Ain Shams University
Faculty of Engineering
Structural Engineering Dept.
Geotechnical Engineering Group

An Introduction to Preparation of Tender Documents for Civil Works

By

Dr. Sayed Mohamed Elaraby

Note: This is a simplified and introductory illustration to the students enrolled in geotechnical graduation project. It is not intended to be a detailed illustration of a subject which is to be comprehensively covered under ***Project Management***.

Tender Documents for Civil Works

Table of Contents

Part 1

INTRODUCTION

Invitation for Tender (IFT) / Request for Proposal (RFP)

- A standard process to invite contractors/suppliers into a bidding process to bid on specific works, products or services.
- Invitation for Tender (IFT) may also be called:
  - Invitation to tender (ITT)
  - Request for Tender (RFT)
  - Request for Proposal (RFP)
  - Invitation for Bid (IFB)
  - Invitation to Bid (ITB)
  - Request for Quotation (RFQ)
  - Terms of Reference (TOR)
  - A call for bids,
  - A call for tenders
  - often called *tender* for short
- RFQs are best suited to products and services that are as standardized as possible, as this makes each contractor's quotes comparable.

Types of Contracts

1. **A Fixed-Price Contract** is a contract where the amount of payment does not depend on the amount of resources or time expended, as opposed to a cost-plus contract which is intended to cover the costs plus some amount of profit.
2. **A Cost-Plus contract** (also termed a cost reimbursement contract) is a contract where a contractor is paid for all of its allowed expenses to a set limit plus additional payment to allow for a profit.
3. **Time-and-Materials Contracts** are a hybrid type of contractual arrangement that contain aspects of both cost-reimbursable and fixed-price contracts. They are often used for staff augmentation, acquisition of experts, and any outside support when a precise statement of work cannot be quickly prescribed.

Part 2

CONTRACTUAL EXHIBITS

2. Contractual Exhibits

Invitation for Tenders (IFT)

- IFT is a formal invitation form/letter to qualified suppliers or contractors who are invited through a bidding process to submit sealed bids (proposals) for construction and/or for supply of specific and clearly defined goods or services during a specified timeframe.
- IFTs are short and simple, and all information relating to the tender process should be included in the separate Instructions to Tenderers.

2. Contractual Exhibits

Invitation for Tenders (IFT)

Example

You are invited to submit a tender to provide an *[Insert provision required]* to the *[Insert your company name]*.

By participating in this tender you are indicating your acceptance to be bound by the guidelines set out in this letter and attachments. We provide below the key details of *[Insert Company Name]* requirements, which you should take into account in your response. Please acknowledge via email safe receipt of this letter within two working days together with your confirmation of your intention to tender.

To simplify exchange of information regarding this Invitation for Tender (IFT) please nominate a Bid Manager (together with their deputy) and relevant contact telephone, facsimile numbers, and email addresses.

Please direct any questions regarding the IFT content or process to the *[Insert Company Name]* representatives named below. You should not contact other *[Insert Company Name]* personnel unless directed to do so by the *[Insert Company Name]* representative. *[Insert Company Name]* reserves the right to disqualify and reject proposals from suppliers who do not comply with these guidelines. All questions should be submitted in writing either by post or to the email address below.

Only communications made by your Bid Manager (or their deputy) to our named representatives, *[Insert Company Representative and Title]* will be taken into account during the pre-contract tender period.

As part of this tender process *[Insert Company Name]* makes no obligations in any way to:

i. pay any vendor for any IFT response; or
ii. award the contract with the lowest or any bidder; or
iii. accept any IFT information received from vendors; or
iv. include vendors responding to this IFT, in any future invitation; or
v. any other commitment to vendors whatsoever.

I look forward to receiving your response.

Yours sincerely,

Scope of Work / Statement of Work

- The function of this section is to introduce the work to the Tenderers in general terms; e.g.

