

Part 1 General

1.1 SUMMARY

- .1 Removal of concrete storm sewer pipes classified as Asbestos Containing Materials (ACM).
- .2 Provide all labour, materials and equipment to remove the concrete storm sewer pipe, classified as ACM, with minimal breakage, and without using power hand tools to drill, grind, cut, or vibrate.

1.2 RELATED REQUIREMENTS

- .1 Section 02 41 13 – Selective Site Demolition.

1.3 REFERENCES

- .1 Definitions
 - .1 Asbestos Containing Material (ACMs) means material that contains 0.5 per cent or more asbestos by dry weight.
 - .2 Asbestos Work Area: area where work takes place which will, or may disturb ACMs.
 - .3 Authorized Visitors: Engineer/Consultants, or designated representatives, and representatives of regulatory agencies.
 - .4 Competent worker: in relation to specific work, means a worker who:
 - .1 Is qualified because of knowledge, training and experience to perform the work.
 - .2 Is familiar with the Provincial and Federal laws and with the provisions of the regulations that apply to the work.
 - .3 Has knowledge of all potential or actual danger to health or safety in the work.
 - .5 Friable Materials: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.
 - .6 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any dimension at 99.97% efficiency.
 - .7 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .2 Regulations, Standards and Guidelines
 - .1 O.Reg. 278/05, Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations.
 - .2 A Guide to the Regulations respecting Asbestos on Construction Projects and in Buildings and Repair Operations released in November 2007, <http://www.labour.gov.on.ca/english/hs/pubs/asbestos/index.php>.

- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
- .4 Material Safety Data Sheets (MSDS).
- .5 R.R.O. 1990, Reg. 347: General- Waste Management, Environmental Protection Act.
- .6 Transportation of Dangerous Goods Act, 1992 (S.C. 1992, c. 34), Transport Canada.

1.4 DOCUMENTS

- .1 *Storm Sewer Asbestos Assessment Report*; File: 10-10175, dated January 14, 2016 by Parsons Inc.

1.5 SUBMITTALS

- .1 Proof that all contractor employees and sub-trades involved on the project are aware of the presence of the ACM.
- .2 Proof that every person (s) working in a Type 1 or Type 2 abatement operation possess the appropriate instruction and training as outlined in Section 19 of O.Reg 278/05, which deals with *Asbestos on Construction Projects and in Buildings and Repair Operations* under the Occupational Health and Safety Act.
- .3 Proof of Contractor's Asbestos Liability Insurance.
- .4 Submit necessary permits for transportation and disposal of asbestos containing waste and proof that asbestos containing waste has been received and properly disposed.
- .5 Name and location of the approved asbestos disposal facility registered by the Ontario Ministry of the Environment and Climate Change.
- .6 Proof that the contractor remains in good standing with the WSIB.
- .7 The contractor shall be responsible for the health and safety of their personnel. At least one member of the work crew will be First-Aid certified.
- .8 Proof that employees using respirators have satisfactory respirator fitting and testing.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Undertake a Type 1 abatement operation to remove the asbestos containing storm sewer pipes located in the parking lot of the site. The pipe may be removed in whole pieces by using non-powered hand tools if the material is wetted to control the spread of dust fibres. If the pieces must be cut using non-powered hand tools and the material is not wetted to control dust fibres, then Type 2 procedures apply. A type 2 abatement operation also applies if powered tools are used to cut the material and the tools are attached to dust collecting devices equipped with HEPA filters. The contractor shall follow the measures and procedures for the applicable Type 1 or Type 2 operations outlined in O.Reg 278/05.

1.7 DISPOSAL

- .1 All disposal containers will be air-tight and puncture resistant. Appropriate labeling, which identifies the waste as asbestos-containing, shall be placed in the disposal containers. The containers are to be kept closed and locked when not in use.
- .2 The contractor must dispose of the asbestos-containing pipes at a licensed disposal facility. The contractor shall notify the landfill prior to disposing of the piping and must provide the consultant with the information (i.e., Name of landfill and address) of the disposal facility.

1.8 SCHEDULING

- .1 Hours of Work: assume all work will be done during normal business hours.

