PART 1 GENERAL

1.1 WORK UNDER THIS CONTRACT

.1 The Work under this Contract comprises the construction of a concrete block building around an existing lift station at Peach Orchard Park for the District of Summerland, hereinafter called the Owner.

1.2 WORK INCLUDED

.1 The Work includes the following components:

- Siteworks including excavation and disposal of surplus clean excavated material; compaction of materials; site grading and site remediation.
- Cast-in-place reinforced concrete construction of footings and foundation walls.
- Masonry block building including overhead door, double man door, pre-fabricated wood trusses and metal roofing system.
- Supply and installation of ventilation equipment.

.2 The Work, unless specifically stated otherwise, includes the furnishing of all material, product, plant, labour and transportation necessary to complete the Work.

.3 The Work shall not be deemed complete until all components are placed in operation by the Contractor, and are successfully commissioned.

.4 Any minor item of the Work not called for in the specifications or shown on the drawings but clearly required to meet the intent of design and normally provided for the proper operation of the Work shall be provided as if specifically called for in the Contract Documents.

1.3 SITE CONDITIONS / LIMITS

.1 Prior to commencing construction of the Work, inspect field conditions, obtain and confirm actual site dimensions, examine surface conditions as required to ensure correct execution of the Work.

1.4 DOCUMENTS

.1 Notify the Engineer immediately upon discovery of discrepancies or omissions in the Contract Documents or of any doubt as to the meaning or intent of any part thereof.

.2 To proceed with the Work when an error is suspected or when there is doubt as to the interpretation of the project requirements constitutes full acceptance of any cost associated with any remedial work which may be required.

1.5 COORDINATION AND SCHEDULE

.1 Cooperate and liaise with other contractors, utility agencies, the Owner's employees or their appointed representatives in order to make appropriate working arrangements to ensure satisfactory execution and timely completion of the Work. The Contractor will not have exclusive rights to the construction area.

.2 Attend coordination meetings, as directed by the Engineer, when the Engineer considers that they are necessary for ensuring the sufficiency of the liaison and co-operation with other contractors. The Contractor shall be deemed to have allowed in the Tender Price for any interference of the Contractor's operations which may notify the Engineer immediately upon discovery of discrepancies or omissions in the Contract Documents or of any doubt as to the meaning or intent of any part thereof.

1.6 MAINTAINING OPERATION OF EXISTING WORKS

.1 The Contractor, subcontractors and all workers on site must be made aware of the fact that the Peach Orchard Lift Station is to remain in continuous operation during the performance of the Work.

.2 The Contractor is to coordinate the construction of the Work in such a manner as to provide no impact on the operation of the existing Peach Orchard Lift Station.

.3 If service interruptions are necessary, such interruptions shall be made only at times approved by the Engineer and the Owner.

1.7 STANDARDS

.1 Wherever standards (e.g., CSA, ASTM and others), are referred to in these Contract Documents the current edition at the date of closing of Tenders shall apply.

.2 Where there is a clear conflict between the referenced Standard and the Contract Documents, the Contract Documents shall apply.

.3 Where there is an ambiguity between a Standard and any term of these Contract Documents, the Engineer shall, in the first instance, give an interpretation of the intent of the Contract Documents.

END OF SECTION

PART 1 GENERAL

1.1 CONTINUITY OF STATION OPERATIONS

.1 The existing Peach Orchard Lift Station continuously receives and pumps wastewater. Do not interrupt functions except as specified herein. Coordinate the Work to avoid any interference with normal operation of maintenance staff, equipment and processes.

.2 Entire station shutdowns will not be permitted.

.3 In the event accidental bypassing of untreated sewage to surface waters or drainage courses is caused by the Contractor's operations, the Owner may employ others or use its own forces to stop the bypassing and recover the costs from the Contractor.

.4 Pay all penalties and costs including legal fees and other expenses imposed on the Owner as a result of any bypass caused by or resulting from the actions of the Contractor, its employees, or subcontractors.

.5 The Work sequences and electrical tie-in procedures specified in this Section enable the Contractor to perform construction activities concurrently with Owner activities required to maintain station operations to meet applicable effluent requirements. The Contractor may propose alternative work sequences or procedures for the Work that maintain station operations for review by the Engineer.

.6 Ensure that access is maintained for all operation and maintenance requirements of the existing station at all times, housekeeping is maintained at the highest possible level to minimize interference, security requirements are fulfilled, and the existing facilities are maintained in weather-tight conditions.

.7 Complete all tie-ins to existing facilities in the shortest practical time frame and within the time limits specified in this Section to minimize interferences and prevent effluent bypassing. Scheduling must reflect that priority.

.8 Plan, schedule and coordinate all the Work that affects station areas to minimize interferences. Conduct the Work by area while maintaining access for Owner

1.2 WORK PLANS AND SCHEDULE

.1 Provide detailed plans and schedules for all work activities which will create a disruption to or require the participation of Owner. Such activities will include shutdowns, tie-ins, or any work disrupting existing access, services, utilities or normal operations procedures. Submit two copies of detailed plans and schedules in accordance with Section 01065, no later than two weeks prior to the scheduled activity. No shutdown, tie-ins, outages or disruptive work activities will be allowed without approval by the Engineer of the appropriate plan and schedule. Coordinate the shutdown, tie-in or disruptive work with the construction schedule as provided by

the Contractor. Identify each shutdown, tie-in, or disruptive work activity in the Construction Schedule.

1.3 WORK SEQUENCE AND TIE-IN – GENERAL

.1 Written request to the Engineer is required for any equipment shutdown under any circumstances, including but not limited to the interruption of power supplies, control systems, or water, air, or lubricant supply. Approved shutdowns may be limited in duration so as to not impact the station operations.

.2 The Owner's ability to accommodate shutdowns as described above is dependant upon several factors, including but not limited to station operating status, equipment availability, influent flow rates, manpower availability, timing (i.e., weekdays versus weekends and holidays, day versus night), and other circumstances beyond the direct control of the Owner. While the Owner will make every effort to cooperate and accommodate shutdowns within the limitations expressed herein, the Contractor shall not rely on station shutdowns being immediately available or occurring precisely as planned in every instance.

.3 Owner Occupancy of Existing Facilities: Provide all protective measures and temporary utilities as required to support operations personnel access to and occupancy of the existing buildings and other areas as required to operate and maintain existing equipment.

.4 In all instances, temporary power and control equipment required to commission any equipment or systems in accordance with the Contract completion dates, but in advance of permanent power and control equipment or services being available, will be provided by the Contractor. Purchase and install all such temporary power and control equipment and related devices in accordance with the requirements of the relevant Contract specifications. Provide all necessary labour, equipment and services required to convert the above systems or equipment to permanent control. Upon removal, all temporary power and control equipment supplied by the Contractor shall be dismantled, tagged and packaged as spares (where applicable) and become the property of and be turned over to the Owner.

.5 Electrical and Instrumentation tie-ins to existing facilities: Coordinate electrical connections and instrumentation connections and perform both in the same shutdown so as to minimize the overall number of equipment shutdowns. Combined power and instrument connection shutdowns must occur one at a time and each must be a maximum of 2 hours duration unless noted otherwise. Total lift station shutdowns will not be permitted. Determine specific services affected and minimize impacts.

.6 Construction Work Areas, as identified on the Plans define the general area of the Work only and are not to be interpreted as limits of the Contract. Work outside the Construction Work Areas is subject to interference from and Owner operations.

.7 The Contractor is responsible for sequence and tie-ins for the Work and all costs associated with undertaking the Work.

END OF SECTION

PART 1 GENERAL

1.1 THE WORKSITE

.1 The Owner will provide the lands upon which the Work is to be constructed.

1.2 CONTRACTOR'S USE OF THE WORKSITE

.1 The Contractor shall have exclusive use and control of the worksite, provided that the Contractor permits access to the Owner, the Engineer and other contractors on the worksite for purposes of inspections, reviews, tests and carrying out work related to the Work.

