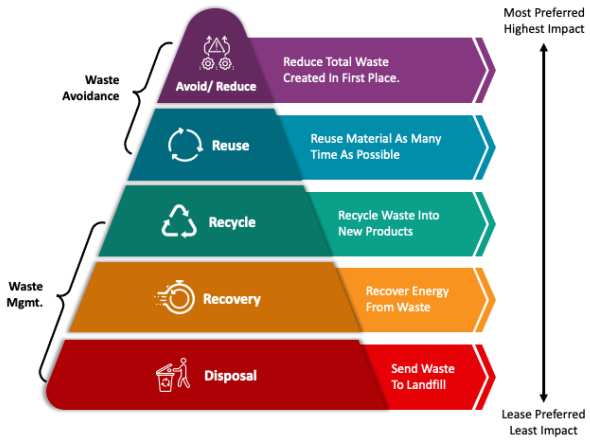
B+K

11. Waste Management

Bowmer and Kirkland will record all waste generated on site in a SWMP, this will be used to report on the performance of waste management on the site.

Waste Hierarchy

Bowmer and Kirkland will manage waste and develop the SWMP in accordance with the waste hierarchy. Specifically, the amount of waste produced will be minimised by consideration in development of the design and, where produced, will be reused before recycling / disposal options are considered.



Prior to Work Commencing on Site

A project specific Environmental Impact Assessment (EIA) will be undertaken by the construction management team. This assessment will embrace any specific site needs/requirements identified by the team in connection with waste management issues including any existing or generated hazardous material.

A Site Waste Management Plan (SWMP) will be prepared to enable a considered, documented approach to the management of waste on the project, this will include the Planning and Review of waste management for the project.

The person responsible to implement the SWMP is to ensure all relevant B+K personnel are aware of their duties before and during the project.

All Sub-contractors are informed of their general duties under the SWMP during pre-contract meetings and are required to sign up to the SWMP as part of the meeting.

Construction Waste

All site operatives will receive an induction on how waste is to be managed on the project before starting work on site, further toolbox talks are to be provided to operatives as required to meet the requirements of the SWMP:

- The site plan is to be updated to include provisions for access, materials storage and location of waste storage areas and containers ensuring minimal damage to materials by excessive handing and inappropriate storage.
- All skips and containers are to be colour coded or signed in line with the national colour coding scheme.
- Site security is to be provided to ensure waste is not removed by unlicensed contractors or contaminated by other waste producers.
- Duty of care checks are to be conducted on all waste management companies before they are permitted to take waste off site ensuring they are licensed to deal with type of waste being sent
- Hazardous waste is to be segregated and stored adequately to prevent contamination.
- Plasterboard and gypsum is to be segregated on site.

Copies of all waste transfer notes and hazardous waste consignment notes are immediately reviewed by the B+K site management team and kept within the SWMP

Disposal directly to landfill sites is generally to be avoided, where required the waste is segregated on site to recover as many reusable or recyclable materials as possible. Where segregation is not possible an agreement with the waste management contractor is to be made to treat the waste in accordance with the landfill regulations, it is B+K policy to achieve at least 95% diversion from landfill.

Records of all waste removals are recorded in the SWMP, this is by inclusion of the waste transfers note or hazardous waste consignment note within the SWMP and inputting of date into the SWMP spread sheet tool.

Regular reports are to be obtained from waste management contractors, these would normally include actual weights received, amount of waste recycled or recovered and amount of water sent to landfill.

The SWMP is to be reviewed on a regular basis by the person responsible for the SWMP to ensure it is up to date and effective. The results of these reviews are discussed with the B+K site management team during internal project review meetings to identify areas for improvement. Any actions agreed during these reviews are communicated externally to the sub-contractors and/or other parties where relevant.

