

Part 1 General

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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 TAXES

- .1 Pay all taxes properly levied by law (including Federal, Provincial and Municipal).

1.2 FEES, PERMITS AND CERTIFICATES

- .1 Pay all fees and obtain all permits. Provide authorities with plans and information for acceptance certificates. Provide inspection certificates as evidence that work conforms to requirements of Authority Having Jurisdiction.

1.3 REGULATORY REQUIREMENTS

- .1 References and Codes:
 - .1 Materials shall be new and work shall conform to the minimum applicable standards of the “References” indicated in the specification sections, the National Building Code of Canada 2015 (NBC) and all applicable Provincial and Municipal codes. In the case of conflict or discrepancy the most stringent requirement shall apply.
- .2 Building Smoking Environment:
 - .1 Obey smoking restrictions on building property.
- .3 Hazardous Material Discovery:
 - .1 Stop work immediately when material resembling spray or trowel-applied asbestos, Polychlorinated Biphenyl (PCB), mould or other designated substance is encountered during demolition work.
 - .1 Take preventative measure and promptly notify Departmental Representative.
 - .2 Do not proceed until written instructions have been received from Departmental Representative.

1.4 FIRE SAFETY REQUIREMENTS

- .1 Comply with both the National Building Code of Canada 2015 and the National Fire Code of Canada 2015 for safety of persons in buildings in the event of a fire and the protection of buildings from the effects of fire, as follows;
 - .1 The National Building Code (NBC): for fire safety and fire protection features that are required to be incorporated in a building during construction.
 - .1 The National Fire Code (NFC):
 - .1 The on-going maintenance and use of the fire safety and fire protection features incorporated in buildings.
 - .2 The conduct of activities that might cause fire hazards in and around buildings.

- .3 Limitations on hazardous contents in and around buildings.
 - .4 The establishment of fire safety plans.
 - .5 Fire safety at construction and demolition sites.
- .2 Comply with Human Resources and Skills Development Canada (HRSDC), Fire Commissioner of Canada Standards:
 - .1 FC 301, Standard for Construction Operations, June 1982 -Standards
 - .2 FC 302, Standard for Welding and Cutting, June 1982 -Standards
 - .3 FC 374, Fire Protection Standard for General Storage (Indoor and Outdoor), September 1994 - Standards
 - .4 Retain all fire safety documents and standards on site.
 - .3 Welding and cutting:
 - .1 Before welding, soldering, grinding and/or cutting work, obtain a permit from the Fire Prevention Unit as requested by the Departmental Representative. Store flammable liquids in approved CSA containers inspected by the Fire Prevention Unit. No open flame shall be used unless authorized by the Fire Prevention Unit.
 - .2 "Fire Watchers" as described in FC 302 shall be assigned when welding or cutting operations are carried out in areas where combustible materials within 10m may be ignited by conduction or radiation.

1.5 HAZARDOUS MATERIALS

- .1 Hazardous Materials: product, substance, or organism that may cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .2 Comply with the requirements of the Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and the provision of Material Safety Data Sheets (MSDS) acceptable to Human Resources and Skills Development Canada (HRSDC), Labour Program.

1.6 TEMPORARY UTILITIES

- .1 Existing services required for work, may be used by the Contractor without charge.
- .2 Ensure capacity is adequate prior to imposing additional loads. Connect and disconnect at own expense and responsibility.
- .3 Notify the Departmental Representative and utility companies of intended interruption of services and obtain requisite permission.
- .4 Give the Departmental Representative 48 hours notice related to each necessary interruption of any mechanical or electrical service throughout the course of the work. Keep duration of these interruptions to a minimum. Carry out all interruptions after normal working hours of the occupants, preferably on weekends.

1.7 CONSTRUCTION FACILITIES

- .1 Access Scaffold:
 - .1 Scaffolding: in accordance with CSA Z797-18 - Code of Practice for Access Scaffold.
 - .2 Provide design drawings, signed and sealed by qualified Professional Engineer licensed in the province of Ontario, where prescribed.
 - .3 Additions or modifications to scaffolding must be approved by Professional Engineer in writing.
- .2 Site Storage:
 - .1 The Departmental Representative will assign storage space that shall be equipped and maintained by the Contractor.
 - .2 Do not unreasonably encumber site with materials or equipment.
 - .3 Move stored products or equipment that interfere with operations of Departmental Representative or other Contractors.
 - .4 Obtain and pay for use of additional storage or work areas needed for operations.
 - .5 Do not load or permit to load any part of work with weight or force that will endanger work.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 Sanitary facilities: will be assigned for Contractor's personnel. Others shall not be used. Keep facilities clean.
- .5 Signage: Provide common-use signs related to traffic control, information, instruction, use of equipment, public safety devices, etcetera, in both official languages or by the use of commonly understood graphic symbols and to approval of the Departmental Representative.
 - .1 No advertising will be permitted on this project.
 - .2 The Departmental Representative will provide a sign describing the project for the information of building users. Locate sign as requested by Departmental Representative. and for protection of workers, finished areas of work and public.
 - .3 Maintain and relocate protection until such work is complete.
 - .4 Protect all furnishings within work area with 0.102 mm thick polyethylene film during construction. Remove film during non-construction hours and leave premises in clean, unencumbered and safe manner for normal daytime function.
 - .5 Maintain approved signs and notices in good condition for duration of project and dispose of off site, on completion of project or earlier, as requested by Departmental Representative.

1.8 TEMPORARY BARRIERS AND ENCLOSURES

- .1 Maintain existing services to building and provide for personnel and vehicle access.
- .2 Hoarding:
 - .1 Design, erect and maintain temporary site enclosure as required by Authority Having Jurisdiction.

