Part 1 General

1.1 ADMINISTRATIVE

.1 Submit to Contract Administrator submittals listed for review in accordance with the Specifications, or as requested by the Contract Administrator.

.2 Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.1 Allow 10 Working Days for review of submittals by the Contract Administrator.

.3 Do not proceed with Work affected by submittal until review is complete.

.4 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.5 Where items or information is not produced in SI Metric units converted values are acceptable.

.6 Review submittals prior to submission to Contract Administrator. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.7 Notify Contract Administrator, in writing at time of submission for review, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.8 Verify:

.1 Field measurements

.2 Field construction criteria

.3 Catalogue numbers and similar data

.4 Ensure affected adjacent Work is co-ordinated.

.9 Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator’s review of submittals.

.10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator review.

.11 Acceptance of Shop Drawings for a component or a subassembly does not constitute acceptance of the complete assembly of which it is a part.

.12 The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the required number of corrected copies of Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections requested by the Contract Administrator on previous submission.

.13 After Contract Administrator's review and return of copies, distribute copies to sub-trades as appropriate.

.14 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 The Contractor shall arrange for the preparation of clearly identified Shop Drawings as specified or as the Contract Administrator may reasonably request. Shop Drawings are to clearly indicate materials, weights, dimensions, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of the Work. Where articles or equipment attach or connect to other articles or equipment, clearly indicate that all such attachments and connections have been properly coordinated, regardless of the trade under which the adjacent articles or equipment will be supplied and installed. Shop Drawings are to indicate their relationship to design Drawings and Specifications. Notify the Contract Administrator in writing of any deviations in Shop Drawings from the requirements of the Contract Documents.

.3 Have Shop Drawings stamped, signed and dated by a Professional Engineer licensed to practice in the Province of Manitoba where required in the Specifications or by the Contract Administrator.

.1 The following components require sealed shop drawings, however the below is not necessarily a comprehensive list:

.1 Shoring

.2 Reinforcing Steel

.3 Metal Fabrications

.4 Stem Extensions.

.5 Structural Connection Details

.4 The Contractor shall examine all Shop Drawings prior to submission to the Contract Administrator to ensure that all necessary requirements have been determined and verified and that each Shop Drawing has been checked and coordinated with the requirements of the Work and the Contract Documents. Examination of each Shop Drawing shall be indicated by stamp, date and signature of a responsible person of the sub-contractor for supplied items and of the General Contractor for fabricated items. Shop Drawings not stamped, signed and dated will be returned without being reviewed and stamped "Re-submit". Ensure that the following are verified:

.1 Field measurements.

.2 Field construction criteria.

.3 Catalogue numbers and similar data.

.5 Submittals shall be in one of the following formats:

.1 Submit three (3) copies of white prints and three (3) copies of all fixture cuts and brochures.

.2 Submit one electronic PDF copy.

.6 Shop Drawing reviews by the Contract Administrator is solely to ascertain conformance with the general design concept. Responsibility for approval of detail design inherent in Shop Drawings rests with the Contractor and review by the Contract Administrator shall not imply such approval.

.7 Shop Drawings will be returned to the Contractor with one of the following notations:

.1 When stamped "REVIEWED" or "NO EXCEPTIONS TAKEN", distribute additional copies as required for execution of the Work.

.2 When stamped "REVIEWED AS MODIFIED" or "MAKE NOTED CORRECTIONS", ensure that all copies for use are modified and distributed, same as specified for "REVIEWED".

.3 When stamped "REVISE AND RESUBMIT", make the necessary revisions, as indicated, consistent with the Contract Documents and submit again for review.

.4 When stamped "NOT REVIEWED" or "REJECTED", submit other Drawings, brochures, etc., for review consistent with the Contract Documents.

.5 Only Shop Drawings bearing "REVIEWED", "NO EXCEPTIONS TAKEN", "MAKE NOTED CORRECTIONS", or "REVIEWED AS MODIFIED" shall be used on the Work unless otherwise authorized by the Contract Administrator.

.8 After submittals are stamped "REVIEWED", "NO EXCEPTIONS TAKEN", "MAKE NOTED CORRECTIONS" or "REVIEWED AS MODIFIED", no further revisions are permitted unless re-submitted to the Contract Administrator for further review.