.2 The Owner shall have unfettered use of thoroughfares, streets, lanes and other areas within the worksite until the Contractor requires those areas for execution of the Work, and after the Contractor has finished the portions of the Work in those areas.

.3 Unless otherwise agreed with the Owner, the Contractor shall give 48 hours notice to the Owner before entering a particular area of the worksite to execute the Work.

.4 Prior to the issuance of the Notice to Proceed and after the Contractor has fully completed its operations in a particular area, the Owner shall have use of the area and shall be responsible for Health and Safety Requirements and security in that area.

.5 During the Contractor's use of a particular area of the worksite to execute the Work, the Contractor shall be responsible primarily for security and for ensuring compliance with Health and Safety Regulations.

.6 The Contractor shall be responsible for access to the worksite by means of temporary roads, tote roads, or agreements with the appropriate authorities to use existing means of access.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL

.1 Although the specifications set forth the work requirements of various trades under separate Divisions, it is not intended that the work of that trade is limited to or includes all work set forth in that particular Division. The Contractor shall delegate the extent of the Work to be done by the various trades and shall coordinate execution of the Work by all trades.

.2 Although the specifications are separated into titled Divisions, neither the Engineer nor the Owner will be an arbitrator to establish limits of any agreements between the Contractor and the Contractor's subcontractors.

1.2 MECHANICAL AND ELECTRICAL COORDINATION

.1 The Contractor shall examine the electrical, mechanical, structural and architectural drawings before beginning the Work and report to the Engineer any discrepancies or interferences.

.2 Electrical and mechanical system layouts shown on the Drawings may be diagrammatic and locations of outlets, fittings and equipment are approximate. Exact routing of conduits, wiring, pipes and cables shall be determined and coordinated by the Contractor to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Obtain the Engineer's approval for locations of outlets, fittings and equipment.

1.3 CUTTING AND PATCHING

.1 The Contractor shall do all cutting, fitting, or patching of the Work that may be required to make its several parts come together properly and fit it to receive or be received by work of other contractors shown in, or reasonably implied by, the Contract Documents.

.2 Any cost caused by cutting and patching due to ill-timed work shall be borne by the Contractor.

.3 The Contractor shall not endanger any adjacent property or portion of the Work by cutting, digging or any other method, and shall be responsible for any damages caused by the Contractor.

.4 Where new work connects with existing work, and where existing work is altered, cut and patch as required.

.5 Coordinate the Work to minimize the amount of cutting and patching required.

.6 Do no cutting that may impair the strength of structures. Obtain the Engineer's approval before cutting, boring or sleeving load-bearing members.

.7 Make cuts clean and smooth and make patches equivalent to new work.

.8 Provide openings, holes and sleeves as required for process mechanical, building mechanical, electrical and all other components of the Work. Provide openings in pre-cast work and cast-in-place work.

.9 Drill or field cut smaller openings or holes and cast openings larger than 100 mm diameter.

1.4 CONCEALMENT

.1 Conceal pipes, ducts, conduits within walls and ceilings of finished areas, as required by the contract documents.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL

.1 The Engineer will provide co-ordinates and benchmarks for the Work in addition to the provisions of Article 1.4 of the General Conditions, limited as follows:

.1 The Contractor shall be responsible for the correctness of the elevations and dimensions from the references provided by the Engineer.

.2 The layout of the Work shall be in accordance with the Construction Schedule which is prepared by the Contractor, submitted to the Engineer for review and is updated monthly.

.3 If the Contractor requests a change in layout procedure or sequence, the Contractor shall submit the request to the Engineer, giving a minimum of 48 hours notice of new or revised activities, unless otherwise agreed between the Engineer and the Contractor.

.4 The notice requesting a change shall be extended to 96 hours whenever a long weekend is involved.

1.2 MAJOR STRUCTURES

.1 The Engineer will provide a reference point and a bench mark. The Contractor shall be responsible for survey layout.

1.3 TRENCHING AND UNDERGROUND PIPE, GRADING

.1 The Contractor shall be responsible for survey layout. The Contractor shall provide an as-built survey of all above ground and underground utilities and structures based upon UTM coordinates, including inverts.

1.4 SURVEY ASSISTANCE

.1 The Contractor shall supply acceptable survey assistants to the Engineer to assist in measuring, and checking the Work.

1.5 CONSTRUCTION STAKES AND MATERIALS

.1 The Contractor shall provide construction stakes including laths and hubs and any other required materials including flagging, ribbon, chalk, etc.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL

.1 The Laws and Regulations of the Province of British Columbia shall govern.

.2 If the National Building Code of Canada applies to the Work, the standards of the Work shall conform to or exceed the minimum standards of the National Building Code of Canada.

.3 In the event of a dispute resolution by arbitration, the arbitration shall be governed by the British Columbia Arbitration Act.

.4 The Contractor shall ensure compliance on the Contractor's part and on the part of all of the Contractor's subcontractors with the British Columbia Workers' Compensation Act and Regulations thereunder. Where the Contractor is required by the British Columbia Workers' Compensation Act or by the Regulations to retain professional consultants and to obtain a Professional Engineer's signature and seal on the design of temporary structures, concrete forming, shoring and bracing of excavations, and the methods of executing these designs, the Contractor shall retain such consultants and comply with the Act and the Regulations, all at the Contractor's own expense, and there shall be no extra payment on this account.

.5 The attention of the Contractor is directed to requirements of the British Columbia Builders' Lien Act and the Regulations thereunder.

.6 Where the Work of the Contract falls under the terms of the British Columbia Public Works Act, the British Columbia Public Works Act shall apply.

.7 All other British Columbia Acts and Regulations shall apply as appropriate and the Contractor shall comply with the requirements thereof as though they had been specifically named in these specifications.

.8 Abide by Ministry of Environment for protection of environment.

1.2 REGULATIONS, STANDARDS AND CODES

.1 Codes, Standards and Regulations are specified in other sections of the Specifications and the Work shall be done in accordance with those Codes, Standards and Regulations where applicable.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

.1 These special project requirements and site sensitivities are over and above the requirements and care normally taken on a project.

.2 The Contractor, subcontractors and all workers on site shall be made aware of the fact that the Peach Orchard Lift Station operation will take priority over construction activity of the Contract. Also they shall be made aware that there are special site sensitivities that site personnel must be aware of and conform to, together with supplemental rules and regulations that will be established, as set out below.

.3 Prior to any construction taking place, submit details of means and methods to be used for the installation of the major components.

.4 Cooperation will be required by all parties.

1.2 SITE SENSITIVITIES

.1 All work at the site must protect against disruption of the lift station. This concern applies particularly to activities where materials may be dropped into the wetwell, such as all overhead work, concrete removal and repairs, mechanical fastening, painting touch-up operations, welding, bolting, etc. Refer to Section 01014 – Work Sequence.

.2 Protection of operations personnel and construction workers is imperative. Coordination with operation and adequate protection of personnel during all work will be required. Frequent safety inspections as part of station operations can be expected.

.3 All activities which affect the operation of the station will have to be scheduled with District of Summerland operations staff. Station operation will take priority over all construction work in the Contract. Refer to Section 01014 – Work Sequence.

.4 A Work Permit System will be used to coordinate the Work and particularly to approve the relocation of all process piping, electrical or other work which effects operations. This system is not intended to restrict work progress, but to enable scheduling of the Work to least disrupt operations, maintain worker safety and provide a work location guideline should evacuation of the site be required.

.5 The Contractor must adhere to all requirements of the Work Permit System.

1.3 ORIENTATION PROGRAM

.1 The Contractor shall be responsible for ensuring that all the Contractor's subcontractors and suppliers are familiar with statutory and special requirements for this project and all other regulations governing their work including the station's health and safety requirements.

.2 An Orientation Program outlining the nature of the Work and the special project requirements will be instituted by the Contractor for all workers on the site. The Owner will cooperate and provide their special requirements for this purpose. The Orientation Program will consist of the following:

.1 Description of the existing station and the station upgrades.