1.9 QUALITY ASSURANCE

- .1 For the removal of asbestos-containing storm pipes, the contractor shall comply with all relevant federal, provincial and municipal statutes, regulations, and, without limiting the foregoing, shall comply with all regulations made under the Occupational Health and Safety Act.
- .2 Healthy and Safety: worker protection
 - .1 The contractor must provide all necessary personal protective equipment during the asbestos removal in accordance with Type 1 or Type 2 abatement operations under O.Reg 278/05.
- .3 Eating, drinking, chewing, and smoking are not permitted in the Asbestos Work Area.

Part 2 Products

2.1 MATERIALS

- .1 All disposal containers will be air-tight and puncture resistant. Appropriate labeling, which identifies the waste as asbestos-containing, shall be placed in the disposal containers. The containers are to be kept closed and locked when not in use.

Part 3 Execution

3.1 SUPERVISION

- .1 One member of the work crew will be First-Aid certified.
- .2 Every person (s) working in a Type 1 or Type 2 abatement operation possess the appropriate instruction and training as outlined in Section 19 of O.Reg 278/05, which deals with *Asbestos on Construction Projects and in Buildings and Repair Operations* under the Occupational Health and Safety Act.

3.2 PROCEDURE

- .1 Undertake construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .2 Type 1 Operation: the pipe may be removed in whole pieces by using non-powered hand tools if the material is wetted to control the spread of dust fibres.
- .3 Type 2 Operation: the pieces may be cut using non-powered hand tools if the material is not wetted to control dust fibres. It also applies if powered tools are used to cut the material and the tools are attached to dust collecting devices equipped with HEPA filters.
- .4 Cleanup:
 - .1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.
 - .2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.
 - .3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.
 - .4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal authority having jurisdiction.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Project Supplementary Conditions

1.2 CASH ALLOWANCES

- .1 Include in Contract Price specified cash allowances.
- .2 Cash allowances, unless otherwise specified, cover net cost to Sub-contractor of services, products, construction machinery and equipment, freight, handling, unloading, storage installation and other authorized expenses incurred in performing Work.
- .3 Contract Price, and not cash allowance, includes Sub-contractor's overhead and profit in connection with such cash allowance.
- .4 Contract Price will be adjusted by written order to provide for excess or deficit to each cash allowance.
- .5 Where costs under a cash allowance exceed amount of allowance, Sub-contractor will be compensated for excess incurred and substantiated plus allowance for overhead and profit as set out in Contract Documents.
- .6 Include progress payments on accounts of work authorized under cash allowances in Departmental Representatives monthly certificate for payment.
- .7 Prepare schedule jointly with Departmental Representative and Sub-contractor to show when items called for under cash allowances must be authorized by Departmental Representative for ordering purposes so that progress of Work will not be delayed.
- .8 Amount of allowance for replacement of pole mounted Hydro Ottawa Limited transformer:
 - .1 Include allowance of \$3600.00 for purchase of and installation of pole mounted Hydro Ottawa Limited transformer and installation of secondary cables.

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 RELATED REQUIREMENTS

- .1 Section 26 05 00 - Common Work Results for Electrical.
- .2 Section 26 05 20 - Wire and Box Connectors (0-1000V).
- .3 Section 26 05 21 - Wires and Cables (0-1000V).
- .4 Section 26 24 16.01 - Panelboards Breaker Type.
- .5 Section 26 28 16.02 - Moulded Case Circuit Breakers.
- .6 Section 26 28 18 - Ground Fault Equipment Protection.
- .7 Section 26 29 01 - Contactors.
- .8 Section 26 56 19 - Roadway Lighting.

1.2 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. 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.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. 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.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

1.3 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 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 3 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 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 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.

- .9 Single line and schematic diagrams.
- .10 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit one electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit 1 electronic copy of product data sheet or brochure for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit 1 electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .13 Submit 1 electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .14 Submit 1 electronic copy of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit 1 electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .16 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit 1 electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
- .20 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copy will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

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 RELATED REQUIREMENTS

- .1 Section 10 14 53 – Traffic Signage.
- .2 Section 32 11 16.01 - Granular Sub-Base.
- .3 Section 32 11 23 - Aggregate Base Courses.
- .4 Section 32 12 16 - Asphalt Paving.