.9 Any adjustments made on Shop Drawings by the Contract Administrator are not intended to change the Contract Price. If it is deemed that such adjustments affect the Contract Price, clearly state as such in writing prior to proceeding with fabrication and installation of Work.

.10 Make changes in Shop Drawings, which the Contract Administrator may require, consistent with Contract Documents. When re-submitting, notify the Contract Administrator in writing of any revisions other than those requested by the Contract Administrator.

.11 Only two (2) reviews of Shop Drawings will be made by the Contract Administrator at no cost. Each additional review will be charged to the Contractor at the Contract Administrator’s scheduled rates. The Contract Administrator’s charges for the additional Work will be deducted from the Contractor’s Progress Certificates.

.12 Show the following information in lower right hand corner of shop drawings.

.1 Project Title.

.2 Tender number or other project number assigned by the Contract Administrator.

.3 Name of the depicted item in accordance with the Specifications and Drawings.

.4 Project series number and location where the item is used if applicable.

.5 Specification section number if applicable

.6 Proposed option if applicable.

.7 Name of Contractor.

.13 Accompany submissions with transmittal letter, containing:

.1 Date.
.2 Project title and number.
.3 Contractor's name and address.
.4 Identification and quantity of each shop drawing, product data and sample.
.5 Specification Section, Title, Number, and Clause
.6 Other pertinent data.
.7 Date and revision dates.
.8 Project title and Bid Opportunity number.
.9 Name of:
.1 Contractor
.2 Subcontractor
.3 Supplier
.4 Manufacturer
.5 Separate detailer when pertinent
.10 Identification of product of material.
.11 Relation to adjacent structure or materials.
.12 Field dimensions, clearly identified as such.
.13 Specification section name, number and clause number or drawing number and detail/section number.
.14 Applicable standards, such as CSA or CGSB numbers.
.15 Contractor’s stamp, initialled or signed, certifying review of submission, verification of field measurements and compliance with Contract Documents.

1.3 PROCEDURES

.1 The Contractor shall, if required by the Contract Administrator, submit for the review of the Contract Administrator method statements which describe in detail, supplement with Drawings where necessary, the methods to be adopted for executing any portion of Work.

.2 These statements shall also include details of constructional plant and labour to be employed. Acceptance by the Contract Administrator shall not relieve the Contractor of any of his responsibilities, nor shall reasonable refusal to approve entitle the Contractor to extra payment or an extension of time.

.3 Other Considerations

.1 Fabrication, erection, installation or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent shop drawings and resubmit.
.2 Material and equipment delivered to the site of the works will not be paid for at least until pertinent shop drawings have been submitted and reviewed.
.3 Incomplete shop drawing information will be considered as stipulated deductions for the purposes of progress payment certificates.
.4 No delay or cost claims will be allowed that arise because of delays in submissions, re-submissions and review of shop drawings.

.5 Contractor to monitor the shoring for movement on a daily basis and provide a written weekly report showing the daily records to the Contract Administrator.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSPECTION

.1 Allow Contract Administrator access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Contract Administrator instructions, or law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 The Contract Administrator will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, the City shall pay cost of examination and replacement.

1.2 INDEPENDENT INSPECTION AGENCIES

.1 Independent Inspection/Testing Agencies may be engaged by the City for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by the City. Costs of additional tests required due to defective Work shall be paid by the Contractor.

.2 All equipment required for executing inspection and testing will be provided by the respective agencies.

.3 Employment of inspection/testing agencies does not relieve or relax responsibility to perform Work in accordance with Contract Documents.

.4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by the Contract Administrator at no cost to the City. Pay costs for retesting and re-inspection.

1.3 ACCESS TO WORK

.1 The City, the Contract Administrator, and other authorities having jurisdiction shall have access to the work.

1.4 REJECTED WORK

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by the Contract Administrator as failing to conform to Contract Documents. Replace or re-execute in accordance with the Contract Documents.

.2 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 If in opinion of the Contract Administrator it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the City will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Contract Administrator.

1.5 REPORTS

.1 Submit draft inspection and test reports to Contract Administrator, prior to inclusion with the O&M manuals, in accordance with Section 01 33 00 - Submittal Procedures.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.4 WATER SUPPLY

.1 Provide potable water as required for construction use.

1.5 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.