11. Waste Management

Waste from construction activities will be disposed through an appointed waste management contractor, appointment will be on the basis of their performance of diverting mixed waste, from landfill by the following principles will be employed:

- Pollution from waste will be minimised by using the correct and safe storage of the waste.
- Segregation of different types of waste as they are generated.
- Marking of waste containers clearly with their intended contents.
- Using containers suitable for their contents.
- Disposing of different wastes in the correct containers.
- Checking the condition of waste containers before use.
- Placing containers in impervious bunded areas (if required)
- Ensuring that containers are securely covered (If required)
- Preventing damage to materials during storage

Excavation Waste

Where suitable soils will be retained for reuse on site, this will depending on:

- Cut and fill balance
- Contamination
- Geo-technical suitability

Where made ground or contaminated soils are present a Materials Management Plan under CL:Aire DoWCOP can be used to plan, monitor and report on the re-use of excavated soils on site to ensure that legal obligations are fully complied with.

Clean natural occurring materials are exempt under the Waste framework Directive and is not designated a waste until it is intended to be discarded.

All excess soils will be removed from site to an appropriately licenced disposal site for re-use off site.

Concrete excavated materials or demolition waste crushed on site will be in accordance with the WRAP Quality Protocol for Aggregates which will allow for the re-use of crushed material as it will no longer be designated as a waste. Any excess crushed material can be removed from site as a none waste for re-use offsite.

Duty of Care

Prior to removal of any waste from site Bowmer and Kirkland will carry out the following Duty of Care checks:

- Valid waste carrier's licence
- Ensure the waste carrier is authorised to carry the type of waste for disposal.
- Obtain details of waste disposal sites and verify the waste disposal licence in place.
- Carry out checks of carriers and disposal sites with the Environment Agency Public Register.

Once the checks are completed Bowmer and Kirkland will:

- Maintained records of waste transfer and record in Smartwaste
- Keep copies of all transfer notes of waste sent off-site.
- Check that the waste is going to the correct disposal centre as documented on the transfer notes.

12. Implementation and Review

B+K

12. Implementation & Review

The control measures identified in the CEMP, and sub-ordinate documentation, will be implemented by the following means:

- Relevant information will be communicated to sub-contractors before an order is placed during a pre-contract meeting. An order will only be placed with a sub-contractor following a commitment that they will work to the control measures specified. Where they are required to appoint specific plant, equipment or specialist resources this will be stated in their contract.
- Sub-contractors will be required to submit a detailed method statement for all works they undertake stating detailed control measures. This will be reviewed and authorised by the Site Manager prior to the commencement of operations.
- All sub-contractors will be required to monitor their own works and provide a permanent on-site Supervisor. Where many operatives are provided Supervisors will be required at a ratio of 1:8 with site operatives.
- All site operatives will be required to attend a site induction before undertaking any work. The induction will be conducted by the Site Manager and will include all control measures site operatives are required to work to.
- Access and egress from the site for operatives and deliveries / collections will be controlled by a gateman who will be supervised by the Site Managers.
- The Site Managers will walk the site daily to monitor the works and implementation of the specified controls. Where actions are required to further implement controls these will be raised with the sub-contractor's supervisor. If required they may use a red / yellow card disciplinary and or toolbox talks to improve the implementation of the specified controls.
- Any incidents or visits from regulators will be reported to the Environmental Manager by the Site Manager as an official visit.