.2 General description of planned construction activities.

.3 Summary of special project sensitivities (need to maintain operations and operations access, work permit system, security requirements, etc.)

.4 Safety requirements associated with work activities on the project site.

.5 Reporting requirements.

.3 An agenda and summary of the Orientation Program will be submitted for review to the Engineer prior to the Contractor moving any operations on site. The Engineer will provide a reasonable level of information to the Contractor to facilitate preparation of this agenda and summary.

.4 The Orientation Program will be scheduled at regular intervals at the discretion of the Contractor, as necessary to ensure that all employees attend prior to working on the site.

.5 All Contractor personnel will be required to complete the Orientation Program prior to working on the site. The Contractor will prepare indicators (hardhat stickers) to be applied upon the workers hardhats in visible locations. No Contractor personnel will be allowed on site for more than three days without attending the Orientation Program. Contractor personnel who have not attended the Orientation Program will be required to be accompanied by personnel who have completed the Orientation Program.

.6 The Contractor will allow for the attendance of up to five Owner and Engineer personnel at any Orientation Program proceedings.

1.4 FUTURE WORK

.1 The Contract has been designed for future additions where shown. Ensure the Work of the Contract avoids encroachment into areas shown for future additions.

.2 Where capped services, empty conduit, empty outlet boxes and similar items are shown for future extension, clearly identify and record the terminations for ready access for future use.

.3 Where such terminations are concealed, accurately dimension their location on record drawings.

1.5 WORK ADJACENT TO PUBLIC OR PRIVATE PROPERTY

.1 Obtain written consent from the Owner of adjacent property before proceeding with a part of the Work that necessitates entry onto such property for the underpinning of adjacent structures and where over-swing of cranes may occur. Such written consent will not limit the Contractor's responsibility for property damage or personal injury.

1.6 ACCESS TO SITE

.1 It will be the Contractor's responsibility to check that the access to the site is in suitable condition before any plant, equipment, or materials are dispatched to site.

1.7 HOURS OF WORK

.1 Limit the hours of work on site, including deliveries of materials and mobilization and demobilization of equipment, to the period between 0700h and 1800h (7:00 a.m. and 6:00 p.m.) daily, Monday through Friday, unless approved otherwise by the Engineer.

1.8 WORK PERMITS

.1 Work Permits will be used to coordinate and approve all work that will directly or indirectly affect the station operations.

.2 The purpose of Work Permits is to prevent injury to the Station Operators and Contractor personnel, and prevent damage to the station. The work permit serves as a communication paper between the station operators, the Contractor and the Engineer so that all procedures will be clear and understood by all parties. The station operators reserve the right to require alterations to proposed work methods or timing where such alterations will result in minimization of disruption to station operations.

.3 The Work Permit will be prepared by the Contractor; reviewed by the Owner and Engineer; and, when finalized, posted.

.4 The Work Permit will contain the following information:

.1 Work to be done

.2 Time period - potential hazards - safety precautions

.3 Safety equipment and personnel

.4 Equipment status prior, during and after work

.5 Effect on other work permits

.6 Amount of supervision

.7 Number of workers

.8 Any other special items required by the Engineer

.5 The Work Permit is required for all work including but not limited to the following:

.1 Any work involving a confined space

.2 In potentially flammable situations

.3 Near high voltage, toxic materials or high pressure areas

.4 Radiographic testing

.5 Re-routing of individual process and electrical lines

.6 Work below grade where underground piping or electrical cables are thought or known to exist

.7 Any work which will require any existing process, mechanical, electrical, or controls equipment to be taken out of service

.6 The Work Permit will be prepared by the Contractor and submitted to the Owner and Engineer **at least** two (2) weeks prior to anticipated start of work. The Engineer and the Owner will review the Work Permit. A meeting will be held to review the Work Permit, or it may be returned, with comments to the Contractor for re-submission. The Contractor must have a Work Permit approved by the Engineer and the Owner's Representative before work commences on any given system.

.7 When the Work Permit (with amendments) review is complete the Engineer and the Owner's representative will sign the Work Permit.

.8 A copy of the signed Work Permit will be given to the Contractor. All equipment, pipelines, electrical feeds, valves, etc. that are shut off while the work is being done will be locked out by the station operators and the Contractor in the presence of the Contractor and have a copy of the Work Permit attached to or mounted in a clearly visible location adjacent to the lockout.

.9 There will be a five minute meeting for all personnel at the beginning of each shift to communicate the conditions of the Work Permit.

.10 If any conditions change during the course of work, so that, in the opinion of the Engineer, the Owner or Contractor, such that safe continuation is questionable, the work must be stopped until a new revised Work Permit is issued.

.11 A copy of the signed Work Permit shall be posted in a conspicuous location close to the work site.

.12 The Work Permit form to be used is located at the end of this section.

1.9 LINE-STOPPING

.1 Not Applicable

PART 2 PRODUCTS

.1 Not Applicable.

PART 3 EXECUTION

.1 Not Applicable.

District of Summerland **Peach Orchard Lift Station Building**	**WORK PERMIT**
CONTRACTOR	WORK LOCATION
SUBCONTRACTOR(S)	REFERENCE DRAWINGS
	WORK TIMES AND DATES
	START
	FINISH
	JOB FOREMAN
DESCRIPTION OF WORK	
	WORKER NAMES
STATION FACILITIES AFFECTED	

REQUESTED BY:	DATE:

THE WORK DESCRIBED HEREIN IS PART OF THE WORK OF CONTRACT _____ AND SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF THE CONTRACT.

NOTES:

ENGINEER:	DATE:
OWNER'S REPRESENTATIVE	DATE:
STATION OPERATOR	DATE:

SPECIAL CONDITIONS:

ISSUED BY:		TIME:		DATE:	
RECEIVED BY:		TIME:		DATE:	
RETURNED BY:		TIME:		DATE:	
RETURNED TO:		TIME:		DATE:	

PERMIT NUMBER:		EXPIRY DATE:	

END OF SECTION

PART 1 GENERAL

1.1 ABBREVIATIONS - SPECIFICATIONS, METHODS, STANDARDS

.1 General

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
RCABC	Roofing Contractors Association of BC
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CAN	National Standard of Canada
CCA	Canadian Construction Association
CISC	Canadian Institute of Steel Construction
CRCA	Canadian Roofing Contractors Association
CSA	Canadian Standards Association
CWB	Canadian Welding Bureau
ISO	International Organization for Standardization
NBC	National Building Code
PMBC	Plywood Manufacturer's Association
SJI	Steel Joist Institute
SSPC	Steel Structures Painting Council
WCB	Worker's Compensation Board

.2 Utilities

AWWA	American Water Works Association
CGA	Canadian Gas Association
CGSB	Canadian General Standards Board
CSPI	Corrugated Steel Pipe Institute
IAO	Insurer's Advisory Organization
RTAC	Roads and Transportation Association of Canada
ULC	Underwriters Laboratories of Canada
USA	United States of America Standards (ASA)

.3 Mechanical

AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
ACR	Air Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating Refrigerating and Air Conditioning Engineers
NFPA	National Fire Protection Association
SAE	Society of Automotive Engineers

.4 Electrical

AIEE	American Institute of Electrical Engineers
CEC	Canadian Electrical Code
EEMAC	Electrical and Electronic Manufacturers Association of Canada
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineers Society
IPCEA	Insulated Power Cable Engineer's Association
LEMA	Lighting Equipment Manufacturer's Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code

.5 Use of Abbreviations

.1 These abbreviations refer to Specifications, Methods and Standards issued by the respective Association, and the abbreviations are used in the specifications. Alphanumeric designations following the abbreviations denote the specification, method, or standard.

1.2 ABBREVIATIONS - METRIC

.1 General

.1 The specifications are metric and metric usage is based upon SI units in accordance with CSA Standard CAN/CSA-Z234.1 Canadian Metric Practice Guide. In this specification SI units are abbreviated in accordance with the Metric Units and Abbreviations below.

