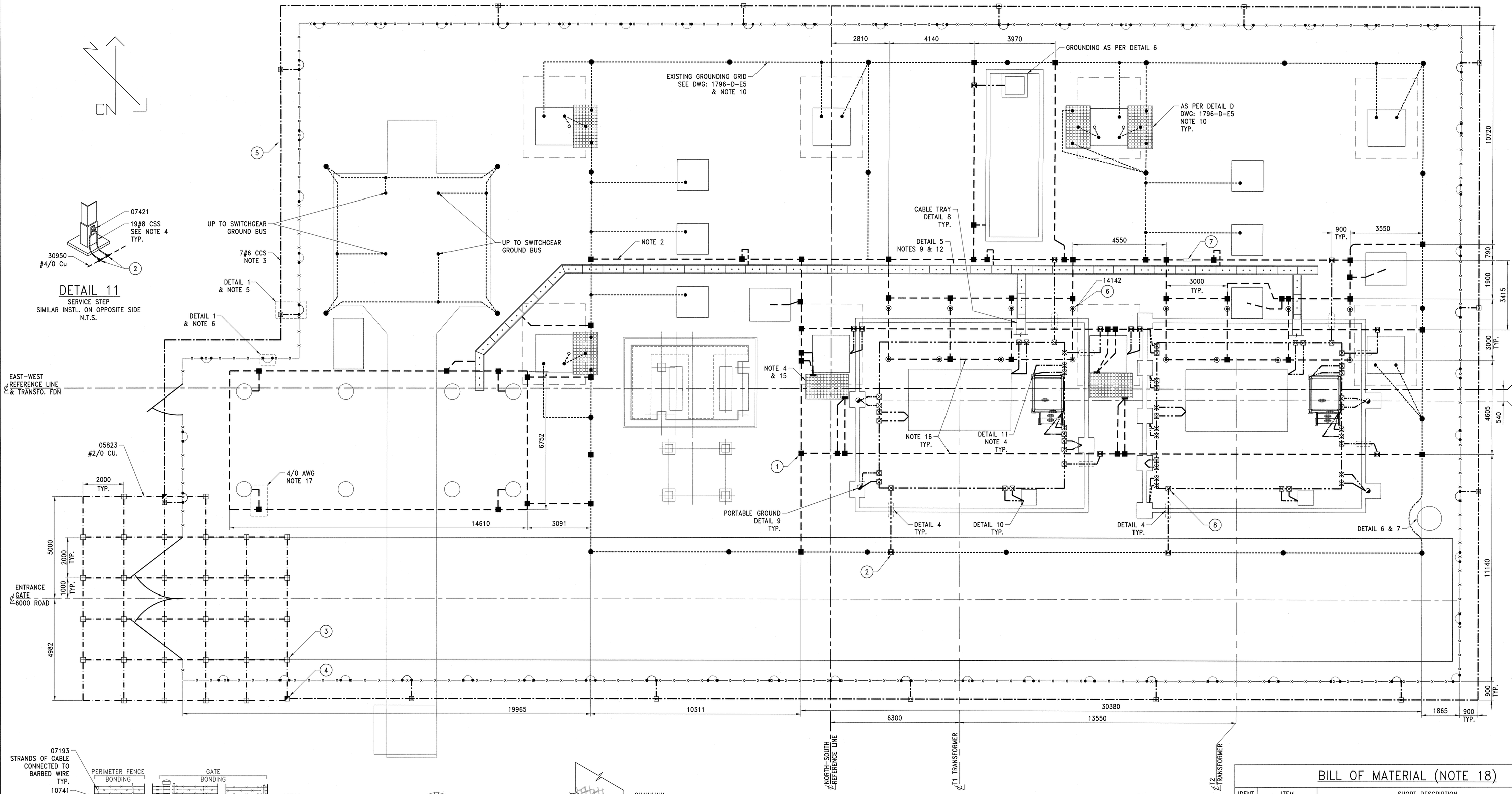
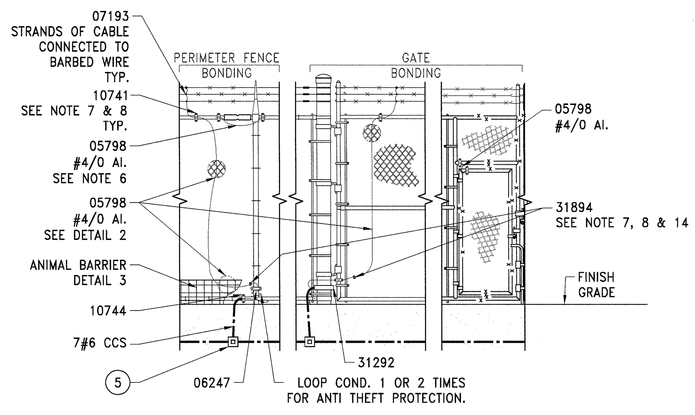
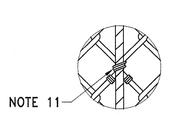
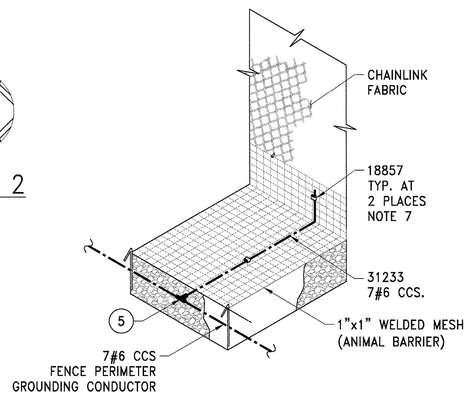




