

September 2015

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- 1 Related Work .1 Refer to other specification sections for related work.
- .2 Refer to Section 01 33 00 for Shop Drawings/Submission requirements.
- 2 Codes and Standards .1 Do complete installation to CSA C22.1-2015 except where specified otherwise.
- .2 CSA Electrical Bulletins in force at time of tender submission, while not identified and specified by number in this Division, are to be considered as forming part of related CSA Part II standard and must be complied with.
- 3 Permits, Fees .1 Submit to Electrical Supply Authority the necessary number of drawings and specifications for examination and approval prior to commencement of work.
- .2 All bidders to carry a lump sum \$20,000.00 (twenty thousand dollars) allowance for all costs levied by the power utility.
- .1 Utility invoices are to be submitted to the Departmental Representative as proof of payment.
- .2 All utility costs in excess of \$20,000.00 will be addressed as an extra change order to the contract.
- .3 All utility costs less than \$20,000.00 will be addressed as a credit change order to the contract.
- .3 Pay all fees levied by the Supply Authority for upgrade and extension of power to the site and/or connection of the project to their system; for existing redundant overhead power cable removals; for pole adjustments and removals, and all other costs levied by utility for completion project.
- .4 Co-ordinate and meet requirements of power supply authority. Ensure availability of power when required.
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September 2015

4 As-Built
Drawings

- .1 During progress of the work keep a record of all variations from the working drawings. At completion of the project submit a set of prints showing variations neatly marked in red to the Departmental Representative. Refer to Section 01 33 00 for more specific requirements.

5 Work Included

- .1 Provide all labour and materials and everything that is required for a complete electrical installation, all in accordance with but not necessarily restricted to the following items, specification, and the accompanying drawings.
- .2 The work is to include but not necessarily be limited to the:
 - .1 Removal/Demolition of the existing wharf electrical system; including service entrance equipment, distribution equipment, overhead power feeders, wharf lighting and electrical shrouds.
 - .2 Construction and installation of a new electrical equipment building and equipment therein.
 - .3 New wharf lighting.
 - .4 Construction and installation of new electrical power centres consisting of, but not limited to, receptacles, device boxes, junction boxes, timber posts, metal brackets, collars and anchors and cabling.
 - .5 Construction/installation of a steel reinforced concrete encased duct bank from the utility service pole to the electrical equipment building. Service cabling from the pole to the service entrance equipment.
 - .6 Installation of direct buried teck cables to the electrical loads on the approach road. Surface mounted teck cables for the wharf electrical loads strapped to the under side of the wharf.
 - .7 Installation of LED flood lighting for the haulout area.
 - .8 Electrical equipment and power connection for the Derrick.

September 2015

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- 6 Minimum Standards
- .1 The standard established by the drawings and specifications shall not be reduced by any of the codes referred to in 2, and in no instance, will a standard be accepted lower than that established by the Canadian Electrical Code.
 - .2 As a "standard of quality" "acceptable manufacturers" catalogue designations are included in portions of this specification and on plans. These catalogue designations and descriptions are not necessarily listed in order of preference and all manufacturer's meeting this "standard of quality" may not be listed.
- 7 Supervision
- .1 The Contractor shall provide supervision and a sufficiently qualified foreman to insure that the job proceeds in a proper and efficient manner. If in the opinion of the Departmental representative, such personnel are not competent to carry out their work, the Contractor shall replace these men immediately upon written request of the DEPARTMENTAL REPRESENTATIVE.
- 8 Materials and Equipment
- .1 All material shall be new unless designated existing to be reused, of the best available quality and CSA/ULC approved for their respective use.
 - .2 Where there is no alternative to supplying equipment which is not CSA certified, obtain special approval from the local Inspection Department.
- 9 Tests
- .1 Test all wiring, included in the contract, to ensure there are no shorts or grounded conductors and that insulation values are as required by the Canadian Electrical Code.
 - .2 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.
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September 2015

9 Tests
(Cont'd)

- .3 Submit test results for DEPARTMENTAL REPRESENTATIVE review.
- .4 Megger line voltage circuits, feeders and equipment up to 350 V with 500 V instrument; feeders and equipment to 600 V with 1000 V instruments.
- .5 Replace conductors that fail insulation test.

