

Addendum / Addenda

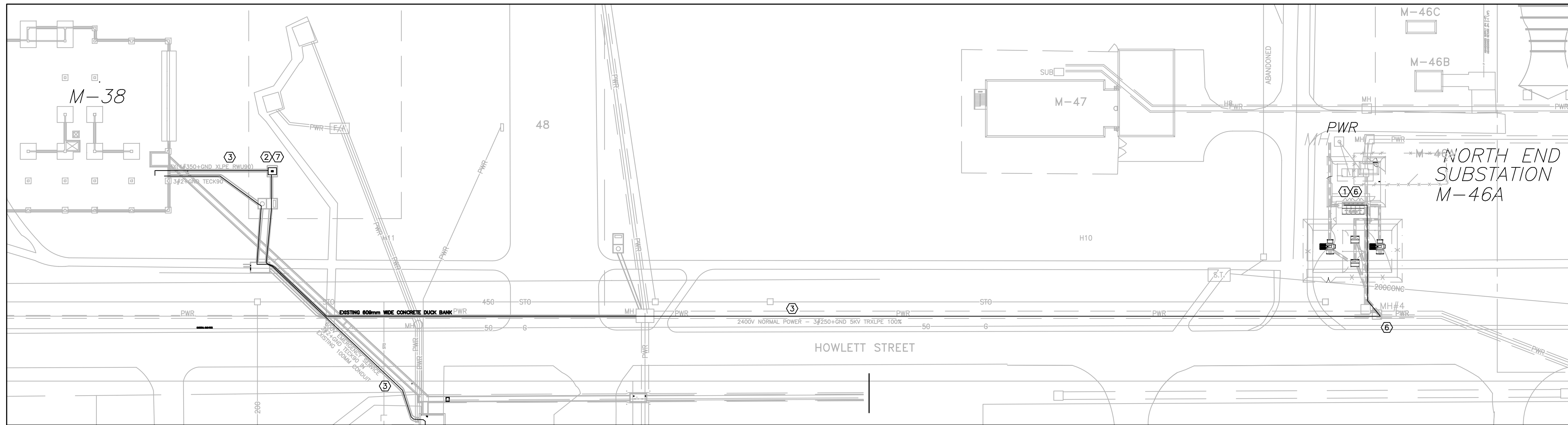
Project Description / Description de projet M38 M38 Electrical Service		
Solicitation No./N° de sollicitation 17-22113	Project No./N° de projet 5310	W.O. No./N° d'ordre de travail A1-006442-01
Departmental Representative / représentant ministériel Allan Smith		Date January 15, 2018
Notice: This addendum shall form part of the tender documents and all conditions shall apply and be read in conjunction with the original plans and specifications.		Nota: Cet addenda fait partie intégrale des dossiers d'appel; toutes les conditions énoncées doivent être lues et appliquées en conjonction avec les plans et les devis originaux.

- 1 Included with this addendum are replacement drawings 5310-E01R, 5310-E02R, 5310-E03R to replace 5310-E01, 5310-E02 and 5310-E03.
- 2 A question was raised regarding the size of the transformer secondary wiring. It is to be 3 x (4 #350+GND RWU90). Cable spec as below:
 - .1 Conductors: copper size as indicated.
 - .2 Insulation: cross-linked polyethylene compound rated RWU90.
 - .3 Insulation shielding: semi-conducting non-metallic tape over insulation, and served wire shield over tape.
 - .4 Cable jacket: thermosetting with separator tape between shield and jacket.
- 3 As identified in the specifications, any work requiring a shut down is to be done outside of normal working hours.
- 4 M. Sullivan & Son Ltd. are in control of the construction site at M-38 and will manage all safety requirements of the site. Winning bidder is responsible to comply with all health and safety requirements of M. Sullivan & Son Ltd., along with any other Ministry of Labour requirements so that M. Sullivan & Son Ltd. maintain control of the site.
- 5 5KV TRXLPE cable to be unarmoured but shielded. Spec as below:
 - .1 Single copper conductor, Class B stranded, size as indicated.
 - .2 Semi-conducting crosslinked polyolefin conductor shield.
 - .3 Manufactured to CSA C68.5
 - .4 Insulation: 133% tree retardant crosslinked polyethylene (TRXLPE) rated for 90°C, for 15,000V.
 - .5 Semi-conducting crosslinked polyolefin conductor insulation shield.
 - .6 Metallic Shield: 0.06mm annealed copper shield tape applied helically with 20% overlap over insulation shield.

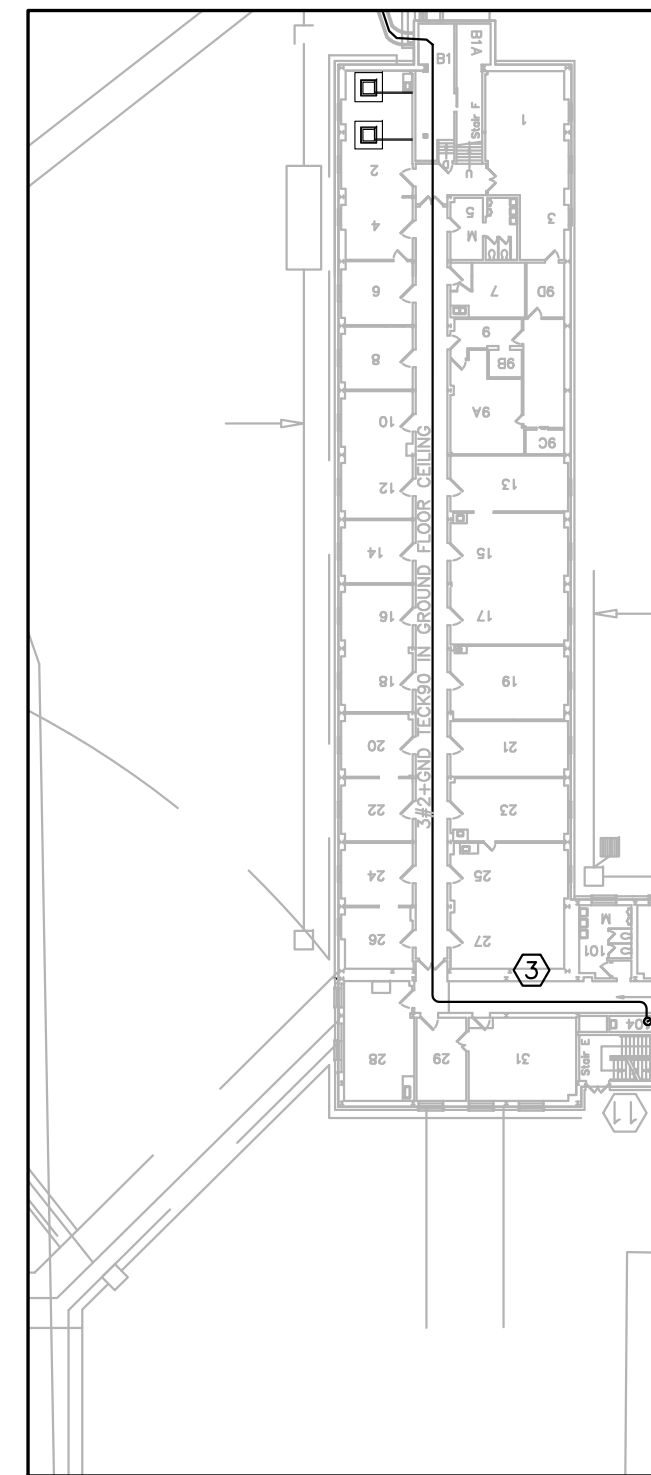
.7 Jacket: Low friction, lead free, flame-retardant, moisture and sunlight-resistant, PVC jacket rated minus 35°C.