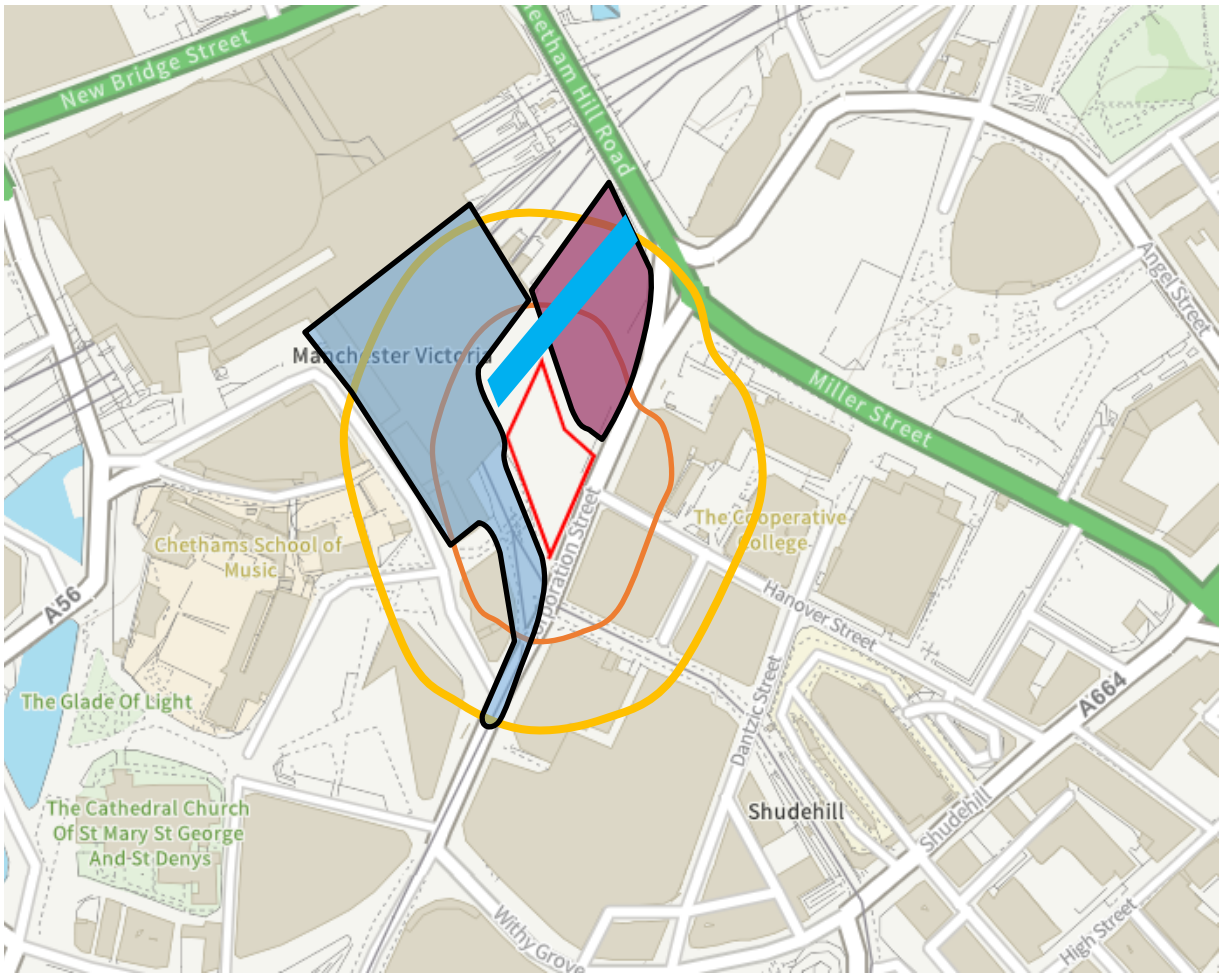
In addition to the monitoring described, the implementation and effectiveness of controls will be reviewed as follows:

- The Site Manager will conduct an inspection on general good order and security on a daily basis.
- The Site Manager will conduct an inspection of all environmental controls on a fortnightly basis, this will be alternated with the external inspection described below.
- RG Wilbrey Consultants will conduct an inspection of all environmental controls on a fortnightly basis.
- The Contracts Manager or Regional Director will conduct an inspection of environmental controls on a monthly basis.
- The Environmental Manager will ensure the project will be audited for compliance with our Environmental Management System, controls which have been specified and legal requirements at least once during the project.
- A project meeting will be held on a monthly basis, to be attended by the Site Project Team, to review the results of the above monitoring and inspections. The effectiveness of the specified controls will be considered and any actions required to improve the overall environmental performance of the project agreed and documentation updated accordingly.