10 Protective
Devices

- .1 Ensure circuit protective devices such as over-current trips, relays, and fuses are installed to values and settings as indicated, or required by the Canadian Electrical Code, Part I.

11 Nameplates

- .1 Lamacoid nameplates shall be permanently fixed to loadcentre, junction and pull boxes, enclosures and receptacles.
- .2 Nameplates:
 - .1 Lamacoid 2 mm thick plastic engraving sheet, black face, white core, mechanically attached.
- .3 Identification to be English and French. Provide one nameplate for each language.
- .4 Size 2 nameplates for pull boxes and junction boxes to indicate circuit numbers contained within.
- .5 Affix Size 2 nameplates to enclosures to identify pole # and or load.
- .6 Affix Size 5 nameplates to backboards adjacent to receptacles according to receptacle designation and circuit number as indicated on drawing.
- .7 Affix Size 5 nameplate, red face, white core, to junction boxes over receptacles to read "Receptacles for Ship to Shore Power Use Only. Improper use is extremely hazardous".

September 2015

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 |

12 Removals and Relocations

- .1 Unless designated otherwise equipment designated for removal other than equipment belonging to the local utility, will become the property of the Contractor and be promptly removed from the site.
- .2 Coordinate removals and relocations of utility owned equipment with local authority.
- .3 Pay all associated utility fees for removal, relocation, and/or temporary storage.
- .4 Relocate and/or install guy wires as required to meet utility standards.

13 Cutting, Patching & Painting

- .1 The Contractor shall perform all cutting, patching, and painting necessary for the proper installation of the work and shall repair any damage done, employing only the services of skilled workmen.

14 Wiring Identification

- .1 Maintain phase sequence and colour coding throughout.
- .2 Colour code to CSA C22.1 1998.

15 Wiring Terminations

- .1 Lugs, terminals, screws used for termination of wiring to be suitable for copper conductors.
- .2 All splices for wharf power centre receptacles to be made in cast PVC junctions boxes located on the power centres and in the electrical distribution centres or the

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|--|----|---|
| <u>15 Wiring Terminations (Cont'd)</u> | .2 | (Cont'd) electrical building. These splices are to be made using mechanical split bolt connectors and covered with heat shrink boots. |
| <u>16 Manufacturers and CSA Labels</u> | .1 | Manufacturers nameplates and CSA labels to be visible and legible after equipment is installed. |
| <u>17 Completion of Work</u> | .1 | On completion of the project, the Contractor shall remove all debris, and equipment made redundant by new work, and leave the site neat and tidy. Equipment shall be checked for proper fitting and alignment, adjusted as required, cleaned and repainted where necessary. |

PART 1 - GENERAL

- 1.1 Related Work
- .1 General requirements: Division 1.
 - .2 Refer to other specification sections for related work.

PART 2 - PRODUCTS

- 2.1 Wire & Cable
- .1 Wire and cable shall conform fully to the latest specifications of the Canadian Standards Association (CSA), Electrical & Electronic Manufacturers Association of Canada, (EEMAC) the Insulated Power Cable Engineers Association (IPCEA), and the American Society of Testing Materials (ASTM).
 - .2 Wiring on circuits exceeding 50 V to ground shall be of solid copper of 98% conductivity and of full size AWG gauge, minimum #12, unless noted otherwise. Insulation shall be cross linked polyethylene rated 600 V on conductors smaller than No 8 and 1000 volts larger than No. 10. Wiring shall be colour coded as follows:
 - Phase A - Black
 - Phase B - Red
 - Neutral - White
 - Ground - Green
 - .3 Copper conductors sized as indicated with 1000 V insulation of Chemically cross-linked thermosetting polyethylene material rated RW75: to CSA C22.2 No. 75-M1983.
 - .4 Teck Cable; Rated 90°C:
 - .1 Conductor: Class B stranded soft copper.
 - .2 Insulation: cross-linked polyethylene or ethylene propylene rubber, as approved by CSA on Types RW90 (X-LINK) Minus 40°C as per CSA C22.2, No. 131 and IPCEA.
 - .3 Identification: Surface color coding for sizes up to and including #2 AWG. For sizes larger than #2 AWG, number coding.
 - .4 Grounding Conductor: grounding conductor included in the cable assembly.