- 6 Panel 'PD1' main 1000A breaker to be LSIG type c/w Ground Fault, Power meter, and PadLock Attachment-fixed.
- 7 750KVa dry type transformer to be rated for pad-mounting without fencing around. The transformer must be certified to CAN/CSA C22.2 No.47-M90 (Air Cooled Distribution Transformer (Dry Type) up to 46KV) and CAN/CSA C227.4 (Three Phase Tamper Resistant Pad Mount Transformer (Up to 27.6KV)(Up to 2500 KVA)).
- 8 Emergency power to be fed from panel "EPD4' in room B404 instead. Cable to be surface mounted in room B404 and run into corridor directly. The rest cable routing to follow existing shown on the drawing.
- 9 Trenching and backfilling within M-38 for the PD1 and EPD1 feeds will be completed by M. Sullivan & Son. Coordinate work with them.
- 10 Routing of cabling within M-36 can be done during normal working hours. Work is to be coordinated through the NRC Departmental Representative and timing of work may be restricted based on operational needs of the building occupants.
- 11 Drawing 5044-E02 is included for reference. This shows existing grounding system already in place. Contractor needs to connect new transformer to existing grounding system.
- 12 It is NRC policy that for any work performed in a manhole, all conductors within the manhole must be de-energized. As such all work within manholes must be performed during a shutdown as described in the specifications. Any work associated with pulling conductors between M-46A and the new transformer that does not involve manholes can be done during normal working hours.
- 13 Included with this addendum are the attendance sheets from both job showings.

