Environmental Impacts & Aspects

Environmental Aspect	Environmental Effects	Control Measures	I	I	F	Score	Level of significance
Use of plant and equipment	Noise resulting in nuisance to neighbours, or disturbance to wildlife. Dust creation during operations & when moving over unmade ground, resulting in potential harm to human health or damage/ disturbance of wildlife. Potential to create ground/groundwater pollution through leaking equipment when working on unmade ground. Use of fossil fuels	Monitor noise (if required); use baffles, silencers, acoustic screening. Maintain equipment to ensure efficient operation. Adhere L.A Section 60 agreement. Damp down when working in dry conditions and/or open areas Drip trays to be used under all mobile (diesel powered) plant. Spill kits to be available in areas where plant is being used, and operatives trained to use them properly. Maintain equipment; repair leaks immediately Ensure machines are turned off when not being used Maintain and inspect on a frequent basis	4	5	5	100	High
Use of electricity	Use of natural resources	Switch of all un used electrical equipment even when in standby mode Only use energy efficient equipment	3	5	5	75	Medium
Delivery of Concrete to Site (via vehicle)	Groundwater/local watercourse pollution through washing-out of delivery chutes, etc.	Delivery vehicles to wash out in designated areas ONLY. Wash out areas to be designed & used in accordance with Environment Agency guidance.	3	4	5	60	Medium
Storage of Fuels & Chemicals	Ground/groundwater pollution through accidental spillages, leaking bowsers, and damaged drums.	Drums to be bunded. Make spill kits available; train operatives to use them properly. Make bulk fuel bowsers double-skinned. Padlock bulk fuel bowsers at all times, establish controlled access.	4	4	5	80	High
Generation & Handling of Waste (non-hazardous)	Increase in the use of landfill space, resulting in the production of landfill gas & leachate.	Provide specific containers to prevent contamination of non-hazardous and hazardous materials. Store construction materials properly to prevent damage & unnecessary waste. Use licenced waste carriers only. Use licenced waste management facilities only (e.g., tips, waste transfer stations). Complete waste transfer notes for every waste consignment, with reference to EU waste codes. Sheet waste loads before leaving site to prevent escape	4	5	5	100	High

		of wastes on the highways etc.					
Generation & Handling of Waste (hazardous).	Increase in the use of hazardous landfill space, and the potential to contaminate non-hazardous wastes, thus rendering them hazardous.	Provide specific containers to prevent contamination of non-hazardous and hazardous wastes. Use licenced waste carriers only. Use licenced waste management facilities only (e.g., tips, waste transfer stations). Waste consignment notes to be completed for every waste consignment, with reference to EU waste codes. Sheet waste loads before leaving site to prevent the escape of wastes on the highways etc.	4	5	5	100	High
Timber Procurement (e.g. formwork)	Potential to procure timber from poorly managed (unsustainable) sources leading to the loss of habitat & biodiversity.	Timber sourced must be FSC certified.Documents to be provided to P.C. project team before timber is procured.	3	4	5	60	Medium
Use of Temporary Lighting	Potential to cause disturbance to neighbours (& wildlife) through inappropriate placement of temporary lights	Ensure all temporary lights are sited to prevent causing disturbance to neighbouring premises. Only use energy saving neon tube lighting	4	5	3	60	Medium
Use of Water	Leaks from pipes and taps could cause drought. Running taps	Ensure all leaks are reported to the owners. Turn off taps when not in use	4	5	5	100	High

Importance x Influence x Frequency = score

Importance	
Score	**Description**
1	None or insignificant contribution to environment
2	Minor contribution to environment
3	Moderate contribution to environment
4	Major contribution to environment
5	Very relevant contribution to environment

Influence	
Score	**Description**
1	Mainly outside the control of the company
2	Minor influence
3	Medium influence
4	Major influence
5	Direct control

Frequency	
Score	**Description**
1	Over three years to never
2	Every year to once every three years
3	Every month to once every year
4	Every week to once every month

5	Every day to once every week

	LEVEL OF SIGNIFICANCE
	LOW
	MEDIUM
	HIGH

RISK ASSESSMENT MATRIX

Assessed Risk Levels

The likely severity of the harm caused by the hazard can be used as a guide to the risk potential.

Hazard - is the potential to cause harm
Risk - is the likelihood of that harm being realised.

Making a sensible judgement about the risk from a hazard involves considering (at least) two elements;

1. Frequency (the probability (likelihood) of the harm occurring).
2. Consequence (the likely severity of the harm to a person resulting either from an accident or ill-health due to the hazard.

By using the following levels:

Frequency:
1. Unlikely
2. Possible
3. Likely
4. Probable
5. Imminent

Severity:
1. Slight (minor injury, first aid required).
2. Moderate (minor injury, first aid/medical attention).
3. Serious (injury, medical attention, hospitalisation (3 day)).
4. Major (serious injury/death).
5. Catastrophic (number of casualties/deaths).

Multiply the **FREQUENCY** by the **SEVERITY** to determine the **RISK RATING.**

Frequency					
5	**5**	**10**	**15**	**20**	**25**
4	**4**	**8**	**12**	**16**	**20**
3	**3**	**6**	**9**	**12**	**15**
2	**2**	**4**	**6**	**8**	**10**
1	**1**	**2**	**3**	**4**	**5**
	1	**2**	**3**	**4**	**5**
	Severity				

1- 4 May be ignored (LOW)

5- 9 Control measures required (MED)

10 & above Design out if possible (HIGH)

RISK ASSESSMENT

Project Title:	**Astor College**	Project No:	**MBL/ASTOR/002**	Sheet No:	**1 of 3**
Activity / Operation:	**Ground works**	Prepared by:	**Gary Coleman**	Date:	**10/06/15**

Type of Assessment (tick as appropriate):	Site Specific:		Generic Assessment:		Routine Operation:				
Who may be harmed:									
Employees		Sub-contractors		Tenants		General Public		Visitors		Others	

