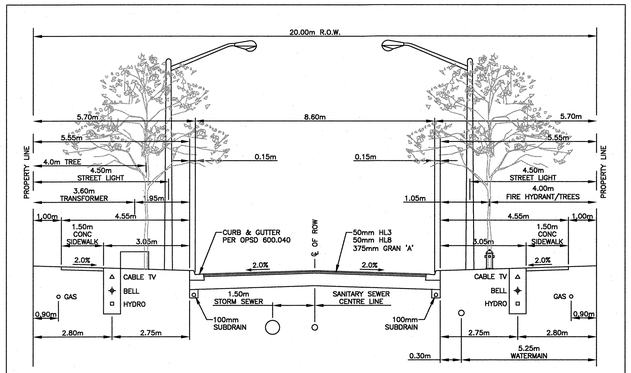
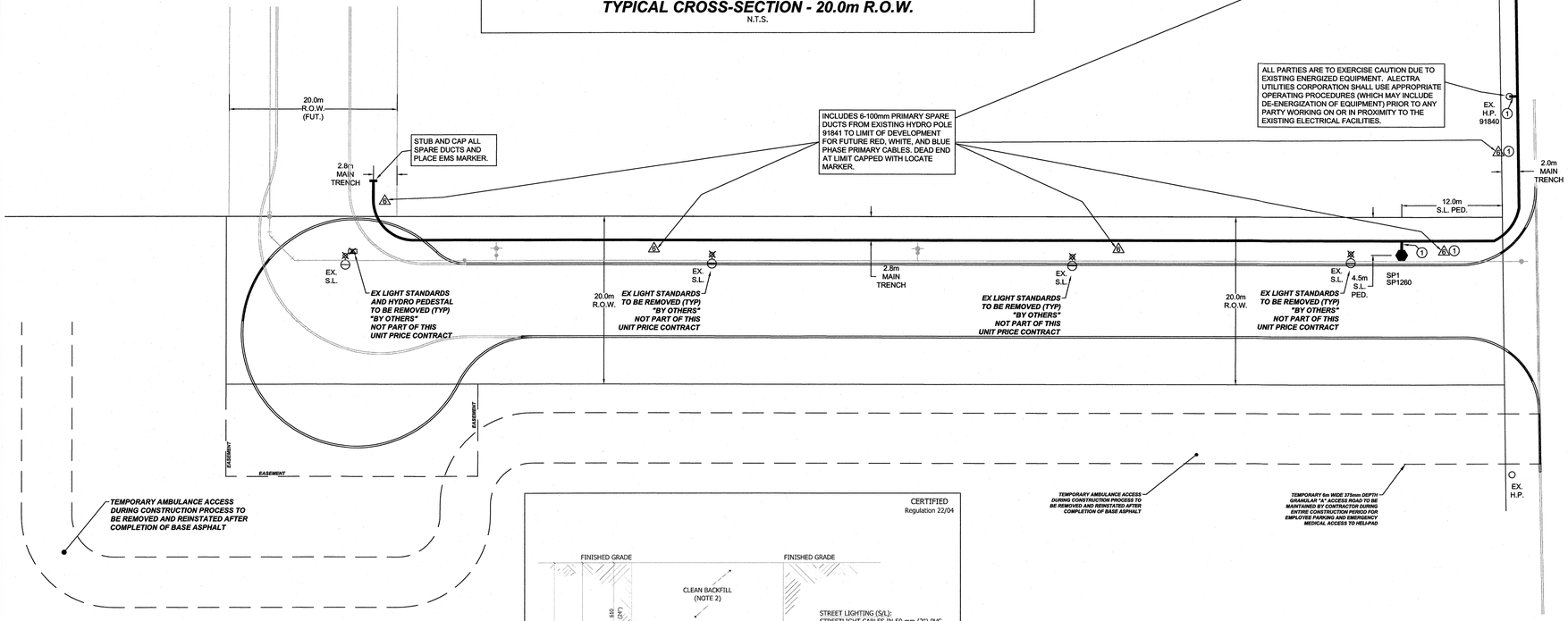
ALECTRA STANDARDS	
STANDARD #	DESCRIPTION
3U-142B	Typical Planned Separation Utility Cables In 914mm (36") Joint Use Trench
3U-341	Concrete Encased Duct Bank Requirements
3U-343	Typical Arrangement for Ducts Encased in Concrete For 1,2,3,4 Ducts
3U-344	Typical Arrangement for Ducts Encased in Concrete For 6,8 Ducts
3U-349	Road Crossing Concrete Encased Duct Bank
3U-351	Concrete Encasement of Road Crossings and Bends
29U-368	200Amp Loadbreak Separable Connectors Selection Chart ELC 1520-15kV Elbow
3U-400	Cable Identification
19U-360	Typical Installation of 1-Ph Pre-Cast Trans. Foundation
19U-501	Typical 1-Ph, Low Profile, Pad Mounted Trans. Installation.
19U-520	Typical Installation of Surge Arrester in U/G Distribution.
19U-525	Single Phase Padmount Transformer Clearances
50-550	Fuses for Single Phase Pad Mounted Transformer.
25U-202.1	Underground Secondary Service Residential Subdivision 200Amp Service
25U-205	Residential Secondary Service (Single)
41U-110	Typical Grounding Details for U/G Plant Installations.