1.2 REFERENCES

- .1 Ministry of Transportation, Ontario (MTO)
 - .1 Ontario Traffic Manual, Book 7: Temporary Conditions - 01.

1.3 PROTECTION OF PUBLIC TRAFFIC

- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 When working on travelled way:
 - .1 Place equipment in position to minimize interference and hazard to travelling public.
 - .2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
 - .3 Do not leave equipment on travelled way overnight.
- .3 Close lanes of road only after receipt of written approval from Departmental Representative.
 - .1 Before re-routing traffic erect suitable signs and devices to Ontario Traffic Manual, Book 7: Temporary Conditions.
- .4 Keep travelled way graded, free from pot holes and of sufficient width for required number of lanes of traffic.
 - .1 Provide 7 m wide minimum temporary roadway for traffic in two-way sections through Work and on detours.
 - .2 Provide 5 m wide minimum temporary roadway for traffic in one-way sections through Work and on detours.
- .5 Provide gravelled detours or temporary roads as directed by Departmental Representative to facilitate passage of traffic around restricted construction area:
 - .1 Place and compact granular sub-base in accordance with Section 32 11 16.01 - Granular Sub-Base.
 - .2 Place and compact granular base in accordance with Section 32 11 23 - Aggregate Base Courses.
 - .3 Place and compact asphalt concrete pavement in accordance with Section 32 12 16 - Asphalt Paving.

- .6 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, except where other means of road access exist that meet approval of Departmental Representative.

1.4 INFORMATIONAL AND WARNING DEVICES

- .1 Provide and maintain signs and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.
- .2 Supply and erect signs, delineators, barricades and miscellaneous warning devices to Ontario Traffic Manual, Book 7: Temporary Conditions.
- .3 Place signs and other devices in locations recommended in Ontario Traffic Manual, Book 7: Temporary Conditions.
- .4 Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Departmental Representative.
- .5 Continually maintain traffic control devices in use:
 - .1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Remove or cover signs which do not apply to conditions existing from day to day.
- .6 Provide bilingual signage for all signs during construction.

1.5 CONTROL OF PUBLIC TRAFFIC

- .1 Provide competent flag personnel, trained in accordance with, and properly equipped to Ontario Traffic Manual, Book 7: Temporary Conditions for situations as follows:
 - .1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
 - .2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
 - .3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .5 For emergency protection when other traffic control devices are not readily available.
 - .6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
 - .7 At each end of restricted sections where pilot cars are required.
 - .8 Delays to public traffic due to contractor's operators: 15 minutes maximum.
- .2 Where roadway, carrying two-way traffic, is restricted to one lane, for 24 hours each day, provide portable traffic signal system.

- .1 Adjust, as necessary, and regularly maintain system during period of restriction.
- .2 Ensure signal system meets requirements of Ontario Traffic Manual, Book 7: Temporary Conditions.
- .3 Construction Traffic Control Signage
 - .1 Supply, locate, relocate, erect, operate and maintain construction traffic control signs to the Manual.
 - .2 Place signs prior to work affecting traffic begins.
 - .3 Maintain operation signage throughout the duration of the works including periods of shutdown.
 - .4 Remove temporary construction signage upon completion of operation.

1.6 OPERATIONAL REQUIREMENTS

- .1 Maintain existing conditions for traffic throughout period of contract except that, when required for construction under contract and when measures have been taken as specified and approved by Departmental Representative to protect and control public traffic.
- .2 Maintain existing conditions for traffic crossing right-of-way.
- .3 Keep operational existing signs removed by the Contractor to accommodate construction. Place a temporary support and reinstated as per Section 10 14 53 - Traffic Signage.

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 RELATED REQUIREMENTS

- .1 Section 31 11 00 - Clearing and Grubbing.
- .2 Section 31 14 13 - Soil Stripping and Stockpiling.

