

Appendix B Risk Assessment

		Risk Assessment											
Company Name		Al Firas General Contracting			Project Title: Yasmina Brooks School Expansion						Ref:RA-MS-TC-FP-00018		
Work Description		Testing and Commissioning of Fire Pump Set System			Date: 17/05/2022						Revision: 00		
S/No	Activity	Hazards Potential) (Hazards	Risks (Consequences)	Risk Rating				Control Measure(s)	Residual Risk				
				Probability	Severity	P X S	RL (Risk Level)		Probability	Severity	P X S	RL (Risk Level)	
1	Work area Preparation	Health & Safety <ul style="list-style-type: none">Slips, trip and falls of person/ material.Inadequate control or supervision by the line management.Poor housekeepingMaterial Handling and storage. Environmental <ul style="list-style-type: none">Construction activities and material used in the process.Waste generated during chipping and repairing activity.	Health & Safety <ul style="list-style-type: none">Major / Minor personal InjuryMusculoskeletal Disorders (manual Handling)Property damage Environmental <ul style="list-style-type: none">Land contamination due to waste generated during work activities.Air pollution in case of poor selection and maintenance of equipment.	4	3	12	High	<ul style="list-style-type: none">The work activities shall be carried out as per OSHAD-SF CoP-17.0 'Safety Signage Signals' guidelines.Work should be planned for safe means of access.All Lifting gears/Tools should be of sound working condition which shall be subject to statutory inspection and certification requirement (inspected by authorized inspector)Barricaded the area.Display Caution signage & Hazard warning symbols such as:<ul style="list-style-type: none">Authorized person onlyMandatory PPE requirement etc.Special attention shall be given to any likely environmental pollutant (pro-active monitoring)Tripod and wire / nylon rope shall be used for material lifting.All related aspects on environment and ecology shall be communicated to all concerned personnel to mitigate / reduce the negative impacts.Adequate Information, Instruction, Training (for working in confined space and emergency handling etc.) and competent	1	3	3	Low	

								Supervision all the time.				
2	Mobilization Loading and unloading of Material	<ul style="list-style-type: none"> Fall of material Inadequate supervision 	<ul style="list-style-type: none"> Crush Injury Property damage Fatality 	4	3	12	High	<ul style="list-style-type: none"> The work activities shall be carried out as per OSHAD-SF CoP-1.0 'Hazardous Materials' and CoP-14.0 'Manual Handling Ergonomics' standard and guidelines. All material offloaded areas to be barricaded provided with warning signs as OSHAD CoP 17.0 'Safety Signage and Signals' guidelines and standards. MSDS of the product shall be consulted for handling of chemical. Authorized personnel only to be engaged in the activity. Appropriate PPE for Workers to be used (Hi visibility vest, Cover all, safety shoes, hard hats and appropriate hand gloves at all times). Warning Signs will be erected to alert the pedestrians during loading and unloading operation. Access/egress to be provided for the movement of pedestrians. Competent Supervisors shall supervise and control all work activities. Materials to be stacked at designated areas in coordination with the supervisors at site. Information, instruction, and training shall be provided to personnel relevant to Jog. TBT to be conducted by the Foreman prior to work commencement. 	1	3	3	Low
3	Manual Load Handling Lifting and) transferring of materials from one location to (other	<ul style="list-style-type: none"> Material with sharp edges. Long Objects Overload/Uneven load Slippery surface Obstruction 	<ul style="list-style-type: none"> Muscle Sprain Cut Crush 	3	2	6	Moderate	<ul style="list-style-type: none"> All work activities shall be carried out as per CoP-14.0 'Manual Handling Ergonomics' & CoP-2.0 'Personal Protective Equipment' standard and guidelines. No overreaching activities. Check the path for tripping/slipping hazard in which the load would be carried. Prefer team lifting of load wherever 	1	2	2	Low