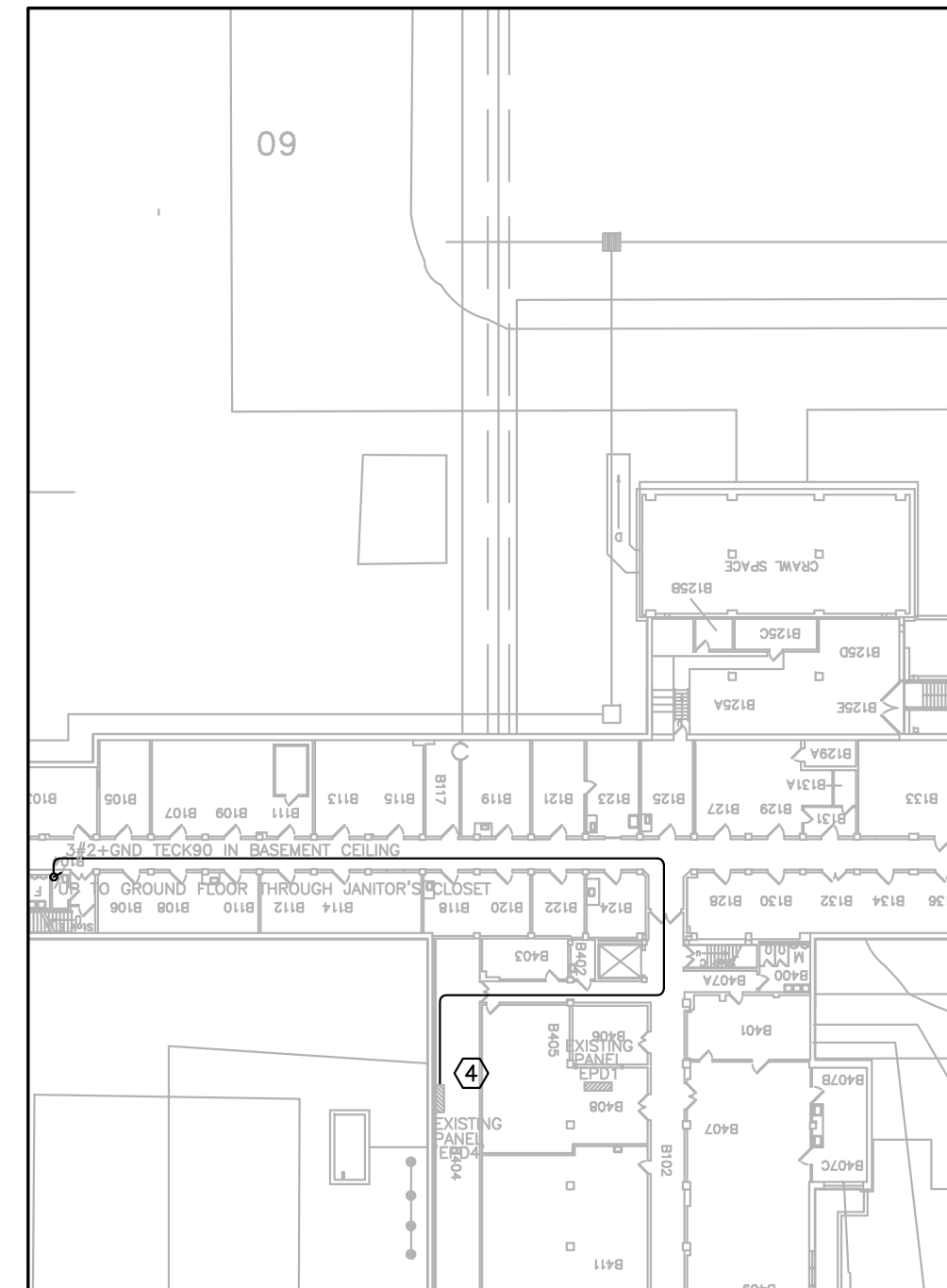




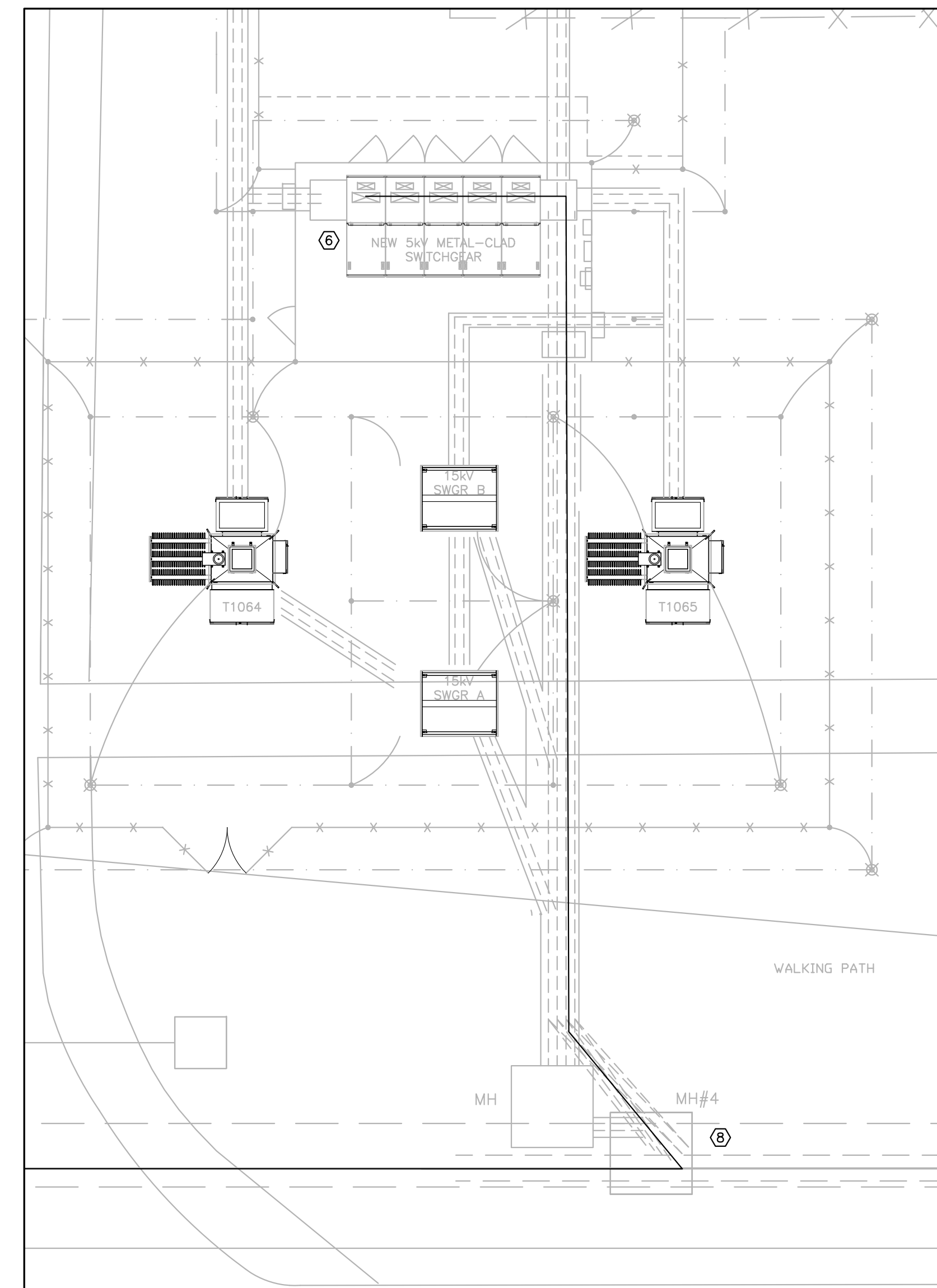
1 PARTIAL SITE PLAN LAYOUT
 SCALE: 1:500



2 CABLE ROUTE THROUGH M-36 GROUND FLOOR
 SCALE: 1:500



3 CABLE ROUTE THROUGH M-36 BASEMENT
 SCALE: 1:500



4 ENLARGED SUBSTATION LAYOUT
 SCALE: 1:100

DRAWING NOTES: (X)

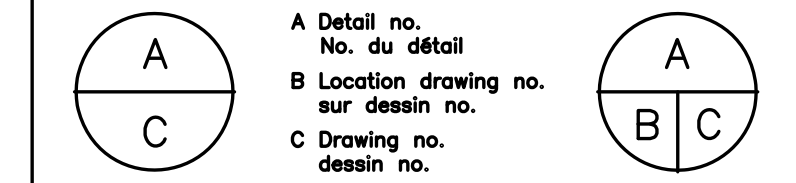
- REVISE SETTING OF EXISTING BREAKER IN M-46A AND TO FEED NEW BUILDING M-38.
- PROVIDE NEW 2400-347/600V, 750KVA, DELTA-Y, COPPER WINDING, OUTDOOR WEATHERPROOF & TAMPERPROOF TRANSFORMER AND MOUNT ON EXISTING PAD OUTSIDE OF M-38. MAKE ALL FINAL CONNECTIONS AS SHOWN. CONNECT TO EXISTING GROUNDING SYSTEM AROUND THE PAD. TRANSFORMER STANDARD OF ACCEPTANCE: HAMMOND.
- RUN CABLES IN M-36 CEILING SPACE AND RUN OUTDOOR CABLES IN EXISTING DUCTBANK. CONFIRM EXACT LOCATION AND COORDINATE WORK ON SITE. FOLLOW NRC DEPARTMENTAL REPRESENTATIVE'S INSTRUCTION.
- PROVIDE NEW 600V, 50A, 25KAIC, LSI+A BREAKER IN EXISTING EPD4. MODEL: SQUARE D I-LINE.
- SEAL ALL DUCT ENTRY AND EXIT POINTS AFTER CABLES ARE PULLED.

- AT M-46A SUB STATION, NEW CABLE WILL HAVE TO BE PULLED FROM MH#4 THROUGH EXISTING DUCTBANK TO PIT LOCATED UNDER SWITCHGEAR. TO ACCESS PIT, ENTER THROUGH THE OUTSIDE DOOR LOCATED ON THE EAST SIDE OF THE BUILDING. REMOVE REAR COVER OF SWITCHGEAR, REMOVE PANEL OF FLOOR, AND GET ACCESS TO PIT FROM CENTER CELL. ACCESS TO PIT REQUIRES POWERING DOWN THE SUBSTATION. SHUT DOWN IS ON WEEKEND ONLY AND NEEDS TO BE PRE-ARRANGED WITH NRC DEPARTMENTAL REPRESENTATIVE. REFER TO DETAIL #4 FOR AN ENLARGED LAYOUT.
- PROVIDE PRE-CAST CONCRETE MANHOLE COVER C/W CABLE ENTRY HOLES TO EXISTING TRANSFORMER MOUNTING MANHOLE. REFER TO ATTACHED 5044-E02 FOR ADDITIONAL INFORMATION.
- M.SULLIVAN & SON LTD. WILL EXCAVATE AND MAKE GOOD ACCESS TO MH#4. COORDINATE WORK ON SITE AND FOLLOW INSTRUCTIONS FROM NRC DEPARTMENTAL REPRESENTATIVE.

No.	Date	Revision	By:	Par:
1	JAN. 12/17	ISSUED FOR REVISION	CYC	
0	DEC. 12/17	ISSUED FOR TENDER	DIF	