Task	Hazard	Risk/Consequence	Assessment			Control Measures	Residual Rating		
			F	S	R		F	S	R
Occupational Health	Dust Noise HAVS Leptospirosis	Breathliness Chronic lung disease Hearing difficulties Tinnitus Possible Deafness Numbness of fingers and hands Vibration white finger Flu like systems/possible death	4	4	High	Dust suppression (water) to be used to dampen down dust Masks to be worn (FFP3 min) Noise protection zones to be implemented Ear protectors to be worn at all times due to the constant noise HAVS assessments to be carried out Trigger times to be adhered to 15 minute intervals for each operative Operatives to wear gloves when working in live manholes No food allowed to be eaten on site. Only in the canteen. Good hygiene/good welfare facilities	1	4	Low
Slips trips and falls	Waste Materials Greasy or Slippery Surfaces Voids, barriers and handrails left open	Falls of persons at height Falls of persons at ground level Minor cuts and scrapes and Major Injury and possible death	4	3	High	Good Housekeeping All spillages to be cleaned up immediately if cannot then must be signed and cordoned off All voids to be securely covered over Access routes must be kept clear of obstacles at all times Work areas to be kept clean and tidy All Alloy towers must be erected correctly by a competent persons No persons to erect or alter the alloy towers unless trained to do so	1	3	Low
Abrasive Wheels	Abrasive wheels or disc cutters moving at high speeds Flying particles High noise levels Sharp, hot edges on materials Sparks Manual handling	Bursting of abrasive wheel or disc Contact with wheel or disc Entanglement with moving parts Inhalation of dusts Exposure to high noise levels Fire Poor posture during use	2	4	High	The correct wheels are to be used for the work being carried out and the materials to be worked on. All flammable materials in the vicinity to be moved or adequately covered with fire resistant materials. Where practicable, work is to be carried out at a comfortable level to prevent the need for bending or stooping. Hot works permits to be obtained.	1	4	Low

						Suitable fire extinguisher to be within 1m of work area. Loose clothing or jewelry not to be worn by operatives. Long hair to be tied back. Equipment to be checked by user before use and by a competent person weekly. Wheels and discs to be stored correctly (i.e. laying on a clean, flat surface).			
Lifting Operations	Overloading of the excavator due to failure to estimate loads or by incorrect use. Unsafe methods of erection, alteration or dismantling. Unsafe Slinging Insecure loads Incorrect Signals or messages High Winds	Falls of Materials Failure of lifting equipment Contact Damage	3	4	High	Only trained slingers/signallers to CPCS standards are to sling loads All loose loads to be secured The correct lifting equipment is to be used Excavator to be fitted with RCI to prevent damage All lifting equipment must be marked up with the SWL/WLL All lifting equipment to have an up to date Thorough Examination Certificate All lifting equipment to be inspected on a regular basis	1	4	Low
Concreting	Movement of vehicles Moving parts of machinery Vibrating equipment Noisy equipment Pouring of concrete Concrete constituents Working at heights In situ reinforcing bar Binding wire laying around	Personnel being struck by vehicles Vehicles colliding with each other Entanglement Prolonged exposure to vibration Prolonged exposure to noise Splashes from concrete Contact with concrete Falls from height Being impaled on reinforcing bar Tripping over	3	4	High	Plant siting and traffic management schemes to be developed. All moving / reversing vehicles to be under the guidance of a competent Banksman. Concrete should not be poured too quickly. Safety glasses to be worn by anyone in the vicinity of the pouring operation. The ends of all re-bar which will be left protruding are to be capped. All excess binding wire to be frequent cleared away to prevent trips. Personnel involved in the concreting operation to wear long trousers, keep arms covered and wear gloves. Suitable footwear to be worn if persons need to stand in wet concrete. Suitable low vibration equipment to be purchased where practical. A vibration assessment is to be carried out on all vibrating equipment and trigger times marked. A noise assessment to be carried out by a competent person where there is a risk of personnel being exposed to high levels of noise. A suitable work at height plan to be developed for any activities which involve working at height. All edges (including excavations) or voids in floors are to be protected by suitable, physical, barriers. Where access to a leading edge is required a	1	4	Low

						suitable fall restraint / fall arrest system is to be used (additional risk assessment required). Suitable washing facilities to be provided to allow personnel to wash / shower. All work equipment to be checked before use with any defects reported to a supervisor immediately A COSHH assessment to be carried out for the concrete and any findings communicated.			
Use of Excavators	Lifting and lowering of materials in the bucket Working on uneven ground Overloading of bucket Operatives working in close proximity of excavator Excavator working in close proximity to buildings and other machinery. Fire	Bucket or load dropping inadvertently Over turning of machine Materials dropping from bucket Persons being struck by machine Restriction of operators vision Damage due to contact with buildings or other machinery Damage to man and machine	3	4	High	Only trained and authorised persons to operate machinery. Excavator must be suitable for the task. Travel and operations on a gradient must be controlled and ground conditions checked to ensure machines stability. Loads must not be slewed over personnel, vehicles, cabins or huts. Excavators to be at least 600mm away from buildings and other machinery for the clearance of the tail swing. A banksman to be used where drivers vision is impaired or operating in a congested area or close to buildings. When working near roads and pedestrian pathways work area to be fenced off. Trenching and deep excavations to be supervised at all times. Excavator to be maintained and in good working order. Excavators to be inspected visually, daily for oils and lubes and recorded weekly. Fire extinguishers to be placed in all excavators	1	4	Low
Excavations	Used by untrained persons Incorrect/insecure attachment of lifting accessories Unsafe slinging of load Lifting accessories Machine maintenance Personnel in lifting area Unstable ground	Damage to property and plant Crushing injuries and possible death	4	4	High	An assessment of the type of ground is to be carried out by a competent person. A survey is to be carried out to determine the likelihood of any underground services. The area of the excavation is to be CAT scanned by a competent person. Identified services are to be located by hand digging and marked. No mechanical excavating is to be carried out within 0.5m of any known services If persons are to enter the excavation, the sides are to be battered back to a safe free standing angle or the sides shored up using trench boxes, piles etc. Suitable monitoring equipment and personnel trained in its use will be required where known exposure to toxic substances or lack of oxygen may occur.	1	4	Low