Appendix A
Sensitive Receptors

B+K

Appendix A - Sensitive Receptors

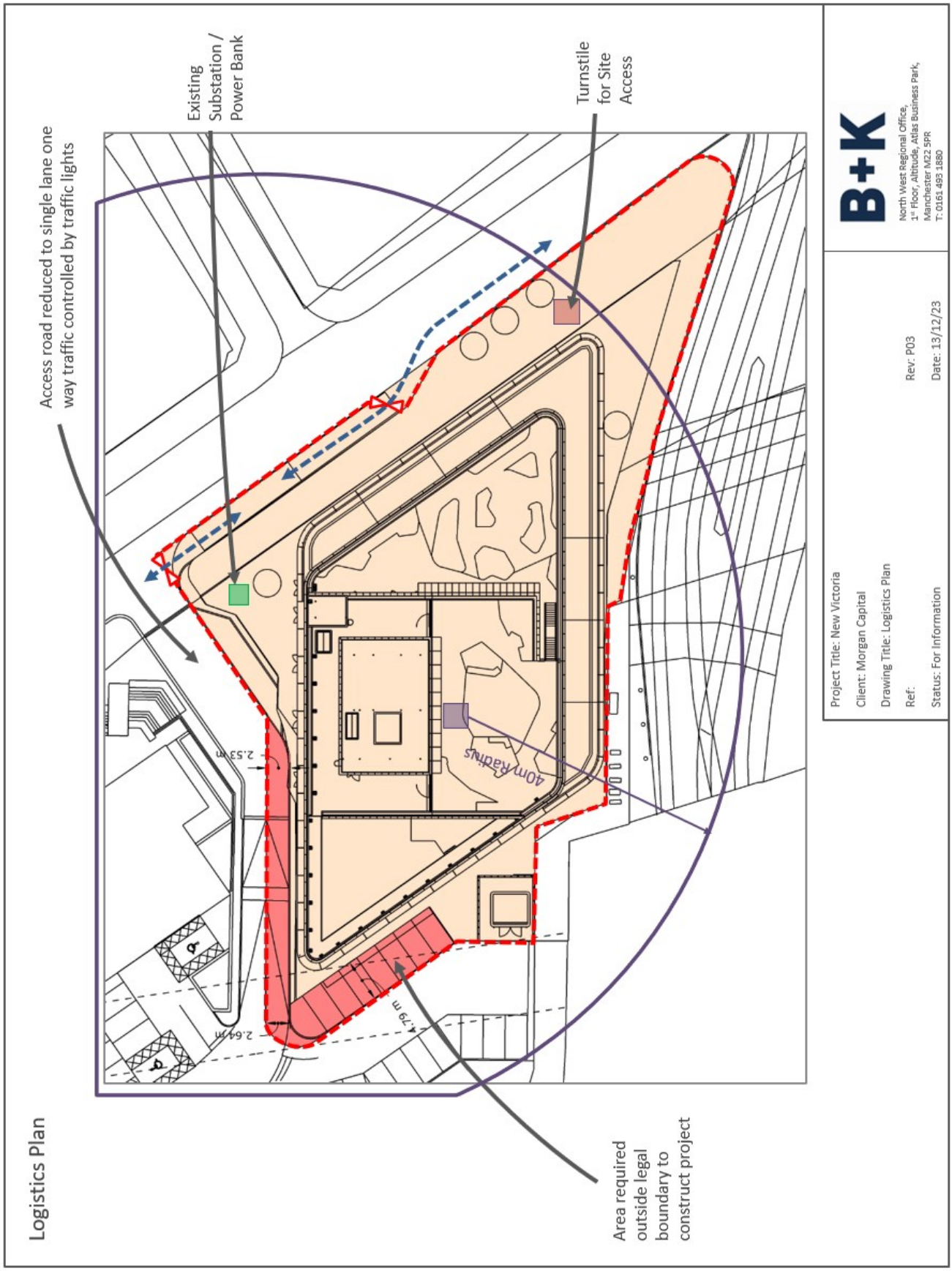


- Commercial
- Residential
- Victoria Station / Railway
- Culverted River Irk

Appendix B
Site Logistics Plans

B+K

Appendix B - Site Logistics Plan



Appendix C
Quality, H&S and Environmental Policies

B+K

Environmental Policy

Bowmer + Kirkland is committed to promoting the conservation and sustainable use of natural resources, to preventing environmental pollution and to promote energy efficiency in all of its own construction activities and those of its sub-contractors and suppliers.