								applicable.				
								<ul style="list-style-type: none"> Assess physical capacity of the persons involved in lifting. Access must be free from any obstruction. Adequate P.P.E. as per the task requirement (i.e.: Hard-hat, safety shoes, gloves and goggles). 				
4	Operating with Hand /Power Tools ▪(Drill machine ▪Paddle mixer ▪Roller	▪ Defective Equipment and Improper use of equipment ▪ Loose fittings ▪ Flying particles ▪ Electrocution ▪ Sharp ends ▪ Damaged cables ▪ Improper Guarding ▪ Unrated and improper fixing of cutting disc ▪ Noise ▪ Dust ▪ Fire	▪ Cuts injury(hand) ▪ Abrasions ▪ Eye Injuries ▪ Burn ▪ Respiratory problems ▪ Environmental Damages	3	2	6	Moderate	▪ All manual handling shall be done according to OSHAD CoP 14.0 guidelines and standards. ▪ All the accessories shall be inspected as per OSHAD CoP- 35.0 'Portable Hand Tools' guidelines and standards. ▪ Any spark producing works required to be carried out to obtain hot work permit from the HSE department. ▪ Power tools shall be operated only by trained and certified personnel. ▪ Areas of tool use to be provided with barricades and a sign to alert the personnel's entering the areas on use of ear plugs. ▪ All the cables to regularly inspected and ensure that no "Live Bare Cables" and proper cable management system to be implemented. No cables to be laid directly on ground. All cables to be routed safely by providing stands with "S "type hooks for safe routing. ▪ The electrical / power tools to be properly inspected, prior to commencement. ▪ All electrical components to be checked and inspected regularly by electrician. The tools to be tagged for safe use. ▪ 110V power tools to be used fitted with yellow color code sockets. ▪ In case of 220 V (exceptional is if not available in the market) then an ELCB. to be provided (i.e., fitted with 30mA circuit	1	2	2	Low

								<ul style="list-style-type: none"> braker) Sharp ends to be handled safely by use of heavy-duty hand gloves. Sharp ends to be protected by keeping in the cardboard provided boxes to secure and keep the material from being contact with any parts of body. Area of works to have adequate access/ egress. Materials to be stored away from the edges of the building. Changing of cutting wheels to be carried out by trained and authorized personnel (Usage of Disc Spanner and correct tools for fixation) Compliance with PPE requirements as per OSHAD SF-CoP-2.0 'Personal Protective Equipment' standard and guidelines. ie; Hand gloves, goggles, dust mask, Ear plug & safety harness to be worn& anchored to rigid point (if working to open edges) Fire extinguishers to be readily available near to the area of works. Area of works to be cleaned and maintained on daily basis to avoid any outbreak of fire due to accumulation of wastages. Waste to be disposed following the type of waste to the allocated skips. Generators used for the power source to be provided with drip trays to avoid and protect the ground from soil contamination. Ensure drip trays are clean and maintained regularly. 				
5	Testing and Commissioning of Fire	Slip and Fall, material damage, water spillage,	Minor Injuries, Major injuries, Fatality, Damage	4	3	12	High	<ul style="list-style-type: none"> Prior to start of work; ensure that proper coordination will be done with other services and to other team working in the 	1	4	4	Low

Fighting Pump	electrical hazard	to property						<p>adjacent area. Adequate access & proper illumination must be available for the installation.</p> <ul style="list-style-type: none"> ▪ The sequence of work, the activities and technicalities shall be as per approved Method Statement and must be ensured by the concerned Engineer/s and foreman. Competent person must be the one doing the job. ▪ Ensure all system piping will be pressure tested and approved by company Engineer. ▪ Before start up test ensure system valve is closed. ▪ Open gate valve for flow meter discharge valve keeps the gate valve after the flow meter fully closed. ▪ Ensure approved shop drawing should be done prior to start of work. ▪ Ensure all Pressure gauges have 3rd party certification. ▪ Ensure all system drain are properly connected to floor drain. ▪ The testing activates should be fully supervised by competent person ▪ Prior to start of testing ensure all flanges/Coupling are properly connected and all nuts are tightened properly. ▪ Install barricade & appropriate signage around the Pump Room. Ensure testing should be done under the close supervision of concern supervisor / Engineer. ▪ Isolate the energy sources via Lock – out Tag out (LOTO) procedure to prevent turning on the energy to the system while someone is still making installation or repairing works. Necessary permit – to work for testing 					
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								<p>services must be available and must be followed.</p> <ul style="list-style-type: none"> Repairing or rectification works shall be done on an off/ dead circuit/system and must be ensured by the electrical foreman or engineer in charged. The test voltage shall be based on the cable capacity. Emergency contact should be displayed at site and Emergency Evacuation Procedure will be communicated to the work force. Ensure that work related PPE should be provided as per the scope of work Activities (rubber insulated gloves, etc.) 				
6	Work at Night	<ul style="list-style-type: none"> Slip and trip/fall Heavy equipment movement. Vehicle movement Poor illumination Heat and humid Poor Visibility 	<ul style="list-style-type: none"> Major/ Minor personal injury Damage to Structures Electric Shock Muscular Fatigue Bruises and cuts 	4	3	12	High	<ul style="list-style-type: none"> Good housekeeping standards should be in place. All waste materials will be brought to the container or skip for disposal as per OSHAD SF- CoP 54.0 'Waste Management' guidelines and standards. Access routes to the place of work kept free of obstruction and always slip hazards. Only Competent drivers to operate machinery. Loose materials should be tied down or stored indoors. Beacon lights and head lamps for the machinery to be functional. Sufficient lighting to be provided to all locations and access if the work spot visibility falls. Local weather forecast information to keep informed of inclement conditions. Competent person shall supervise the activities. If hot and humid reach levels where employees are in danger from any activity, then work will be stopped. 	1	3	3	Low