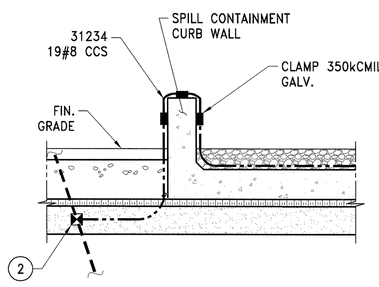
DETAIL 1
TYPICAL FENCE BONDING
SCALE: N.T.S.



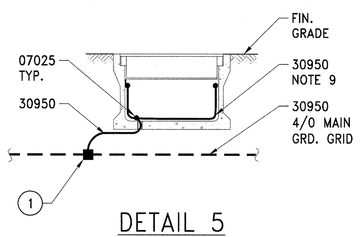
DETAIL 2
N.T.S.



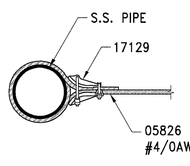
DETAIL 3
TYPICAL GROUNDING OF EACH ANIMAL BARRIER SECTION.
N.T.S.



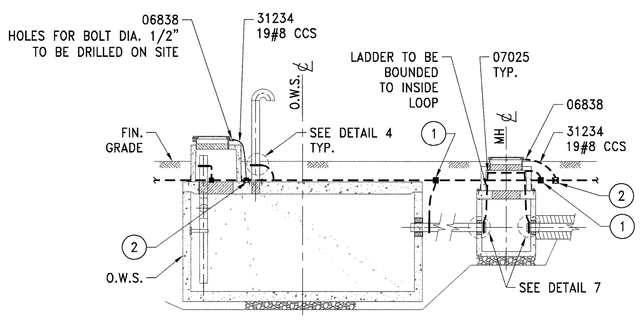
DETAIL 4
TYP. GROUNDING CONDUCTOR CROSSING SPILL CONTAINMENT PIT.
N.T.S.



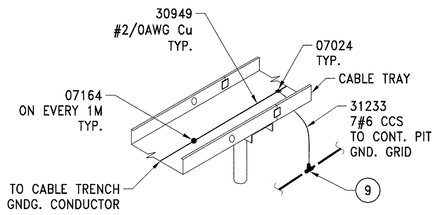
DETAIL 5
N.T.S.



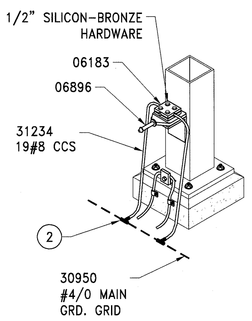
DETAIL 7
TYPICAL PIPE GRD.
N.T.S.



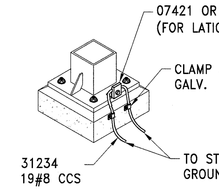
DETAIL 6
O.W.S. & MANHOLE
TYPICAL GROUNDING
N.T.S.



DETAIL 8
CABLE TRAY FIXATION
N.T.S.



DETAIL 9
PORTABLE GROUND
N.T.S.



DETAIL 10
N.T.S.