Date Printed: _____ Date Imprimée: _____

- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité

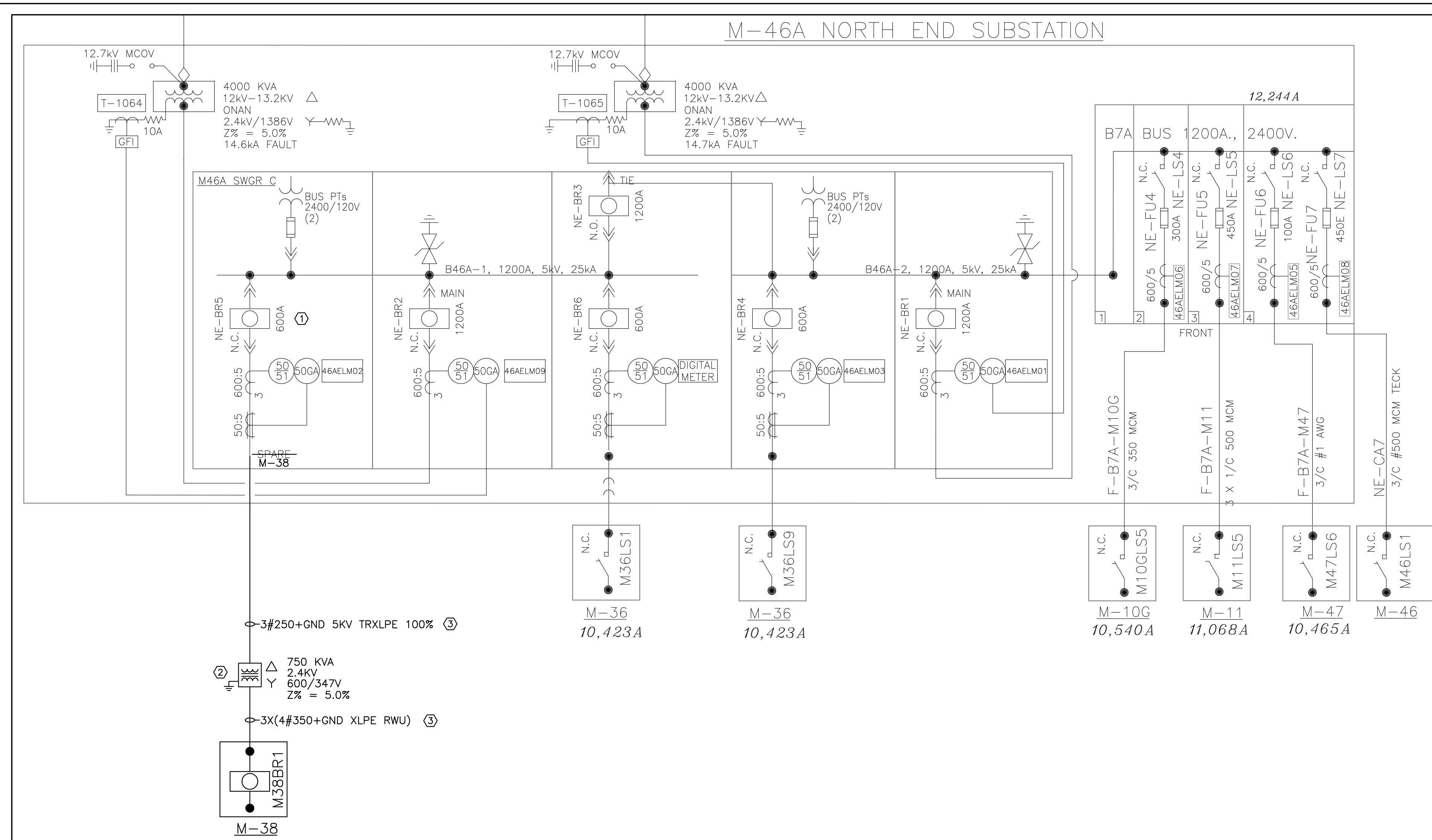


project: **BUILDING M-38**
ACOUSTICAL FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing: **PARTIAL SITE PLAN AND CABLE ROUTE THROUGH M-36** dessin

designed	conçu	date	date
CYC		OCT/2017	
drawn	dessiné	scale	échelle
CYC/DIF		AS NOTED	
checked	vérifié	sheet	feuille
KXL/FG		1 of/ de 3	
approved	approuvé	W.O.no.	D.T.no.
BV		A1-006442-01	

dwg.no. **5310-E01R** dessin no.



1 PARTIAL SINGLE LINE DIAGRAM
E02 SCALE: N.T.S

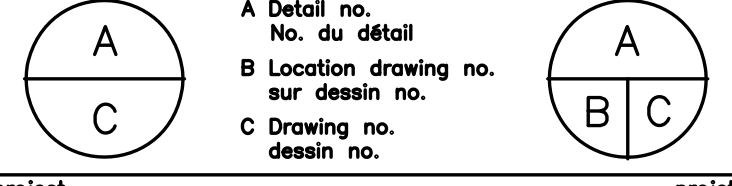
DRAWING NOTES: (X)

- REVISE SETTING OF EXISTING BREAKER IN M-46A TO FEED NEW BUILDING M-38. PROVIDE COORDINATION STUDY AND MAKE ALL SETTINGS BASED ON THE STUDY.
- PROVIDE NEW 2400-347/600V, 750KVA, DELTA-Y, COPPER WINDING, OUTDOOR WEATHERPROOF & TAMPERPROOF TRANSFORMER AND MOUNT ON EXISTING PAD OUTSIDE OF M-38. MAKE ALL FINAL CONNECTIONS AS SHOWN. TRANSFORMER STANDARD OF ACCEPTANCE: HAMMOND.
- RUN CABLES IN EXISTING DUCTBANK. CONFIRM EXACT LOCATION AND COORDINATE WORK ON SITE.



1	JAN. 12/17	ISSUED FOR REVISION	CYC
0	DEC. 12/17	ISSUED FOR TENDER	DIF
No.	Date	Revision	By: Par:

Date Printed: _____ Date imprimés: _____
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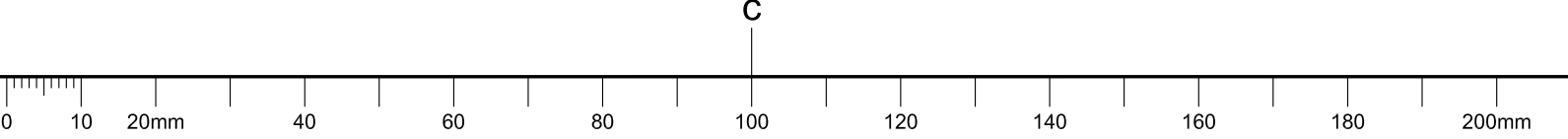


