

# BOOKLET 3

CONSTRUCTION DOCUMENTS

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**DIYAR AL MUHARRAQ**



# **BOOKLET 3**

**Construction Regulations (CR)**

**NOV 2020 (V.4)**

## I Introduction

1.1 The master developer, Diyar Al Muharraq (DAM) is selling plots / parcels of land to Third Party Developers (TPD) whereby the TPD agrees to develop the land in accordance with the Development Regulations and Guidelines (DRG).

1.2 The main objectives of DAM Construction Documents, Booklet 3:

1.2.1 To ensure that buildings are constructed in accordance with the approved designs and Requisite Consents.

1.2.2 To ensure that construction and associated activities are controlled and coordinated so as to:

1.2.2.1 Minimize the impact on the residents and businesses of DAM.

1.2.2.2 Avoid any adverse impact on the construction activities of other projects or the infrastructure works.

1.2.2.3 To protect the health and safety of the general public, and protect the environment.

1.2.2.4 Facilitate construction around Diyar Al Muharraq.

1.2.3 A copy of these Construction Regulations can be found on the DAM website at [www.diyar.bh](http://www.diyar.bh). Diyar Al Muharraq will attempt to keep this information current and complete; all such information should be verified independently before being used.

1.2.4 DAM reserves the right to change or modify this information at any time. Updated construction regulations will be sent to TPD, consultants and contractors accordingly.

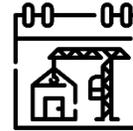
## 2 Responsibilities

2.1 For the avoidance of doubt, it is the responsibility of the TPD, the TPD Consultant and TPD Contractor to comply with the laws of Bahrain, DAM DRG, and the requirements of all statutory bodies that may apply.

## 3 TPD Consultant

3.1 The TPD shall employ a Consultant to manage the TPD Contractor and administrates the building contract. The Technical Interface Office (TIO) shall communicate with the TPD's Consultant Only, unless it becomes necessary to do otherwise.

## 4 Construction Programme



4.1 The construction programme shall show, amongst the main activities of the project, the key approvals and inspection milestones to ensure clear coordination between the TIO and the TPD Consultant.

4.2 The TPD Consultant shall notify the TIO of changes to the programme as soon as practical after the TPD Consultant becomes aware thereof.

4.3 The TPD shall notify the TIO of changes of contacts of TPD Consultant and Contractor. TPD must complete and submit (Change of Contact Form) with all other required documents to the TIO at [tio@diyar.bh](mailto:tio@diyar.bh)

## 5 Setting out the site



5.1 The Master Developer is responsible for demarcating the site. Site demarcation pegs shall be handed over to the TPD once the sales agreement is signed, The TPD shall then become responsible for maintaining them.

5.2 The TPD, his Consultants and Contractors may not disturb any pegs on the development without prior written permission from the TIO.

5.3 Once plot / parcel formation is completed, the TPD must submit a certificate from a certified surveyor to prove that all plots/parcel coordinates are as per original demarcation pegs and that the level of formation is according to road levels provided by TIO.

## 6 Communication Protocols



6.1 Any communications regarding the progress, safety, and compliance of construction work on site shall be between the TPD consultant and the TIO. This also includes conveying of violations and other notices, unless it becomes necessary to do otherwise.

## 7 Commencement of the works



7.1 The TPD's Contractor may not commence any construction work on site until the TPD's Consultant has obtained the TIO's approval to do so; this includes new construction, alterations, addition to existing building / villa, demolition, fencing, site formation, digging and other works. TPD Consultant must complete and submit (Commencing Work on Site Form) with all other required documents to the TIO at [tio@diyar.bh](mailto:tio@diyar.bh)

7.2 An introductory meeting between the TIO and the TPD's contractors is mandatory before commencing work on site in order to clarify tasks and responsibilities as per these Construction Regulations.

## 8 Construction Work Schedule

8.1 The TPD Contractor's is required to submit a Construction Management Plan which shall contain the following (if applicable):

8.1.1 Programme, highlighting TIO required inspections

8.1.2 Manpower mobilisation plan

8.1.4 Laydown area

8.1.5 Temporary utilities plan

8.1.6 Construction traffic route within the DAM

8.1.7 The Contractor's H&S plan

## 9 Insurance of the Works



9.1 The TPD will procure that at all times throughout the course of the construction the following insurances are kept in place in respect of the construction and (wherever commercially available on terms commensurate with conventional policies) with financially sound and reputable insurance companies:

9.1.1 Contractors All Risks to the full reinstatement cost;

9.1.2 Public Liability/Third Party Liability with a minimum level of cover of BD 1 million;

9.1.3 Professional Indemnity to a level of cover approved by the TIO;

9.1.4 Employers' Liability to a level of cover approved by the TIO.

9.2 The TPD will at all times ensure that the insurances it procures under these regulations specify DAM as a named insured and include effective waivers by the insurer of all claims for insurance premiums or commissions or (if such policies provide for the payment thereof) additional premiums or assessments against DAM.