						A suitable emergency plan is to developed where there is a likelihood of there being a presence of gas. Where flooding risk exists, cofferdams/caissons will be installed with pumps of suitable capacity. Suitable barriers and warning signs will be erected around all open excavations. Spoil and materials will be stacked at least 1.5m from the edge of excavations. A suitable means of access will be provided. Where machinery can drive into the excavation, a suitable access ramp will be provided with edge protection substantial enough to stop the largest machine. Gloves to be worn where personnel are handling materials of contaminated soils. High visibility clothing to be worn where personnel are working around heavy plant machinery			
Underground Services Location	Striking Underground Services	Fire and Explosion Water Ingress Electrocution	3	4	High	Plans and cable locating devices to be used before work commences Competent operatives to operate the Cat & Genny Services to be marked up with either spray paint or posts All services to be isolated if possible Trial holes to be dug using rubber handled blunt hand digging tools to confirm location No machines to excavate within 500mm of known services A permit to dig must be in operation Works to be supervised when close to known services Ground workers to be vaccinated against waterborne disease when working on or around live foul drain systems	1	4	Low

PERSONAL PROTECTIVE EQUIPMENT – TICK BOXES WHERE REQUIRED AND SPECIFY GRADE OF EQUIPMENT

Safety Helmet BS EN 397		Safety Footwear		Goggles / visors EN 166B		Hearing Protection		Safety Harness EN361		Gloves / Gauntlets		Over Shoes		High Visibility Jacket		Respirator FFP3	
Flash Overalls		Safety Glasses EN166F		High Visibility Trousers		Confined Space rescue Equipment		Wellington Boots		Welding Equipment		Class 5 Paper Overalls					
SSW Safe System of Work / Method Statement Required (Tick)								TB Toolbox Talk / Safety Awareness Talk Required (Tick)									

Name of Assessor(s)	Gary Coleman	Signature(s)	

COSHH Risk Assessment Record	Assessment Ref: MBL/COSHH/001

Project/Site: Church End School	Company: Modebest Builders Ltd
Substance: Diesel	Hazardous Contents: Distillate hydrocarbons

											
Yes:	No: X	Yes:	No: X	Yes:	No:X	Yes:X	No:	Yes:X	No:	Yes:X	No:
TOXIC (T)		IRRITANT (Xi)		CORROSIVE (C)		HARMFUL (XN)		FLAMMABLE (F+)		DANGEROUS TO THE ENVIRONMENT(N)	

Process: For use for plant and equipment	Activity: Refueling of plant
Location: Fuelling area	Personnel at Risk: Plant operatives, delivery drivers
Risk To Health:	
Injection under the skin may have serious medical effects. Inhalation of fumes may cause drowsiness leading to a lack of consciousness. Contact with the eyes will cause irritation and redness. Prolonged and repeated contact with skin may cause dermatitis which could lead to irreversible skin disorders. Risk of fire. Diesel spillages will cause surfaces to become slippy	
Risk Phrases: : R12, R45, R66, R38, R67, R51/53,	Safety Phrases: S2, S23, S24, S29, S43, S45, S53, S61, S62
Control Measures:	
Gloves and eye protection must be used when handling diesel. Wash skin thoroughly after use. Do not use near open flames or on hot plant. Treat any spillage as a fire hazard clean up with absorbent materials contained within spill kit. Store in a separate container on a bund within the environmental stores.	
Storage: Drums must be stored on a bunded area within a lockable container.	Disposal: Avoid any discharge into waterways or public sewerage system. Diesel will cause harm to environment.
Spillage: Clean up with absorbent materials. Diesel spillage will make surfaces very slippy.	Fire Information: Do not use near open flames or heat sources. Extinguish any fire with Dry powder, or Co2. The flash point of diesel is 60 degrees C
First Aid	
Eye Contact: Wash out thoroughly with large amounts of water. If irritation or redness continues seek medical assistance.	Inhalation: Remove to fresh air and seek medical assistance.
Skin Contact: Wash skin as soon as possible with plenty of soap and water. Change contaminated clothing.	Ingestion: Do not induce vomiting. Wash out mouth with water. Drink plenty of water. If a large amount has been swallowed seek medical assistance.
PPE	

Other Controls			
Monitoring:		Not Applicable	X
Health Surveillance:		Not Applicable	X
Training/Instructions Required			
Verbal Instructions: Toolbox Talks		Written Instruction: Follow manufacturers instructions	
Assessment Carried Out By: Gary Coleman		Date: 26/03/14	

COSHH Risk Assessment Record	**Assessment Ref: MBL/COSHH/004**

Project/Site: Church End School	**Company:** Modebest Builders Ltd
Substance: Concrete/ wet and dry	**Hazardous Contents:** Alkali Content, Silica particles






Yes:	No:	Yes:X	No:	Yes:	No:	Yes:X	No:	Yes:	No:	Yes:X	No:
TOXIC (T)		**IRRITANT (Xi)**		**CORROSIVE (C)**		**HARMFUL (XN)**		**FLAMMABLE (F+)**		**DANGEROUS TO THE ENVIRONMENT(N)**	