.3 Provide temporary heat and ventilation in enclosed areas as required to:

- .1 Facilitate progress of Work.
- .2 Protect Work and products against dampness and cold.
- .3 Prevent moisture condensation on surfaces.
- .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
- .5 Provide adequate ventilation to meet health regulations for safe working environment. A minimum of 6 ACH of continuous ventilaion is required in below grade drywell areas.

.4 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.

.5 Ventilating:

- .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
- .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.

.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.4 Ventilate storage spaces containing hazardous or volatile materials.

.5 Ventilate temporary sanitary facilities.

.6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

.6 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform with applicable codes and standards.

.2 Enforce safe practices.

.3 Prevent abuse of services.

.4 Prevent damage to finishes.

.5 Vent direct-fired combustion units to outside.

.7 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.6 TEMPORARY POWER AND LIGHT

.1 Provide temporary power and light as required for temporary pumping, construction power, lighting, and other requirements during shutdowns.

.2 The existing power supply may be utilized for power, provided that there are no operational impacts associated with the use of the power. Maintain sufficient power for pump operation at all times.

.1 Connect to existing power supply in accordance with Canadian Electrical Code.

.2 Electrical power and lighting systems installed under this Contract may be used for construction requirements provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract..

1.7 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data hook up, line and equipment necessary for own use..

1.8 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Indicate use of supplemental or other staging area.

.3 Provide construction facilities in order to execute work expeditiously.

.4 Remove from site all such work after use.

1.2 SCAFFOLDING

.1 Scaffolding in accordance with CAN/CSA-S269.2.

.2 Provide and maintain scaffolding and ladders.

1.3 HOISTING

.1 Provide, operate and maintain any hoists required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

.1 The Jib Crane to be installed as part of the work may be utilized by the Contractor.

.2 Hoists to be operated by qualified operator.

1.4 CONSTRUCTION PARKING

.1 Parking will be permitted on site provided it does not disrupt performance of Work or access by the City.

.1 Ensure that access and parking for a minimum of one truck is provided adjacent to the wastewater pumping station, for use by the City.

.2 Provide and maintain adequate access to project site.

1.5 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.6 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.7 OFFICES

.1 Provide office heated to 20 degrees C, lighted, and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.

.2 Provide marked and fully stocked first-aid case in a readily available location.

.3 Subcontractors to provide their own offices as necessary. Direct location of these offices.

.4 Supply temporary office facilities for the Contract Administrator on site, meeting the following requirements:

.1 Minimum floor area of 20 square metres, with windows and a door entrance complete with suitable lock satisfactory to the Contract Administrator.

.2 Suitable for all-weather use and capable of maintaining a temperature range between 20 and 25 degrees C.

.3 Equipped with fluorescent lights and 120 volt ac electrical wall outlets

.4 Furnished with one desk, one filing cabinet and two chairs, all satisfactory to the Contract Administrator.

.5 All of the temporary structures provided by the Contractor for this project shall be stabilized in a sufficient manner to prevent the temporary structure from being overturned by wind forces as defined in the National Building Code (NBC). The stabilization provided shall be designed by a Professional Engineer registered in the Province of Manitoba. Detailed drawings and design notes for the stabilization works bearing the Engineer's seal shall be provided to the Contract Administrator for review.

.6 The Contractor shall be responsible for installation, maintenance, removal, operating costs, and service installation costs for the field office as described herein.

1.8 LAYDOWN AND STORAGE

.1 All construction materials shall be stored at designated storage areas. Stored combustible materials shall be separated by clear space to prevent fire spread and allow access for manual fire fighting equipment, including fire hoses, extinguishers, hydrants, etc.

.2 Pressurized dry chemical fire extinguishers of suitable capacity or equally effective extinguishers as per NFPA 10 shall be provided where:

.1 Flammable liquids are stored or handled.

.2 Welding or flame cutting is performed.

1.9 DISPOSAL OF WASTE MATERIALS

.1 Spoiled and waste materials shall not be dumped, under any circumstances, in any locations other than those approved by the local authorities. Any cost for permits and fees for disposing of waste materials shall be at the Contractor's expense.

.2 Disposal of all excavated and waste materials shall be in accordance with the requirements of the appropriate provincial regulatory agencies.

.3 When working anywhere within the Works the Contractor shall at the end of each working day remove the rubbish and leave the Site in a clean and tidy state, to the satisfaction of the Contract Administrator. If this is not done, the City will clean the Site and charge the Contractor.