September 2015

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- 2.1 Wire & Cable (Cont'd)
- .4 Teck Cable; Rated 90°C:(Cont'd)
- .5 Multiple conductor cables assembled with suitable fillers and binder tape.
- .6 Inner Jacket: Polyvinyl Chloride (PVC) heat, flame and moisture resistant jacket, suitable for installation in temperatures down to Minus 40°C.
- .7 Armour: Aluminum interlocking armour.
- .8 Outer Jacket: Polyvinyl Chloride (PVC) heat, flame and moisture resistant jacket, black, suitable for installation in temperatures down to Minus 40°C.
- .9 Size and number of conductors as indicated on the drawings.
- 2.2 Wire Connections
- .1 Splices and joints in circuit wiring shall be made using: a) Bolted mechanical connectors Acceptable manufacturers - Burndy , Thomas & Betts.
- .2 Teck Connectors:
- .1 Stainless steel, liquid tight cable connectors c/w threaded lock nuts for entrance to junction boxes. Sized to suit individual cable diameters.
- .3 Mechanical split bolt connectors covered with heat shrink boots for all power centre receptacle and floating dock receptacle circuits. In junction boxes in electrical sheds and at field receptacle location.
- .4 Strain Relief Grips; stainless steel wire mesh; high strength , corrosion resistant, sized to suit cable diameter. Hubbell - Kellems grips.
- .5 Provide galvanized steel cable guards, to protect Teck Cables at all poles, to meet utility standards.
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PART 3 - EXECUTION

3.1 Installation
of Wire & Cable

- .1 Identify wiring with permanent indelible identifying marks, either numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit.
- .2 Maintain phase sequence and colour coding throughout in accordance with Item 4-036 of the Canadian Electrical Code Part I.
- .3 Install teck cable as indicated on the drawings.
- .4 Support teck cable as indicated on drawings and according to requirements of the Canadian Electrical Code. Use corrosion resistant cable supports as indicated.
- .5 New Teck cables to be continuous with no splices.

3.2 Wire & Cable
Connection

- .1 All connections shall be made electrically and mechanically secure. Sizes of connectors shall be according to manufacturer's recommendations for each wire size and combination of wires.
- .2 Install stainless steel cable glands at all TECK cable termination points.
- .3 Install cable guards to protect Teck Cable at all poles, to meet utility standards.

PART 1 - GENERAL

PART 2 - PRODUCTS

- 2.1 Equipment
- .1 System and circuit, equipment, grounding conductors, bare stranded copper, un- tinned, soft annealed, size as indicated.
 - .2 Insulated grounding conductors: green, type RW75.
 - .3 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.
 - .7 Ground bar (copper) size as indicated on drawings. Glass stand off insulators.
 - .8 Copper grounding lug to ground bars. Double barrel size to accommodate various size ground wires.

PART 3 - EXECUTION

- 3.1 Installation
General
- .1 Install complete permanent, continuous, system and circuit, equipment, grounding systems including, electrodes, conductors, connectors, accessories, as indicated, to conform to requirements of Engineer, and local authority having jurisdiction over installation. Where EMT is used, run separate ground wire in conduit.
 - .2 Install connectors in accordance with manufacturer's instructions.
 - .3 Protect exposed grounding conductors from mechanical injury.
 - .4 Use mechanical connectors for grounding connections to equipment provided with lugs.