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. STATION GROUND GRID BURIED 460mm BELOW FINISHED GRADE.
3. FENCE & GATE GROUND BURIED APPROX. 150 TO 200MM BELOW FINISHED GRADE & 1M OUTSIDE OF FENCE.
4. PROVIDE 1M CABLE SLACK TO ALLOW RELOCATION OF THE SERVICE PLATFORM & GROUND MAT.
5. GROUND CONNECTIONS AND BARBED WIRE BONDINGS ARE TO BE SPACED AT 12M INTERVALS MAX.
6. ALL HORIZONTAL PIPES TO BE BONDED, AT EACH COUPLING (APPROX. 1.22M INTERVALS).
7. ALL COPPER CONNECTIONS, ABOVE GROUND, SHALL BE PAINTED IN GRAY FOR CAMOUFLAGE.
8. TO AVOID DEGRADATION OF AL COND. OR BOUNDED JOINT DUE TO CORROSION THE AL TO CU TRANSITION IS TO BE MADE AT MIN OF 300MM ABOVE GRADE.
9. A CONTINUOUS 4/0 BARE CU. COND. TO BE RUN ON BOTH SIDES AND FULL LENGTH OF TRENCHES, CLIPPED TO TOP OF TRENCHES AT 1M INTERVALS. BONDED TO STATION GROUND AT 12M INTERVALS.
10. REPLACE EXISTING CONDUCTORS SHOWN ON THIS DRAWING, IF DAMAGED DURING CONSTRUCTION.
11. CONDUCTOR TO BE WOVEN THROUGH FENCE FABRIC IN AT LEAST 2 PLACES USING STAINLESS STEEL TIE WRAPS OR WIRE TIES. TWIST ENDS 3 TIMES AROUND FENCE MESH. AT 6 EQUAL SPACES.
12. CABLE TRENCH COVERS SHOULD NOT OVERLAP TWO TRENCH SECTIONS.
13. APPLY ZINC BASED COATING AFTER DRILLING, "GALVICON" OR EQUIVALENT.
14. EXTEND MIN 50mm CCS FROM CONNECTION IF REQUIRED & COAT THE END WITH CORROSION INHIBITOR COMPOUND.
15. DISTANCE BETWEEN GROUND MAT AND FOUNDATION SHOULD NOT EXCEED 305mm.
16. ALL GROUNDING ASSOCIATED WITH HV SURGE ARRESTERS WITHIN PIT TO BE INSTALLED IN THE NATIVE SOIL UNDERNEATH THE SPILL CONTAINMENT, BEFORE THE CONTAINMENT IS IN PLACE.
17. EXTEND GROUND TAIL 3M ABOVE GROUND LEVEL.
18. QUANTITIES ARE PROVIDED FOR REFERENCE ONLY.

REFERENCE DRAWINGS:

1. 115/13.8KV STATION, BASIC LAYOUT, ELECTRICAL ARRANGEMENT ----F1731664-300-EA001
2. GROUNDING PLAN AND DETAILS ----------1796-D-35

LEGEND

SYMBOL	DESCRIPTION	ITEM#
	NEW #4/0 Cu BURIED CONDUCTOR (STATION GROUND GRID):	
	EXISTING COPPER BURIED CONDUCTOR (STATION GROUND GRID):	
	#2/0 Cu BURIED CONDUCTOR (ENTRANCE GATE):	
	7#6 CCS FENCE PERIMETER GROUND CONDUCTOR:	
	19#8 CCS	
■	SWAGE CONNECTION #4/0 RUN #4/0 TAP (HORIZONTAL X & T):	(1)
◘	SWAGE CONNECTION #4/0 RUN 19#8 TAP (HORIZONTAL T):	(2)
⊞	SWAGE CONNECTION #2/0 RUN #2/0 TAP (HORIZONTAL X & T):	(3)
◩	SWAGE CONNECTION 7#6 RUN #2/0 TAP (HORIZONTAL X):	(4)
⧈	SWAGE CONNECTION 7#6 RUN 7#6 TAP (HORIZONTAL X & T):	(5)
⊠	SWAGE CONNECTION 19#8 RUN 19#8 TAP (HORIZONTAL T):	(8)
●	EXISTING CONNECTION	
▬	BOLTED CONNECTION #4/0 TO FLAT STEEL	
	GROUND LOOP	
	FENCE GROUNDING (DETAIL 1)	
	FENCE BONDING (DETAIL 1)	(6)
◉	NEW CONNECTION TO GROUND ROD (14142)	
●	EXISTING CONNECTION TO GROUND ROD	
◕	PORTABLE GROUND CONNECTION (DETAIL 9)	

BILL OF MATERIAL (NOTE 18)