- .3 Dust Control:
 - .1 Provide dust tight screens or partitions to localize dust-generating activities, Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .4 Protection:
 - .1 Protect work against damage until take-over.
 - .2 Protect adjacent work against the spread of dust and dirt beyond the work areas.
 - .3 Protect operatives and other users of site from all hazards.

1.9 COMMON PRODUCT REQUIREMENTS

- .1 Quality of Work:
 - .1 Carry out work using qualified licenced workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.
 - .2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licensed workers.
 - .3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.
- .2 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.
 - .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove packaging or bundling until required in work.
- .3 Manufacturer's Instructions: 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.

1.10 EXAMINATION AND PREPARATION

- .1 Examine site and conditions likely to affect work and be familiar and conversant with existing conditions.
- .2 Before commencing work, establish location and extent of services lines in area of work and notify Departmental Representative of findings.

1.11 EXECUTION

- .1 Cut, Patch and Make Good:
 - .1 Cut existing surfaces as required to accommodate new work.
 - .2 Remove all items so shown or specified.
 - .3 Patch and make good surfaces cut, damaged or disturbed, to Departmental Representative's approval. Match adjacent material, colour, finish and texture.

- .2 Unless otherwise specified, materials for removal become the Contractor's property and shall be taken from site.

1.12 SPECIAL REQUIREMENTS

- .1 Schedule Restrictions when Parliament is in Session (nominally September through June):
 - .1 Noise, odours, and structure borne vibrations will not be tolerated in occupied spaces during normal working hours.
 - .2 Paint interior public or occupied areas Monday to Friday from 21:00 to 06:00 hours only and on Saturdays, Sundays, and statutory holidays.
 - .3 When the House of Commons is in session, **<https://www.ourcommons.ca/en/sitting-calendar>** carry out Work in occupied spaces from 21:00 to 6:00 hours, and on Saturdays, Sundays and statutory holidays. This also includes the operation of air compressors, generators, and other similar equipment that may be audible within occupied spaces. When the House of Commons has late sittings, all work that creates a disturbance shall cease until at least one hour after the House has adjourned.
 - .4 When the House of Commons is in recess, noise and vibration generating work shall be performed between 21:00 to 6:00 hours, and on Saturdays, Sundays and statutory holidays.
 - .5 The Contractor shall cease all operations at the construction site each year during the following times at no cost to the Departmental Representative:
 - .1 Remembrance Day: November 11 from 10:45 to 11:15 hours.
 - .2 Canada Day: July 1 from 6:00 to July 2, 01:00 hours.
 - .6 In spite of compliance with the restrictions above, random interruptions caused by occupant requirements will occur due to the unpredictable nature of the schedule of Parliament. Assume 10 days of random interruptions in addition to the events specified in 1.12.1.5, for the period between May 1 and September 30, and an additional 30 days between October 1 and April 10.
- .2 Schedule Restrictions when Parliament is in recess (nominally between June and September):
 - .1 As per 1.12.1, except that noise generating work can be undertaken between 18:00 and 06:00 Monday to Friday, and any time Saturday, Sunday, and Statutory Holidays.
- .3 Abatement of designated substances must be done after providing 10 business days' notice to the Departmental Representative. Work can begin once the Departmental Representative has implemented mitigation measures. All abatement activities must be carried out Monday to Friday between 18:00 to 06:00 and on weekends if the work is non-disruptive. If it is disruptive it must be done between 21:00 and 06:00.
- .4 MSDS sheets to be provided by the contractor to the Departmental Representative 2 weeks prior to any work.
- .5 Schedule deliveries and removals of materials from 18:00 to 06:00 during the week or on Saturdays, Sundays and statutory holidays.

1.13 COST BREAKDOWN

- .1 Before submitting first progress claim, submit breakdown of Contract Amount in detail as directed by Departmental Representative and aggregating the Contract Amount. After approval by Departmental Representative cost breakdown will be used as the basis of progress payments.

1.14 PRECEDENCE

- .1 For Federal Government projects, Division 01 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

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 Federal Legislation
 - .1 Canada Labour Code, Part II, Sections 124 and 125.
 - .1 Canada Occupational Health and Safety Regulations.
 - .2 Transportation of Dangerous Goods Act, 1992 (TDGA).
 - .3 PSPC Asbestos Management Directive/Standards.
 - .4 Canada Consumer Product Safety Act.
 - .1 Surface Coating Materials Regulations SOR/2016-193.
 - .5 Canadian Environmental Protection Act, 1999 (CEPA).
- .2 Provincial Legislation
 - .1 Ontario Occupational Health and Safety Act, R.S.O. 1990, c. O.1.
 - .1 Ontario Regulation 490/09 – Designated Substances (O.Reg. 490/09).
 - .2 Ontario Regulation 278/05 – Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations (O.Reg. 278/05).
 - .3 Ontario Regulation 213/91 – Construction Projects (O.Reg. 213/91).
 - .2 Ontario Environmental Protection Act, R.S.O. 1990, c. E.19.
 - .1 Ontario Regulation 347 – General - Waste Management (R.R.O. 1990, Reg. 347).
 - .3 Canadian General Standards Board (CGSB).
 - .4 Canadian Standards Association (CSA International), CAN/CSA-Z94.4-18 Respiratory Protection.
 - .5 Underwriters Laboratories of Canada (ULC).

1.2 DEFINITIONS

- .1 HEPA vacuum: High Efficiency Particulate Arrestor filtered vacuum equipment with a filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Time-weighted average exposure limit (TWael): The time-weighted average airborne concentration of a biological or chemical agent to which a worker may be exposed in a work day or work week as prescribed by O.Reg. 490/09 Designated Substances, as amended.

1.3 RELATED SECTIONS

- .1 Not used.