September 2015

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| 3.1 Installation General <u>(Cont'd)</u> | .5 | Soldered joints not permitted. |
| | .6 | Install an integral bonding wire in all flexible conduit, connected at both ends to grounding bushing, solderless lug, clamp or cup washer and screw. |
| | .7 | Install separate ground conductor to outdoor lighting standards. |
| | .8 | Connect building structural steel and metal siding to ground by welding copper to steel. |
| | .9 | Make connections to ground bar(s) and to ground bus in service board as shown on drawings. |
| | | |
| 3.2 System and Circuit Grounding <u> </u> | .1 | Install system and circuit grounding connections to neutrals of the secondary 120/208 V systems. |
| | | |
| 3.3 Equipment Grounding <u> </u> | .1 | Install grounding connections to typical equipment included in, but not necessarily limited to following list. Service equipment, transformers, switchgear, distribution panels and outdoor lighting. |
| | | |
| 3.4 Field Quality Control <u> </u> | .1 | Perform tests in accordance with Common works Results Electrical section. |
| | .2 | Perform ground continuity and resistance tests using method appropriate to site conditions and to approval of Engineer and local authority having jurisdiction over installation. |
| | .3 | Perform tests before energizing electrical system. |

PART 1 - GENERAL

- 1.1 References .1 Canadian Standards Association (CSA)
.1 CAN/CSA C22.2 No. 18-98, Outlet Boxes,
Conduit Boxes, and Fittings and Associated
Hardware.
.2 CSA C22.2 No. 83-M1985 (R1999),
Electrical Metallic Tubing.

PART 2 - PRODUCTS

- 2.1 Conduits .1 Electrical metallic tubing (EMT): to CSA
C22.2 No. 83, with couplings.
.2 Rigid pvc conduit: to CSA C22.2 No. 211.2.
- 2.2 Conduit
Fastenings .1 PVC coated one hole steel pipe straps for
surface conduits less than 50 mm and smaller.
Two hole PVC coated steel pipe straps for
conduits larger than 50 mm.
.2 Fibreglass channel type supports for two or
more conduits at 1.5 m oc.
.3 Fibreglass threaded rods, 6 mm dia., to
support suspended conduits installed under
wharf deck.
.4 Galvanized fastening hardware..
.5 Male and female threaded PVC adapters.
- 2.3 Conduit
Fittings .1 Factory "ells" where 90° bends are required
for 25 mm and larger conduits.
.2 Steel set screw connectors and couplings for
EMT.
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2.4 Expansion
Fittings for Rigid
Conduit

- .1 Weatherproof expansion fittings with internal bonding assembly suitable for 200 mm linear expansion.
- .2 Watertight expansion fittings with integral bonding jumper suitable for linear expansion and 19 mm deflection in all directions.
- .3 Weatherproof expansion fittings for linear expansion at entry to panel.

2.5 Fish Cord

- .1 Polypropylene.

PART 3 - EXECUTION

3.1 Conduit
Installation

- .1 All conduits and cables shall be kept parallel or perpendicular to wharf lines. All conduits shall be securely held in place at intervals and with supports as required by the Canadian Electrical Code.
- .2 Conduit openings shall be sealed with plugs or caps to prevent entrance of foreign materials. Where conduits pass through a waterproof membrane an oversize sleeve shall be installed and caulking applied to maintain the waterproof properties of the membrane.
- .3 Conduit shall not pass through structural members without the permission of the Departmental Representative.
- .4 Sufficient number of fittings shall be used to permit easy pulling of wires. Conduits shall be continuous. To ensure the conduit is clean and dry before conductors are pulled in, the conduit shall be swabbed out by using a drag consisting of tight rubber washers.
- .5 Install service masts and weatherheads to local utility standards.
- .6 Touch up all marked surfaces using manufacturer's recommended materials and methods.