Process: Placing and working with Wet or Dry Concrete Mixes	Activity: Placing , cutting concrete
Location: Ring beams	Personnel at Risk: Operatives, Pump operator, drivers.
Risk To Health:	
Respiratory damage risk when cutting cured concrete due to content of silica particles. Contact with eyes may cause severe irritation and / or alkali burns. Allergic contact dermatitis may be caused by individual sensitisation	
Risk Phrases: R20, R21, R22, R43, R48.	Safety Phrases: S22, S24, S28, S29, S36, S37, S39.
Control Measures:	
PVC gloves wellingtons , long sleeved clothing, pants and eye protection to be worn at all times while working with wet concrete or dry mix. Wet cut to minimise dust release and respiratory dust mask to be worn by operatives. Adequate and sufficient welfare facilities must be in place by Principal contractor to ensure skin can be washed after working with concrete. Tool box talk on working with concrete to be communicated as an awareness or the risk of working with Concrete.	
Storage:	Disposal: Non Hazardous disposal subject to local Authority requirements.
Spillage: Do not allow spillages to enter water course. Spillage presents a slip/trip hazard clean up as you go	Fire Information: Not Flammable
First Aid	

Eye Contact: Wash immediately with plenty of clean water for at least 10 minutes. Seek medical attention particularly with wet mixes	Inhalation: Remove from dusty area and clear airways. If symptoms persist seek medical attention
Skin Contact: Remove heavily contaminated clothes. Wash with plenty of clean water. Seek medical attention for persistent redness, irritation or burning of the skin	Ingestion: Drink plenty of water. Do not induce vomiting. Seek medical attention

PPE

Other Controls

Monitoring: Records Attached			Not Applicable	X
Health Surveillance: Records Attached			Not Applicable	X

Training/Instructions Required

Verbal Instructions: Toolbox Talks	Written Instruction: N/A
Assessment Carried Out By: Gary Coleman	Date: 01/10/14

COSHH Risk Assessment Record **Assessment Ref: MBL/COSHH/002**

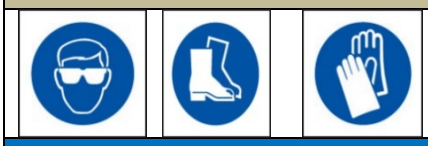
Project: Church End School	**Company: Modebest Builders Ltd**
Substance: Petrol	**Hazardous Contents:** Distillate hydrocarbons:

Yes:	No:	Yes:	No:	Yes:	No:	Yes:X	No:	Yes:X	No:	Yes:X	No:
TOXIC		IRRITANT		CORROSIVE		HARMFUL		FLAMMABLE		DANGEROUS TO THE ENVIRONMENT	

Process: Plant refueling	Activity: using petrol Saws
Location:	Personnel at Risk: Operatives, Third parties

Risk To Health:

Injection under the skin may have serious medical effects . Inhalation of fumes may cause drowsiness leading to a lack of consciousness. Contact with the eyes will cause irritation and redness. Prolonged and repeated contact with skin may cause dermatitis which could lead to irreversible skin disorders. Risk of fire. Petrol spillages will cause surfaces to become slippery. Contaminated material will remain flammable.

Risk Phrases: R12, R45, R66, R38, R67, R51/53,	Safety Phrases: S2, S23, S24, S29, S43, S45, S53, S61, S62
Control Measures:	
Gloves and eye protection must be used when handling petrol. Wash skin thoroughly after use. Do not use near open flames or on hot plant. Treat any spillage as a fire hazard clean up with absorbent materials contained within spill kit. Store in a separate container on a bund within the environmental stores.	
Storage: Drums must be stored on a bunded area within a lockable container. Transport around site in Jerry cans	Disposal: Avoid any discharge into waterways or public sewerage system. Petrol will cause harm to environment.
Spillage: Clean with absorbent materials. Petrol spillage will make surfaces very slippery. Contaminated clean up material will remain very flammable store and dispose in the same manner as petrol itself. The spillage area will pose a high fire risk due to vapor release. Area must be left to ventilate.	Fire Information: Do not use near open flames or heat sources petrol is extremely flammable. Extinguish any fire with dry powder or Co2. Allow hot plant and equipment to cool down before Re-fuelling.
First Aid	
Eye Contact: Wash out thoroughly with large amounts of water. If irritation or redness continues seek medical assistance.	Inhalation: Remove to fresh air and seek medical assistance immediately. If unconscious put in recovery position.
Skin Contact: Wash skin as soon as possible with plenty of soap and water. Change contaminated clothing.	Ingestion: Do not induce vomiting. Wash out mouth with water. Drink plenty of water. If a large amount has been swallowed seek medical assistance.
PPE	
	
Other Controls	

Monitoring:	Records Attached		Not Applicable	
Health Surveillance:	Records Attached		Not Applicable	

Training/Instructions Required	
Verbal Instructions: Toolbox Talks on environmental precautions	Written Instruction:
Assessment Carried out By: Gary Coleman	Date: 19/05/14

COSHH Risk Assessment Record	**Assessment Ref: MBL/COSHH/012**

Project/Site: Church End School	**Company: Modebest Builders Ltd**
Substance: Line Marker Spray Paint	**Hazardous Contents: Propane, Butane, Acetone, Naptha, Butoxyethonol and Methoxy-2-propanol**

					
Yes: No:	Yes:X No:	Yes: No:	Yes: No:	Yes:X No:	Yes:X No:
TOXIC (T)	**IRRITANT (Xi)**	**CORROSIVE (C)**	**HARMFUL (XN)**	**FLAMMABLE (F+)**	**DANGEROUS TO THE ENVIRONMENT(N)**

Exposure Time: TWA – 8hrs	WEL: Methoxy-2-Propanol -100ppm/375mg/m^3 Butoxyethanol -25ppm/ Acetone 500ppm/1210mg/m^3 Butane 600ppm/1450mg/m^3 Propane – asphyxiating Naptha - 600mg/m^3
Process: Marker Spray	Activity: To mark lines out for measurements and identification
Location: Pile cap areas	Personnel at Risk: Operatives, Engineers

Risk To Health:

Extremely flammable.
Repeated exposure may cause skin dryness or cracking.
Vapours may cause drowsiness and dizziness.
Irritating to eyes
Harmful to the environment

Risk Phrases: R12, R36, R52/53, R66, R67	Safety Phrases: S2, S9, S16, S23, S25/26, S37, S51, S56

Assessment of Risk: (before control measures are put into place)

Severity: 4 Likelihood: 3
Rating: High

Control Measures:

Do not smoke whilst using this product
Use in well ventilated areas
Do not burn or puncture this product
Dispose of under local guidelines.
Treat as hazardous waste when disposing of.

