0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 millimetres

ONTARIO HYDRO FEEDER 27M3
44 kV OVERHEAD LINE

BATH INSTITUTION

A2 B2 — 600A SWT — 46KV–600A DOUBLE BREAK LOAD INTERRUPTER SWITCH
39KV — 45KV STATION CLASS LIGHTNING ARRESTORS

OUTDOOR SUBSTATION

CS 2B — 69KV– 1200A SERIES 2000 CIRCUIT–SWITCHER
SMD–2C FUSE UNITS 40E TCC–153–1 250 KV B.I.L. 31,500A SYM I.C.
1500/2000kVA 44kV/13.8KV ONAN/ONAF TRANSFORMER (63 49 2B)
3 X 15KV / 100% 4/0 AWG – 1C CU 19 ST CR SD TRXLPE C/N 28–#16 BLACK POLY

CS 1A — 69KV– 1200A SERIES 2000 CIRCUIT–SWITCHER
SMD–2C FUSE UNITS 40E TCC–153–1 250 KV B.I.L. 31,500A SYM I.C.
1500/2000kVA 44kV/13.8KV ONAN/ONAF TRANSFORMER (1A 49 63)
3 X 15KV / 100% 4/0 AWG – 1C CU 19 ST CR SD TRXLPE C/N 28–#16 BLACK POLY

15kV OUTDOOR SWITCHGEAR

CELL 1 — FEEDER 2B
10KV INT. CLASS LIGHTNING ARRESTORS (86)
B2 B1 — 15KV 600A MINI–RUPTER SWITCH
UTILITY CT — UTILITY METERING (M) — UTILITY PT
(60 62) PROTECTION CONTROL PT

CELL 2 — UTILITY METER FEEDER 2B

CELL 3 — STATION POWER
2E — 1 PHASE, 15KVA 13.8/120/240 — STATION SERVICE LOAD CENTRE

CELL 4 — UTILITY METER FEEDER 1A
10KV INT. CLASS LIGHTNING ARRESTORS (86)
UTILITY CT — UTILITY METERING (M) — UTILITY PT
A1 A2 — 15KV 600A MINI–RUPTER SWITCH
(62 60) PROTECTION CONTROL PT

CELL 5 — FEEDER 1A

3 X 15KV / 100% 4/0 AWG – 1C CU 19 ST CR SD TRXLPE C/N 28–#16 BLACK POLY
3 X 15KV / 100% 4/0 AWG – 1C CU 19 ST CR SD TRXLPE C/N 28–#16 BLACK POLY

BUILDING BA–04

15kV INDOOR SWITCHGEAR

CELL 6 — 52–1A MAIN BREAKER 1200 AMP VACUUM TYPE E/O D/O
(50N 51) A V 27 PLC
PLC 27 V A (51 50N)
CELL 4 — 52–2B MAIN BREAKER 1200 AMP VACUUM TYPE E/O D/O
PLC — 52–3 TIE BREAKER 1200 AMP VACUUM TYPE E/O D/O — CELL 5

CELL 10 — SW10A XFMR T1 BA04 — 63E
CELL 9 — SW7A — SPARE
CELL 8 — SW8A XFMR T1 MILLHAVEN — 63E
CELL 7 — 52–9A GENERATOR 1200 AMP VACUUM TYPE E/O D/O — PLC
CELL 3 — SW4B XFMR T2 MILLHAVEN — 63E
CELL 2 — SW5B — SPARE
CELL 1 — SW6B XFMR T2 BA04 — 63E