IDENT	ITEM	SHORT DESCRIPTION	UNIT	QTY.
(1)	90001	CONN-GRD-SWG-OFFSET SPLIT CROSS/TEE-CU-#4/0 RUN-#4/0 TAP	EA	52
(2)	90002	CONN-GRD-SWG-OFFSET SPLIT CROSS/TEE-CU-#4/0 RUN-19#8 TAP	EA	19
(3)	90003	CONN-GRD-SWG-OFFSET SPLIT CROSS/TEE-CU-#2/0 RUN-#2/0 TAP	EA	30
(4)	90004	CONN-GRD-SWG-OFFSET SPLIT CROSS/TEE-CU-7#6 RUN-#2/0 TAP	EA	2
(5)	90005	CONN-GRD-SWG-OFFSET SPLIT CROSS/TEE-CU-7#6 RUN-7#6 TAP	EA	14
(6)	90006	CONN-GRD-SWG-OFFSET SPLIT TEE-CU-#4/0 RUN TO 3/4" ROD	EA	16
(7)	90007	CONN-GRD-SWG-SPLICE-CU-#4/0 RUN-#4/0 TAP	EA	5
(8)	90008	CONN-GRD-SWG-OFFSET SPLIT CROSS/TEE-CU-19#8 RUN-19#8 TAP	EA	48
(9)	90009	CONN-GRD-SWG-OFFSET SPLIT CROSS/TEE-CU-19#8 RUN-7#6 TAP	EA	2
–	05798	BARE COND-ASC-4/0AWG-7STRD-OXLIP	M	60
–	05823	BARE COPPER COND-2/0AWG-STRD	M	30
–	05826	BARE COPPER COND-4/0AWG-STRD	M	AR
–	06183	CONN,TERM CLAMP,BLTD,CU,1/0AWG-1250KCMIL	EA	4
–	06247	CONN-GRD TERM BLTD COND-PIPE-IR-2/0-250	EA	15
–	06742	CONN-GRD SPL BLTD-CU-300KCMIL-500KCMIL	EA	10
–	06838	CONN-TERM COMP PAD-AL-400KCMIL-2X12MM HO	EA	AR
–	06896	CONN-GRD BLTD-CU-STIRRUP-4 HOLE PAD	EA	4
–	07024	CONN,GRD,C-COMP,CU,#1-2/0 TO #1-2/0 R/T	EA	2
–	07025	CONN-GRD "C" COMP-CU-CAB-CAB-3/0-STR 250	EA	25
–	07164	CONN-GRD TERM BLTD-CU-CAB-BAR-2/0-250,TP	EA	10
–	07193	CONN-TAP COMP-AL-2-3/OAWG-8AWG	EA	45
–	07421	CONN-GRD TERM BLTD CAB-BAR-CU-300-500	EA	5
–	10741	CONN-GRD TERM BLTD CAB-PIPE-CU-2/0-250	EA	135
–	10744	CONN-SPL COMP NON TEN--1/0-2/0AWG-	EA	15
–	14142	ROD,GROUND,3/4" X 10 FT, GALV	EA	9
–	17129	CONN,GRD,SPL,BLTD,CU,CBL-PIPE,2/0-250-6"	EA	AR
–	18857	CONN-TAP BLTD COND2COND-CU-1/0-4/0-6-4/0	EA	135
–	30949	BARE COPPER COND-2/0AWG-STRD-CUT	M	10
–	30950	BARE COPPER COND-4/0AWG-STRD-CUT	M	350
–	31233	7#6 CU-CLAD STEEL,DSA, 40% CONDUCTIVITY	FT	1000
–	31234	19#8 CU-CLAD STEEL,DSA, 40% CONDUCTIVITY	FT	600
–	31292	CONN,GRD,BLTD,CU,CBL-PIPE,2/0-250MCM,6"	EA	1
–	31894	CONN-TAP COMP-AL/CU- 4/0 -7#6 CCS	EA	15

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CLIENT:

PROJECT:
MCMASTER UNIVERSITY–NF91

TITLE:
115/13.8KV STATION
MAIN GROUNDING GRID
PLAN & DETAILS
ELECTRICAL ARRANGEMENT

PREPARED BY: Y.LESSARD	DATE: 2018/08/20
DRAWN BY: C. RAVAGNAN	SCALE: 1:75
VERIFIED BY: M. LAROCQUE	DISCIPLINE: ELECTRICAL ARRANGEMENT
APPROVED BY: Y. LESSARD	CAD FILE NAME: F1731664-300-EA012.dwg

PROJECT No	LOT:	DWG.#	REV:	PAGE:
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