Part 1 General

1.1 RELATED SECTIONS

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

.2 Section 33 65 73 – Concrete Encased Duct Banks.

.3 Section 33 71 73.02 – Underground Electrical Services.

1.2 REFERENCE STANDARDS

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM A1064/A1064M-17, Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed for Concrete.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-19.24-M90, Multicomponent, Chemical-Curing Sealing Compound.

.3 Canadian Standards Association (CSA International)

.1 CSA-A23.1/A23.2-14, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

.2 CAN/CSA-A3000-13, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.3 CSA-A3001-13, Cementitious Materials Used in Concrete.

.4 CAN/CSA-G30.18-M92(R2007), Billet-Steel Bars for Concrete Reinforcement.

1.3 DESIGN REQUIREMENTS

.1 Performance: in accordance with CSA-A23.1/A23.2, and as described in Mixes of PART 2 – PRODUCTS.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures.

.2 Shop Drawings:

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

.2 Submit drawings showing formwork and falsework design to: CSA-A23.1/A23.2.

.3 Concrete hauling time: submit deviations exceeding maximum allowable time of 120 minutes for concrete to be delivered to site of Work and discharged after batching for review by Departmental Representative.

1.5 QUALITY ASSURANCE

.1 Submit to Departmental Representative, minimum 4 weeks prior to starting concrete work, valid and recognized certificate from plant delivering concrete.

Part 2 Products

2.1 MATERIALS

.1 Cement: to CAN/CSA-A3001, Type GU.

.2 Water: to CSA-A23.1/A23.2.

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

.4 Welded steel wire fabric: to ASTM A 185.

.5 Premolded joint filler:

.1 Bituminous impregnated fibreboard: to ASTM D 1751.

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

.7 Sealer: boiled linseed oil to ASTM D 260, mixed with mineral spirits 1:1.

.8 Other concrete materials: to CSA-A23.1/A23.2.

2.2 MIXES

.1 Concrete Transformer Pad – in accordance with CAN/CSA-A23.1/A23.2.

.1 Provide concrete mix to meet the following:

.1 Cement: Portland Type GU.
.2 Minimum cement content: 400 kg/m³ of concrete.
.3 Class of exposure: C-2.
.4 16 mm nominal size coarse aggregate.
.5 Maximum total water/cement ratio 0.45.
.6 Air content 5 to 8 %.
.7 Admixture: air entraining only.
.8 Minimum compressive strength at 28 days: 35 MPa.
.9 Slump: at time and point of discharge 30 to 60 mm.

.2 Concrete trench and conduit encasement: Mix for normal density concrete in accordance with CAN/CSA-A23.1.

.1 Provide concrete mix to meet the following:

.1 Cement: Portland Type GU.
.2 Class of exposure: F-1.
.3 16 mm nominal size coarse aggregate.

.4 Maximum total water/cement ration 0.41.

.5 Air content 5 to 8%.

.6 Admixture: air-entraining only.

.7 Minimum compressive strength at 28 days: 35 MPa.

.8 Slump: at time and point of discharge 50 to 75 mm.

Part 3 Execution

3.1 PREPARATION

.1 Provide Departmental Representative 24 hours' notice before each concrete pour.

.2 During concreting operations:

.1 Development of cold joints not allowed.

.2 Ensure concrete delivery and handling facilitates placing with minimum of rehandling, and without damage to existing structure or Work.

.3 Protect previous Work from staining.

3.2 CONSTRUCTION

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

3.3 INSERTS

.1 Cast in sleeves, ties, slots, anchors, reinforcement, frames, conduit, bolts, waterstops, joint fillers and other inserts required to be built-in.

.1 Sleeves and openings greater than 100 mm x 100 mm not indicated, must be reviewed by Departmental Representative.

3.4 FINISHES

.1 Concrete Transformer Pad:

.1 Screed to plane surfaces and use aluminum floats.

.2 Provide round edges and joint spacings using standard tools.

.3 Trowel smooth to provide lightly brushed non-slip finish.

3.5 CONTROL JOINTS

.1 Cut and form control joints in slabs on grade at locations as directed on site (maximum 1500 mm c.c.), in accordance with CSA-A23.1/A23.2 and install specified joint sealer/filler.

3.6 CURING

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

3.7 COLD WEATHER REQUIREMENTS

.1 Be fully familiar with the cold weather curing and protection requirements of CSA A23.1.

.2 Heating of materials, subgrade preparation, protective insulated coverings, heating enclosures and all other aspects of cold weather concreting shall be in strict accordance with CSA A23.1.

3.8 SEALING

.1 Following curing, apply two even coats of linseed oil mixture to clean dry surfaces, each at 8 m^2 /L. Allow first coat to dry before applying second coat.

3.9 SITE TOLERANCES

.1 Concrete finishing tolerance in accordance with CSA-A23.1/A23.2.

3.10 FIELD QUALITY ASSURANCE

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

3.11 CLEANING

.1 Use trigger operated spray nozzles for water hoses.

.2 Designate cleaning area for tools to limit water use and runoff.

END OF SECTION