EXHIBIT A

Scope of Work

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# Introduction

This EXHIBIT A – SCOPE OF WORK describes the WORK and obligations of CONTRACTOR under this CONTRACT. EXHIBIT A – SCOPE OF WORK must be read in conjunction with the CONTRACT documents, the relevant attachments and the EXHIBITS including their attachment as listed in art. 2 of the Conditions of Contract and includes the obligations of CONTRACTOR until the COMPLETION OF WORKS CERTIFICATE is issued by COMPANY.

EXHIBIT A – SCOPE OF WORK furthermore describes the indirect WORK and the direct WORK which CONTRACTOR is obliged to perform on SITE.

EXHIBIT A – SCOPE OF WORK provides the quantity of WORK obligations per discipline with its corresponding detailed description, their rates and prices. The BILL OF QUANTITY included in EXHIBIT A – SCOPE OF WORK forms an integral part of this CONTRACT.

# Project Description

COMPANY has been selected by CLIENT to construct a <plant description> in <location>, <country>.

ADD ONE OR TWO MORE PARAGRAPHS

# Project Objectives

* 1. General

CONTRACTOR shall execute all WORK with the focus on HEALTH, SAFETY and ENVIRONMENT aspects as required under the CONTRACT.

CONTRACTOR shall ensure that all quality aspects are taken into consideration when WORK is performed as required under the CONTRACT.

CONTRACTOR shall provide the CONSTRUCTION ENGINEERING, TEMPORARY SITE FACILITY, DIRECT and INDIRECT PERSONNEL required to complete the WORK in accordance with the MILESTONES as stated in EXHIBIT C – CONTRACT MILESTONES.

CONTRACTOR confirms that he is familiar with the conditions on SITE, the surrounding areas, weather and climate conditions, conditions related to access, transport, handling, loading and off-loading as well as storage of WORKING EQUIPMENT.

CONTRACTOR shall undertake familiarization of all necessary activities required to secure the timely start of all mobilisation, fabrication and construction activities as required under the CONTRACT. CONTRACTOR shall evaluate the WORK required to be performed under the CONTRACT and in accordance with EXHIBIT C - CONTRACT MILESTONES and prepare the CONTRACT NETWORK SCHEDULE detailing the fabrication and construction sequence of the WORK including the delivery dates of COMPANY PROVIDED ITEMS.

CONTRACTOR shall manage all interfaces related to the WORK. CONTRACTOR’S interface management shall consider interfaces with COMPANY GROUP, CLIENT, SUBCONTRACTORS, THIRD-PARTIES, authorities, etc. and shall ensure that the WORK can be completed as per EXHIBIT C – CONTRACT MILESTONES. CONTRACTOR shall notify COMPANY of any potential interfaces which may have an impact on the WORK.

* 1. Health, Safety and Environment

CONTRACTOR shall plan and carry out its activities so that the WORK is being performed without loss of life, injury or illness and without any environmental damage. COMPANY'S HSE requirements are defined in COMPANY’S “HSE Program Site” as included in EXHIBIT E – SPECIFICATIONS. CONTRACTOR shall ensure that COMPANY’S HSE Program Site and the relevant LAWS and regulations are adhered to by CONTRACTOR'S and SUBCONTRACTOR'S personnel.

* 1. Quality Management
     1. Quality Plan and Quality Procedures

CONTRACTOR shall provide a quality plan and quality procedures if required as per EXHIBIT C – CONTRACT MILESTONES. CONTRACTOR’S quality plan and quality procedures shall follow the requirements as described in EXHIBIT E – SPECIFICATIONS.

* + 1. Quality Control and Inspection and Test Plans

CONTRACTOR shall perform quality control of the WORK. CONTRACTOR’S quality control shall follow the requirements of the inspection and test plans as defined in EXHIBIT E – SPECIFICATIONS. COMPANY shall approve all inspection and test plans of CONTRACTOR.

In case EXHIBIT E – SPECIFICATIONS do not define requirements for inspection and test plans, then CONTRACTOR shall submit inspection and test plans for the WORK. COMPANY shall approve all inspection and test plans of CONTRACTOR.

The inspection and test plans shall define in chronological sequence the tasks, activities and procedures to monitor and verify the quality of the WORK per discipline.

* + 1. Quality Auditing

CONTRACTOR shall develop an audit plan related to the WORK. The audit plan shall define CONTRACTOR’S audit schedule to ensure that the WORK is executed in accordance with CONTRACTOR’S quality plan and inspection and test plans.

CONTRACTOR shall give notification to COMPANY within 14 (fourteen) DAYS prior to each audit. COMPANY will inform CONTRACTOR in case COMPANY intends to participate in an audit. In any case CONTRACTOR shall submit audit reports to COMPANY.

* + 1. Non-Conformity Management

In case EXHIBIT E – SPECIFICATIONS do not define requirements for NON-CONFORMITY management, each identified NON-CONFORMITY shall be individually evaluated and the corrective measures shall be agreed between COMPANY and CONTRACTOR.

NON-CONFORMITIES shall be recorded, corrective measures shall be implemented and documented, and each NON-CONFORMITY shall be officially closed by COMPANY.