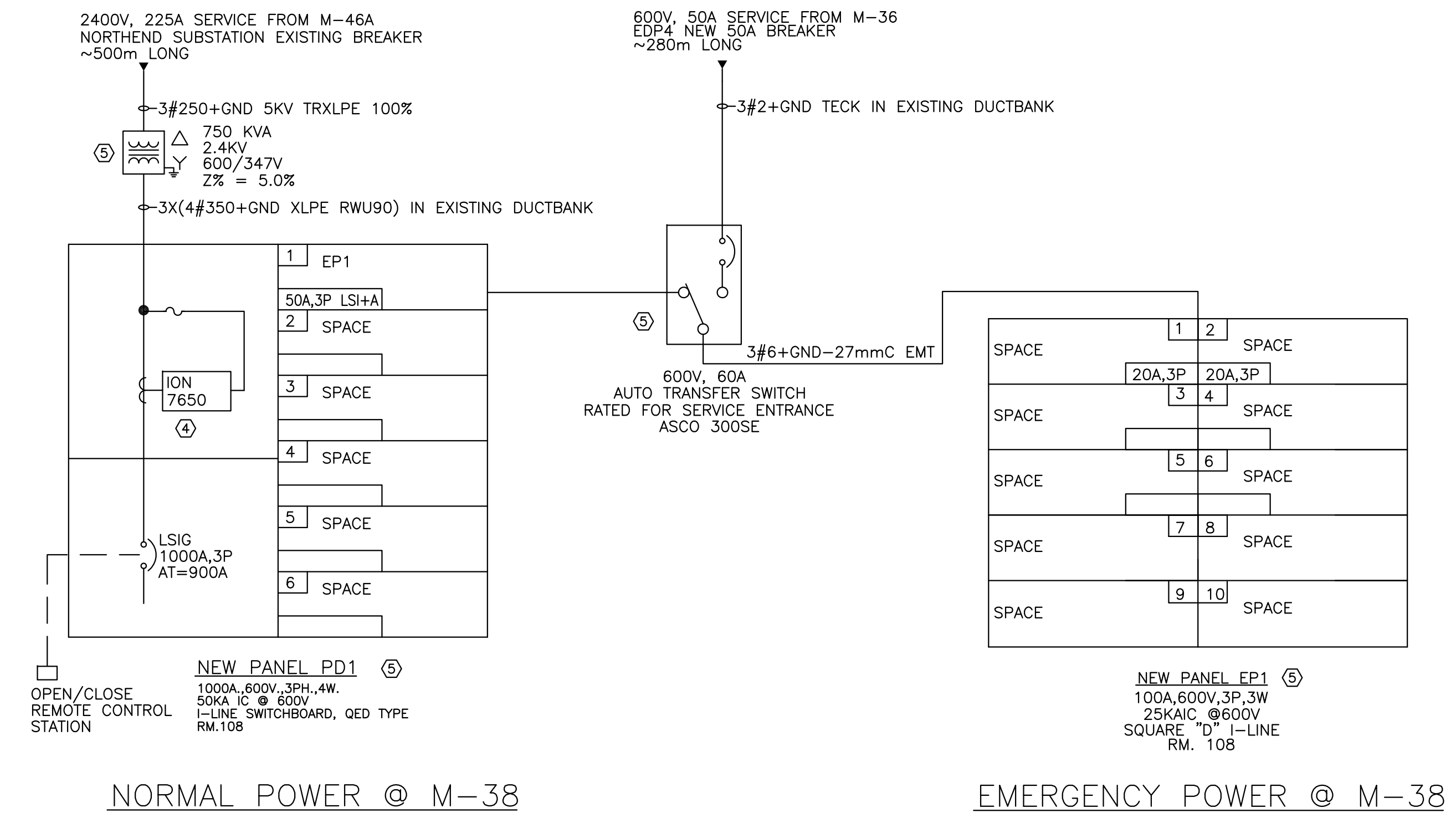
project: **BUILDING M-38**
ACOUSTICAL FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON

drawing: **M-46A SINGLELINE** dessin: _____

designed	conçu	date	date
CYC		OCT/2017	
drawn	dessiné	scale	échelle
CYC/DIF		AS NOTED	
checked	vérifié	sheet	feuille
KXL/FG		2 of/de 3	
approved	approuvé	W.O.no.	D.T.no.
BV		A1-006442-01	

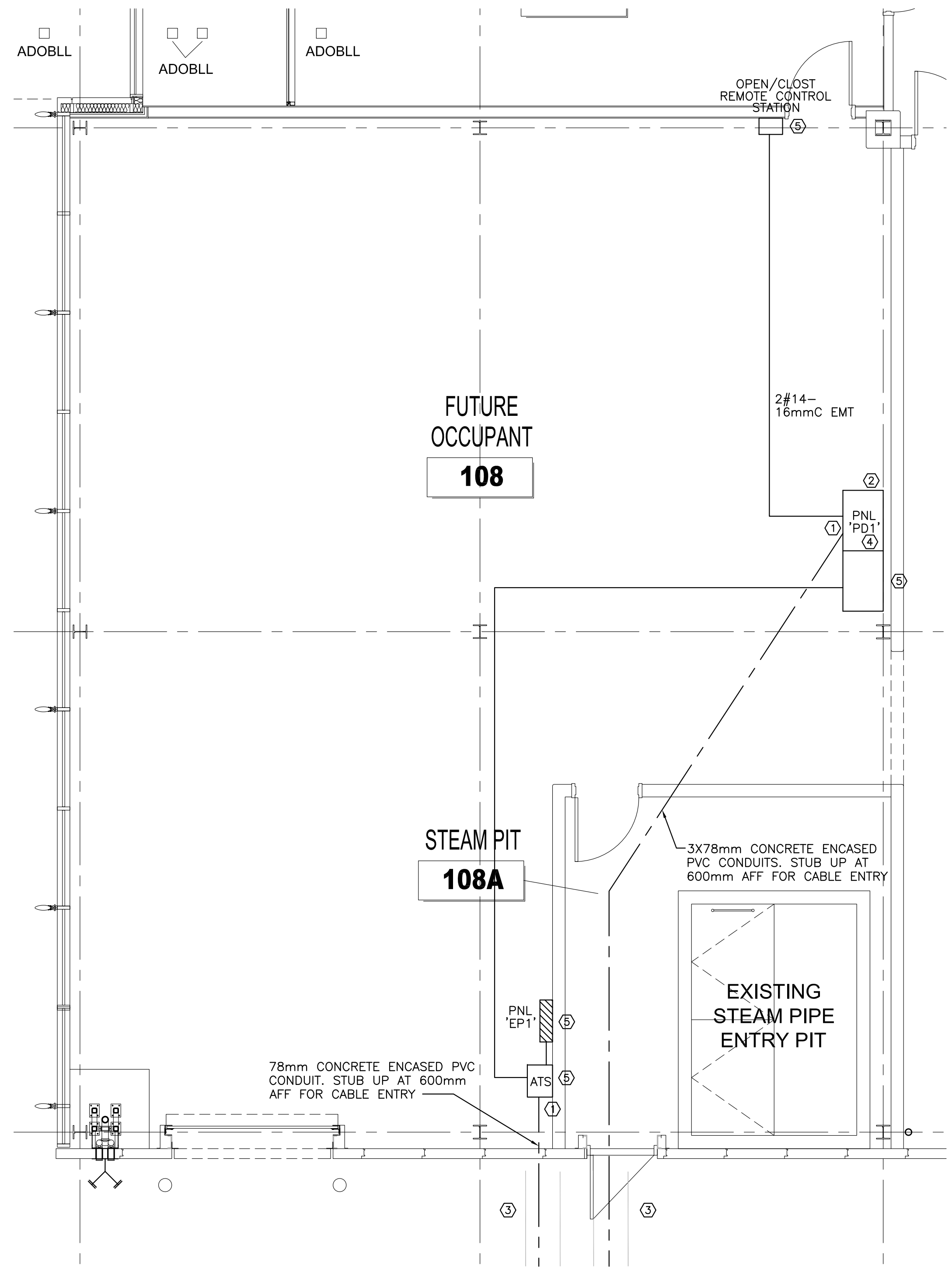
dwg.no. **5310-E02R** dessin no. _____





1 M-38 SINGLE LINE DIAGRAM
 E03 SCALE: N.T.S

- DRAWING NOTES:** (X)
- CONDUIT ENTRY FROM BELOW. CONTRACTOR TO ROUGH IN CONDUIT FROM EXISTING TRENCH PRIOR TO SLAB BEING POURED.
 - HOUSEKEEPING PAD FOR SWITCHBOARD TO BE BY M.SULLIVAN & SON LTD. COORDINATE WORK AND PANEL LOCATIONS WITH M. SULLIVAN & SON LTD. BEFORE INSTALLATION.
 - EXISTING DUCTBANK.
 - SUPPLY AND INSTALL, INTEGRATED INTO SWITCHGEAR, POWERLOGIC ION 7650 METER WITH ETHERNET PORT.
 - PROVIDE ALL ELECTRICAL EQUIPMENT AND MAKE FINAL CONNECTIONS. SWITCHBOARD TO COME WITH ION METER AND REMOTE OPEN/CLOSE CONTROL STATION AS SHOWN. STANDARD OF ACCEPTANCE: SQUARE D QED. PANEL BOARD STANDARD OF ACCEPTANCE: SQUARE D I-LINE. DISCONNECT SWITCH STANDARD OF ACCEPTANCE: SQUARE D. AUTO TRANSFER SWITCH STANDARD OF ACCEPTANCE: ASCO 300SE.