"This contract covers the construction of 5.7-km road 12-m wide and includes for one bridge 90-m long with three spans across xx river on maximum 11-m high piers, two bridges across double track railway lines and five culverts. The earthworks, fencing and drainage are also included as well as the demolition of one building and clearing of the road area of which 0.40 sq. km is covered by trees.

- The "good" document will always provide additional relevant information, such as:

"The new road will be built through virgin land to the new industrial area at B-town from the City of M. The road follows the rocky slopes of the D-mountains and passes over two swampy areas."

2. Contractual Exhibits

Instructions to Tenderer

Important Clauses

- Introduction
  - Purpose of the tender
  - Name of owner
  - Name of the project
  - Eligible Tenderer
  - Eligible products
- Contents of tender document
  - Documents of tender
  - Clarifications of tender documents
  - Amendment of tender document
- Preparation of Tenders
  - Language of tender
  - Instruction on how to complete Tender forms
  - Tender prices
  - Tender currencies
  - Tender security
  - Validity of tender
  - base / alternative bids
  - the process adopted in case of missing rates
  - arithmetic errors
  - Format of signing of tenders
  - Sealing and marking of tenders
  - Modification, Substitution and Withdrawal of Tenders
  - Deadline for submission of tender

2. Contractual Exhibits

Instructions to Tenderer

- Opening and Evaluation of Tenders
  - Opening of Tenders
  - Confidentiality
  - Clarification of Tenders
  - Preliminary Examination of Tenders
  - Comparison of Tenders
  - National Preference
- Award of Contract
  - Criteria of Award
  - Clarifications
  - Right to Vary Quantities at the Time of Award
  - Notification of Award
  - Signing of Contract

Condition of Contracts

- The Conditions of Contract deal with legal and financial matters.
- The Conditions should cover all matters which are expected to occur in connection with the execution of the contract and should also prescribe how more unusual situations must be dealt with.
- General Conditions are intended to cover a number of different contracts, while Special Conditions are written specifically for one contract.
- There are standard international format for general conditions such as FIDIC and AIA contracts.
  - FIDIC: Fédération Internationale Des Ingénieurs-Conseils or International Federation of Consulting Engineers
  - AIA: American Institute of Architects

2. Contractual Exhibits

GENERAL CONDITIONS OF CONTRACT

Main Clauses

- General
  - Definitions (terms and acronyms)
  - Language, Law, Fraud and Corruption
  - Confidentiality
  - Subcontracting
  - Personnel
  - Risks
  - Force majeure
  - Insurance
  - Protection of the Environment
  - Labour Laws
  - Health and Safety
  - Possession of the Site
  - Disputes
- Time Control
  - Program
  - Delays
  - Early warning
- Quality Control
  - Identifying Defects
  - Tests
  - Correction of Defects
  - Uncorrected Defects
- Cost Control
  - Payment Certificates
  - Variations
  - Taxes
  - Currencies
  - Price Adjustment
  - Liquidated Damages
  - Advance Payment
- Closing the Contract
  - Completion Certificate
  - Taking Over
  - Operating and Maintenance Manuals
  - Termination
  - Payment upon Termination

2. Contractual Exhibits

Special Conditions of Contract

- Special Conditions are the provisions of a Contract that are particular to the project under consideration
- Special Conditions do not fall under the general conditions.
- Special Conditions differ from the general conditions of contracts. However, it is necessary to state in the Special Conditions of Contract that the where the General Conditions and Special Conditions differ on a point, then the Special Conditions will take precedence.
- Special Conditions complement the general conditions of contracts
- The General and Special conditions of contract will become the conditions of the contract when it is finally signed

Part 3

ENGINEERING EXHIBITS/ ANNEXES

Specifications

- Specifications provide the necessary details about the specific requirements.
- Guide specifications is available to help engineers in writing good Contract specifications.
- An example of the guide specification format is the MasterFormat (MF) which is jointly sponsored by:
  - Construction Specifications Canada (CSC) and
  - Construction Specifications Institute (CSI).
- MF is organized into Divisions. Each Division contains Sections
- A Section is divided into three Parts
  - Part1 : General
  - Part 2: Products
  - Part 3: Execution
- Each Part is further divided into a system of Articles and subarticles Paragraphs.

Specifications

- There are two types of technical specifications. Any of them is acceptable and can be used depending on circumstances. The two types are:
  - The full/detailed specifications and
  - The performance specifications.
- In a full/detailed specifications the Designer will specify in details the technical requirements of the materials used, the required quality assurance measures, the precautions used in installing the materials etc. This supervising team of the works should compare the contractor's proposed materials with the specifications and determine their compliance. Only approved materials and methods are allowed on site.
- Speciality Contractors do not favour method specifications as they restrict their activities and ignore their expertise. Performance specifications state as far as possible what is required (e.g. a limiting displacement for a standard plate load test under a specified stress, minimum penetration resistance of CPT or SPT) and all the various ways and means to achieve the specified results are entirely the Contractor's responsibility, while the supervising team are not required to interfere as long as the specified performance is satisfied.

3. Engineering Exhibits

MasterFormat 1995 Edition

- Division 1 — General Requirements
- **Division 2 — Site Construction**
- **Division 3 — Concrete**
- Division 4 — Masonry (Ex. Concrete block)
- Division 5 — Metals (Ex. Beams)
- Division 6 — Wood and Plastics
- Division 7 — Thermal and Moisture Protection
- Division 8 — Doors and Windows
- Division 9 — Finishes
- Division 10 — Specialties
- Division 11 — Equipment
- Division 12 — Furnishings
- Division 13 — Special Construction
- Division 14 — Conveying Systems
- Division 15 — Mechanical (Ex. Plumbing and HVAC)
- Division 16 — Electrical

3. Engineering Exhibits

Current MasterFormat Divisions (April 2014)

- Division 00 — Procurement and Contracting Requirements
- Division 01 — General Requirements
- **Division 02 — Existing Conditions**
- **Division 03 — Concrete**
- Division 04 — Masonry
- Division 05 — Metals
- Division 06 — Wood, Plastics, and Composites
- **Division 07 — Thermal and Moisture Protection**
- Division 08 — Openings
- Division 09 — Finishes
- Division 10 — Specialties
- Division 11 — Equipment
- Division 12 — Furnishings
- Division 13 — Special Construction
- Division 21 — Fire Suppression
- Division 22 — Plumbing
- Division 23 — Heating Ventilating and Air Conditioning
- Division 25 — Integrated Automation
- Division 26 — Electrical
- Division 27 — Communications
- Division 28 — Electronic Safety and Security
- **Division 31 — Earthwork**
- **Division 32 — Exterior Improvements**
- Division 33 — Utilities
- Division 34 — Transportation
- Division 35 — Waterway and Marine
- Division 40 — Process Interconnections
- Division 41 — Material Processing and Handling Equipment
- Division 42 — Process Heating, Cooling, and Drying Equipment
- Division 43 — Process Gas and Liquid Handling, Purification and Storage Equipment
- Division 44 — Pollution and Waste Control Equipment
- Division 45 — Industry-Specific Manufacturing Equipment
- Division 46 — Water and Wastewater Equipment
- Division 48 — Electrical Power Generation

Specifications

- Sources for free guide specifications:
  - US Army Unified Facilities Guide Specifications (UFGS)

    http://www.wbdg.org/ccb/browse_cat.php?c=3
  - States DOTs

    e.g.,
    http://www.dot.state.fl.us/specificationsoffice/Implemented/SpecBooks/default.shtm
  - Hong Kong Civil Specification

    http://www.cedd.gov.hk/eng/publications/standards_handbooks_cost/stan_gs_2006.html
  - Qatar National Buildings Specifications (QNBS)
  - Ministry of Public Works (MPW Kuwait)

3. Engineering Exhibits

Specifications

Section for Site Investigations

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USACE / NAVFAC / AFCEC / NASA — UFGS-02 32 00 (May 2010)

Preparing Activity: USACE — Superseding UFGS-02 32 00 (April 2006)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated January 2015
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DIVISION 02 - EXISTING CONDITIONS

SECTION 02 32 00

SUBSURFACE DRILLING, SAMPLING, AND TESTING

05/10

3. Engineering Exhibits

Specifications

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USACE / NAVFAC / AFCEC / NASA — UFGS-31 00 00 (August 2008)

Preparing Activity: USACE — Superseding UFGS-31 00 00 (July 2006)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated January 2015
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DIVISION 31 - EARTHWORK

SECTION 31 00 00

EARTHWORK

08/08

Section for Earthwork

3. Engineering Exhibits

Drawings

- Cover Sheet
- Index Sheet(s)
- Existing Site Condition Plans
  - Existing site features: roads, parking, structures, walks, steps, walls, etc. as a base plan.
  - Topographic survey and existing monuments and benchmarks with coordinates and elevations.
  - Existing utilities (dry and wet utilities)
  - Geotechnical testing areas, boring locations,
- Demolition plans, as applicable
- New developments site plan (master plan)

Drawings

- **Enabling Works Drawings**
  - **General notes**
  - **Excavation plans and sections**
  - **Shoring plans, sections and details**
  - **Dewatering plans and details**
  - Diversion works plans, sections and details
- Architectural/Landscape Drawings
- **Structural Drawings**
  - **General notes**
  - **Foundations**
  - **Columns**
  - **Floors**
  - **Typical details**
- Wet Utilities Drawings
- Electrical Drawings
- Mechanical Drawings

Method of Measurements (MOM)

- Method of Measurement indicates how to measure the work.
- Hong Kong Guide MOM may be utilized:

http://www.cedd.gov.hk/eng/publications/standards_handbooks_cost/doc/stan_smm/cesmm_rev_0.pdf

Method of Measurements

Example: Extract of MOM for piles

1. Each type of pile is to be given separately
2. Working piles, preliminary piles and contiguous or secant bored piles are each given separately.
3. Piles are given in metres. Lengths are measured along the axes of piles from commencing surface to bottom of shafts of bored piles
4. Rates for measured work are deemed to include the costs of:

any number of visits to site,

setting out and marking positions of piles,

driving or boring below ground water level,

pre-boring of driven piles including grouting up voids between sides of piles and bores,

jetting,

temporary pile casings, drilling fluid and the like to stabilise the hole including disposal,

permanent casings including driving heads and shoes,

protection sleeves and coatings,

Re-driving piles,

concrete including concrete placed in excess of completed length,

reinforcement to piles including tying wire, spacers, links and binders and including preparing bending schedules,

placing concrete by tremie pipe including any adjustments to concrete mix proportions required,

3. Engineering Exhibits

Bill of Quantities (BOQ)

- The bill of quantities (BOQ) provides project specific measured quantities of the items of work identified by the drawings and specifications in the tender documentation. However, in fixed price contract, BOQ don't define the scope of work. Drawings and specs define the scope.
- The quantities may be measured in number, length, area, volume, weight or time.
- Preparing a bill of quantities requires that the design is complete and the specifications have been prepared.
- The bill of quantities assists tenderers in the calculation of construction costs for their tender
- All tenderers will be pricing the same quantities, which provides a fair and accurate system for tendering.
- Using the BOQ, it is possible to compare both the overall price and individual items directly with other tenderers' offers, allowing a detailed assessment of which aspects of a tender may offer good or poor value. This information can assist with tender negotiations.

Bill of Quantities

Example: Extract of BOQ for piles

Precast hollow section piles		
Working piles; ...		m
Working piles; raking; ...		m
Preliminary piles; ...		m
Preliminary piles; raking; ...		m
D14 - BORED CAST IN PLACE PILES		
Piles		
Working piles; ...		m
Working piles; raking; ...		m
Preliminary piles; ...		m
Preliminary piles; raking; ...		m
Contiguous piles; ...		m
Secant piles; ...		m

Thank You

Questions?