.2 Linear Measure

Metre	m
Millimetre	mm
Kilometre	km
micrometre	micro-m

.3 Area

Square metre	m^2
Square millimetre	mm^2
Hectare	ha

.4 Volume

Cubic metre	m^3
Litre	L

.5 Mass and Density

Kilogram	kg
Gram	g
Tonne	t
Kilogram per metre	kg/m
Gram per metre	g/m
Kilogram per square metre	kg/m^2
Gram per square metre	g/m^2
Kilogram per cubic metre	kg/m^3

.6 Temperature

Degree Celcius	°C

.7 Force, Pressure, Stress

Newton	N
Kilonewton	kN
Pascal	Pa
Kilopascal	kPa
Megapascal	MPa

.8 Velocity, Rate of Flow

Metre per second	m/s
Metre per hour	m/h
Kilometre per hour	km/h
Litre per second	L/s
Cubic metre per second	m^3/s

.9 Power, Energy, Heat, Work

Watt	W
Kilowatt	kW
Kilowatt hour	kWh
Joule	J

.10 Electricity

Ampere	A
Volt	V

END OF SECTION

PART 1 GENERAL

1.1 USE OF ALTERNATIVES

.1 If the Contractor elects to supply and/or install an alternative material to that specified or shown on the Drawings, the Contractor shall be responsible for making all consequent adjustments, at the Contractor's own cost, to make the alternative fit into the Work as specified, and these consequent costs shall be deemed to be included in the price bid for the alternate. Prior approval will be required from the Engineer before substitution of any specified materials or equipment.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL

.1 Payments will be made on the basis of the Lump Sum price tendered, and in accordance with the General Conditions.

.2 The Lump Sum price tendered shall include the supply of all labour, material, plant and equipment necessary to construct the Work in accordance with the specifications.

.3 The method of measurement of the quantities for payment and the basis for payment and the basis for payment will be in accordance with the following items of this section. All measurement will be done by the Engineer using generally accepted field survey methods. Stationing interval for volume calculations shall not exceed 15m.

1.2 LUMP SUM CONTRACTS

.1 Payments will be made on the basis of the following:

.1 Lump sum item in the Schedule of Prices in the Tender Forms.

.2 Changes in the Work for items not covered by unit prices, in accordance with the General Conditions.

.2 For the lump sum item in the Schedule of Prices, the Engineer will, in co-operation with the Contractor, estimate the percentage of the item completed at the end of the payment period.

END OF SECTION

PART 1 GENERAL

1.1 PRECONSTRUCTION MEETING

.1 Preconstruction Meeting will be arranged by the Engineer after the Acceptance of the Tender.

.2 Preconstruction Meeting will be held at the Peach Orchard Lift Station or at an alternate location at or near the site.

.3 The agenda for the Preconstruction Meeting shall include, but is not limited to, the following:

.1 Confirm the Contractor's Superintendent and Project Manager, and the Engineer's resident personnel on the worksite.

.2 Establish worksite protocols for communication, reporting, inspection, etc.

.3 Clear up any ambiguities or questions of interpretation known at that time.

.4 Contractor shall present its detailed construction schedule.

.5 Occupational Health and Safety relationships and responsibilities.

.6 Discuss other responsibilities of the Owner, the Contractor, and the Engineer Review the General Conditions of the Contract Documents.

1.2 PROGRESS MEETINGS

.1 Progress Meetings will be held on a regular monthly basis or more frequently if requested by the Engineer.

.2 Accommodation for Progress Meetings shall be provided by the Contractor at or near the site.

.3 The Engineer will give to all parties advance notice of Progress Meeting dates, times and locations.

.4 The Contractor shall have in attendance the Contractor's Superintendent and Project Manager and representatives of the subcontractors if requested by the Engineer.

.5 The Engineer will have the Engineer's Project Manager or the Resident Engineer, or both, in attendance.

.6 The Owner may have a representative in attendance.

.7 Occupational Health and Safety incidents, records and procedures shall be part of the agenda for every Progress Meeting.

.8 Minutes will be taken by the Engineer and copies will be distributed to all attendees.

1.3 WEEKLY WORKSITE MEETINGS

.1 Weekly Worksite Meetings will be held.

.2 The Contractor shall forward copies of the Weekly Worksite and Safety meetings to the Engineer and Owner.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL

.1 Submittals are required in accordance with the provisions of this section, to determine whether the specified material and product are furnished and installed in accordance with design intent as expressed in the Contract Documents.

.2 Individual submittals as required are detailed in other sections of the specifications.

.3 Submit a copy of the marked-up Specification indicating compliance or variations for each piece of equipment/device specified in the Contract Documents.

.4 Until submissions are reviewed, work involving relevant product or material may not proceed.

.5 Where the phrase "or reviewed equivalent" occurs in the Contract Documents, do not assume that material, product or methods will be accepted as equal by the Engineer unless the item has been specifically accepted for the Work by the Engineer in writing.

1.2 IDENTIFICATION OF SUBMITTALS

.1 Identify each submittal and resubmittal by showing at least the following information:

.1 Name, address and telephone number of the submitter, and a name of an individual for contact.

.2 Drawing number and specification number to which the submittal applies.

.3 Whether an original submittal or resubmittal.

.4 Confirmation of prior review by the Contractor.

.5 Date of submittal or resubmittal.

.6 Authorized signature of the Submitter.

1.3 COORDINATION OF SUBMITTALS

.1 Prior to submittal for the Engineer's review, coordinate all material:

.1 Determine and verify field dimensions and conditions and conformance with Specifications, including material, catalogue numbers, type numbers and similar data.

.2 Coordinate requirements between trades.

.3 Coordinate with requirements under laws, regulations, etc.

.4 Secure required approvals of public agencies, inspection agencies and standards agencies and show proof of approvals acquisition.

.5 Indicate any deviations from the intent of design as expressed in the Contract Documents and request specific review of these deviations.

1.4 TIMING OF SUBMITTALS

.1 Make submittals far enough in advance to allow adequate time for coordination, Engineer's review, revisions and resubmittals, and for supply and delivery in time for the scheduled installation in the Work.

.2 Allow at least ten working days for the Engineer’s review after receipt of submittals.

.3 Costs due to delays in making submittals shall be borne solely by the Contractor.

END OF SECTION

PART 1 GENERAL

1.1 CONSTRUCTION SCHEDULE

.1 Upon award of the Contract and prior to commencement of the Work, the Contractor shall submit for approval to the Engineer a construction schedule in critical path method format (MS Project) showing all the principal phases of the Work. No Progress Payment Claim shall be certified until an acceptable Construction Schedule has been received by the Engineer.

.2 The Construction Schedule shall be updated monthly indicating actual progress of the Work by the Contractor.

.3 If, in the opinion of the Engineer, any Construction Schedule is inadequate as a control tool or if it does not show the Work being fully completed by the Contract Completion Date, the Engineer may reject it and the Contractor shall provide a Construction Schedule and work program that is acceptable to the Engineer.

END OF SECTION

PART 1 GENERAL

1.1 REQUIREMENTS FOR SHOP DRAWINGS AND PRODUCT DATA

.1 The Contractor shall arrange for the preparation of clearly identified shop drawings and submit shop drawings in the following forms:

.1 Three prints to be retained by the Engineer plus the number of copies required by the Contractor.

.2 And, a PDF copy of the shop drawing is submitted.

The Contractor shall provide clearly identified product data and submit two prints to be retained by the Engineer plus the number of copies required by the Contractor.

Product data shall include but not be limited to:

.1 Product assembly drawings

.2 Materials list

.3 Principal dimensions

.4 Parts and components details

.5 Letters of compliance with recognized standards where required

.6 Operation data

.7 Operation manuals where specified

.8 Product name and model number

.2 Shop drawings shall be accurately drawn to a scale sufficiently large to show all pertinent features of the item, and its method of connection to the Work and shall have sufficient space for the Contractor's stamp and the Engineer's review stamp.