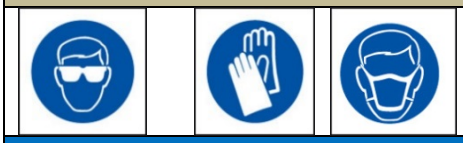
Storage: Keep away from heat or ignition sources Store in moderate temperatures and dry, well ventilated areas. Must not be exposed to direct sunlight or temperatures above 50^oC	Disposal: Do not puncture or incinerate even when empty. Dispose of waste and residues in accordance with local authority requirements. Make sure containers are empty before discarding. Dispose of as hazardous waste.
Spillage: Do not allow to enter drains, sewer or water courses. Extinguish all ignition sources, avoid sparks and flames. Absorb spillage with non combustible absorbent material. Keep out of confined spaces, explosion risk.	Fire Information: Highly Flammable, extinguish with foam, carbon dioxide, dry powder or water fog. Water spray should be used to cool down containers. Self contained breathing apparatus and full protective clothing must be worn in case of fire.

Assessment of Risk (after control measures are put in place)

Severity: 4 Likelihood: 1
Rating: Low

First Aid	
Eye Contact: Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide. Seek medical attention.	Inhalation: Move person to fresh air and keep at rest. Perform artificial respiration if breathing has stopped, keep the affected person warm. Get prompt medical help.
Skin Contact: Wash contaminated skin with soap or mild detergent and water. Remove contaminated clothing and wash as above. Do not use solvents or thinners.	Ingestion: Immediately rinse mouth and provide fresh air. Do not induce vomiting. Get medical attention immediately.

PPE



Other Controls				
Monitoring: Records Attached			Not Applicable	X
Health Surveillance: Records Attached			Not Applicable	X

Training/Instructions Required	
Verbal Instructions: Toolbox Talks	Written Instruction: Manufactures instructions
Assessment Carried Out By: Gary Coleman	Date: 24th November 2014
Signed:	Date: 24th November 2014

COSHH Risk Assessment Record **Assessment Ref: MBL/COSHH/023**

Project/Site: Church End School	**Company: Modebest Builders Ltd**
Substance: Bitumen	**Hazardous Contents: Tar,**

Yes:	No:	Yes:	No:	Yes:	No:	Yes:	No:	Yes: ✓	No:	Yes:	No:
TOXIC (T)		**IRRITANT (Xi)**		**CORROSIVE (C)**		**HARMFUL (XN)**		**FLAMMABLE (F+)**		**DANGEROUS TO THE ENVIRONMENT(N)**	

Exposure Time: 8 hrs TWA	WEL: Workplace Exposure Limits: A long term (8 hour TWA) Workplace Exposure Limit (WEL) of 5mg/m3 and short term (15 minute) WEL of 10mg/m3 are listed in EH40 for asphalt/petroleum fumes. Respirable silica is assigned a WEL's of 0.1mg/m3 (8 hour TWA)..
Process: Bitumen product for road building	**Activity**: Laying bitumen for road cover
Location:	**Personnel at Risk**: Operatives, Third parties, General Public
Risk To Health:	
Can cause serious burns to the body if come into contact at a hot stage	
Risk Phrases:	Safety Phrases:

Assessment of Risk: (before control measures are put into place)					
Severity:	4	Likelihood:	2	Rating: Med	
Control Measures:					
Avoid skin contact. Wear appropriate gloves. Contact with hot product may cause burns. Ensure good ventilation and avoid, as far as reasonably practicable, the inhalation and contact with vapours, mists or fumes which may be generated during use. If such vapour, mists or fumes are generated, their concentration in the workplace air should be controlled to the lowest reasonably practicable level. Avoid contact with eyes. If splashing is likely to occur wear a full face visor or chemical goggles as appropriate. Good working practices, high standards of personal hygiene and plant cleanliness must be maintained at all times. Whilst using, do not eat, drink or smoke. Wash hands thoroughly after contact. Removal of product from the skin is best achieved by the use of a suitable hand cleaner. **Do not** use solvents, such as kerosene. Regular periodic self inspection of the skin is recommended, especially those areas subject to contamination. In the event of any localised changes in appearance or texture of the skin being noticed, medical advice should be sought without delay. Use disposable cloths and discard when soiled. Do not put soiled cloths into pockets. Take all necessary precautions against accidental spillage into soil or water.					
Storage: Store under cover away from moisture and sources of ignition. Do not overheat in storage. Under no circumstances should water be allowed to contact hot bitumen because of the danger of boil-over. Particular care should be taken to ensure that bulk storage tanks are watertight and that any steam heating coils are regularly checked for leaks.		**Disposal**: Dispose of via an authorised person/ licensed waste disposal contractor in accordance with local regulations. Incineration may be carried out under controlled conditions provided that local regulations for emissions are met. Where possible, arrange for product to be recycled.			
Spillage: Depending upon its temperature, the product may be either liquid, semi-solid or solid. Wear protective equipment (See Exposure Controls/Personal Protection, Section 8 of this Material Safety Data Sheet for details). Contain and recover liquid using sand or other suitable inert absorbent material. Protect drains from potential spills and prevent entry of product. **Do not** wash product into drainage system since this may result in a blockage when the product cools. Should blockage occur, notify the appropriate authority immediately. Scrape up bulk of solid material and remove the remainder with sand or other suitable absorbent material. It is advised that stocks of suitable absorbent material should be held in quantities sufficient to deal with any spillage, which may be reasonably anticipated. If necessary, clean the resultant area using hot water and detergent; absorb the washings with suitable absorbent material or sand. **Do not wash into drains.** In the case of large spills contact the appropriate authorities. Spillages of hot product in confined spaces may be especially hazardous because		**Fire Information:** In case of fire, use water fog, dry chemical or fine water spray. FIRES IN CONFINED SPACES SHOULD BE DEALT WITH BY TRAINED PERSONNEL WEARING APPROVED BREATHING APPARATUS. Water may be used to cool nearby heat exposed areas/objects/packages. Avoid spraying directly into storage containers because of the danger of boil-over. **Combustion Products** Toxic fumes may be evolved on burning or exposure to heat. See Stability and Reactivity.			
Assessment of Risk (after control measures are put in place)					
Severity:	4	Likelihood:	1	Rating: Low	
First Aid					
Eye Contact: Cold product - Wash eye thoroughly with copious quantities of water, ensuring eyelids		**Inhalation**: If inhalation of mists, fumes or vapour causes irritation to the nose or throat, or			

