

1 General

1.1 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.1, Canadian Electrical Code, Part 1 (latest edition), Safety Standard for Electrical Installations.
 - .2 CAN3-C235-83(R2010), Preferred Voltage Levels for AC Systems, 0 to 50,000 V.
- .2 Correctional Services Canada
 - .1 Technical criteria – correctional institutions (2013)

1.2 DESIGN REQUIREMENTS

- .1 Operating voltages: to CAN3-C235.
- .2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.
 - .1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.
- .3 Language operating requirements: provide identification nameplates and labels for control items in English.
- .4 Use one nameplate or label for each language.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit documents for review for: Roadway lighting (including pole, luminaire and base), gate actuator and control system, vehicle detection loop system for gate control, intercom and base station control system, fibre optic communication plan, and all distribution components & precast bases.
- .3 Shop drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Alberta, Canada.
 - .2 Submit wiring diagrams and installation details of equipment indicating proposed location, layout and arrangement, control panels, accessories, piping, ductwork, and other items that must be shown to ensure co-ordinated installation.

- .3 Identify on wiring diagrams circuit terminals and indicate internal wiring for each item of equipment and interconnection between each item of equipment.
- .4 Indicate of drawings clearances for operation, maintenance, and replacement of operating equipment devices.
- .5 Submit 2 copies of 280 x 432 mm minimum size drawings and product data to inspection authorities.
- .6 If changes are required, notify Consultant of these changes before they are made.
- .4 Quality Control: in accordance with Section 01 45 00 - Quality Control, provide CSA certified equipment and material.
 - .1 Where CSA certified equipment and material is not available, submit such equipment and material to jurisdiction having authority for special approval before delivery to site.
 - .2 Submit test results of installed electrical systems and instrumentation.
 - .3 Permits and fees: in accordance with General Conditions of contract.
 - .4 Submit certificate of acceptance from authority having jurisdiction upon completion of Work to Consultant.
- .5 Manufacturer's Field Reports: submit to Consultant manufacturer's written report, within 3 days of review, verifying compliance of Work and electrical system and instrumentation testing, as described in PART 3 - FIELD QUALITY CONTROL.

1.4 QUALITY ASSURANCE

- .1 Quality Assurance: in accordance with Section 01 45 00 - Quality Control.
- .2 Qualifications: electrical work to be carried out by qualified, licensed electricians who hold valid Master Electrical Contractor license or apprentices in accordance with authorities having jurisdiction as per the conditions of Provincial Act respecting manpower vocational training and qualification.
 - .1 Employees registered in provincial apprentices program: permitted, under direct supervision of qualified licensed electrician, to perform specific tasks.
 - .2 Permitted activities: determined based on training level attained and demonstration of ability to perform specific duties.

1.5 SYSTEM STARTUP

- .1 Instruct Departmental Representative, Consultant and operating personnel in operation, care and maintenance of systems, system equipment and components.

- .2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.
- .3 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with aspects of its care and operation.

1.6 OPERATING INSTRUCTIONS

- .1 Provide for each system and principal item of equipment as specified in technical sections for use by operation and maintenance personnel.
- .2 Operating instructions to include following:
 - .1 Wiring diagrams, control diagrams, and control sequence for each principal system and item of equipment.
 - .2 Start up, proper adjustment, operating, lubrication, and shutdown procedures.
 - .3 Safety precautions.
 - .4 Procedures to be followed in event of equipment failure.
 - .5 Other items of instruction as recommended by manufacturer of each system or item of equipment.
- .3 Print or engrave operating instructions and frame under glass or in approved laminated plastic.
- .4 Post instructions where directed.
- .5 For operating instructions exposed to weather, provide weather-resistant materials or weatherproof enclosures.
- .6 Ensure operating instructions will not fade when exposed to sunlight and are secured to prevent easy removal or peeling.

2 Products

2.1 MATERIALS AND EQUIPMENT

- .1 Provide material and equipment in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Material and equipment to be CSA certified. Where CSA certified material and equipment is not available, obtain special approval from jurisdiction having authority before delivery to site and submit such approval as described in PART 1 - SUBMITTALS.

- .3 Factory assemble control panels and component assemblies.