1.4 DESIGNATED SUBSTANCES

- .1 Confirm with the Departmental Representative that no additional designated substances have been brought to the project area prior to beginning work.
- .2 Additional designated substances and hazardous materials may exist outside the accessible survey area but are beyond the scope of this project.
- .3 Should any additional material, suspected to be a designated substance, be encountered within the project area, any disturbance of such material must be stopped, precautionary measures taken, and the Departmental Representative must be notified immediately. Do not proceed until written instructions have been received.
- .4 ACRYLONITRILE: Not Identified.
- .5 ARSENIC: Not Identified.
- .6 ASBESTOS: Not Identified.
 - .1 Bulk sampling and subsequent laboratory analysis have determined that the following building materials collected in this designated substances report do not contain regulated concentrations of asbestos:
 - .1 The grey mortar on the north side wall, in room 005A, in the basement.
 - .2 The terracotta brick on the north side wall, in room 005A, in the basement.
 - .3 The grey mortar on the exterior north side wall.
 - .4 The white mortar on the exterior north side wall.
 - .5 The drywall joint compound on the north side wall.
- .7 BENZENE: Not Identified.
- .8 COKE OVEN EMISSIONS: Not Identified.
- .9 ETHYLENE OXIDE: Not Identified.
- .10 ISOCYANATES: Not Identified.
- .11 LEAD: Not Identified.
 - .1 Analytical results in the table 2 indicate that the lead content in the yellow paint on the north side wall, in the basement, at the Justice Building, is below the 90 ppm threshold outlined in the Canada Consumer Product Safety Act's Surface Coating Materials Regulations SOR/2016-193 (as amended); therefore, this lead sample is not considered to be a lead-based containing paint.
- .12 MERCURY: Not Identified
- .13 **SILICA: Identified.**
 - .1 Free crystalline silica is present in concrete, and mortar in the project area.
- .14 VINYL CHLORIDE MONOMER: Not Identified.
- .15 POLYCHLORINATED BIPHENYLS (PCBS): Not Identified.
- .16 OZONE DEPLETING SUBSTANCES (ODS): Not Identified.

1.5 RECOMMENDATIONS

.1 SILICA

- .1 Comply with Ontario Regulations O.Reg. 490/09 when performing works that may disturb silica-containing materials.
- .2 Follow recommendations provided in the Ontario Ministry of Labour Guideline entitled "Guideline: Silica on Construction Projects". This document classifies all silica disturbances as Type 1, Type 2 or Type 3 work, and assigns different levels of respiratory protection and work procedures for each classification.

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 01 45 00 Quality Control

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 10 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 Relationship to adjacent work.
- .9 After Departmental Representative's review, distribute copies.
- .10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .11 Submit electronic copies of product data sheets or brochures 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 electronic copies 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 electronic copies 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 electronic copies of manufacturers 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 electronic copies 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 electronic copies 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, copies 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.
- .21 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.4 SAMPLES

- .1 Submit for review samples as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples 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 samples which Departmental Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.5 MOCK-UPS

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

1.6 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic digital photography in jpg format, monthly with progress statement as directed by Departmental Representative.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Number of viewpoints:
 - .1 Viewpoints and their location as determined by Departmental Representative.
- .4 Frequency of photographic documentation:
 - .1 Upon completion of each stage of work prior to concealing the work with another component or backfill.

1.7 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

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 01 33 00 - Submittal Procedures.

1.2 REFERENCE STANDARDS

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

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 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 found in work plan.
- .3 Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to authority having jurisdiction, Departmental Representative.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 10 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.
- .8 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.
- .9 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.

1.4 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.
- .2 Contractor shall be responsible and assume the Principal Contractor role for each work zone location and not the entire complex. Contractor shall provide a written

acknowledgement of this responsibility with 3 weeks of contract award. Contractor to submit written acknowledgement to CSST along with Ouverture de Chantier Notice.

- .3 Work zone locations include:
 - .1 Area required to complete the work shown in the contract documents.
- .4 Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

1.5 SAFETY ASSESSMENT

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

1.6 MEETINGS

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

1.7 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with:
 - .1 General Public.
 - .2 Building Occupants.
 - .3 Stakeholders.

1.8 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.

1.9 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.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.10 COMPLIANCE REQUIREMENTS

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

1.11 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.
- .2 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 and in writing.

1.12 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 site-related working experience specific to activities associated with the scope of work included in the contract documents.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 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.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
 - .5 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.13 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 Representative.

1.14 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.

1.15 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 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 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 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 examination and correction.

1.2 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .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 at no cost to Departmental Representative. Pay costs for retesting and reinspection.

1.3 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.

1.4 PROCEDURES

- .1 Notify appropriate agency 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.

1.5 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.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative 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 Departmental Representative.

1.6 REPORTS

- .1 Submit electronic copies of inspection and test reports Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested.

1.7 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.

1.8 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .2 Construct in locations acceptable to Departmental Representative.
- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups 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.
- .5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.
- .6 Remove mock-up at conclusion of Work or when acceptable to Departmental Representative.
- .7 Mock-ups may remain as part of Work if acceptable to Departmental Representative.
- .8 Specification section identifies whether mock-up may remain as part of Work or if it is to be removed and when.

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 01 33 00 – Submittal Procedures

1.2 REFERENCE STANDARDS

- .1 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

1.4 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.5 DEWATERING

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

1.6 WATER SUPPLY

- .1 Provide a continuous supply of potable water for construction use.
- .2 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

1.7 TEMPORARY POWER AND LIGHT

- .1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools.
- .2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.
- .3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.
- .4 Electrical power and lighting systems installed under this Contract may be used for construction requirements only with prior approval of Departmental Representative provided that guarantees are not affected. Make good damage to electrical system caused by use under this Contract. Replace lamps which have been used for more than 3 months.

1.8 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide and pay for temporary equipment necessary for own use and use of Departmental Representative.