9.3 If requested by DAM, the TPD will give DAM a copy of the policy of insurance or such summary of terms and evidence of cover as may be issued by the insurers and produce evidence of its renewal including payments of premiums.

9.4 The TPD will cause all construction that is damaged or destroyed to be reinstated with due diligence and will apply the proceeds of any claim on the insurance towards such reinstatement. If the proceeds of the insurance claim are insufficient to effect reinstatement the TPD will make up the shortfall out of his own monies.

9.5 The TPD will ensure that nothing is done or omitted to be done which would prejudice or invalidate any insurance obtained by DAM in respect of the Master Development.

## 10 Construction Traffic and Site Access



10.1 All contractors, suppliers, consultants and any parties associated with a project under construction (construction traffic) shall access the site via the construction access point and follow the access procedures.

10.2 Entering the site is not permitted to persons or vehicles without an appropriate authorisation of access.

10.3 Access passes are obtained from the TIO for restricted areas only. The TPD Consultant shall apply by submitting (Special Request Form), with all required documents to the TIO at [tio@diyar.bh](mailto:tio@diyar.bh)

10.4 All construction traffic shall travel from and to the plot (site) by the most direct path possible and using the designated construction routes as far as possible as shown in the logistic plan.

10.5 Labourers and workers must be collected and dropped off at the site.

10.6 All construction vehicles must leave the site immediately or parked within the hoarding or designated laydown areas.

10.7 Public areas such as the beach, parks, etc. are strictly off limits to construction personnel

10.8 Exceptional access will only be allowed by prior arrangement and where circumstances demand. TPD Consultant must complete and submit (Special Request Form) with all other required documents to the TIO at [tio@diyar.bh](mailto:tio@diyar.bh)

10.9 Construction vehicles and trucks into the site may be controlled at the gate to ensure that valid permit is available. This may involve some waiting time.

10.10 For advertising any projects on site, TPD Consultant or applicant must complete and submit (Signage Request Form) with all other required documents to the TIO at [tio@diyar.bh](mailto:tio@diyar.bh). (refer to Appendix B: Construction Signage Guidelines)

10.11 TIO must be informed prior to the demobilising and hauling away of materials and plant to and from site. TPD Consultant must complete and submits (Special Request Form) with all other required documents at TIO at [tio@diyar.bh](mailto:tio@diyar.bh). All deliveries to be made during normal working hours on the site. For special shipments and deliveries outside of normal working hours, TIO approval must be obtained. TPD Consultant must complete and submits (Special Request Form) with all other required documents at TIO at [tio@diyar.bh](mailto:tio@diyar.bh).

10.13 Loads must be covered to control dust and improve safety. Transport, handling, and storage of the shipment must be carried out in an orderly and controlled manner to ensure the safety and protection of all persons and properties.

10.14 Public roads within DAM are subject to the control, rules and regulations of Bahrain's Traffic Department in addition to these Construction Regulations.

10.15 TPD Contractors may explore alternate arrangements to reduce the levels of construction traffic or otherwise benefit their works and can discuss such arrangements with the TIO in order to obtain approval in advance. Examples include: delivery by barge, on-site ready-mix plant, piped delivery of sand, etc.

10.16 The speed limit for all construction vehicles on site shall not exceed 30 km/h. Violators will be issued a Notice of Violation in case of non-compliance.

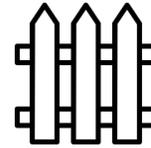
## 11 Laydown Areas



11.1 All works associated with a plot or a parcel of land must be contained within the boundaries of that plot or parcel.

11.2 In exceptional circumstances, TPD's Consultants may apply at the TIO to use DAM's owned lands only for laydown areas or any other purpose upon availability. TPD Consultant must complete and submit (Special Request Form) with all other required documents at TIO at [tio@diyar.bh](mailto:tio@diyar.bh).

## 12 Site Hoarding (Fencing) & Project Signboard



12.1 Before commencing any construction work on a plot or a parcel, a hoarding (temporary fencing) must be installed around the work.

12.2 No site hoarding to be commenced on site without the TIO approval. TPD Consultant must complete and submits (Special Request Form) with all other required documents at TIO at [tio@diyar.bh](mailto:tio@diyar.bh).

12.3 Site hoardings shall primarily serve to protect the public from the construction activities occurring on and around the site. Its secondary purpose is to maintain the image of the Project and the Development.

12.4 Site hoardings shall be as per DAM Hoarding Guidelines. (refer to Appendix A: Hoarding Guidelines)

12.5 Hoardings shall be augmented with additional height or screens should the nature of the works within demands it.

12.6 Hoardings and signage shall be maintained periodically. The TIO shall be the sole decider as to whether the condition of the hoarding is acceptable or not.