PWGSC
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Cumberland County, NS
Project No. R.076178.001

Conduits, Conduit
Fastenings and
Conduit Fittings

Section 26 05 34
Page 3
September 2015

3.2 Fastenings and .1
Supporting Devices Secure all equipment in a manner, so as to
not distort or cause undue stress on any
components.

September 2015

PART 1 - GENERAL

PART 2 - PRODUCTS

PART 3 - EXECUTION

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|---|--|
| <u>3.1 Cable Installation in Conduits</u> | <ul style="list-style-type: none">.1 Install cables as indicated in conduits..2 Do not pull spliced cables inside conduits..3 Install multiple cables in conduit simultaneously..4 Use CSA approved lubricants of type compatible with cable jacket to reduce pulling tension..5 Before pulling cable into conduits and until cables properly terminated, seal ends of lead covered cables with wiping solder; seal ends of non-leaded cables with moisture seal tape..6 After installation of cables, seal conduit ends with dust sealing compound. |
| <u>3.2 Field Quality Control</u> | <ul style="list-style-type: none">.1 Perform tests in accordance with Section 26 05 01 Common Work Results - Electrical..2 Perform tests using qualified personnel. Provide necessary instruments and equipment..3 Check phase rotation and identify each phase conductor of each feeder..4 Check each feeder for continuity, short circuits and grounds. Ensure resistance to ground of circuits is not less than 50 megohms..5 Pre-acceptance test(s).<ul style="list-style-type: none">.1 After installing cable but before splicing and terminating, perform insulation resistance test with 500V megger on each phase conductor of the 120 /240 volt system..2 Check insulation resistance after each splice and/or termination to ensure that cable system is ready for acceptance testing. |

PWGSC
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Project No. R.076178.001

Installation of
Cables in Conduits

Section 26 05 45
Page 2
September 2015

- 3.2 Field Quality .6 Provide Departmental Representative with list
Control of test results showing location at which each
(Cont'd) test was made, circuit tested and result of
each test.
- .7 Remove and replace entire length of cable if
cable fails to meet any of test criteria.

PART 1 - GENERAL

- 1.1 Related Standards .1 Complete service entrance to conform to Nova Scotia Power Inc.- Service Entrance Standards.

PART 2 - PRODUCTS

- 2.1 Supply Data .1 Service equipment suitable for incoming supply: 250V, 200A, 60Hz, three phase, 4 wire, grounded neutral.
- 2.2 Equipment .1 Service entrance rated, 200 amp, 250 V, 3 pole, 4 wire, SN, 3 phase main circuit breaker:
- .1 K frame.
 - .2 Non interchangeable trip.
 - .3 IC. 14 Ka @ 250 V.
 - .4 With neutral and grounding kit.
 - .5 Copper terminals.
 - .6 EEMAC 1 - General purpose enclosure - surface mounted.
- .2 Distribution Panelboard - Panel A
- .7 200 amp, 120/208 V, 3 phase, 4 wire.
 - .8 Copper bussing.
 - .9 200 amp lugs.
 - .10 42 circuit.
 - .11 Bolt on breakers; the number and rating of breakers is shown on the drawings.
 - .12 Ground bar.
 - .13 EEMAC 1 - general purpose enclosure.
- .3 Utility Meter Socket:
- .1 200 amp, 120/208 V, 7 jaw, to meet utility standards.
 - .2 Meter supplied and installed by N.S. Power Inc.
- .4 Wall Mounted Copper Ground Bus:
- .1 19.1 mm high X 3.2 mm thick X 406.4 mm long copper ground.
 - .2 Predrilled to accept lugs.
 - .3 Lugs to be copper. Size of lugs as required.
 - .4 Bus to be mounted 300 mm AFF on 25 mm glass insulators.