1.10 FACILITY ELECTRICAL SUPPLY AND DISTRIBUTION

.1 If service interruptions are necessary, such interruptions shall be made only at times approved by the Contract Administrator.

1.11 WARNINGS AND TRAFFIC SIGNS

.1 When Work is performed within public areas, provide and erect adequate warning signs as necessary to give proper warning. Place signs sufficiently in advance to enable public to respond to directions.

1.12 Provide and maintain signs and other devices required to indicate construction activities or other temporary or unusual conditions resulting from the Work.

Part 2 Products

.1 Not Used.

Part 3 Execution

.1 Not Used.

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.2 HOARDING

.1 Provide hoarding and ventilation for the building as required to maintain operation of the pumping station.

1.3 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs, and any other fall hazards

.2 Provide as required by governing authorities.

1.4 WEATHER ENCLOSURES

.1 Provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs.

.2 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work for temporary heat.

.3 Design enclosures to withstand wind pressure and snow loading.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Conform to reference standards, in whole or in part as specifically requested in specifications.

.2 If there is question as to whether products or systems are in conformance with applicable standards, the Contract Administrator reserves the right to have such products or systems tested to prove or disprove conformance.

.3 Cost for such testing will be born by the City in event of conformance with Contract Documents or by the Contractor in event of non-conformance.

1.2 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection. Should disputes arise as to quality or fitness of products, decision rests strictly with the Contract Administrator based upon requirements of Contract Documents.

.3 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

1.3 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify the Contract Administrator of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In event of failure to notify the Contract Administrator at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Contract Administrator reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.4 METRIC PROJECT

.1 Unless otherwise noted, this project has been designed and is to be constructed in the International System (SI) of Units metric system of measurements.

.2 During construction, when specified metric elements are unattainable at the time they are required to meet the construction schedule, the Contractor shall notify the Contract

Administrator in writing and suggest alternative substitutions. Costs due to these substitutions shall be borne by the Contractor.

1.5 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber and similar products on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of the Contract Administrator.

.9 Touch-up damaged factory finished surfaces to Contract Administrator’s satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.6 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

1.7 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 Notify the Contract Administrator in writing, of conflicts between specifications and manufacturer's instructions, so that the Contract Administrator will establish the course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Contract Administrator to require removal and re-installation at no increase in Contract Price or Contract Time.

1.8 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.9 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.10 PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of the Contract Administrator.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 WORKMANSHIP

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify the Contract Administrator if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. The Contract Administrator reserves the right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with the Contract Administrator, whose decision is final.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit written request in advance of cutting or alteration which affects:

- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of operational elements.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of the City or separate contractor.

.3 Include in request:

- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of the City or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.2 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.3 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

.1 Remove and replace defective and non-conforming Work.

.2 Provide openings in non-structural elements of Work for penetrations of electrical Work.

.3 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.4 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.

.5 Restore work with new products in accordance with requirements of Contract Documents.

.6 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.7 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with approved fire stopping material, full thickness of the construction element.

.8 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the City or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by the Contract Administrator. Do not burn waste materials on site.

.3 Clear snow and ice from access to building, bank/pile snow in designated areas only.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site containers for collection of waste materials and debris.

.6 Dispose of waste materials and debris off site.

.7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.11 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SUBMITTALS

.1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.

.2 Copy will be returned after final inspection, with Contract Administrator's comments.

.3 Revise content of documents as required prior to final submittal.

.4 Furnish evidence, if requested, for type, source and quality of products provided.

.5 Pay costs of transportation.

1.2 OPERATING AND MAINTENANCE MANUALS

.1 Prepare using personnel experienced in maintenance and operation of described products.

.2 Operation and maintenance instructions and technical data to be sufficiently detailed with respect to design elements, construction features, component function, correct installation procedure and maintenance requirements, to permit effective start-up, operation, maintenance, repair, modification, extension and expansion of any portion or feature of installation. Technical data to be in form of approved shop drawings, product data, supplemented by bulletins, component illustrations, exploded views, technical descriptions of items, and parts lists.

.3 Three (3) advance copies of the manuals shall be submitted prior to Substantial Performance of the Work for review and comments. After review, five (5) copies of the final manuals shall be submitted.