.3 Shop drawings shall be in accordance with the International System of Units (S.I.) metric units.

.4 Prior to submission to the Engineer the Contractor shall review all shop drawings. By this review, the Contractor represents that the Contractor has determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data or will do so, and that the Contractor has checked and coordinated each shop drawing with the requirements of the Work and of the Contract Documents. The Contractor's review of each shop drawing shall be indicated by stamp, with the date and signature of a responsible person.

.5 The Contractor shall submit shop drawings to the Engineer for the Engineer’s review with reasonable promptness and in orderly sequence so as to cause no delay in the

Work or in the work of other contractors. If either the Contractor or the Engineer so requests they shall jointly prepare a schedule fixing the dates for submission and return of shop drawings.

.6 At the time of submission the Contractor shall notify the Engineer in writing of any deviations in the shop drawings from the requirements of the Contract Documents.

.7 Include with the submittals, marked-up copies of the relevant specifications sections with addenda updates, and with each submission show deviation from requirements of the Contract Documents.

.8 The Engineer will review and return shop drawings in accordance with a schedule agreed upon, or otherwise with reasonable promptness. The Engineer's review shall be for conformity to the design concept and for general arrangement only and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the Contract Documents. A specific deviation on the shop drawings from the design concept requested by the Contractor may be approved or rejected in writing by the Engineer.

.9 The Contractor shall make any changes in shop drawings which the Engineer may require consistent with the contract documents and resubmit unless otherwise directed by the Engineer. When resubmitting, the Contractor shall notify the Engineer in writing of any revisions made by the Contractor other than those requested by the Engineer, in the Engineer's review.

.10 Each reviewed shop drawing will be stamped by the Engineer with the following form of stamp:

Reviewed	( )
Reviewed as modified	( )
Revise and resubmit	( )
Not reviewed	( )

This review by the Engineer is for the sole purpose of ascertaining conformance with the general design concept. This review shall not constitute approval of the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same. Review by the Engineer shall not relieve the Contractor of the Contract's responsibility for errors or omissions in the shop drawings or of the Contractor's responsibility for meeting all requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction, for installation, and for co-ordination of the work of all sub-trades.

Engineer _____

By: _____

Date: _____

1.2 DESIGN BY THE CONTRACTOR

.1 When the Contractor is responsible for Engineering design of portions of the Work, this shall be clearly and specifically indicated in the drawings or in the specifications of the Contract Documents.

.2 Where the Contractor is required, either by law or regulation or by the Contract to provide engineering design, the Contractor shall use the services of a Professional Engineer registered in the area in which the Work is to be performed, and the Contractor shall submit shop drawings bearing the seal and signature of that Registered Professional Engineer.

END OF SECTION

PART 1 GENERAL

1.1 REQUIREMENTS FOR CONSTRUCTION PHOTOGRAPHS

.1 The Contractor shall have progress of the Work photographs taken by a qualified persons approved by the Engineer.

.2 During the progress of the Work at intervals of not less than one week and during key items of the Work, as determined by the Engineer, the Contractor shall submit progress photographs to adequately cover the progress of the Work.

.3 Submit to the Engineer 2 copies of 600 dpi digital camera progress photographs on DVD on a monthly basis.

.4 Sufficient views of the Work shall be taken to show all parts of the Work being undertaken during the progress period being photographed.

.5 Properly identify each photograph by separate means with file name to include area. All photographs shall be date stamped electronically on the image.

.6 On completion of the Work, the Contractor shall submit 2 copies of the entire construction project on DVD or memory stick.

END OF SECTION

PART 1 GENERAL

1.1 RECORDS DURING CONSTRUCTION

.1 The Contractor shall keep one complete set of all construction drawings on the worksite.

.2 On the worksite set of construction drawings, the Contractor shall record any changes that are made during the actual construction of the Work. The purpose of recording these changes is to provide drawings of record at the end of the Work. The Contractor shall be responsible for the adequacy and the reliability of the information recorded on the construction drawings of record.

.3 At the completion of the construction period, the Contractor shall turn over the set of construction drawings which have been marked up with changes during the course of the Work to the Engineer to permit the Engineer to prepare Drawings of Record for the Work.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL

.1 The Contractor is responsible for the quality of material and product which the Contractor and for the Work.

.2 The Contractor is responsible for quality control and shall perform such inspections and tests as are necessary to ensure that the Work conforms to the requirements of the Contract Documents.

.3 During the progress of the Work, a sufficient number of tests shall be performed by the Contractor to determine that material, product and installation meet the specified requirements.

.4 Minimum requirements regarding quality control are specified in various sections of the Specifications, however, the Contractor shall perform as many inspections and tests as are necessary to ensure that the Work conforms to the requirements of the Contract Documents.

.5 Testing shall be in accordance with pertinent codes and regulations, and with selected standards of the American Society for Testing and Materials (ASTM) and Canadian Standards Association (CSA).

.6 Product testing, mill tests and laboratory reports to demonstrate that product and material supplied by the Contractor meet the Specifications are specified under various sections of the Contract Documents.

1.2 QUALITY CONTROL TESTING BY THE CONTRACTOR

.1 The Owner shall retain the services of an independent testing agency under supervision of a registered Professional Engineer, and pay the cost of testing services for quality control including, but not limited to, the following:

.1 Sieve analysis of sands and aggregates to be supplied to the Work.

.2 Aggregates and mix designs for asphaltic concrete.

.3 Aggregates and mix design for Portland Cement concrete.

.4 Standard Proctor Density curves for backfill materials.

.5 Standard Proctor Density curves for approved borrow materials.

.6 Compaction control tests for foundation, backfill and embankment material. Review of foundation base prior to slab preparation.

.7 Any product testing that is required and is specified under various sections of the specifications.

.2 The Contractor shall promptly process and distribute all required copies of test reports and test information and related instructions to all of the Contractor's subcontractors and suppliers to ensure that all necessary retesting and replacement of construction can proceed without delay.

.3 The Contractor shall promptly provide the Engineer with copies of all test results.

1.3 QUALITY ASSURANCE TESTING BY THE OWNER

.1 The Owner may retain and pay for the services of an independent testing agency for testing for quality assurance, for the Owner's purposes.

.2 The Owner's testing agency and the Engineer may inspect and test material, product and the Work for conformance with the requirements of the Contract Documents; however, they do not undertake to check the quality of the Work on behalf of the Contractor nor to provide quality control.

.3 Inspections and tests by the Owner's testing agency and by the Engineer do not relieve the Contractor of the Contractor's responsibility to supply material and product and to perform the Work in accordance with the requirements of the Contract Documents.

.4 The Engineer, at the Engineer's discretion, may order or perform any additional inspections and tests for purposes of the Engineer's own or for purposes of the Owner.

.5 The Contractor shall coordinate with the Engineer the scheduling of testing and inspection by the Owner's testing agencies or by the Engineer, to enable testing to be done as necessary, without delay, and the Contractor shall notify the Engineer sufficiently in advance of operations to allow for such inspection and tests by the Engineer's or the Owner's testing agency.

1.4 CODE COMPLIANCE TESTING

.1 Inspections and tests required by codes or ordinances, or by an approval authority, shall be the responsibility of and shall be paid for by the Contractor.

.2 Copies of reports resulting from such inspections shall be submitted in a timely manner by the Contractor to the Owner.

1.5 RETESTING

.1 When tests on product, material or completed portions of the Work carried out by the Contractor or the Contractor's testing agency or by the Owner's testing agency yield results not meeting the requirements of the Contract Documents, the Contractor, in addition to carrying out remedial work or replacement of the product or material shall provide for retesting of the remedied work and the replacement product and material. Retesting, including retesting by the Owner's testing agency, shall be at the Contractor's expense.

