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2 SITE CLEARANCE

2.1 GENERAL

2.1.1 Scope of Work

1 This Part includes:

- (a) Excavating for, demolishing and removing wholly or in part and disposing of designated redundant pavements, fences, buildings, culverts, manholes, inlets, gullies, pipelines or any other obstructions.
- (b) Associated earthworks to uncover facilities to be demolished, removed or recovered and to backfill and compact all trenches, holes, pits or excavations resultant from demolition, removal and recovery works.
- (c) Recovering designated materials for storage and reuse.
- (d) Removing and, where required, recovery of designated water, gas and sewage pipelines and fittings and of underground cables.
- (e) Disposal of materials not recovered.
- (f) Removal of vegetation and surface boulders and rocks.

2 Related Parts and Sections are as follows:

This Section:

Part 3..... Earthworks

Part 5..... Asphalt Works

Part 11..... Works in Relation to Services

Section 2	Building Demolition
Section 5	Concrete
Section 8	Sewerage
Section 12	Earthworks Related to Buildings

2.1.2 References

1 The following standards are referred to in this Part:

BS 5228Code of practice for noise control on construction and demolition sites

BS 6187Code of practice for demolition

The Guide for Civil Users of Explosives in Qatar prepared by the former Ministry of Industry and Public Works.

2.1.3 Submittals

1 Where existing services are to remain and are in close proximity to the works the Contractor shall submit to the Engineer details of proposed measures to ensure that the existing services are kept in a safe and stable condition for the duration of the Works.

2 Structures and installations to be dismantled or demolished shall be surveyed by the Contractor to ascertain exposed constructional dimensions and details. The Contractor shall prepare sketches of the structures and installations and submit these to the Engineer. This information shall be used by the Engineer to confirm the scope of the dismantling or demolition and confirm materials or equipment to be recovered.

- 3 The method of dismantling and demolition including the sequence of operations and any special procedural requirements shall be submitted to the Engineer for consideration not less than seven days before the work is due to begin. Demolition work shall be carried out in accordance with BS 6187, and the submittal shall include information demonstrating the Contractor's proposed methods to attain compliance.
- 4 Before any blasting operation the Contractor shall submit a detailed method statement for the work. Blasting work shall be carried out in accordance with The Guide for Civil Users of Explosives in Qatar, prepared by the former Ministry of Industry and Public Works. Approvals for blasting work shall be obtained as per the requirements of part 3 of the specification for rock excavation.
- 5 The Contractor shall submit for approval his proposed method of grouting pipes to be abandoned.
- 6 Before commencing work on the construction of reinforced concrete cut-off walls and reinforced concrete capping slabs the Contractor shall submit details for the Engineer's approval.

2.2 PROTECTION TO EXISTING SERVICES AND INSTALLATIONS

- 1 The Contractor shall conduct his operations in such a manner as to avoid hazards to persons, property and vehicles. After work is started on any structure, work on that structure shall be continued to completion promptly and expeditiously.
- 2 Services to unused installations shall be safely disconnected before demolition. Notification of disconnection shall be given to the appropriate authorities.
- 3 Drains, manholes and gullies that are to remain shall be protected and kept clear of debris at all times. They shall be left clean and in working order.
- 4 Details of any underground caverns, chambers, wells or voids discovered during the demolition operation shall be reported to the Engineer. Dangerous openings shall be protected and illuminated.
- 5 Precautions shall be taken to prevent leakage or formation of flammable, explosive, unhealthy or environmentally hazardous gas or vapour.
- 6 Pits, drains and manholes shall be checked before entry to ensure that the atmosphere is fit for respiration.
- 7 The quantity of dust in the atmosphere shall be minimised by spraying the demolition works with water.
- 8 The recommendations of BS 5228: Part 2 shall be followed in minimising noise and vibration. Silencing devices on plant shall be fitted where practicable and ear defenders shall be provided for site personnel where noisy machinery is used.
- 9 The location of any survey stations shall be reported to the Engineer. The Engineer may require the Contractor to transfer existing survey stations to new locations and carry out a survey to verify the level and co-ordinates of the new survey stations.
- 10 All existing structures, paving, services, fittings, and other features which are not to be demolished, dismantled, removed or otherwise dealt with shall be protected from damage by a means approved by the Engineer.
- 11 Adjacent structures shall be surveyed for movement, cracks or deformations before and after demolition. The definition of adjacent structures in this context will be decided by the Engineer dependent on the type of structure to be demolished and the method of demolition proposed by the Contractor and the risk of damaging adjacent property.

- 12 A photographic record of the adjacent structures before and after demolition shall be taken.
- 13 Where structures, paving, services, fittings or other features are damaged by the Contractor, they shall be made good to the satisfaction of the Engineer.