PWGSC
Electrical System
Installation Wallace,
Cumberland County, NS
Project No. R.076178.001

Service and
Distribution
Equipment

Section 26 24 10
Page 2
September 2015

PART 3 - EXECUTION

- 3.1 Installation
- .1 Install service and distribution equipment as indicated.
 - .2 Connect to incoming service.
 - .3 Ensure all circuit breakers are properly torqued.
 - .4 Make grounding connections.
 - .5 Meggar all circuits as required by Section 26 05 01 - Common Works Results - Electrical.

PART 1 - GENERAL

- 1.1 Related Work
- .1 Common Work Results - Electrical: Section 260501.
 - .2 Division 1.

PART 2 - PRODUCTS

2.1 Receptacles

- .1 20 amp, 125 volt, duplex, ground fault circuit interrupter. Nylon construction. Female receptacle CSA configuration 5-20R. Standard of acceptance: Hubbell Marine Product Series GF530EMA. Other manufacturers meeting this specification will be accepted.
 - .1 Device box: surface mounted in a duplex - "Watertite" device box. Yellow in colour.
 - .2 Polycarbonate hinged and gasketed "in use" cover.
 - .3 Receptacle device box and "in use" cover to be products of the same manufacturer.
- .2 20 amp, 125 volt, simplex, locking, female receptacle. CSA configuration L5-20R. Standard of acceptance: Hubbell Marine product series HBL23CM10. Other manufacturers meeting this specification will be accepted.
 - .1 Device box: surface mounted in a "Watertite" device box. Yellow in colour.
 - .2 Polycarbonate hinged and gasketed cover.
 - .3 Receptacle device box and "in use" cover to be products of the same manufacturer.
- .3 20 amp, 120 volt, 60Hz, ground fault circuit interrupter module. Yellow in colour. Automatic trip adjustment.
 - .1 Trip level: 4 to 6 ma.
 - .2 Trip time: 0.025 seconds. Nominal.
 - .3 High impact, UV stabilized rigid PVC housing.
 - .4 Power "on" neon indicator light.
 - .5 CSA certified, UV listed.
 - .6 Device box; duplex device box surface mounted complete with a polycarbonate, hinged and gasketed cover.

- .3 (Cont'd)
 - .7 Standard of acceptance: Hubbell marine product series #GFM20A, other manufacturers meeting this specification will be accepted.

- 2.2 Junction/Pull Boxes
- .1 Cast PVC. Reinforced junction and/or pull boxes.
 - .1 With screw down gasketed cover.
 - .2 Stainless steel screws.
 - .3 Conduit hubs.
 - .4 External mounting feet.
 - .5 Corrosion resistant.
 - .6 Approved for wet marine environments.
 - .7 Size as indicated or as per CEC.

- PART 3 - EXECUTION
- .2 Mount junction/pull boxes on plywood backboards or directly on pole:
 - .3 Install conduit and wiring and/or cabling from junction boxes to receptacles.
 - .4 Mount receptacles and GFCI modules on plywood backboard or pole as indicated.
 - .5 make connections - use split bolt mechanical connectors with heat shrink boots inside JB/PB.
 - .6 Ensure proper operation.

PART 1 - GENERAL

- 1.1 Product Data
- .1 Submit product data in accordance with Section 01 33 00 - Shop drawings and Other Submittal Procedures..
 - .2 Include time-current characteristic curves for breakers with ampacity as indicated in drawing with interrupting capacity of 22,000 A symmetrical (rms) and over at rated system voltage.

PART 2 - PRODUCTS

- 2.1 Breakers General
- .1 Bolt-on moulded case circuit breaker: quick-make, quick-break type, for manual and automatic operation with temperature compensation for 40°C ambient.
 - .2 Common-trip breakers: with single handle for multi-pole applications.
 - .3 Magnetic instantaneous trip elements in circuit breakers to operate only when value of current reaches setting. Trip settings on breakers with adjustable trips to range from 3-8 times current rating.
 - .4 Circuit breakers with interchangeable trips as indicated.