.2 In every case where the Contractor has submitted test results which fail to meet the requirements of the Contract Documents, the Contractor shall submit within a practical and reasonable time results of a retest showing that the results are in accordance with the requirements of the Contract Documents.

.3 If the Contractor fails or refuses to do remedial work or replace unacceptable material or product, the Engineer may refuse to certify payment and the Owner may refuse to make payment, in addition to any other remedies the Owner may have.

END OF SECTION

PART 1 GENERAL

1.1 TEMPORARY UTILITIES

.1 Natural Gas, Gasoline and Other Fuels

.1 Provide and pay all costs for natural gas, gasoline and other fuels required for the performance of the Work, in accordance with governing regulations and ordinances, and the Contract Documents.

.2 Furnish and install all necessary temporary piping and upon completion of the Work remove all such temporary piping.

.2 Water

.1 Provide and pay all costs for all water required for the performance of the Work, in accordance with governing regulations and ordinances, and the Contract Documents.

.2 Furnish and install all necessary temporary piping and upon completion of the Work remove all such temporary piping.

.3 Electricity And Lighting

.1 Provide and pay all costs for electricity and artificial lighting required for the performance of the Work, in accordance with governing regulations and ordinances, and the Contract Documents.

.2 Furnish and install all necessary temporary wiring, distribution boxes, panels, etc., and upon completion of the Work, remove all such temporary installations.

.4 Telephone

.1 Provide, maintain and pay all costs for a telephone for the Contractor's use.

.5 Heating And Ventilating

.1 Provide and pay all costs for heating and ventilating, coverings and enclosures as necessary to protect and perform the Work.

.2 Furnish and install all necessary temporary equipment, piping, wiring, ducting, and other materials to perform the Work, and upon completion of the Work, remove all such temporary equipment.

.3 Temporary heating and ventilating shall be in accordance with all governing regulations and ordinances, and the Contract Documents.

.4 Temporary heating and ventilating shall be provided to:

- facilitate progress of the Work
- protect the Work and product and material against dampness and cold
- prevent moisture condensation on surfaces
- provide an atmosphere for curing material as required
- provide adequate ventilation to meet safety regulations
- prevent hazardous accumulation of dust, fumes, mists, vapours or gases in areas occupied during construction
- ventilate storage spaces containing hazardous or volatile materials

.6 Sanitary Facilities

.1 Furnish and install all required temporary toilet buildings with sanitary toilets for use of all workmen; comply with all minimum requirements of the Health Department or other public agency having jurisdiction; maintain in a sanitary condition at all times.

.7 Fire Protection

.1 Provide and pay all costs for adequate fire protection of the Work and adjacent property.

.2 Furnish and install temporary extinguishers, hydrants and other equipment, and upon completion of the Work remove all such temporary equipment.

1.2 CONSTRUCTION AIDS

.1 Temporary Plant

.1 Provide, arrange for, maintain and pay for all temporary items such as, but not limited to, stairs, ladders, scaffolding, ramps, transportation of labour and material, runways, chutes, hoists, elevators, tools, templates, as required for the completion of the Work.

.2 The location of such items shall be such as to prevent interference with, marking of, or damage to any portion of the Work.

.3 All such items shall conform to all applicable national and local ordinances regulating safety, and to the National Building Code of Canada, and to the requirements of the Contract Documents.

.2 Temporary Enclosures

.1 Furnish, install, and maintain for the duration of construction all required scaffolds, tarpaulins, barricades, canopies, warning signs, steps, bridges, platforms, and other temporary construction necessary for proper completion of the Work in compliance with all pertinent safety and other regulations.

.3 Falsework and Temporary Construction Supports

.1 The Contractor shall be responsible for means and methods used for the falsework and temporary construction supports.

.2 If required by the Contract Documents, employ a qualified registered Professional Engineer for the design of temporary works, and design in accordance with CSA S269.1.

.3 Record design calculations and drawings to show that temporary works are adequate. Provide design loads, material details, and dimensions. Sign and seal design calculations and drawings, and revisions thereto.

.4 The Engineer's approval to proceed with falsework and temporary construction supports shall not relieve the Contractor of the Contractor's responsibility in accordance with the Contract Documents. The Engineer's review shall be for general conformance to the intent of design and for permanent effects on the worksite, or areas adjacent to the worksite.

.4 Temporary Excavation

.1 The Contractor is responsible for the means and methods of making temporary excavations in order to install components of the Work.

.5 Winter Construction

.1 Special construction methods required to perform the Work in severe weather shall be the responsibility of the Contractor.

.2 Where the Specifications call for work to be performed within a given temperature range or above a minimum temperature, it shall be the Contractor's responsibility to provide all temporary enclosures and heat necessary to provide the conditions specified.

.3 Where compaction of backfill is specified, the Contractor shall perform the Work in a manner such that compaction can be achieved.

.4 Where weather conditions are such that compaction of backfill consisting of excavated materials is not possible, the Contractor shall provide unfrozen granular material for backfill, at the Contractor's expense.

.6 Access Roads

.1 Construct temporary access roads as necessary to perform the Work, and maintain temporary access roads until the Work is complete or until permanent access is established.

.2 Locations and drainage facilities for temporary access roads are subject to the approval of the Engineer.

.3 No direct payment will be made to the Contractor for construction of temporary access roads.

.7 Protection

.1 Remove trees, fences and other structures from the site of the Work, as necessary to perform the Work.

.2 Remove only those items that must be removed, or are clearly shown on the drawings to be removed.

.3 Protect all remaining trees, plants, fences and other items from damage during construction.

.8 Existing Utilities and Structures

.1 Existing utilities and structures include pipes, culverts, ditches or other items which are a part of an existing sewerage, drainage or water system; or which are a part of a gas, electrical, telephone, television, telecommunications or other utility system. Also included are sidewalks, curbs, gutters, swales, poles, fences or any other structures encountered during construction. The Contractor shall ensure the existing service is not disrupted or disinfection compromised.

.2 The Contractor shall be responsible for location, protection, removal or replacement of existing utilities and structures, or for repair of any damage which may occur during construction.

.3 Existing utilities and structures may be shown on the drawings, or described in the Specifications. Such information is shown for design purposes and the existence, location and detail given is information that is obtained during the design period and is not necessarily complete, correct or current.

.4 The Contractor shall pay all costs and be responsible for establishing locations and state of use of all existing utilities that may affect the Work. The Contractor shall make satisfactory arrangements with the utilities companies involved for the location, protection and inspection of existing utilities.

.5 Notice in writing shall be given by the Contractor to the utilities companies at least 48 hours before work commences in the vicinity of existing utilities.

.6 The Contractor shall pay all the costs involved in protection of utilities, inspection of utilities, and all costs due to delays because of existing utilities and structures.

.7 The Contractor shall provide for the uninterrupted flow of all water courses, sewers and drains encountered during the Work.

.8 Access shall be maintained to all existing structures such as valves, hydrants, meter chambers and control structures at all times during construction.

.9 If interruption of service provided by an existing utility is necessary, the planned shut-down shall be approved by the owners of the utilities. Requests for shut-down shall be made by the Contractor in writing at least 48 hours in advance.

.10 The Contractor shall notify all customers or make arrangements with the utility company to notify all customers 24 hours in advance of a shut-down.

.11 Unless otherwise specified the Contractor shall make arrangements for relocation of existing utilities that the Engineer requests to be relocated; and the actual relocation shall be constructed by the owner of the utility. The Contractor will be reimbursed the invoiced cost of the relocation. No extra payment is permitted for delays, or standby time.

1.3 TEMPORARY CONTROLS

.1 Noise Controls

.1 Perform the Work in conformity with all municipal by-laws with respect to noise, hours of work, night work, early morning work and holiday work. Night work, early morning work or holiday work requires the written permission of the Engineer.

.2 Dust Control

.1 Perform the Work in a manner that will not produce an objectionable amount of dust. Dust control measures shall be paid for by the Contractor.

.3 Pollution Control

.1 Perform the Work in conformance with the applicable sections of the Provincial Regulations with respect to air and water pollution control requirements.