.4 For the guidance of the City's operating and maintenance personnel, the Contractor shall prepare O&M Manuals for the Work, describing in detail the construction of each part of the Work and the recommended procedure for operation, servicing and maintenance.

.5 All instructions in these manuals shall be in simple language to guide the City in the proper operating and maintenance of this installation.

.6 In addition to information called for in the Specifications, include the following:

- .1 Overall Title sheet, labelled "Operation and Maintenance Instructions", and containing project name and date, components covered in the manual, City's Contract number, the name and address of the Contractor, and the issue date.
- .2 Overall list of contents, indicating the facilities upgraded by the project.
- .3 Title sheet for each section, labelled "Operation and Maintenance Instructions", the applicable facility, and containing project name and date.
- .4 List of contents for each section.
- .5 Include:
  - .1 Brochures/catalogue excerpts of all components of the Work.
  - .2 Documentation of all test results.
  - .3 Complete set of equipment and assembly drawings

.4 Installation, start-up, O&M Manuals

.5 Any specific requirements from the Specifications

.6 Reviewed Shop Drawings of all equipment.

.7 Include sections for the record drawings of all installations. Drafted record drawings of size 432x279mm (11 x 17") will be inserted by the Contract Administrator, based on the record drawings marked up by the Contractor.

.8 Names, addresses, and telephone numbers of all major sub-contractors and suppliers.

.7 Modify and supplement the manual as required by the Contract Administrator.

.8 Format to be as follows:

.1 Organize data as instructional manual.

.2 Binders: vinyl, hard covered, 3 'D' ring, with spine and face pockets.

.3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

.9 Prototype for O&M Manual organization as follows. Utilize as the basis for developing the O&M manuals, but not that the below is not necessarily comprehensive.

.1 Structural / Architectural Binder

Table of Contents

.1 Supplier Index

.2 Permit and Inspection Certificate

.3 Shop Drawings and Product Data

.4 Other data as applicable

.2 Process Mechanical Binder

Table of Contents

.1 Supplier Index

.2 Shop Drawings, Product Data, Installation & User Manuals (as applicable)

.3 Other data as applicable

.3 HVAC Mechanical Binder

Table of Contents

.1 Supplier Index

.2 Permit and Inspection Certificate

.3 Shop Drawings, Product Data, Installation & User Manuals (as applicable)

.1 23 33 15 Dampers

.2 23 34 00 HVAC Fans

.3 Etc.

.4 Other data as applicable

.4 Electrical Binder

Table of Contents

.1 Supplier Index

.2 Permit and Inspection Certificate

.3 Shop Drawings, Product Data, Installation & User Manuals (as applicable)

.1 26 05 21 Wires and Cables

.2 26 05 31 Splitters, Junction, Pull Boxes And Cabinets

.3 26 05 32 Outlet Boxes, Conduit Boxes, and Fittings

.4 26 24 17 Panelboards – Breaker Type

.5 26 28 21 Moulded Case Circuit Breakers

.6 Etc.

.4 Commissioning Forms (typed)

.5 Other data as applicable

.5 Automation Binder

Table of Contents

.1 Supplier Index

.2 Permit and Inspection Certificate

.3 Shop Drawings, Product Data, Installation & User Manuals (as applicable)

.1 40 91 00 Primary Process Measurement Devices

.2 40 92 00 Primary Process Control Devices

.3 40 95 13 Control Panels

.4 40 95 20 Human Machine Interface

.5 Etc.

.4 Commissioning Forms (typed)

.5 Functional Requirements Specification

.6 PLC / RTU Program – Sealed by Professional Engineer

.7 HMI Program – Sealed by Professional Engineer

.8 Operator Training Manual

.9 Other data as applicable

1.3 AS-BUILT DRAWINGS

.1 After award of Contract, the Contract Administrator will provide a complete set of Drawings for the purpose of maintaining Project As-Built Drawings. Accurately record deviations from Contract Documents caused by Site conditions and changes ordered by the Contract Administrator. Update daily.

.2 Identify Drawings as "Project As-Built Copy". Maintain in good condition and make available for inspection on-site by Contract Administrator at all times.

.3 On completion of each facility, submit As-Built Drawings to Contract Administrator for review.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Concrete pavement and sidewalks.