To achieve a high standard of environmental performance on our construction projects and related operations, we are committed to operating and maintaining a certified Environmental Management System that complies with ISO 14001: 2015. To promote efficiency this is part of an Integrated Management System which also complies with ISO 9001: 2015 (Quality) and ISO 45001:2018 (Health + Safety).

It is the general policy, therefore, to:

- Minimise any potential effects on the environment arising from site operations
- Liaise with our Clients on any potential environmental and sustainability issues and work with them to address issues and concerns
- Set clear environmental objectives and targets that are regularly reviewed to enable continual improvement in our overall environmental management performance
- Provide appropriate training for our employees
- Foster a constructive working environment through liaison with government and other interested parties, together with the communities in which we work.
- Conserve energy through minimising consumption, maximising efficiency and monitoring our carbon emissions
- Develop management processes and operational procedures to prevent pollution and enable compliance with environmental laws, regulations, codes of practice and other relevant obligations
- Minimise the use of materials which may be harmful to the environment
- Promote efficient purchasing which will avoid waste, incorporate sustainable materials and allow for materials to be recycled at the end of building life.
- Employ sound waste management practices and encourage the efficient use of materials
- Promote prudent environmental practice in design
- Recognise and encourage the contribution every employee can make towards improving the Company's environmental performance

This Environmental Policy, together with our Management System, will be periodically reviewed to ensure their continued suitability within an ever-changing industry.

Signed:

J A C Kirkland - Chairman
Date 31st January 2023

B+K

Health & Safety Policy Statement

Bowmer + Kirkland Ltd and its subsidiaries (the Group) is a family owned business and promotes family values. Health & Safety is a core business value. We are committed to creating a future free of accidents, incidents, and ill health as a result of our activities.

We are committed to working with our Clients and other external interested parties to manage and control Health & Safety risks. Managing safety, health and wellbeing and engaging with, and training our workforce are integral to how we work along with the consultation and participation of workers

The Group wish to maintain workplaces where everyone is valued, all views are listened to and a safe and healthy working environment is the norm and not the exception.

It is the Group's belief that all accidents and occupational ill health can be prevented by adherence to our policies and procedures. We take a sensible, positive approach towards Health & Safety. We seek to comply with all applicable legislation, reducing risks to the lowest level we reasonably can. Good practice is accepted as core value throughout the business and integral to maintaining a strong, positive safety culture.

Nothing we do is so important that we cannot take the time to do it safely. No one is asked or expected to work unsafely.

We take pride in everyone returning home safely every day, and we will actively target any matters of concern.

All efforts will be made, and sufficient resources will be made available to maintain, as far as reasonably practicable, a safe and healthy environment at every location under the Group's control.

We embrace the principles of leadership and endeavor to help everyone in our business to eliminate hazards and reduce OH&S risks, work safely and prevent unsafe work practices, and will never knowingly walk past an unsafe act or condition on site.

Documented arrangements are maintained in our Health & Safety Management System based upon ISO 45001:2018 and the Company's operational procedures. Compliance and continual improvement are achieved by effective implementation of this Policy and monitoring and audit to evaluate performance and progress This Group Health & Safety Policy is reviewed on an annual basis and monitoring the implementation of this policy is supported by the Group Director of Health & Safety and his Team.

Leadership, passion and commitment are present at all levels. The Group expects and requires all levels of Management and Supervision to actively initiate and pursue ways and means of making the working environment as safe and healthy as possible.

It is the responsibility of ALL our employees and subcontractors to comply with legal, moral and company safety requirements. Good safety behaviour is admired, respected and recognised across the Group. Peer pressure will reinforce policing – acting unsafely is anti-social.