1.2 PREPARATION

- .1 Temporary Erosion and Sedimentation Control:
 - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control drawings.
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

1.3 SEQUENCING AND STAGING

- .1 Complete Road D to the satisfaction of the Departmental Representative prior to any work taking place on Road C or the rear parking lot.
- .2 Keep one of the following areas unobstructed by construction activities and allowed to operate under normal conditions at all times:
 - .1 Shipping and receiving areas for normal business/operations are located in Building 201; and the Central Heating Plant (CHP).
 - .2 At least one of these areas must be unobstructed by construction activities and allowed to operate under normal conditions at all times. These areas shall not be affected by active construction zones concurrently.
- .3 During construction of rear parking lot, potential alternate delivery location could be front entrance to Building 201. Confirm with Departmental Representative prior to rear parking lot construction and make necessary arrangements.
- .4 No construction activity shall take place on Road C while work is being performed on rear parking lot.
- .5 No construction activity in or around Building 141 shall take place while work is being performed on rear parking lot.
- .6 Use main parking lot as primary alternate parking area while work is performed on rear parking lot.
- .7 Alternate parking areas on grassed or other pervious surfaces is not permitted during rainy or wet conditions. Install signage as necessary to inform motorists.
- .8 Building sump pumps discharge to the storm sewer. Heavy flow rate and volumes should be expected and accounted for in the spring. The pumps are active year round.
- .9 Provide temporary signage and traffic control during construction.

- .10 Outlet works at locations A, B, and C, as indicated on Sequencing and Staging drawing, shall not be performed earlier than July 1st and must be complete by October 1st.
- .11 Schedule such that at least one of the two lanes/gates at the Guard House is operational at all times during work performed as part of guard house electrical upgrades and replacement of in slab heat tracing system. At no time shall both lanes be temporarily closed for construction purpose. The only exception shall be after 6PM, before 6AM and with at least 48hrs advanced notice to Departmental Representative.
- .12 Road B is divided into north and south components, as indicated on plan. Construction shall not be permitted simultaneously. Complete work for one component, prior to completing work on the next component, regardless of the order (i.e. north then south or south then north, but not concurrently).
- .13 Store vehicles, equipment, and materials away from preserved trees to prevent soil compaction and vehicle tracking.

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 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Province of Ontario
 - .1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.0.1, as amended and O. Reg. 213/91 as amended - Updated 2016.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation.
- .2 Submit copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative.
- .3 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.
- .6 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .7 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .8 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.3 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.4 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

1.5 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.6 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with all regulatory requirements from the authorities having jurisdiction.

1.7 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.8 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Contractor will be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.

1.9 COMPLIANCE REQUIREMENTS

- .1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990, c. 0.1 and Ontario Regulations for Construction Projects, O. Reg. 213/91.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.10 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety co-ordinator and follow procedures in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.11 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have working knowledge of occupational safety and health regulations.
 - .2 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .3 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .4 Be on site during execution of Work.

1.12 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Departmental Representative.

1.13 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.14 BLASTING

- .1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Departmental Representative.

1.15 POWDER ACTUATED DEVICES

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

1.16 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

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 OVERVIEW

- .1 The Contractor acknowledges that certain standard detail drawings, which are provisions of this Contract, have not been reproduced for inclusion in the Contract Documents. These standard drawings are listed in subsections 1.2.1.
- .2 Only the municipal and provincial common standards on OPS Volumes 1 to 4 and the municipal-oriented specifications in OPS volumes 7 and 8 apply to this Contract, unless specified otherwise in the Contract Documents.
- .3 The Contractor shall obtain its own copy of the standard detail drawings from the most recent version of the Standard Tender Documents Vol. #2: Material Specifications and Standard Detail Drawing.
- .4 The Contractor acknowledges that certain standard specifications, which are provisions of this Contract, have not been reproduced for inclusion in the Contract Documents. These standard specifications are listed in subsections 1.2.2.
- .5 The Contractor acknowledges that the standard specifications referred to in subsections 1.2.2 are the Ontario Provincial Standard Specifications (OPSS) as produced and amended by the government of the Province of Ontario.
- .6 Only the municipal and provincial common standards on OPS Volumes 1 to 4 and the municipal-oriented specifications in OPS volumes 7 and 8 to this Contract, unless specified otherwise in the Contract Documents.