12.7 Graphics/Artworks may be installed on the hoarding based on TIO's approval.

12.8 Hoardings may need to be illuminated at night if the TIO requests this for safety reasons.

12.9 Each project shall be allowed a maximum of 1 project signboard as per Kingdom of Bahrain Building Regulations. TPD have to follow the standard project signboard provided by TIO. The erection of information sign boards will not be allowed without the TIO approval.

12.10 The dimension of the Construction Signage board structure is to be maximum 6.5m high and 2.8m wide (for stand alone sign) or the artwork will be provided by TIO to be printed on site hoarding as shown in Appendix A. The sign must contain the building permit Number, TPD Engineering/ Supervisor (if different) Consultant's and the Contractor's name. TPD Consultant must complete and submits (Commencing Work On Site Form) with all other required documents at the TIO at [tio@diyar.bh](mailto:tio@diyar.bh).

12.11 "For Sale" or "Rent" signs may be placed on actual building only. It is not allowed to be placed in empty plots/parcels within DAM.

### 13 Works outside Site Boundaries



13.1 All works are to be restricted to within the confines of the hoarded site. The following exceptions may be considered by the TIO and the TPD's Contractor shall complete the necessary paperwork to seek approval:

13.1.1 Lifting / deliveries outside the site boundaries: TPD Consultant must complete and submits (Special Request Form) with all other required documents at TIO at [tio@diyar.bh](mailto:tio@diyar.bh).

13.1.2 Road Occupation: for any construction work requiring road occupation, the TPD Consultant must complete (Commencing Work On Site Form) and submit this with all other required documents to the TIO prior to commencement.

13.1.3 Off-site Excavations: No off-site excavation shall be permitted without prior approval from TIO. TPD Consultant must complete and submits (Commencing Work On Site Form) with all other required documents at the TIO at [tio@diyar.bh](mailto:tio@diyar.bh).

13.2 The control of hazardous materials' transport, storage, and use must comply with the Bahrain Civil Defence roles and regulations.

13.3 In exceptional circumstances, and subject to commercial agreement, the Master Developer may grant additional land to facilitate site logistics. Please approach the TIO in this regard.

### 14 Working Hours



14.1 The permitted working hours are: Sundays to Thursdays: 6.00am to 6pm. Fridays, Saturdays and Public Holidays in residential areas: 8.00am to 6.00pm.

14.2 Any construction work required to be undertaken outside normal working hours shall be approved by the TIO. TPD Contractor must complete and submits (Special Request Form) with all other required documents at TIO at [tio@diyar.bh](mailto:tio@diyar.bh).

### 15 Air pollution



15.1 The TPD Consultant shall take steps to control the emissions of smoke, smells and dust from the site or works therein.

15.2 The TIO shall be the sole decider as to whether the works are causing unacceptable levels of air pollution or not.

## 16 Noise Pollution



16.1 The following maximum noise levels shall not be exceeded at any time:

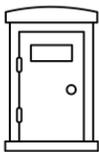
**Table I-Bahrain Noise Standards**

	Maximum Allowable Noise Limit LAeq, dB (A)		
	Daytime (07:00 - 16:00 hours)	Evening (16:00 – 23:00 hours)	Night-time (23:00 – 07:00 hours)
Residential Area	55	50	45
Residential Area with Some Commercial Activity	60	55	50
Commercial Area	70	70	70



17.1 It is not permitted to accommodate workers on the site i.e. no persons (with the exception of a designated watchman) shall live on/ sleep overnight at the site.

## 18 Facilities



18.1 DAM will not provide any common facilities for the use of TPD’s Contractors. All facilities and welfare requirements (e.g. toilets, rest areas, canteen, medical facilities, roads, first aid, etc.) shall be provided by the TPD’s Contractor within the site.

18.2 The TPD Contractors’ proposed facilities shall be described in the Contractor’s Health and Safety plan (H&S). TIO approval for erecting the site facilities will be granted upon applying to commence work on site.

18.3 TPD contractors must provide temporary sanitary facilities on site. It must be enclosed, have a door with lock, be ventilated, provided with lights and must not be connected to existing public network in DAM.

18.4 All sewage generated on the site must be stored safely (and without odour) and removed regularly by approved means.

18.5 All site facilities must be dismantled and removed from site upon completion of construction work. Temporary Foundations and roads must also be removed.

## 19 Temporary Utilities



19.1 The TPD’s Contractor is wholly responsible for any utilities required for construction activities and must either obtain a temporary connection to mains utilities or provide suitable alternative arrangements.

19.2 Generators must comply with the following requirements:

19.2.1 Maximum allowable noise levels:

19.2.1.1 85 dBA as a normal level

19.2.1.2 90 dBA - no more than 8 hours per day

19.2.1.3 95 dBA - no more than 4 hours per day

19.2.1.4 100 dBA - no more than 2 hours per day

19.2.1.5 105 dBA - no more than 1 hour per day

19.2.2 Not to generate undue smoke.

19.2.3 Provide a drip tray to prevent contamination of the ground.

19.3 Storm water discharge shall be controlled so as not to cause erosion to surrounding land nor pollute the public roads or storm water network.