1.9 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction, 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 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 requirements of authorities having jurisdiction
- .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.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures

1.2 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2-19, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CSA-O121-17, Douglas Fir Plywood.
 - .3 CSA-S269.2-16, Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96, Signs and Symbols for the Workplace.
- .2 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

1.4 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 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.5 SCAFFOLDING

- .1 Scaffolding in accordance with CSA-S269.2.
- .2 Provide and maintain ramps, scaffolding, temporary stairs, ladders, platforms.

1.6 HOISTING

- .1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists and cranes to be operated by qualified operator.

1.7 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.8 CONSTRUCTION PARKING

- .1 Parking will not be permitted on site.
- .2 Provide and maintain adequate access to project site.
- .3 Clean runways and taxi areas where used by Contractor's equipment.

1.9 SECURITY

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

1.10 OFFICES

- .1 Provide office heated to 22 degrees C, lighted 750 lx 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.

1.11 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.

1.12 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.

1.13 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide a traffic management plan.
- .2 Provide access and temporary relocated roads as necessary to maintain traffic.
- .3 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .4 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .5 Protect travelling public from damage to person and property.
- .6 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

- .7 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .8 Construct access and haul roads necessary.
- .9 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .10 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .11 Dust control: adequate to ensure safe operation at all times.
- .12 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- .13 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .14 Provide snow removal during period of Work.
- .15 Remove, upon completion of work, haul roads designated Departmental Representative.

1.14 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 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 requirements of authorities having jurisdiction.
- .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.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

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

1.2 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 as directed by the Departmental Representative Ontario Traffic Manual, Book 7: Temporary Conditions.
- .4 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.

1.3 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 and as directed by the Departmental Representative.
- .3 Place signs and other devices in locations recommended in Ontario Traffic Manual, Book 7: Temporary Conditions and as directed by the Departmental Representative.
- .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.

1.4 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.

1.5 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.
- .2 Maintain existing conditions for traffic crossing right-of-way.
- .3 Maintain existing conditions for traffic crossing right-of-way except when required for construction.

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 REFERENCE STANDARDS

- .1 Conform to these 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, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .3 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by 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 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 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.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 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.

1.3 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, 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 Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.4 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Contractor will be paid for Departmental Representative. Unload, handle and store such products.

1.5 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 at no increase in Contract Price or Contract Time.

1.6 QUALITY OF WORK

- .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 Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves 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 Departmental Representative, whose decision is final.

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 CONCEALMENT

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

1.9 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.

1.10 LOCATION OF FIXTURES

- .1 Inform Departmental Representative of conflicting installation. Install as directed.

1.11 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.

1.12 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.

1.13 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.

1.14 **EXISTING UTILITIES**

- .1 Protect and maintain existing active services.

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.
- .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.
- .3 Clear snow and ice from access to building, remove from site.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide and use marked separate bins for recycling.
- .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.

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.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .8 Remove dirt and other disfiguration from exterior surfaces.

- .9 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .10 Sweep and wash clean paved areas.
- .11 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .12 Clean roofs, downspouts, and drainage systems.
- .13 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .14 Remove snow and ice from access to building.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse/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 01 33 00 - Submittal Procedures.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting one week prior to contract completion with Departmental Representative.
 - .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.
- .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 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
 - .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by process flow, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.
- .9 Electronic copy of O/M manual to be provided.

1.5 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.6 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, 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.

1.7 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .2 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .3 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 Referenced Standards to related shop drawings and modifications.
- .4 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.
- .5 Other Documents: maintain field test records, manufacturer's certifications, inspection certifications, required by individual specifications sections.
- .6 Provide digital photos, if requested, for site records.

1.8 FINAL SURVEY

- .1 Submit final site survey certificate, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.9 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
 - .1 Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

- .4 Additional requirements: as specified in individual specifications sections.

1.10 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

1.11 WARRANTIES AND BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.
- .3 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
 - .4 Verify that documents are in proper form, contain full information, and are notarized.
 - .5 Co-execute submittals when required.
 - .6 Retain warranties and bonds until time specified for submittal.
- .4 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.
- .5 Conduct joint 9 month warranty inspection, measured from time of acceptance, by Departmental Representative.
- .6 Include information contained in warranty management plan as follows:
 - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
 - .2 Contractor's plans for attendance at 9 month post-construction warranty inspections.
 - .3 Procedure and status of tagging of equipment covered by extended warranties.
 - .4 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

- .7 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .8 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

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures

1.2 REFERENCE STANDARDS

- .1 CSA Group
 - .1 CSA-A23.1/A23.2-19, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CSA-A3000-18, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
 - .3 CSA-G30.18:21, Carbon Steel Bars for Concrete Reinforcement.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for proprietary materials used in Cast-In-Place Concrete and additives and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit copies of WHMIS MSDS.
- .3 Shop Drawings:
 - .1 Submit drawings
 - .1 Submit placing drawings prepared in accordance with plans to clearly show size, shape, location and necessary details of reinforcing.
 - .2 Submit drawings showing formwork and falsework design to: CSA A23.1/A23.2.
- .4 Provide testing results for review by Departmental Representative and do not proceed without written approval when deviations from mix design or parameters found.
- .5 Concrete hauling time: provide for review by Departmental Representative deviations exceeding maximum allowable time of 120 for concrete delivered to site of Work and discharged after batching.
- .6 Quality Assurance Submittals:
 - .1 Submit in accordance with Section 01 45 00 - Quality Control

1.4 QUALITY ASSURANCE

- .1 Provide to Departmental Representative, 4 weeks minimum prior to starting concrete work, valid and recognized certificate from plant delivering concrete.
- .2 Quality Control Plan: provide written report to Departmental Representative verifying compliance concrete in place meets performance requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements:
 - .1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.
 - .2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

1.6 AMBIENT CONDITIONS

- .1 Placing concrete during rain or weather events damaging to concrete is prohibited.
- .2 Protect newly placed concrete from rain or weather events in accordance with CSA A23.1/A23.2.
- .3 Cold weather protection:
 - .1 Maintain protection equipment, in readiness on Site.
 - .2 Use such equipment when ambient temperature below 5°C, or when temperature may fall below 5°C before concrete cured.
 - .3 Placing concrete upon or against surface at temperature below 5°C is prohibited.
- .4 Hot weather protection:
 - .1 Protect concrete from direct sunlight when ambient temperature above 27°C.
 - .2 Prevent forms of getting too hot before concrete placed. Apply accepted methods of cooling not to affect concrete adversely.
- .5 Protect from drying.