1.2 RELATED REQUIREMENTS

- .1 Section 02 41 13.14 - Asphalt Paving Removal.
- .2 Section 31 22 13 - Rough Grading.
- .3 Section 32 11 16.01 - Granular Sub-Base.
- .4 Section 32 11 23 - Aggregate Base Courses.
- .5 Section 32 12 16 - Asphalt Paving.
- .6 Section 32 15 60 - Roadway Dust Control.
- .7 Section 32 16 15 - Concrete Walks, Curbs and Gutters.
- .8 Section 33 05 16 - Maintenance Holes, Catch Basin Structures, and Valve Boxes.
- .9 Section 33 41 00 - Storm Utility Drainage Piping.

1.3 REFERENCES

- .1 The Ontario Provincial Standard Drawings (OPSD) which are provisions of this Contract are: (<http://www.ops.on.ca/>)
 - .1 Division 200 – Grading
 - .1 OPSD 219.110 – Light Duty Silt Fence Barrier.
 - .2 OPSD 219.211 – Temporary Flow Check Dam.

- .3 OPSD 219.220 – Sediment Trap in Ditch.
- .2 Division 300 – Entrances
 - .1 OPSD 310.010.
- .3 Division 400 – Frames and Grates / Covers
 - .1 OPSD 401.010.
 - .2 OPSD 400.010.
- .4 Division 600 – Curbs and Gutters
 - .1 OPSD 600.110.
 - .2 OPSD 608.010.
- .5 Division 700 – Catchbasins and Manholes (Maintenance Holes)
 - .1 OPSD 701.010.
 - .2 OPSD 701.012.
 - .3 OPSD 705.010.
- .6 Division 800 – Culverts and Drains
 - .1 OPSD 802.010.
 - .2 OPSD 802.030.

Note: OPSD references noted above and in the Specification Sections shall be the latest revision.

- .2 The Ontario Provincial Standard Specifications (OPSS) which are provisions of this Contract are:
 - .1 OPSS 201 – Construction Specification for Clearing, Close Cut Clearing, Grubbing, and Removal of Surface and Piled Boulders.
 - .2 OPSS.MUNI 206 – Construction Specification for Grading.
 - .3 OPSS 310 – Construction Specification for Hot Mix Asphalt.
 - .4 OPSS.MUNI 1010 –Material Specification for Aggregates – Base, Subbase, Select Subgrade and Backfill Material.
 - .5 OPSS.MUNI.330 – Construction Specification for In-Place Full Depth Reclamation of Bituminous Pavement and Underlying Granular.
 - .6 OPSS 351 – Construction Specification for Concrete Sidewalk.
 - .7 OPSS 353 – Construction Specification for Concrete Curb And Gutter Systems.
 - .8 OPSS 409 – Closed Circuit Television Inspection of Pipelines.
 - .9 OPSS 410 – Pipe Sewer Installation in Open Cut.
 - .10 OPSS 421 – Pipe Culvert Installation in Open Cut.
 - .11 OPSS.MUNI 501 – Specification for Compacting.
 - .12 OPSS 506 – Construction Specification for Dust Suppressants.
 - .13 OPSS.MUNI 510 – Construction Specification for Removal.
 - .14 OPSS 401– Construction Specification for Trenching, Backfilling, And Compacting.
 - .15 OPSS 710 – Construction Specification For Pavement Marking.
 - .16 OPSS 1001 – Material Specification for Aggregates – General.

- .17 OPSS.MUN 1010 – Material Specification for Aggregates – Base, Subbase, Select Subgrade and Backfill Material.
- .18 OPSS 1150 – Material Specification for Hot Mixed Asphalt.
- .19 OPSS 1350 – Material Specification for Concrete - Materials Production.
- .20 OPSS 1351 – Material Specification for Precast Reinforced Concrete Components for Maintenance Holes, Catch Basins, Ditch Inlets, and Valve Chambers.
- .21 OPSS 1359 – Material Specification for Unshrinkable Backfill.
- .22 OPSS 1850 – Material Specification for Frames, Grates, Covers and Gratings.
- .23 OPSS 1801 – Material Specification for Corrugated Steel Pipe (CSP) Products.
- .24 OPSS 1820 – Circular Concrete Pipe.
- .25 OPSS 1841 – Non-Pressure Polyvinyl Chloride (PVC) Pipe Products.

