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## **Technical Specifications (In-Cash Procurement)**

# **Technical Summary of the Call for nomination - TAPB construction**

Technical Summary of the Call for nomination - Tokamak Assembly Preparation Building (TAPB) construction

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# **1** Purpose

This document is the technical summary of the Call for Nomination to seek companies interested in participating in the tender for a Contract for the Construction of the Tokamak Assembly Preparation Building (TAPB).

The awarded company is called "Constructor" in this technical summary.

The purpose of this document is to describe the work to be undertaken by the Constructor, i.e. the Construction of the TAPB.

# 2 Acronyms and Abbreviations

| AE  | Architect Engineer                               |  |
|---|--|--|
| AHU   | Air Handling Unit                                |  |
| ARS   | ARgon Supply                                     |  |
| C&I   | Control and Instrumentation                      |  |
| CAS   | Compressed Air System                            |  |
| CDR   | Conceptual Design review                         |  |
| CMA Constructor Management as Agent           |  |  |
| CW  | CW Civil Works                                   |  |
| HES HElium Supply                             |  |  |
| HVAC Heating Ventilation and Air Conditioning |  |  |
| INB   | Basic Nuclear Installation                       |  |
| IO  | ITER Organization                                |  |
| ITER  | International Thermonuclear Experimental Reactor |  |
| L <b>&amp;</b> G                              | Liquid and Gas                                   |  |
| MIFI  | Magnetic Infrastructure Facility for ITER        |  |
| NGS   | Nitrogen Gas Supply                              |  |
| PIA   | Protection Important Activity                    |  |
| PIC   | Protection Important Component                   |  |
| TAPB  | Tokamak Assembly Preparation Building            |  |
|   |  |  |

# **3** Definitions

The Constructor is defined as the company that is in charge of the Construction of the Tokamak Assembly Preparation Building (TAPB) as defined in the documents to be prepared by the Designer under the scope of the TAPB AE Contract. The Construction Contract will be signed between the Employer and the Constructor.

The Employer is defined as the ITER Organization (IO). The Employer is in charge of overall performance of the AE Contract and the Client of the Construction Contract.

The Designer is defined as the company in charge of the performance of the services included in the Tokamak Assembly Preparation Building (TAPB) Architect and Engineer (AE) Contract. The Designer is also called the Architect Engineer (AE).

The Engineer is defined as the company in charge of the follow-up of the Construction performed by the Constructors. The Engineer role is defined as per FIDIC red book. The Engineer can be the Architect Engineer but not necessarily.

# 4 Background

ITER is an international project located in Saint Paul lez Durance, Cadarache, in the south of France.

The ITER Organization (IO) is the nuclear operator, complying with the relevant French Laws and regulations, authorization, codes and standards applied to Basic Nuclear Installation (INB). IO is responsible for integrating the activities from the early stage of design, to the procurement, the assembly, commissioning and operation. IO is in particular in charge of the design and construction of the Tokamak Assembly Preparation Building (TAPB) described hereafter.

More details about the Project Organization, the Domestic Agencies, the IO location and other different aspects of the Organization are available on the website: <u>www.iter.org</u>.

# **5** Building features

## 5.1 TAPB project lifecycle

The TAPB will have to be a support to Tokamak Installation from 2020 to 2024.

During this period, the facility shall be flexible enough to house different types of needs, as for illustration:

- Support Vacuum Laboratory,
- Magnet Infrastructure Facilities for ITER Magnetic Infrastructure Facility (MIFI),
- In-vessel Mock-ups and Trials Facility.

The TAPB configuration during this phase is called TAPB1 (See 5.4).

However, it should be noted that in the future the TAPB will be used for a different purpose (TAPB2, out of the scope). The configuration of TAPB1 (design and construction) has taken into account the requirements of TAPB2, in particular for the non-reversible aspect of the design and construction, as for example the Civil Work which shall be compliant with the safety requirements.

## 5.2 Overall features

The Tokamak Assembly Preparation Building (TAPB) will be located within the ITER site boundary. It shall provide a suitable environment for the systems and workers inside.

