ELECTRICAL AND COMMUNICATION - DESIGN REVIEW CHECKLIST

| | Project / Contract Title: | | C | ontra | act N | umb | er | | Consultant / Contractor | | | | |
|------|--|----------|----------|----------|----------------|----------|---------------|----------|-------------------------|----------|-------------------|-------------------------|--|
| | | | | | | | | | | | | | |
| | R (x)- Required C (V)- Complete DBR- Design Brief Report N/A- Not Applicable REQ- Requirements | Con | cept | | ninary sign | | ailed sign | | nal sign | | ed For ruction | | |
| Nie | Design Requirements and Drawings | | 5% | 50 | | | 5% | 10 | | | FC | Comments | |
| Nr. | Description | R (x) | C (v) | R (x) | C (√) | R (x) | C (v) | R (x) | C (v) | R (x) | C (√) | | |
| 1.0 | Design Report & General Drawings | | | | | | | | | | | | |
| The | following are correctly noted in the Design Brief Re | port | and (| Gene | ral Dr | awir | gs ar | nd co | mply | with | the co | ntractual requirements. | |
| 1.1 | Existing property drawings and limits of work (DWG) | х | | х | | Х | | х | | х | | | |
| 1.2 | Site survey and utility locates of existing services, constraints and conditions | х | | х | | х | | х | | х | | | |
| 1.3 | Specifications outline (List of Specifications to be provided) | х | | х | | х | | х | | х | | | |
| 1.4 | Project-specific exceptions to Metrolinx Standards (DBR) | | | х | | х | | х | | х | | | |
| 1.5 | Key Plans, General Notes and Legend (DWG) | | | х | | х | | х | | х | | | |
| 1.6 | Project phasing and design and/or construction stages (DWG) | | | х | | х | | х | | х | | | |
| 1.7 | Comments from previous submissions are addressed (DWG & DBR) | | | х | | х | | х | | х | | | |
| | | | | | | | | | | | | | |
| 2.0 | Electrical and Communication | 25 R | ъ% С | 50 R | % C | 7! R | 5% C | 10 R | 0% C | R | FC C | Comments | |
| 2.0 | Facility Systems | (x) | (v) | (x) | (√) | (x) | (v) | (x) | (√) | (x) | (√) | Comments | |
| The | following Communication Block / Single Line Diagr | ams | are ir | nclud | ed ar | d co | mply | with | the | follov | ving de | esign requirements. | |
| 2.1 | Overall Single Line diagrams – Electrical (see also item 3.0) (DWG) | х | | х | | Х | | х | | х | | | |
| 2.2 | Incoming power from Hydro utility identified: , | х | | х | | х | | х | | х | | | |
| 2.3 | Incoming services from other utility companies identified: , , | х | | х | | х | | х | | х | | | |
| 2.4 | Fire Alarm (FA) – Schematic Diagram & Central Alarm and Control Facility / Fire Alarm Central Panel (CACF/FACP) location identified (DWG) | | | х | | х | | х | | х | | | |
| 2.5 | FA detectors, pull stations, door holders, Fire annunciation devices, other FA devices, device-locations, types, cables, requirements, and interfaces with other systems (PA for example) | | | x | | х | | x | | x | | | |
| 2.6 | Location of the evacuation "Exit Signs" and illuminated emergency "FA Signs" | | | х | | Х | | х | | х | | | |
| 2.7 | Public Address(PA) – Block Diagram & Head End equipment location identified (DWG) | | | х | | х | | х | | х | | | |
| 2.8 | (FA for example) | | | х | | х | | х | | х | | | |
| 2.9 | CCTV – Block Diagram & Head End equipment location identified (DWG) | | | х | | х | | х | | х | | | |
| 2.10 | CCTV cameras types, Camera-locations, definition of the tour and home positions of PTZ cameras, cables, requirements, Metrolinx System Safety requirements addressed and interfaces with other systems (Access Control, Fare Collection for example) | | | х | | x | | х | | x | | | |

| 2.11 | Access Control – Block Diagram & Head End equipment location identified (DWG) | | | х | | х | | х | | х | | |
|------|---|-------|-------|--------|--------|------|-------|------|----------|-----|--------|--------------------------|