1.2 REFERENCE STANDARDS

.1 City of Winnipeg (CW)

- .1 CW3110 – Sub-Grade, Sub-Base and Base Course Construction.
- .2 CW3170 – Earthwork and Grading.
- .3 CW3310 – Portland Cement Concrete Works.
- .4 CW3235 – Renewal of Existing Miscellaneous Concrete Slabs.
- .5 SD207 – Concrete Pavement Widening.
- .6 SD213A – Typical Full Depth Patches.
- .7 SD217 – Placement of Steel.
- .8 SD218A – typical Joint Details.
- .9 SD220A – Manhole Isolation Detail.
- .10 SD228A – Concrete Sidewalk.
- .11 SD228C – Miscellaneous Isolations.
- .12 SD243 – Sodding Details

.2 American Society for Testing and Materials (ASTM)

- .1 ASTM A615/A515M, Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- .2 ASTM C33, Specification for Concrete Aggregates.
- .3 ASTM C150, Specification for Portland Cement.
- .4 ASTM C260, Specification for Air-Entraining Admixtures for Concrete.
- .5 ASTM C330, Specification for Lightweight Aggregates for Structural Concrete.
- .6 ASTM D698, Test Method for Laboratory Compaction Characteristics of Soils Using Standard Effort 600 kN-m/m^3.
- .7 ASTM D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort 2,700 kNm/m^3.

.3 Canadian Standards Association:

- .1 CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.

1.3 SUBMITTALS

.1 Shop Drawings

- .1 Submit placing drawings prepared in accordance with plans to clearly show size, shape, location and all necessary details of reinforcing.

Part 2 Products

2.1 MATERIALS

.1 Portland cement: to CAN/CSA-A3000-A5, Type HS or HSb.

.2 Reinforcing bars: to CAN/CSA-G30.18, Grade 400.

.3 Premoulded joint filler:

.1 Bituminous impregnated fibreboard: to ASTM D1751.

.4 Joint sealer/filler: to CAN/CGSB-19.24, Type 1, Class B.

.5 Sealer: proprietary poly-siloxane resin blend.

.6 Other concrete materials: to CAN/CSA-A23.1.

.7 Void Form: Frost Cushion as manufactured by Beaver Plastics.

2.2 MIXES

.1 Proportion concrete in accordance with CAN/CSA-A23.1 and CW 2160.

.2 Concrete: concrete design shall be in accordance with performance specification and shall have the following properties:Cement:

.1 Type HS or HSb.
.2 Minimum Compressive Strength @ 28 days: 35 MPa
.3 Slump: 80 mm
.4 Air Content: 5%
.5 Maximum Water/Cement Ratio = 0.45

.3 Class of exposure: S-2 to CAN/CSA-A23.1.

.4 Nominal maximum size of coarse aggregate: 20mm and to CAN/CSA-A23.1.

.5 Air content: concrete to contain purposely entrained air in accordance with CAN/CSA-A23.1.

.6 Admixtures: to CAN/CSA-A23.1.

.7 Grout: Sika Grout 212 or approved equal in accordance with B6.

.8 Lean-Mix Concrete: Lean mix concrete design shall be in accordance with performance specification and shall have the following properties:Cement:

.1 Type HS or HSb.
.2 Minimum Compressive Strength @ 28 days: 15 MPa
.3 Slump: 80 mm
.4 Air Content: nil
.5 Maximum Water/Cement Ratio = 0.49

.9 Bonding Agent: ACRYL-STIX or approved equal in accordance with B6.

Part 3 Execution

3.1 PREPARATION

.1 Prepare pavement subgrade, sub-base, and base course in accordance with CW3110 and Section 31 23 10 – Excavating, trenching, And Backfilling.

3.2 CONCRETE SLAB REMOVAL

.1 Remove miscellaneous existing concrete slabs at locations as shown on the Drawings, as required for construction, or as directed by the Contract Administrator.

.2 Saw-cut the concrete slab full depth at the designated removal limits.

.3 Ensure the removal methods do not chip, damage or undercut the adjacent slabs to remain.

.4 Resaw-cut chipped, damaged or undercut slabs beyond the removal limits as directed by the Contract Administrator.

.5 Break the concrete slab around existing curb stops and water valves by hand methods prior to the slab removal.

.6 Dispose of removed material as per the following:

.1 Haul and dispose of waste material excavated from the Site including surplus, suitable, unsuitable and other material removed in accordance with the Specifications to a disposal location approved by the Contract Administrator.

.2 The City reserves the right to direct material to be hauled to a local site indicated in the Specifications.

.3 Clean up material dropped or spilled during hauling operations as directed by the Contract Administrator.

3.3 INSTALLATION - CONCRETE PAVEMENT

.1 Install miscellaneous concrete slabs at the locations as shown on the Drawings or as directed by the Contract Administrator.

.2 Excavate only material immediately behind slabs that is required for installations to a maximum distance of 150 mm.

.3 Install new reinforcing steel as per The City of Winnipeg Standard Details. Provide a minimum of 40 mm cover between reinforcing steel and the finished concrete surface.

.4 Adjust existing catchbasins, manholes, water valves, hydrants, curb stops and other appurtenances in accordance with CW 3210.

.5 Compact existing sub-grade and place base course material as required to a maximum thickness 50 millimetres in accordance with CW 3110 and Section 31 23 10 - Excavating, Trenching, And Backfilling.

.6 Place additional sub-base and base course material in accordance with CW 3110 and Section 31 23 10 - Excavating, trenching, And Backfilling as directed by the Contract Administrator.

.7 Install 12 millimetre fibre joint bond breaker between concrete slab and building foundations in accordance with Clause 5.4.3 a) of CW 3310. Install bond breaker to a depth equal to the concrete slab, flush with the finished grade.

.8 Place concrete in accordance with CW 3310 and Section 03 05 10 – Cast-in-place Concrete.

.9 Place and compact suitable backfill materials behind the slabs as per Section 31 23 10 – Excavating, Trenching And Backfilling and to the satisfaction of the Contract Administrator.

.10 Moisten base to minimize absorption of water from fresh concrete.

.11 Coat surfaces of manhole frames with oil to prevent bond with concrete pavement.

.12 Place and secure forms to correct location, dimension, profile, and gradient.

.13 Place joint filler vertical in position, in straight lines at perimeter of pavement. Secure to formwork during concrete placement.

.14 Place reinforcement at mid-height.

.15 Interrupt reinforcement at expansion/control joints.

.16 Place concrete to CSA A23.1/A23.2 and CoW standards.

.17 Place concrete pavement to a single thickness.

.18 Place contraction joints to match existing.

.19 Pavement Finish: to match adjacent existing.

.20 Place curing compound on exposed concrete surfaces.

.21 Maximum Variation of Surface Flatness: 6 mm in 3 m.

3.4 QUALITY CONTROL

.1 Inspection and testing of concrete and concrete materials will be in accordance with CSA A23.1 and carried out by a Testing Laboratory designated by the Contract Administrator. Quality control tests for concrete will be used to determine the acceptability of the concrete supplied.

.2 Provide without charge samples of concrete and constituent materials required for quality control tests and provide assistance and use of tools and construction equipment as is required.

.3 The frequency and number of concrete quality control tests will be in accordance with the requirements of CSA A23.1.

.4 Non-destructive methods for testing concrete will be in accordance with CSA A23.2.

.5 An outline of the quality control testing is as follows.

.1 Samples of concrete for test specimens will be taken in accordance with CSA A23.2-1C.

.2 Slump tests will be performed in accordance with A23.2-5C. If measured slump falls outside limits specified a second test will be made. In the event of a second failure the Contract Administrator reserves right to refuse the batch of concrete represented.

.6 Non-destructive methods for testing concrete will be in accordance with CSA A23.2. Air content test will be performed in accordance with CSA A23.2-4C. If measured air content falls outside limits specified in Table CW 2160.1 a second test will be made at any time within the specified discharge time limit for the mix. In the event of a second failure the Contract Administrator reserves the right to reject the batch of concrete represented.

.7 Compressive strength test specimens will taken in accordance with CSA A23.2-3C.

.8 Compressive strength tests at 28 days will be the basis for acceptance of all concrete supplied. For each 28 day test the strength of two companion standard-cured test specimens will be determined in accordance with CSA A23.2-9C. Test result will be the average strength of both specimens.

.9 Field Inspection: A minimum of twenty-four (24) hours notice shall be given to the Contract Administrator prior to the pouring of any concrete to allow for observation of reinforcing steel.

END OF SECTION