TAPB1 shall house miscellaneous needs to support the Assembly of the Tokamak (5.4), with safety requirements for the Civil Work and Lift (construction are Protection Important Activities), but with no safety requirement on services and utilities that will be used only for few years, before being removed (e.g. HVAC, Liquid & Gas or Electrical).

The TAPB is located within the INB Perimeter, on the North-East corner of Area 73. Site view is given in *Figure 5-1*.



Figure 5-1: Location of the TAPB on the site master plan (red boundaries)

The 3D outline views below (see *Figure 5-2* and *Figure 5-3*) are extracted from the outcomes of the Conceptual Design Review (CDR).



LEVELS ABOVE GROUND

Figure 5-3: TAPB 3D outline (NE side)

# 5.3 Layout

The TAPB is a stand-alone concrete building with one basement level and a ground level.

The footprint is approximately 41 m x 17 m (without import/export facility), i.e. approximately 700 m<sup>2</sup>, the basement extends approximately 6.2 m below ground and the main floor of the building rises approximately 7.8 m above site ground.

The Level B1 is separated into 4 distinct areas:

- B1 Workshop (including a small adjoining room),
- The tanks room (Tanks will be installed in the next phase but temporary opening shall be foreseen for later assembly),
- The lift,
- Staircases (West staircase and East staircase).

The Level L1 is separated into 5 distinct areas:

- L1 Workshop,
- Electrical rooms,
- The lift,
- Staircases,
- Import/Export facility.

The general arrangement of:

- Level B1 is given in Figure 5-4
- Level L1 is given in Figure 5-5.
- Level R1 (Roof) is given in Figure 5-6.

The elevation view is given in Figure 5-7.

Note that drawings included in this section are Conceptual Design drawings.

The final drawings will be given during the Call for Tender phase.



Figure 5-4: TAPB (B1 plan view)



Figure 5-5: TAPB (L1 plan view)



Figure 5-6: TAPB (R1 plan view)

STEM Site North Geographical North



Figure 5-7: TAPB (elevation view)

# 5.4 Operating Activities

Note that operating activities will be out of the scope of the Construction Contract.

The building will be flexible enough to be able to accommodate different types of needs during the operational phase 1, such as:

- **Support Vacuum Laboratory:** The function of the Vacuum Laboratory is to support the site acceptance test of procured vacuum components, act as an equipment and vacuum support base during assembly, commissioning and operation of the ITER machine, and to maintain ITER non-activated vacuum components requiring planned maintenance.
- Magnet Infrastructure Facilities for ITER (MIFI 2): The purpose of the facility is to host the installation of assembly mock-ups to permit the training and qualification of procedures, processes and operators. The facility also supports the magnet assembly by providing the suitable location to receive, inspect, test and, if necessary, repair large magnet components.
- **In-vessel Mock-ups and Trials Facility:** The purpose of the facility is to host the installation of assembly mock-ups to permit the training and qualification of procedures, processes and operators. The facility also supports the assembly of In-Vessel components by providing the suitable location to receive, inspect, test and, if necessary, repair the components.

The second phase of operation of the TAPB will deal with Beryllium risks, with the appropriate static and dynamic confinement barriers. This is the reason why the TAPB will have to be reconfigured for this new phase of operation (TAPB2), this is out of the scope of the current contract.

# 6 Scope of Work

The definition of the Construction Works is performed by the TAPB Architect Engineer (TAPB AE) and it will be given to the Constructor in the Call for Tender Phase. The Construction Contract will be signed between the Employer and the Constructor.

Indeed, the procurement strategy of this building is based on the fact that:

- The Architect Engineer is currently performing the design of :
  - The Building Civil Work at a maturity level which is sufficient such that the constructor has all information required to build from these design deliverables without further design activity (calculation or drawing).
  - The building services such that the constructor has all information to procure the building services, doors, lift, etc. and their installation without further design activity (calculation or drawing).
- The Constructor's equipment supplier will need to prepare manufacturing details.