## 20 Removal of Waste



20.1 The TPD's Consultants and Contractors shall not, nor permit others to, dispose of any waste of any nature in Diyar Al Muharraq Development.

20.2 All forms of waste shall be removed regularly to waste containers and skips so as to increase the sanitation and safety of the site and the development.

20.3 No waste materials may be stored outside of the site hoarding for any period of time.

20.4 All waste materials shall be removed from the development completely within 24 hours of its being created, by approved means, and disposed of in a legal manner.

20.5 All construction sites must provide a skip for waste collection.

## 21 Security



21.1 The TPD Contractor is responsible for ensuring that the site is guarded and shall take sufficient precautions against theft and loss of property and damage.

## 22 Incident Reports



22.1 TPD Consultant must report all occupational site injuries and accidents immediately to the TIO. TPD Contractor must complete and submit (Incidents Report Form) with all other required documents at the TIO. Notifying the authorities will be the TPD contractor's responsibility.

## 23 Health, Safety and Environment (HSE):



23.1 DAM is concerned with the safety and wellbeing of all people and will actively seek to ensure that all TPD's Contractors on the site maintain reasonable standards of HSE. DAM HSE policy, which is also applied to all construction contractors employed by DAM directly, is attached as Appendix I, for reference.

23.2 The TPD Contractor's HSE Plan shall contain, as a minimum, controls and standards relating to the following:

23.2.1 First aid and medical emergency plans.

23.2.2 Working lighting .

23.2.3 Fire safety.

23.2.4 Welfare facilities.

23.2.5 Site cleanliness.

23.3 The TPD's Contractor shall provide copies of current safety approvals for all major, high-risk plant and equipment employed on the project such as tower cranes, mobile cranes and the like.

## 24 Inspections



24.1 The TPD Contractor shall allow the TIO inspectors to enter the site at any time provided that the inspectors follow reasonable site access procedures and it is during working hours.

24.2 TIO will conduct intermittent, unplanned inspections in order to:

24.2.1 Check compliance with design regulations, sales agreement conditions, and construction regulations.

24.2.2 Check for unauthorised building work that has either not been approved or does not comply with the approved design drawings.

24.2.3 Check dangerous or hazardous construction activities resulting in major defects or structural instability threatening workers and public safety.

24.3 The following inspections will be carried out by the TIO:

24.3.1 Pre-construction/Site Establishment inspections: these are carried out at the site establishment phase when fencing, site offices, accesses, and other site facilities are being installed or before commencing work on site on any alterations or addition to existing structure work starts.

24.3.2 Periodic inspections: these are carried throughout the construction phase of the project and will occur on weekly basis.

24.3.3 Other special purpose inspections: these are follow-up inspections which are carried out as required in response to a violation of non-compliance or due to a complaint from another party.

24.3.4 Stage inspections: these are mandatory inspections and must be applied for by the TPD Consultant. One inspection must be carried out during the site preparation phase when excavation, grading, and foundation work are being undertaken before laying of foundation. For each inspection required, the TPD Consultant must complete and submit (Inspection Request Form) with all other required documents at the TIO at [tio@diyar.bh](mailto:tio@diyar.bh)

24.3.5 Final inspection: this is a mandatory inspection and must be applied for by the TPD Consultant upon completion of building, civil and MEP connections on site in order to obtain a DAM completion certificate which is submitted at the concerned Municipality to obtain the final completion certificate. TPD Consultant must complete and submit (Inspection Request Form) with all other required documents at the TIO at [tio@diyar.bh](mailto:tio@diyar.bh).

24.4 Upon completion of construction on site, An “Engineering Certificate” (certification of compliance with work approved) is required from the TPD Consultant at the conclusion of all building work confirming the project complies with the Bahrain Building Code. This certificate to be submitted by TPD consultant when applying for a completion certificate at the TIO.

24.5 Upon completion of any inspection, TIO will issue a formal notice of the inspection which will be sent to the TPD Consultant and a copy to the TPD. In the event of a violation being identified, TIO may informally discuss the matter with the TPD Contractor on site or the TPD Consultant.

## 25 Compliance Enforcement



25.1 TIO has the authority to take enforcement action to remedy breaches if and when they arise. To facilitate enforcement, the TIO will collect a Security Deposit from the TPD before commencing any construction work on site plot/parcel.

25.2 The Security Deposit will be held by the TIO and violation charges and other costs incurred shall be deducted therefrom. The TPD will be required to replenish the security deposit if it is exhausted during the construction period. The remaining balance will be refunded to the TPD on issuance of the Completion Certificate.