Part 2 Products

2.1 DESIGN CRITERIA

- .1 Alternative 1 - Performance: to CSA A23.1/A23.2, and as described in MIXES of PART 2 - PRODUCTS.

2.2 PERFORMANCE CRITERIA

- .1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established by Departmental Representative and provide verification of compliance as described in PART 1 - QUALITY ASSURANCE.

2.3 MATERIALS

- .1 Portland Cement: GU.
- .2 Water: to CSA A23.1/A23.2.
- .3 Reinforcing bars:
 - .1 Billet steel, grade 400, deformed bars to CSA-G30.18, unless indicated otherwise.

2.4 MIXES

- .1 Alternative 1 - Performance Method for specifying concrete: to meet performance criteria to CSA A23.1/A23.2.
 - .1 Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as described in PART 3 - VERIFICATION.
 - .2 Provide concrete mix to meet following hard state requirements:
 - .1 Durability and class of exposure: C-1 and C-2.
 - .2 Compressive strength at 28day age: 35 MPa minimum.
 - .3 Concrete supplier's certification.
 - .4 Provide quality management plan to ensure verification of concrete quality to specified performance.

Part 3 Execution

3.1 PREPARATION

- .1 Provide Departmental Representative 48 hours notice before each concrete pour.
- .2 During concreting operations:
 - .1 Development of cold joints not allowed.
 - .2 Concrete delivery and handling to facilitate placing with minimum of rehandling, and without damage to existing structure or Work.
- .3 Protect previous Work from staining.
- .4 Clean and remove stains prior to application of concrete finishes.

3.2 INSTALLATION/APPLICATION

- .1 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2.

3.3 FINISHES

- .1 Formed surfaces exposed to view: sack rubbed finish in accordance with CSA A23.1/A23.2.
- .2 Slab suitable to meet the membrane manufacturers requirements.
- .3 Pavements, walks, curbs and exposed site concrete:
 - .1 Screed to plane surfaces and use floats.
 - .2 Provide round edges and joint spacings using standard tools.
 - .3 Trowel smooth and provide lightly brushed non-slip finish.

3.4 CURING

- .1 Use curing compounds compatible with applied finish on concrete surfaces free of bonding agents and to CSA A23.1/A23.2.

3.5 SITE TOLERANCES

- .1 Concrete floor slab finishing tolerance to CSA A23.1/A23.2.

3.6 FIELD QUALITY CONTROL

- .1 Concrete testing: to CSA A23.1/A23.2 by testing laboratory designated and paid for by Departmental Representative.

3.7 CLEANING

- .1 Clean in accordance with Section 01 74 00 - Cleaning.
- .2 Use trigger operated spray nozzles for water hoses.
- .3 Designate cleaning area for tools to limit water use and runoff.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials (ASTM):
 - .1 ASTM D 698-12(2021), Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m³).
- .2 Geotechnical Information:
 - .1 Building Foundation Drainage System Report No. 60164.005-02.
- .3 Ontario Provincial Standard Specification (OPSS):
 - .1 OPSS.MUNI 401 (November 2018), Trenching, Backfilling and Compacting.
 - .2 OPSS.MUNI 1004 (November 2013), Material Specification for Aggregates – Miscellaneous.
 - .3 OPSS.MUNI 1010 (November 2013), Material Specification for Aggregates – Base, Subbase, Select Subgrade, and Backfill Material.

1.2 RELATED SECTIONS

- .1 Section 32 16 00 – Curbs, Gutters and Sidewalks.

1.3 REGULATIONS

- .1 Shore and brace excavations, protect slopes and banks and perform all work in accordance with Provincial and Municipal regulations, whichever is more stringent. All temporary works and shoring are the responsibility of the Contractor.

1.4 SUBMISSIONS

- .1 Submit for review by Departmental Representative proposed dewatering and heave prevention methods. Provide groundwater characterization analysis for water being pumped from excavations to confirm that the water to be discharged to sewers meets City of Ottawa Sewer Bylaw requirements. Sample and analyse groundwater for Contaminants of Concern.
- .2 Obtain, pay for and submit records of underground utility locates, indicating: location and profile of existing utilities as found, clearance records from utility authorities, location plan of relocated and abandoned services, and location plan of new utilities.
- .3 Submit designs for shoring, bracing and underpinning required for Work, prepared by a qualified professional Engineer, registered in the Province of Ontario, who is retained by the Contractor for design and inspection of these works.

1.5 TESTS AND INSPECTIONS

- .1 Testing of materials and compaction of backfill and base material will be carried out by testing laboratory designated and paid for by the Departmental Representative.
- .2 Not later than two weeks before backfilling or filling, provide access for sampling to designated testing agency.

- .3 Do not begin backfilling or filling operations until material has been approved for use by Departmental Representative.
- .4 Not later than 48 hours before backfilling or filling with approved material, notify Departmental Representative so that compaction tests can be carried out by designated testing agency.
- .5 Before commencing work, conduct, with Departmental Representative, condition survey of existing structures, utilities, trees and other plants, lawns, fencing, service poles, wires, rail tracks and paving, survey bench marks and monuments which may be affected by work.
- .6 Prior to shipping excess soil offsite to landfills for disposal, provide soil and samples and testing in accordance with Excess Soil Characterization – Representative Toxicity Characteristic Leachate Procedures (TCLP).

1.6 BURIED SERVICES

- .1 Before commencing work establish the location of all buried services and underground assets on and adjacent to the site. Undertake hydro excavation to daylight edges of underground assets, and existing utilities at all areas where existing utilities require identification, specific location information, support and protection within the excavation area. Provide proposed methods for support and protection to Departmental Representative.
- .2 Size, depth and location of existing utilities and structures as indicated are for guidance only. Completeness and accuracy are not guaranteed.

1.7 PROTECTION

- .1 Protect excavations from freezing. Provide temporary frost protection for all footings if construction is carried out under winter conditions.
- .2 Keep excavations clean, free of standing water, and loose soil.
- .3 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
- .4 Protect buried services that are required to remain in use and in place.
- .5 Existing irrigation system components do not require protection, and can be removed as encountered. Map locations of removal and provide drawing to Departmental Representative. Cap remaining pipes at limits of removal.

Part 2 Products

2.1 MATERIALS AND COMPACTION

- .1 All imported granular materials to OPSS.MUNI 1004 and OPSS.MUNI 1010. Imported backfill materials shall be obtained from reputable sources and pose no adverse environmental soil quality concerns.

- .2 Structural fill shall conform to the requirements of OPSS.MUNI 1010 Granular A or Granular B Type II, compacted in lifts no thicker than 300mm to at least 100% of SPMDD.
- .3 Exterior foundation backfill beyond the drainage sheets adjacent to the foundation wall shall consist of OPSS.MUNI 1010 Granular B Type I material. Foundation backfill material is required in the zone extending out a minimum of 600mm from the outer edge of the footing, and sloping up at a 1:1 slope to the outer edge of the excavation. Place in maximum 300mm thick lifts, and compact to a minimum of at least 95% of SPMDD.
- .4 Bedding, surround and cover material for piped water, sanitary and storm utilities shall consist of OPSS.MUNI 1010 Granular A material, compacted to at least 95% SPMDD above the springline. Backfill for service trenches below paved areas shall consist of OPSS.MUNI 1010 Select Subgrade Material placed from top of pipe cover to 1.2m below the proposed pavement structure subgrade, placed in maximum 300mm thick lifts and compacted to at least 95% SPMDD. In the upper 1.2m, use material matching that exposed in the trench walls, placed in maximum 300mm thick lifts and compacted to at least 95% SPMDD.
- .5 Existing excavated granular material may be used outside of the required foundation backfill zone as an alternative to Granular B Type I. Place excavated material accepted for use as backfill directly into roll off bins. Provide soil tight lining for bins, and store in a manner to reduce precipitation infiltration and runoff.
- .6 Granular base for curbs, sidewalks and pavers shall be OPSS.MUNI 1010 Granular A, compacted to 98% SPMDD. Refer to Section 32 16 00 – Curbs, Gutters and Sidewalks.
- .7 Granular base for asphalt paving shall be OPSS.MUNI 1010 Granular A, compacted to 100% SPMDD. Granular sub-base for paving shall be OPSS.MUNI 1010 Granular B Type II, compacted to 100% SPMDD.

Part 3 Execution

3.1 EXCAVATION

- .1 Prepare site by removing obstructions. Cut pavement and sidewalks neatly at excavation limits.
- .2 Remove all curb materials within excavation limits. Protect and conserve any existing granite curb for reinstatement.
- .3 Remove concrete sidewalks, asphalt and pavers within excavation limits.
- .4 Consider existing fill material to be a Type 3 soil in accordance with the Province of Ontario Occupational Health and Safety Act (OHSa) and Regulations for Construction Projects. Slope overburden excavation areas at 1 horizontal to 1 vertical from the base of the excavation and as per the requirements of the OHSa. Alternatively, provide soldier panels with lagging, a trench box, or other support methods approved by the Departmental Representative. All excavation support systems shall be designed to resist loads from traffic and foundations of adjacent structures, if applicable. Regularly inspect excavations for signs of instability, and flatten slopes as required.

- .5 Maintain excavations free from groundwater and surface water accumulation. Groundwater levels are anticipated to be at or below the bedrock surface, but are subject to variation due to site conditions, climatic factors and seasonal fluctuations.
- .6 Undertake excavation using hydro excavation in areas where conventional excavation is not feasible due to space constraints and or the need to protect existing works.
- .7 Excavate as required to carry out work, in all materials met, in accordance with OPSS.MUNI 401. Do not disturb soil or rock below sub-grade surface except as directed. Notify Departmental Representative when excavations are complete to allow for surfaces to be inspected and approved.
- .8 Dispose of surplus and unsuitable excavated material off site.
- .9 Remove loose bedrock, soil, water, bedrock irregularities, bedrock pinnacles and sloping surfaces from exposed bedrock surfaces, and hand clean and pressure wash bearing areas prior to placement of foundation materials bearing on bedrock surfaces.
- .10 Protect all footing subgrades from freezing, and protect foundation walls and columns against heave due to soil adfreeze.

3.2 BACKFILLING

- .1 Inspection: do not commence backfilling until fill material and spaces to be filled have been inspected and approved by Departmental Representative. Provide required testing necessary to establish suitability of existing granular materials for backfill outside of the foundation backfill zone, to the satisfaction of the Departmental Representative. If on-site granular material is deemed unsuitable, complete all subgrade backfilling with imported OPSS.MUNI 1010 Granular B Type I material.
- .2 Remove snow, ice, construction debris, organic soil and standing water from spaces to be filled.
- .3 Install drainage system at foundation as indicated.
- .4 Place backfill material as indicated in maximum 300mm thick lifts, compacted to 95% SPMDD.
- .5 Lateral support: maintain even levels of backfill around structures as work progresses, to equalize earth pressures.
- .6 Placement of pipe sub-bedding, bedding, surround, cover, and trench backfill shall be done in maximum 150 mm thick lifts.