Section 6.2 gives an illustration of the level of detail and maturity of input data that will be provided to the constructor.

### 6.1 Description of the Activities

The Constructor shall provide a building in full compliance with the in-force French regulations and in accordance with the AE design, the main requirements and characteristics of which are reported below.

#### 6.1.1 General Aspects

Overall requirements and characteristics are the following:

| Table 6-1: Requirements | (overall) |
|-------------------------|-----------|
|-------------------------|-----------|

| Aspect                                      | Criteria   |  |
|---|--|--|
| Protection<br>Important<br>Activities (PIA) | There are safety requirements to be applied to the Civil Works, including<br>to the Earthing network and the Lightning Protection System. Safety<br>requirements also applied to the lift doors. Therefore, the construction is a<br>PIA activity. |  |
|   | Regarding utilities and services that are used only for TAPB1 and will be<br>removed after few years of operation, they are not PIC.   |  |
| Qualification                               | Qualification will be required for the structure and all Building Systems to demonstrate that they can meet the requirements and any appropriate ITER references.  |  |
| Hazards prevention                          | Systems shall be designed to protect workers against hazards in the workplace.   |  |

#### Table 6-2: Characteristics (overall)

| Aspect     | Criteria  |
|------------|---|
| Dimensions | Height of L1 and B1 levels is nominally 6m height between floor and underside of slab at L1 and B1. |

| Aspect    | Criteria   |  |
|-----------|--|--|
| Occupancy | A default number of 30 people will be assumed for the complete building.   |  |
| Accesses  | Material accesses are ensured from two separate locations on the Eastern side of the building (Workshop and I/E Facility). |  |
|           | Personnel access is ensured from one single point on the Western side of the building.                                     |  |
|           | Access to roof is ensured through the external staircase located on the Southern side.                                     |  |

As stated in section 5.1, except the non-reversible part of the TAPB1, such as the Civil Work and the screw lift, the utilities (e.g. Liquid & Gas, main part of Electrical) will be used likely for 4 years only. It means that it shall be compliant with the French Law but best value for money solutions shall be considered, knowing that the facility will have to be reconfigured for TAPB2 after few years of operation.

#### 6.1.2 Civil Works

Civil Work requirements and characteristics are the following:

| Table 6-3: Requirements | (Civil | Works) |
|-------------------------|--------|--------|
|-------------------------|--------|--------|

| Aspect   | Criteria  |  |
|--|---|--|
| Building structures  | In normal conditions, structures of the building have to be stable, in order<br>to ensure protection/ support to PIC systems. External slabs and walls of<br>the building have to be watertight (including groundwater, if applicable). |  |
| Seismic resistance   | The building withstands an earthquake SL-2.   |  |
| External explosion   | The building shall withstand an external explosion (0.05 bar overpressure)  |  |
| Fire resistance  | The building structures shall remain stable in case of fire (comply with EN 1992-2 and EN 1993-1-2 and their national annexes).   |  |
|  | Fire sector boundaries structures (walls, slabs, ceiling) shall be (R)EI-S 120 (such as defined in NF EN 13501).  |  |
| Climatic conditions  | The building shall withstand the extreme climatic conditions  |  |
| External flooding  | The building is protected from an external flooding   |  |
| Airplane crash   | The building is not designed to withstand to an airplane crash.   |  |
| Floor Loads  | B1 slab: 5 Te /m <sup>2</sup><br>L1 slab: 5 Te/m <sup>2</sup><br>Roof: 1 Te/m <sup>2</sup>  |  |
| Wall Loads Wall loads will be determined from HVAC duct and electrical cable loadings. |   |  |
| Slab underslide<br>(Ceiling)   | Slab underslide loads will be from suspended HVAC duct and electrical cable trays loadings.   |  |

| Aspect                  | Criteria   |
|-------------------------|--|
| Floor and wall finishes | Rooms and corridors will have surfaces which are treated with anti-dust<br>epoxy paint (min requirements: washable, no increase of fire load). |