All the Group Companies' Directors acknowledge their responsibility for successful implementation of the Health & Safety Policy and for promoting the continual improvement of Health & Safety within their Company.

Proper management of Health & Safety is critical in the future development of the Group and in safeguarding its reputation. Attitude and behaviour, not just statistics, are a measure of success. Our business welcomes those who support our vision and are willing to work with us – without compromise on safety.

Signed:

J A C Kirkland - Chairman
Date 31st January 2023

Quality Policy

At Bowmer and Kirkland, we are dedicated to achieving the highest level of satisfaction for our clients in everything we do. Over time, the company has both grown and adapted, meeting the changing circumstances and priorities of our industry. Whatever the changes and challenges we have faced, we have remained committed to our core principle of always delivering complete client satisfaction.

Across the whole Bowmer and Kirkland Group, we recognise the importance of promoting a quality led culture. We achieve this through consistent development of our businesses and of our people. Consistency is delivered via robust management systems, systems that provide our clients with added value throughout whole project lifecycles. Our systems ensure we can understand and meet regulatory, project, and client specific requirements. Our aim is not only to deliver our client's expectations, but exceed them.

To achieve the quality performance standards on our projects, we are committed to operating and maintaining a Quality Management System (QMS) that complies with ISO 9001: 2015. To promote efficiency, this sits within our other integrated management systems which comply with ISO 14001: 2015 (Environmental) and ISO 45001: 2018 (Health & Safety)

Bowmer and Kirkland is committed to the promotion of effective and efficient performance, delivered by our quality management system, and has set the following strategic aims:

- We will ensure that all employees remain dedicated to looking after our client's best interests
- We will provide adequate support and resource to enable our systems and people to deliver the requirements
- We will invest in our people to develop the skills, knowledge and capability of all existing and new employees so that we can successfully meet the changing needs and expectations of our clients and other interested parties.
- We will monitor the effectiveness of our Quality Management System and promote high standards of quality on all projects undertaken by the company.
- We will set & communicate clear essential business objectives and targets that are regularly reviewed to enable continual improvements.
- We shall support the continual review and development of our management systems to ensure company objectives are aligned with our core principles.

This Quality Policy, together with our management systems, will be periodically reviewed to ensure their continued suitability within an ever-changing industry.

Signed:

J A C Kirkland - Chairman
Date 31st January 2023

B+K

Appendix D
Management System Certificates

B+K

bmtrada
Proud to be part of element

CERTIFICATE OF REGISTRATION

This is to certify that

Bowmer and Kirkland Ltd
High Edge Court
Heage
Belper
Derbyshire
DE56 2BW

0012

has been audited and found to meet the requirements of standard
ISO 14001:2015 Environmental Management System

Scope of certification
Building Contracting, including Design & Build.

Certificate number: 1133

Issue number: 2023-01

Certificate effective date: 1 February 2023

Certificate expiry date: 18 February 2026

Date of initial certification: 19 February 2008

Vicki Howlett
General Manager – Certification UK

Issuing Office: Warringtonfire Testing and Certification Limited t/a BM TRADA Chiltern House, Stocking Lane, High Wycombe, Buckinghamshire, HP14 4ND, UK
Registered Office: Warringtonfire Testing and Certification Limited, 3rd Floor, Davidson Building, 5 Southampton Street, London, WC2E 7HA, UK Reg No. 11371436.

This certificate remains the property of BM TRADA. This certificate and all copies or reproductions of the certificate shall be returned to BM TRADA or destroyed if requested. Further clarification regarding the scope of this certificate and verification of the certificate is available through BM TRADA or at the above address or at www.bmtrada.com/certified-companies/check-a-certificate

The use of the UKAS accreditation mark indicates accreditation in respect of those activities covered by the accreditation certification number 012. For further information on bmtrada activities covered by UKAS accreditation please go to: https://www.ukas.com/search-accredited-organisations

bmtrada
Proud to be part of element

CERTIFICATE OF REGISTRATION

This is to certify that

Bowmer and Kirkland Ltd
High Edge Court
Heage
Belper
Derbyshire
DE56 2BW

0012

has been audited and found to meet the requirements of standard
ISO 45001:2018 Occupational Health and Safety Management System

Scope of certification

Building Contracting, including Design & Build.