25.3 The security deposit amount is:

25.3.1 Villa internal/external modification work: BD 50/-

25.3.2 Residential plots including addition: BD 200/-

25.3.3 Commercial plots including addition: BD 1000/-

25.3.4 All parcels including addition: BD 2000/-

25.4 The amount of the violation will be as follows:

	Amount ( BD)
Design Drawings	100
Skipped inspection request	100
Construction Regulations & HSE	100
Road Occupation / Signage	50
Garbage/Construction waste	50

25.5 In case of no corrective actions are taken after issuing a violation, a Stop Work Notice (SWN) will be issued, and contractors will be denied access to site. A (SWN) will also be issued where a major violation is noticed which has potential to considerably damage the environment, severely affects other projects or a significant non-compliance to approved design drawings or HSE regulations.

25.6 If the TPD continues to carry out work contrary to the (SWN) or fails to comply or rectify the breach within the set time frame, formal enforcement action may be taken by TIO and any charges incurred to remove or rectify the violation will be billed to the TPD.

## 26 Connections to permanent utilities



26.1 Unless and until a completion certificate is issued by the concerned Municipality, it is unlawful for the building to be used or occupied by any person.

26.2 TIO approved completion certificate must be submitted to the concerned Municipality with all other required documents in order to obtain Municipality completion and occupation certificates. The Municipality completion certificate must be submitted to the concerned authorities to obtain electricity, water, and sewerage connections.

**DIYAR AL MUHARRAQ**



# **BOOKLET 3**

**Health, Safety, and Environment (HSE) Policy**

**NOV 2020 (V.4)**

# Safety First, Last and Forever!



## Core Values



DAM continually strives to maintain a sustainable health, safety and Environmental (HSE) program for its Projects, Joint Ventures, Contractors, Subcontractors, management and workers.

DAM believes that everyone has the right to go to work and be safe at work.

Diyar believes in the proper use of objective HSE processes, tools, policies and procedures but equally as important.

DAM encourages its Projects, Joint Ventures, Contractors, Subcontractors, management and workers to consider the legacy of a potential incident or accident beyond the event itself and asks the question “our management and supervision does not ask you to work un-safely so how may the action you’re about to take affect the families and lives of loved ones if you do it?”.

DAM recognizes that its Projects, Joint Ventures, Contractors and Subcontractors employ a broad range of people from a broad range of cultural backgrounds, some of whom do not speak or read English as a first language.

DAM believes therefore that its Projects, Joint Ventures, Contractors and Subcontractors must continue to provide personal training, mentoring, coaching and empowerment through programs designed to balance the process and the human aspects of HSE.

Zero injuries, whilst an admirable goal, is a statistic. DAM is intolerant of incident or injury to Contractors, Subcontractors, management and workers. It is a belief and is a core company value.

## I General Responsibilities



I.1 Contractors and their Subcontractors are required to comply with these basic procedures and practices and any revisions of them which may be made during the course of the work, and in particular to take the following actions:

I.1.1 Establish, implement and maintain a health and safety program and plan which promote the use of safety working practices.

I.1.2 Ensure that workers are provided with a safe and health place of work, including safe means of access to and egress from it.

I.1.3 Provide training, where necessary, to workers to enable them to work safely and record details of training given, and in particular to explain the project procedures and practices as they affect them during induction training.

I.1.4 Put emphasis on the “human” or subjective side of safety as well as providing training in procedures.

I.1.5 Provide supervision of the safe conduct of the Work and provide supervisors that are competent in health and safety matters.

I.1.6 Carry out inspections of the work areas and record the results of inspections.

I.1.7 Communicate relevant information on health, safety and the environment to workers.

1.1.8 Encourage feedback from workers concerning potentially hazardous working conditions.

1.1.9 Report all occupational injuries and illnesses to the Engineer using incident reports followed by a detailed report of events and how the matter was closed out safely.

1.1.10 Provide the TIO with copies of incident reports and other reports immediately following an incident on site.

1.1.11 Comply with all project requirements on health, safety and environment matters which may be issued by the engineer from time to time.

1.1.12 Ensure the attendance of management representatives at all meetings where health, safety and or environmental issues are to be discussed.

1.2 These actions shall be documented in a Contractor Health & Safety Plan, to be submitted as part of the Contractor's tender, which describes what specific activities are to be done.

1.2.1 Contractors and Subcontractors shall make every effort to ensure that property is not damaged, and that site workers, other workers and third parties are not put at risk as a result of work operations.

1.2.2 The Contractor warrants that all Subcontractors will have been notified of the requirements of this document and any of the engineer's requirements before executing a contract with DAM or DAM's Joint Ventures.

1.2.3 The Contractor and its Subcontractors agree to co-operate at all times with the engineer and to rectify immediately any matters brought to their attention by the engineer.

1.2.4 In addition to the engineer's requirements, all current and applicable National and Local Government Acts, Regulations and codes will be followed, including any requirements for the licensing or certification of workers, inspections and certification of plant and equipment.

1.2.5 Partners, Joint Ventures, Contractors and Subcontractors shall report all near misses, incidents or injuries, to the engineer and TIO as soon as they are known. Where necessary and following consultation with the engineer and TIO, these will also be referred to the relevant authorities.

1.2.6 Contractors and Subcontractors shall ensure that induction training is to be given to every worker (management and labour) in HSE before commencing work on site. This will cover as a minimum:

1.2.6.1 The Engineer's and DAM's / DAM's Joint Venture HSE program & induction.

1.2.6.2 Disciplinary rules which apply to the worker.

1.2.6.3 Common hazards on site including dangers of falls & electricity.

1.2.6.4 The control methods used by Contractors and Subcontractors to minimize risk.

1.2.6.5 The issue, use, replacement and maintenance of personal protective equipment "PPE".

1.2.6.6 The health, safety and Environmental role of supervisors.

1.2.6.7 Procedure to be followed in the event of incident or injury.

1.2.6.8 Fire and emergency procedures.

1.2.6.9 Location of all welfare facilities.

1.2.6.10 Emergency telephone numbers.

1.2.6.11 Arrangements for regular ongoing training & project briefing.

## 2 Working Conditions



2.1 Access routes to the work face, walkways and stairs shall be kept clear to allow safe access. Where this cannot be achieved temporarily, alternative access routes shall be agreed with the Engineer.

2.2 As regular exposure to high noise levels can cause deafness, Contractors and Subcontractors shall assess and control the exposure of workers. An evaluation of work noise levels and the controls to be used shall be included in the HSE plan.

2.3 Where temporary lighting is required, site lighting levels shall be sufficient to permit all work to be done in safety. Contractors HSE plan will include details of the proposed supply of adequate lighting before work commences.

2.4 Contractors and Subcontractors shall provide all necessary personal protective equipment to workers whether required by legislation or the Engineer's site safety policy. The equipment will be provided at no charge to the workers. The condition of the equipment will be regularly monitored and where there is any doubt as to the condition of the equipment, it will be retired and replaced.

## 3 Housekeeping



3.1 The work areas and site will be kept and maintained in a clean and orderly condition, with emergency escape routes, fire and lifesaving equipment kept clear of obstructions. Oil, grease, construction waste, packing materials, litter and other debris caused by the work of Contractors and Subcontractors, shall be collected, segregated and removed to authorized segregation points as soon as possible for removal from site. Machinery and other equipment shall be kept in a clean condition.

3.2 Materials shall be stored neatly in appropriate locations. Where substances which may be hazardous to health are involved (ie paint, welding gases, flammable materials, fuels etc.), Contractors and Subcontractors will obtain agreement from the Engineer for storage locations and this shall be reviewed at regular site meetings. Arrangements for the safe storage of such materials will be covered in the Contractor's and Subcontractors' HSE plan.

3.3 Waste segregation and disposal shall be carried out daily, using properly designated containers according to the Engineer's applicable local waste disposal requirements.

3.4 Areas under foot, be they floors of a building or the ground itself will be kept clean and free of projecting hazards such as nails, wire off-cuts and the like. All temporary electrical leads will be elevated up off the floor. Open ends of scaffold tubes, planking, strutting, access platforms and the like will also be provided with hazard warning signage, and where necessary protective end caps.

## 4 Hand Tools



4.1 Contractors and Subcontractors in addition to the Engineer's requirements shall comply with all local legislation controlling the use of powered tools and equipment. This includes the use of an approved "tagging" system.

4.2 Tools shall only be used for the task they were designed to perform and shall be maintained in good condition. Defective tools shall not be used.

4.3 All guards must be properly fitted and in good condition at all times.

4.4 Abrasive wheels and cutting-off discs shall be checked for correct size relative to the machine before they are fitted. Fitting of these shall only be done by workers who are properly trained and competent to do so.

4.5 Powered tools, whether hand-held or bench-mounted, shall be operated only by workers who are properly trained, and authorized by the Contractor's and Subcontractors' supervisors to do so.

4.6 Only engineer approved, properly grounded electrical tools with three-pronged plugs, or double-insulated tools, shall be used. Switch lock-on devices are not permitted on any electrical or air-powered hand tools by Contractors and Subcontractors.

## 5 Emergencies



5.1 Before work begins, Partners, Joint Ventures, Contractors and Subcontractors will have undergone the engineer's safety induction courses and will have a suitable plan in place to handle emergency situations which may arise

on site. This plan will be posted in the workplace, and will address the following as a minimum:

5.1.1 Safe shutdown of all work activities, including emergency evacuation routes and assembly points.

5.1.2 Listing of the persons responsible for organizing the evacuation and controlling the emergency conditions.

5.1.3 Listing of the marshals for each work area and floor who will be responsible for establishing that evacuation has been completed.

5.1.4 Communication plan to ensure that all site personnel are aware of the correct response to an emergency, the correct telephone numbers etc.