- 2.2 Thermal Magnetic Breakers
- .1 Moulded case circuit breaker to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping and instantaneous tripping for short circuit protection.

PWGSC
Electrical System
Installation Wallace,
Cumberland County, NS
Project No. R.076178.001

Moulded Case Circuit
Breakers

Section 26 28 21
Page 2
September 2015

PART 3 - EXECUTION

3.1 Installation .1 Install as indicated on schedule drawing.

END

September 2015

PART 1 - GENERAL

- 1.1 Shop Drawings and Product Data .1 Submit shop drawings and product data in accordance with Section 01 33 00- Shop Drawings.

PART 2 - PRODUCTS

- 2.1 Materials .1 Poles to be Jack pine, to CSA 015, pressure or vacuum treated with Penta preservative.
.2 Pole class 4, 10.7 metres.
- 2.2 Deck Lighting .1 Type "A" area lighting LED luminaires as indicated on the drawings will be supplied and delivered to site by DFO-SCH. A technical description of the luminaires and mounting brackets is as follows:
.1 135 watt input, 120 volt.
.2 700 ma driver.
.3 4000k colour temperature.
.4 IP66 Rated.
.5 R3 Roadway Type III distribution.
.6 Die-cast aluminum; polyester powder coat finish. Gray in colour.
.7 Enhanced corrosion resistant finish rated at 5000 hour exposure to salt spray.
.8 Cast aluminum wall bracket for timber pole mounting. Holophane cat. #0877.
.9 Standard of acceptance: Holophane Autobahn Series or equal.
- 2.3 Flood Lighting .1 Marine grade LED flood light as indicated on the drawings will be supplied and delivered to site by DFO-SCH. A technical description of the lights and mounting brackets is as follows:
.1 Light output: 400 w equivalent, vertical distribution.
.2 Die-cast aluminum with copper alloy housing. Epoxy primer, grey finished coat.
.3 4000k colour temperature with a 70 CRI (minimum).
.4 6 modules.

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- 2.3 Flood Lighting .1 (Cont'd)
- (Cont'd)
- .5 1050 m a driver.
 - .6 UL standard 1598A (salt water) marine outside tested.
 - .7 Optical enclosure to be sealed and gasketed to IP66 rating.
 - .8 Standard of acceptance: Holophane Predator medium LED series.
 - .9 Galvanized wood pole mounting bracket cat. # BKT-G.
- 2.4 Lighting Controls .1 Electronic Time Clock
- .1 7 day astronomical digital programmable time clock.
 - .2 120 V in a NEMA 1 enclosure.
 - .3 Contact rating 20 amp.
 - .4 24 hour clock format.
 - .5 365 - day calendar.
 - .6 Battery carryover c/w battery.
 - .7 Acceptable Manufacturers: Paragon, Intermatic.
- .2 Lighting Contactors
- .1 Wall mounted.
 - .2 20 A, 120 V, 60 Hertz coil; 20 amp., 120 v contacts, 2 pole.
 - .3 Electrically held.
 - .4 EEMAC 1 general purpose enclosure.
 - .5 Standard of Acceptance: Allen-Bradley or equal.
- .3 Flood Lighting Controls
- .1 Marine grade (CR) 15 amp, 125 volt, SPST toggle switch.
 - .2 Timber pole mounted in a FD type single gang non metallic device box.
 - .3 Single gang, marine grade switch cover. Leviton cat # cover-s or equal.
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PWGSC
Electrical System
Installation Wallace,
Cumberland County, NS
Project No. R.076178.001

Poles and Luminares
and controls

Section 26 56 20
Page 3

September 2015

PART 3 - EXECUTION

- 3.1 Installation
- .1 Poles - install poles as indicated and to utility standards.
 - .2 Contact the Departmental Representative for delivery of luminares to the site.
 - .3 Luminares - Install luminares as indicated and connect to lighting circuits and controls.
 - .4 Ensure proper operation.

END