| | Access Control devices, readers, cables, | | | | | | | | | | | |
| 2.12 | requirements, and interfaces with other systems (CCTV for example) | | | Х | | Х | | Х | | Х | | |
| | Emergency Calling Intercom stations, | | | | | | | | | | | |
| 2.13 | requirements, Emergency Calling station- locations & Head End equipment location identified (DWG) | | | х | | х | | х | | х | | |
| | DATA Network and PRESTO- Block / Riser | | | | | | | | | | | |
| 2.14 | Diagram & Head End equipment location identified (DWG) | | | х | | Х | | х | | х | | |
| | Network equipment & PRESTO stations-locations, | | | | | | | | | | | |
| 2.14 | requirements and interfaces with other systems | | | х | | х | | х | | х | | |
| | (CCTV, Emergency Calling Intercom, Illumination levels for example) | | | | | | | | | | _ | |
| | Radio system – Block Diagram & Head End | | | | | | | | | | | |
| 2.15 | equipment location identified (DWG) | | | Х | | Х | | Х | | Х | | |
| | Radio system including Metrolinx radio towers, cell | | | | | | | | | | | |
| 0.40 | towers, dispatch centre radio, security radio, | | | | | | | | | | | |
| 2.16 | operational radio, cables, requirements, and interfaces with other systems (Security systems for | | | Х | | Х | | Х | ш | Х | | |
| | example) | | | | | | | | | | | |
| | Building Automation System (BAS) – Block | | | | | | | | | | | |
| 2.17 | Diagram & Head End equipment location identified | | | Х | | Х | | Х | | Х | | |
| | (DWG) BAS field devices-locations, cables, BAS system | | | | | | | | | | | |
| 0.40 | monitor/control points requirements, and interfaces | | | | | | | | | | | |
| 2.18 | with other systems (CHUBB, SCADA, FA for | | | Х | | Х | | Х | | Х | | |
| | example) | | | | | | | | | | | |
| 2.19 | SCADA – Block Diagram & Head End equipment location identified (DWG) | | | х | | х | | х | | х | | |
| | SCADA field equipment-locations, types, cables, | | | | | | | | | | | |
| 0.00 | requirements, and interfaces with other systems | | | | | | | | | | | |
| 2.20 | (CHUBB, Access Control, Power Metering, for | | Ш | Х | | Х | | Х | Ш | Х | | |
| | example) | | | | | | | | | | | |
| 2.21 | Passenger Information System (PIS) – Block Diagram & Head End equipment location identified | | П | х | | х | | х | | х | | |
| | (DWG) | |] | ^ |] | , |] | ^ | | ^ |] | |
| 2.22 | PIS types, PIS-locations, cables, requirements | | | х | | Х | | х | | х | | |
| | Uninterruptable Power Supply (UPS), UPS-location | | _ | | _ | | | | _ | | _ | |
| 2.23 | identified, requirements and interfaces with other systems (CHUBB, SCADA, FA etc.) (DWG) | | | Х | | Х | | Х | | Х | | |
| | Elevator and Escalators, power and communication | | | | | | | | | | | |
| 2.24 | | | | х | | х | | х | | х | | |
| | (FA, CHUBB, Fire Ventilation etc.) | | | | | | | | | | | |
| 2.25 | Public Information Intercom stations, requirements, Intercom station- locations & Head End equipment | | | | | ., | | | | , | | |
| 2.23 | location identified (DWG) | | | Х | | Х | | Х | | Х | | |
| | · · | | | | | | | | | | | |
| | | 25 | | 50 | | 71 | 5% | 10 | <u> </u> | | FC | |
| 3.0 | Single Line Power Delivery Schematics | R | C | R | % С | R | C C | R | C | R | C | Comments |
| | onighe time i over benvery senematics | (x) | (√) | (x) | (v) | (x) | (v) | (x) | (v) | (x) | (√) | Comments |
| The | following Power Delivery Schematics / Single Line | Diagr | ams | are ir | nclud | ed a | nd co | mply | with | the | follow | ing design requirements. |
| 3.1 | Normal Power and Emergency Power Distribution (Critical and Life Safety) Schematics (DWG) | | | х | | Х | | х | | х | | |
| 2.0 | Cables sized and identified | | | | | | | | \vdash | | | |
| 3.2 | | | | | | Х | | Х | Ш | Х | | |
| 3.3 | Switchgear, transformers, MCCs, load centers identified and rated | | | Х | | х | | Х | | Х | | |