.4 Disposal of Wastes

.1 Burying of rubbish and waste on site is not permitted.

.2 Disposal of waste or volatile materials into waterways, storm or sanitary sewers is not permitted.

.3 Pumping or draining water containing silt in suspension into waterways, sewers or drainage systems is prohibited.

.4 Abide by requirements of Statute, Bylaw and Regulations respecting disposal of wastes.

.5 Obtain required Permits for waste disposal.

.5 Work Adjacent to Waterways

.1 Do not operate construction equipment in waterways, nor remove borrow material nor dump fill material into waterways, except as approved and permitted by the appropriate authorities. Obtain any required permits.

.6 Traffic Control

.1 The Contractor shall be responsible for the regulation of traffic during construction, and shall perform the Work in a manner that will cause the least disruption of traffic.

.2 The Contractor shall co-ordinate the Work with the Engineer, and the Owner to reduce traffic problems.

.3 Provision of flagmen, traffic signs, and other traffic controls shall be the Contractor's responsibility and shall be in accordance with the TAC Manual of Uniform Traffic Control Devices.

.4 The Contractor shall supply all barriers, barricades, warning signs, detours, fences, flagmen and all other devices to protect the public. All applicable safety standards shall be followed.

.5 The Contractor shall obtain approval to block traffic temporarily if it is necessary to do so to perform the Work. Obtain the written approval of applicable municipal departments, the Owner and the Engineer. At least 48 hours prior to actually blocking traffic notify the following:

- Roadway Authority
- Public Works Departments
- Utilities Companies
- Fire Department
- Police Department

.6 Adequate construction parking, meeting local regulations, shall be provided by the Contractor.

.7 Haul routes shall be maintained by the Contractor. They shall be kept open to traffic and shall be clean at all times.

.8 Obtain permits as required to use public roads or streets for haul routes.

.7 Project Identification

.1 Construct, erect and maintain a project sign, minimum 1200 x 2400 mm erected at a location as directed by the Engineer.

.2 The sign shall show the name of the project, the Owner, the Engineer and the Contractor.

.3 Submit a shop drawing of the sign for review by the Engineer.

.8 Contractor's Field Office

.1 Furnish and install a field office building adequate in size and accommodation for all Contractor's offices, superintendent's office, supply and tool room throughout the entire construction period.

.9 Engineer's Field Office

.1 The Owner will provide a field office for the sole use of the Engineer within the existing plant.

.10 Temporary Use of Owner's Facilities and the Work

.1 If the Owner permits the Contractor to make temporary use of the Owner's facilities, the Contractor shall use the facilities with care, providing all maintenance and repair, and shall leave the facilities in good working order when the Contractor is finished.

.2 If the Owner permits the Contractor to use facilities incorporated into the Work, the Contractor shall use them with care and be responsible for all maintenance and repair and for leaving the facilities in good order.

.3 Permanent systems shall not be used by the Contractor without the written permission of the Engineer.

.4 Permanent heating systems shall not be used for temporary heating without the written permission of the Engineer.

.5 If the Contractor obtains written permission to use existing heating systems or other systems temporarily, before completion, the Contractor shall change lubricants, filters and other accessory items completely upon completion of the Work. Warranties shall be extended by the Contractor to ensure that the Owner receives the full warranty, as specified.

.6 Temporary or trial usage by the Owner of any mechanical machinery, apparatus, equipment or any other work or materials supplied in accordance with the Contract Documents before final acceptance by the Engineer is not to be construed as evidence of acceptance. The Owner shall have the privilege of such temporary and trial usage as soon as the Contractor shall claim that said portion of the Work is completed.

END OF SECTION

PART 1 GENERAL

1.1 INTENT

.1 This Section covers the work for the protection of the environment during construction. The provisions of this Section are in addition to the provisions of other sections of the Contract Documents.

1.2 SITE WORKING AREAS

.1 Confine operations to limits of the site working area shown on Drawings.

.2 Provide access roads to the site working area and on the site in locations shown or otherwise acceptable to the Engineer.

.3 Install fencing as required to clearly define the working limits to the site working area, haul routes, parking areas, access routes and maintenance areas to ensure all activity is confined to these areas.

1.3 CODES AND STANDARDS

.1 The Contractor shall follow the “Environmental Construction Guidelines for Municipal, Road, Sewage and Water Projects; 1987” by the Municipal Engineers Association. These Guidelines recommend construction procedures that are considered to be sound environmental practice for the following areas of concern:

.1 Construction Works Yard and Access Routes

.2 Equipment Fuelling, Maintenance and Storage

.3 Mud, Dust and Particulate Control

.4 Noise and Vibration Control

.5 Drilling and Blasting

.6 Protection of Land Features and Vegetation

.7 Clearing Right-of-Way/Disposal of Excess Material

.8 Site Drainage and Erosion Control

.9 De-watering

.10 Water Crossings and Construction through Sensitive Areas

.11 Groundwater and Well Water

.12 Hydrostatic Testing and Disinfection

.13 Site Restoration

1.4 CONSTRUCTION PRACTICES

.1 Notwithstanding the above general concerns, the following environmental construction practices are specific to the Contract Documents:

.1 Control measures shall be provided to prevent silt-laden water from entering natural watercourses in accordance with the requirements of the Ministry of Water, Land and Air Protection.

.2 The velocity of discharge water shall be controlled to prevent unnecessary disturbance of natural watercourses.

.3 All equipment maintenance and refueling shall be carried out so as to prevent the entry of petroleum products into the ground or watercourses at all times.

.4 The Contractor shall ensure the immediate availability of the products with which to effect temporary repair to broken pipelines and other services so the spill or other emission of a pollutant is immediately controlled and stopped and to mitigate the damages.

.5 Maintain temporary erosion and pollution control features installed in accordance with the Contract Documents.

.6 Control noise emission from equipment and plant to local authorities' noise emission requirements.

.7 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.5 SITE RESTORATION

.1 In general, the Contractor shall restore the site to conditions equal to or, if specified elsewhere, to a condition better than existing conditions.

.2 The Contractor shall restore lands outside of the limits of the Work which are disturbed by the Work to their original condition.

1.6 SPILLS REPORTING

.1 In the event of a spill or other emission of a pollutant into the natural environment, every person responsible for the emission of who causes or permits it must forthwith notify:

.1 The Ministry of Water, Land and Air Protection.

.2 The municipality or the regional municipality within the boundaries of which the spill occurred.

.3 The owner of the pollutant, if known.

.4 The person having control of the pollutant, if known.

.5 The Engineer: Of the spill, of the circumstances thereof, and of the action taken or intended to be taken with respect thereto.

1.7 CONTINGENCY PLAN

.1 Prior to commencing construction, the Contractor shall prepare a Contingency Plan for the control and clean up of a spill. The Contractor shall submit for the Engineer's review and the review of other responsible parties a copy of the Contingency Plan and make appropriate changes to it based on review comments received. The Contingency Plan shall be reviewed at the pre-construction meeting. The Contingency Plan shall include:

.1 The names and the telephone numbers of the persons in the local municipalities to be notified forthwith of a spill.

.2 The names and the telephone numbers of the representatives of the fire, the police and the health departments of the local municipalities who are responsible to respond to emergency situations.

.3 The Contractor's proposal for the immediate containment and control of the spill, the cleanup procedures to be initiated immediately and any other action to be taken to mitigate the potential environmental damage while awaiting additional assistance.

.4 The name and the office and home telephone number of the Contractor's representative responsible for preparing, implementing, directing and supervising the Contingency Plan.

1.8 DISPOSAL OF WASTES

.1 Fires and burning of rubbish on site are not permitted.

.2 Do not bury rubbish and waste materials on site.

.3 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.9 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties where indicated.

.2 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.3 Minimize stripping of topsoil and vegetation.

.4 Restrict tree removal to areas indicated or designated by Engineer.