OUTDOOR GENERATOR ENCLOSURE

2000kVA 13.8kV 3Ø 3W GENERATOR (G)
3 X 15KV / 100% 4/0 AWG – 1C CU 19 ST CR SD TRXLPE C/N 28–#16 BLACK POLY

FEEDER 8A1 #2 AWG, 15 KV
FEEDER 4B1 #2 AWG, 15 KV

NOTES

1. INSTALL NEW TECK 90 CABLE FROM PANELBOARD 'S2' TO NEW JUNCTION BOX IN BUILDING MHJ MECHANICAL ROOM.
2. INSTALL NEW TECK 90 CABLE FROM PANELBOARD 'S1' TO NEW JUNCTION BOX IN BUILDING MHJ MECHANICAL ROOM.
3. CONTRACTOR IS RESPONSIBLE TO INCLUDE IN HIS PRICE FOR A BRAND OF CIRCUIT BREAKERS THAT WILL FIT IN THE SAME SPACE AS THE EXISTING BREAKERS. INCLUDE FOR REQUIRED MODIFICATIONS TO PANEL, BUSWORK, AND PANEL TRIM. MAINTAIN THE SAME PHASE SEQUENCE AS EXISTING.
4. CONNECT DIRECTLY TO DISTRIBUTION PANEL 'S2' BUS. USE LOW IMPEDANCE CABLE SUPPLIED BY SURGE PROTECTION MANUFACTURER. LOCATE SPD UNIT AS CLOSE AS POSSIBLE TO DISTRIBUTION PANEL 'S2' KEEP WIRE AS SHORT AS POSSIBLE.
5. PROVIDE 60 AMP FUSED DISCONNECT, SWITCH 25KA MINIMUM RATED, FROM SUPPLIER OF SPD UNIT.
6. LOCATE SPD UNIT AS CLOSE AS POSSIBLE TO DISTRIBUTION PANEL 'S1'. USE LOW IMPEDANCE CABLE SUPPLIED BY SURGE PROTECTION MANUFACTURER. KEEP WIRING AS SHORT AS POSSIBLE.

LEGEND
LIGHT LINES INDICATE EXISTING FEEDERS AND EQUIPMENT TO REMAIN
DARK SOLID LINES INDICATE NEW EQUIPMENT AND FEEDERS.

MILLHAVEN INSTITUTION

BUILDING 'U' MAIN ELECTRICAL ROOM

LOAD BREAK SWITCHING CABINET
M1 — TIE BREAKER SWITCH — M2
M3
15kV INCOMING SWITCH CABINET

TRANSFORMER #1 MILLHAVEN 1000kVA 13.8kV : 600/347V
TRANSFORMER #2 MILLHAVEN 1000kVA 13.8 kV : 600/347V

BREAKER S1 1600/1200A — KA — 4720 DIGITAL METER BUS A
TIE BREAKER S3 1600A/NA
BREAKER S2 1600/1200A — KB — 4720 DIGITAL METER BUS B
600/347 V SWITCHGEAR
BUS 'A'–DP–S1 | BUS CONNECTION CUBICLE | BUS 'B'–DP–S2
600/347 V BUS BAR CABINET

EXISTING SIEMENS 600V MOLDED CASE BREAKER DISTRIBUTION SECTION — 600V, 3Ø — 400A 3P
TO EXISTING BUILDING
TO EXISTING BUILDING
TO EXISTING BUILDING
TO NEW LIVING UNITS (BY OTHERS)

TO 225A, 600V BUS DUCT
TO 800A, 600V BUS DUCT

MAIN INCOMING ENCLOSED BREAKER (EMERGENCY) — 600A 3P
MANUAL TRANSFER SWITCH FOR DP–S1 — OFF/ON NEUTRAL ON/OFF — 800AF NF/DT
INPUT TERMINAL / PLUG FOR EMERGENCY PORTABLE GENERATOR