are held open. Obtain medical advice if any pain or redness develops or persists. Hot product - Flood immediately with water to dissipate the heat, if possible, ensuring eyelids are held open. In the event of any product remaining, do not try to remove it other than by continued irrigation with water. Take the casualty to hospital for examination and treatment without delay.	coughing, remove to fresh air. If symptoms persist obtain medical advice. **EXPOSURE TO HYDROGEN SULPHIDE** Casualties suffering ill effects as a result of exposure to hydrogen sulphide should be immediately removed to fresh air and medical assistance obtained without delay. Unconscious casualties must be placed in the recovery position. Monitor breathing and pulse rate and if breathing has failed, or is deemed inadequate, respiration must be
Skin Contact: Where skin burns occur, the area should be immediately immersed in cold water until the bitumen is thoroughly cooled. Do not attempt to remove the bitumen from the skin as it provides an airtight sterile cover over the burn, which will eventually fall away with the scab as the wound heals. If, for any reason, the bitumen must be removed, this can be done using slightly warmed medicinal liquid paraffin. Kerosene or other solvents should never be used to remove bitumen from skin or clothing. All burns should receive medical attention. It should be noted that bitumen contracts on cooling and where a limb is encased, care should be taken to avoid the development of a tourniquet effect. If the skin becomes contaminated with product at ambient temperature, wash the skin thoroughly with soap and water. Seek medical advice if irritation persists.	**Ingestion:** If contamination of the mouth occurs, wash out thoroughly with water. Except as a deliberate act, the ingestion of large amounts of product is unlikely. If it should occur, do not induce vomiting; obtain medical advice.

PPE

Other Controls

Monitoring: Records Attached		Not Applicable	
Health Surveillance: Records Attached		Not Applicable	

Training/Instructions Required

Verbal Instructions: Toolbox Talks	Written Instruction: Follow Manufacturers instructions
Assessment Carried Out By: Gary Coleman	Date: 12/03/15
Signed:	Date:

#	HAZARD	INITIAL RISK RATING			MITIGATING ACTION	RESIDUAL RISK RATING		
		PROBABILITY	SEVERITY	RISK		PROBABILITY	SEVERITY	RISK
					ensure the all the PPE is used where required and in the correct manner.			
5.	**Dust – nuisance and/or damage to eyes and by inhalation**	**3**	**2**	**MED**	**Where required and as necessary continual dampening down using fine water spay on to activity areas creating dust. Provision of protection sheets and boards, signs and control barriers to prevent access of non-work operatives or more importantly improperly equipped operatives. Appropriate Personnel Protection Equipment (PPE) will be issued i.e. goggles and facemasks. On-site training given to instruct when the equipment is required and its correct use. Where reasonably practical continual on site monitoring will be carried out by the person in charge to ensure the all the PPE is used where required and in the correct manner. Provision and maintenance of fresh air supply by natural ingress where reasonably practical. By mechanical means in extreme conditions.**	**1**	**2**	**LOW**
6.	**Noise – nuisance and/or damage to ears in extreme cases.**	**3**	**2**	**MED**	**Provision of warning signs and control barriers to prevent access of non-work operatives or more importantly improperly equipped operatives. Machine noise levels as published by the manufacturers and as described in the H&S Plan will be adhered too. Appropriate Personnel Protection Equipment (PPE) will be Issued i.e. ear defenders and earplugs. On-site training given to instruct when the equipment is required and its correct use. Where reasonably practical on site monitoring will be carried out by the person in charge using a hand held sound meter to measure the force of the sound. This will help determine when noise levels are reaching the action levels as described in the "Control of Noise at Work Regulations 2005. The site supervisor is to ensure the correct PPE is used where required and in the correct manner.**	**1**	**2**	**LOW**
7.	**Existing Services – injury and/or damage due to electrocution and/or Fire.**	**2**	**3**	**MED**	**Request and obtain all available Information regarding service dimension and position in the form of as built drawings, specification and/or on site instruction from the appropriate Statutory Authorities or the Project Service Engineer. Identify and/or label all service pipes, wires cables and ducts before any work commences. Have the Statutory Authorities disconnect and cap off all existing services away from the site-specific work places and preferably at the boundary of the site. Use a CAT SCAN to determine the location of known services. Mark these identified services with either paint or lightweight bunting. Set up an exclusion zone of 2 metres either side of the service. Before any excavations take place**	**1**	**3**	**LOW**

NOISE

1. All reasonable measures will be taken to control noise levels to within or lower than the regulated decibel levels to comply with the statutory noise restrictions as stated in The Control of Noise at Work Regulation 2005 and The Noise and Statutory Nuisance Act 1993.