5.1.5 Nominee for the compilation of a Flash Report and whom this is to be issued to.

5.1.6 Procedures for follow reporting and assessment of a safe return to the work place.

5.1.7 In case of emergencies, please contact local authorities available at the following:

Police & Ambulance (Civil Defence & Fire Service)	999
Traffic Directorate	199
Samaheej Police Station	17334401
Bahrain Coast Guard	17700000
Emergency Hotline	80001112
Diyar Al Muharraq Security	77113113

5.2 Hospitals with close proximity and accident & emergency treatment facilities:

5.2.1 King Hamad University Hospital, Busaiteen

5.2.2 Samaheej Police Station

5.2.3 Al Dair Health Center

5.2.4 American Mission Hospital

## 6 Electrical Safety



6.1 Contractor's and Subcontractors' workers shall not work on or in proximity to energized circuits of any voltage unless adequate safety measures have been taken and the work operation has been reviewed and approved jointly by the Contractor's and Subcontractor's nominated manager responsible for safety jointly with the engineer.

6.2 Only electricians or authorized workers shall be permitted to work on or repair electrical equipment, enter electrical enclosures or alter connections. Proper procedures for "approval to proceed" ticketing will be implemented.

6.3 All electrical installations shall comply with the relevant local or national electrical codes.

6.4 When portable or semi-portable equipment operates at voltages in excess of 110 volts, the supply shall be protected by an Earth Leakage Circuit Breaker "ELCB", regardless of any such device fitted to the equipment.

6.5 Metal safety helmets are banned.

6.6 Only workers who are trained and authorized to do so will be permitted to climb utility poles, subject to the approval of the utility company and the engineer.

6.7 An established lockout-tag out procedure shall be followed before carrying out maintenance on any installations.

6.8 Electric motors, equipment, cables, lines and plug connectors shall not be exposed to risk of contact with water. Temporary electrical cables are to be elevated up off the floor.

6.9 During repairs to and maintenance of electrical systems, the Contractor and Subcontractors in consultation with the engineer will take adequate and suitable steps to warn workers in the area who may approach the area of the hazard, and prevent their possible exposure to harm.

6.10 Electrical supply panels shall be protected by cabinets, and the doors of these shall be kept locked shut at all times except when access is required by an authorized electrician.

6.11 Electrical equipment used in hazardous environments shall be classified as suitable for the environments.

6.12 Temporary feeders shall be tagged at their source to indicate the Contractor and / or its Subcontractors using that feeder. Neither Contractors nor its Subcontractors shall use bare wire connections into power socket holes.

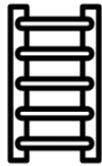
6.13 Hand tools, machinery and other electrical equipment shall be grounded with an approved system and shall be inspected before use. Portable ELCB's shall be used in every case.

6.14 Work on live electrical circuits and those above 110 volts shall only be done using a permit to work, issued by the engineer and implemented by the Contractor and its Subcontractors.

6.15 Contractors and Subcontractors will ensure that all electrical systems under their control are maintained in a safe condition, and that cables and wires are properly routed to avoid becoming a hazard to others, or being damaged by traffic.

6.16 All tungsten / halogen lamps shall be fitted with a glass guard to the element. These lamps shall be fixed at a high level.

## 7 Fall Protection, Mobile Scaffolds and Ladders



7.1 Suitable and sufficient steps will be taken by the Contractor and its Subcontractors to prevent any person employed directly or by its Subcontractors from falling. It will provide training and briefing on trip hazards, penetration hazards, and hazards of working at heights and the correct use of PPE.

7.2 Fall protection is required when workers are working more than 2m above grade and no handrails are present. Workers on suspended platforms, man-lifts, gondolas, baskets and chairs shall use approved safety lines attached to approved safety harnesses.

7.3 Where falls of more than 2m can occur, the Contractor and its Subcontractors shall select a protected working platform as the first choice for protection against falls.

7.4 Ladders must be in sound condition and of a size, strength suitable for the task and properly positioned. No access is to be allowed from ladders which puts the worker in an unstable or unsafe position.

Ladders are for access to work platforms only, not as a work platform themselves.

7.5 Where mobile scaffolds are fitted with wheels, these shall be equipped with efficient locking devices. It is strictly prohibited to move or attempt to move a scaffold tower with workers remaining on any part of it.

7.6 Scaffolds providing access above 2 meters shall be fitted with bracing out riggers.

7.7 An approved scaffolding tagging system shall be discussed with the Engineer and adopted on site.

## 8 Fire Prevention and Protection



8.1 All temporary site offices and stores within are to be provided with zoned smoke detectors and fire alarms. Elsewhere individual smoke detectors and external warning lights are to be installed as necessary where work is being carried out inside buildings.

8.2 Debris netting and weather protection sheeting are to be fire retardant.

8.3 Suitable fire extinguishers will be made available throughout the work areas in quantities sufficient to provide first hand protection for all workers in that area. They shall be properly maintained and regularly tested, and their locations will be indicated by prominent safety signs.