2.2 WARNING SIGNS

- .1 Warning Signs: in accordance with requirements of jurisdiction having authority and Consultant.
- .2 Decal signs, minimum size 175 x 250 mm.

2.3 WIRING TERMINATIONS

- .1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

2.4 EQUIPMENT IDENTIFICATION

- .1 Identify electrical equipment with nameplates as follows:
 - .1 Nameplates: lamicoid 3 mm thick plastic engraving sheet, black white core, lettering accurately aligned and engraved into core mechanically attached with self tapping screws.
 - .2 Sizes as follows:

NAMEPLATE SIZES

Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	5 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	8 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters
Size 7	25 x 100 mm	2 lines	6 mm high letters

- .2 Labels: embossed plastic labels with 6 mm high letters unless specified otherwise.
- .3 Wording on nameplates to be approved by Consultant prior to manufacture.
- .4 Allow for minimum of twenty-five (25) letters per nameplate.
- .5 Nameplates for terminal cabinets and junction boxes to indicate system and/or voltage characteristics.
- .6 Identify equipment with Size 3 labels engraved as directed by Consultant.
- .7 Disconnects, starters and contactors: indicate equipment being controlled and voltage.
- .8 Terminal cabinets and pull boxes: indicate system and voltage.
- .9 Transformers: indicate capacity, primary and secondary voltages.

- .10 Label power distribution center and switching cubicles.

2.5 WIRING IDENTIFICATION

- .1 Identify wiring with permanent indelible identifying markings, Note circuit number (e.g. A5), on both ends of phase conductors of feeders and branch circuit wiring.
- .2 Maintain phase sequence and colour coding throughout.
- .3 Colour coding: to CSA C22.1.

2.6 CONDUIT AND CABLE IDENTIFICATION

- .1 Colour code conduits, boxes and metallic sheathed cables.
- .2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.
- .3 Colours: 25 mm wide prime colour and 20 mm wide auxiliary colour.

	Prime	Auxiliary
up to 250 V	Yellow	
up to 600 V	Yellow	Green
up to 5 kV	Yellow	Blue
up to 15 kV	Yellow	Red
Telephone	Green	
Other Communication Systems	Green	Blue
Fire Alarm	Red	
Emergency Voice	Red	Blue
Other Security Systems	Red	Yellow

2.7 FINISHES

- .1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.
 - .1 Paint outdoor electrical equipment as noted
 - .2 Paint indoor switchgear and distribution enclosures light gray to EEMAC 2Y-1

3 Execution

3.1 INSTALLATION

- .1 Do complete installation in accordance with CSA C22.1 (latest edition) except where specified otherwise.

3.2 CO-ORDINATION OF PROTECTIVE DEVICES

- .1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

3.3 FIELD QUALITY CONTROL

- .1 Load Balance:
 - .1 Measure phase current to panelboards with normal loads (lighting) operating at time of acceptance; adjust branch circuit connections as required to obtain best balance of current between phases and record changes.
 - .2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.
 - .3 Provide upon completion of work, load balance report as directed in PART 1 - SUBMITTALS: phase and neutral currents on panelboards, dry-core transformers and motor control centres, operating under normal load, as well as hour and date on which each load was measured, and voltage at time of test.
- .2 Conduct following tests in accordance with Section 01 45 00 - Quality Control.
 - .1 Power generation and distribution system including phasing, voltage, grounding and load balancing.
 - .2 Circuits originating from branch distribution panels.
 - .3 Lighting and its control.
 - .4 Motors, heaters and associated control equipment including sequenced operation of systems where applicable.
 - .5 Fibre optic cable continuity, fusing, and connectivity
 - .6 Testing by Contractor:
 - .1 Use a 1500VDC Megger to test all 600V cables (feeders and branch circuits).
 - .1 This cable testing may be completed by the contractor instead of by the testing agency.
 - .2 Test each receptacle for polarity and ground integrity.
 - .3 Check all voltages.
 - .4 Confirm correct operation of lighting system and receptacle control system.

.7 Testing by Testing Agency:

.1 Qualifications:

- .1 Minimum 8 years experience in testing of low voltage systems and high voltage systems to 25 kV.