2. The lower action level is 80dB (A) and the upper action level is 85dB (A).

3. All Machines owned by Wooldridge Ecotec Limited have been recently purchased and have been factory tested before delivery.

4. Machine Noise Levels:

Volvo EC210 210º Excavator	**LwA 102dB (A) outside cab/LpA 70dB (A) inside cab.**
Volvo EC290 290º Excavator	**LwA 104dB (A) outside cab/LpA 71dB (A) inside cab.**
Volvo EC360 360º Excavator	**LwA 105dB (A) outside cab/LpA 73dB (A) inside cab.**
Hitachi ZX 460 360º Excavator	**97db outside cab/72db inside cab.**
Hitachi ZW 220 Shovel	**103db outside cab/75db inside cab.**

5. All machines are equipped with baffles, lined compartments and silenced exhausts to reduce the machines operating noise level to within or lower than the regulated decibel levels to comply with the Statutory noise restrictions. **It is mandatory to wear ear protection while attending these machines as Banksmen/signallers.**

6. Crusher Noise Levels:

Nordberg LT96	**100dB(A) 2 metres**	**90dB(A) 10 metres**

Lined compartments house the machines three motors and associated operating pumps. The sound proof lining together with baffles and silenced exhausts contribute to reduce the machines operating noise level to within or lower than the regulated decibel levels to comply with the Statutory noise restrictions. **It is mandatory to wear ear protection while operating this machine.**

Mitigation to reduce noise emissions:

- Re-site or relocate noise source.
- Control noise at source by mufflers, acoustic shields, exhaust silencers, or equipment dampers.
- Issue and instruct on the correct use of PPE i.e. ear defenders.
- Orientate plant to direct noise away from noise sensitive areas i.e. adjoining properties.
- Enclose source of noise.
- Rotate noise exposure times i.e. thirty minutes' work / two hours break.
- Liaise with who it may effect to agree work and rest times.

NUISANCE DUST & MUD

All reasonable measures will be taken to control nuisance regarding dust and pollution, complying with all reasonable requests from St James and occupiers of the adjoining properties. In addition Wooldridge will comply with the following regulations and guidance including all policies for the London Borough of Hammersmith & Fulham.

- Relevant HMSO, DEFRA, BSI Regulations;
- GLA Best Practice Guidance for the Control of Dust Emissions from Construction and Demolition);
- Policy CS4 of LBH&F Core Strategy;
- Policies DM G1, DM H5, DM H8, DM H9, DM H10 of the Development Management Local Plan 2013.

The main sources of dust to arise during the demolition process are during the crunching of brick and concrete and its subsequent removal to ground level. The mitigation measures are dependant on the weather.

Dust monitoring will be carried out continuously at the site boundaries. Four dust monitoring points will be established around the site, usually at the cardinal points of the compass or close to any identified sensitive receptors.

Fine water sprays will be used during all demolition operations especially during dry windy spells. Water spraying shall be used to damp down any activities that can generate dust.

During wet periods, attention shall be drawn to preventing the trafficking of mud and debris by vehicles on to the highways. Vehicles leaving the site shall be inspected and if required will be subject to wheel and under body washing. This will be done using a jet wash.

In all our demolition projects we try to preserve as much hard standing as possible and only remove it from inside the site towards the gate at the end of the project. We use the hard standing for the vehicles so they do not drive on the mud and this reduces the potential for mud to be carried on to the road.

All contractors involved with work on this site will be reminded that Section 148 of the Highways Act 1980 makes it an offence to deposit mud/detritus on the highway that would interrupt other users of the highway.

Dust suppression measures shall be assessed at the beginning of each day and reviewed as necessary. This will have regard to the nature of the works, the location and proximity of adjacent properties and the public.

The following precautions and best practise measures will be adopted from the beginning of the project.

1. Continual dampening down using fine water spay on to activity areas that may create dust.
2. No demolition activities carried out in areas in close proximity to the adjoining properties during moderate or high wind conditions.
3. All loose debris and arisings that are light enough to be lifted up by the aforementioned wind speeds are to be cleared from the external or exposed site-working areas.
4. The debris and arisings will be either removed from the site or stored on the site in containers or spoil heaps with tied down covers.
5. In dry and windy conditions selected site areas will be hosed down to reduce the migration of debris, dirt and dust particles into the air.
6. Sheeting of haulage vehicles entering/leaving site.
7. Covering of site skips.
8. Regularly inspect and clean approach roads.
9. Disc cutting works to be subjected to dust suppression,
10. Establish site speed limits to prevent the creation of dust,
11. The preservation of as much hard standing to work from or the creation of haul roads,
12. Continual on site monitoring carried out by the person in charge to ensure the aforementioned mitigating action is adhered to.

By using the dust mitigation measure above, the potential for dust emissions to arise shall be significantly reduced.

WATER POLLUTION PREVENTION

Measures that will be implemented to avoid water run-off into local drains and pollution of surface watercourses comprise of:

1. Sealing off outfalls into local drains and waterways.
2. No stockpiling of materials within 10m of surface watercourses
3. Never hose down spills, spill kits to be used.
4. Shaping and if considered appropriate, sheeting of stockpiles of materials more susceptible to erosion

5. Sympathetic profiling of construction platforms to control the direction and flow of run-off.
6. Consideration will be given to the construction of temporary interceptor drainage channels/infiltration trenches.
7. All fuel and oil storage will be established more than 10m away from site drainage/water courses. Suitable spill kits will be provided at each fuel/oil bowser. The fuel bowsers/storage facilities will comply with the requirements of the Control of Pollution (Oils Storage) Regulations. All operatives will be instructed in emergency spill response
8. Report any irregularities or incidents.