* + 1. Third Party Inspections and Audits

In case COMPANY is subject to a THIRD-PARTY inspections and / or audits, CONTRACTOR shall provide any required documentation and qualified personnel to support COMPANY in such THIRD-PARTY inspections and / or audits.

* + 1. Notification of Inspections

In case EXHIBIT E – SPECIFICATIONS do not define requirements for notifications of inspections, CONTRACTOR shall give a notification to COMPANY as defined in the kick-off meeting or as defined in a separate pre-inspection meeting.

* 1. Site Organisation
     1. Site Mobilisation

CONTRACTOR shall perform all mobilisation activities in accordance with the mobilisation schedule to be developed by CONTRACTOR in accordance with EXHIBIT C – CONTRACT MILESTONES.

* + 1. Site Coordination

CONTRACTOR shall be responsible for all coordination activities with COMPANY GROUP, SUBCONTRACTOR’S, THIRD-PARTIES, authorities, etc. required for the execution of the WORK.

* + 1. Site Management

CONTRACTOR shall establish and maintain an experienced organisation on SITE which is capable to control, coordinate and administer the WORK until COMPLETION OF THE WORKS has been achieved.

* + 1. Site Cleanliness

CONTRACTOR shall ensure that all areas where WORK is being performed are clean, tidy and safe. Work areas must be kept free from waste material. Waste material shall be removed by CONTRACTOR using proper containers for the disposal and storage.

CONTRACTOR shall ensure that COMPANY'S owned scrap and / or surplus material is collected and handed over to COMPANY.

CONTRACTOR shall return the SITE to COMPANY in a clean, tidy and safe condition.

* 1. Resources
     1. Direct and Indirect Personnel

CONTRACTOR’S DIRECT PERSONNEL and INDIRECT PERSONNEL shall be skilled, experienced, professional, capable and qualified for the execution of the WORKS. CONTRACTOR shall ensure to have sufficient personnel available to cover for VARIATION ORDERS.

* + 1. Construction Equipment

CONTRACTOR shall provide suitable and well-maintained WORKING EQUIPMENT in sufficient quality and quantity to execute the WORK including VARIATION ORDERS.

* + 1. Construction Consumables

As part of the WORKING EQUIPMENT CONTRACTOR shall provide all consumables required by its personnel and / or the personnel of its SUBCONTRACTORS to complete the WORK.

* 1. Information Technology Systems and Tools
     1. General

CONTRACTOR shall provide, maintain and operate all required IT systems and tools such as hardware, software, other IT related items to complete the WORK.

CONTRACTOR shall specify, establish maintain and operate all necessary IT systems for efficient data processing, sharing and exchange with systems and tools used by COMPANY.

* + 1. IT tools used by Company

COMPANY will use Smart Plant 3D as well as Smart Plant Design Review, Smart Plan Review, MicroStation, Navis Works and Sigraph for engineering, modelling, visualisation, plot plans and layouts. In addition, COMPANY will use Intergraph PDS 2D and SmartPlant Explorer for creating intelligent P&ID’s. Further, COMPANY will use Universal Plant Viewer for 3D / 4D visualisation and the construction management system as platform to manage and control the construction activities.

* + 1. IT tools to be used by Contractor

In addition to the systems used by CONTRACTOR, CONTRACTOR must ensure to constantly operate, maintain and update the following systems provided by COMPANY to CONTRACTOR free of charge:

#### Virtual Interchange Platform

COMPANY and CONTRACTOR will use the virtual interchange platform (internet-based project information exchange platform) for document transfer to and from CONTRACTOR.

#### Construction Management System

COMPANY’S construction management system consists of the following modules, which CONTRACTOR is required to update with its data and information.

Module 1: Material Management

Module 2: Control of Material Flow

Module 3: Progress and Status Control

Module 4: Test Circuit Management

Module 5: Welding, Welders and Testers Management

Module 6: Inspection, Completion and Punch Item Management

Module 7: 4D Visualisation

COMPANY and CONTRACTOR shall agree the extent of the modules required for the WORK as well as the training requirements for CONTRACTOR’S personnel. If not agreed otherwise, such training shall take place at SITE. Each PARTY shall bear its cost related hereto.

In case CONTRACTOR intends to use its own systems, COMPANY'S written approval will be required.

* 1. Project Control

CONTRACTOR shall provide and maintain a project control system to fulfil the reporting requirements of COMPANY as defined in EXHIBIT D – ADMINISTRATION REQUIREMENTS.

* 1. Procurement

CONTRACTOR shall establish a procurement organisation and perform all procurement activities necessary to complete the WORK. CONTRACTOR shall prepare and maintain a subcontracting and procurement plan as required in EXHIBIT C – CONTRACT MILESTONES which shall summarize all SUBCONTRACTS and purchase orders for services, equipment and material to be provided by CONTRACTOR.

CONTRACTOR shall perform expediting activities including field expediting to ensure that SUBCONTRACTORS, vendors and suppliers do comply with their delivery obligations. CONTRACTOR shall maintain expediting reports, which shall be made available to COMPANY upon request.

To ensure that SUBCONTRACTORS, vendors and suppliers comply with quality obligations, CONTRACTOR shall implement a quality control system and prepare and maintain quality control reports. CONTRACTOR shall make available such reports to COMPANY upon request.

CONTRACTOR’S procurement activities shall furthermore include all necessary transport and offloading activities as well as material management.

COMPANY is entitled to request unpriced copies of SUBCONTRACTS and purchase orders. In case COMPANY compensates CONTRACTOR on a reimbursable or cost plus fee basis for SUBCONTRACTS or purchase orders, then COMPANY is entitled to request priced copies.

* 1. Construction Engineering
     1. Temporary Works

CONTRACTOR shall perform all CONSTRUCTION ENGINEERING necessary for the TEMPORARY WORKS including but not limited to temporary access and walkway systems, barricading, scaffolding, stairways, ladders, temporary lifts and cranes, stair towers, platforms, weather protection, safety and fire-fighting equipment, temporary offices and warehouse facilities on SITE.

* + 1. Scaffolding

CONTRACTOR shall provide, install and maintain all required scaffolding for the execution of the WORK in accordance with the latest scaffolding practice and the applicable documents and codes referred to in EXHIBT E – SPECIFICATIONS.

CONTRACTOR shall provide structural and static calculations as required by local codes and regulations at the place of the SITE for COMPANY’S approval. Applications for inspection and acceptance by building authorities are included in CONTRACTOR’S WORK.

* + 1. Civil Works

#### Temporary supports and shoring

All CONSTRUCTION ENGINEERING related to temporary supports for superstructures or any kind of shoring and supports for substructures is part of CONTRACTOR’S WORK and shall be approved by COMPANY.

#### Transport and handling of pre-cast elements

All CONSTRUCTION ENGINEERING related to transport and handling of pre-cast concrete elements, excavation and backfill material, sweet sand and other civil materials to and from SITE is part of CONTRACTOR’S WORK and shall be approved by COMPANY.

#### Testing of civil materials

Any required tests of CONTRACTOR’S WORK at SITE and / or in a laboratory is part of CONTRACTOR’S WORK. CONTRACTOR shall provide all test reports including attachments and certificates to COMPANY.

* + 1. Piping

#### Design Isometrics

CONTRACTOR shall use COMPANY'S provided design isometrics for large-bore piping (2” and above NPS) to generate the fabrication isometrics.

COMPANY provided design isometrics for small-bore piping (below 2” NPS) only indicate the pipe routing, its dimensions and co-ordinates on a theoretical basis. CONTRACTOR shall produce its own design isometrics for the small-bore piping incorporating all modifications necessary due to the real situation at SITE to ensure a correct fit-up. Clash free line routing is within the responsibility of CONTRACTOR.

CONTRACTOR is responsible to prepare design isometrics for utility stations and instrument air manifolds based on the locations indicated by COMPANY. CONTRACTOR’S isometric format shall follow the format used COMPANY.

#### Fabrication Isometrics

CONTRACTOR is responsible to prepare fabrication isometrics for all design isometrics. CONTRACTOR’S fabrication isometrics shall consider suitable spool sizes, over-length under consideration of COMPANY’S requirements stipulated in EXHIBIT E – SPECIFICATIONS and allocation of shop and field welds.

CONTRACTOR remains responsible of any mismatch in the spool fabrications and subsequent adjustments of spools at SITE. CONTRACTOR shall further ensure that proper accessibility of field welds at SITE.

CONTRACTOR shall determine the requirements for vents and drains required for chemical cleaning, flushing and pressure testing. CONTRACTOR shall suitably seal such connections after cleaning and testing and document all sealed vents and drains as part of the AS-BUILT DOCUMENTATION.

CONTRACTOR’S fabrication isometrics shall contain line number, spool numbers, weld numbers, painting systems, insulation type and thickness, PWHT, welded attachments, chemical cleaning requirements and test pressure and test medium.

* + 1. Lifting and rigging studies

CONTRACTOR shall prepare lifting and rigging studies for all lifts. CONTRACTOR’s lifting and rigging studies shall contain drawings indicating crane positions, locations and elevations of the item to be lifted, transport ways, temporary laydown areas, crane assembly area and soil bearing capacity at the crane locations. CONTRACTOR’s lifting and rigging studies shall detail all relevant steps of the lifting and rigging activities to be performed by CONTRACTOR on SITE including necessary HSE precautions and barricading activities.

* + 1. Electrical, Instrumentation and Telecommunication

#### Secondary Cable Ways Field Routing

CONTRACTOR shall prepare required documentation for work preparation and installation of all secondary cable ways. The documentation shall be based on COMPANY'S provided equipment location drawing, site verified and agreed equipment locations for both route-ends and installation typicals. CONTRACTOR shall always select the optimum route and secondary cable way type including supporting and fixing method to minimize material wastage. CONTRACTOR shall determine the details required for installation considering the equipment type, equipment locations and associated cable loads. CONTRACTOR’S documentation of secondary cableways shall include field route verification, determination of exact type and route location, field routing detail drawings including associated bill of materials.

#### Secondary Tubing Ways Field Routing

CONTRACTOR shall prepare required documentation for work preparation and installation of all tubing. The documentation shall be based on COMPANY'S provided instrument location drawing, instrument installation hook-ups, site verified and agreed instrument locations and locations of pipe tapping points. CONTRACTOR shall always select the optimum route and supporting and fixing type to minimize material wastage, assure material compatibility under consideration of process requirements. CONTRACTOR shall determine the details required for installation considering the tubing type, instrument type and the associated location and process medium. CONTRACTOR’S documentation of secondary tubing ways shall include field route verification, determination of support and fixing points, field routing detail drawings including associated bill of materials.

#### Support Fabrication Drawings

CONTRACTOR shall prepare the fabrication drawings for all required supports. The fabrication drawings shall be based on typicals provided by COMPANY. CONTRACTOR shall determine the details required for fabrication considering the equipment types, equipment locations and associated equipment loads. CONTRACTOR’S fabrication drawings shall include field verification, required type and exact support locations, detail drawings including associated bill of materials.

* 1. Drawings and Documentation
     1. General

CONTRACTOR shall prepare and maintain a document control system for all documents and drawings submitted by COMPANY to CONTRACTOR during the execution of the WORK. Any documentation prepared by CONTRACTOR during the performance of the WORK shall be submitted to COMPANY and shall also be registered in CONTRACTOR’S document control system. CONTRACTOR’S document control system shall identify the AS-BUILT DOCUMENTATION. CONTRACTOR’S document control system shall be accessible to COMPANY. CONTRACTOR shall archive the document control system for a period of 10 (ten) years after the issue of the COMPLETION OF WORKS CERTIFICATE.

* + 1. Issuance of Drawings and Documentation

COMPANY will issue all drawings and documentation to CONTRACTOR in accordance with the sequence required by the CONTRACT NETWORK SCHEDULE.

CONTRACTOR shall be aware that COMPANY’s engineering is performed in parallel to CONTRACTOR’S execution of the WORK and CONTRACTOR shall take the necessary flexibility, support and precautions to ensure efficient performance of the WORK. CONTRACTOR will receive approved or revised drawings and documentation during the execution of the WORK. COMPANY might update specific drawings and documentation during the execution of the WORK. CONTRACTOR shall arrange its document control system in such a way that the latest issue of drawings and documentation is available to CONTRACTOR before any related activity of WORK will be started.

COMPANY may provide CONTRACTOR with available preliminary drawings and documentation for planning purposes and information only. COMPANY will however not be liable for any consequences of CONTRACTOR’S use of such preliminary information.

In general, COMPANY will issue drawings and documentation following COMPANY’s engineering sequence. CONTRACTOR, however, must request from COMPANY in writing any missing drawings and documents required for the execution of any activity of the WORK at least 30 (thirty) DAYS prior to the beginning of the related work preparation of such activity.

Should CONTRACTOR fail to request any missing drawings and documentation from COMPANY, then CONTRACTOR shall be solely liable and responsible for any consequences arising as a result of any such failure.

All drawings and documentation will be submitted to CONTRACTOR in electronic format only.

* + 1. Review of Drawings and Documentation provided by Company

All drawings and documentation submitted by COMPANY, including any revisions, shall be reviewed by CONTRACTOR for consistency, contradictions and correctness within 3 (three) DAYS after the date of the transmittal. CONTRACTOR shall inform COMPANY immediately in case of any discrepancies. COMPANY shall not be liable for any adverse impact on the WORK resulting from insufficient review.

CONTRACTOR shall ensure that it uses only the latest revisions of the drawings and documentation available prior to beginning of an activity of the WORK.

* + 1. Review of Drawings and Documentation provided by Contractor

All drawings and documentation required to be issued by CONTRACTOR during the execution of the WORK as well as all deliverables as defined in EXHIBIT C - CONTRACT MILESTONES shall be submitted for COMPANY’S review and approval. COMPANY will require a 14 (fourteen) DAYS period for each review cycle and a 7 (seven) DAYS period for approval.

CONTRACTOR shall furthermore implement any comments of COMPANY to documents submitted by CONTRACTOR.

* + 1. Drawings and Documentation for Authority Approval

In case COMPANY is required to obtain approvals from authorities, THIRD-PARTIES and / or NOTIFIED BODIES, COMPANY will inform CONTRACTOR of the THIRD-PARTY and / or NOTIFIED BODIES requirements and CONTRACTOR shall provide such drawings and documentation related to CONTRACTOR’S WORK.

* + 1. Drawings and Documentation Numbering

CONTRACTOR shall prepare all drawings and documentation in accordance with COMPANY’S document numbering requirements as detailed in EXHIBIT E – SPECIFICATIONS. CONTRACTOR shall ensure that no double numbering will appear.

In case CONTRACTOR is required to prepare drawings and documentation, CONTRACTOR shall request from COMPANY the applicable layout requirements.

* 1. Assistance during (pre-) commissioning and start-up

COMPANY will perform the following activities during (PRE-) COMMISSIONING and START-UP with the assistance of the personnel of CONTRACTOR:

* + - Final P&ID check
    - Final system cleaning by flushing, bursting or blow out
    - Final re-instatement of piping systems
    - Final removal of all remaining pressure test blinds
    - Final system drying
    - Final cleaning of equipment prior to close of all manholes
    - Final inspection of static and rotating equipment including final cleaning prior to box up
    - Loading of fillings (e.g. catalyst, adsorbent, perlite)
    - Function testing of rotating equipment
    - Power-up check and commissioning of instrumentation non-process HOS (e.g. DCS-Site acceptance test, analyser house site acceptance test)
    - Instrumentation function test of process HOS (e.g. cause and effect checks, SIL-function test)
    - Instrumentation function test of non-process HOS (e.g. cause and effect checks for fire and gas system)
    - Electrical function test of process and non-process HOS
    - First energisation of electrical main equipment (e.g. switchgears, transformers)
    - Temporary operation of electrical substations
    - Final leak testing of process HOS
    - Chemical cleaning
    - Final purging of instrument air supply lines and instrument lines
    - Dry out of refractory lining during initial firing
    - Steam Blowing
    - Removal and re-instatement of individual plant components for trouble shooting and recalibration as required
  1. Allowable Wastage of Company Provided Items

CONTRACTOR confirms to accept that the allowable wastage of COMPANY PROVIDED ITEMS shall follow the requirements of COMPANY as defined in EXHIBIT E – SPECIFICATIONS.

# Contractor’s Work

The description of the WORK to be provided by CONTRACTOR under this CONTRACT is detailed in CONTRACTOR’S indirect WORK and CONTRACTOR’S direct WORK. This clause 4 gives a general description of CONTRACTOR’S duties and obligations related to the WORK which are required to complete the WORK, but do not necessarily list all activities which CONTRACTOR has to perform to fulfil its obligations under the CONTRACT. This clause 4 must be read in conjunction with the BILL OF QUANTITY referred to in clause 5 of this EXHIBIT A – SCOPE OF WORK.

* 1. Contractor’s Indirect Work
     1. Civil Detail Engineering (BOQ Chapter 002)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Mechanical Detail Engineering (BOQ Chapter 004)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. E&I Detail Engineering (BOQ Chapter 006)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Indirects, construction management and temporary site facilities (BOQ Chapter 010)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of construction management including all INDIRECT PERSONNEL
    - Provision of TEMPORARY SITE FACILITIES
    - Provision of construction utilities
    - Provision of all required HSE materials, equipment and services
    - Provision of required illumination of all work areas
    - Provision of equipment for indirect services
    - Provision of required guarantees and insurances
    1. Camp Hardware (BOQ Chapter 020)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Camp Services (BOQ Chapter 030)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Catering (BOQ Chapter 040)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Security Services (BOQ Chapter 050)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Waste Management and Disposal (BOQ Chapter 060)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Personnel Transport (BOQ Chapter 070)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Material Management, Warehousing and Storage Preservation (BOQ Chapter 080)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all required storage facilities (including accessories, heating, HVAC) and laydown areas (pricing of site preparation under chapter 100)
    - Provision of all personnel for material administration, material handling and warehouse operation
    - Perform incoming control, inventory, storage, release of all materials and equipment
    - Perform storage and maintenance preservation of all materials and equipment according to project specification and vendor requirements
    1. Scaffolding (BOQ Chapter 090)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all type of scaffolding including inspection and maintenance
    - Provided scaffolding shall be accessible for COMPANY GROUP, CLIENT and THIRD-PARTIES for inspection and minor installation works
    - Scaffolding required to perform WORK up to a height of 6 meters need to be provided by CONTRACTOR.
    - Scaffolding required to perform WORK exceeding 6 meters need to be provided by CONTRACTOR/COMPANY GROUP. Such scaffolding will be made accessible to COMPANY GROUP/CONTRACTOR throughout the execution of the WORK. Daily coordination meetings between all involved parties shall be organized.
  1. Contractor’s Direct Work
     1. Site Preparation (BOQ Chapter 100)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Up-rooting activities
    - Stripping of topsoil
    - Levelling of surface
    - General backfill activities (cut and fill)
    - Supply and installation of temporary or permanent fences and gates
    - Supply and installation of barriers, gate houses, shelters
    - Construction of temporary roads
    - Provision of temporary utility infrastructure for power, water, sewage
    - Provision of temporary power supply
    - Construction of temporary foundations
    - Demolition of existing structures, such as foundations and underground structures, underground pipes, road and paving
    1. Piling (BOQ Chapter 110)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Perform piling works for foundations
    - Perform sheet piling
    1. Dewatering (BOQ Chapter 120)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be described project specific
    1. Concrete and other Civil Works (BOQ Chapter 130)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Earthworks for foundations, underground piping, catch basins and manholes, underground cabling, subbase and base for roads and paving
    - Roads and paving construction include, concrete paving, concrete roads, asphalt roads, gravel areas
    - Underground concrete structures include foundations, manhole and catch basins, cable channels, culverts undercrossing roads, basin for cooling tower, water collection basin.
    - Aboveground concrete structures include pipe rack concrete columns and beams, concrete structures and buildings
    - Prefabricated concrete structures include catch basin, manholes, small foundations
    1. Installation of Non-Process Piping (BOQ Chapter 140)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Piping for stormwater sewer system
    1. Finishing Works (BOQ Chapter 150)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be described project specific
    1. HVAC & Sanitary (BOQ Chapter 160)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be described project specific
    1. Fire Fighting inside Buildings (BOQ Chapter 170)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be described project specific
    1. Building (enclosed volume) (BOQ Chapter 180)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be described project specific
    1. Structural Steel Installation (BOQ Chapter 190)

Structural steel installation is divided into the following chapters:

Primary Steel includes all structural steel quantities for equipment structures, pipe racks, steel buildings and shelters

Secondary Steel includes all structural steel quantities for platforms attached to vessels and field supports

Accessories includes railing, ladders and grating

Cladding includes wall and roof cladding with associated parts

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Installation of equipment structures, pipe racks, steel buildings, shelters, field supports, platforms attached to vessels
    1. Building Equipment Services (BOQ Chapter 200)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be described project specific
    1. Passive Fire Protection (BOQ Chapter 210)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Detail engineering for passive fire protection
    - Supply and installation of cementitious fireproofing systems (e.g. Fendolite) for steel structures and equipment
    - Supply and installation of intumescent fireproofing systems (epoxy based) for steel structures and equipment
    1. Equipment Erection (BOQ Chapter 220)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Installation of static, rotating or special equipment
    - Evaluation of ground loading conditions and ground preparation prior to lifting
    - Building of ramps for access from existing roads to the location of installation / location of intermediate storage
    - Protection of permanent roads, access ways, etc. against damage
    - Verification of the dimensional correctness
    - Dismantling, removal and proper disposal of any temporary items
    - Provision of lifting studies for COMPANY’S approval
    - Touch-up painting of damages of corrosion protection
    - Maintain preservation measures as per vendor documentation
    1. Critical and heavy lifts and installation (BOQ Chapter 230)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Installation of critical and heavy lift equipment
    - Evaluation of ground loading conditions and ground preparation prior to lifting
    - Building of ramps for access from existing roads to the location of installation
    - Protection of permanent roads, access ways, etc. against damage
    - Verification of the dimensional correctness
    - Dismantling, removal and proper disposal of any temporary items
    - Provision of lifting studies for COMPANY’S approval
    - Touch-up painting of damages of corrosion protection
    - Dismantling, removal and proper disposal of any temporary items
    - Maintain preservation measures as per vendor documentation
    1. Piping (BOQ Chapter 240)

WORK performed by CONTRACTOR under this chapter shall include the following:

Prefabrication of all above ground piping material including all intermediate transport

* + - Field installation of all above ground piping material (prefabricated spools or field-routed piping)
    - Prefabrication and field installation of all underground piping material including all intermediate transport
    - Supply and application of project specific wrapping for underground piping including testing and documentation
    - Perform all required post weld heat treatment
    - Installation of instrumentation components such as control-, safety valves, inline instruments
    - Perform all required bolt-ups of all types of flange unions using specified torque values
    - (Material supply, fabrication and) installation of all standard and special pipe supports
    - Pressure or hydrostatic testing of all piping systems
    - Execution of hot taping into existing pipe systems
    1. Non-Destructive Testing (NDT) (BOQ Chapter 250)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Execute all required NDT activities with certified personnel, such as radiographic testing, ultrasonic testing, phased array ultrasonic testing, dye penetration testing, magnetic particle testing, positive material identification, hardness testing and ferrite number identification
    - Provision of all required permits
    - Provision of radiation sources and testing equipment
    - Coordination of all NDT activities with COMPANY GROUP
    - Provision of weather protection
    - Provision of required illumination
    - Disposal of chemicals and generated waste
    1. Corrosion Protection (BOQ Chapter 260)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Supply and application of required corrosion protection materials for piping and equipment
    - Perform inside blasting of piping
    - Perform of all required touch-up painting for piping and equipment
    - Disposal of all generated painting waste
    1. Insulation (BOQ Chapter 270)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Supply and installation of all insulation materials
    - Supply and installation of all flange- and valve boxes
    - Supply and stuffing of mineral wool material for e.g. cold box partition boxes, pump and turbine casings
    - Disposal of all generated insulation waste
    1. Internals, Fillings and Modification (BOQ Chapter 280)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Installation of all types of equipment internals such as pall rings, trays, structured packings, load distributors, collectors, support and hold down grids, demisters
    - Cleaning of equipment interior after completion of installation
    - Equipment filling such as adsorbent, catalyst, reformer tubes, tube reactors by THIRD-PARTY
    - Equipment filling such as silica gel for cold boxes, pebbles for drain pits and oil filling of pumps and compressors
    - Supply and filling of perlite for cold boxes, pump, turbine and transition ducts or flat bottom tanks
    - Provision of suitable weather protection
    - Disposal of all generated waste
    1. Steam Heat Tracing (BOQ Chapter 290)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be described project specific
    1. Grounding, Lightning, Cathodic Protection – Installation (BOQ Chapter 310)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Field verification of engineering documentation
    - Preparation of material take-off to support the planning and work preparation
    - Installation, inspection, testing of installed quantities of all grounding, lightning, cathodic protection materials and equipment
    1. False Floor – Installation (BOQ Chapter 320)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Field verification of engineering documentation
    - Installation, inspection of installed quantities of false floor materials
    1. Electrical – Installation (BOQ Chapter 330)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Field verification of engineering documentation
    - Preparation of material take-off to support the planning and work preparation
    - Supervision of electrical equipment installation (e.g. motors, containerised sub-stations, etc.)
    - Provision of small steel structures for all type of electrical supports
    - Plan, execute and repair any required grating cut-outs for routing of cable ways and fixing of supports
    - Installation, inspection, testing of installed quantities of all electrical equipment and materials
    - Connection works for all kind of electrical cables with certified personnel as per local requirements
    - Sealing of conduits and wall cut-outs and sand filling of cable trenches
    - Oil handling for oil immersed transformers according to vendor instructions
    - Comply with the project electrical safety procedure
    - Perform function tests of all electrical equipment with certified personnel as per local requirements
    - Preservation measures as per vendor documentation
    1. Instrumentation – Installation (BOQ Chapter 340)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Field verification of engineering documentation
    - Preparation of material take-off to support the planning and work preparation
    - Supervision of instrumentation equipment installation (e.g. Control Valves, containerised instrumentation room, containerised analyser room etc.)
    - Provision of small steel structures for all type of electrical supports
    - Plan, execute and repair any required grating cut-outs for routing of cable ways, tubing and fixing of supports
    - Installation, inspection, testing of installed quantities of all instrumentation equipment and materials
    - Connection works for all kind of instrument cables with certified personnel as per local requirements
    - Sealing of conduits and wall cut-outs and sand filling of cable trenches
    - Comply with the project electrical safety procedure
    - Perform loop tests of process automation system (PAS) including test of digital and analogue I/O’s, bus signals and instruments with serial interfaces
    - Calibration of field instruments and process analysers
    - Preservation measures as per vendor documentation
    1. Telecommunication – Installation (BOQ Chapter 350)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Field verification of engineering documentation
    - Preparation of material take-off to support the planning and work preparation
    - Provision of small steel structures for all type of electrical supports
    - Plan, execute and repair any required grating cut-outs for routing of cable ways and fixing of supports
    - Installation, inspection, testing of installed quantities of all telecommunication equipment and materials
    - Connection works for all kind of telecommunication cables with certified personnel as per local requirements
    - Sealing of conduits and wall cut-outs and sand filling of cable trenches
    - Comply with the project electrical safety procedure
    - Perform function tests of all telecommunication equipment with certified personnel as per local requirements
    - Preservation measures as per vendor documentation
    1. Electrical Heat Tracing – Installation (BOQ Chapter 360)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Field verification of engineering documentation
    - Preparation of material take-off to support the planning and work preparation
    - Provision of small steel structures for all type of electrical supports
    - Plan, execute and repair any required grating cut-outs for routing of cable ways and fixing of supports
    - Installation, inspection, testing of installed quantities of all electrical heat tracing equipment and materials
    - Connection works for all kind of electrical heat tracing cables with certified personnel as per local requirements
    - Sealing of conduits and wall cut-outs and sand filling of cable trenches
    - Comply with the project electrical safety procedure
    - Perform function tests of all heat tracing equipment with certified personnel as per local requirements
    1. Small Power Installations in Buildings (BOQ Chapter 370)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Field verification of engineering documentation
    - Preparation of material take-off to support the planning and work preparation
    - Provision of small steel structures for all type of supports
    - Plan, execute and sealing any required cut-outs for routing of cable ways and fixing of supports
    - Installation, inspection, testing of installed quantities of all electrical equipment and materials
    - Connection works for all kind of electrical cables with certified personnel as per local requirements
    - Comply with the project electrical safety procedure
    - Perform function tests of all electrical equipment with certified personnel as per local requirements
    1. Package Unit Assembly (BOQ Chapter 410)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Module Fabrication (BOQ Chapter 420)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Standard to be developed based on Convent, Singapore & Kemerovo by GCP in alignment with GCTX
    1. Module Integration (BOQ Chapter 430)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Standard to be developed based on Convent, Singapore & Kemerovo by GCP in alignment with GCTX
    1. Tank Installation (BOQ Chapter 440)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - All tank material handling, intermediate storage and transportation
    - Field installation, fitting and welding of all tank material
    - Prefabrication of tank material, e.g. tank roof
    - Installation of steel structure inside the tank
    - Installation of tank insulation, e.g. cellular glass, mineral wool, perlite
    - Execution of tank testing, e.g. hydrostatic, pneumatic and vacuum test of tank required by code and specification
    - Execution of special construction methods, e.g. roof air raising, lifting of prefabricated tank roof, tank jacking as required in the BILL OF QUANTITY and project specifications
    - Preparation of red-marked AS-BUILT DOCUMENTATION
    1. Coldbox Fabrication (BOQ Chapter 450)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Reformer Installation (BOQ Chapter 460)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Standard to be developed based on H2 projects by GCP in alignment with GCTX
    1. Steam Boiler Installation (BOQ Chapter 470)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Furnace Installation (BOQ Chapter 480)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. PSA Installation (BOQ Chapter 490)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Structural Steel Fabrication & Transport (BOQ Chapter 500)

Structural steel fabrication and transport is divided into the following chapters:

Primary Steel includes all structural steel quantities for equipment structures, pipe racks, steel buildings and shelters

Secondary Steel includes all structural steel quantities for platforms attached to vessels and field supports

Accessories includes railing, ladders and grating

Cladding includes wall and roof cladding with associated parts

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Supply of raw material
    - Fabrication of primary and secondary steel
    - Fabrication and supply of cladding
    - Application of corrosion protection and painting
    - Structural steel fabrication engineering
    - Transport of structural steel and accessories
    1. Supply of Non-Process Piping (BOQ Chapter 540)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Supply of non-process piping for stormwater sewer system
    1. Mechanical Installation Material (BOQ Chapter 600)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all specified materials
    - Marking of all materials with unique identification numbers per material type
    - Quality assurance, quality control, expediting and inspections at vendor premises and provision of all related vendor documentation and certifications in accordance with project requirements
    1. Grounding, Lightning, Cathodic Protection Material (BOQ Chapter 710)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all specified materials
    - Marking of all materials with unique identification numbers per material type
    - Quality assurance, quality control, expediting and inspections at vendor premises and provision of all related vendor documentation and certifications in accordance with project requirements
    1. False Floor Material (BOQ Chapter 720)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all specified materials
    - Marking of all materials with unique identification numbers per material type
    - Quality assurance, quality control, expediting and inspections at vendor premises and provision of all related vendor documentation and certifications in accordance with project requirements
    1. Electrical Material (BOQ Chapter 730)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all specified materials
    - Marking of all materials with unique identification numbers per material type
    - Quality assurance, quality control, expediting and inspections at vendor premises and provision of all related vendor documentation and certifications in accordance with project requirements
    1. Instrumentation Material (BOQ Chapter 740)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all specified materials
    - Marking of all materials with unique identification numbers per material type
    - Quality assurance, quality control, expediting and inspections at vendor premises and provision of all related vendor documentation and certifications in accordance with project requirements
    1. Telecommunication Material (BOQ Chapter 750)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all specified materials
    - Marking of all materials with unique identification numbers per material type
    - Quality assurance, quality control, expediting and inspections at vendor premises and provision of all related vendor documentation and certifications in accordance with project requirements
    1. Electrical Heat Tracing Material (BOQ Chapter 760)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all specified materials
    - Marking of all materials with unique identification numbers per material type
    - Quality assurance, quality control, expediting and inspections at vendor premises and provision of all related vendor documentation and certifications in accordance with project requirements
    1. Small Power Equipment in Buildings Material (BOQ Chapter 770)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of all specified materials
    - Marking of all materials with unique identification numbers per material type
    - Quality assurance, quality control, expediting and inspections at vendor premises and provision of all related vendor documentation and certifications in accordance with project requirements
    1. Assembly under Vendor supervision (BOQ Chapter 810)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of DIRECT PERSONNEL to perform installation works under supervision of COMPANY GROUP for package units, equipment, compressors, pumps
    - Provision of hand tools and consumables
    - Provision of required cranes, equipment and machinery in accordance with chapter 820 of the BILL OF QUANTITY
    1. Day Work / Additional Unit Rates (BOQ Chapter 820)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of DIRECT PERSONNEL to perform additional installation
    - Provision of hand tools and consumables
    - Provision of required cranes, equipment and machinery
    1. Pre-commissioning support services (BOQ Chapter 825)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of DIRECT PERSONNEL to perform PRE-COMMISSIONING support under supervision of COMPANY GROUP
    - Provision of hand tools and consumables
    - Provision of required cranes, equipment and machinery in accordance with chapter 820 of the BILL OF QUANTITY
    1. Commissioning support services (BOQ Chapter 830)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - Provision of DIRECT PERSONNEL to perform COMMISSIONING support and START-UP assistance under supervision of COMPANY GROUP
    - Provision of hand tools and consumables
    - Provision of required cranes, equipment and machinery in accordance with chapter 820 of the BILL OF QUANTITY
    1. Cleaning and Pickling (BOQ Chapter 840)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Disassembly (BOQ Chapter 850)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific
    1. Options (BOQ Chapter 890)

WORK performed by CONTRACTOR under this chapter shall include the following:

* + - To be defined project specific

# CONTRACTOR’S Detailed Work

CONTRACTORS detailed WORK is described in the BILL OF QUANTITY which defines the quantity of WORK obligations per chapter with its corresponding rates and prices. The attached BILL OF QUANTITY &AZ-W-VS 9302.010 (EN) forms an integral part of this EXHIBIT A – SCOPE OF WORK.