TYPICAL CROSS-SECTION - 20.0m R.O.W.
N.T.S.





LEGEND

- 100x3 (C.E.) — STEEL REINFORCED DUCT (C.E.), SIZE & NO., AS NOTED.
- POWER TRENCH
  PRIMARY CABLE: TO BE INSTALLED IN 100mm PVC TYPE DB2/ES2 DIRECT BURIED DUCTS QTY AS REQUIRED.
  SECONDARY CABLE: TO BE INSTALLED IN 100mm PVC TYPE DB2/ES2 DIRECT BURIED DUCTS QTY AS REQUIRED.
  STREETLIGHT CABLE: TO BE INSTALLED IN 50mm PVC TYPE DB2/ES2 DIRECT BURIED DUCTS BEHIND POLES, QTY AS REQUIRED.
  SPARE DUCT: 100mm PVC TYPE DB2/ES2 DIRECT BURIED DUCTS, C/W 100mm POLYPROPYLENE ROPE. ONE SPARE DUCT TO BE INCLUDED WITH EACH 3-PHASE PRIMARY CIRCUIT OR PART THEREOF.
- (A) — NUMBER OF 100mm D.B. PVC TYPE DB2/ES2 DUCTS FOR PRIMARY CABLE.
- (#) — NUMBER OF 100mm D.B. PVC TYPE DB2/ES2 DUCTS FOR SECONDARY CABLE.
- (#) — NUMBER OF 50mm D.B. PVC TYPE DB2/ES2 DUCTS FOR STREETLIGHT PEDESTAL SUPPLY CABLE.
- TRANSFORMER BASE, CONCRETE FOUNDATION.
- STREETLIGHT POWER SUPPLY PEDESTAL
- D — PROPOSED DRIVEWAY LOCATION
- EX. H.P. O — EXISTING HYDRO POLE
- EX. T.X. — EXISTING TRANSFORMER
- #25 — MUNICIPAL ADDRESS NUMBER
- EX. S.L. — EXISTING STREETLIGHT

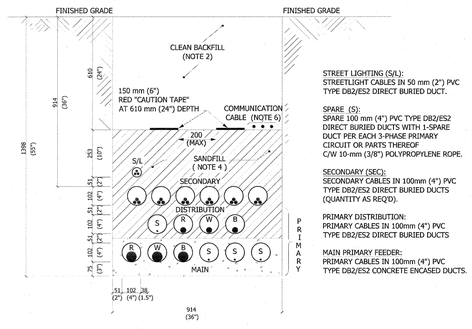
CONSTRUCTION NOTES:

1. INSTALLATION OF ROAD CROSSINGS TO BE IN ACCORDANCE WITH ALECTRA UTILITIES' STANDARD 3U-501 WITH DIRECT BURIED RIGID DUCT AND ALECTRA UTILITIES STANDARD 3U-349 WITH CONCRETE ENCASED AND STEEL REINFORCED DUCT, AS NOTED.
2. PADMOUNTED TRANSFORMERS SHALL COMPLY WITH CSA-STANDARD C227.3 M91 FOR SINGLE PHASE, LOW PROFILE, DEAD FRONT, PAD MOUNTED TRANSFORMER, CEA DTWG-02(99) AND ALECTRA UTILITIES' SPECIFICATION TR04 (6kV), LATEST REVISION, AND AS PER 19U-525 FOR CLEARANCES.
3. REFER TO ALECTRA UTILITIES' STANDARDS SECTIONS 19U-360 AND 19U-501 FOR GROUND GRID AND TRANSFORMER INSTALLATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING LOCATES FROM ALL UTILITIES PRIOR TO CONSTRUCTION STARTING. THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM. CONTRACTOR TO HAND EXCAVATE AND EXPOSE UTILITIES AS REQUIRED.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RESTORATION IN EXISTING AREAS (I.e. BOULEVARDS AND D/W APRONS) TO THE SATISFACTION OF THE CITY OF ST. CATHARINES, ALECTRA UTILITIES CORPORATION AND THE HOME OWNER.
6. ALL WORKS TO BE IN ACCORDANCE TO THE SIGNED CONTRACT DOCUMENT.

IMPORTANT NOTE:

7. CONTRACTOR TO OBTAIN A COPY OF ALECTRA UTILITIES ENTIRE SPECIFICATIONS INCLUDE THOSE REFERENCED ABOVE PRIOR TO START OF CONSTRUCTION.

CERTIFIED
Regulation 22/04



STREET LIGHTING (S/L):
STREETLIGHT CABLES IN 50 mm (2") PVC TYPE DB2/ES2 DIRECT BURIED DUCT.

SPARE (S):
SPARE 100 mm (4") PVC TYPE DB2/ES2 DIRECT BURIED DUCTS WITH 1-SPARE DUCT PER EACH 3-PHASE PRIMARY CIRCUIT OR PARTS THEREOF C/W 10-mm (3/8") POLYPROPYLENE ROPE.

SECONDARY (SEC):
SECONDARY CABLES IN 100mm (4") PVC TYPE DB2/ES2 DIRECT BURIED DUCTS (QUANTITY AS REQ'D).

PRIMARY DISTRIBUTION:
PRIMARY CABLES IN 100mm (4") PVC TYPE DB2/ES2 DIRECT BURIED DUCTS

MAIN PRIMARY FEEDER:
PRIMARY CABLES IN 100mm (4") PVC TYPE DB2/ES2 CONCRETE ENCASED DUCTS.

NOTES:

1. INSTALLATION SHALL BE AS PER C.S.A. STANDARDS C22.1-02 "CANADIAN ELECTRICAL CODE PART 1" (LATEST VERION) AND C22.3 No. 7-06 "UNDERGROUND SYSTEMS" (LATEST VERSION).
2. FOR REBUILD AND/OR MAINTENANCE PROJECTS, DRIVEWAYS SHALL BE BACKFILLED WITH COMPACTED GRANULAR "A".
3. ALL DUCTS, FITTINGS AND BENDS SHALL BE PVC TYPE DB2/ES2 AS PER CSA C22.2 #211.1 (SOLID WALL ONLY).
4. SANDFILL SHALL BE UNIFORMLY GRADED CLEAN SAND WITH MAXIMUM AGGREGATE SIZE OF 2.0 mm, AND MAXIMUM OF 8% PASSING THE NUMBER 200 SIEVE.
5. FOR ROAD CROSSING (SUBJECTED TO HEAVY VEHICLE TRAFFIC), REFER TO HORIZON UTILITIES CORPORATION STD. 3U-501
6. REFERENCE COMMUNICATION DESIGN DRAWINGS FOR SPECIFIC DETAILS.
7. REFER TO HORIZON UTILITIES CORPORATION STD. 3U-341 FOR CONCRETE ENCASED SPECIFICATIONS.
8. REFER TO CONSTRUCTION DRAWING FOR PRIMARY AND SECONDARY LAYOUT.
9. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

horizon UTILITIES — Looking beyond

DRAWING STATUS	BY	DATE DD/MM/YY
DRAWN:	JH	30/04/07
CHECKED:	KAR	05/12/07
APPROVED:	BH	07/12/07

TYPICAL PLANNED SEPARATION UTILITY CABLES IN A 914 mm (36") JOINT USE TRENCH
(1 MAIN FEEDER AND 3 DISTRIBUTION FEEDER)

REFERENCE DRAWINGS: 3U-341, 3U-501
DRAWING #: 3U-142B
DRAWINGS NOT TO SCALE
SHEET # 1
REVISION 0

STREETLIGHT POWER SUPPLY PEDESTALS		
SP1	SP1260	CONNECTED TO EXISTING POLE P91840

RECORD OF INSPECTION
- ☐ RECORD OF INSPECTION (APPLIES TO COMPLETED DRAWING)
- ☐ PROGRESSIVE RECORD OF INSPECTION (APPLIES TO HIGHLIGHTED AREA ONLY)
- ☐ NON-CONFORMANCE HAS BEEN IDENTIFIED REPORT ATTACHED

INITIALS _____ DATE _____

CERTIFICATE
THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING IS CONSISTENT WITH THE APPROVED PLAN, STANDARD DESIGNS OR WORK INSTRUCTION AND THAT ONLY APPROVED EQUIPMENT HAS BEEN USED. ALL NON-CONFORMANCE ISSUES HAVE BEEN RECTIFIED.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION

CERTIFICATE OF APPROVAL
THE INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22 / 04

STEPHEN C. GAYOWSKY, P.ENG. _____
NAME DATE

PROFESSIONAL ENGINEER
SIGNATURE & PROFESSIONAL DESIGNATION

ALECTRA PROJECT NUMBER	ALECTRA DRAWING NUMBER
15815	D15815A

WORK ORDER NUMBERS
-TECH ADMIN- 471529
-SUPERVISOR ADMIN- 471536
-PROJECT INSPECTION W.O.- 471537
-DRAFTING W.O.- 471530
-O/H I/R POLE & FRAME- 473563

DRAWING NUMBER: D15815A
CITY DESIGNATION: ☐ HMM ☐ DUN ☐ HMC ☐ FLA ☐ STC ☐ ANC ☐ SCH ☐
DATE YYYY/MM/DD
PROJECT STATE: ☐ PROGRESSIVE ☐ FINISHED
SCANNED BY
DATE SCANNED YYYY/MM/DD

REV	YYYY.MM.DD	DESCRIPTION	BY	CHECKED
R5	2018.04.19	ISSUED FOR TENDER	K.V.L.	
R4	2018.03.09	REV PER ALECTRA APPROVAL	N.S.J.	
R3	2018.02.20	REV PER UPDATED CIVIL BASE RECEIVED 2018.02.20	K.V.L.	
R2	2018.01.08	REV PER ALECTRA COMMENTS RECEIVED 2017.01.08	N.S.J.	
R1	2017.10.06	REV PER UPDATED TYPICAL CROSS-SECTION RECEIVED 2017.10.06	K.V.L.	

REVISIONS

LICENCED PROFESSIONAL ENGINEER — S. C. GAYOWSKY — PROVINCE OF ONTARIO

ALECTRA APPROVAL
SCOTT BEAUDRIE
CHECKED & APPROVED BY
2018.03.18
DATE

RTG SYSTEMS INC.
ELECTRICAL CONSULTING ENGINEERS
3518 Mainway Dr., Suite 201
BURLINGTON ON L7M 1A8
E-MAIL: general@rtgsystems.com
Office: (905) 335-4470
Toronto: (905) 827-7887

ALECTRA UTILITIES

NEW FOURTH AVENUE ROAD HYDRO DISTRIBUTION SYSTEM TRENCHING

DWG BY	DATE	CK'D BY	DATE
K.V.L.	2017.09.29		

SCALE 1:300 EXCEPT FOR SYMBOLS
DRAWING NO. D15815A
SHEET 1 OF 2

04534-00