3.3 GRADING

- .1 Grade to elevations as indicated, or match to pre-construction grades where new grading is not designated. Slope grade down and away from building perimeter towards perimeter sidewalk or drainage collection structures.

3.4 COMPACTION OF SUBGRADE BELOW LANDSCAPE AND PAVED SURFACES

- .1 Compact exposed subgrade to 95% SPMDD. Compact other materials as indicated.
- .2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
- .3 Apply water as necessary during compaction to obtain specified density.

3.5 TOLERANCES

- .1 Surface of subgrade to be within plus or minus 25mm of specified elevation.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 03 30 00.09 – Cast-in-Place Concrete.
- .2 Section 31 23 33.01 – Excavating, Trenching and Backfilling.

1.2 STANDARDS

- .1 Canadian Standards Association (CSA International)
 - .1 CSA A23.1/23.2-19, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
- .2 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A48/A48M-22, Standard Specification for Gray Iron Castings.
 - .2 ASTM A536-84 (2019) e1, Standard Specification for Ductile Iron Castings.
 - .3 ASTM D698-12 (2021), Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m³).
- .3 Ontario Provincial Standard Specifications (OPSS)
 - .1 OPSS.MUNI 351 (November 2019), Concrete Sidewalk.
 - .2 OPSS.MUNI 353 (November 2019), Concrete Curb and Gutter Systems.
 - .3 OPSS.MUNI 1010 (November 2013), Material Specification for Aggregates – Base, Subbase, Select Subgrade and Backfill Material.
- .4 National Capital Commission Standard Drawings
 - .1 140.1 (January 2008), Concrete Sidewalk.
 - .2 210.1 (January 2008), Concrete Curb.

Part 2 Products

2.1 MATERIALS

- .1 Concrete mixes, materials, and reinforcing steel: Section 03 30 00.09 – Cast-in-Place Concrete.
- .2 Granular base: OPSS.MUNI 1010 Granular A.
- .3 Non-staining mineral type form release agent: chemically active release agents containing compounds that react with free lime to provide water soluble soap.
- .4 Granite Curb and Cobblestones: Existing on-site materials.

Part 3 Execution

3.1 GRADE PREPARATION

- .1 Do grade preparation work in accordance with Section 31 23 33.01 – Excavating, Trenching and Backfilling.
- .2 Record location of any existing granite curbs and cobblestones for reinstatement. Remove, preserve, protect and store materials for reinstatement.

3.2 GRANULAR BASE

- .1 Do granular base preparation in accordance with OPSS.MUNI 351 and OPSS.MUNI 353.
- .2 Granular base shall be minimum depth of 150 mm of OPSS.MUNI 1010 Granular A, compacted to 98% of Standard Proctor Maximum Dry Density.

3.3 CONCRETE

- .1 Obtain Departmental Representative's approval of granular base and reinforcing steel prior to placing concrete.
- .2 Provide specialized concrete mix C1 with 20% silica fume replacing that same amount of cement, and with 5 to 7% entrained air for freeze-thaw protection.
- .3 Do concrete work in accordance with OPSS.MUNI 351 and OPSS.MUNI 353.
- .4 Concrete curbs constructed on site shall be in accordance with National Capital Commission Drawings 210.1. Concrete curbs are required only where reinstatement of existing concrete curbs is necessary.
- .5 Place on-site sidewalks in accordance with National Capital Commission Drawing 140.1, excluding the curb.
- .6 Hand finish surfaces when directed by Departmental Representative.

3.4 TOLERANCES

- .1 Finish surfaces to within 5 mm in 3.0 m as measured with 3.0 m straightedge placed on surface.

3.5 EXPANSION AND CONTRACTION JOINTS

- .1 Sidewalks:
 - .1 Obtain Departmental Representative approval of joint spacing and location prior to placing sidewalk.
 - .2 Install tooled transverse contraction joints after floating, when concrete is stiff, but still plastic, at maximum intervals of 1.5 m for site sidewalks. Match existing joint pattern if existing spacing is less than 1.5 m.
 - .3 Install expansion joints at maximum intervals of 4.5 m. Match existing joint pattern if existing spacing is less than 4.5 m. unless otherwise indicated.
 - .4 Install expansion joints along length adjacent to curbs, buildings, or permanent structures.
 - .5 When sidewalk is adjacent to curb, make joints of curb, gutters and sidewalk coincide.

- .2 Curbs:
 - .1 Provide expansion joints every 4.5 m for new concrete curb. Expansion joints to be full depth asphalt impregnated fibre board.

3.6 CURING

- .1 Cure concrete by adding moisture continuously in accordance with CSA-A23.1 to exposed finished surfaces for at least 3 days after placing. Wet cure using non-staining burlap, re-wetted at least once a day, and covered by polyethylene sheets.
- .2 Place two pre-wetted layers of burlap on concrete surface and keep continuously wet during curing period.

3.7 GRANITE CURBS

- .1 Install salvaged granite curbs in existing locations, matching existing elevations.
- .2 Top of granular bedding for granite curbs is to be set at 100mm below the bottom of the curb. Support each section of curb on two concrete bricks, with bricks not to protrude beyond the face of the curb.
- .3 Pour concrete to fill space below curbs. Concrete shall not extend beyond the face of the curbs.
- .4 Anchor granite curbs to new sidewalk using 10M steel armature rods, epoxy grouted into the curbs, and extending 250mm outside the back face of the curb. Epoxy grout shall be two part 100% solid epoxy resin (without solvent). Provide two anchors for each curb section. Anchor holes in curb shall extend half the width of the curb section.