8.4 All necessary precautions shall be taken to prevent fires.

8.5 To prevent fires, the following minimum requirements must be observed:

8.5.1 Storage locations for any flammable and combustible material must be agreed by the engineer, and be isolated from ignition sources.

8.5.2 Report and eliminate all leaks and spills of these materials as appropriate.

8.5.3 The work area must be kept clean.

8.5.4 Remove all combustible materials away from hot equipment, flames and sparks.

8.5.5 Use oils and solvents only with the approval of the engineer.

8.5.6 Quantities of flammable and combustible substances exceeding that needed for one day's operation must be stored in a proper storage facility isolated from the actual work area.

8.6 Smoking is not permitted on site. Designated smoking areas will be provided. Conspicuous signs stating 'NO SMOKING' shall be posted.

8.7 The fuel tanks of gasoline engines must be filled away from work areas and only when the engines are turned off. Approved safety cans and proper grounding techniques must be used when the tank is not filled directly from the storage container or other source of supply.

8.8 No combustible site offices are to be placed inside or within 10 meters of a site work area. Where temporary site office units are being used in these circumstances they must, to all practicable purposes, be constructed of non-combustible materials and have a half-hour fire rating inside to outside and outside to inside. Non-combustible assets inside the site accommodation shall be used where practicable.

8.9 All temporary site offices and stores within are to be provided with zoned smoke detectors and fire alarms. Elsewhere individual smoke detectors and external warning lights are to be installed as necessary where work is being carried out inside buildings.

8.10 Debris netting and weather protection sheeting are to be fire retardant.

8.11 Suitable fire extinguishers will be made available throughout the work areas in quantities sufficient to provide first hand protection for all workers in that area. They shall be properly maintained and regularly tested, and their locations will be indicated by prominent safety signs.

## 9 Hot Works



9.1 'HOT WORK' shall be defined as any work which, in the particular circumstances, has the potential to generate a spark, heat or static electricity that could cause a fire or explosion. Some examples of this type of work include welding and grinding. A permit to work system shall be used to control HOT WORK for nominated activities as discussed at the Contractor and its Subcontractors' pre-commencement meeting and as defined by the engineer.

9.2 Only workers trained, tested authorized by the Contractor and its Subcontractors to do so shall carry out HOT WORK. This means the Contractor and its Subcontractors must undertake a performance evaluation before being issued with a permit to work on such activities on site.

9.3 Before issuing the permit, The Contractor's Site Manager and Supervisor in charge shall be personally satisfied that the appropriate precautions are in place, which shall include:

9.4 Isolation, shut down or protection of materials, pipes and drains which may be affected by the work or its consequences.

9.5 Establish a fire watch to monitor the work and check on its safe completion after the hot work has ceased.

9.6 The provision of appropriate fire extinguishing and protection equipment close to the work.

## 10 Welding and Burning



10.1 Only competent and authorized workers issued with a permit to work by the Contractor and its Subcontractors shall be allowed to use welding equipment on DAM / DAM's Joint Venture projects.

10.2 Suitable and sufficient precautions shall be taken to control the exposure of workers and third parties to excessive ultra-violet radiation, toxic gases, fumes and dusts where welding or cutting equipment is used. These precautions are to be reviewed and approved collaboratively with the engineer.

10.3 Where necessary, welding screens and spark protection shall be used to protect other workers and third parties from falling sparks. The Contractor's nominated Safety Officer and Supervisor will ensure that this is checked regularly.

10.4 A serviceable fire extinguisher shall be immediately available where welding and burning is being carried out.

## 11 Eye Protection



11.1 Approved eye protection shall be worn at all times in conditions of high solar gain, in conditions of high atmospheric dust content, for all cutting, grinding and for all welding activities.

## 12 Waste Segregation Disposal & Environmental Care



12.1 All waste materials and rubbish shall be segregated and removed from the site within 24 hours of its being created. The Contractor and its Subcontractors shall make positive plans for the removal of waste materials and rubbish from the work areas to nominated waste containers and skips. These plans shall form a part of the site-specific safety plan, and be agreed with the engineer.

12.2 Special attention is to be paid to, the proper segregation of metal, wood, paper based, liquid and general waste segregation and any waste which has a potential to affect the environment. This includes, but is not restricted, toxic chemicals and other substances hazardous to health, non-degradable packaging material and fuels. No gases are to be released to atmosphere. Leakages are to be reported immediately.

12.3 No material or liquid is to be allowed to spill down drains or into ground soils unless this has been reviewed and approved by the engineer. Method of clean-up of paint, tools & equipment to be agreed with engineer.

### 13 Hydration & Solar Protection



13.1 The Contractor and its Subcontractors will provide an adequate supply of water for regular hydration intake by its workers on site.

13.2 The Contractor and its Subcontractors will provide portable sun shade devices as and where necessary and welfare of their workers for the health. (refer to Appendix C: Resting Area Guidelines)



# THANK YOU!

Booklet 3 – TIO

