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A.10 Standards

A.10.1 Codes & Standards

A.10.1.1 The Consultant shall use the latest versions of recognized industry design standards, guidelines, and best practices to establish the design criteria. The design must meet the requirements of all relevant codes and applicable legislations.

A.10.1.2 The list of selected statutes and codes is provided for guidance only:

1. Canadian Navigable Waters Act (CNWA)
2. Environmental Protection Act,
3. Ontario Health and Safety Act
4. Ontario Building Code (OBC)
5. Ontario Electrical Safety Code (OESC) and latest Electrical Safety Authority (ESA) Bulletins
6. Ontario Water Resources Act
7. NFPA 820 Standard for Fire Protection in Wastewater Treatment and Collection Facilities
8. CSA Code Z462 latest edition – Workplace Electrical Safety, for arc flash hazard analysis and labels
9. American Concrete Institute ACI 350-01
10. Safe Drinking Water Act.
11. Ministry of the Environment, Conservation and Parks (MECP) standards and guidelines
12. American Water Works Association (AWWA) standards and specifications
13. American Society for Testing and Materials (ASTM) standards and specifications

A.10.2 City Standards

A.10.2.1 The Consultant is to ensure compliance with the latest version of the following City of Toronto standards:

1. City of Toronto's "Standard Construction Specifications & Drawings for Sewers, Watermains and Roads".
2. Engineering and Construction Services Field Services Manual
3. Engineering and Construction Services Capital Works Procedures Manual
4. Latest version of "Design and Construction – Linear Infrastructure CADD Specification Manual". The Consultant shall note that topographic mapping, field edit, compiled area plan, and surveys are collections of data from various sources and may require verifications in the field.

A.10.3 City Requirements for Highway and Pedestrian Bridges, Retaining Walls, Barriers, and Highway Accessory Supports of a Structural Nature

A.10.3.1 Design highway structures in accordance with the latest edition of the Canadian Highway Bridge Design Code (CHBDC) and Ontario Ministry of Transportation “Structural Manual”.

A.10.3.2 Design highway structures in accordance to the Ministry of Transportation “Geometric Design Standards for Ontario Highways” and Transportation Association of Canada “Geometric Design Guide for Canadian Roads”.

A.10.3.3 Design highway structures in accordance with the City’s Accessibility Design Guidelines.

A.10.3.4 Design traffic engineering and construction staging in accordance with the latest edition of MTO’s Ontario Traffic Manual (OTM) Book 7.

A.10.3.5 Design the construction zones according to the City’s Pedestrian Focused Traffic Control in Construction Zones training. The Successful Supplier (all relevant staff) shall complete the training at the commencement of the project. The City will provide the Successful Supplier with a copy of the presentation. The Successful Supplier shall provide the City’s Project Manager with attendance sheets as proof of review completion.

A.10.4 City Drawing Standards

A.10.4.1 Latest version of “CADD Specifications for AutoCAD, Consultants Manual” or “CADD Specifications for Microstation V8”, provided separately as a stand-alone document.

A.10.4.2 City Standards for: Master Electrical Single Line Diagram (SLD), Master Lighting Panel (LP) drawing / schedule and, Master Process and Instrumentation Diagrams (Master P&IDs), and Master RPU (Remote Processing Unit) Drawings are to be followed.

A.10.4.3 Any CAD files submitted to the City of Toronto shall not utilize AutoCAD SHX fonts or have these fonts disabled.

A.10.4.4 Any drawings that are submitted in PDF format shall have all AutoCAD SHX comments removed.

A.10.4.5 Any drawings that are submitted in PDF format are to allow for text recognition through the Search/Find function.

A.10.4.6 Drawings with colours shall be reproducible by all printing or duplication media in black and white.

A.10.4.7 Except as may be modified or specified herein, or otherwise approved by the City of Toronto, the collection and depiction of subsurface utility information shall conform to the applicable provisions of CI/ASCE 38-02 “Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data”.

A.10.4.8 Drafting and lettering shall be of proper density and legibility for a 50% reduction during reproduction.

A.10.4.9 The depiction of attributes such as line type, material type, age, condition, ownership, status (e.g. in-service, out-of-service, active, abandoned), number of conduits or direct buried cables, or other required information, shall not be eliminated, obliterated, or obscured by the manner of reproduction of by 50% reduction in size.

A.10.4.10 Final drawings for reproduction shall have all drafting work and image on one side of the sheet.

A.10.4.11 The Consultant shall replace, at no cost, the City of Toronto, plan sheets that do not comply with the above criteria.

END OF APPENDIX A.10