- .2 120/208 V panel:
 - .1 Visual inspection,
 - .2 Ductor test main breaker, contractors, and all main connections,
 - .3 Megger test,
 - .4 Check ground,
 - .5 Torque test all connections.
- .3 Carry out tests in presence of Departmental Representative and Consultant.
- .4 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.
- .5 Manufacturer's Field Services:
 - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
 - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
 - .3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

3.4 CLEANING

- .1 Clean and touch up surfaces of shop-painted equipment scratched or marred during shipment or installation, to match original paint.

END OF SECTION

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 26 05 00 – Common Work Results For Electrical

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-C22.2 No.18.1-04(R2009), Metallic Outlet Boxes (Tri-National Standard with ANCE NMX-J-023/1 and UL 514A)
 - .2 CAN/CSA-C22.2 No.18.2-06, Non-metallic Outlet Boxes
 - .3 CAN/CSA-C22.2 No.65-03(R2008), Wire Connectors (Tri-National Standard with UL 486A-486B and NMX-J-543-ANCE-03).
- .2 Electrical and Electronic Manufacturers' Association of Canada (EEMAC)
 - .1 EEMAC 1Y-2-1961, Bushing Stud Connectors and Aluminum Adapters (1200 Ampere Maximum Rating).
- .3 National Electrical Manufacturers Association (NEMA)

2 Products

2.1 MATERIALS

- .1 Pressure type wire connectors to: CAN/CSA-C22.2 No.65, with current carrying parts of copper sized to fit copper conductors as required.
- .2 Fixture type splicing connectors to: CAN/CSA-C22.2 No.65, with current carrying parts of copper sized to fit copper conductors 10 AWG or less.

2.2 INSTALLATION

- .1 Remove insulation carefully from ends of conductors and cables and:
 - .1 Install mechanical pressure type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Installation shall meet secureness tests in accordance with CAN/CSA-C22.2 No.65.
 - .2 Install fixture type connectors and tighten to CAN/CSA-C22.2 No.65. Replace insulating cap.
 - .3 Install bushing stud connectors in accordance with EEMAC 1Y-2 NEMA.

END OF SECTION

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 26 05 00 – Common Work Results For Electrical

1.2 PRODUCT DATA

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

2 Products

2.1 BUILDING WIRES

- .1 Conductors: stranded for 10 AWG and larger. Minimum size: 12 AWG.
- .2 Copper conductors: size as indicated, with 600 V insulation of cross-linked thermosetting polyethylene material rated RW90 XLPE, jacketed.

2.2 TECK 90 CABLE

- .1 Conductors:
 - .1 Grounding conductor: copper as indicated.
 - .2 Circuit conductors: copper as indicated, size as indicated.
- .2 Insulation:
 - .1 Cross-linked polyethylene XLPE.
 - .2 Rating: , 600 V.
- .3 Inner jacket: polyvinyl chloride material.
- .4 Armour: interlocking aluminum.
- .5 Overall covering: PVC jacket, HL & FT4 rated.
- .6 Connectors:
 - .1 Compression gland type approved for TECK cable.

2.3 FIBRE OPTIC CABLE

- .1 Physical Description:
 - .1 Conductors: 6 strand, 62.5/125 micron core/cladding diameter, multimode graded index.
 - .2 Continuous operating temperature: -20°C to +80°C.

- .3 Strength member: Aramid.
- .4 Minimum bend radius for installation:
 - .1 dual strand – 130 mm
 - .2 12 strand - 305 mm
- .5 Minimum bend radius for long term:
 - .1 dual strand – 80 mm
 - .2 12 strand - 178 mm
- .6 Fire Rating: plenum-rated overall jacket, CSA FT 4 compliant.
- .2 Transmission Characteristics:
 - .1 Minimum bandwidth: 160 MHz-km @ 850nm and 500 MHz km @ 1300nm
 - .2 Maximum attenuation:
 - .1 3.5 dB/km @ 850 nm.
 - .2 1.5 dB/km @ 1300 nm.
 - .3 1.0 dB/km @ 1550 nm

3 Execution

3.1 FIELD QUALITY CONTROL

- .1 Personnel installing communications cabling shall be trained and conversant with communications cabling practices required for this project.
- .2 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .3 Perform tests before energizing electrical system.