3.8 BACKFILL

- .1 Allow concrete to cure for a minimum of two days prior to backfilling.
- .2 Backfill to designated elevations with material approved by Departmental Representative. Compact and shape to achieve positive drainage.
- .3 Take appropriate measures to avoid forcing curb out of line.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Samples:
 - .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit:
 - .1 Sod for each type specified.
 - .1 Install approved samples in one square metre mock-ups and maintain in accordance with maintenance requirements during establishment period.
 - .2 Bio-degradable geotextile fabric.
 - .2 Obtain approval of samples by Departmental Representative.

1.3 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, installation instructions and warranty requirements.

1.4 SCHEDULING

- .1 Schedule sod laying to coincide with preparation of soil surface.
- .2 Schedule sod installation when frost is not present in ground.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Divert unused fertilizer from landfill to official hazardous material collections site approved by Departmental Representative.
- .2 Do not dispose of unused fertilizer into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

Part 2 Products

2.1 MATERIALS

- .1 Number One Turf Grass Nursery Sod: sod that has been especially sown and cultivated in nursery fields as turf grass crop.
 - .1 Turf Grass Nursery Sod types:

- .1 Drought Tolerant Natural Grass Sod
- .2 Number One Named Cultivars: Nursery Sod grown from certified seed.
- .2 Turf Grass Nursery Sod quality:
 - .1 Not more than 2 broadleaf weeds or 10 other weeds per 40 square meters.
 - .2 Density of sod sufficient so that no soil is visible from height of 1500 mm when mown to height of 50 mm.
 - .3 Mowing height limit: 35 to 65 mm.
 - .4 Soil portion of sod: 6 to 15 mm in thickness.
- .2 Commercial Grade Turf Grass Nursery: sod that has not been grown as Turf Grass Nursery Sod crop.
 - .1 Mow sod at height directed by Departmental Representative within 36 hours prior to lifting and remove clippings.
- .3 Water:
 - .1 Supplied by Departmental Representative at designated source.
- .4 Fertilizer:
 - .1 To Canada "Fertilizers Act" and "Fertilizers Regulations".
 - .2 Complete, synthetic, slow release with 65% of nitrogen content in water-insoluble form.

2.2 SOURCE QUALITY CONTROL

- .1 Obtain approval from Departmental Representative of sod at source.
- .2 When proposed source of sod is approved, use no other source without written authorization from Departmental Representative.

Part 3 Execution

3.1 PREPARATION

- .1 Verify that grades are correct. If discrepancies occur, notify Departmental Representative and do not commence work until instructed by Departmental Representative.
- .2 Do not perform work under adverse field conditions such as frozen soil, excessively wet soil or soil covered with snow, ice, or standing water.
- .3 Fine grade surface free of humps and hollows to smooth, even grade, to contours and elevations indicated, to tolerance of plus or minus 8 mm, for Turf Grass Nursery Sod and plus or minus 15 mm for Commercial Grade Turf Grass Nursery, surface to drain naturally.
- .4 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; off-site as directed by Departmental Representative.

3.2 SOD PLACEMENT

- .1 Lay sod within 24 hours of being lifted if air temperature exceeds 20 degrees C.
- .2 Lay sod sections in rows, joints staggered. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with sharp implements.
- .3 Roll sod as directed by Departmental Representative. Provide close contact between sod and soil by light rolling. Use of heavy roller to correct irregularities in grade is not permitted.

3.3 FERTILIZING PROGRAM

- .1 Fertilize during establishment and warranty periods to following program, once per year.

3.4 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Perform following operations from time of installation until acceptance.
- .2 Water sodded areas in sufficient quantities and at frequency required to maintain optimum soil moisture condition to depth of 100 mm.
- .3 Cut grass to 50 mm when or prior to it reaching height of 75 mm. Remove clippings which will smother grassed areas as directed by Departmental Representative.
- .4 Maintain sodded areas weed free 95%.
- .5 Fertilize areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles.

3.5 ACCEPTANCE

- .1 Turf Grass Nursery Sod areas will be accepted by Departmental Representative provided that:
 - .1 Sodded areas are properly established.
 - .2 Sod is free of bare and dead spots.
 - .3 No surface soil is visible from height of 1500 mm when grass has been cut to height of 50 mm.
 - .4 Sodded areas have been cut minimum 2 times prior to acceptance.
- .2 Sodded Commercial Grade Turf Grass Nursery Sod areas will be accepted by Departmental Representative provided that:
 - .1 Sodded areas are properly established.
 - .2 Extent of surface soil visible when grass has been cut to height of 60 mm is acceptable.
 - .3 Sod is free of bare or dead spots and extent of weeds apparent in grass is acceptable.
 - .4 Sodded areas have been cut minimum 2 times prior to acceptance.
 - .5 Fertilizing in accordance with fertilizer program has been carried out at least once.
- .3 Areas sodded in fall will be accepted in following spring one month after start of growing season provided acceptance conditions are fulfilled.

3.6 MAINTENANCE DURING WARRANTY PERIOD

- .1 Perform following operations from time of acceptance until end of warranty period:
- .2 Repair and re-sod dead or bare spots to satisfaction of Departmental Representative.
- .3 Cut grass and remove clippings as directed by Departmental Representative to height as follows:
 - .1 Turf Grass Nursery Sod:
 - .1 50 mm during normal growing conditions.
 - .2 Cut grass at 2 week intervals or as directed by Departmental Representative, but at intervals so that approximately one third of growth is removed in single cut.
 - .3 Fertilize areas in accordance with fertilizing program. Spread half of required amount of fertilizer in one direction and remainder at right angles and water in well.
 - .4 Eliminate weeds by mechanical means to the extent as acceptable by the Departmental Representative.

3.7 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION