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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | September 27, 2007 | Minor reviews by Legal Services |
| 3 | December 29, 2009 | Modified ‘Related Sections’ |
| 4 | September 27, 2010 | Minor reviews |
| 5 | April 10, 2012 | Addition of References and Replacement Parts sections on this page. |
| 6 | July 6, 2012 | Change tab settings for page 1-5. |
| 7 | April 9, 2015 | General Formatting |
| 8 | December 14, 2015 | Minor clarifications based on comments by Legal Department. AAM |
| 9 | April 19, 2017 | Moved clauses from Part 1 to Part 3 (AAM) |
| 10 | November 28, 2017 | Updated reference to Section 01310 – Construction Schedules (AAM) |
| 11 | May 14, 2019 | Updated references to Section 01815 – Commissioning to Section 01810 – Equipment Testing and Facility Commissioning (AM) |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

# General

## Related Sections

### [Under "Related Sections", identify other Sections that are related to, and/or dependent on, the work results or information specified elsewhere. The list should be limited to Sections with specific information that the reader might expect to find in this Section, but is specified elsewhere. For example, if hardware for aluminum entrances is specified in the aluminum entrance Section, a cross-reference would be appropriate in the finish hardware Section. The purpose of this cross-referencing is for information only, to aid in finding those other requirements—not to define the scope of the Section.

### Cross-referencing here may also be used to coordinate assemblies or systems whose components may span multiple Sections and which must meet certain performance requirements as an assembly or system.

### Contractor is responsible for coordination of the Work.

### This Section is to be completed/updated during the design development by the Consultant. If it is not applicable to the section for the specific project it may be deleted.]

### [List Sections specifying related requirements.]

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: [Optional short phrase indicating relationship].

#### Section 01310 – Construction Schedules

#### Section 01351 – Health and Safety

#### Section 01810 – Equipment Testing and Facility Commissioning

## Definitions

### Clean or Cleaning: The removal and disposal of material remaining in a tank, channel, pipe, or other structure by the Contractor after its removal from service and includes emptying, to the extent possible, using existing installed process pumping equipment, by such methods and to such level of cleanliness as required in order to execute the Work in accordance with the terms of the Contract; and to ensure the protection of the health and safety of the personnel of the Contractor, the Region, and the Consultant.

### Place into Service: Complete in all respects, including all ancillary Work, successfully test and demonstrate to the satisfaction of the Consultant, and place into satisfactory operation, all in accordance with the requirements of the Contract, including the submittal of maintenance manuals.

## Measurement and Payment

### The work outlined in this Section will not be measured separately for payment. The work outlined in this Section be included within the Contract Price

## Submittals

### Administrative Submittals: Proposed sequence of construction.

## Intent

### This Section includes mandatory construction sequencing constraints and a suggested sequence of construction that will satisfy the mandatory constraints required in the execution of the Work.

### The suggested sequence of construction described in this Section is general in nature and illustrates the design intent with respect to the execution and progress of the Work. Prepare and submit a proposed sequence of construction for review by the Region and the Consultant. This review will serve to satisfy the Region and the Consultant that all mandatory construction sequencing constraints have been properly addressed by the Contractor in the proposed sequence of construction but shall in no way absolve the Contractor of its complete responsibility for the execution of the Work in accordance with the requirements of the Contract Documents.

### The suggested sequence of construction described in this Section outlines the intent of the design with respect to the general progress of Work. The descriptions of construction activities as outlined in this Section are not intended to be comprehensive or all-inclusive. Many other construction activities and Work components, although not specifically noted in this Section, are integral parts of the Work and shall be scheduled and completed by the Contractor in accordance with the Contract Documents.

### The broad grouping of parts of the Work under phases, stages, or similar divisions in the suggested sequence of construction is intended to illustrate the general sequence for the execution of the Work as envisioned by the Consultant. Such grouping shall in no way absolve the Contractor of complete responsibility for the construction means, methods, techniques, sequences, and procedures of construction, or the safety precautions and programs incidental thereto.

### As construction activities proceed through the various phases and stages, special attention is to be paid to Commissioning requirements as defined in Section 01810 – Equipment Testing and Facility Commissioning so that as phases of construction are completed, concurrent activities are performed in order to enable full Commissioning to occur without delays to the overall Work schedule.

## Coordination

### The Contractor shall coordinate the requirements of this Section with the other requirements of the Contract Documents.

### The facility will be maintained in continuous operation without interruption throughout the duration of the Contract. Cooperate with the Region and do not interfere unnecessarily with the day-to-day operations of the facility. At all times provide the Region with unhindered access to all portions of the facility that are in operation.

## Services Provided by the Contractor

### The Contractor shall provide all required temporary pumping equipment and appurtenances including all facilities required in order to bypass process flows when necessary and approved by the Consultant and clean all tanks, channels, and structures as necessary in order to execute the Work in a safe manner as specified in the Contract Documents.

### The Contractor shall provide all necessary temporary power, pumping facilities, pipes, valves, fittings, diversions, and temporary bulkhead systems as may be required during the course of construction and the changeover of process flows from one tank, channel, pipe, or sewer to another.

### In general, the Region will remove from service and empty process units, tanks, sewers, channels, pipelines, and similar facilities only once, unless otherwise specified in the Contract Documents. The Contractor shall be responsible for cleaning any facilities taken out of service.

### In general, place into service all new tankage, pumping facilities, piping, sewers, channels, and similar facilities before removing any existing parallel facilities from service.

### The Contractor shall fulfill all Commissioning requirements and activities on a timely basis and allocate sufficient time in the construction schedule to fully comply with all Commissioning requirements and provision of documentation and training. Refer to Section 01810 – Equipment Testing and Facility Commissioning.

## Suggested Sequence of Construction

### The suggested sequence of construction described in this Section is based on the Consultant’s knowledge of the design components of the Contract and not on experience in the construction of such Work. The Consultant assumes no responsibility for the time required to construct the Work following the suggested sequence of construction.

### The Contractor may, on its own initiative, submit an alternate proposed sequence of construction to the Consultant for review. Such review shall in no way make the Consultant responsible for the time or costs required to construct the Work following the Contractor’s alternate sequence of construction.

### The Contractor shall incorporate the construction constraints and the sequence of construction in the Schedules required in Section 01310 - Construction Schedules.

### The suggested sequence of construction describes, in general, the sequence of installation and commissioning of major structures, processes, and equipment items. The Contractor shall be responsible for determining which ancillary services, such as electrical, instrumentation, plumbing, drainage, heating, and ventilation are also required to be completed in order to permit the commissioning of the structures, processes, and equipment as described in the Contract Documents.

### The Contractor shall carefully examine the existing utility services at the Site in order to determine the difficulty of the Work and the number and type of pipelines and cables required to be re-routed, or protected from damage, during the performance of the Work.

### In general, place into service all new tankage, pumping facilities, piping, sewers, channels, and similar facilities before removing any existing parallel facilities from service.

### The Contractor shall fulfill all Commissioning requirements and activities on a timely basis and allocate sufficient time in the construction schedule to fully comply with all Commissioning requirements and provision of documentation and training. Refer to Section 01810 – Equipment Testing and Facility Commissioning.

### The Contractor shall integrate all required Commissioning activities and deliverables into the construction sequencing and scheduling.

## Organization of Work

### The work shall be carried out in a logical sequence. All efforts shall be made to safeguard the water supply or wastewater treatment (where applicable) and remain in compliance with regulatory requirements. Coordinate all construction activities through the Consultant with Region staff and verify that these activities do not interfere with the existing water treatment plant or wastewater treatment plant or linear works (as applicable). The facility/system operation shall have priority over all construction activities.

### The Contractor is responsible for scheduling and the sequence of Work and shall ensure that the Work is completed within the specified Contract Time.

### When shutdowns and/or switch-overs of any system process or electrical systems are required, the Contractor shall coordinate all trades involved. Coordination with Region operating staff shall be through the Consultant. Detailed written sequences are required to be submitted to the Consultant to permit such coordination.

### For tie-ins shown on the Contract Drawings, the Contractor will submit the request in writing to the Consultant a minimum of 30 Working Days prior to the intended connection.

### The Contractor shall maintain access for Region staff, facility deliveries (as applicable) and other Region contractors at all times.

# PRODUCTS

## General

### Unless specifically stated otherwise in the Contract Documents, provide all labour, materials, and equipment necessary to complete the Work of this Section.

# EXECUTION

## Constraints

### The Site limits for this Contract and adjoining contracts are shown on the Contract Drawings. The Site limits are time dependent and may change during the course of the Contract and as other contracts start and finish.

### The Contractor shall execute the Work within the space constraints and time constraints indicated in the Contract Documents. The Contractor’s Schedule of Work shall identify these constraints and any critical path scheduling concerns.

### The Contractor shall work with the Region and any adjacent Other Contractors to coordinate the interface between the Work and the work of any other contracts.

### Existing valves and gates may not be watertight.

### The access to plant site and plant facilities is restricted and site space is limited. Stage the work so that access to plant facilities is maintained at all times. Coordinate all construction activities, through the Consultant, with Region staff.

## Suggested Sequence of Construction

### The general suggested sequence of construction is as follows:

#### [Provide detailed description for specific project.]

### The specific suggested sequence of construction is as follows:

#### [Provide detailed description for specific project.]

### Carefully examine the existing utility services on the site to determine the difficulty of the work and the number and type of electrical cables, telephone cables, etc. to be re-routed as well as any trees to be relocated.

### Prior to making the major tie-ins to existing process units and structures, demonstrate that the equipment installed in all new structures is fully functional. Connections to existing works will not be permitted until all equipment in the new adjacent works operates to the satisfaction of the Consultant, O&M manuals have been turned over and specified training has been provided for the works components. No claim for delay will be entertained due to unsatisfactory operation of any equipment.

## Interruptions to Existing Operations

### Interruption of existing facility/system operations, equipment and services shall not be made without the Consultant’s express approval of the timing thereof.

### Provide labour and materials to carry on the work continuously until the service or facility/system operation is restored.

### Notify the Consultant in writing a minimum of two weeks in advance of when a gas line, facility water line, Region water line, airline, tanks, filters, piping, ducts or electrical lines (as applicable) are required to be taken out of service or shut down. Depending on the operation of the facility/system at the time, the Consultant may allow the shutdown to proceed or may require that the shutdown be postponed until a later date. If this postponement is found to be necessary, the Contract Time may be extended without penalty by the number of days of the postponement provided that such postponement, in the sole opinion of the Consultant, has a direct impact on the critical path schedule of the Work. No other compensation will be allowed.

### For the maximum time that any pipeline, motor control centre or transformer can be out of service is four (4) hours unless specifically stated otherwise herein or in other Specification sections.

### Employ sufficient working crews to complete the works within these limits.

### Submit any proposed deviation from the specified sequence of work for review. The Consultant will review the proposed deviation and may or may not approve the deviation.

## Monitoring and Emergency Response

### The Contractor shall have the necessary resources, materials, personnel, and equipment readily available to provide continuous 24 hours per Day, 7 Days per week monitoring and emergency repair of sheeting, shoring, stop log installations, bypass pumping operations, power and any other temporary systems that are used to control process flows where, in the opinion of the Region or the Consultant, the failure of such temporary systems could adversely impact upon plant operations.

### The Contractor shall provide and operate all temporary systems as required in order to contain and remove leakage through gates, valves, stop logs, and any other isolation devices that are used to accommodate the scheduled construction activities.

### Upon the discovery of unexpected designated substances in existing structures, materials, conduits and similar works, the Contractor shall immediately notify the Consultant and provide an action plan to deal with such substances with minimal impact to the construction schedule. Refer to Section 01351 – Health and Safety requirements (see sub-section 1.6).

## Electrical and Temporary Power

### In order to minimize the duration of shutdowns and keep the facility in continuous operation, the Contractor shall maintain, to the maximum extent possible, facility electrical systems in operation while the new electrical components are installed, or the existing systems are modified or replaced as required for the final electrical system configuration. Where this is not possible, the Contractor shall provide temporary power in the form of overhead lines or portable generators at no additional cost to the Region.

### Prior to the commencement of the Work, provide and check all necessary temporary services required to ensure that the existing facility will operate in an uninterrupted fashion during the construction period. Provide overhead pole lines as required to the vicinity of existing equipment and make connections on an individual, rather than group, basis in order to minimize shutdowns. Prior to proceeding, provide a schedule with a written description of each operation for the Consultant.

## Fire Protection

### The Contractor shall not introduce combustibles into any facility until full fire protection is in service.

### The Contractor shall place new fire protection systems into service as soon as possible and notify the Consultant upon completion of the new fire protection services.

### The Contractor shall maintain existing fire protection systems, fire walls, fire doors, and other separations in service as long as possible and shall notify the Consultant and the Region in writing a minimum of 14 days prior to disrupting or dismantling existing fire protection services. The Contractor shall provide adequate supplementary fire protection facilities including, but not limited to, ample hand-operated 7 kg to 15 kg multipurpose dry chemical extinguishers in each facility. Provide temporary hose lines in areas where construction is in progress until the permanent fire protection is placed into service. Do not block any hydrant hose connections and any other fire fighting equipment with any materials or equipment and ensure that hydrant hose connections and fire fighting equipment is readily accessible at all times for the duration of the Contract.

### The Contractor shall dispose of all combustible rubbish promptly and safely. Prompt disposal is particularly needed for any material which may be subject to spontaneous ignition such as oily waste and paint rags.

### The Contractor shall monitor and control any probable ignition sources as necessary in order to prevent the threat of fire.

### The Contractor shall minimize hot work including, but not limited to, operations involving open flames, heat, or sparks such as brazing, cutting, grinding, soldering, and torching. If there is a practical and safer way to carry out the Work without hot work, the alternative method shall be used.

**END OF SECTION**