3.2 GENERAL CABLE INSTALLATION

- .1 Terminate cables in accordance with Section 26 05 20 - Wire and Box Connectors - (0-1000 V).
- .2 Cable Colour Coding: to Section 26 05 00 - Common Work Results for Electrical.
- .3 Conductor length for parallel feeders to be identical.
- .4 Lace or clip groups of feeder cables at distribution centres, pull boxes, and termination points.

- .5 System to be complete with all data and voice outlets, patch panels, patch cords, wire and cable required to from a complete system.
- .6 Install cable in raceway in exposed locations or where concealed in inaccessible walls and ceilings. Elsewhere cable may be installed without raceway.
- .7 Fibre optic cable connectors to be completed by qualified and certified personnel, and tested prior to commissioning in accordance with these specifications.

END OF SECTION

1 General

1.1 RELATED SECTIONS

- .1 Section 26 05 00 – Common Work Results For Electrical

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.2 No.41-07, Grounding and Bonding Equipment (Bi-National Standard, with UL 467).

1.3 PRODUCT DATA

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

2 Products

2.1 CONNECTORS AND TERMINATIONS

- .1 Copper, Short barrel compression connectors sized as required.
- .2 Contact aid for aluminum cables where applicable.
- .3 Use the cable lugs provided with electrical equipment in lieu of lugs specified herein.

3 Execution

3.1 INSTALLATION

- .1 Install, terminations, and splices in accordance with manufacturer's instructions.
- .2 Bond and ground as required to CSA C22.2No.41.

END OF SECTION

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 26 05 00 – Common Work Results For Electrical

1.2 REFERENCES

- .1 American National Standards Institute /Institute of Electrical and Electronics Engineers (ANSI/IEEE)
 - .1 ANSI/IEEE 837-02, IEEE Standard for Qualifying Permanent Connections Used in Substation Grounding.

2 Products

2.1 EQUIPMENT

- .1 Rod electrodes: copper clad steel stainless steel 19 mm diameter by minimum 3 m long.
- .2 Grounding conductors: bare stranded copper, soft annealed, size as indicated.
- .3 Insulated grounding conductors: green, copper conductors, size as indicated.
- .4 Ground bus: copper, size as indicated, complete with insulated supports, fastenings, connectors.
- .5 Non-corroding accessories necessary for grounding system, type, size, material as indicated, including but not necessarily limited to:
 - .1 Grounding and bonding bushings.
 - .2 Protective type clamps.
 - .3 Bolted type conductor connectors.
 - .4 Thermit welded type conductor connectors.
 - .5 Bonding jumpers, straps.
 - .6 Pressure wire connectors.

3 Execution

3.1 INSTALLATION GENERAL

- .1 Install complete permanent, continuous grounding system including, electrodes, conductors, connectors, accessories.
- .2 Install connectors in accordance with manufacturer's instructions.

- .3 Protect exposed grounding conductors from mechanical injury.
- .4 Make buried connections, and connections to, electrodes, using permanent mechanical connectors or inspectable wrought copper compression connectors to ANSI/IEEE 837.
- .5 Use mechanical connectors for grounding connections to equipment without lugs.
- .6 Soldered joints not permitted.
- .7 Install bonding wire for flexible conduit, connected at both ends to grounding bushing, solderless lug, clamp or cup washer and screw.
- .8 Install separate ground conductor to outdoor lighting standards.
- .9 Ground secondary service equipment.

3.2 ELECTRODES

- .1 Install rod, electrodes and make grounding connections as indicated.
- .2 Bond separate, multiple electrodes together.
- .3 Use copper conductors in noted size for connections to electrodes.
- .4 Make special provision for installing electrodes that will give acceptable resistance to ground value where rock or sand terrain prevails. Ground as indicated.

3.3 EQUIPMENT GROUNDING

- .1 Install grounding connections to typical equipment included in, but not necessarily limited to following list. Service equipment, transformers, switchgear, duct systems, frames of motors, motor control centres, starters, control panels, building steel work, generators, elevators and escalators, distribution panels, outdoor lighting, cable trays.