Table 6-4: Characteristics (Civil Works)

| Aspect                                | Criteria   |  |
|---------------------------------------|--|--|
| Rerouting of<br>existing networks     | <ul> <li>The following existing networks shall be rerouted:</li> <li>Slot drain in the north: approx. 8 m of the slot drain in the north.<br/>This part is permanently demolished.</li> <li>Slot drain in the south: Approx. 6 m of the slot drain in the south.</li> <li>Western/Eastern main drainage pipes: Approx. 6 m of the western drainage pipes and 2 m of the eastern drainage pipes.</li> <li>Three electrical MOS ducts: Approx. 30 m of the three electrical ducts running through the TAPB.</li> </ul> |  |
| Additional structures                 | A concrete slab will be provided for the Load Center (approx. 5m x 3m)<br>and for the Bottles storage (6.5m x 3m).<br>An external metallic staircase is foreseen on the Southern side of the<br>building from L1 level to R1 level.  |  |
| Couplings for<br>future installations | Couplers and/or exposed rebars may be required for the installation of future structures (to be defined by the designers.  |  |
| Equipment anchoring                   | Post drilling will be permitted for phase 1 and therefore no Embedded<br>Plates will be required to support phase 1. However, series of Embedded<br>Plates will be required for Phase 2.   |  |

Orders of magnitude of number/quantities to be procured are reported in section 6.3.

Building layout and dimensions are described in section 5.3.

The proposed layout of the excavation area is reported in Figure 6-1 below.



#### Figure 6-1: Excavation area and network re-routing needs



Figure 6-2 is an illustration of the limestone rock level that has been investigated at the TAPB location.

Figure 6-2: Approx. limestone rock level TAPB foundation (depth in red color)

#### 6.1.3 Mechanical

Main mechanical requirement and characteristics are the following:

| Aspect     | Criteria  |
|------------|---|
| Big doors  | Temporary doors are expected during operation of TAPB1 for few years of operation. There will be replaced later on for TAPB2 configuration.   |
| Screw lift | The use of safe lifting systems shall be foreseen. These systems are designed in accordance with European Materials Handling Federation (FEM) rules, taking into account the maximum loads to be carried and the associated safety factors. |
|            | The lifting equipment shall be subject to periodic checks, tests and inspections which will detect the early warning signs of component failure.  |
|            | The lift platform is designed to withstand a SL-2 events.   |
|            | Lift doors shall fulfil a REI120 requirement.   |

| Table 6-5: Requirements | (Mechanical Systems) |
|-------------------------|----------------------|
|-------------------------|----------------------|

| Criteria   |
|--|
| A main access door for goods is foreseen on the Eastern side of the building (5m wide by 5m high). It is a temporary door and the opening will be refilled during a later stage of construction. |
| An additional goods access door (3m wide by 3m high) is foreseen at the end of the slope in the I/E Facility extension in order to allow an easy access for goods loaded on an ISO-20ft lorries. |
| Lift door clearance is 4m wide by 3.8m high.   |
| Lift platform is foreseen to be 5m long x 4.5m wide, capacity 20 t.  |
| Standard handling equipment (forklift, trolleys, pallet trucks) are used to move equipment at L1 and B1.<br>Handling means are out of the scope of the Construction Contract.                    |
|  |

| Table 6-6 <sup>.</sup> | Characteristics ( | Mechanical      | Systems)  |
|------------------------|-------------------|-----------------|-----------|
| 1 uoie 0 0.            | Characteristics   | (10100IIuIIIouI | by stemby |

The location of the mechanical system is shown in Figure 6-3 below.



Figure 6-3: Mechanical systems location

Details on the number/quantities to be procured are reported in section 6.3.