Processing & Crushing

1. The crusher will be delivered to site on a low loader. The crusher will be unloaded within the site and not on the public highways.
2. The crusher will be sited and set up in accordance with manufacturers recommendations by competent operatives experienced in the preparation and operation of the equipment. He must only use the remote control or wireless control box to move the crusher.
3. Check to see that the area is clear of all operatives and plant when unloading and moving the crusher to the agreed crushing area.
4. All guards will be in place and secure prior to operation. All emergency stops and interlock systems will be verified as operating correctly prior to operation.
5. Water suppression equipment will be connected and the water supply pipes positioned as required.
6. The crushing area should be segregated from all other plant and operatives except the excavator or loading shovel that is in attendance to the crusher.

Crushing and Stockpiling Area

1. The area will be prepared for the siting of the crusher giving a stable base for the machine and allowing good access for both delivery vehicles and stockpiling plant to operate safely and unhindered.
2. The crusher operator will be responsible for coordinating the safe running of operations at the stockpiling and crushing site directly under the site supervisor.
3. He will direct all operatives at the crusher to cease work should there be a safety issue or incident, which requires rectification.
4. All operatives will be experienced, competent and suitably trained in working on and adjacent to the crushing plant and ancillary equipment.
5. All plant operations and emergency control buttons shall be in a defect free condition, and in easily accessible places.
6. All materials loaded into the crusher shall be of a type and size within the constraints and capacity of the plant and to which the crusher shall be able to reduce generated vibration.
7. Prior to the crushing operations commencing the plant shall have a facility of warning persons near to it that it is due to start up.
8. The Crusher Plant shall be fit for its purpose at all times and maintained in accordance with the PUWER Regulations.
9. The crusher jaws guard must be in place in the horizontal position prior to plant being started up and during all debris conveyor operations.
10. Written manufacturer plant operations and emergency procedures shall be available with the plant at all times.

General

1. As the works progress, visual monitoring will take place, to ensure the safety of all those working within the project site area.
2. Where required and as necessary continual watering down procedures will be maintained throughout the progress of the work contributing to the suppression of dust migration.
3. As the work progresses all arising's and debris will be stacked in preparation for removal from the site or to the crushing area. They will be removed as the works progress being loaded into either independent waste containers or the waste containers of waiting vehicles.
4. The vehicles are to be attended at all times, they will be fully loaded upon arrival and depart immediately when full.

5. A banksman or banksmen will attend to assist as necessary. All arising's and debris will be cleared whenever practicable and upon completion the site will be left clean and tidy, for inspection and handover.
6. All boundary walls, fences and security structures, existing, new or temporary will be maintained and protected during the contract period.
7. Reverse site set up procedure and leave site.

ENVIRONMENTAL CONSIDERATIONS

A detailed Environmental Management Plan should be prepared to identify the most sensitive receptors. The plan should explain the mitigation to prevent any nuisance from noise, dust and vibration and how this will be monitored throughout the demolition project.

Regulatory documents govern what is needed and when in relation to demolition site monitoring. The main documents include:

- BS:5228 Noise and vibration control on construction and open sites
- Mayor of London Best Practice Guidance – The control of dust and emissions from construction and demolition
- Local Authority Requirements
- DEFRA Guidance

Prior to the commencement of any works; surveys will be carried out to record the ambient dust, noise and vibration levels around the site at all identified sensitive receptors.

This will provide 'baseline' data from which 'Action Levels' can be set. These can be compared with levels during the works ensuring compliance with current legislations.

Dust

There is potential for the generation and release of dust from breaking concrete. The following mitigation measures are proposed to avoid or minimise production of dust and particulate matter; in terms of air quality;

- Use fine water sprays during the concrete breaking to eliminate dust.
- Movement of concrete debris and the loading of the tippers will be subject to constant fine water sprays to prevent dust emissions.
- Ensure that all construction plant and equipment are maintained in good working order.
- Vehicles carrying loose aggregate and workings will be sheeted at all times.
- Completed earthworks will be covered or vegetated as soon, as is practicable.
- No demolition activities carried out in areas in close proximity to the adjoining properties during moderate or high wind conditions.
- Regular inspection and, if necessary cleaning of local highways and site boundaries to minimise dust deposits.
- Disc cutting works to be subjected to dust suppression,
- Establish site speed limits to prevent the creation of dust,

Dust monitoring equipment will be in place throughout the demolition phase at various points along the site boundary. The purpose of this monitoring is to enable the project team to control and action against any excessive airborne dust levels during deconstruction works to minimise potential impact to the neighbouring areas.

Noise & Vibration

All work on site will be carried out in accordance with the guidance contained in BS 5228 Part1: 1997 'Noise and vibration control on construction and open sites'.

In order to ensure that demolition noise is limited, best practical means to minimise noise on the site will be implemented having regard to the recommendations of BS 5228 as follows, which will involve:

- The use and maintenance of silenced plant and equipment in accordance with manufacturer's instructions.
- Use of enclosures or barriers to screen plant where appropriate. This may require acoustic barriers to be incorporated into the protection scaffold.
- Agreeing work and rest times for any particularly noisy operations.
- Switching off plant and equipment when plant is not in use.

Throughout the demolition programme continual monitoring will be carried out to aid the project team mitigate any excessive levels of disturbance to the surrounding areas, as far as reasonably practicable.

Suitable guidance upon the levels of vibration, which may cause building damage, can be found in BS 7385: Part 2. Guidance relating to the potential effect upon the operation of computers and other relatively sensitive equipment can be found in BS 5228: Part 4.

With respect to occupiers and users of buildings, guidelines based on BS 6472 and BS 5228 will be considered.

Vibration can both be a source of nuisance to occupiers of affected properties and although a source of building damage, buildings are reasonably resilient to ground-borne vibration and vibration-induced damage is considered a rare occurrence.

Vibration monitoring will take place at all identified sensitive receptors around the site. Demolition vibration levels should not exceed the vibration criteria detailed in BS 5228-2:2009 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration to ensure no architectural or structural damage to surrounding buildings.