2.3 RECOVERY OF MATERIALS

- 1 Where required the Contractor shall recover designated materials without undue damage, carry out any required cleaning and shall deliver the recovered materials to locations designated by the Engineer and unload and place them into storage.
- 2 Where on-site reuse is designated recovered materials shall be stored on site before their incorporation in the Works.
- 3 Materials to be recovered shall be handled and stored in such a manner as to avoid any damage which will impair their reinstallation and reuse. Where the absence of care results in damage, the Contractor shall repair the damage at his expense. If repairs are deemed to be impracticable the Contractor shall provide replacements at his expense.

2.4 CLEARING AND GRUBBING

- 1 The Contractor shall excavate and remove surface material such as debris, windblown sand, vegetation and any other unsuitable material in the areas and to the thickness instructed by the Engineer. Clearing and grubbing shall be restricted to removal of surface material and debris and shall not include the excavation of natural ground unless directed by the Engineer.
- 2 The removed material shall be loaded and transported to an approved dumping area.
- 3 All surface objects, trees, stumps, roots and other protruding obstructions not designated to remain shall be grubbed and cleared as follows:
 - (a) In areas inside of the grading limits of cut and embankment areas, stumps and non perishable solid objects shall be cut off not less than one metre below the subgrade level in the area.
 - (b) In areas outside of the grading limits of cut and embankment areas, stumps and non-perishable solid objects shall be cut off not less than 500 mm below finished ground level.
 - (c) In areas to be rounded at the top of cut slopes, stumps shall be cut off flush with or below the surface of the final slope line.
 - (d) Grubbing of pits and ditches will be required only to the depth necessitated by the proposed excavation within such areas.
 - (e) Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted.
 - (f) Where designated the Contractor shall carefully remove existing trees, plants or shrubs and carefully transport these to a location designated by the Engineer.

2.5 REMOVAL OF STRUCTURES

- 1 Unless otherwise directed the Contractor shall demolish and remove all buildings and structures within the limit of works limits together with all foundations and retaining walls, piers, partitions and columns down to a plane not less than one metre below the finished ground level or one metre below the subgrade level in the area.
- 2 Upon receipt of notification by the Engineer, the Contractor shall take over all responsibility of the building or buildings then acquired and vacant and shall proceed with the demolition and removal thereof.

- 3 All structures shall be neatly trimmed off and the reinforcement shall be cut or trimmed off close to the concrete and made safe; basement floor slabs shall be broken into pieces; excess debris and other foundations, concrete floor slabs, sidewalks, driveways, signs, sheds, garages, fences and other facilities shall be removed.
- 4 The Contractor shall arrange for the discontinuance and disconnection of any services to the structure or structures in accordance with the requirements of the agency concerned. The Contractor shall disconnect and properly seal in an approved manner any sewer outlets that serve any structure he is to remove. The Contractor shall keep the Engineer informed of his plans for the performance of any work in connection with the sealing off of such outlets in order that proper inspection can be provided at the time the work is performed.
- 5 Any additional small out-buildings or temporary structures even if not shown on the Drawings shall also be removed if directed by the Engineer.
- 6 Demolition and removal works shall be carried out mechanically or by hand as necessary in such a manner as to cause no undue damage to the public, property, vehicles, pavements, services and structures, and the Contractor shall provide temporary works for protection when necessary, in accordance with any special requirements of the concerned authorities.
- 7 Blasting or other operations necessary for the demolition and/or removal of facilities which may damage new construction shall be completed before placing the new work, unless otherwise directed by the Engineer.
- 8 In all cases the Contractor shall be responsible for all claims resulting from damage, of any nature, caused by carelessness or negligence on the part of the Contractor, his subcontractors or agents.
- 9 Demolition or removal operations for any particular facilities shall not be started until written approval is obtained from the Engineer.
- 10 Throughout the demolition period the Contractor shall provide and maintain sufficient and adequate temporary supports.

2.6 REMOVAL OF STREET FURNITURE

- 1 Where designated, street furniture shall be recovered, cleaned and either delivered to and placed into storage at the stores of the designated authority or set aside for re-erection as part of the Works, or shall be removed and disposed of.
- 2 The Works shall include the excavation, removal and disposal of all foundations.
- 3 Before proceeding with the removal of any of the above installations the Contractor shall contact the relevant authority and obtain approval.
- 4 The recovery of existing street lighting installations shall form part of the Works and shall be in accordance with the requirements of the Public Works Authority.

2.7 REMOVAL OF FENCES

- 1 Where designated, fencing, including all support posts, gates, other accessories and foundations shall be removed.
- 2 The Contractor shall provide suitable termination's for remaining fencing whether inside or outside the right-of-way limits.