END OF SECTION

PART 1 GENERAL

1.1 QUALITY

.1 Material and product supplied and installed shall be new.

.2 Material and product supplied shall conform to the Specifications and to specified standards.

.3 Workmanship shall be the best quality, executed by workmen experienced and skilled in their respective trades.

.4 Ensure full cooperation among all trades and coordination of the Work with continuous supervision.

.5 Use product for which replacement parts and service are readily available.

.6 Use product of one manufacturer for product of the same type or classification. Do not mix different manufacturer's product in the Work or in parts of the Work.

1.2 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise specified, comply with the manufacturer's/supplier's instructions for material or product and installation methods.

.2 Notify the Engineer in writing of any conflict between the Specifications and the instructions of the manufacturer/supplier.

1.3 FASTENINGS

.1 Provide metal fastenings and accessories in the same texture, colour and finish as the base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work, or work that may be located in a corrosive atmosphere.

.2 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage.

.3 Space fastening evenly and lay out neatly.

1.4 DELIVERY AND STORAGE

.1 Deliver, store and maintain packaged material and product with manufacturer's seals and labels intact.

.2 Prevent damage and soiling of material and product.

.3 Store material and product in accordance with instructions of the manufacturer/ supplier.

.4 Provide suitable areas or buildings where storage is weatherproof, if dry areas are recommended by the manufacturer/supplier.

.5 Product shall have name plates displaying product data and serial numbers.

.6 Comply with Workplace Hazardous Materials Information Systems requirements.

END OF SECTION

PART 1 GENERAL

1.1 INTENT

.1 This section describes general requirements for process, hoisting, mechanical, and electrical equipment relating to supply, installation, testing, and commissioning; and the verification thereof.

1.2 DEFINITIONS

.1 Manufacturer: The manufacturer is the person, partnership, or corporation responsible for the fabrication of equipment provided to the Contractor or the Owner supplied equipment handed over to the Contractor for installation for the completion of the Work.

.2 Manufacturer's Representative: A manufacturer's representative is a trained serviceman empowered by the Manufacturer to provide installation, testing, and commissioning assistance to the Contractor in the performance of these functions.

1.3 EXPERTISE AND RESPONSIBILITY

.1 The Engineer recognizes the expertise of the Manufacturer.

.2 Should the Engineer issue an Addendum, Field Order, Change Order, or oral instruction to change the Work which would, in the opinion of the Contractor, compromise the success or safety of the Work, then it shall be incumbent on the Contractor to notify in writing the Engineer to this effect within two (2) days.

1.4 EQUIPMENT DELIVERY

.1 The Contractor shall be responsible for receiving, unloading, and storage of Contractor supplied equipment. The Contractor shall be responsible for loading / unloading and storage of Owner supplied equipment as required.

.2 The Contractor shall ensure that all necessary precautions are taken in the loading / unloading of equipment and its subsequent storage.

.3 The Contractor shall inspect the contents of Owner supplied equipment and any equipment delivery and be satisfied of the contents thereof and damage which may have occurred during transport.

1.5 INSTALLATION

.1 If necessary, or if so directed by the Engineer during the course of installation, the Contractor shall contact the Manufacturer to receive clarification of installation procedures, direction, or any other additional information necessary to continue or complete the installation in an appropriate manner.

.2 If it is found necessary, or if so directed by the Engineer, the Contractor shall arrange for the Manufacturer's Representative to visit the site to provide assistance during installation, all at no additional cost to the Owner.

.3 Prior to completing installation, the Contractor shall inform the Manufacturer and arrange for the attendance at the site of the Manufacturer's Representative to verify successful installation.

.4 The Contractor shall advise the Engineer in writing, at least seven (7) days prior, of the Manufacturer's Representative's scheduled arrival.

.5 The Manufacturer's Representative shall conduct a detailed inspection of the installation including alignment, electrical connections, belt tensions, rotation direction, running clearances, lubrication, workmanship and all other items as required to ensure successful operation of the equipment.

.6 The Manufacturer's Representative shall identify any outstanding deficiencies in the installation.

.7 In the presence of the Manufacturer's Representative, the Contractor, and the Engineer, the equipment shall then be given a one (1) hour trial run.

.8 If deficiencies noted by the Manufacturer's Representative or which become evident in the trial run prejudice the successful completion of the trial run, the deficiencies will be rectified by the Contractor and the Manufacturer's Representative will be required to re-inspect the installation, at no additional cost to the Owner.

1.6 OPERATION AND PERFORMANCE VERIFICATION

.1 Both Owner supplied and Contractor supplied equipment will be subjected to a demonstration, running test, and performance tests after the installation has been verified and any identified deficiencies have been remedied.

.2 The Contractor shall inform the Engineer at least fourteen (14) days in advance of conducting the tests and arrange for the attendance of the Manufacturer's Representative. The tests may be concurrent with the inspection of satisfactory installation if mutually agreed by the Contractor and the Engineer.

.3 The Manufacturer's Representative will conduct all necessary checks to the equipment and if necessary, advise the Contractor of any further checking, flushing, cleaning, or other work needed prior to confirming the equipment is ready to run.

.4 The Contractor shall then operate the equipment for at least one (1) hour to demonstrate the operation of the equipment and any required ancillary services. Any remedial measures required to ensure satisfactory operation shall be promptly undertaken.

.5 The Contractor shall then notify the Engineer of the readiness to demonstrate the operation of the equipment. The Engineer shall attend, as expeditiously as possible. The Owner’s representative, also shall attend if deemed appropriate by the Owner.

.6 With the assistance of the Manufacturer's Representative, the Contractor will demonstrate that the equipment is properly installed. Alignment, piping connections, electrical connections, etc. will be checked and if appropriate, code certifications provided.

.7 The equipment shall then be run for one (1) hour. Local controls shall be satisfactorily verified by cycling the equipment through several start-stop operations, modulating its output, or some combination. Operating parameters such as temperature, pressure, voltage, vibration, etc., will be checked to ensure that they are within the specified or Manufacturer's recommended limits, whichever is more stringent.

.8 On satisfactory completion of the one (1) hour demonstration, the equipment will be stopped and critical parameters, such as alignment, will be rechecked.

.9 All water, chemicals, temporary power, heating, or any other ancillary service required to complete the initial demonstration, running test and performance tests are the responsibility of the Contractor.

.10 Should the initial demonstration, running test or performance tests reveal any defects, then those defects shall be promptly rectified and the demonstration, running tests, and/or performance tests shall be repeated to the satisfaction of the Engineer. Additional costs incurred by the Contractor, the Engineer, or the Owner, due to repeat demonstration, running tests, and/or performance tests shall be the responsibility of the Contractor.

END OF SECTION

PART 1 GENERAL

1.1 CLEANUP

.1 Maintain the working area in a clean and orderly manner as the Work progresses, and upon completion of construction, remove all waste materials, and all temporary facilities from the site.

.2 Haul surplus or salvage materials that are the property of the Owner to the Owner's storage site.

.3 Remove surplus or salvaged materials belonging to the Contractor from the site.

.4 Clean haul routes and upgrade access roads damaged by construction.

.5 Vacuum clean interior building areas when ready for painting, and continue vacuuming as needed.

.6 Remove grease, dust, dirt, stains, labels, finger prints and other foreign materials from sight on exposed interior and exterior finished surfaces, including glass and other polished surfaces.

.7 Clean lighting reflectors, lenses and other lighting surfaces.

.8 Broom clean paved surfaces, rake clean other surfaces of ground.

.9 Remove debris and surplus materials from roof areas and accessible concealed spaces.

.10 Remove snow and ice that prevents access to the building.

1.2 RECORD DOCUMENTS

.1 As specified in other sections of the Specifications, the Contractor may be required to prepare record drawings, to provide survey notes, to supply test results or other documents. Such information shall be turned over to the Engineer; as soon as start-up is complete, and before the Construction Completion Certificate is issued.

.2 Record documents shall be neat, legible and accurate.

END OF SECTION