### 6.1.4 Utilities

The Constructor shall provide utilities in compliance with the in-force French regulations:

- HVAC system:
  - The Air Handling Unit (AHU) with cooler and chiller will be located on the roof and air supply and exhaust will be routed from the roof to L1 and B1 levels.
  - The AHU will maintain temperature range suitable for human occupation in the building.
  - The ventilation supply and extract fans will be provided by portable fans and local, temporary ventilation ductwork.
- Liquid and gas to be provided:
  - Compressed Air supply,
  - Gas compound for industrial gases:
    - Located outside building (Southern side).
    - Storage capacity about 10 standard industrial cylinders.
- Liquid and gas provided to edge of site but to be connected to the building:
  - o Potable water,
  - o Industrial water,
  - o Sewage,
- Fire detection and protection:
  - Fire detection and alarms
  - Fire Suppression Systems
  - Fire Water Retention
  - Emergency Exits
- Electrical:
  - Electrical Power Distribution
    - Class IV power supply will be provided by a Load Center located on the Western side of the TAPB.
    - Class IV electrical distribution boards Class IV C&I cubicles will be located in one dedicated electrical room at L1.
    - "Security and Access Control" equipment will be located in one dedicated electrical room at L1.
    - The LC will be supplied by the site electrical distribution network.
  - Control & Instrumentation
  - Telephone and internet connection
  - Lightning Protection
  - Emergency lighting

The preliminary interfaces between building and services are described in Figure 6-4 to Figure 6-6 below:



Figure 6-4: Layout of Services Outlets (B1)



Figure 6-5: Layout of Services Outlets (L1)



Figure 6-6: Layout of L&G networks (elevation)

#### 6.1.5 Additional Components

The Constructor shall provide temporary changing room/lavatory cabins in full compliance with the in-force French regulations.

The cabins will be:

- Located on the Western side of the building,
- Connected to the site utilities:
  - Electrical power supply,
  - Industrial and potable water supply,
  - Sewage system,
- Dimensioned for a maximum of 30 people/day,
- A supporting facility for:
  - The construction phase,
  - The operational Phase 1.

### 6.2 Maturity and detailed level of input data for construction

As stated above, the Constructor shall build the civil structure based on the AE Execution Design drawings.

The Figure 6-7 below gives an illustration of the expected detail level of the Execution drawings.



Figure 6-7: Illustration of detail level of the Civil Work Execution drawings

In the same way, all the building systems shall be procured, installed and commissioned based on the AE Final Design data.

The Figure 6-8 below gives an illustration of the expected detail level of the Final drawings of building systems from which the Constructor shall develop manufacturing drawings. The Constructor will also be provided with:

- PIDs
- PFDs
- Functional descriptions
- Basis of Design
- Calculations
- Layout and routing general arrangements
- Support and anchorage drawings
- Specifications



Figure 6-8: Illustration of detail level of the Final design drawings

# 6.3 Preliminary Bill of Quantities

The order of magnitude of the bill of quantities is reported in the Table 6-7 below, divided by discipline.

| Item   | Units          | Quantity |
|--|----------------|----------|
| Civil Works (Excavations)                                |                |          |
| Rock excavation works with hydraulic rock-breaker        | m <sup>3</sup> | 6000     |
| Soil (other than rock) excavation works                  | m <sup>3</sup> | 4500     |
| GEWI rock bolts (L5000, Φ30, 500MPa)                     | u              | 130      |
| Shotcrete (3cm+3cm) and welded mesh                      | m <sup>3</sup> | 40       |
| Blind concrete 5cm at bottom of pit extension            | m <sup>2</sup> | 800      |
| Civil Works (Construction)                               |                |          |
| Concrete   | m <sup>3</sup> | 2000     |
| Rebars   | t              | 280      |
| Formworks  | m <sup>2</sup> | 7300     |
| Concrete casing  | m <sup>2</sup> | 950      |
| Insulations  | m <sup>2</sup> | 2000     |
| Embedded plates  | u              | 150      |
| Civil Works (Finishes)                                   |                |          |
| Doors (single)   | u              | 20       |
| Waterproofing  | u              | 1        |
| Painting   | m <sup>2</sup> | 4600     |
| Cladding   | m <sup>2</sup> | 700      |
| HVAC   | · · ·          |          |
| Roof top supply machine (10000 m <sup>3</sup> /h, 500Pa) | u              | 1        |
| Balancing Dampers (galvanized steel) 200x200             | u              | 40       |
| Duct (galvanized steel) with support                     | kg             | 4200     |
| Galvanised steel grid                                    | u              | 20       |
| Exhaust fan (1000m <sup>3</sup> /h, 500Pa) + inverter    | u              | 1        |
| Liquid and Gas (Compressed Air)                          |                |          |
| Compressor (7 Bar 80 m3/h)                               | u              | 1        |
| Storage tank galvanised steel 30001                      | u              | 1        |
| Air dryer  | u              | 1        |
| Common support   | u              | 1        |