- 3 Unless otherwise directed all fencing, posts, gates and other accessories shall remain the property of the Employer and shall be carefully dismantled and delivered to and place into storage on site or at the Employer's stores, the location of which shall be obtained from the Engineer. The supporting posts and supports shall be carefully cleaned of concrete, avoiding damage to the posts.
- 4 Foundations and sections of fencing which are designated unsuitable for recovery by the Engineer shall be disposed of.

2.8 REMOVAL OF EXISTING PAVEMENTS

2.8.1 General Requirements

- 1 On sections of redundant existing roadway (and detours and diversions that are no longer needed for traffic) the existing pavement structure together with all kerbs, kerb base and backing, sidewalk paving, edging or kerb to sidewalk paving including base and backing to same and other items shall be broken out and removed.
- 2 Non-asphaltic pavement, kerbs, kerb base and backing, gutters and other associated debris shall be disposed of unless such items are designated for recovery.
- 3 Where designated side drainage ditches and excavations shall be filled and the roadway rough graded to restore approximately the original contour of the ground or to produce natural, rounded slopes. After the rough grading is completed, the area of the old roadbed shall be scarified or ploughed to mix the remaining road material thoroughly with earth and then shall be harrowed and smoothed.

2.8.2 Cutting Back Pavement

- 1 The Contractor shall cut back all existing construction in such a manner to avoid damage to the construction which is to remain.
- 2 Any damage to the existing pavement and other work areas which are to remain shall be restored to the satisfaction of the Engineer.
- 3 The details and dimensions of the cutting back of the existing pavement construction shall be as designated subject to a minimum benching step of 300 mm between each pavement course.
- 4 The method of cutting back all existing construction shall be as approved by the Engineer.
- 5 Once cut back all pavement edges shall be suitably protected against damage from construction traffic. Any such damage shall be made good before proceeding with pavement construction.

2.8.3 Stockpiling Asphalt Pavement

- 1 During the recovery and stockpiling operations asphalt pavement containing soil or other debris shall be kept separate from recovered pavement which does not contain soil or other debris.
- 2 Existing pavement designated for recovery shall be removed and stockpiled by methods which will minimise losses and prevent it being contaminated with other materials. Especially, the Contractor shall ensure that the material is reasonably free of soil and other matter when it is stockpiled.

2.8.4 Stockpile Site

- 1 The Engineer may direct that removed asphalt or concrete pavement is stockpiled for possible future use and the Contractor will transport all removed asphalt or concrete pavement to the designated stockpile location.

- 2 The Contractor shall inform the Engineer at least seven (7) days before he is ready to commence stockpiling operations and obtain written approval from the Engineer.
- 3 If not previously protected, the Contractor shall provide a protective enclosure around the stockpile site to prevent unauthorised dumping by other Contractors and ensure that material is not removed without authorisation. The protective enclosure around the stockpile site shall include a suitable lockable gate for entry.
- 4 The Contractor shall assure responsibility for maintenance of the stockpile site during the time he is depositing and removing material from the stockpile.
- 5 Maintenance responsibility shall include but not be limited to:
 - (a) Furnishing plant when directed by the Engineer to spread the material and shape the stockpile as successive loads of salvaged material are delivered.
 - (b) Ensuring by whatever means required that no unauthorised dumping is allowed.
 - (c) Consolidating and reshaping of stockpile from time to time and when final operations are complete.
- 6 When directed by the Engineer the Contractor shall permit other contractors access to the stockpile site to deliver or remove materials.

2.9 MEASURES FOR STATUTORY UNDERTAKERS

- 1 The Contractor shall take all measures required by any statutory undertaker, the management of other publicly owned services, or owners of privately owned services or supplies, for disconnection and proper sealing off of all redundant drains, services and supplies.
- 2 The Contractor shall observe and comply with all the safety regulations that are in force for work associated with various services.
- 3 Before commencing work on the removal or treatment to any utilities the Contractor shall contact the statutory undertakers and obtain their written approval.
- 4 The removal of overhead power lines shall be carried out by the QGEWC or by a specialist contractor approved by the QGEWC.

2.10 REMOVAL OR TREATMENT TO BURIED UTILITIES

2.10.1 General

- 1 Designated existing underground storage tanks, culverts, box culverts, pipelines, pipes, manholes, inlets, gullies and similar facilities for drainage or other designated utilities shall be totally or partially demolished as designated, all debris removed, the facility thoroughly cleaned out and the resultant void backfilled with suitable material (as defined in Section 6 Clause 3.3) and compacted.
- 2 Underground utilities, pits, chambers, cesspools and similar facilities shall be demolished to a depth of one metre below the finished subgrade level in the area, and shall be properly cleaned out to full depth and backfilled with approved compacted materials.
- 3 Where designated, manhole and access shaft covers and frames and drainage inlet covers and frames shall be carefully removed, cleaned and transported to and placed into storage at designated storage areas.
- 4 Materials not recovered for reuse shall be disposed of.