| 3.4 | Metering and circuit protection established | | | | | х | | х | | х | | |
| 3.5 | Protection coordination calculation / report | | | | | х | | Х | | х | | |
| 3.6 | Short circuit and voltage drop calculations / report | | | | | х | | Х | | х | | |
| 3.7 | Temporary power during construction for operation of existing (DWG) | | | | П | х | | х | | х | | |

| 3.8 | Temporary power for operation of existing facility during construction, layouts and schematics (DWG) | | | | | х | | Х | | х | | |
|------|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | | | | | | | | | | | |
| 4.0 | Lavanta Danier and Communication | 25 | | 50 | _ | | 5% | 100 | | | FC | Comments |
| 4.0 | Layouts - Power and Communication | R (x) | C (v) | R (x) | C (v) | R (x) | C (v) | R (x) | C (√) | R (x) | C (√) | Comments |
| The | following Layouts are included and comply with th | e foll | owin | g des | ign r | equi | remer | nts. | | | | |
| 4.1 | Site Plan – Electrical and Communication services (DWG) | х | | х | | х | | Х | | х | | |
| 4.2 | Electrical and Communication Rooms locations identified (DWG) | х | | Х | | х | | Х | | Х | | |
| 4.3 | Electrical and Communication Room Layouts, rooms sizing, equipment space allocations (horizontal and vertical), clearances in compliance with DRM/Matrolinx Technical Master Specifications, OBC, OESC, Fire Department and other applicable codes/regulations | x | | x | | x | | x | | х | | |
| 4.4 | Electrical/Communication room elevations (DWG) | | | | | х | | Х | | Х | | |
| 4.5 | Major equipment dimensions, equipment identification, feeder from bottom or above identified | | | | | х | | Х | | Х | | |
| 4.6 | Power raceways layouts (overhead and embedded in floor and walls, maximum number of bends per DRM/Matrolinx Technical Master Specifications) (DWG) | | | | | x | | x | | x | | |
| 4.7 | Communication raceways layouts (overhead and embedded in floor and walls, maximum number of bends per DRM/Matrolinx Technical Master Specifications) (DWG) | | | | | x | | x | | x | | |
| 4.8 | Power and Communication receptacle layouts, circuits identified (DWG) | | | | | х | | Х | | Х | | |
| 4.9 | Layouts of additional communication systems such as Wi-Fi, Intercom, information kiosks and other applicable for the project (DWG) | | | | | х | | х | | х | | |
| | | | | | | | | | | | | |
| 5.0 | Layouts - Grounding System & Lightning | 25 R | % C | 50 R | % C | 75 R | 5% C | 100 R | 0% C | R | FC C | Comments |
| 3.0 | Protection System (LPS) | (x) | (v) | (x) | (v) | (x) | (v) | (x) | (v) | (x) | (√) | Comments |
| The | following Grounding System Layouts are included | and c | omp | ly wit | h the | e foll | owing | g des | ign r | equir | ement | S. |
| 5.1 | Grounding and Bonding Schematic Diagram (DWG) | | | х | | х | | х | | х | | |
| 5.2 | Ground resistance/resistivity study and Step and touch potential study | | | | | х | | Х | | Х | | |
| 5.3 | Cable type and sizes | | | | | х | | Х | | х | | |
| 5.4 | Grounding and bonding layouts, references to applicable details (DWG) | | | | | х | | х | | х | | |
| 5.5 | Grounding grid layouts (DWG) | | | | | Х | | Х | | Х | | |
| 5.6 | Ground-bus bar in electrical and communication rooms - location and sizes | | | | | х | | х | | х | | |
| 5.7 | Grounding and bonding equipment and details | | | | | х | | Х | | Х | | |
| 5.8 | Lightning protection layouts, references to applicable details (DWG) | | | | | х | | Х | | х | | |
| 5.9 | LPS cable type and sizes | | | | | х | | х | | х | | |
| 5.10 | Surge Protection Suppression devices for Category A, B and C locations identified and included in Power Distribution system where applicable | | | | | x | | x | | x | | |
| 1 | | ı | | | | _ | | | l — ¯ | | | |