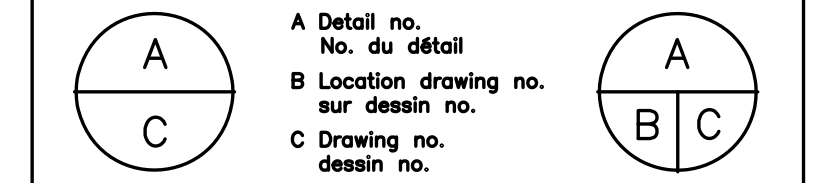


2 PARTIAL FLOOR PLAN
 E03 SCALE: 1:50

No.	Date	Revision	By	Par.
1	JAN. 12/17	ISSUED FOR REVISION	CYC	
0	DEC. 12/17	ISSUED FOR TENDER	DIF	

Date Printed: _____ Date imprimée: _____

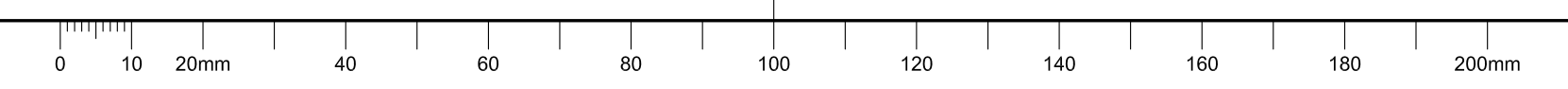
- Verify all dimensions and site conditions and be responsible for same
- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité



project **BUILDING M-38** projet
ACOUSTICAL FACILITY
 1200 MONTREAL ROAD CAMPUS
 OTTAWA, ON
 drawing **M-38 SINGLE LINE DIAGRAM AND PARTIAL** dessin
FLOOR PLAN

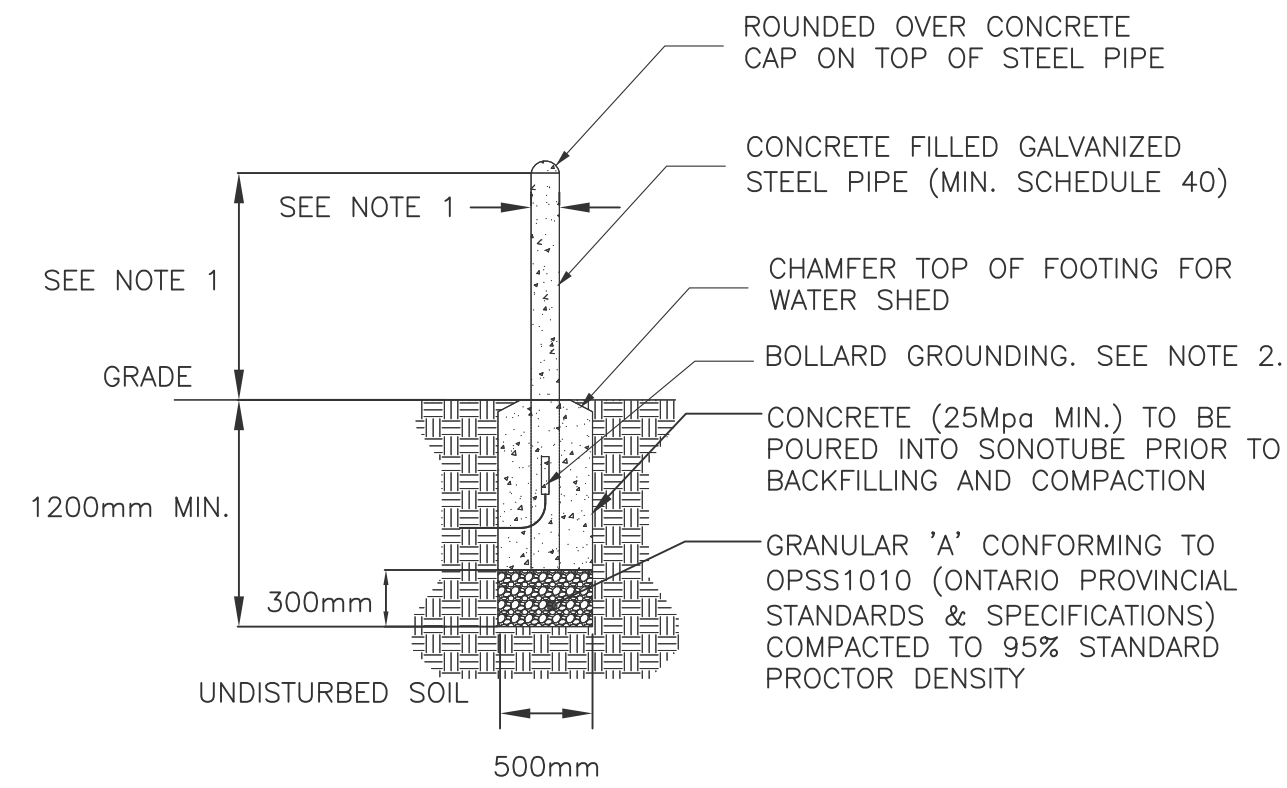
designed CYC	conçu CYC	date DEC/2017	date
drawn CYC/DIF	dessiné CYC/DIF	scale AS NOTED	échelle
checked FG	vérifié FG	sheet 3 of/de 3	feuille
approved BV	approuvé BV	W.O.no. A1-006442-01	D.T.no.

dwg.no. **5310-E03R** dessin no.