Bowmer and Kirkland Ltd is deemed to satisfy and is registered to the SSIP Accredited Registered Scheme, which covers all ISO 45001:2018 certified sites detailed in this certificate, for the duration of this certificate and for the following CDM categories (Principal Contractor, Designer and Principal Designer). This certificate on its own should not be considered evidence of registration. To verify this organisations registration please go to the SSIP Portal: http://www.ssipportal.org.uk/Home

Certificate number: 304

Issue number: 2023-01

Certificate effective date: 1 February 2023

Certificate expiry date: 18 February 2026

Date of initial OHSMS certification: 16 June 2009

Date of initial ISO 45001:2018 Certification: 14 April 2020

Vicki Howlett
General Manager – Certification UK

Issuing Office: Warringtonfire Testing and Certification Limited t/a BM TRADA Chiltern House, Stocking Lane, High Wycombe, Buckinghamshire, HP14 4ND, UK
Registered Office: Warringtonfire Testing and Certification Limited, 3rd Floor, Davidson Building, 5 Southampton Street, London, WC2E 7HA, UK Reg No. 11371436.

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bmtrada
Proud to be part of element

CERTIFICATE OF REGISTRATION

This is to certify that

Bowmer and Kirkland Ltd
High Edge Court
Heage
Belper
Derbyshire
DE56 2BW

UKAS MANAGEMENT SYSTEMS
0012

has been audited and found to meet the requirements of standard
ISO 9001:2015 Quality Management System

Scope of certification

Building Contracting, including Design & Build.

Certificate number: C1000

Issue number: 2023-01

Certificate effective date: 1 February 2023

Certificate expiry date: 18 February 2026

Date of initial certification: 1 September 2000

Vicki Howlett
General Manager – Certification UK

Issuing Office: Warringtonfire Testing and Certification Limited t/a BM TRADA Chiltern House, Stocking Lane, High Wycombe, Buckinghamshire, HP14 4ND, UK
Registered Office: Warringtonfire Testing and Certification Limited, 3rd Floor, Davidson Building, 5 Southampton Street, London, WC2E 7HA, UK
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Planet Positive verifies that Bowmer & Kirkland have aligned their Social Responsibility Policy, Procedures & Practices with ISO 26000:2010

Steve Malkin, CEO Planet Positive
1st May 2012

Planet Positive

ISO 26000:2010 - Social Responsibility

Bowmer & Kirkland's Social Responsibility Policy, Procedures & Practices encapsulate the seven fundamental core principles of social responsibility:

Organisational Governance	*Ensuring that an organisation has an effective system and structure in place to implement its social responsibility policies.*
Human Rights	*The guarantee that Bowmer & Kirkland respects the fundamental rights of the people that it interacts with. It means, for example, promoting equal opportunities and diversity.*
Labour Practices	*Practices to ensure that the health and wellbeing of Bowmer & Kirkland's employees and those working on behalf of B&K are safeguarded, that they are well trained and receive opportunities for development.*
The Environment	*Stems from the recognition that businesses have an impact on their environment, both directly and indirectly. Puts procedures in place to minimise this and wherever possible have a positive impact.*
Fair Operating Practices	*Commits Bowmer & Kirkland to ethical, honest and fair transactions with other parties. Also promotes harmonious working practices bewteen management and Bowmer & Kirkland's employees.*
Consumer Issues	*Gives consumers the confidence that Bowmer & Kirkland have their best interests at heart. Focused primarily on B&K delivering complete customer satisfaction.*
Community Involvement & Development	*Acknowledges the important role that Bowmer & Kirkland plays in the wider community and that Bowmer & Kirkland can promote positive community development through engagement.*

BSI British Standards

BOWMER + KIRKLAND