2.10.2 Underground Storage Tanks

- 1 Existing underground storage tanks on the site or under structures designated for removal shall be removed and disposed of by the Contractor. The Contractor shall take all necessary precautions during the removal and disposal of any fluid within the tanks and of the tanks themselves.

2.10.3 Removal of Culverts

- 1 Where the total demolition of a culvert is designated the culvert top slab, walls, base slab and all manhole shafts, shall be broken out and all debris removed and disposed of.
- 2 Where the partial demolition of the culvert is designated the top slab of the culvert shall be removed together with all manhole shafts. The side walls shall be broken out to the designated level or to a minimum of one metre below the subgrade level or the finished ground level in the area. The walls shall be neatly trimmed off and the reinforcement shall be cut or burned off close to the concrete.

2.10.4 Abandoned Pipes and Culverts

- 1 Pipes and culverts no longer required which are designated to be abandoned in place shall either be filled with grout or concrete, as designated by the Engineer.
- 2 All ends of abandoned pipes with a nominal diameter greater than 100 mm and less than 600 mm and all ends of abandoned culverts with a cross-sectional area of 1.0 m² or less shall be plugged by either mass concrete or a reinforced blockwork wall.
- 3 All ends of abandoned pipes with a nominal diameter of 600 mm or greater and all ends of abandoned culverts with a cross-sectional area greater than 1.0 m² shall be provided with a cut-off wall as designated.

2.10.5 Total Removal of Pipelines

- 1 Where designated, pipelines, manholes and fittings together with any plain or reinforced concrete bed, haunch or surround shall be broken out, removed and disposed of.
- 2 Designated pipes and ring fittings to be reused shall be recovered in such a way as to leave them undamaged and suitable for reuse.
- 3 The method of taking apart the pipes and fittings shall be agreed with the Engineer before the start of the work.
- 4 Materials damaged in the process of recovery shall be repaired by the Contractor.
- 5 The pipes and fittings recovered shall have all extraneous material including concrete surround carefully removed, they shall then be thoroughly cleaned and delivered to the designated storage area and placed into storage.

2.10.6 Grouting of Pipelines

- 1 Where designated, abandoned-in-place pipelines 300 mm or less in diameter shall be completely filled with a sand-cement grout.
- 2 The cement, fine aggregate and water used for the grout shall comply with the requirements of section 5 of the Qatar Construction Specification. The sand used for the grout shall be a fine graded rounded sand that produces a free flowing grout.
- 3 The grout shall comprise of one part cement to two parts fine aggregate with enough water to produce a free flowing and pumpable mix. The use of admixtures to improve the flow and setting characteristics of the grout will be permitted subject to the prior approval of the Engineer.

- 4 Each end of the pipe shall be plugged. No grouting shall commence until the Engineer's approval has been obtained.
- 5 The Contractor may propose alternative methods of filling the pipe for the approval of the Engineer. The Engineer shall retain the right to designate certain pipes that shall be filled with grout irrespective of any approval to alternative methods of filling.

2.10.7 Plugging of Pipelines

- 1 Designated pipes shall be plugged by mass concrete as per section 5 of Qatar Construction Specification to a minimum of one metre lateral extent into the pipe.
- 2 The method of constructing the plug to ensure a solid watertight seal shall be approved by the Engineer.

2.10.8 Cut-off Walls and Capping Slabs

- 1 Where designated the Contractor shall construct a reinforced blockwork cut-off wall to box culverts and pipelines and a reinforced concrete capping slab to manholes and access shafts.
- 2 Reinforced blockwork cut-off walls shall extend beyond the edges of the pipe and shall be founded on a mass concrete of grade 20 as per section 5 of Qatar Construction Specification.

2.10.9 Manholes and Access Shafts

- 1 Unless otherwise designated, manholes and access shafts shall be broken out to a plane not less than one metre below the subgrade level or the finished ground level in the area or to immediately below the manhole and/or access shafts cover slab, whichever is the lower.
- 2 Manhole and access shaft walls shall be neatly trimmed off and reinforcement shall be cut or burned off close to the concrete and made safe.
- 3 Manholes and access shafts shall be cleaned out and all debris, sediment and refuse and other unsuitable material disposed of, and backfilled with approved compacted material.

2.10.10 Drainage Inlets and Gullies

- 1 Unless shown otherwise, all redundant drainage inlets, gullies and similar facilities shall be broken out to full depth.

2.11 DISPOSAL OF MATERIALS

- 1 Materials removed but not recovered shall be disposed of in a lawful manner at approved dumping areas. The Contractor shall be responsible for obtaining the location of the dumping area as well as the necessary permits and approvals from the relevant authorities.

END OF PART