3.4 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .2 Perform ground continuity and resistance tests using method appropriate to site.
- .3 Perform tests before energizing electrical system.

END OF SECTION

1 General

1.1 RELATED SECTIONS

- .1 Section 26 05 00 – Common Work Results For Electrical

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.2 No. 83-M1985 (R2008), Electrical Metallic Tubing
 - .2 CSA C22.2 No. 211.2-06 (R2011), Rigid PVC (unplasticized Conduit)
 - .3 CSA C22.2 No. 56-04 (R2009), Flexible Metal Conduit and Liquid-Tight Flexible Metal Conduit
 - .4 CSA C22.2 No. 227.3-05 (R2010), Nonmetallic Mechanical Protection Tubing (NMPT) (Bi-National Standard, with UL 1696)

2 Products

2.1 CONDUITS

- .1 Electrical metallic tubing (EMT): to CSA C22.2 No. 83.
- .2 Rigid pvc conduit (Schedule 40): to CSA C22.2 No. 211.2.
- .3 Flexible metal conduit: to CSA C22.2 No. 56, liquid-tight flexible metal.
- .4 Rigid PVC type DB-2.
- .5 Flexible pvc conduit: to CAN/CSA-C22.2 No. 227.3

2.2 CONDUIT FITTINGS

- .1 Fittings: to CAN/CSA C22.2 No. 18, manufactured for use with conduit specified.
- .2 Ensure factory elbows for 90 degree bends for 25 mm and larger conduits.
- .3 Connectors and couplings for EMT.
 - .1 Water tight: use compression type.
 - .2 Normal location: use die-cast type.

2.3 FISH CORD

- .1 Install a 6 mm polypropylene pull cord in all spare conduits & ducts.

3 Execution

3.1 INSTALLATION

- .1 Use electrical metallic tubing (EMT) in PDC's.
- .2 Use rigid schedule 40 conduits for underground runs for sizes smaller than 50 mm.
- .3 Use rigid pvc type DB2 in duct banks and for underground runs 50 mm size and larger.

END OF SECTION

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 26 05 00 – Common Work Results For Electrical

2 Products

2.1 NOT USED

3 Execution

3.1 DIRECT BURIAL OF CABLES

- .1 Install cables on a rock free bed.
- .2 Underground cable splices not acceptable.
- .3 Minimum permitted radius at cable bends for metallic armoured cables, 12 times diameter of cables or in accordance with manufacturer's instructions.
- .4 Cable separation:
 - .1 Lay cables side by side in the trench.
 - .2 Maintain 300 mm minimum horizontal separation between low and high voltage cables.
 - .3 When low voltage cables cross high voltage cables maintain 300 mm vertical separation with low voltage cables in upper position.
 - .4 At crossover, maintain 75 mm minimum vertical separation between low voltage cables and 150 mm between high voltage cables.

3.2 CABLE INSTALLATION IN DUCTS

- .1 Install cables as indicated in ducts.
- .2 Do not pull spliced cables inside ducts.
- .3 Install multiple cables in duct simultaneously.
- .4 Use CSA approved lubricants of type compatible with cable jacket to reduce pulling tension.
- .5 Before pulling cable into ducts and until cables are properly terminated, seal ends of non-leaded cables with moisture seal tape.

- .6 After installation of cables, seal duct ends with duct sealing compound.

3.3 TRACE WIRE

- .1 When cables installed in trenches or underground ducts are not metallic or are unable to be detected through conventional line location techniques, install a metallic trace wire in same trench or spare conduit.

3.4 FIELD QUALITY CONTROL

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

END OF SECTION

1 General

1.1 RELATED REQUIRMENTS

- .1 Section 26 05 00 – Common Work Results For Electrical

2 Products

2.1 EQUIPMENT

- .1 Enclosed circuit breaker: in accordance with Section 26 28 16.02 - Moulded Case Circuit Breakers, rating as indicated.
- .2 Panelboard breaker type: in accordance with Section 26 24 16.01 - Panelboards Breaker Type, rating as indicated.