GENERAL NOTES

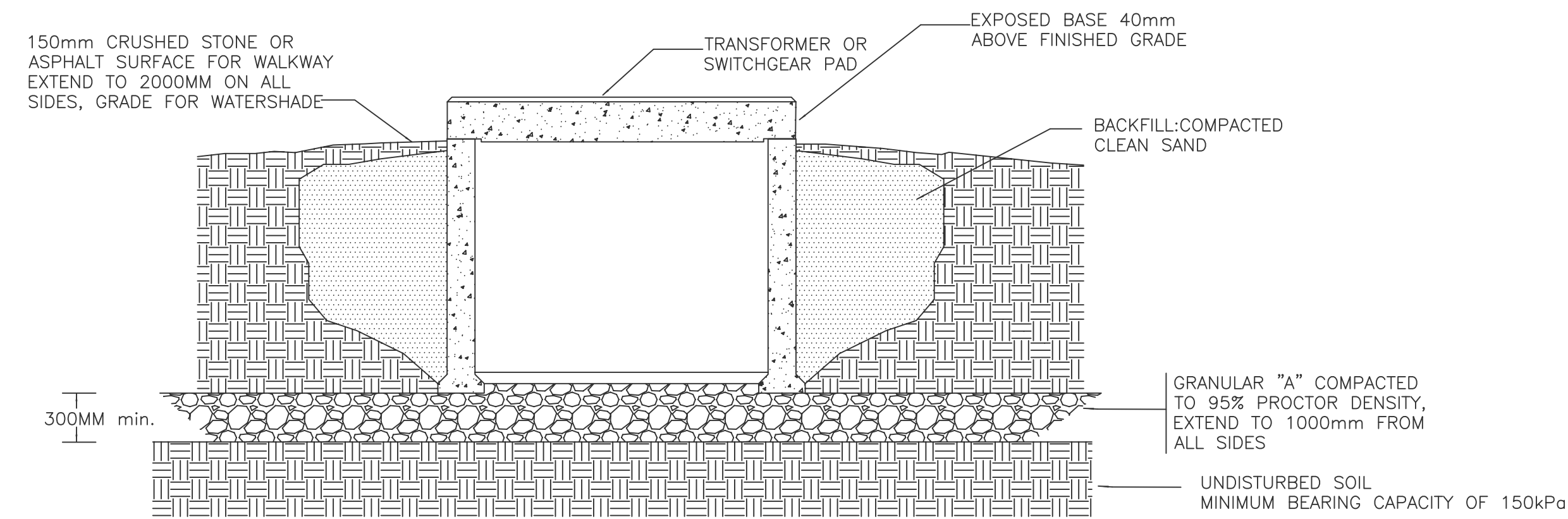
- A READ THIS DRAWING IN CONJUNCTION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
- B CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO NRC DEPARTMENTAL REPRESENTATIVE.
- C CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- D PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- E MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- F FILL ALL HOLES, PATCH & PAINT ALL SURFACES IN CONTRACT AREA. COLOUR SCHEME TO MATCH EXISTING.
- G REMOVE MEANS REMOVE AND DISPOSE OF OFF SITE UNLESS OTHERWISE NOTED.
- H PROVIDE LABELS TO NEW DEVICES TO INDICATE POWER SOURCE. UPDATE PANEL SCHEDULES AFTER JOB COMPLETION.
- I THE WORD "PROVIDE" MEANS SUPPLY, INSTALL, CONNECT AND TEST.
- J THE WORD "WIRING" MEANS WIRES/CABLE AND RACEWAY.
- K ALL WIRE TO BE IN EMT UNLESS OTHERWISE NOTED.
- L COORDINATE ALL SHUTDOWNS WITH THE NRC DEPARTMENTAL REPRESENTATIVE. OUTAGE IS ONLY SCHEDULED DURING WEEKEND OR AFTER HOUR, UNLESS OTHERWISE SPECIFIED BY NRC REPRESENTATIVE
- ANY WEEKEND OUTAGE MUST BE CARRIED BETWEEN FRIDAY 1800 AND MONDAY 0300
- ANY AFTER HOUR OUTAGE MUST BE CARRIED BETWEEN SAME DAY 1800 AND NEXT DAY 0300
- ALL LOADS TO BE RESUMED AT THE END OF OUTAGE
- M CONTRACTOR TO VERIFY INTEGRITY OF EXISTING RACEWAY BEFORE PULLING CABLE/WIRE.
- N ALWAYS PERFORM SCAN BEFORE CORE DRILL.
- O VERIFY PHASING AND ROTATION, MATCH EXISTING SYSTEM.
- P CONTRACTOR IS RESPONSIBLE FOR REPAIR OF ANY DAMAGES TO ANY EXISTING BUILDING COMPONENT CAUSED BY CONSTRUCTION ACTIVITIES.



BOLLARD INSTALLATION NOTES:

1. PROTECTIVE BOLLARD PIPE DIMENSIONS: HEIGHT 1200mm, DIAMETER 150mm
2. CONNECT BOLLARD TO GROUND GRID WITH 200mm OF ROD TO BE WELDED TO BOLLARD PIPE AND 1200mm OF #2/0 AWG CABLE TO BE INTERCONNECTED WITH GROUND GRID.
3. PROVIDE BOLLARD SLEEVE GUARD.

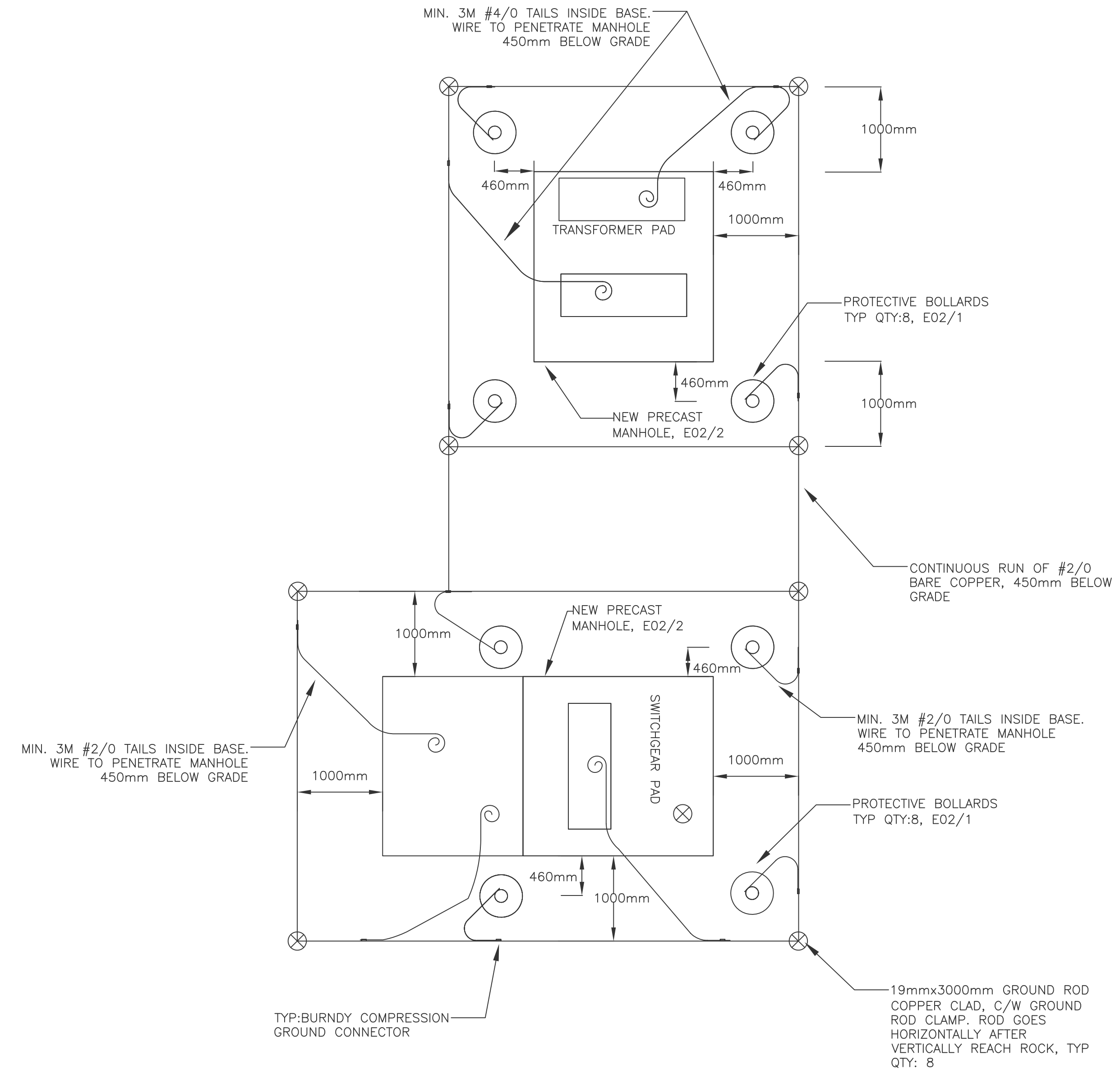
1 BOLLARD DETAIL
 E02 SCALE:



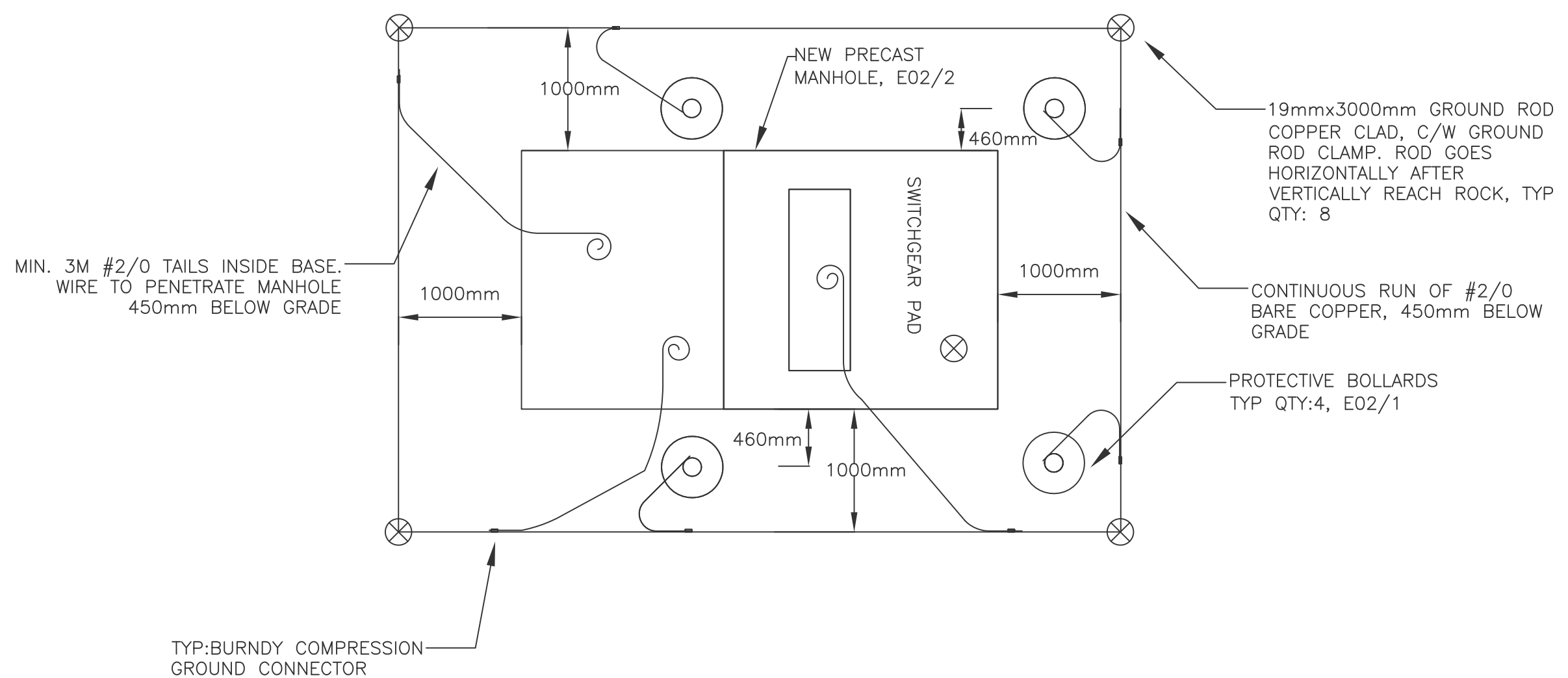
2 TYPICAL MANHOLE
 E02 SCALE:

DRAWING NOTES

1. PROVIDE NEW GROUND GRID
 - ELECTRODE AND GROUND WIRE TO BE FILLED WITH 3mm CONDUIT ALL AROUND.
 - ESA INSPECTION BEFORE BACKFILLING
 - CARRY COST TO HAVE SCHNEIDER OR EATON TO TEST GROUND GRID RESISTANCE, PROVIDE TEST REPORT.
2. PROVIDE PRECAST MANHOLE
 - TYPE A: USI E-36 ELECTRICAL MANHOLE WITH COVER, ALUMINUM HATCH, 2.38m(H)X1830mmX3660mm, 25kN/m DISTRIBUTED LATERAL LOAD
 - TYPE B: USI E-37 ELECTRICAL SWITCHING MANHOLE WITH E13PS COVER, 2.3m(H)X1830mmX3660mm, PROVIDE TEMPORARY STEEL COVER.
 - TYPE C: USI E-13 TRANSFORMER/SWITCHGEAR BASE, 1.5m(H)X2108mmX2235mm, 25kN/m DISTRIBUTED LATERAL LOAD. PROVIDE TEMPORARY STEEL COVER.
3. CONTRACTOR TO CARRY COST TO HAVE BEARING SURFACES INSPECTED IN THE FIELD BY A PROFESSIONAL GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE. GEOTECHNICAL TESTING AGENCY TO BE APPROVED BY THE GEO ENGINEER AND PAID FOR BY THE CONTRACTOR.



3 MH#3 AND MH#4 GROUNDING
 E02 SCALE:

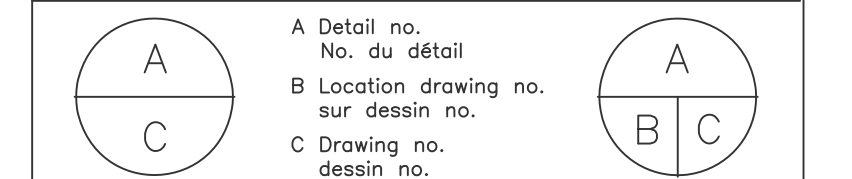


4 MH#1 GROUNDING
 E02 SCALE:

No.	Date	Revision	By:	Par:
2	OCT/2016	ISSUED FOR CCN-1	KXL	
1	OCT/2016	ISSUED FOR CONSTRUCTION	KXL	
0	AUG/2016	ISSUED FOR TENDER	KXL	

Date Printed Aug/2016 Date imprimée

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project project

BUILDING M-38
FLEXIBLE RESEARCH FACILITY

MONTREAL ROAD CAMPUS

drawing dessin
MANHOLE AND GROUNDING

designed	conçu	date	date
KXL		AUG/2016	
drawn	dessiné	scale	échelle
KXL		AS NOTED	
checked	vérifié	sheet	feuille
FG		E01 of/de	E05
approved	approuvé	W.O.no.	D.T.no.
RC		A1-006303-01	

dwg.no. dessin no.

5044-E02