| 5.11 | Lightning Risk Assessment for LPS calculations/study Cathodic protection system schematic, | | | | | Х | | Х | Ш | Х | | |

| 5.13 | Cathodic protection system layouts, only if applicable (DWG) | | | | | х | | х | | х | | |
|------|---|----------|----------|----------|----------|----------|---------------|----------|----------|----------|----------|------------|
| | | | | | | | | | | | | |
| | | 25 | 5% | 50% | | 75 | <u></u> 5% | 10 | 0% | ı | FC | |
| 6.0 | Layouts – Lighting System | R | С | R | С | R | С | R | С | R | С | Comments |
| | | (x) | (√) | (x) | (√) | (x) | (√) | (x) | (√) | (x) | (√) | |
| The | following Lighting System Layouts are include | ded a | and c | omp | ly w | ith 1 | the fo | ollow | ing (| desig | ın req | uirements. |
| 6.1 | Lighting Layouts including locations and Fixture types (DWG) | | | х | | х | | х | | х | | |
| 6.2 | Circuiting and controls for interior and exterior lighting per DRM/Matrolinx Technical Master Specifications | | | х | | х | | х | | х | | |
| 6.3 | Lighting and lighting controls design criteria | | | х | | х | | х | | х | | |
| 6.4 | Normal and emergency lighting | | | х | | х | | х | | х | | |
| 6.5 | Lighting distribution panel locations | | | х | | х | | х | | х | | |
| 6.6 | Lighting distribution panel schedules | | | | | х | | х | | х | | |
| 6.7 | Cable or wiring sizes, voltage drops calculations | | | | | х | | х | | х | | |
| 6.8 | Illumination calculations / photometric layouts(DWG) | | | | | х | | х | | х | | |
| 6.9 | Level of illumination in each area, voltage yards, substation, electrical, communication and other service areas, public areas like parking lot, parking structures, station, plazas, platforms, garbage area, canopy, etc. | | | | | х | | х | | х | | |
| 6.10 | Maintenance factor, CRI, Color Temperature | | | | | х | | х | | х | | |
| 6.11 | Fixtures (type, location and installation details) in relation to signage | | | | | х | | х | | х | | |
| 6.12 | Lighting Fixture Schedule, Light fixture types, voltage, controls, lamps, watts etc. (DWG) | | | | | х | | х | | х | | |
| | | | | | | | | | | | | |
| | | | % | 50 | | | 5% | | 0% | | FC | |
| 7.0 | Layouts- Fire Alarm (FA) | (x) | (v) | R (x) | (v) | R (x) | C (√) | (x) | (v) | R (x) | C (v) | Comments |
| The | following FA Layouts are included and comply with | | | | | | | | | (^/ | (*) | |
| 7.1 | FA Layouts including device locations and device | | | | | x | | х | П | х | | |
| 7.2 | identification (DWG) FA zones and circuiting | | | | | х | | х | | х | | |
| 7.3 | Physical Interface with other systems identified | | | | | Х | | Х | | х | | |
| 7.4 | Control panels / cabinets layouts and location (DWG) | | | | | х | | Х | | Х | | |
| | (bwg) | | | | | | | | | | | |
| | | 25 | 5% | 50 |)% | 75 | 5% | 10 | 0% | I | FC | |
| 8.0 | Layouts- Conduits / Duct-banks | R (x) | C (v) | R (x) | C (v) | R (x) | C (v) | R (x) | C (v) | R (x) | C (v) | Comments |
| The | following Conduits / Duct-banks Layouts are include | led a | nd co | mply | with | the | follo | wing | desig | n red | quirem | ents. |
| 8.1 | Home runs and raceway routes identified | | | | | х | | х | | х | | |
| 8.2 | Conduits/Ducts layouts for all services (electrical, communications, signals, etc.) (DWG) | | | | | х | | х | | х | | |
| 8.3 | Cable tray layouts for all services, types, installation details identified (DWG) | | | | | х | | х | | х | | |
| 8.4 | Conduit interface with civil design and reinforcing steel in concrete slabs and walls identified | | | | | х | | х | | х | | |
| 8.5 | Drainage from underground manholes and embedded pull-boxes | | | | | х | | х | | х | | |

| 8.6 | Conduit fill calculations, maximum number of bends and maximum distance between pull points per DRM/Matrolinx Technical Master Specifications | | | | | х | | х | | х | | | | | |
|---|---|--------------------|--|---|--|---|-------------------|--|-------------------------------|---|----------------|----------|--|--|--|
| 8.7 | Stub-ups / loose-ends and extension-boxes for conduits extension by others or in the future | | | | | х | | х | | х | | | | | |
| 8.8 | Conduits/Ducts – schedule (DWG) | | | | | х | | х | | х | | | | | |
| 8.9 | Pull box – schedule (DWG) | | | | | х | | х | | х | | | | | |
| 8.10 | Conduit/pull box identification numbers | | | | | х | | Х | | Х | | | | | |
| 8.11 | Conduit origin (from:), destination (to:) | | | | | х | | х | | х | | | | | |
| 8.12 | Conduit/pull box location | | | | | х | | Х | | Х | | | | | |
| 8.13 | Conduit size and length | | | | | х | | Х | | х | | | | | |
| | | | | | | | | | | | | | | | |
| | | | 3% | 50 | | | 5% | | 0% | | FC | | | | |
| 9.0 | Riser Diagrams – Raceways | R (x) | C (v) | R (x) | C (v) | R (x) | C (v) | R (x) | C (v) | R (x) | C (√) | Comments | | | |
| The | The following Raceway Riser Diagrams are included and comply with the following design requirements. | | | | | | | | | | | | | | |
| 9.1 | Raceway/Conduit Riser Diagrams for Communication systems (FA, CCTV, Train Control – Signal system etc.) (DWG) | | | | | х | | х | | х | | | | | |
| 9.2 | Raceway/Conduit Riser Diagrams for Power distribution system (DWG) | | | | | х | | Х | | х | | | | | |
| 9.3 | Equipment / Devices, identification and location | | | | | | | х | | х | | | | | |
| 9.4 | Conduits locations and conduit Identifications including designation conduit ID | | | | | | | Х | | Х | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | Wiring Diagrams – Wayside power | | 5% | 50 | % | | 5% | | 0% | | FC | _ | | | |
| 10.0 | Wiring Diagrams – Wayside power (WSP) | 25 R (x) | | 50 R (x) | | 75 R (x) | | 100 R (x) | | R (x) | | Comments | | | |
| | | R (x) | % C (√) | R (x) | % C (√) | R (x) | 5% C (√) | R (x) | 0% C (√) | R (x) | FC C | Comments | | | |
| | (WSP) following Wiring Diagrams are included and comply | R (x) | % C (√) | R (x) | % C (√) | R (x) | 5% C (√) | R (x) | 0% C (√) | R (x) | FC C | Comments | | | |
| The | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) | R (x) | C (V) | R (x) follo | 0% C (v) wing | R (x) desi | c (√) gn re | R (x) quire | C (V) | R (x) | FC C (V) | Comments | | | |
| The 10.1 | following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) | R (x) | C (V) | R (x) follo | % C (v) wing | R (x) desi | c (√) gn re | R (x) quire | C (v) | R (x) | C (V) | Comments | | | |
| The 10.1 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) | R (x) | C (v) the | R (x) follo X | C (V) | R (x) desi | C (V) | R (x) quire x | C (V) | R (x) | FC | Comments | | | |
| The 10.1 10.2 10.3 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging | R (x) | C (v) the | R (x) follo X X | C (V) | R (x) desi x x | C (V) gn re | R (x) quire x x | C (V) | R (x) | C | Comments | | | |
| The 10.1 10.2 10.3 10.4 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging Wire and terminal identification | R (x) | c (v) the | R (x) follo x x x | c (v) wing | R (x) desi x x x | 5% C (v) gn re | R (x) quire x x | c (v) | R (x) | C | Comments | | | |
| The 10.1 10.2 10.3 10.4 10.5 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging Wire and terminal identification | R (x) | C (v') C C C C C C C C C | R (x) follo x x x x x | c (v) | R (x) desi | 5% C (v) gn re | R (x) quire x x x x | C (V) | R (x) | C | Comments | | | |
| The 10.1 10.2 10.3 10.4 10.5 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging Wire and terminal identification Circuit identification Interlock cross-references | R (x) | c (v) the | R (x) follo x x x x x | c (v) wing | R (x) desi | c (v) gn re | R (x) quire | c (v) | x x x x x x | C | Comments | | | |
| The 10.1 10.2 10.3 10.4 10.5 10.6 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging Wire and terminal identification Circuit identification Interlock cross-references | R (x) | C (v) the | R (x) follo x x x x x x | c (v) wing | R (x) desi x x x x x | c (v) gn re | R (x) quire | c (v) | x x x x x x x x x x x x x x x x x x x | C | Comments | | | |
| The 10.1 10.2 10.3 10.4 10.5 10.6 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging Wire and terminal identification Circuit identification Interlock cross-references | R (x) | C (v) The control C C C C C C C C C | R (x) follo x x x x x x | C | R (x) desi x x x x x x | c (v) gn re | x x x x x x x x x x x x x x x x x x x | c (v) ment | x x x x x x x x x x x x x x x x x x x | C | Comments | | | |
| The 10.1 10.2 10.3 10.4 10.5 10.6 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging Wire and terminal identification Circuit identification Interlock cross-references | R (x) y with | C (v) The control C C C C C C C C C | R (x) folloo | C | R (x) desi x x x x x x | c (v) gn re | x x x x x x x x x x x x x x x x x x x | c (v) | x x x x x x x x x x x x x x x x x x x | C (v) | Comments | | | |
| The 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 | following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging Wire and terminal identification Circuit identification Interlock cross-references Sequence of operations | R (x) y with | C (v) The C (v) C (v) | R | C | x x x x x x x x x x x x x x x x x x x | c (v) gn re | x x x x x x x x x x x x x x x x x x x | C | R (x) X X X X X X X X X | C | | | | |
| The 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging Wire and terminal identification Circuit identification Interlock cross-references Sequence of operations Panelboard Schedules following Panelboard schedules are included and complete the | R (x) y with | C (v) The C (v) C (v) | R | C | x x x x x x x x x x x x x x x x x x x | c (v) gn re | x x x x x x x x x x x x x x x x x x x | C | R (x) X X X X X X X X X | C | | | | |
| The 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 | (WSP) following Wiring Diagrams are included and comply Device symbols and identification (DWG) Single Line WSP diagrams (DWG) WSP Control Schematics (DWG) Device location and tagging Wire and terminal identification Circuit identification Interlock cross-references Sequence of operations Panelboard Schedules following Panelboard schedules are included and complete the | R (x) y with | C (v) The c C (v) C (v | R (x) follo X X X X X X A A A A A B C C C C C C C C C C C C | c (v) wing Graph of the control of | R (x) desi X X X X X X X X X X X X X X X X X X | C (v) gn re | R (x) quire x x x x x x x in the second of t | C (v) ment D D D C C(v) | R (x) | C | | | | |

| 11.4 | Main breaker frame size and trip setting | | | х | | х | | х | | х | | |
|--|---|--------------------|------------------------------------|--|--------------------------------|--------------------------------------|--|------------------------------------|----------------------|---------------------|----------------|----------|
| 11.5 | Load per breaker (connected power) | | | х | | х | | х | | х | | |
| 11.6 | Load per phase (total power) | | | х | | х | | х | | х | | |
| 11.7 | Load identification per breaker (Lighting, Power, other) | | | х | | х | | Х | | х | | |
| 11.8 | Circuit numbers and MCB ratings | | | х | | х | | х | | х | | |
| 11.9 | 25% spare capacity (25% space and 25% spare circuit breakers per DRM/Matrolinx Technical Master Specifications) | | | | | | | х | | х | | |
| | | | | | | | | | | | | |
| 12.0 | Cable Schedules - Dower Delivery | 25 R | % C | 50 R | % C | 75 R | 5% C | 10 R | 0% С | R | FC C | Comments |
| 12.0 | Cable Schedules – Power Delivery | (x) | (v) | (x) | (v) | (x) | (v) | (x) | (v) | (x) | (√) | Comments |
| The | following Cable Schedules are included and compl | y witl | h the | follo | wing | desi | ign re | quire | ement | ts. | | |
| 12.1 | Cable Schedule (DWG) | | | | | х | | х | | х | | |
| 12.2 | Number of cables and conductors per feeder | | | | | х | | х | | х | | |
| 12.3 | Size of cables and conductors per feeder | | | | | х | | х | | х | | |
| 12.4 | Cable ID and type, Insulation Level for each feeder | | | | | х | | х | | х | | |
| 12.5 | Cable origin (From:), destination (To:), length | | | | | х | | х | | х | | |
| 12.6 | Route identified by conduit ID or tray ID | | | | | х | | х | | х | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | 25 | | 50 | | | 5% | _ | 0% | | FC | |
| 13.0 | Motor Schedules – Load Lists | R (x) | % C (√) | F (x) | % C (√) | 75 R (x) | 5% C (√) | R (x) | 0% C (√) | R (x) | FC C (v) | Comments |
| | Motor Schedules – Load Lists following Motor Schedules are included and compl | R (x) | C (√) | R (x) | C (√) | R (x) | C (v) | R (x) | C (v) | R (x) | С | Comments |
| | | R (x) | C (√) | R (x) | C (√) | R (x) | C (v) | R (x) | C (v) | R (x) | С | Comments |
| The | following Motor Schedules are included and compl Electrical specifications included in motor schedules (In most cases motor schedules are | R (x) | C (v) | R (x) | C (√) wing | R (x) desi | C (√) gn red | R (x) quire | C (v) ment | R (x) S. | (v) | Comments |
| The 13.1 | following Motor Schedules are included and compl Electrical specifications included in motor schedules (In most cases motor schedules are developed by mechanical discipline) | R (x) | C (V) h the | R (x) follow | c (v) wing | R (x) desi | C (V) | R (x) quire | C (V) ment | R (x) S. | C | |
| The | following Motor Schedules are included and compl Electrical specifications included in motor schedules (In most cases motor schedules are | R (x) y with | c (v) h the | R (x) follo | c (v) wing | R (x) desi | C (V) | R (x) quire | c (v) ment | R (x) S. | c (v) | Comments |
| The 13.1 | following Motor Schedules are included and compl Electrical specifications included in motor schedules (In most cases motor schedules are developed by mechanical discipline) | R (x) y with | C (v) h the G C C (v) | R (x) follow | C (v) wing | R (x) desi | C (v) gn red | R (x) quire X | C (V) ment | R (x) S. X | C | |
| The 13.1 | following Motor Schedules are included and compl Electrical specifications included in motor schedules (In most cases motor schedules are developed by mechanical discipline) Hazardous Locations | R (x) y with | C (v) h the G C C (v) | R (x) follow | C (v) wing | R (x) desi | C (v) gn red | R (x) quire X | C (V) ment | R (x) S. X | C | |
| The 13.1 | following Motor Schedules are included and compl Electrical specifications included in motor schedules (In most cases motor schedules are developed by mechanical discipline) Hazardous Locations ardous Locations design is included and the following | R (x) y with | C (v) h the | Follow Follow | C (v) wing D C (v) | R (x) desi x | C (v) gn red | R (x) quire X | C (v) ment | R (x) S. X | C | |
| 14.0 Haza | following Motor Schedules are included and comple Electrical specifications included in motor schedules (In most cases motor schedules are developed by mechanical discipline) Hazardous Locations Hazardous Locations design is included and the following Hazardous locations and conditions/materials identified and allocated on the site/building layouts | R (x) y with | C (v) h the | Follow South Follow R (x) requ | C (v) wing C (v) irem | R (x) desi X 75 R (x) ents. | C (v) gn red | R (x) quire x 100 R (x) | C (v) ment 0% C (v) | R (x) S. X R (x) | C (v) | |
| 14.0 Haza 14.1 | following Motor Schedules are included and comple Electrical specifications included in motor schedules (In most cases motor schedules are developed by mechanical discipline) Hazardous Locations Hazardous Locations Hazardous locations layout (DWG) Hazardous locations and conditions/materials identified and allocated on the site/building layouts Required protection level identified Types and degrees of protection to be used are identified for each hazardous zone (zone 0,1,2,20,22) | R (x) y with | c (v) h the | Follow Follow R (x) requ | C (V) wing "% C (V) siirem | R (x) desi | C (v) gn rec | R (x) quire X 100 R (x) X | C | R | C | |
| 14.0 Haza 14.1 14.2 14.3 | Following Motor Schedules are included and comple Electrical specifications included in motor schedules (In most cases motor schedules are developed by mechanical discipline) Hazardous Locations Hazardous Locations Hazardous locations layout (DWG) Hazardous locations and conditions/materials identified and allocated on the site/building layouts Required protection level identified Types and degrees of protection to be used are identified for each hazardous zone (zone 0,1,2,20,22) Electrical equipment and raceways types of protection are identified and are in compliance with OESC and other applicable standards | R (x) y with | c (v) h the | R (x) follow 50 R (x) requ x | c (v) wing C (v) c (v) siirem | R (x) desi X 75 R (x) ents. X | C (v) ggn ret C (v) C (v) | R (x) quire x 100 R (x) | C | R (x) S. | C | |
| 14.0 Haza 14.1 14.2 14.3 | Following Motor Schedules are included and comple Electrical specifications included in motor schedules (In most cases motor schedules are developed by mechanical discipline) Hazardous Locations Hazardous Locations Hazardous locations layout (DWG) Hazardous locations and conditions/materials identified and allocated on the site/building layouts Required protection level identified Types and degrees of protection to be used are identified for each hazardous zone (zone 0,1,2,20,22) Electrical equipment and raceways types of protection are identified and are in compliance with OESC and other applicable standards Electrical equipment and raceways are designed in accordance with the type and degree of protection | R (x) y with | C (v) h the | R (x) follow 50 R (x) requ x | c (v) wing "" c (v) sirem "" | R (x) desi x 75 R (x) ents x x | C (v) Simple C C C C C C C C C | R (x) quire x 100 R (x) x x | C | R (x) S. | C (v) | |
| 14.0 Haza 14.1 14.2 14.3 14.4 | Following Motor Schedules are included and comple Electrical specifications included in motor schedules (In most cases motor schedules are developed by mechanical discipline) Hazardous Locations Hazardous Locations design is included and the following the following design is included and the following design in the following design is included and the following design in design in the following design in accordance with the type and degree of protection specified for the identified hazardous areas and appropriate labels are included in the design, all per OESC and other applicable standards | R (x) y with | C (v) h the C (v) s% C (v) essign | R (x) follow 50 R (x) requ x | c (v) wing C (v) ::irem | R (x) desi x 75 R (x) ents x x x | C (v) G G G G G G G G G | R (x) quire x 100 R (x) x x x | C (v) ment | R | C (v) | |

| | Jurisdiction (AHJ) | R (x) | C (√) | R (x) | C (v) | R (x) | C (v) | R (x) | C (v) | R (x) | C (√) | | | |
|------|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|
| The | The following submittals are developed and submitted to the respective Authority Having Jurisdiction. | | | | | | | | | | | | | |
| 15.1 | ESA | | | | | | | х | | х | | | | |
| 15.2 | Municipal authority | | | | | х | | х | | х | | | | |
| 15.3 | Local Hydro authority | | | | | | | х | | х | | | | |
| 15.4 | Metrolinx internal authority- safety and security | | | | | х | | х | | х | | | | |
| | | | | | | | | | | | | | | |