3 Execution

3.1 INSTALLATION

- .1 Install service equipment as shown.
- .2 Connect to incoming feeders.
- .3 Connect to outgoing load circuits.
- .4 Install ground fault equipment (where applicable).
- .5 Make grounding connections in accordance with Section 26 05 28 - Grounding – Secondary.
- .6 Make provision for power supply authority's metering (when applicable).

END OF SECTION

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 26 05 00 – Common Work Results For Electrical

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.2 No.42-10; General Use Receptacles, Attachment Plugs, and Similar Wiring Devices.

2 Products

2.1 GATE INTERCOM PEDESTAL

- .1 Steel constructed post: 14-gauge; square 4"x4" tube; minimum height above grade as shown on drawings; complete with enclosure suitable for intercom equipment, located at top of pedestal in weatherproof housing; grey powdercoat finish; and internal feed through conduit.
- .2 Intercom pedestal shall be provided with the equipment as detailed on the drawings and operate as follows:
 - .1 Allow visitor at gate to send a signal notification to a remote control station.
 - .2 Allow remote control station to communicate via voice and video with gate intercom location.
 - .3 Allow remote control station to open gate for site access.

2.2 GATE CONTROL STATION

- .1 Base station control system by same manufacturer as gate intercom.
- .2 To be wired to wall-mounted media converter for fibre optic to RJ-45 connector.

2.3 CONDUIT PULL BOX

- .1 Pull box installed as shown on drawings or as required to satisfy cable pull requirements from cable manufacturers.
- .2 Dimensions to be minimum 1.0m x 1.0m x 1.0m, with secure lockable metal cover in accordance with CSC Technical Criteria.
- .3 Pull box to be reinforced precast concrete on gravel base; structure to be stamped and sealed by a professional engineer licenced to practice in the Province of Alberta.

3 Execution

3.1 INSTALLATION

.1 Gate Intercom Pedestal:

.1 Install pedestal on steel reinforced concrete base as detailed on the drawings.

.2 Gate Control Station:

.1 Install as table-mounted or wall mounted in control office.

.2 Field locate control station in building noted on drawings; contractor to coordinate placement and installation with building personnel to minimize disruptions and impact to daily building operation.

END OF SECTION

1 General

1.1 RELATED REQUIREMENTS

- .1 Section 26 05 00 – Common Work Results For Electrical

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.2 No. 206-M1987 (R2008), Lighting Poles.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

2 Products

2.1 ALUMINUM POLES

- .1 Aluminum poles: to CSA C22.2No.206 designed for underground wiring and:
 - .1 Mounting on concrete anchor base.
 - .2 Monotube, round tapered 6063-T6 aluminum shaft.
 - .3 Single and double mounting arms as noted.
 - .4 Access handhole 300 mm above pole base for wiring connections, with welded-on reinforcing frames bolted-on cover.
 - .5 Anchor bolts: 25 mm x 915 mm hot dipped galvanized steel with shims, nuts, washers and covers.
 - .6 Finish: semi-lustrous satin by rotary sand process.
 - .7 Grounding lug.
 - .8 See drawings.

2.2 LUMINAIRE MOUNTING BRACKETS

- .1 Mounting brackets aluminum for specified luminaires:
 - .1 Single and twin brackets as indicated.
 - .2 Arm extension length: 2400 mm.
 - .3 Type: cantilever : See drawings.
 - .4 Constructed of 6063-T6 aluminum.

2.3 LUMINAIRES

- .1 HPS luminaire with cast aluminum weatherproof housing to match existing roadway lighting on site access roads, and:
 - .1 Construction:
 - .1 Die-Cast aluminum housing, corrosion resistant, IP-66 rated.
 - .2 Tool-less access, self-locking latches of stainless steel and aluminum.
 - .3 Glass optics
 - .4 Factory wired terminated at terminal block.
 - .2 Operational Ratings:
 - .1 Input Power: to match existing
 - .2 Input Voltage: 120VAC
 - .3 Photometric Distribution:
 - .1 IES distribution Type III.

3 Execution

3.1 INSTALLATION

- .1 Install poles true and plumb, complete with brackets in accordance with manufacturer's instructions.
- .2 Install luminaires on pole brackets.
- .3 Check luminaire orientation, level and tilt.
- .4 Connect luminaire to lighting circuit. Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

END OF SECTION