### Table 6-7: Bill of quantities

| Item   | Units | Quantity |
|--|-------|----------|
| Condensate separator   | u     | 1        |
| Compressed Air distribution network                          | u     | 1        |
| Liquid and Gas (Nitrogen Gas)                                |       |          |
| Gas reversing plant (2 x 5 bottles) and distribution network | u     | 1        |
| Liquid and Gas (Helium Gas)                                  |       |          |
| Gas reversing plant (2 x 5 bottles) and distribution network | u     | 1        |
| Liquid and Gas (Argon supply)                                |       |          |
| Gas reversing plant (2 x 5 bottles) and distribution network | u     | 1        |
| Fire Protection  |       |          |
| Fire detection system (1 loop, 1 control unit)               | u     | 1        |
| Fire extinguisher system                                     | u     | 1        |
| Mechanical Systems   |       |          |
| Screw Lift (20t, with two doors 4m x 3.8m)                   | u     | 1        |
| Door (5m x 5m)   | u     | 1        |
| Door (3m x 3m)   | u     | 1        |
| Electrical and C&I   |       |          |
| Main distribution board                                      | u     | 1        |
| Cables   | u     | 1        |
| Trays (up to 400x100) with supports                          | u     | 1        |
| Conduits, junction boxes, sockets                            | u     | 1        |
| Equipotential earthing system                                | u     | 1        |
| General Lightning Protection System                          | u     | 1        |
| Lighting (all levels)  | u     | 1        |
| Signal Control Cubicle                                       | u     | 1        |

### 6.4 Deliverables List

A minimum list of the deliverables to be submitted for approval by the Constructor is given in this technical note. This list is only a starting point and will be completed.

- Management documents:
  - Project Implementation Plan
  - o Deliverable list / Documentation schedule
  - Time schedule of the activities
  - Organization chart
  - Quality Compliance Records for:
    - Manufacturing Design
    - Manufacturing
    - Installation
    - Construction
  - Compliance Matrix
  - Quality Plans
  - Subcontractors acceptance forms
- Technical documents:
  - Site establishment documentation
  - Manufacturing drawings
  - Working procedures for:
    - Earthworks
    - Installation of embedded plates
    - Welding e.g. mechanical works, pre-fabrication of reinforcement
    - Painting
    - Installation of Earthing network and Lightning Protection system
    - Installation of underground drainage
    - Baseslab implementation
    - Concrete wall implementation
    - Waterproofing below ground level
    - Suspended slab implementation
    - Roofing and cladding works
    - Metal works
    - Drainage at upper levels implementation
    - Installation of HVAC system
    - Installation of L&G networks
    - Installation of Fire Protection System
    - Installation of mechanical systems
    - Installation of E&IC system
    - Test & Commissioning of all building systems
  - Topographic survey
  - Certificates of equipment used during construction
  - Qualification certificates for personnel
  - Manuals of Operation and Maintenance for the building and the building services
  - Test and inspection control plans
  - Commissioning plans
- Site coordination and construction management documents:
  - Construction site management plan

- Site security procedures
- Work progress quantities based procedures
- Control plans (defining planned inspections)

# 7 Interface with other Companies

### 7.1 Working Area

The IO will provide an area dedicated to the Constructor for the installation of his site facilities, possibly covering a workshop, local storage, and some pre-assembly activities on smaller components. These areas will be located on the platform. The areas will be connected to the potable water, IT and electrical networks as well as to the industrial drainage network. These areas will be restricted and the Constructor may need to acquire additional off-site areas, more detail of available areas on-site will be given with the tender documents.