FEEDER BREAKER (PANEL NPPU–600)
BREAKER S4 1600/1200A

600 VOLT SWITCHBOARD PANEL

(3) DISTRIBUTION PANEL 'S1' (ESSENTIAL) — 600V, 1200A BUS
200A (NEW) LSIG | 200A 3P (NEW) LSIG | 175A 3P (NEW) LSIG | 200A 3P (NEW) LSIG | 225A 3P (NEW) LSIG | 150A 3P (NEW) LSIG | 400A 3P LSIG | 60A 3P (NEW) LSIG
(2) NEW 3C #4/0 AWG TECK 90 — NEW JUNCTION BOX
(NEW) 3C #4/0 AWG TECK90 | (NEW) 3C # 3/0 AWG TECK90 | (NEW) 3C # 3/0 AWG TECK90 | (NEW) 3C # 3/0 AWG TECK90 | (NEW) 3C # 4/0 AWG TECK90 | (NEW) 3C # 2/0 AWG TECK90 | (NEW) 3C # 6 AWG RW90 CU + BOND IN 27mm CONDUIT
SECONDARY WATER SUPPLY
PANEL EPPE–600 (NEW) | PANEL EPPT–600 (NEW) | PANEL EPPJ–600 (NEW) | PANEL EPPS–600 (NEW) | PANEL EPPA–600 (NEW) | PANEL EPPU–600 | SPD TYPE 1 (NEW) (6)
SEE DRAWING E–3 | SEE DRAWING E–4

500A 3P — TO PANEL NPPU

(3) DISTRIBUTION PANEL 'S2' (NORMAL) — 600V, 1200A BUS
175A 3P (NEW) LSIG | 200A 3P (NEW) LSIG | 200A 3P (NEW) LSIG | 225A 3P (NEW) LSIG | 400A 3P (NEW) LSIG | 100A 3P | 225A 3P | 800A 3P
(1) NEW 3C #4/0 AWG TECK 90 — NEW JUNCTION BOX
(NEW) 3C # 2/0 AWG TECK90 | (NEW) 3C # 3/0 AWG TECK90 | (NEW) 3C # 3/0 AWG TECK90 | (NEW) 3C # 4/0 AWG TECK90 | (NEW) 3C # 500MCM TECK90 | (NEW) 3C #6AWG RW90 CU + BOND IN 27mm CONDUIT (4)
TO "S" BUILDING MSB | TO "SS" BUILDING
PANEL NPPA–600 (NEW) | PANEL NPPS–600 (NEW) | PANEL NPPJ–600 (NEW) | PANEL NPPE–600 (NEW) | PANEL NPPT–600 (RETAIN)
NEW JUNCTION BOX — 60A (5) — SPD TYPE 1 (NEW)
DP–S2 MAIN BREAKER
SEE DRAWING E–4 | SEE DRAWING E–3

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

LICENSED PROFESSIONAL ENGINEER R.J. VOS 2013/15/13 PROVINCE OF ONTARIO
ELECTRICAL

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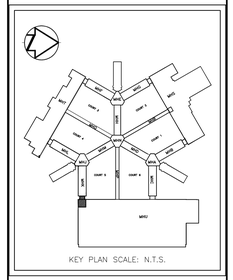

KEY PLAN SCALE: N.T.S.

04		
03		
02		
01	ISSUED FOR BID	2013–08–15
revision		date

Do not scale drawings.
Verify all dimensions and conditions on site and immediately notify the Departmental Representative of all discrepancies.

A Detail No. No. du détail
B drawing no. – where detail required dessin no. – où détail exigé
C drawing no. – where detailed dessin no. – où détaillé

project title / titre du projet
BATH INSTITUTION
HWY. 33, BATH, ON
K0H 1G0 — Ontario
ELECTRICAL DISTRIBUTION SYSTEM UPGRADE

drawing title / titre du dessin
SINGLE LINE – MAIN ELECTRICAL ROOM

drawn by / dessiné par: K. ROBINSON
designed by / conç par: R. FERGUSON
approved by / approuvé par: R. VOS
bid / offre: K. HAQUE — project manager / administrateur de projets
project date / date du projet: 2013–05–27
project no. / no. du projet: R.053529.001
drawing no. / dessin no.: E–2

Drawing name: X:\PROJECTS\4901 – 4999\4911 – Millhaven Elec Dist. System\KEL Drawings\4911E2.dwg Aug 16, 2013 – 3:01pm

OSC–A0 DATE PLOTTED: 2013–01–18 PLOT SCALE: 1:1 CAD FILE: Z:\PROJECTS\4901 – 4999\4911 – Millhaven Elec Dist. System\KEL Drawings\4911E2