7	Work Completion	Health & Safety <ul style="list-style-type: none"> Poor housekeeping. Accumulated surplus materials. Environmental <ul style="list-style-type: none"> Poor Waste Management 	Health & Safety <ul style="list-style-type: none"> Slips / Trips / Falls can result to musculoskeletal disorders. Minor impact Injury due to pressure. Environmental <ul style="list-style-type: none"> Contamination of soil, waterways and oceans and entrance into the food web affecting the flora and fauna, if land filled or disposed. 	2	2	4	Moderate	<ul style="list-style-type: none"> The work activities shall be carried out as per OSHAD-SF CoPs- 54.0 'Waste Management'. Restore housekeeping after compliance and regular monitoring by the concerned HSE Officer. Ensure signing off (closing) of and logging of the permit at the end of each shift. All waste generated from the work shall be collected and segregated in designated waste containers (skips), at appropriate waste storage area. A Registered Service Provider will be appointed by AJB to collect and transport the waste materials that are generated from the activity in accordance with OSHAD CoP-54.0 "Waste Management. 	1	2	2	Low
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Risk assessment matrix:

Area Impacted (a)	Insignificant Consequences (score=1)	Minor Consequences (score=2)	Moderate Consequence (score=3)	Major Consequences (score=4)	Catastrophic Consequence (score=5)
Human Health and Safety	Minor injuries, which may require self-administered first aid. Injured personnel can continue to perform normal duties	Injuries requiring on-site treatment by medical practitioner. Personnel unable to continue to perform duties	Serious injuries requiring off-site treatment by medical practitioner or immediate evacuation. Potential long-term or permanently disabling effects.	Single Fatality	Multiple fatalities
Production Loss	Incident event without causing production loss	Production loss or delay up to one week	Production loss or delay for over one month	Production loss or delay for over one month	Loss of licence to operate or ability to produce indefinitely
Total Cost of Impacts or Incident Event	Financial loss (compensation, fines, cost to repair, plant damage) of less than AED 5,000	Financial loss (compensation, fines, cost to repair, plant damage) of AED 5,000 - AED 50,000	Financial loss (compensation, fines, cost to repair, plant damage) of AED 500,000 - AED 10M	Financial loss (compensation, fines, cost to repair, plant damage) of AED 500,000 - AED 10M	Severe financial penalties or legal liabilities. Financial loss (compensation, fines, cost to repair, plant damage) of greater than 10M

Descriptor	Likely Frequency	Probability
Frequent	Occurs frequently	5
Often	Occurs several times per year	4
Likely	Has occurred more than once	3
Possible	Has Occurred	2
Rare	Never Occurred	1

Risk Rating Matrix					
Probability	Severity				
	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Rare (1)	1	2	3	4	5
Possible (2)	2	4	6	8	10
Likely (3)	3	6	9	12	15
Often (4)	4	8	12	16	20
Frequent / Almost Certain (5)	5	10	15	20	25
15 - 25	Extreme Risk	Activity or industry should not proceed in current form.			
08 - 12	High Risk	Activity or industry should be modified to include remedial planning and action and be subject to detailed EHS			
04 - 07	Moderate Risk	Activity or industry can operate subject to management and /or modification.			
01 - 03	Low Risk	No action required, unless escalation of risk is possible.			
Hierarchy of Control (Controls identified may be a the hierarchy in order to provide minimum operator exposure)					
Elimination	Eliminate the Hazard				
Substitution	Provide an alternative that is capable of performing the same task and is safer to use				
Engineering Controls	Provide or construct a physical barrier or guard				
Administrative Controls	Develop policies, procedures practices and guidelines, in consultation with employees, to mitigate the risk. Provide training, instruction and supervision about the hazard				
Personal Protective Equipment	Personal Equipment designed to protect the individual from the hazard				

Calculate the risk rating as follows: Risk Rating = S x P

Cutoff Point is > 3