Figure 7-1 gives a bird's eyes view of the working site, with the full area 73 which is now covered by a concrete slab.



Figure 7-1: Bird's eyes view of the working site from east view point

To support some preliminary activities, the Constructor shall provide a general workshop facility within the area described above.

The Constructor will be fully responsible for transport between the ITER site and this workshop, and for any components while off-site.

There will be other Constructor working on the ITER site around the Building and using the ITER roads and accesses (see Figure 7-2 below). There will be also many interfacing parties to deal with (likely F4E, Engage consortium, Tandem consortium, Apave, etc).



Figure 7-2: Bird's eyes view of the ITER working site from north view point

### 7.2 Structure

To manage the coactivity and the Installation schedule IO will work with an Engineer. The Engineer shall be also responsible for:

- Project management,
- Site coordination (including permit to work),
- Coordination of deliveries,
- Work supervision, quality control, record keeping,
- Management of installation Completion Activities.

The Engineer interfaces with the Constructor at the different steps of the works (preparation, quotation and scheduling, performance and acceptance).

The Works Contract will be implemented and managed under the FIDIC "Red Book".

# 8 Schedule

The firm and fixed duration of the contract is **12** months.

It is expected to start in June 2019.

The preliminary construction is given in Figure 8-1.

Shift working can be proposed. An immediate start on the excavation is expected while the rest of the project is mobilized.



Figure 8-1: Preliminary construction schedule

# **9** Required Competencies

The ITER Organization is the nuclear operator of the ITER nuclear fusion facility (INB 174) under French nuclear law.

The Constructor shall construct the TAPB in conformance with the in-force French and European norms and standards.

The Constructor shall have a Quality Assurance System compliant with the French Order of 7th February 2012 establishing the general rules for basic nuclear installations and the IO QAP.

Components classified Protection Important Components (PIC) related to Nuclear Safety are to be installed. The building structure itself is a PIC. The Protection Important Activity (PIA) list to be performed by this contract will be given in the Call for Tender phase.

The official language of the ITER project is English. Therefore all input and output documentation relevant for this Contract shall be in English.

# **Appendix 1: Liability, insurance and conflict of interest**

### 1. Nuclear liability

The ITER Organization is the nuclear operator of the ITER nuclear fusion facility (INB 174) under French nuclear law. However, unlike other nuclear operators of nuclear fission installations in France, nuclear fusion installations are not covered by the Paris Convention on nuclear third party liability for the time being.

The IO shall provide a declaration and waiver of indemnity regarding nuclear liability to indemnify suppliers of IO and their subcontractors. This shall be included in the contract signed by the contractor and the IO.

### 2. CEAR insurance

The ITER Organization and Fusion for Energy (the European Domestic Agency in charge of providing other buildings to the ITER Organization), have taken out an insurance policy to cover:

- the risk of physical loss or material damage to the Project arising from whatsoever cause except if excluded,
- as well as to cover all sums which the Insured shall become legally liable to pay in respect of or arising from accidental bodily injury to or illness of third parties and accidental loss or damage or destruction to property belonging to third parties occurring during the construction/erection period on the construction site and arising from or in connection with the Insured Project unless excluded (CEAR Insurance Policy).

Contractors, Subcontractors of any tier and suppliers and/or consultants (in respect of their site activities) are also covered by this insurance policy and as such are only liable for the deductible, the exclusions or above the limit of coverage mentioned in the insurance policy in accordance with the insurance certificate that will be provided to you during the next phase of the tender process.

This insurance policy carries a global aggregate coverage limit of Euro 1,000,000 000 (one billion Euro).

The ITER Organization and Fusion for Energy will cover their own buildings used by the Contractors to perform their duty on Site, excluding the content being the contractor's property. The CEAR insurance policy subscribed by the ITER Organization and Fusion for Energy shall not affect the contractor's liabilities or obligations.

### **3.** Potential Conflict of Interest

The awarded company or consortium member or sub-contractor shall be allowed to participate in other contracts.