Note: OPSS references noted above and in the Specification Sections are in the OPSS Volume 1 and Volume 2 and shall be the latest revision.

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 RELATED REQUIREMENTS

- .1 Section 26 05 00 - Common Work Results for Electrical.
- .2 Section 26 28 18 - Ground Fault Equipment Protection.
- .3 Section 31 05 16 - Aggregate Materials.
- .4 Section 32 11 16.01 - Granular Sub-Base.
- .5 Section 32 11 23 - Aggregate Base Courses.
- .6 Section 32 12 16 - Asphalt Paving.
- .7 Section 32 16 15 - Concrete Walks, Curbs and Gutters.
- .8 Section 33 05 16 - Maintenance Holes, Catch Basin Structures and Valve Boxes.
- .9 Section 33 41 00 - Storm Utility Drainage Piping.

1.2 INSPECTION

- .1 Allow Departmental Representative 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 Departmental Representative, 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 Departmental Representative 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 correction.

1.3 INDEPENDENT INSPECTION AGENCIES

- .1 Unless specified within the individual section independent Inspection/Testing Agencies will be engaged by Contractor for purpose of inspecting and/or testing, and commissioning portions of Work. Cost of such services will be borne by Contractor.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not 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 Departmental Representative.

1.4 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.5 PROCEDURES

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 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 Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.

1.7 REPORTS

- .1 Submit 1 electronic copy of inspection and test reports to Departmental Representative.

1.8 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.
- .2 Cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.9 SYSTEMS

- .1 Submit adjustment and balancing reports for mechanical, electrical 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 RELATED REQUIREMENTS

- .1 Section 02 41 13.14 – Asphalt Paving Removal.
- .2 Section 31 11 00 – Clearing and Grubbing.
- .3 Section 31 14 13 – Soil Stripping and Stockpiling.
- .4 Section 31 23 33.01 – Excavating, Trenching, and Backfilling.
- .5 Section 32 11 16.01 – Granular Sub-Base.
- .6 Section 32 11 23 – Aggregate Base Courses.
- .7 Section 32 12 16 – Asphalt Paving.
- .8 Section 32 15 60 – Roadway Dust Control.
- .9 Section 32 91 19.13 – Topsoil Placement and Grading.
- .10 Section 32 93 10 – Trees, Shrubs, and Ground Cover Planting.
- .11 Section 33 41 00 – Storm Utility Drainage Piping.

1.2 REFERENCES

- .1 Ontario Provincial Standard Specifications (OPSS)
 - .1 OPSS 805 – Construction Specification for Temporary Erosion and Sediment Control Measures.

1.3 PREPARATION

- .1 Temporary Erosion and Sedimentation Control:
 - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control drawings.
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 APPLICATION

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control drawings.
- .2 Direct overland flow generated from runoff/precipitation within the site towards silt fence and/or straw bales (sediment removal treatment features).
- .3 Have an emergency spill plan and kit on site to prevent any contaminants from entering Black Rapids Creek. Submit Emergency spill plan as per Section 01 33 00 – Submittal Procedures.
- .4 Develop and implement an Emergency Response Plan in the event of a sediment release or spill of a deleterious substance. Submit Emergency Response Plan as per Section 01 33 00 – Submittal Procedures.
- .5 Install silt fence to prevent reptiles and amphibians from accessing the construction site.
- .6 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.2 INSPECTION AND MONITORING

- .1 Before commencing work submit a detailed temporary erosion and sedimentation control and monitoring plan as per section 01 33 00. Detail phasing steps for the installation of all control measures, inspection, monitoring and maintenance of all control measures during construction and phasing of the removal and disposal of the control measures.
- .2 Conduct daily visual survey for species during active seasons for turtles, reptiles, and amphibians (April 1 to October 30). Lift boards, rocks, materials, or equipment where possible before grading or grubbing in order to confirm species are no hiding.
- .3 Correct deficiencies immediately, re-inspect and document deficiency observed.
- .4 Inspect, monitor and maintain the effectiveness of the plan upon implementation and ensure proper function.
- .5 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

3.3 VEHICLES AND ROADS

- .1 Install mud mat at the entrance of construction site.
 - .1 Stone pad: minimum of 20 metres in length and the full width of the entrance.
 - .2 A minimum of 300 mm thick. Underlain pad with a geotextile (or graded aggregate filter), 50 mm diameter clear stone for the first 10 metres (extending from the street) and the remainder of the length to consist of 150 mm diameter clear stone.
 - .3 Sediment silt fencing installed along the edges of the access to prevent sediment from being washed away with runoff.
 - .4 Clean sediment from the public roads at the end of each day.

- .2 Wheel Washing: placed at the entranceway of the construction site. Wheel washing used in conjunction with the mud mat.
- .3 Designate an area within the working limits and 30 m away from any watercourse to be used exclusively for fuelling construction equipment.
- .4 Keep roads and walks free of dirt and debris.
- .5 Avoid unnecessary idling of vehicles.

3.4 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- .3 Clean out sediment deposits at all sediment devices.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 26 05 00 - Common Work Results for Electrical.

1.2 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

1.3 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.
- .3 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .4 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.4 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 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.5 TRANSPORTATION

- .1 Arrange and provide transportation of products required in performance of Work.

1.6 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 Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation.

1.7 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.8 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.

1.9 FASTENINGS - EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

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 Departmental Representative.

1.11 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

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, including that caused by Departmental Representative or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .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 Provide and use marked separate bins for recycling.
- .7 Dispose of waste materials and debris off site.
- .8 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.2 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Departmental Representative or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

- .7 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .8 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .9 Remove dirt and other disfiguration from exterior surfaces.
- .10 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .11 Sweep and wash clean paved areas.
- .12 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .13 Clean roofs, downspouts, and drainage systems.
- .14 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .15 Remove snow and ice from access to building.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling.

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 RELATED REQUIREMENTS

- .1 Section 26 05 00 - Common Work Results for Electrical.
- .2 Section 26 05 20 - Wire and Box Connectors (0-1000V).
- .3 Section 26 24 16.01 - Panelboards Breaker Type.
- .4 Section 26 28 18 - Ground Fault Equipment Protection.
- .5 Section 26 29 01 – Contactors.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with Departmental Representative to:
 - .1 Verify Project requirements.
 - .2 Review warranty requirements.
 - .2 Departmental Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.
 - .3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.
 - .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English and French.
- .3 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .4 Provide evidence, if requested, for type, source and quality of products supplied.

1.4 AS -BUILT DOCUMENTS

- .1 Maintain at site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.

- .4 Change Orders and other modifications to Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
 - .1 Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.5 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of drawings provided by Departmental Representative.
- .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

- .7 Provide digital photos, if requested, for site records.

1.6 FINAL SURVEY

- .1 Submit final site survey certificate in accordance with Section 01 33 00 – Submittal Procedures, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.7 EQUIPMENT AND SYSTEMS

- .1 For each item of equipment and each system include description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics and limiting conditions.
 - .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.
- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Include sequence of operation by controls manufacturer.
- .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .10 Provide installed control diagrams by controls manufacturer.
- .11 Provide Contractor's co-ordination drawings, with installed colour coded piping diagrams.
- .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .14 Include test and balancing reports as specified in Section 01 45 00 - Quality Control.
- .15 Additional requirements: as specified in individual specification sections.

1.8 MAINTENANCE MATERIALS

- .1 Spare Parts:

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site; place and store.
- .4 Receive and catalogue items.
 - .1 Submit inventory listing to Departmental Representative.
 - .2 Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.9 DELIVERY, STORAGE AND HANDLING

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and for review by Departmental Representative.

1.10 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, 30 days before planned pre-warranty conference, to Departmental Representative approval.
- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Except for items put into use with Departmental Representative's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .6 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .7 Written verification to follow oral instructions.
 - .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION