Appendix F
Utility Plans and Correspondence

HWY 50 REGION OF PEEL --- UTILITY CONTACT LIST

Utility / Agency	Contact	Contact Info
City of Vaughan 2141 Major Mackenzie Drive Vaughan, Ontario L6A 1T1	Michael Frieri	Tel: 905.832.8585 ext. 8729
City of Brampton Planning Design and development Dept 2 Wellington Street West., 3rd Floor Brampton, ON L6Y 4R2	Attn: Philip	Tel: 905-874-2522 Fax: 905-874-2499 mike.colangelo@brampton.ca
York Region 17250 Yonge Street, Newmarket, Ontario, L3Y 6Z1	Environmental Services	Tel: 905.895.1231 Ext. 5931 EnvironmentalServices@york.ca
Peel Region Operations and Maintenance 2 Copper Road Brampton, ON L6T 4W5	Attn: Robert Perkins	Tel: 905-791-5997 X 3221 Fax: 905-450-0288 Robert.Perkins@peelregion.ca
Bell Canada Municipal Operations Centre C/O Plantec 610 Alden Road., Suite 201 Markham, ON L3R 9Z1	Attn: Sharmila Kumar For utility conflict issues contact the following offices **Chris Seaton** 5115 Creekbank Rd. 3 West Mississauga, ON L4W 5R1 **Maureen Marshall** Kleinburg Cables 444 Millard Ave. Floor 2 Newmarket, ON L3Y 2A3	Tel: 905-470.2112 sharmila.kumar@Prestigetel.com Send markups to – bell.moc@prestigetel.com
Hydro One Brampton Network 175 Sandalwood Parkway West Brampton, ON L7A 1E8	Attn: Emil Sampaga	Tel: 905-840-6300 X 3355 Fax: esampaga@hydroonebrampton.com
Rogers Cable TV 3573 Wolfedale Road Mississauga, ON L5C 3T6	Attn: Edgar Henriquez	Tel: 905-897-6457 Fax: edgar.henriquez@rci.rogers.com
Enbridge Gas Distribution Record Department Post A2, P.O. Box 650 Scarborough, ON M1K 5E3 Enbridge Gas Distribution Inc. 500 Consumers Road 4th Floor North York, ON M2J 1P8	Attn: Bruno Pereira Or Jamie Delaney – 416-495-5160 (press 3, 1 for Jamie Delaney) markups@enbridge.com	Bruno - Tel: 416-758-7906 Fax: 416-758-4373 utilitycirculations@enbridge.com
FCI Broadband Now Rogers Cable 280 Hillmount Road., Unit 9 Markham, ON L6C 3A1 In the GTA FCI Broadband is owned by Rogers Cable	Attn: Edgar Henriquez	Tel: 905-897-6457 Fax: edgar.henriquez@rci.rogers.com
MTS Allstream 50 Worchester Road Etobicoke, ON M9W 5X2	Attn: Christine Anderson **Cory Knight**	Tel: 416-649-7527 Fax: 416-649-7500 **Cory K. Tel: 416-649-7509** **christine.anderson@mtsallstream.com** **correy.knight@mtsallstream.com** **utility.circulations@mtsallstream.com**
Hydro One Telecom 65 Kelfield Street Rexdale, ON M9W 5A3	Attn: Ian Mitchell	Tel: 416-240-6701 Fax: 416-240-6790 ian.mitchell@hydroone.com
Telus Network 2700 Matheson Blvd East 5th Floor, West Tower Mississauga, ON L4W 4V9 Telus Communications 82 Locust Street Kitchener, ON N2H 1W9	Stephen Hoy Bob Quick	Tel: 905-804-6223 Fax: 905-804-6104 Stephen.hoy@telus.com

Noss, Melissa

From: Agnew, Tim [Tim.Agnew@york.ca]
Sent: Wednesday, September 07, 2011 2:15 PM
To: Baudais, Nathalie
Cc: Chiu, Edward; Servera, Vinor
Subject: RE: Project #4956 - Highway 50 Road Widening
Attachments: 020.zip

The zip file:

<<020.zip>>

Tim Agnew, ***BSc. (Phys.)***
Special Projects Technologist
Infrastructure & Business Management
Strategy & Business Planning
Environmental Services Department
The Regional Municipality of York
17250 Yonge Street
Newmarket, ON L3Y 6Z1
Phone 905-830-4444 ext. 5122
Toll Free 1-877-464-9675
Fax 905-952-0982
e-mail tim.agnew@york.ca

From: Agnew, Tim
Sent: Wednesday, September 07, 2011 2:02 PM
To: 'nathalie.baudais@hdrinc.com'
Cc: Chiu, Edward; Servera, Vinor
Subject: Project #4956 - Highway 50 Road Widening

Hi Nathalie,

Attached is a zip file containing plan & profile drawings of all York Region's water/wastewater infrastructure located within the study area.

The Region of York is not responsible for the accuracy, sufficiency or interpretation of the information on the drawing. This plan is provided for information only. Accuracy of measurements is not guaranteed and should be verified in the field.

If you have any questions or would like additional drawings please do not hesitate to contact me.

Thanks,

Tim Agnew, ***BSc. (Phys.)***
Special Projects Technologist
Infrastructure & Business Management
Strategy & Business Planning
Environmental Services Department
The Regional Municipality of York
17250 Yonge Street
Newmarket, ON L3Y 6Z1
Phone 905-830-4444 ext. 5122
Toll Free 1-877-464-9675

METRIC

DUFFERIN
FOUNDED 1912

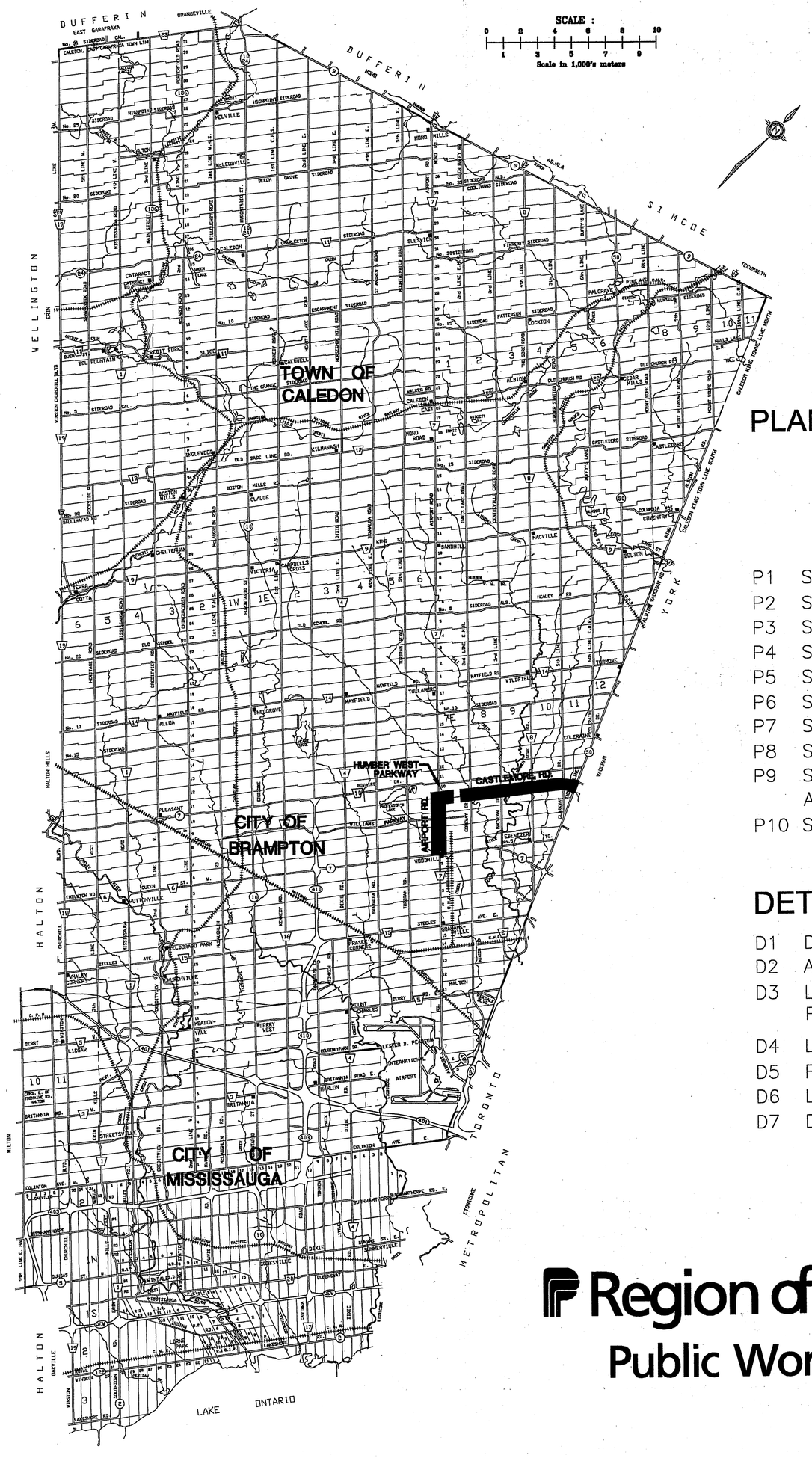
EARTH TECH

Earth Tech Canada Inc. Markham, Ontario 905.886.7022

URS

Marshall Macklin Monaghan
CONSULTING ENGINEERS · SURVEYORS · PLANNERS

YORK-PEEL FEEDERMAIN PROJECT



AIRPORT ROAD, HUMBER WEST PARKWAY AND CASTLEMORE ROAD

FEEDERMAIN SHEET INDEX

PLAN AND PROFILES

AIRPORT ROAD 2100Ø:
FROM QUEEN STREET TO
AIRPORT ROAD RESERVOIR

P1 STA. 0+000 TO 0+200 – AIRPORT ROAD
P2 STA. 0+200 TO 0+480 – AIRPORT ROAD
P3 STA. 0+480 TO 0+760 – AIRPORT ROAD
P4 STA. 0+760 TO 1+040 – AIRPORT RAOD
P5 STA. 1+040 TO 1+320 – AIRPORT ROAD
P6 STA. 1+320 TO 1+600 – AIRPORT ROAD
P7 STA. 1+600 TO 1+840 – AIRPORT ROAD
P8 STA. 1+840 TO 2+100 – AIRPORT ROAD
P9 STA. 2+100 TO 2+360 – AIRPORT ROAD AND EASEMENT
P10 STA. 2+360 TO 2+640.829 – EASEMENT

HUMBER WEST PARKWAY 1800Ø:

P11 STA. 0+000 TO 0+180 – NORTH PARK DRIVE EXTENSION
P12 STA. 0+180 TO 0+460 – HUMBER WEST PARKWAY
P13 STA. 0+460 TO 0+700 – HUMBER WEST PARKWAY
P14 STA. 0+700 TO 0+877.196 – HUMBER WEST PARKWAY

CASTLEMORE ROAD 1800Ø:
FROM GOREWAY DRIVE TO
HIGHWAY 50

P15 STA. 0+000 TO 0+260 – CASTLEMORE ROAD
P16 STA. 0+260 TO 0+540 – CASTLEMORE ROAD
P17 STA. 0+540 TO 0+820 – CASTLEMORE ROAD
P18 STA. 0+820 TO 1+100 – CASTLEMORE ROAD
P19 STA. 1+100 TO 1+380 – CASTLEMORE ROAD
P20 STA. 1+380 TO 1+660 – CASTLEMORE ROAD
P21 STA. 1+660 TO 1+940 – CASTLEMORE ROAD
P22 STA. 1+940 TO 2+200 – CASTLEMORE ROAD
P23 STA. 2+200 TO 2+500 – CASTLEMORE ROAD
P24 STA. 2+500 TO 2+780 – CASTLEMORE ROAD
P25 STA. 2+780 TO 3+060 – CASTLEMORE ROAD
P26 STA. 3+060 TO 3+340 – CASTLEMORE ROAD
P27 STA. 3+340 TO 3+620 – CASTLEMORE ROAD
P28 STA. 3+620 TO 3+900 – CASTLEMORE ROAD
P29 STA. 3+900 TO 4+180 – CASTLEMORE ROAD
P30 STA. 4+180 TO 4+460 – CASTLEMORE ROAD
P31 STA. 4+460 TO 4+740 – CASTLEMORE ROAD
P32 STA. 4+740 TO 4+899.188 – CASTLEMORE ROAD

DETAILS

D1 DRAIN VALVE CHAMBER
D2 AIR RELEASE CHAMBER
D3 LINE VALVE CHAMBER – PLAN AND BELOW GRADE
D4 LINE VALVE CHAMBER – SECTIONS
D5 FLOWMETER CHAMBER
D6 LINE VALVE INDEX
D7 DETAILS

EROSION CONTROL DRAWINGS

ER1 EROSION CONTROL DETAILS
ER2 EROSION CONTROL DETAILS – CROSSING METHODS
ER3 PLANTING DETAILS AND BANK RESTORATION
ER4 CROSSING C19 METHOD RESTORATION
ER5 CROSSING C17 METHOD RESTORATION

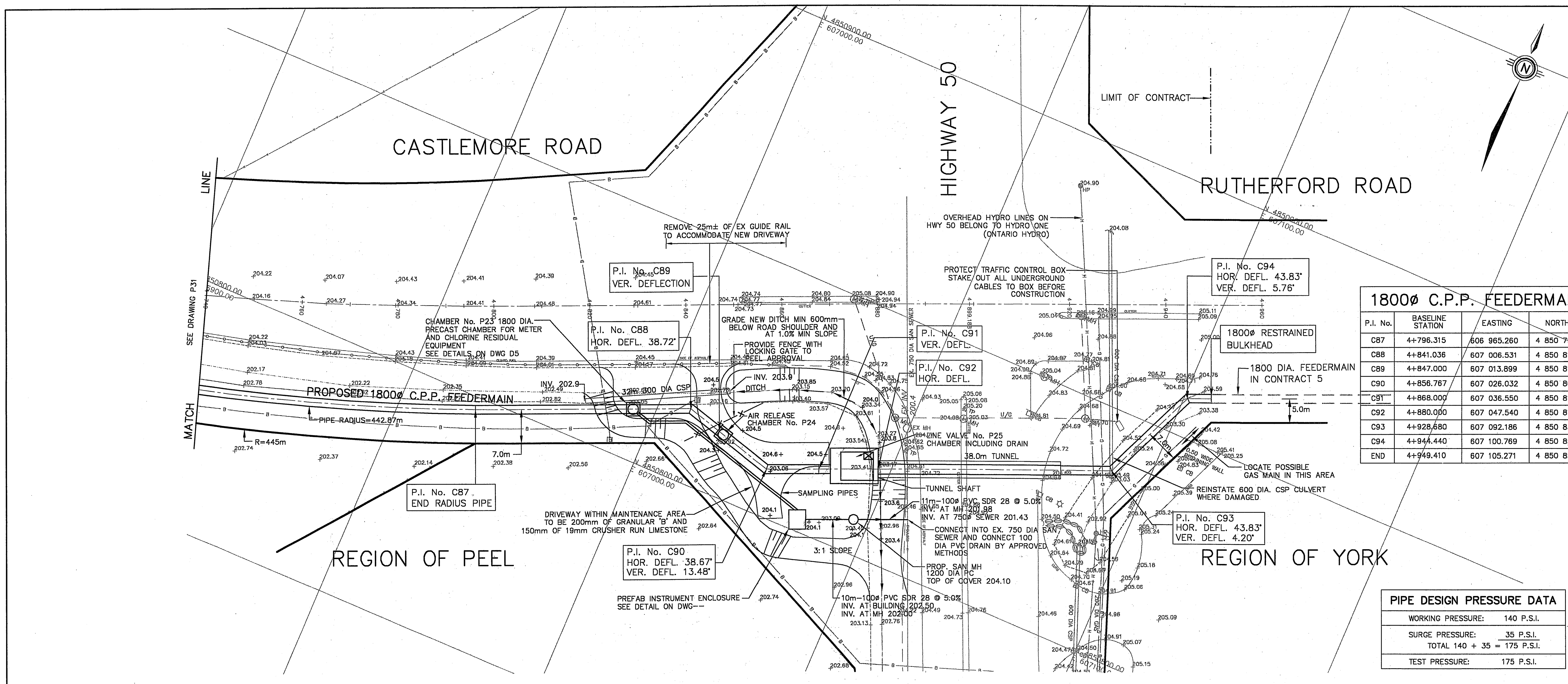
STRUCTURAL DRAWINGS

S0 SPECIFICATIONS & TYPICAL DETAILS
S1 LINE VALVE CHAMBER DETAILS
S2 LINE VALVE CHAMBER DETAILS

LANDSCAPE / RESTORATION PLAN DRAWINGS

P1–L AIRPORT ROAD – STA 0+000 TO 0+200
P13–L HUMBER WEST PARKWAY – STA. 0+460 TO 0+700
P14C–L HUMBER WEST PARKWAY – STA 0+700 TO 0+877.196
P14–L HUMBER WEST PARKWAY – STA 0+700 TO 0+877.196
P20–L CASTLEMORE ROAD – STA 1+380 TO 1+660
P21–L CASTLEMORE ROAD – STA 1+660 TO 1+940
P22–L CASTLEMORE ROAD – STA 1+940 TO 2+220
P24–L CASTLEMORE ROAD – STA 2+500 TO 2+780
P27–L CASTLEMORE ROAD – STA 3+340 TO 3+620
P28–L CASTLEMORE ROAD – STA 3+620 TO 3+900
P31–L CASTLEMORE ROAD – STA 4+460 TO 4+740

Region of Peel
Public Works

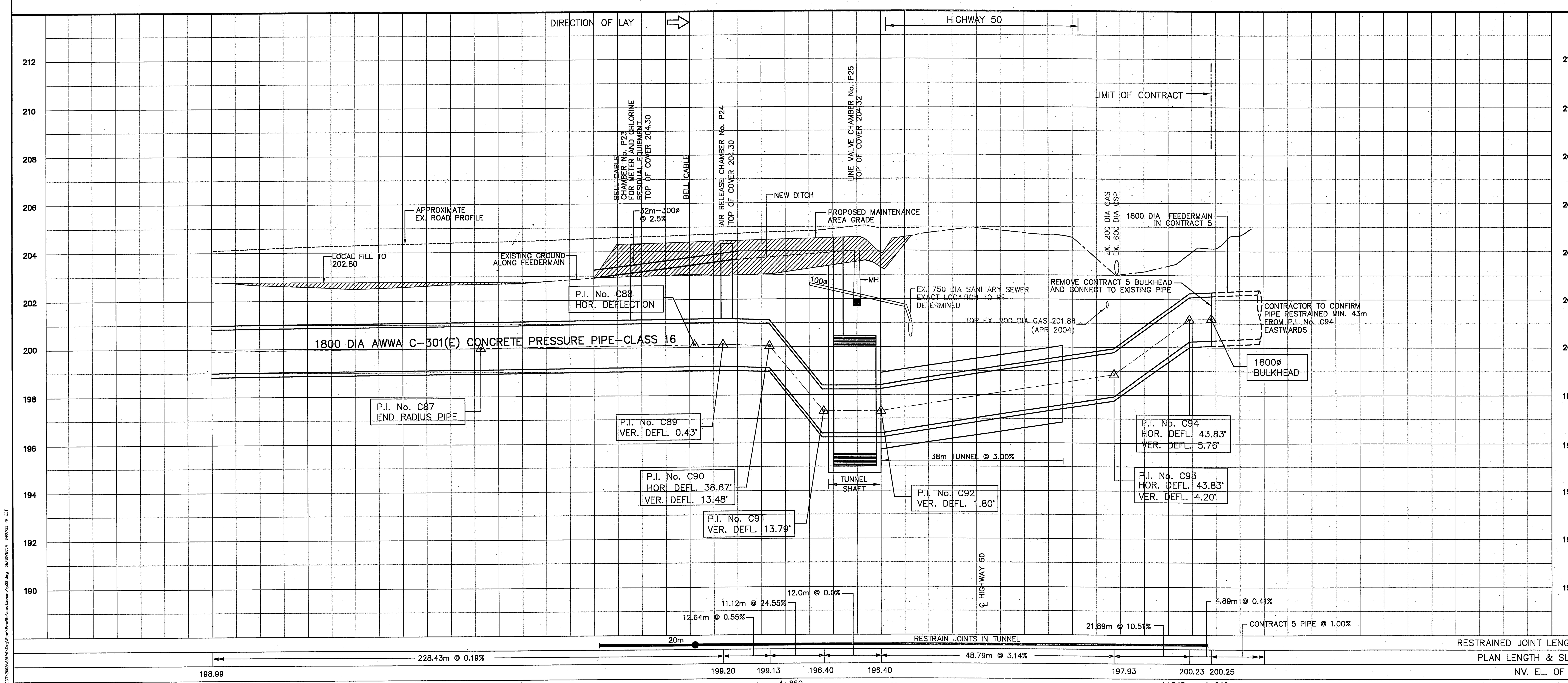


1800ø C.P.P. FEEDERMAIN

P.I. No.	BASELINE STATION	EASTING	NORTHING
C87	4+796.315	606 965.260	4 850 797.362
C88	4+841.036	607 006.531	4 850 814.983
C89	4+847.000	607 013.899	4 850 812.927
C90	4+856.767	607 026.032	4 850 809.541
C91	4+868.000	607 036.550	4 850 813.210
C92	4+880.000	607 047.540	4 850 818.050
C93	4+928.680	607 092.186	4 850 837.730
C94	4+944.440	607 100.769	4 850 857.865
END	4+949.410	607 105.271	4 850 859.784

PIPE DESIGN PRESSURE DATA

WORKING PRESSURE:	140 P.S.I.
SURGE PRESSURE:	35 P.S.I.
TOTAL 140 + 35 =	175 P.S.I.
TEST PRESSURE:	175 P.S.I.

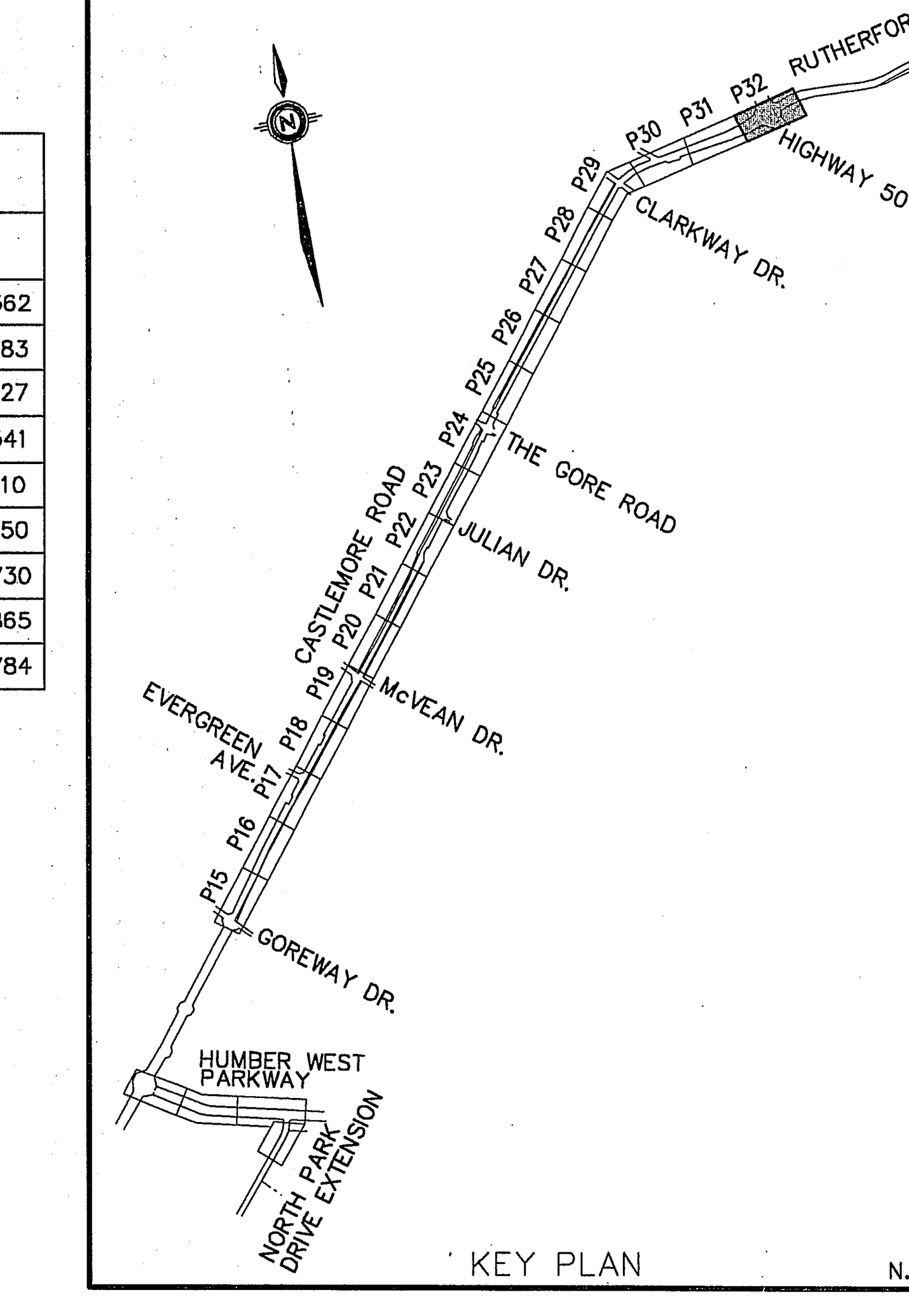


SERVICE DATA

SERVICE	DATE	INIT.	SERVICE
SAN SEWERS			GAS MAINS
STORM SEWERS			BELL U/G CABLE
WATERMAINS			HYDRO U/G CABLE
TRANSIT			ONT. HYDRO
PARKS & REC.			CTV
ONT. CLEAN WATER			

REVISIONS

NO.	DATE	DETAILS	BY
1	APR.11, 03	PRELIMINARY DESIGN FOR RFP SUBMISSION	J.S.
2	OCT.24, 03	60% SUBMISSION – NOT FOR CONSTRUCTION	J.S.
3	MAR.01, 04	100% SUBMISSION – NOT FOR CONSTRUCTION	J.S.
4	MAR.05, 04	PIPE LENGTHS, SLOPES UPDATED.	A.S.
5	APR.26, 04	PI No C93 AND C94 MOVED	A.S.
6	JUNE.25, 04	KMK COMMENTS	A.S.



KEY PLAN N.T.S.

NOTES

All dimensions and elevations are in metres unless otherwise noted.

Pipe sizes are in millimetres.

Restrained joints to be used to resist thrust forces at all bends, elbows and tees as indicated on drawings.

Tracer wire and warning tape must be installed according to Peel Standards.

Contractor is responsible for locating and protecting all utilities during construction. Gas, Hydro and Telephone or any other utilities that may exist on site must be located by its own agencies and verified prior to construction.

Refer to P.I. Layout Information on this sheet.

BENCHMARKS
REFER TO LIST OF BENCHMARKS ON INDEX SHEET.

LICENSED PROFESSIONAL ENGINEER — J. SERAMELI — JULY 15, 04 — PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER — J. C. BOURRIE — JULY 15, 04 — PROVINCE OF ONTARIO

NOTICE TO CONTRACTOR
48 HOURS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL TELEPHONE COMPANY
CONSUMERS GAS COMPANY
MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ELECTRIC POWER COMM. OF ONTARIO
HYDRO ELECTRIC POWER COMM. CITY OF MISSISSAUGA
HYDRO ELECTRIC POWER COMM. CITY OF BRAMPTON
CABLE TELEVISION

10m 0 10 20 30m HORIZONTAL SCALE
2m 0 2 4 6m VERTICAL SCALE

York Peel Design Build

EARTH TECH URS

165 Commerce Valley Dr. West, Markham, Ontario (905) 764-4300

Region of Peel
Public Works

YORK PEEL FEEDERMAIN

CASTLEMORE ROAD
PROPOSED 1800 DIA. FEEDERMAIN
Sta. 4+740 To Sta. 4+899.188

LOTS	AREA	PROJECT NO. 02–1970D
CHECKED BY J.S.	DRAWN BY	PLAN NO. P32
DATE	SHEET OF	

P:\PROJECT\2003\69126\Dwg\Pipe\Profile\castlemore\p32.dwg 06/30/2004 04:07:31 PM EDT

96_COVER.DWG

METRIC

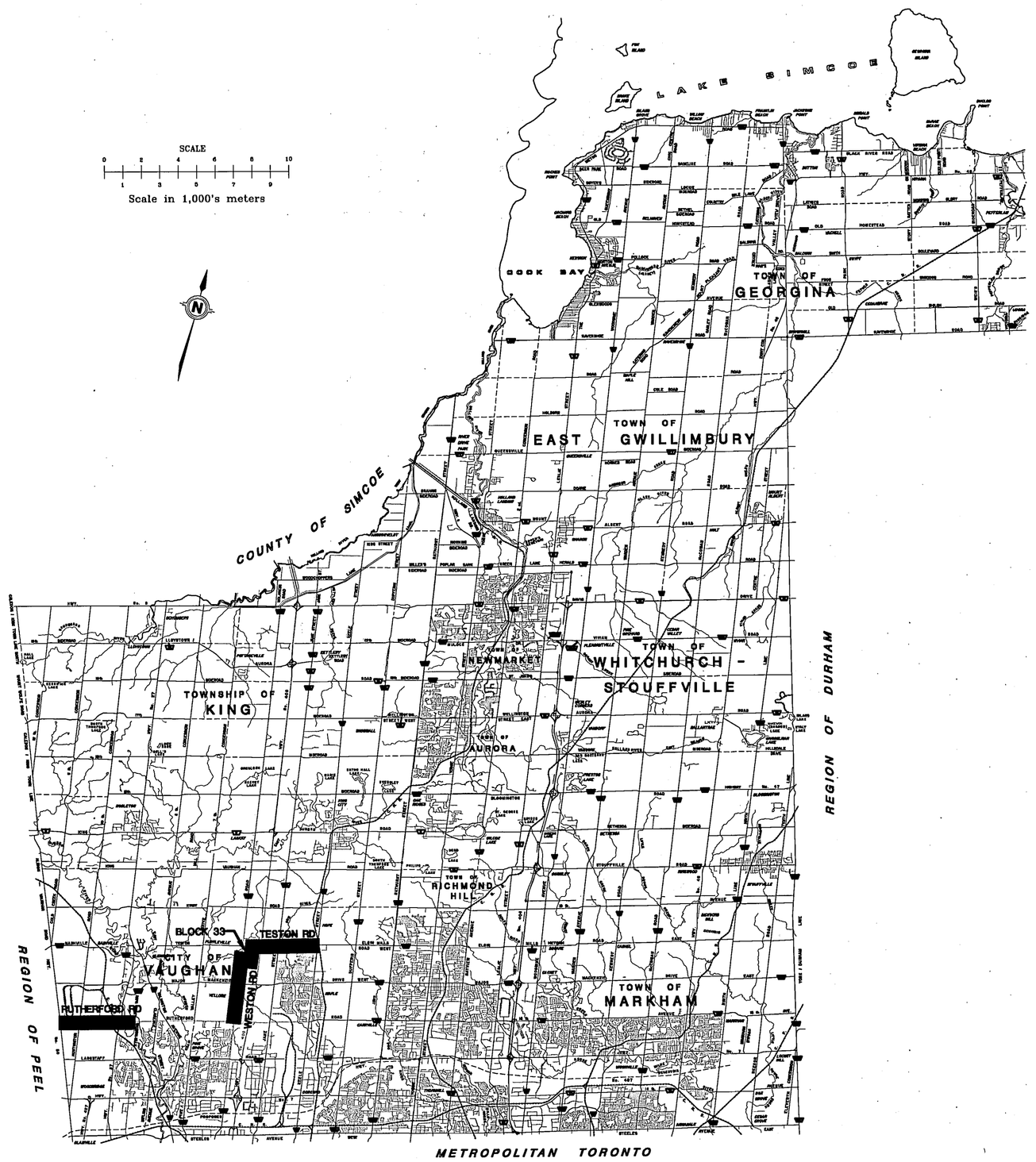
DUFFERIN FOUNDED 1912

EarthTech
A Tyco International Ltd. Company

URS

Marshall Macklin Monaghan
CONSULTING ENGINEERS • SURVEYORS • PLANNERS

YORK-PEEL FEEDERMAIN PROJECT AS-BUILT RUTHERFORD ROAD, WESTON ROAD, BLOCK 33 & TESTON ROAD



FEEDERMAIN SHEET INDEX

PLAN AND PROFILES

RUTHERFORD ROAD 1800Ø: FROM C.P.R. TO 200m WEST OF NAPA VALLEY DRIVE

P1 STA. 0+000 TO 0+200
P2 STA. 0+200 TO 0+500
P3 STA. 0+500 TO 0+800
P4 STA. 0+800 TO 1+100
P5 STA. 1+100 TO 1+400
P6 STA. 1+400 TO 1+700
P7 STA. 1+700 TO 2+000
P8 STA. 2+000 TO 2+300
P9 STA. 2+300 TO 2+600
P10 STA. 2+600 TO 2+900
P11 STA. 2+900 TO 3+100
P12 STA. 3+100 TO 3+280
P13 STA. 3+280 TO 3+460
P14 STA. 3+460 TO 3+660
P15 STA. 3+660 TO 3+940
P16 STA. 3+940 TO 4+190±

WESTON ROAD 1800Ø: FROM RUTHERFORD ROAD TO 480m NORTH OF MAJOR MACKENZIE DRIVE

P17 STA. 20+000 TO 20+280
P18 STA. 20+280 TO 20+580
P19 STA. 20+580 TO 21+880
P20 STA. 20+880 TO 21+180
P21 STA. 21+180 TO 21+480
P22 STA. 21+480 TO 21+780
P23 STA. 21+780 TO 22+080
P24 STA. 22+080 TO 22+380
P25 STA. 21+380 TO 21+680

BLOCK 33 1800Ø: STREET 'E' AND STREET 'A' FROM WESTON ROAD TO TESTON ROAD

P26 STA. 22+680 TO 22+980
P27 STA. 22+980 TO 23+240
P28 STA. 23+240 TO 23+460
P29 STA. 23+460 TO 23+760
P30 STA. 23+760 TO 24+060
P31 STA. 24+060 TO 24+360
P32 STA. 24+360 TO 24+660
P33 STA. 24+660 TO 24+960

TESTON ROAD 1800Ø: BLOCK 33 TO KEELE STREET FROM 150m WEST OF HWY 400 TO KEELE STREET

P34 STA. 24+960 TO 25+260
P35 STA. 25+260 TO 25+560
P36 STA. 25+560 TO 25+860
P37 STA. 25+860 TO 26+140
P38 STA. 26+140 TO 26+400
P39 STA. 26+400 TO 26+700
P40 STA. 26+700 TO 27+000
P41 STA. 27+000 TO 27+300
P42 STA. 27+300 TO 27+600
P43 STA. 27+600 TO 27+900
P44 STA. 27+900 TO 28+200
P45-E STA. 0+000 TO 0+220
P46-E STA. 0+220 TO 0+413.796

EROSION CONTROL DRAWINGS

ER1 EROSION CONTROL DETAILS
ER2 EROSION CONTROL DETAILS – CROSSING METHODS
ER3 PLANTING DETAILS AND BANK RESTORATION
ER4 EROSION CONTROL DETAILS

DETAILS

D1 AIR RELEASE CHAMBER DETAILS
D2 DRAIN CHAMBER DETAILS
D3 1800ø LINE VALVE CHAMBER – PLAN AT AND BELOW GRADE
D4 1800ø LINE VALVE CHAMBER – SECTIONS
D5 MAPLE RESERVOIR INLET CHAMBER NO. Y21 DETAILS PLAN BELOW GRADE
D6 MAPLE RESERVOIR INLET CHAMBER NO. Y21 DETAILS PLAN SECTION AND DETAILS
D7 MAPLE RESERVOIR INLET CHAMBER NO. Y21 DETAILS PLAN ABOVE GRADE AND SECTIONS
D8 1800ø LINE VALVE CHAMBER WITH 600ø OR 750ø BRANCH PLAN AT AND BELOW GRADE
D9 1800ø LINE VALVE CHAMBER WITH 600ø OR 750ø BRANCH SECTIONS
~~D10 VALVE CHAMBER WITH 750ø BRANCH PLANS, SECTIONS AND DETAILS~~ (DELETED)
D11 VALVE CHAMBER WITH 300ø BRANCH PLANS, SECTIONS AND DETAILS
D12 PD7 WATERMAIN – VALVE CHAMBER V1
D13 PD7 WATERMAIN – VALVE CHAMBER V2
D14 PD7 WATERMAIN – VALVE CHAMBER V3
D15 PD7 WATERMAIN – VALVE CHAMBER V4
D16 PD7 WATERMAIN – VALVE CHAMBER V5, V6, & V7
D17 DETAILS
D18 DETAILS
D19 DETAILS
D20 DETAILS
D21 1800ø LINE VALVE CHAMBER NO. Y3 PLAN BELOW GRADE
D22 1800ø LINE VALVE CHAMBER NO. Y3 PLAN AT GRADE
D23 1800ø LINE VALVE CHAMBER NO. Y3 PLAN AT AND BELOW GRADE
D24 1800ø LINE VALVE CHAMBER NO. Y3 SECTION
D25 LINE VALVE INDEX
D26 PRESSURE REDUCING VALVE CHAMBER NO.1
D27 PRESSURE REDUCING VALVE CHAMBER NO.1
D28 HUNTERS GLEN GOLF COURSE WATER SERVICE CONNECTION

STRUCTURAL DRAWINGS

S0 SPECIFICATIONS & TYPICAL DETAILS
S1 AIR RELEASE CHAMBER DETAILS
S2 DRAIN CHAMBER DETAILS
S3 1800ø LINE VALVE CHAMBER – PLAN AT AND BELOW GRADE
S4 1800ø LINE VALVE CHAMBER – SECTIONS
S5A 1800ø LINE VALVE CHAMBER WITH 750ø BRANCH AT AND BELOW GRADE
S5B 1800ø LINE VALVE CHAMBER WITH 750ø BRANCH SECTIONS
S6A 1800ø LINE VALVE CHAMBER WITH 600ø BRANCH PLAN AT AND BELOW GRADE
S6B 1800ø LINE VALVE CHAMBER WITH 600ø BRANCH SECTIONS
S8 VALVE CHAMBER WITH 300ø BRANCH PLANS, SECTIONS AND DETAILS
S12 PD7 WATERMAIN – VALVE CHAMBER V1
S15 PD7 WATERMAIN – VALVE CHAMBER V4
S21 1800ø LINE VALVE CHAMBER WITH 600ø OR 700ø BRANCH PLAN AT GRADE
S22 1800ø LINE VALVE CHAMBER WITH 600ø OR 750ø BRANCH SECTIONS AND DETAILS
S25 KEELE RESERVOIR INLET CHAMBER DETAILS & SECTION
S26 KEELE RESERVOIR INLET CHAMBER DETAILS & SECTION
S27 MAPLE RESERVOIR CONNECTION

York Region

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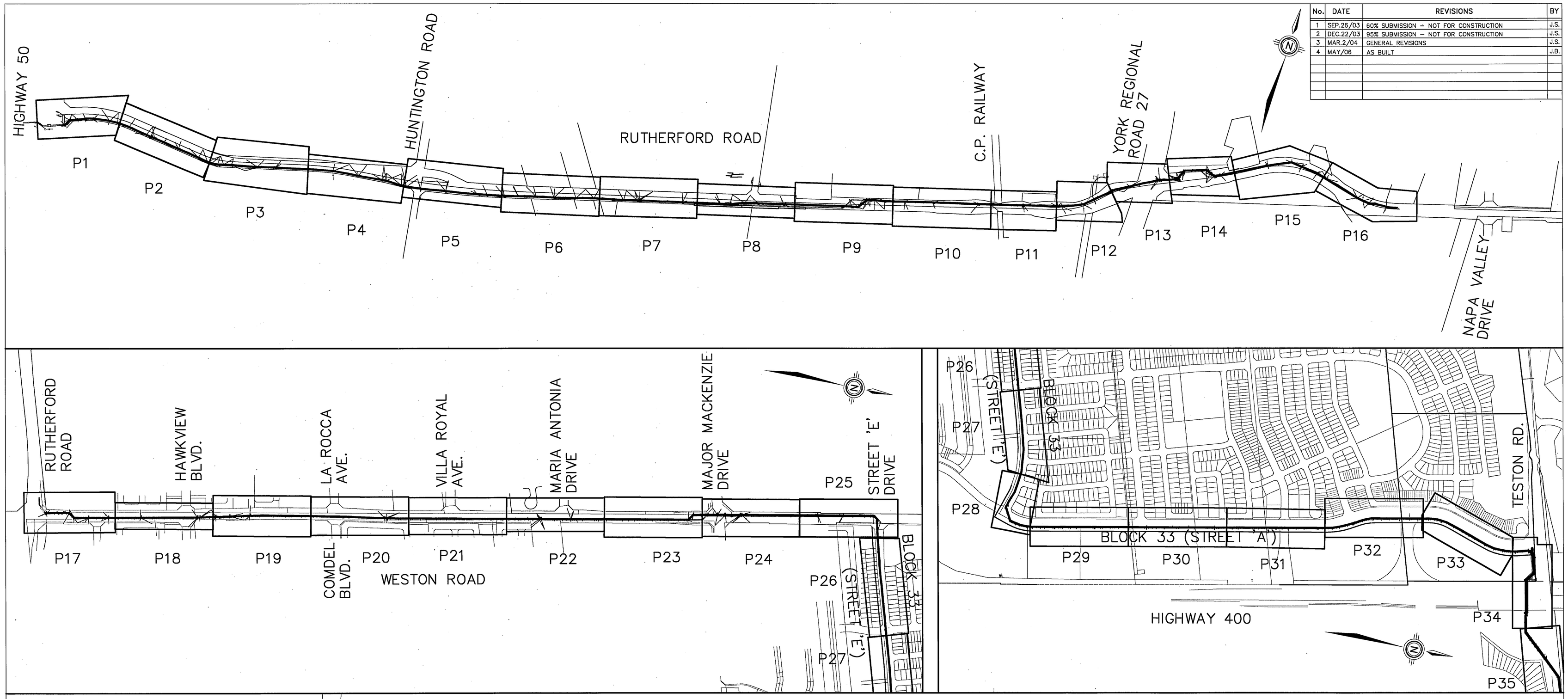
No.	DATE	REVISIONS	BY
1	SEP.26/03	60% SUBMISSION – NOT FOR CONSTRUCTION	J.S.
2	DEC.22/03	95% SUBMISSION – NOT FOR CONSTRUCTION	J.S.
3	MAR.2/04	GENERAL REVISIONS	J.S.
4	MAY/06	AS BUILT	J.B.



SCALE 1:6000

METRIC

York Peel Design Build
EARTH TECH URS
165 Commerce Valley Dr. West, Markham, Ontario (905) 764-4300

York Region Transportation and Works

DESIGN	B.G.
DRAWN	L.B.
CHECKED	J.S.

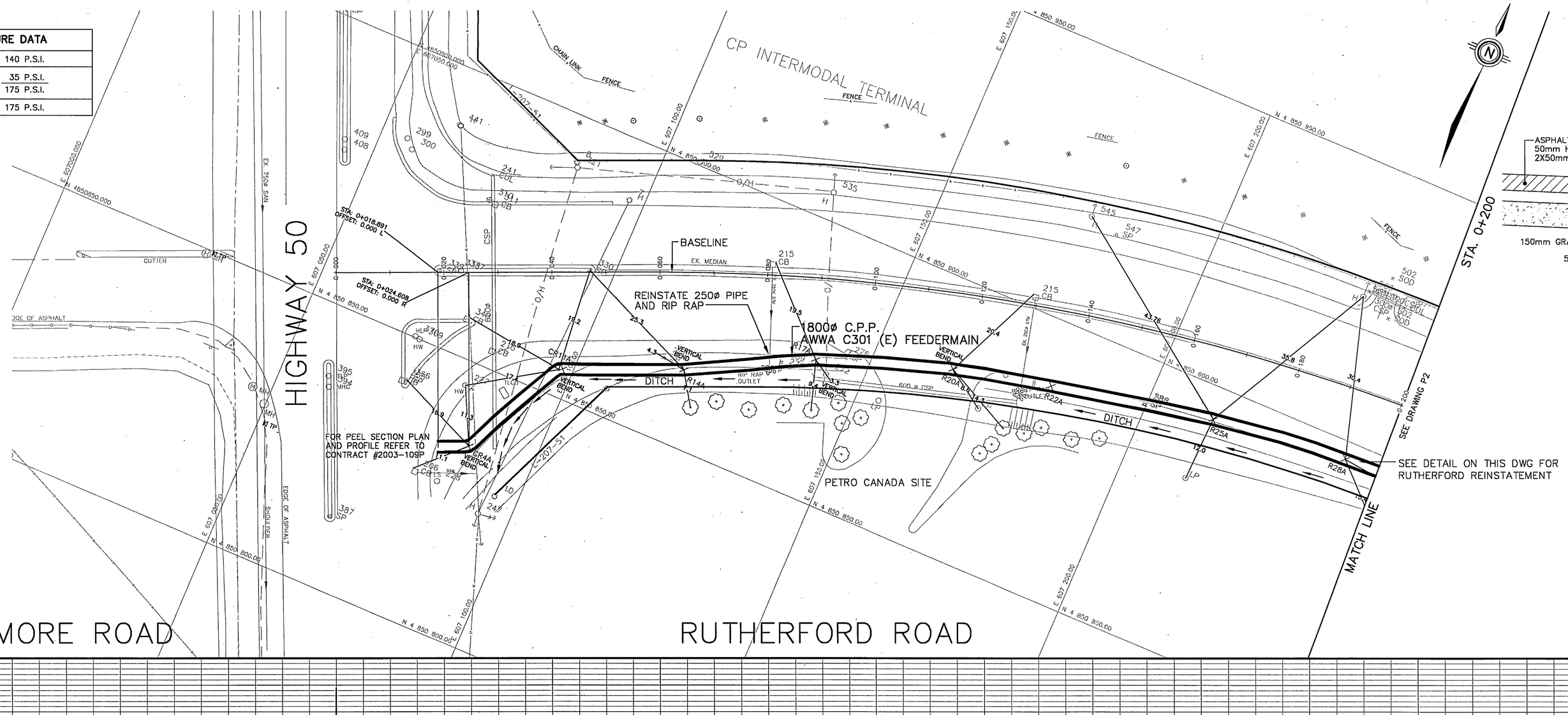
YORK PEEL FEEDERMAIN
YORK INDEX SHEET

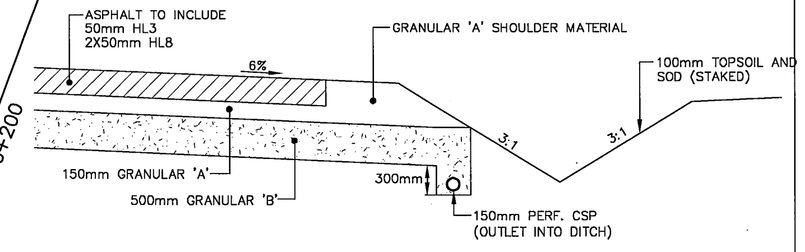
DWG. NO.	INDEX
CONT. NO.	P–03–04
SHEET NO.	INDEX

P:\PROJECT\2003\69126\Dwg\Plan\General\york-index.dwg 10/06/2006 04:17:21 PM EDT

PIPE DESIGN PRESSURE DATA	
WORKING PRESSURE:	140 P.S.I.
SURGE PRESSURE:	35 P.S.I.
TOTAL 140 + 35 =	175 P.S.I.
TEST PRESSURE:	175 P.S.I.

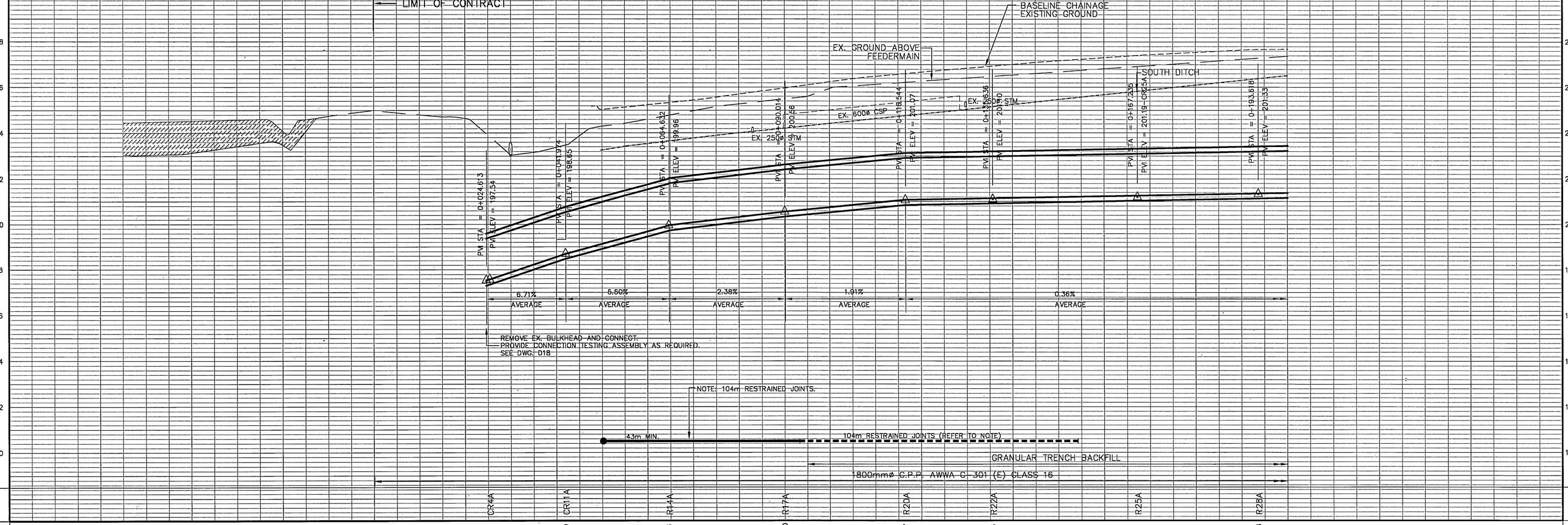
No.	DATE	REVISIONS	BY
1	NOV.28, 03	60% SUBMISSION – NOT FOR CONSTRUCTION	J.S.
2	JAN.16, 04	95% SUBMISSION – NOT FOR CONSTRUCTION	J.S.
3	MAR.02, 04	GENERAL REVISIONS	A.S.
4	MAR.02, 04	100% SUBMISSION – NOT FOR CONSTRUCTION	A.S.
5	MAR.15, 04	PIPE SLOPES, LENGTHS, AND PI ANGLES REVISED	A.S.
6	JUN.25, 04	VERTICAL ALIGNMENT REVISED	A.S.
7	MAR 06, 06	AS-BUILT TO REGION FOR REVIEW	C.M.
8	APR. 7, 06	FINAL AS-BUILT SUBMISSION	C.M.





TYPICAL ROAD REINSTATEMENT FOR RUTHERFORD ROAD FROM 0+050 TO 0+400
NTS

1800ø C.P.P. WATERMAIN		
P.I. No.	NORTHING	EASTING
CR4A	4850835.38	607087.72
CR11A	4850855.33	607098.07
R14A	4850864.01	607118.78
R17A	4850875.31	607140.49
R20A	4850883.69	607164.62
R22A	4850887.95	607182.52
R25A	4850894.01	607212.40
R28A	4850896.74	607237.75



AS-BUILT INFORMATION PROVIDED BY DUFFERIN CONSTRUCTION. PRIOR TO COMMENCMENT OF WORK IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UNDERGROUND SERVICES.

FOR ROAD DESIGN SEE URS CANADA INC. ROAD RECONSTRUCTION DRAWINGS

NOTE:
THE LOCATION OF UTILITIES IS APPROXIMATE ONLY, AND THE EXACT LOCATION SHOULD BE DETERMINED BY CONSULTING THE MUNICIPAL AUTHORITIES AND UTILITY COMPANIES CONCERNED. THE CONTRACTOR SHALL PROVE THE LOCATION OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION FROM DAMAGE DURING CONSTRUCTION.

STORM SEWERS:

1. INVERT ELEVATIONS SHOWN ARE AT POINT OF CROSSING PIPELINE OF CATCHBASIN OR MANHOLE.
2. PIPE LENGTHS SHOWN ARE CENTRELINE TO CENTRELINE OF CATCHBASIN OR MANHOLE.
3. OFFSETS SHOWN ARE TO CENTRE OF CATCHBASIN OR MANHOLE COVER.

P.I. NUMBER		CR4A	CR11A	R14A	R17A	R22A	R22A	R25A	R28A
PIPE INVERT		197.546	198.650	199.956	200.560	201.067	201.096	201.192	201.328
ALIGNMENT CHAINAGE	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200

SCALES
5m 0 10m
Horizontal =1:500
1m 0 2m
Vertical =1:100

METRIC

NOTE:
PROVIDE CONTINUOUS WARNING MESH-PLYAGE HZ 1.00m ABOVE WATERMAIN.

ORIGINAL SIGNED BY:
J. SFRAMELI, P.ENG
DATED: MAR. 2, 04

ORIGINAL SIGNED BY:
J.C. BOURRIE, P.ENG
DATED: MAR. 2, 04

York Peel Design Build
EARTH TECH URS
165 Commerce Valley Dr. West, Markham, Ontario (905) 764-4300

York Region Transportation and Works

DESIGN	B.G.
DRAWN	L.E./L.B.
CHECKED	J.B.

YORK PEEL FEEDERMAIN
RUTHERFORD ROAD
STA. 0+000 to 0+200

DWG. NO.	P1
CONT. NO.	P-03-04
SHEET NO.	P1

Bell Canada Municipal Operations Centre - C/O PRESTIGE TELECOM
200 Town Centre Blvd., Suite #300
Markham, Ontario L3R 8G5
Ph: (905) 470-2112 Fax: (905) 460-8956

APPLICATION FOR PLANT LOCATION AND CONSENT

Applicant: HDR | iTRANS
Mark Up #:30879
Applicant Ref #: 4956
Location: Mayfield Rd from Coleraine Dr to Hwy 50; Hwy 50 from Mayfield Rd to Castlemore Rd
SwitchingCenter/NNX: BRAMPTON-WALKER DR/458 BOLTON/857 KLEINBURG/893
Date Received From Applicant: 2011-08-15
Marked By: Ryan Su

APPLICATION FOR PLANT LOCATION AND REQUEST

☑ **Existing and/or proposed Bell Canada underground plant are indicated on the attached plan**

☐ **Our records show no existing and / or proposed underground plant within 2m of your proposed installation**

☐ **Conflict indicated**

☐ **Meets with our approval**

☑ **Not for PUCC approval - Mark up only**

☑ **If within 1 metre of bell plant, hand dig**

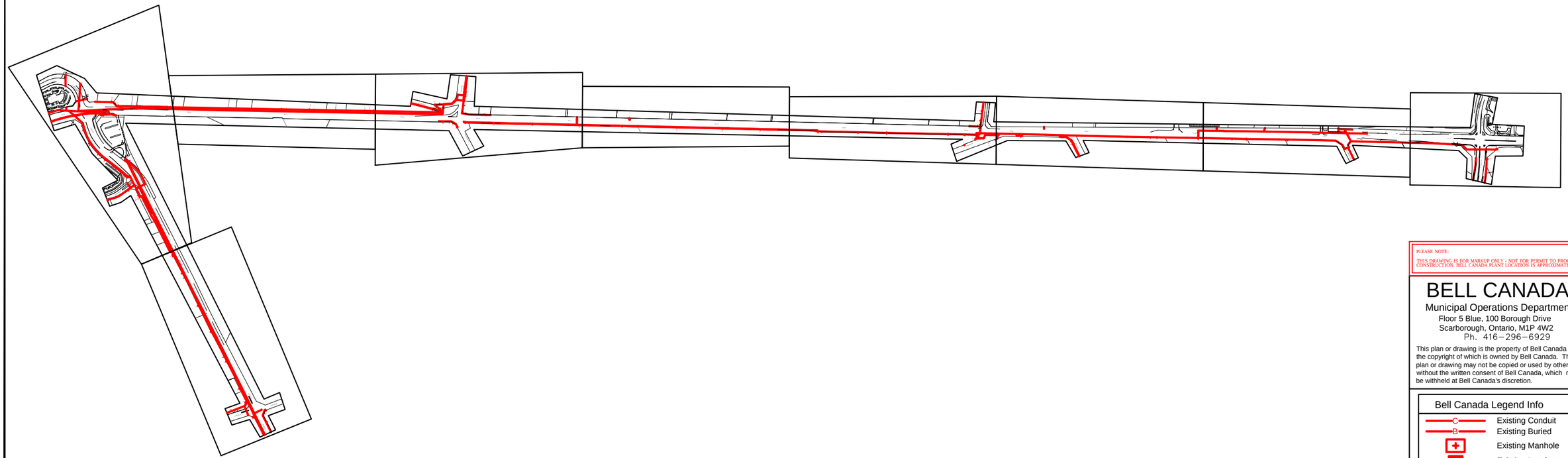
REMARKS: Call for locates 1.800.400.2255. Maintain clearance of 0.6m. Hand dig when crossing Bell plant.

PROCEDURES TO FOLLOW:

1. **Request locates prior to construction 1-800-400-2255**
2. **If exact location and depth are critical - test pits are recommended**
3. **Bell Canada plant location information is approximate**
4. **If the location of your proposed design changes, it will be necessary to re-apply**
5. **Permits expire six(6) months from approval date**

Signature:
Ryan Su

Date:
August 19, 2011



PLEASE NOTE:
THIS DRAWING IS FOR MARKUP ONLY - NOT FOR PERMIT TO PROCEED CONSTRUCTION. BELL CANADA PLANT LOCATION IS APPROXIMATE.

BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- C — Existing Conduit
- B — Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

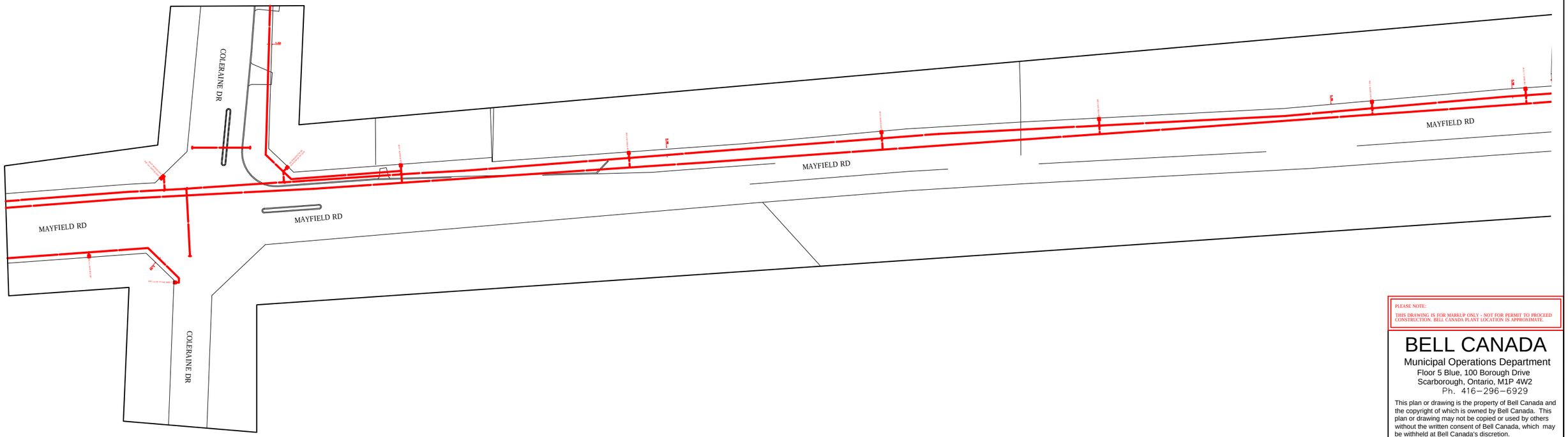
Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

KEY PLAN

Mark Up # - 30879

Designer - RSU



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BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- Existing Conduit
- Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

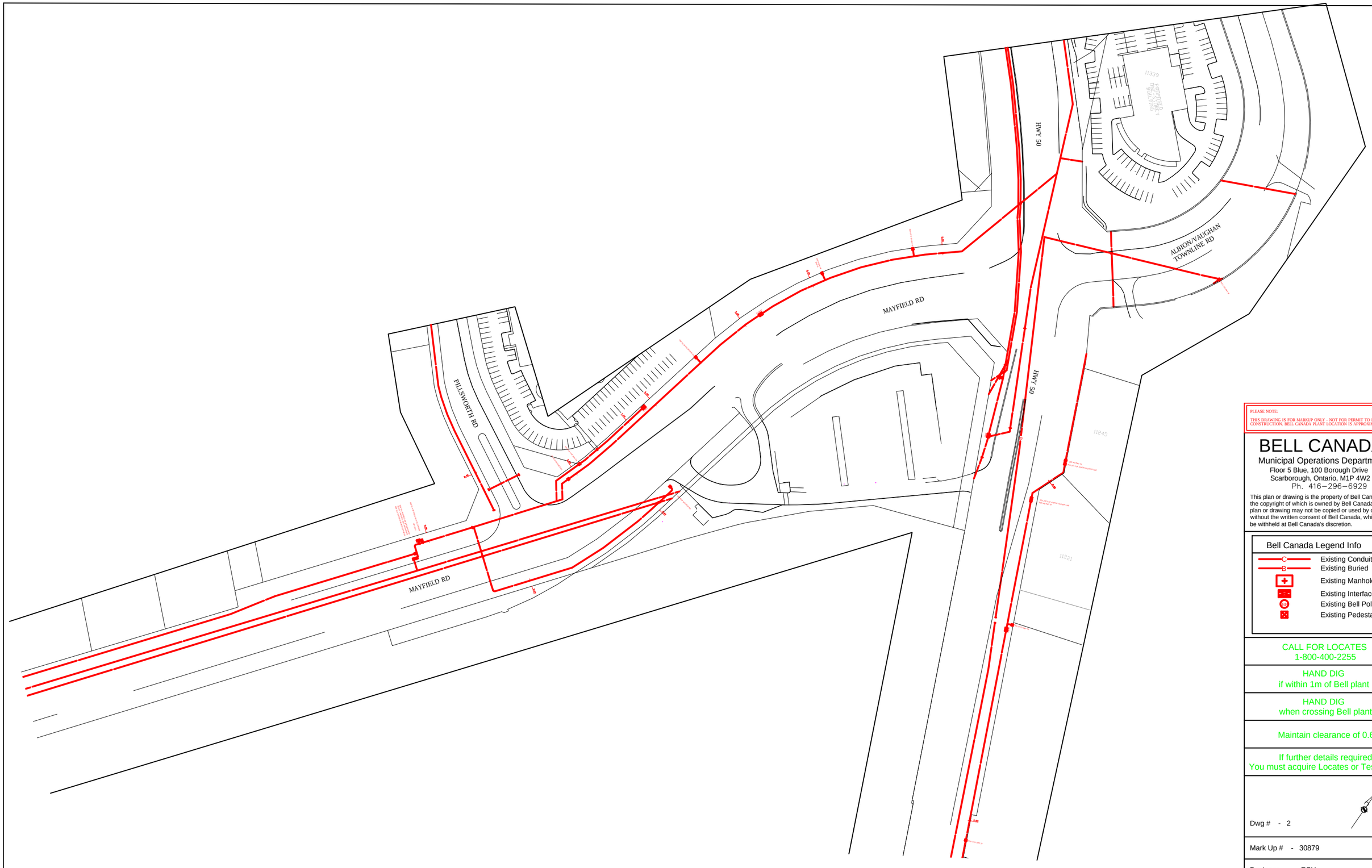
Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

Dwg # - 1

Mark Up # - 30879

Designer - RSU



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BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- Existing Conduit
- Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

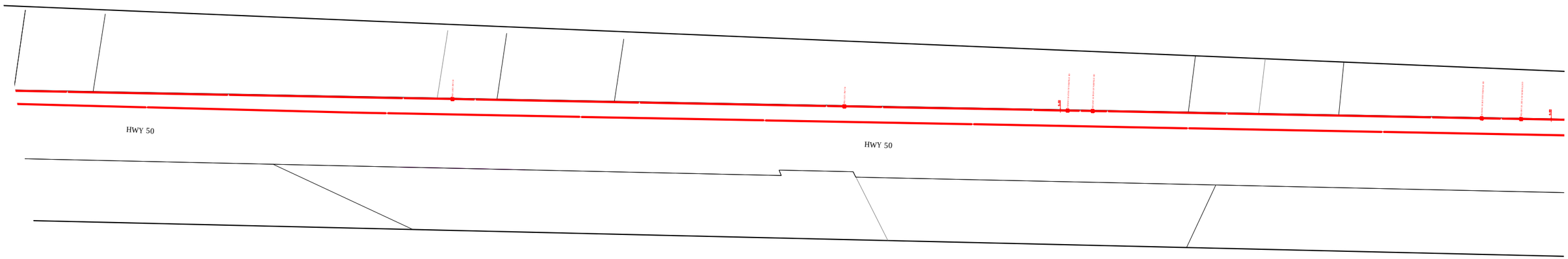
Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

Dwg # - 2

Mark Up # - 30879

Designer - RSU



PLEASE NOTE:

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BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- Existing Conduit
- Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

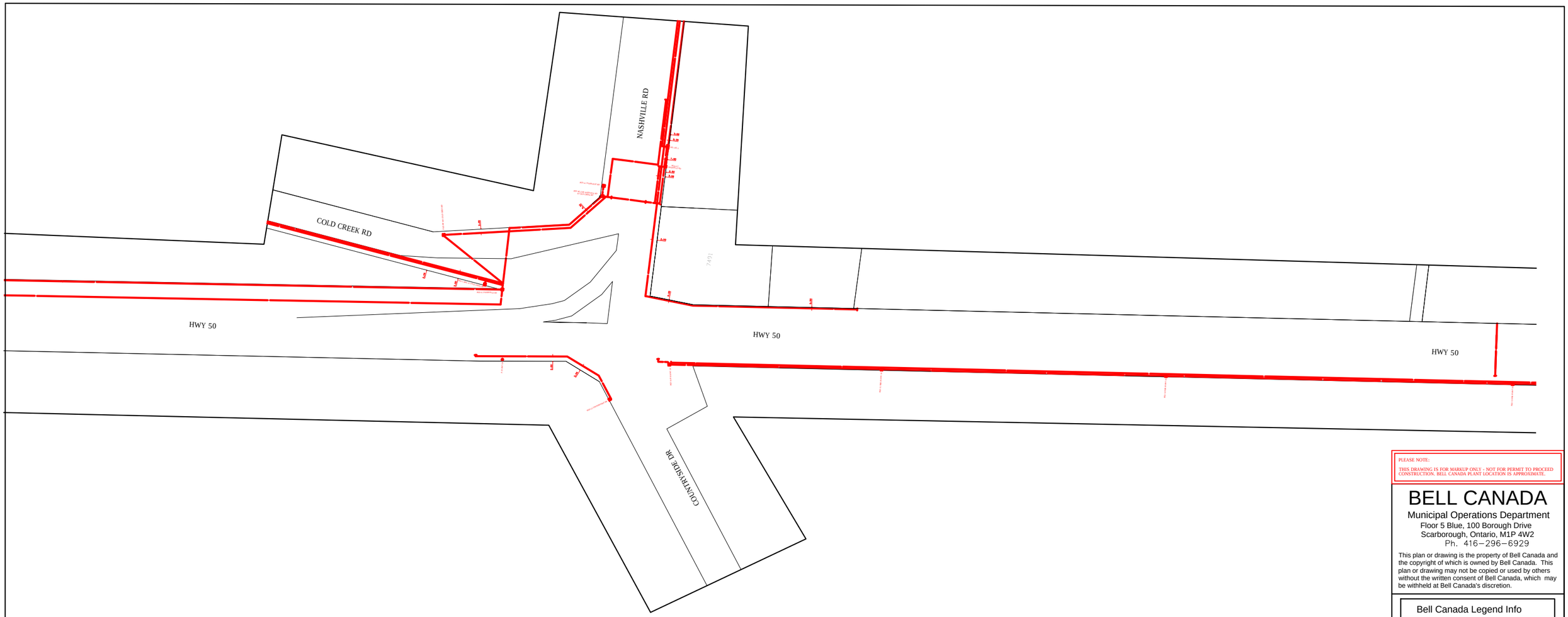
Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

Dwg # - 3

Mark Up # - 30879

Designer - RSU



PLEASE NOTE:

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BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- Existing Conduit
- Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

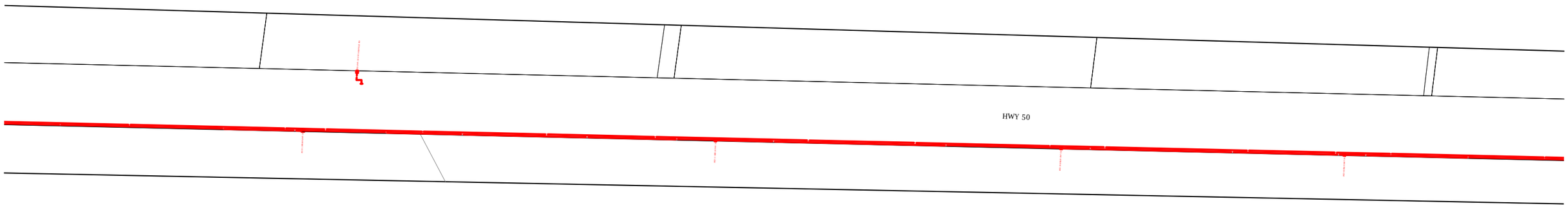
Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

Dwg # - 4

Mark Up # - 30879

Designer - RSU



PLEASE NOTE:

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BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- Existing Conduit
- Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

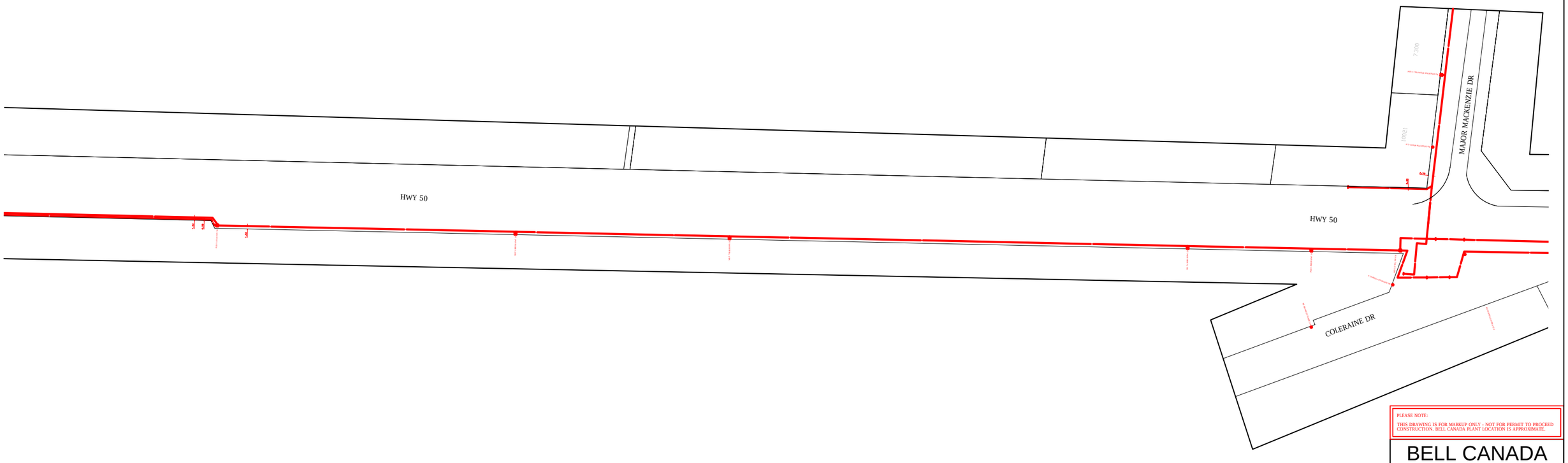
Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

Dwg # - 5

Mark Up # - 30879

Designer - RSU



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BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- Existing Conduit
- Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

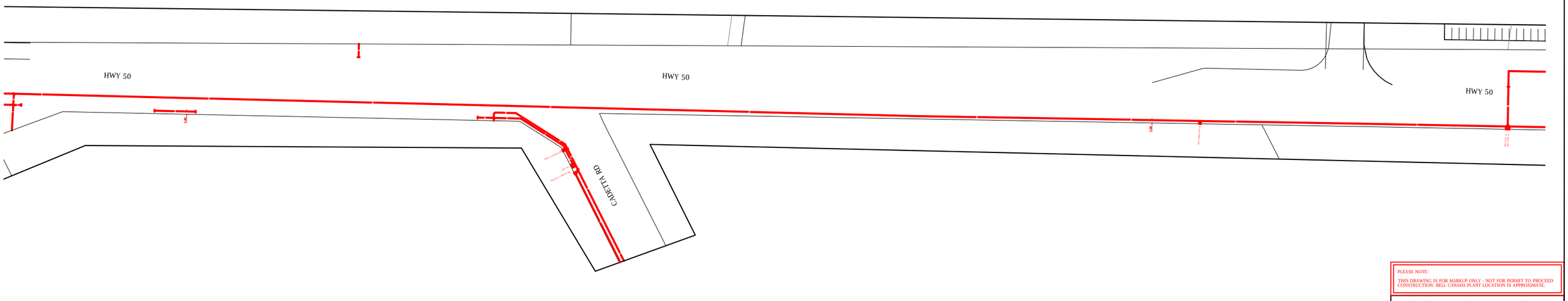
Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

Dwg # - 6

Mark Up # - 30879

Designer - RSU



PLEASE NOTE:

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BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- Existing Conduit
- Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

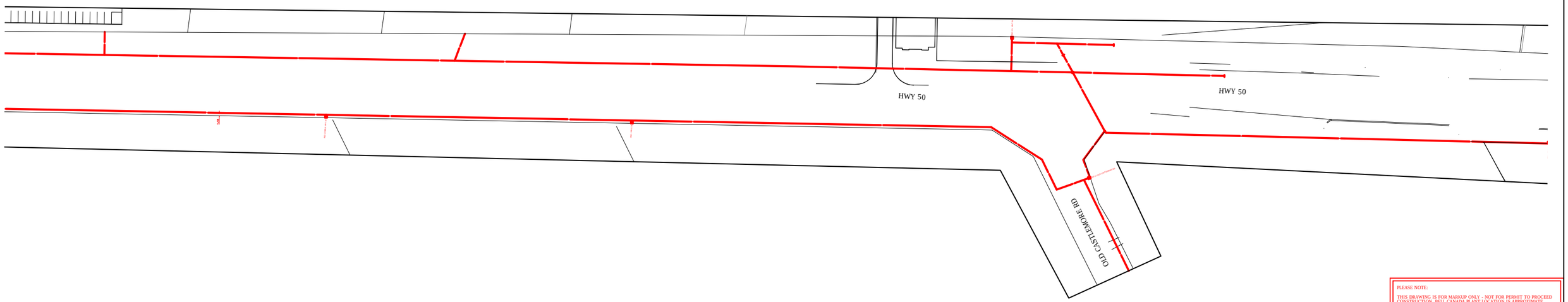
Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

Dwg # - 7

Mark Up # - 30879

Designer - RSU



PLEASE NOTE:

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BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- Existing Conduit
- Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

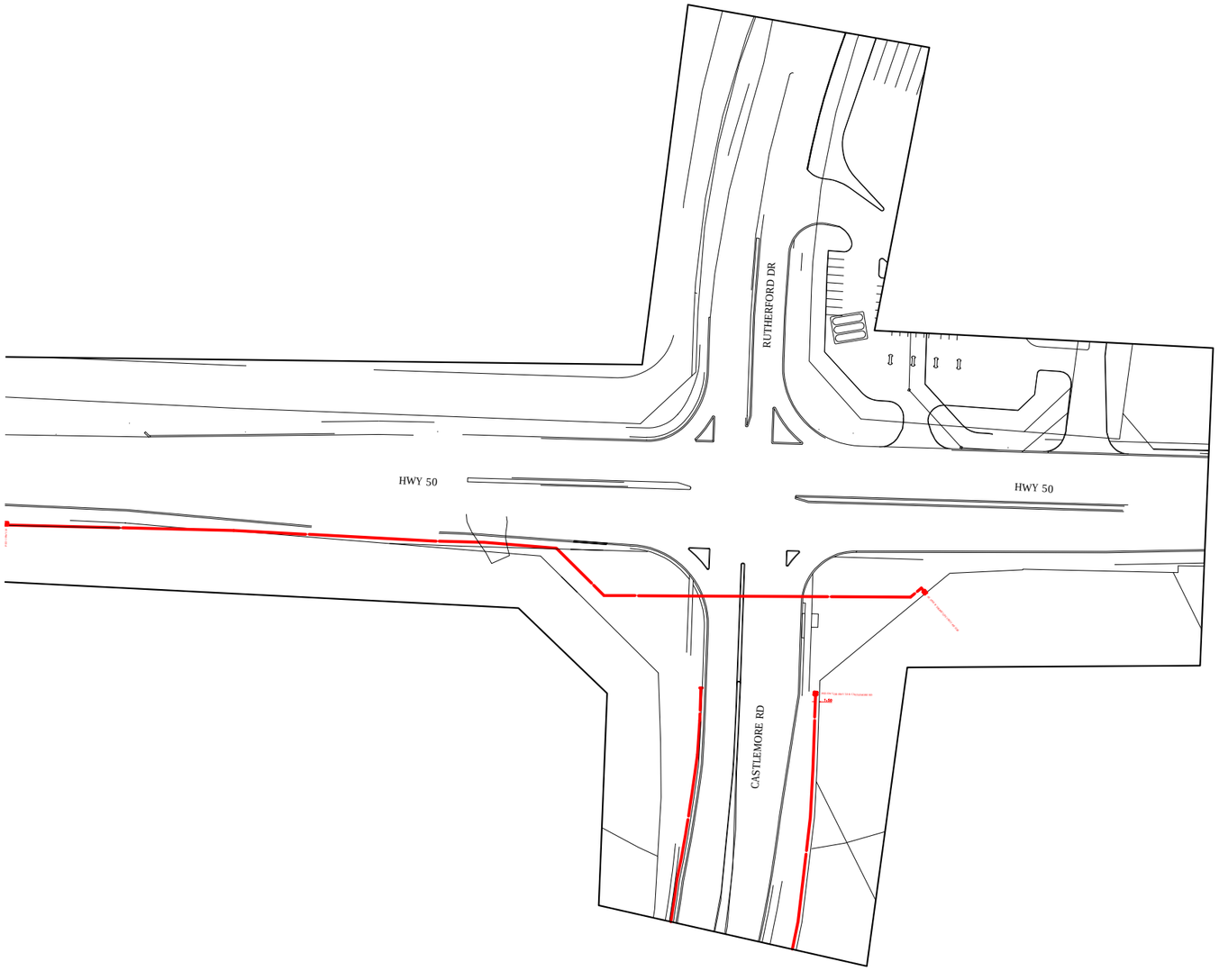
Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

Dwg # - 8

Mark Up # - 30879

Designer - RSU



PLEASE NOTE:

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BELL CANADA

Municipal Operations Department
Floor 5 Blue, 100 Borough Drive
Scarborough, Ontario, M1P 4W2
Ph. 416-296-6929

Bell Canada Legend Info

- Existing Conduit
- Existing Buried
- Existing Manhole
- Existing Interface
- Existing Bell Pole
- Existing Pedestal

CALL FOR LOCATES
1-800-400-2255

HAND DIG
if within 1m of Bell plant

HAND DIG
when crossing Bell plant

Maintain clearance of 0.6m

If further details required
You must acquire Locates or Test Pits

Dwg # - 9

Mark Up # - 30879

Designer - RSU

Bell Canada Municipal Operations Centre
c/o Plantec Consulting Engineers
200 Town Centre Blvd, Suite #300
Markham, Ontario L3R 8G5
Tel no. 905-470-2112 Fax no. 905-470-8956

APPLICATION FOR PLANT LOCATION AND CONSENT

Applicant: HDR Corporation
Mark Up #:32187
Applicant Ref #: 4956
Location: Mayfield Rd from Coleratine Dr to Hwy 50; Hwy 50 from Mayfield Rd to Castlemore Rd
SwitchingCenter/NNX: 458 Brampton – Walker Dr; 857 Bolton; 893 Kleinburg
Date Received From Applicant: 2011-10-12
Marked By: Keizerling

APPLICATION FOR PLANT LOCATION AND REQUEST

☑ **Existing and/or proposed Bell Canada underground plant are indicated on the attached plan**

☐ **Our records show no existing and/or proposed underground plant within 2m of your proposed installation**

☐ **Conflict indicated**

☑ **Meets with our approval**

☐ **Not for PUCC approval - Mark up only**

☑ **If within 1 metre of bell plant, hand dig**

REMARKS: Caution
Call for locates 1.800.400.2255. Maintain clearance of 0.6m. Hand dig when crossing Bell plant. Bell has existing plant within 2m of proposed.

PROCEDURES TO FOLLOW:

1. **Request locates prior to construction 1-800-400-2255**
2. **If exact location and depth are critical - test pits are recommended**
3. **Bell Canada plant location information is approximate**
4. **If the location of your proposed design changes, it will be necessary to re-apply**
5. **Permits expire six(6) months from approval date**

Signature:

Keizerling Lau

Date:

Nov 16, 2011

HDR | iTRANS
144 Front Street West, Suite 655
Toronto, ON M5J 2L7
Tel: (416) 847-0005
Fax: (905) 882-1557
www.hdrinc.com
www.itransconsulting.com

File: 2.9
Project # 4956

Meeting Minutes

Project: Highway 50 / Mayfield Road Class EA
Subject: Hydro One Brampton Liaison Meeting

Meeting Date: 2:30 p.m., Monday, November 22, 2010
Location: TRCA Office, 5 Shoreham Drive
Prepared by: Stephen Keen – HDR|iTRANS
Attendees: Solmaz Zia – Peel Region
Robert Evangelista, Hydro One Brampton

Distribution Solmaz Zia
Robert Evangelista

	Item	Action
1.0	**Background**	
1.1	Robert provided a plan with hydro utility locations (mainly west side of Hwy. 50) to HDR and will forward a CAD file of same. Closer to Mayfield Road, Hydro One Network, Power Stream (Vaughan) and Hydro One Brampton (HOB) all use the same poles.	R. Evangelista
2.0	**Expansion**	
2.1	HOB has no current plans for expansion – future development will change that of course.	
3.0	**Clear Zone**	
	HOB requires a 5 m clear zone behind the poles. The current cross-section shows 2.25 m of ROW available resulting in a potential 2.75 aerial easement. This easement is usually obtained in the City's requirement for a 4.5 m buffer strip in front of any future development.	
4.0	**Illumination**	
	Illumination brackets need to be 0.15 m below the neutral line i.e. no more than 7.45 m above ground.	

5.0	**Other Issues/Further Actions**	
5.1	HOB would like to know where the exact municipal boundary is in relation to Mayfield Road.	Solmaz Zia
5.2	HOB may require a permanent easement for cable supports for the poles. Locations of poles will need to be determined by HOB once a plan of the 30% design is received. This will take HOB approximately 4 to 6 weeks to provide this information.	HDR R. Evangelista
5.3	For the tight cross-section adjacent to the watercourse at Mayfield Road, the pole could be placed behind the proposed barrier which would then need a 4m space behind the barrier to accommodate both the sidewalk and pole.	HDR
	Meeting adjourned at 3:45 PM	

Noss, Melissa

From: Edgar Henriquez [Edgar.Henriquez@rci.rogers.com]
Sent: Friday, August 13, 2010 9:19 AM
To: Lamontagne, Larry
Subject: RE: HWY 50 Rogers Utility Markup Request
Attachments: M103726_Hwy 50 from Mayfield Rd to Rutherford Rd_HDR iTRANS.dwg; ATT00001..txt

Follow Up Flag: Follow up
Flag Status: Completed

Hi Larry,
Please find attached the mark-up drawing for the area under your study.
Rogers has aerial fiber TV plant in this area.
Rogers File M103726
Thanks

Edgar Henriquez
Mark-up Coordinator GTAW
OPE - GTA West
Rogers Cable System Inc
3573 Wolfedale Road
Mississauga, On. L5C 3T6
Tel: 905 897 6457
Fax: 905 273 5233

-----Original Message-----
From: Lamontagne, Larry [mailto:Laurent.Lamontagne@hdrinc.com]
Sent: Wednesday, May 19, 2010 10:37 AM
To: Edgar Henriquez
Cc: Keen, Stephen; Glofcheskie, Chris
Subject: HWY 50 Rogers Utility Markup Request

Hi Edgar

As per our conversation today please find attached the AutoCadd file of our EA study limits. Please markup all existing and future Rogers Cable plant.

Study limits:

- Hwy 50 (Mayfield Road to Rutherford Road)
- Mayfield Road (Hwy 50 to Coleraine Drive)

Could you please let me know the turnaround time for my request.

If you have any questions regarding my request please don't hesitate to contact me.

Thank you

Larry Lamontagne. Dipl.T.
Transportation Designer

HDR | iTRANS
100 York Boulevard, Suite 300 | Richmond Hill, ON | L4B 1J8
Phone: 905.882.4100 x 5348 | Fax: 905.882.1557 | Email: llamontagne@itransconsulting.com
www.hdrinc.com
www.itransconsulting.com

Noss, Melissa

From: Keen, Stephen
Sent: Thursday, May 20, 2010 4:28 PM
To: McLaughlin, Barry
Cc: Ngau, Guinevere
Subject: FW: Notice of Public Information

Follow Up Flag: Follow up
Flag Status: Completed

Barry - for your action
Guin - fyi

From: Marilou Ignacio [mignacio@enersource.com]
Sent: May 20, 2010 3:42 PM
To: solmaz.zia@peelregion.ca; nick.colarusso@york.ca; Keen, Stephen
Cc: Dal Cheema
Subject: Notice of Public Information

Hello –

Effective immediately, please forward all Environmental Assessment Study notices to the same address c/o:

Mr. Dal Cheema, Senior Manager, Customer Engineering Department

Your cooperation is greatly appreciated.

M. B. (Lou) Ignacio / Project Coordinator, Customer Engineering / Tel: (905) 283-4088 / Fax: (905) 566-2737 / Email: mignacio@enersource.com

3240 Mavis Road, Mississauga, Ontario L5C 3K1

Noss, Melissa

From: Keen, Stephen
Sent: Monday, May 31, 2010 2:05 PM
To: Lamontagne, Larry
Subject: FW: 80058 - PROJECT 09-4390 - CLASS ENVIRONMENTAL ASSESSMENT STUDY - GENERAL LOCATION
Attachments: ap_AG128.pdf; ap_MV3.pdf; ap_MV4.pdf; ap_MV5.pdf; ap_MV6.pdf; ap_MV7.pdf; ap_MV8.pdf; 2007- 2008 Third Party Requirements .pdf

Larry
Did you get all this info in your utilities search?

Stephen Keen, M.Sc., P.Eng.
Senior Project Manager

HDR | iTRANS
144 Front Street W, Suite 655 | Toronto, ON | M5H 2L7
Phone: 416.847.0005 x 5557 | Fax: 416.857.3127 | Email: stephen.keen@hdrinc.com
www.hdrinc.com
www.itransconsulting.com

From: Zia, Solmaz [mailto:Solmaz.Zia@peelregion.ca]
Sent: Monday, May 31, 2010 9:02 AM
To: Keen, Stephen; McLaughlin, Barry
Subject: FW: 80058 - PROJECT 09-4390 - CLASS ENVIRONMENTAL ASSESSMENT STUDY - GENERAL LOCATION

To be incorporated into the base plan

Solmaz Zia, P.Eng.
Project Manager
Transportation Program Planning
Public Works, Region of Peel
Tel: (905) 791-7800 ext. 7845
Solmaz.Zia@peelregion.ca

From: Jamie Delaney [mailto:Jamie.Delaney@enbridge.com]
Sent: May 25, 2010 10:27 AM
To: Zia, Solmaz
Subject: 80058 - PROJECT 09-4390 - CLASS ENVIRONMENTAL ASSESSMENT STUDY - GENERAL LOCATION

PROJECT 09-4390 - CLASS ENVIRONMENTAL ASSESSMENT STUDY - HWY 50 FROM CASTLEMORE RD/RUTHERFORD RD TO MAYFIELD RD/ALBION VAUGHAN; AND MAYFIELD RD FROM HWY 50 TO COLERAINE DR

Attached is the information you had requested.
Should you require anything further please let me know.

Kind Regards,

Jamie Delaney
Distribution Planning
Enbridge Gas Distribution Inc
500 Consumers Road
4th Floor - Post A2 - VPC

North York, ON
M2J 1P8
Tel# 416-495-6321
866-326-2924
Fax# 416-758-4373
jamie.delaney@enbridge.com

Enbridge Gas Distribution cannot provide information regarding the depth of cover over our gas infrastructure.
We suggest that a field locate be performed through Ontario One Call (1800 400-2255).
If further details are still required, it is suggested that test holes be performed by an outside party in order to determine the actual Enbridge Infrastructure depth.

Noss, Melissa

From: Keen, Stephen
Sent: Friday, October 15, 2010 3:44 PM
To: Lamontagne, Larry
Subject: Fw: Highway 50 EA - Request for Gasmain Installation
Attachments: Enbridge 1.TIF; Enbridge 2.TIF; Enbridge 3.TIF

Follow Up Flag: Follow up
Flag Status: Flagged

Fyi

From: Chiu, Edward [mailto:Edward.Chiu@york.ca]
Sent: Friday, October 15, 2010 01:56 PM
To: Zia, Solmaz <Solmaz.Zia@peelregion.ca>; Keen, Stephen
Cc: Scott, Christopher <Christopher.Scott@york.ca>; Qiu, Julie <Julie.Qiu@york.ca>
Subject: Highway 50 EA - Request for Gasmain Installation

Solmaz/Steve,

Attached please proposed gasmain installation from Enbridge. As per the current agreement, Peel Region is the responsible proponent for utility coorination and approvals with York Region providing input. We will inform Enbridge accordingly.

I will find out from others if there are any comments and forward them to you.

<<Enbridge 1.TIF>> <<Enbridge 2.TIF>> <<Enbridge 3.TIF>>

Edward Chiu, P.Eng.
Sr. Project Manager
Capital Delivery - Roads
Transportation Services

The Regional Municipality of York
90 Bales Dr. E.
East Gwillimbury, Ont. L0G 1V0
P# 905-830-4444 x5908
F# 905-836-4590
email: edward.chiu@york.ca

Plate: MV2

Plates: AG127, AG128

Plate: AG128

Plate: MV18

N

Plate: MV4

Network Numbers and Pressure Types:
2182-XHP

ENBRIDGE

Atlas Plate Record

Plotted By: Amy Brenham	Date of Last Revision: 2006 Dec 01	Date Plotted: 2006 Dec 05
Scale: 1:2400	Revised By: hameeda	Plate Number: MV3
	Region: Area 20 - Mis	

Plate: MV3

Plate: AG128

Plate: MV19

Plate: AG108

N

Plate: MV5

Network Numbers and Pressure Types:
2182-XHP

ENBRIDGE

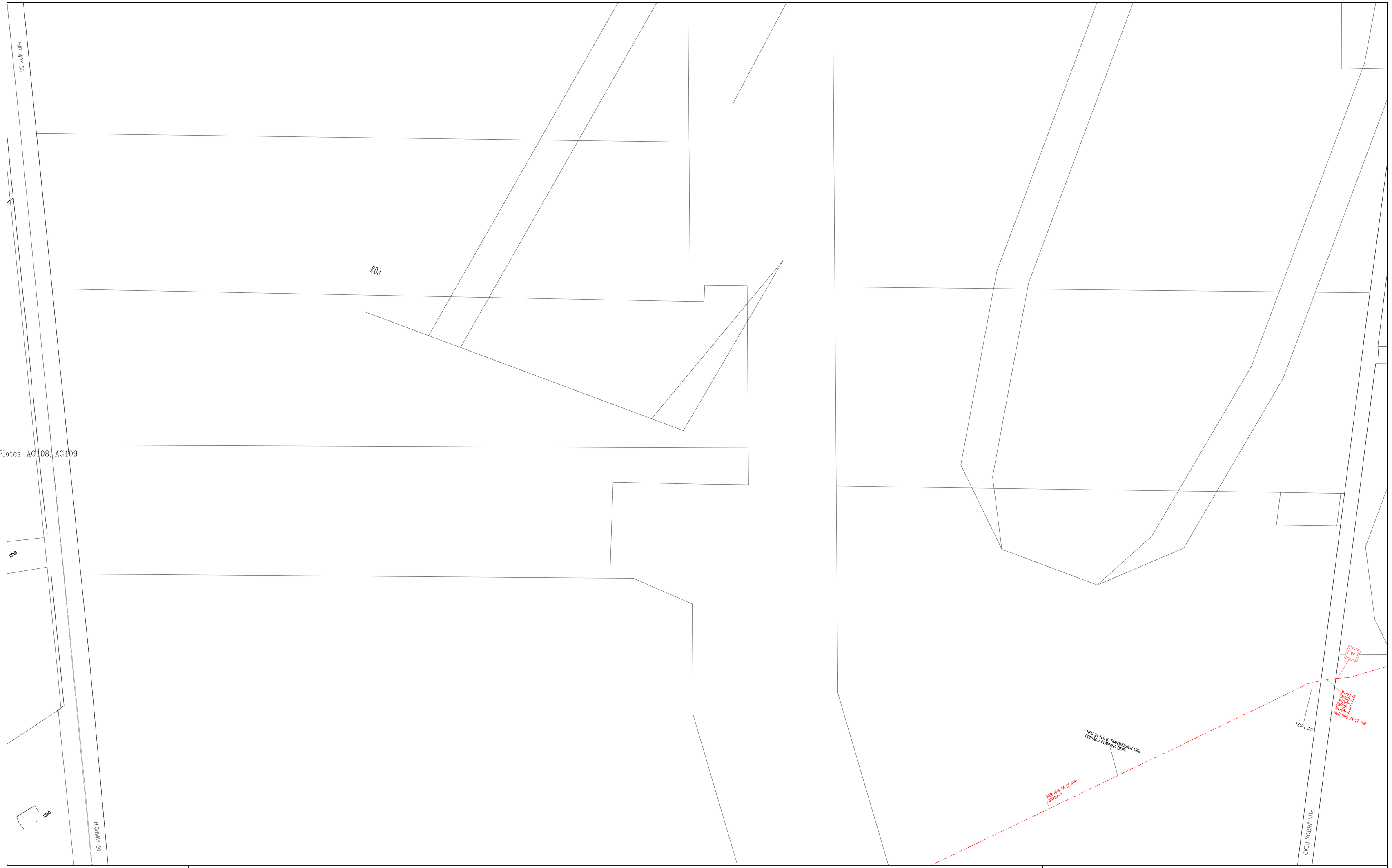
Atlas Plate Record

Plotted By: Amy Brenham	Date of Last Revision: 2006 Dec 01	Date Plotted: 2006 Dec 05
Scale: 1:2400	Revised By: hameeda	Plate Number: MV4
	Region: Area 20 - Mis	

Plate: MV4

Plates: AG108, AG109

Plate: MV20



N

Plate: MV6

Network Numbers and Pressure Types:
2182-XHP

ENBRIDGE

Atlas Plate Record

Plotted By: Amy Brenham	Date of Last Revision: 2006 Dec 01	Date Plotted: 2006 Dec 05
Scale: 1:2400	Revised By: hameeda	Plate Number: MV5
	Region: Area 20 - Mis	

Plate: MV5

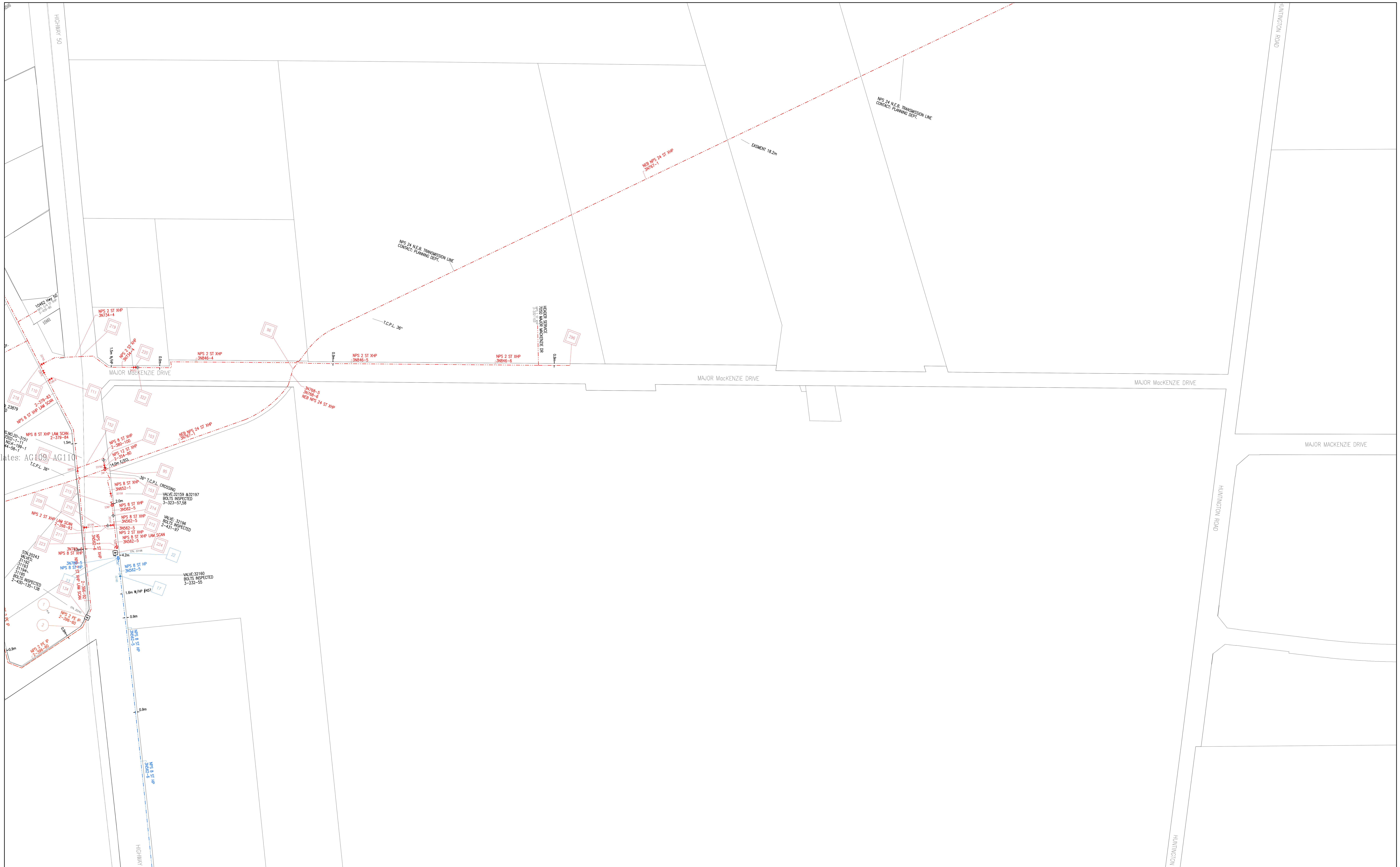


Plate: MV21

Plates: AG109, AG110

Plate: MV7

N

Network Numbers and Pressure Types:
2182-XHP 3983-HP

ENBRIDGE

Atlas Plate Record

Plotted By: Amy Brenham	Date of Last Revision: 2006 Dec 01	Date Plotted: 2006 Dec 05
Scale: 1:2400	Revised By: hameeda	Plate Number: MV6
	Region: Area 20 - Mis	

Plates: MV6, AG110

Plates: AG110, AG111

N

Plate: MV8

Network Numbers and Pressure Types:
3983-HP

ENBRIDGE

Atlas Plate Record

Plotted By: Amy Brenham	Date of Last Revision: 2006 Dec 01	Date Plotted: 2006 Dec 05
	Revised By: hameeda	
Scale: 1:2400	Region: Area 20 - Mis	Plate Number: MV7

Plate: MV7

Plates: AG111, AG112

Plate: AG85

Plate: MV23

HIGHWAY 50

RUTHERFORD ROAD

HUNTINGTON ROAD

NETWORK CONNECTION

2105

NPS 8 ST HP

2N105-5

3983

9301 HWY #50

MISSING LAND BASE FOR
EXISTING GAS MAIN ON
EAST SIDE OF HWY 50 FROM
MAJOR MACKENZIE TO RUTHERFORD RD
SEE WIP # 30-3036-99

FOR INFORMATION ON WEST SIDE OF
HWY 50 SEE WORKSPACE AREA 20

CD3

CD4

Plate: MV9

N

Network Numbers and Pressure Types:
2105-HP 3983-HP

ENBRIDGE

Atlas Plate Record

Plotted By: Amy Brenham	Date of Last Revision: 2006 Dec 01	Date Plotted: 2006 Dec 05
Scale: 1:2400	Revised By: hameeda	Plate Number: MV8
	Region: Area 20 - Mis	

Plate: AG127

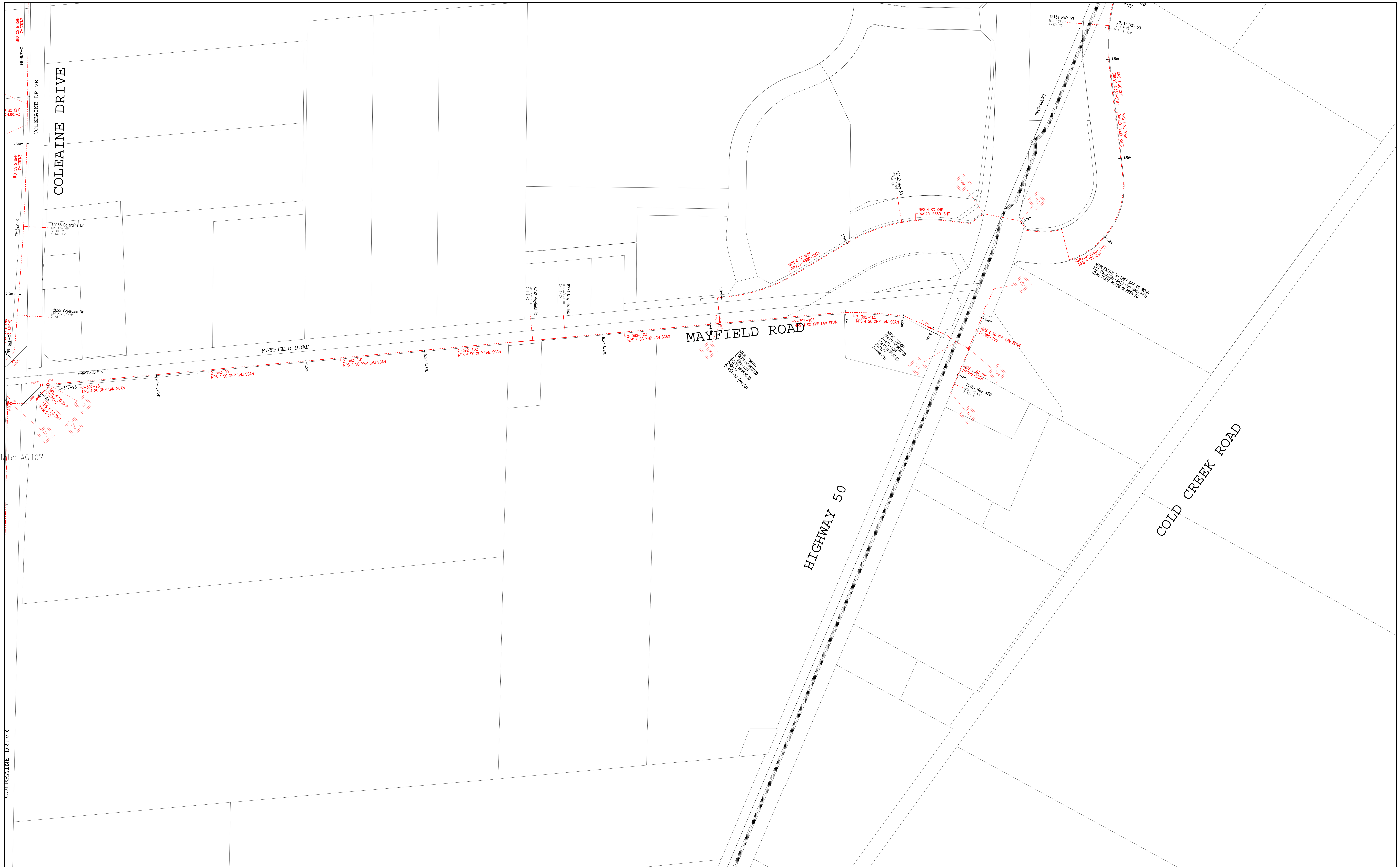


Plate: MV3

Plate: AG107

Plates: MV4, MV3

N

Network Numbers and Pressure Types:
2182-XHP

ENBRIDGE

Atlas Plate Record

Plotted By: gissys	Date of Last Revision: 2010 Feb 10	Date Plotted: 2010 Feb 11
	Revised By: zakm	
Scale: 1:2400	Region: Area 20 - Mis	Plate Number: AG128

ENBRIDGE

Third Party Requirements

In the Vicinity of

Natural Gas Facilities

- General Requirements
- Support of Gas Pipelines
- Blasting Requirements
- Pile Driving or Compaction Requirements
- Heavy Equipment Operation in the Vicinity of Gas Pipelines

October 2007

CG.034.612 (REV. OCT./07)

APPENDIX "A"

REGIONAL CONTACT LIST

ENBRIDGE GAS DISTRIBUTION
500 Consumers Road
North York, ON M2J 1P8

Markups mark-ups@enbridge.com
Mail to: Distribution Planning
Ontario One Call Locates: 1 (800) 400-2255
Damage Prevention: 1 (866) 922-3622

Emergency: 1 (866) 763-5427

ENBRIDGE GAS STORAGE
P. O. Box 520
3595 Tecumseh Road
Mooretown ON N0N 1M0

Ontario One Call Locates: 1 (800) 400-2255
Engineering Dept.: 1 (519) 862-6015

Emergency: 1 (800) 255-1431

GAZIFÈRE
706 Boulevard Greber,
Gatineau QC
J8V 3P8

Locates: 1 (800) 663-9228
Planning Dept.: 1 (819) 771-8321 X-2449

Emergency: 1 (819) 771-8321

ST. LAWRENCE GAS COMPANY LTD.
33 Stearns Street,
P.O. Box 270
Massena, NY. 13662

Locates: 1 (315) 769-3511
Planning Dept.: 1 (315) 769-3516 x 174

Emergency: 1 (315) 769-3511

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6.3 EQUIPMENT MOVING ALONG THE PIPELINE

Heavy equipment may be operated parallel to existing pipelines provided that a minimum offset of 1.0 m is maintained on pipeline sizes less than NPS 12 and 2.0 m on pipelines NPS 12 and larger unless otherwise directed by Enbridge Gas Distribution.

Only lightweight rubber tired equipment shall be operated directly over existing gas pipelines unless a minimum pipe cover of twice the pipe diameter or 1.0 m (whichever is greater) can be verified.

When working directly over existing gas pipelines, all equipment movements shall be transverse to the staked location rather than parallel to it.

6.4 COMPACTION EQUIPMENT RESTRICTIONS

Mechanical equipment shall not be operated within 0.3 m of the pipeline.

Hand held compaction equipment shall be used within 1.0 m of the sides or top of all gas pipelines.

Heavier compaction equipment may be used once the pipe cover equals the greater of twice the diameter or 1.0 m.

6.5 GENERAL VEHICLE EXTERNAL LOADING RESTRICTIONS

For most vehicles, other than heavy construction equipment discussed above, external loading will not be factor because the standard Enbridge Gas Distribution pipeline cover requirements provide sufficient protection.

In cases where extreme loading is likely to occur, the following table provides vehicle load restrictions based on the depth of cover of pipe. If the loads exceed these, or if there are additional concerns, the contact name listed in the permit application should be contacted to specify required precautions and/or perform any loading calculation.

Since the depth of cover is important, if the depth is questionable, the pipeline should be located by hand. During wet weather conditions, increasing the amount of cover should be considered due to the rutting over the main.

Table No. 7

Weight / Axle Maximum Allowable Load (kg)		
Cast Iron (CI)	Steel (ST)	Plastic (PE)
12,000	12,000	7,000

Vehicle Load Restrictions Based on Minimum Depth of 0.6 m.

6.0 HEAVY EQUIPMENT OPERATION IN THE VICINITY OF GAS PIPELINES

6.1 GENERAL

This information is presented as a guideline to cover precautions necessary when heavy construction equipment (gross weight greater than 10 tonnes) is to be operated in the vicinity of buried pipelines where no pavement exists or where grading operations are taking place.

Prior to any crossing, the location of the gas plant must first be located by an Enbridge Gas Distribution representative.

The excavator/constructor is responsible for confirming the location and depth of the gas plant by having test holes excavated as necessary with respect to the local conditions but not more than 50 m intervals.

6.2 EQUIPMENT MOVING ACROSS THE PIPELINE

Crossing locations for heavy equipment are to be kept a minimum.

The crossing locations shall be determined between the Enbridge Gas Distribution representative and the excavator/constructor. The crossing location shall be based on the following:

- Nature of the construction operations
- The types and number of equipment involved
- Pipeline material and depth

Once the predetermined crossing locations have been established, heavy equipment must be restricted to crossing at these locations only. It is the responsibility of the excavator/constructor to inform their personnel of the crossing location restrictions.

Gas plants shall be protected from possible damage at crossing locations at all times. The protection can be provided by constructing berms over the staked lines unless minimum cover of twice the pipe diameter or 1.0 m (whichever is greater) has been verified.

Equipment shall be operated at "dead slow " speeds when crossing pipelines to minimize impact loading.

1.0 DEFINITIONS

Terms used in the following Guideline are defined as follows unless otherwise specified:

Company	-	Enbridge Gas Distribution Inc. or any of its representatives
LDC	-	Local Distribution Company
Contractor or Excavator	-	Any individual, partnership, corporation, public agency or other entity that dig, bore, trench, grade excavate or break ground with mechanical equipment or explosives in the vicinity of a gas pipeline or related facility.
Facility	-	Defined as any Enbridge Gas Distribution Inc. Company Pipeline (main or service), regulator station or storage facility and their related components
Pile	-	Any vertical or slightly slanted structural member introduced or constructed in the soil in order to transmit loads and forces from the superstructure to the subsoil; the structural member can also be used as a component of a retaining wall system
Pile Driving	-	The placement of piles carried out by gravity hammer, vibratory hammer, auguring, pressing, screwing or any combinations of the above methods
Surface Blasting	-	An operation involving the excavation of rock foundations for various types of structures, grade construction for highways or railroads, canals (trenches) for water supply or collection purposes.
Tunnel Blasting	-	Operations involving the piercing of below ground (generally horizontal) opening in rock.
Blaster	-	The person or persons responsible for setting the charges and performing the blast.
Applicant	-	The owner of the proposed work
Compaction	-	Any vibration generating operation which will result in a potential increase of the density of soils or controlled backfill materials. The means to increase the density may be static or dynamic
Engineer, Independent blasting consultant	-	A Professional Engineer who is registered as a member of the Professional Engineers of Ontario (PEO) and a holder of Certificate of Authorization (C of A)
Construction Operations	-	Activities associated with excavation, blasting, piling or compaction
Vicinity	-	A horizontal distance of 30 meters, or less, from any Enbridge Gas Distribution Inc. natural gas facility (above-ground or below-ground)

2.0 GENERAL REQUIREMENTS

2.1 WORK IN THE VICINITY OF GAS PIPELINES

All work in the vicinity of gas pipelines must be approved by Enbridge Gas Distribution (the "Company").

All work within 30.0 metres of an NEB operated pipeline right-of-way must have the approval from Enbridge. This is a requirement of all NEB pipelines, which are under the jurisdiction of the National Energy Board, and follows the NEB Pipeline Crossing Regulations.

A stake out of the gas pipeline must be requested prior to any Construction. Call Ontario One Call at 1-800-400-2255 or 905-709-1717 at least 48 hours in advance of the proposed work.

Mechanical equipment shall not be operated within 0.3 m of the pipeline. Hand Excavation shall be performed when locating and digging within 0.3 m of the pipeline.

Mechanical excavation is not permitted within 3.0 m of the NEB or Vital pipelines without the approval of Enbridge.

Hand held compaction equipment shall be used within 1.0 m of the sides or top of all gas pipelines.

Spoil from excavation shall not be piled on the gas pipeline. This blocks access to the gas pipeline in the event that maintenance or operations activities are required on the pipeline.

The gas pipeline must be inspected for damage before backfilling the excavation.

It is the excavator's responsibility, under Section 18 and 19 of the Energy Act to ensure the gas pipeline(s) is not undermined or endangered in any way.

2.2 SUPPORT OF PIPELINES REQUIRED AT ALL TIMES

It is the responsibility of the Contractor to ensure that existing underground plant is properly supported.

Precautions must be taken to support underground plant at all times and to prevent damage to gas pipelines due to excavation activities. Inadequate support damages underground plant and can result in the escape of natural gas, constituting a hazard to persons and property.

When excavation is necessary over, under, near or parallel to underground Gas plant, the support is the responsibility of the excavator. The methods of support

5.6 SOIL TYPES

(Occupational Health and Safety Act

And Regulations for Construction Projects)

(1) For the purposes of this Part, soil shall be classified as Type 1, 2, 3, or 4 in accordance with the descriptions set out in this section.

(2) Type 1 Soil

a) is hard, very dense and only able to be penetrated with difficulty by a small sharp object;
b) has a low natural moisture content and a high degree of internal strength;
c) has no signs of water seepage; and
d) can be excavated only by mechanical equipment.

(3) Type 2 Soil

a) is very stiff, dense and can be penetrated with moderate difficulty by a small sharp object;
b) has a low to medium natural moisture content and a medium degree of internal strength; and
c) has a damp appearance after it is excavated.

(4) Type 3 Soil

a) is stiff to firm and compact to loose in consistency or is previously excavated soil;
b) exhibits signs of surface cracking;
c) exhibits signs of water seepage;
d) if it is dry, may run easily into a well-defined conical pile; and
e) has a low degree of internal strength.

(5) Type 4 Soil

a) is soft to very soft and very loose in consistency, very sensitive and upon disturbance is significantly reduced in natural strength;
b) runs easily or flows, unless it is completely supported before excavating procedures;
c) has almost no internal strength;
d) is wet or muddy, and
e) exerts substantial fluid pressure on its supporting system.

Table No. 6

MAXIMUM VIBRATION INTENSITIES EXPECTED FROM PILE DRIVING IN DRY AND WET SAND AND CLAY

Particle Velocity in/s

E/D	DRY SAND	WET SAND	CLAY
0.10	0.02	0.03	------
0.22	0.04	0.06	0.01
0.30	0.05	0.08	0.02
0.40	0.07	0.11	0.04
0.50	0.08	0.13	0.04
0.60	0.10	0.18	0.05
0.70	0.11	0.20	0.06
0.80	0.13	0.23	0.08
0.90	0.16	0.27	0.09
1.00	0.18	0.29	0.10
2.00	0.33	0.59	0.30
3.00	0.56	0.88	0.58
4.00	0.70	1.10	0.89
5.00	0.88	1.40	1.10
6.00	1.05	1.85	1.80 Acceptable
7.00	1.10	2.01	2.01 *Unacceptable*
8.00	1.40	2.30	2.40
9.00	1.75	2.80	3.10
10.00	1.85	2.90	3.40

Particle Velocity mm/s

E/D	DRY SAND	WET SAND	CLAY
0.10	0.43	0.74	------
0.22	0.97	1.50	0.25
0.30	1.27	1.27	0.43
0.40	1.75	2.80	0.66
0.50	2.06	3.30	1.02
0.60	2.54	4.57	1.27
0.70	2.80	5.08	1.52
0.80	3.30	5.84	1.96
0.90	4.06	6.86	2.29
1.00	4.57	7.37	2.54
2.00	8.38	14.99	7.62
3.00	14.22	22.35	14.73
4.00	17.78	27.94	22.61
5.00	22.35	35.56	27.94
6.00	26.67	46.99	45.72 Acceptable
7.00	27.94	50.80	50.80 *Unacceptable*
8.00	35.56	58.42	60.96
9.00	44.45	71.12	78.74
10.00	46.99	73.66	86.36

vary from case to case depending on the characteristics of the excavation, adjacent soil and the pipeline material. Failure to provide proper support will render the excavator responsible for all consequential damage or loss. (**Refer to Section 3.0, Support of Gas Pipelines**, for details on supporting the gas pipeline.)

2.3 ENCROACHMENT

Permanent awnings and roof structures are prohibited above gas pipelines within the public right-of-way, or within the Company's right-of-way. Enbridge Gas Distribution will not accept responsibility for any damages to the encroaching structure within the public right-of-way, or within the Company's right-of-way, if it is necessary for the maintenance or operation of the existing underground plant or to install new underground facilities in the future.

2.4 TREE PLANTING

For pipelines regulated by the NEB and Vital Mains (identified as critical pipelines), trees or large shrubs must have a minimum lateral clearance between the edge of the root ball or open bottom container and adjacent edge of the existing pipeline of not less than 2.5 m (8 feet).

For all other pipelines, a minimum clearance of 1.2 m (4 feet) horizontally must be maintained between the edge of the root ball or open bottom container and adjacent edge of the existing gas pipeline

In cases where 1.2 m (4 feet) clearance cannot be maintained, a minimum clearance of 0.6 m (2 feet) can be permitted provided a root deflector is installed on the sides of the root ball adjacent to the gas pipeline.

Final location of the trees must be confirmed with Enbridge Gas Distribution to avoid interference with the existing gas pipelines.

Root Deflectors

A root deflector is a mechanical barrier placed between tree roots and pipelines to prevent damage to the pipelines. A root deflector can be made from 1/4-inch rigid plastic, fiberglass or a non-degradable material. As the root tip of a tree travels out from the root ball the tip will contact the barrier, unable to penetrate to the barrier, the root will turn.

Root deflectors must be installed 0.6 meters (2 feet) from the pipeline on the side of the tree facing the pipeline and must extend 1.2 meters (4 feet) from the center of the tree trunk, parallel to the pipeline, at both directions; or the deflector must circle the tree.

Root deflectors usually have a collar to keep the top of the deflector at ground level, and they should extend down to the bottom of the root-ball as shown in Figure 2.4.

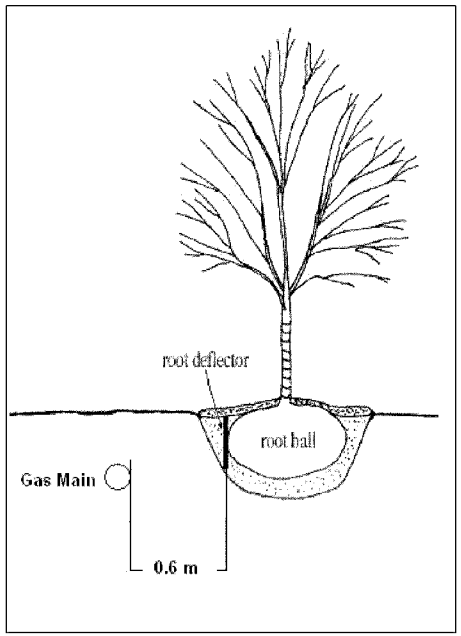


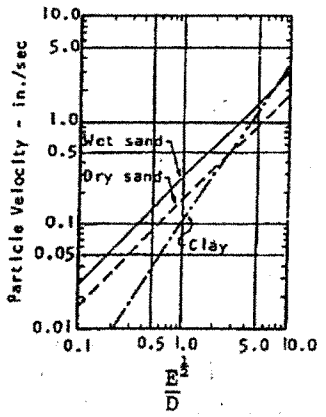
Figure 1
Root Deflector

2.5 MINIMUM CLEARANCE FROM OTHER STRUCTURES

The following clearances must be maintained between the outside wall of the gas pipeline and other underground structures:

Horizontal	-	0.6 m minimum
Vertical	-	0.3 m minimum
Vertical	-	0.6 m minimum for pipelines 16 inches in diameter and larger

GROUND VIBRATIONS FROM PILE DRIVING
(Figure 2)



NOTE: E is the rated energy of the pile hammer in ft-lbs. D is the distance of the pile tip from point of reference in ft.

Maximum vibration intensities expected from pile driving in wet sand, dry sand, and clay

GROUND VIBRATIONS FROM PILE DRIVING
AND THE EFFECT OF GROUND VIBRATIONS
(after Liu and Wiss, 1974)

No operations shall be permitted within a standoff distance of 1.5 meters from the pipeline or other natural gas facility unless approved by Enbridge Gas Distribution.

Auguring of the soil up to the base of the pipeline may be required in order to avoid deviation of the piles within a distance of 1.5 m from the pipeline.

All operations must comply with the Provincial Occupational Health and Safety Act and Regulations for Construction Projects as well as all applicable Company specifications, standards and guidelines.

Leak surveys (flame ionization) shall be conducted at any time following the higher vibration intensities or displacements notwithstanding any delays or costs incurred by the contractor or authority responsible for the proposed work.

5.5 POST PILING OR COMPACTION OPERATIONS

A summary of all operations including pile driving and compaction logs, vibration control, seismographs and other pertinent information shall be provided to Enbridge Gas Distribution by the Contractor responsible for the proposed work no later than 5 business days after work has been completed.

On completion of the daily operations, and approximately 30 days after the end of the operations, Enbridge Gas Distribution shall conduct a leak survey (flame ionization) of the pipeline. The resulting damages will be repaired at the expense of the Contractor responsible for the proposed work.

Excavations for permanent structures (i.e. pools, root cellars, septic tanks etc.) must be at least 10.0 m from the limit of the existing right-of-way of the NEB pipeline.

Any work performed within 30.0 meters of an NEB pipeline right-of-way must be approved by Enbridge.

2.6 MINIMUM COVER REQUIREMENTS (Table No. 1)

	Location	Minimum cover (m)
Mains	Below traveled surfaces (roads), Road Crossings, General, Rights-of-way (roads)	1.2/0.9 *
	Water crossings	1.5
	Controlled Access Highways crossings, Below base of rails (cased)	1.7
	Rights-of-way (railroads), Drainage, Irrigation Ditches	1.0
Services	Private property	0.3
	Streets and Roads	0.45
	Wet Gas Areas @ Main/Building	1.2 / 0.9

* 1.2m is required for Transmission Lines 0.9m is required for Distribution Lines

2.7 POINTS OF THRUST

Precautions must be taken when working in the immediate vicinity of points of thrust. Points of thrust occur at pipeline fittings such as Elbows (45° or 90°), End Caps, Weld Tees, Reducer Couplings and closed Valves. In the event that the excavation involves exposing a point of thrust, or exposing an area near a point of thrust, specific instructions provided by the Company must be followed. Failure to follow these instructions can result in significant harm to persons and property.

2.8 REPAIR OF DAMAGED PIPE AND PIPE COATING

In all cases where the pipe or the pipe coating is damaged by the construction operation, contact the Company immediately and leave the excavation open until Company personnel have made the necessary repairs.

2.9 BLASTING, PILE DRIVING OR COMPACTION

Blasting, Pile Driving, or Compaction activities in the vicinity of natural gas pipelines requires the prior approval by the owner of the pipeline. (TSSA Act 2001).

Written notification from the owner of the proposed work (municipality, etc.) shall be submitted to the Manager Distribution Planning. The request shall be submitted a minimum of four (4) weeks prior to blasting, pile driving or compaction to allow sufficient time to ensure the Company requirements are followed. (**Refer to Section 4.0, Blasting Requirements, and Section 5.0, Pile Driving and Compaction Requirements**, for specific responsibilities.)

d) Soil types fitting the description of Type 4 soil as defined in Article 226 of the Occupational Health and Safety Act and Regulations for Construction Projects (**Refer to Section 5.6 Soil Types, page 30**).

For all these situations, monitoring of vibrations, with the appropriate number of seismographs, is mandatory. The seismographs shall be the portable types with the capability of producing on site printouts. This control will confirm the intensity of the vibrations generated by the pile driving or compaction work as projected. Furthermore, reports of recorded intensities shall be provided on a regular basis or at the request of Enbridge Gas Distribution.

Should a situation with low energy compaction operations with a soil cover of less than 1.5 meters above the pipeline at a stand-off distance of 3 meters or less from a pipeline be encountered, Enbridge Gas Distribution may require the opinion of an independent Engineer.

In addition, if a Type 3 soil (**refer to Section 5.6 Soil Types, page 30**) is present on site, Enbridge Gas Distribution may, again, require the opinion of an independent Engineer.

For the start of the construction operations, the equipment and method used for pile driving shall comply with the guidelines presented in **Figure 2, page 28**, and **Table 6, page 29**, which identify the maximum vibration intensities expected from pile driving in dry and wet sand and clay. These guidelines can be replaced by actual vibration testing (portable seismograph) on site.

The Peak Particle Velocity (PPV) measured on the pipeline, or at the closest point of the related structure with respect to the work, shall not exceed 50 mm/s. Furthermore, the maximum displacement for the vertical and/or horizontal component corresponding to the above stated vibration intensity shall not exceed 50 mm at any given length of the pipeline in question.

For all operations, if the Peak Particle Velocity (PPV) and/or the displacement limit are surpassed, all operations must stop notwithstanding any delays or costs incurred by the contractor or owner of the proposed work. Enbridge Gas Distribution will require that the cause of these higher vibrations or displacement be investigated. The operations shall resume only when the cause and remedy are established and with the approval of Enbridge Gas Distribution's Engineering Department.

Should any subsequent recordings indicate vibration intensities or displacements above the prescribed limits all operations shall immediately stop. Enbridge Gas Distribution shall require that the work be carried out according to methods it judges to be acceptable to the integrity of the pipeline or related structure notwithstanding any delays or costs incurred by the Contractor responsible for the proposed work.

Enbridge Gas Distribution shall be responsible for isolating the area of the pipeline in the direct vicinity of the operations as required. The Contractor will be responsible for all Company costs during piling operations.

In the event a third party is affected as a result of the pile driving and/or compaction operations, all expenses associated therewith incurred by Enbridge Gas Distribution shall also be at the Contractor's expense.

5.4 GUIDELINE FOR PILE DRIVING OR COMPACTION

The information provided in this section is to be viewed as a guideline only and is not intended to remove Contractor responsibility for damages caused by the piling and/or compaction operations. The contractor is responsible for ensuring that all pile driving and/ or compaction work is performed in a good and workmanlike manner in accordance with all applicable laws, codes, by-laws and regulations.

Prior to pile driving and/or compaction work, a site meeting shall be arranged with an authorized representative of the Contractor and an Enbridge Gas Distribution representative to confirm details of the location of Company facilities and the proposed work.

The pipeline should not be excavated prior to the piling or compaction operation. If the particular situation warrants the excavation of the pipeline, then it must be properly supported in accordance with **Section 3.0 Standard Procedures**.

If in the assessment of Enbridge Gas Distribution, the soil cover is deemed to be insufficient, Enbridge Gas Distribution shall require that a protective ramp be constructed and maintained above the pipeline in accordance with Company guidelines. Construction vehicles or equipment will not be allowed to pass over a pipeline without the authorization of a Company representative.

The following situations will require the opinion of an independent Engineer. This Engineer must be specialized in vibration control, analysis and soil movement in order to evaluate and validate the proposed method of work and operation.

a) Compaction of soils or backfill rated at 10,000 ft-lbs or higher at a stand-off distance of 6 meters or less from the pipeline

b) Pile driving at a stand-off distance of 10 meters or less from the pipeline or other natural gas facility.

c) High-energy dynamic compaction for the rehabilitation of soils at a distance of 30 meters or less from the pipeline.

3.0 SUPPORT OF GAS PIPELINES

3.1 TRENCHING PARALLEL TO GAS PIPELINES

When a trench parallels an existing gas pipeline, support may be required depending on trench depth, pipeline material and soil conditions. (**Refer to Section 3.4, Support of Pipelines Parallel to Trench**, for details.)

3.2 MINIMUM REQUIREMENTS

Support methods specified by the Company are minimum requirements. Excavators shall not depart from these unless a Professional Engineer working for or on behalf of the excavator has designed an alternative method. Any alternative method must ensure support comparable to these specifications and be, in the opinion of the Professional Engineer, consistent with good engineering practices. Where that is the case, the alternative specification shall be documented and approved by the Professional Engineer and sent to the Company's Engineering Department for acceptability.

The following specifications deal with the support of gas pipelines in the vicinity of excavations. Two typical field situations are covered:

- support of gas pipelines **crossing the trench** and
- support of gas pipelines **parallel to the trench**.

3.3 SUPPORT OF PIPELINES CROSSING TRENCH

3.3.1 Temporary Support

Temporary support refers to the support of gas pipelines prior to or at the time of excavation to protect the pipeline from deflection due to its own weight while it is exposed. Temporary support shall remain in place until the backfill material underneath the pipeline is compacted adequately to restore support of pipeline.

Prior to trenching beneath a pipeline or service, temporary support shall be erected for pipelines if the unsupported span of pipeline in the trench exceeds the length indicated in **Table No. 2, page 11**.

When temporary support is required, **Table No. 3, page 11**, below, indicates the required beam for a given span. The beam shall be a continuous length grade No. 1 Spruce-Pine-Fir (S-P-F) or equivalent. For spans exceeding 4.5 m, contact the Company's Engineering Department for approval.

Table No. 2 Maximum Span Without Support Beam			
Pipe Size (NPS)	Steel (m)	PE (polyethylene) (m)	CI (cast iron) (m)
½	2.0	1.0	-
¾ - 1¼	2.5	1.25	-
2	3.0	1.5	-
3 to 4	4.5	1.75	1.0
6	6.0	2.0	1.0
8	7.0	2.0	1.0
12	10.0	-	1.0
16	11.5	-	1.0
20	13.0	-	1.0
24	15.0	-	1.0

Table No. 3 Support Beam Sizes Given: max. span between Beam Supports						
Pipe Size (NPS)	Steel		PE		Cast Iron	
	≤ 2 m	**≤ 4.5 m**	**≤ 2 m**	**≤ 4.5 m**	**≤ 2 m**	**≤ 4.5 m**
½ - 2	Nil	4 x 6	4 x 4	4 x 6	4 x 4	6 x 8
3 – 6	Nil	Nil	4 x 4	6 x 6	4 x 4	8 x8
8 – 12	Nil	Nil	4 x 4	8 x 8	6 x 6	10 x 10
16 – 24	Nil	Nil	Nil	Nil	8 x 8	12 x 12

The beam shall be placed above the pipeline with the ends of the beam resting on firm undisturbed soil. The beam shall not bear directly on the gas pipeline. The pipeline shall be supported from the beam with rope, chain or equivalent in a manner that will prevent damage to the pipeline and pipeline coating, and eliminate sag. The spacing between the rope, canvas sling or equivalent, shall not exceed 1.0 m (**see Drawing No. 1, page 15, for details**).

Backfill material underneath the exposed pipeline shall be compacted to a minimum of 95% Standard Proctor density. Sand padding shall be placed to a level 150 mm above and below the pipeline. Perform compaction with the loose lift height not exceeding 200 mm or one-quarter of the trench width, whichever is less. Injecting water into the backfill beneath the pipeline is not an acceptable method of compaction.

Mechanical equipment **shall not** be operated within 0.3 m of the pipeline. Hand Excavation shall be performed when locating and digging within 0.3 m of the pipeline. Hand held compaction equipment shall be used within 1.0 m of the sides or top of all gas pipelines.

- If required, a technical report with appropriate analysis and prediction of the vibration levels according to the opinion of an independent Engineer specialized in vibration control and analysis;

- A clause stating that the work will be carried out by qualified personnel with appropriate experienced supervision;

- A clause stating that all vibration testing results, or other preventative control testing, will be submitted to Enbridge Gas Distribution on a regular basis, or upon request.

To help with the preparation of the written request, locates to determine the location of the pipeline can be requested by calling "Ontario One Call" listed in Regional Contact List on Appendix A, and appropriate markups of drawings can be obtained by contacting "Distribution Planning" listed in Regional Contact List on Appendix A.

5.3 EVALUATION BY ENBRIDGE GAS DISTRIBUTION

Enbridge Gas Distribution shall conduct a record search on the natural gas facilities in the vicinity of the proposed work to identify their materials, location and maintenance history.

Enbridge Gas Distribution shall assess the impact of the proposed operation on the pipeline or related facility versus the stand-off distance. If it is determined that the proposed operation and/or method of work may be detrimental, the Contractor must retain the services of an independent Engineer. This Engineer must be specialized in vibration control, analysis and soil movement in order to evaluate and validate the proposed method of work and operation.

Enbridge Gas Distribution shall conduct leak surveys (flame ionization unit) of the pipelines and other related natural gas facilities prior, during and after the start of work. Leak surveys shall be conducted at any time during the project notwithstanding any delays or costs incurred by the Contractor responsible for proposed work.

Enbridge Gas Distribution shall prepare a contingency plan in case the isolation of the line or shut down of the related facility becomes necessary. This may not be possible without affecting a large number of customers and all operations may be suspended until Company investigations are completed notwithstanding any delays or costs incurred by the Contractor responsible for proposed work.

Enbridge Gas Distribution shall locate all control valves within the vicinity of the approved location and check all valves involved in the contingency plan to ensure accessibility and proper operability.

5.0 PILE DRIVING OR COMPACTION REQUIREMENTS

5.1 POLICY

Prior to any pile driving or compaction operations within the vicinity of a gas pipeline, the potential damage to Enbridge Gas Distribution plant will be evaluated to ensure the uninterrupted operation and long-term safety of its underground facilities. Any resultant damage caused either directly or indirectly to the gas plant will be borne entirely by the Contractor undertaking the proposed work.

If, in the opinion of Enbridge Gas Distribution, the particular pile driving or compaction operation cannot be carried out without affecting the pipeline or facility integrity, the following alternatives, or contingencies, may be implemented:

- a review of the particular situation by an independent consultant including a risk analysis and a prevention program;
- change in the construction methods;
- replacement or relocation of the pipeline/facility.

All costs incurred will be covered by the Contractor undertaking the proposed work with final approval being granted by Enbridge Gas Distribution.

5.2 PILE DRIVING OR COMPACTION APPLICATION

The application must include the following information:

- Name of project owner, general contractor and relevant sub-trades;
- A copy of the permits, certificates or other forms required by municipal bylaws;
- Name of design engineer and a copy of plans issued for construction with detailed drawings identifying all affected natural gas facilities;
- The type of piles and equipment used; including the methods of control to prevent the deviation of the piles;
- Geo-technical reports and other pertinent information;
- A copy of the location of other public utilities such as telephone, cable TV, sewer and water mains, electrical services, etc.;

3.3.2 Cast Iron Pipelines

Any cast iron pipeline NPS 8 or less which is completely exposed crossing a trench for a length greater than 1.0 m must either be replaced or temporarily supported and properly backfilled. Any cast iron pipeline NPS 12 or greater that is completely exposed for greater than 1.0 m must be referred to the Company's Engineering Department for analysis. (**See Drawing No. 1, page 15**, for details)

If the pipeline is to be replaced, the replacement section shall extend to beyond the two 45° lines projected upward from the trench bottom (**see Drawing No. 3, page 16**, for details).

If the pipeline is to be temporarily supported, the spacing of the rope, canvas sling or equivalent, shall be a maximum of 1.0 m. Any exposed joint shall be supported by canvas sling or rope at either side of the joint and at 1.0 m spacings along the pipeline's length (**see Drawing No. 1, page 15**, for details).

3.3.3 Steel and Polyethylene Pipelines

All steel and polyethylene pipelines exposed to a length greater than indicated in Table No. 1 shall be temporarily supported and backfilled as shown in **Drawing No. 2, page 15**, and as outlined in **Section 3.3.1**, Temporary Support.

NOTE: All temporary support on polyethylene pipes must be removed prior to permanent backfill. Adequate support shall remain in place until the backfill material has restored support.

3. 4 SUPPORT OF PIPELINES PARALLEL TO TRENCH

3.4.1 General

Two cases exist for pipelines parallel to an excavation;

i) trench < 1.2 m deep,
ii) trench ≥ 1.2 m deep.

In either instance, the pipeline is not to be exposed unless it is necessary to provide direct support.

Trench wall support is not required for excavations provided the pipeline meets the following criteria:

- depth is less than 1.2 metres,
- the pipeline is at least 0.6 metres from the edge of excavation or is outside the shaded area as indicated in Drawing No. 2 and,
- soil is stable (TYPE 1or 2, refer to **Soil Types, page 30**)

Trench wall support is required for excavations if one of the following conditions exists:

- depth is equal to or greater than 1.2 metres,
- the pipeline is closer to the edge of the excavation than the minimum allowed distance as indicated in **Table No. 4, page 13**
- depth is less than 1.2 metres and the soil is unstable (TYPE 3 or 4, refer to **Soil Types, page 30**)

NOTE: Adequate support shall remain in place until the backfill material has restored support.

Table No. 3 gives minimum distances from the edge of the trench to the pipeline in which the excavation influences pipelines for the given soil types.

Table No. 4
Minimum Allowed Distance from Pipeline to Excavation (m)

Trench Depth (m)	Soil Types 1 & 2*	Soil Types 3 & 4*
>1.2	0.9	0.9
≥1.5	0.9	0.9
≥1.8	0.9	0.9
≥2.1	0.9	0.9
≥2.4	0.9	0.9
≥2.7	0.9	1.0
≥3.0	0.9	1.5
≥3.3	0.9	1.8
≥3.6	0.9	2.2
≥3.9	0.9	2.5
≥4.2	0.9	3.0
≥4.5	1.0	3.4
≥4.8	1.5	3.8
≥5.1	2.0	4.1
≥5.4	2.5	4.6
≥5.7	3.0	5.0
≥6	3.4	5.5
*as defined in the Occupational Health and Safety Act		

TABLE NO 5
Stand-off Distance for Blasting Near Polyethylene and Steel Facilities

STAND-OFF DISTANCE FROM FACILITY (m)		MAXIMUM ALLOWABLE EXPLOSIVE CHARGE WEIGHT PER DELAY (kg)
3.00		0.18
4.00		0.33
5.00		0.51
6.00		0.73
7.00		1.00
8.00		1.31
9.00		1.65
10.00		2.04
12.00		2.94
14.00		4.00
16.00		5.22
18.00		6.61
20.00		8.16
22.00		9.87
24.00		11.75
26.00		13.79
28.00		16.00
30.00		18.36

The chart above is based on a Peak Particle Velocity (PPV) of 50 mm/sec. No greater velocity shall be allowed. Maximum amplitude shall be limited to 0.1524 mm.

If the applicant insists that blasting is necessary, the required independent blasting consultants report shall evaluate and validate the proposal.

The applicant shall comply with the Ontario Provincial Standard Specification - OPSS 120 - General Specification for the Use of Explosives, in addition to these Enbridge Gas Distribution blasting requirements.

Monitoring of blasting vibrations with a portable seismograph capable of producing on site print outs in the vicinity of Company facilities is mandatory to confirm that predicted vibration levels are respected. At the completion of the blasting operation, a copy of the seismographic report shall be provided to Enbridge Gas Distribution.

Table 5, page 22, shall be used to guide explosive charge weights. Peak Particle Velocity (PPV) shall be limited to 50 mm/sec and maximum amplitude shall be limited to 0.1524 mm.

4.6 POST BLASTING OPERATION

Upon completion of daily blasting operations and within 30 days after the final blasting, Enbridge Gas Distribution shall conduct a leak survey (flame ionization) of the pipeline at the applicants' expense. Leak survey shall also be completed at the end of each day of blasting. Damage that has resulted from the blast will be repaired at the applicants' expense. A summary of all blasting operations including blasting logs, vibration control, seismograph reports and other pertinent information shall be provided to Enbridge Gas Distribution by the applicant at the completion of blasting operations.

3.4.2 Cast Iron Pipelines

If a cast iron pipeline lies within the 45° line projected upward from the bottom of the trench, the trench shall be suitably shored to support the pipeline. A sliding trench box does not provide adequate support.

If a cast iron pipeline lies within the 45° line projected upward from the trench bottom and the bottom of the trench is below the water table, a field assessment of the situation is required to determine if this pipeline must be replaced.

For cast iron pipelines within the minimum distances given in **Table No. 4, page 13**, above, the support shall be abandoned in place.

If any cast iron pipeline becomes exposed for a length greater than 1.0 m it shall be replaced. Replacement limits shall be determined in the field.

3.4.3 Steel and Polyethylene Pipelines

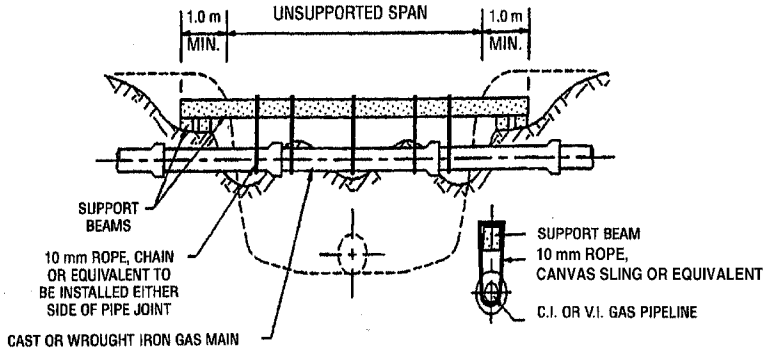
In the case of a steel or polyethylene pipeline within the limits of 3.4.1, and the trench bottom is below the water table, the trench shall be suitably supported as required in 3.4.1.

For steel and polyethylene pipelines within the minimum distances given in **Table No. 4, page 13**, support shall remain in place until backfill material restores support.

Any steel or polyethylene pipeline that is unsupported for a length greater than indicated in **Table No. 2, page 11**, shall require field assessment by the Company.

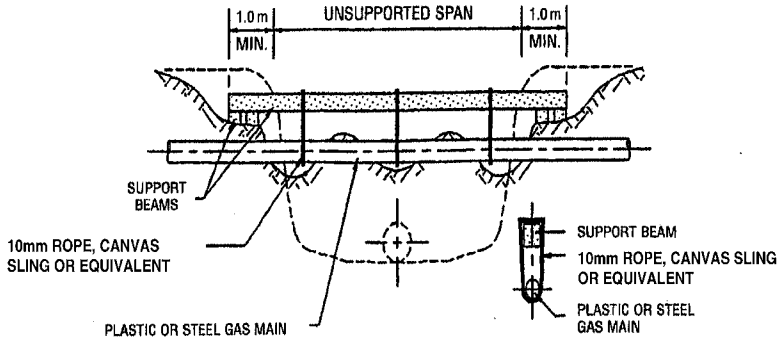
DWG NO. 1: Support of Cast/Wrought Iron Gas pipelines Crossing Excavations

NOTE: BEAM SHALL EXTEND TO 1.0 m BEYOND THE SIDE OF THE TRENCH ON UNDISTRURBED SOIL OR A DISTANCE EQUAL TO THE DEPTH OF THE PROPOSED EXCAVATION, WHICHEVER IS GREATER.



DWG NO. 2: Support of Plastic or Steel Gas Pipelines Crossing Excavations

NOTE: BEAM SHALL EXTEND TO 1.0m BEYOND THE SIDE OF THE TRENCH ON UNDISTURBED SOIL OR A DISTANCE EQUAL TO THE DEPTH OF THE PROPOSED EXCAVATION, WHICHEVER IS GREATER.



4.4 GROUND WATER MONITORING

Where there is a potential for damage to nearby wells, the blaster shall conduct an evaluation designed and implemented to minimize adverse impacts on potentially affected wells. Generally, all water wells within 100 meters of proposed blasting locations should be monitored for quality and quantity prior to construction.

Blasting in a watercourse requires Department of Fisheries and Oceans (DFO) authorization.

4.5 GUIDELINES FOR BLASTING

The information provided in this section is not to be construed as an exhaustive list of performance specifications, but rather a guide for conducting blasting in the vicinity of Enbridge Gas Distribution pipelines. The applicant is responsible for ensuring that all blasting work is performed in a good and workmanlike manner in accordance with all applicable laws, codes, by-laws, and regulations.

The contractor shall be liable for and indemnify Enbridge Gas Distribution in relation to any and all damage directly or indirectly caused or arising as a result of blasting operations carried out by the applicant, its employees, contractors or those for whom the applicant is responsible at law.

Prior to blasting operations, a site meeting shall be arranged with an authorized representative of the applicant and an Enbridge Gas Distribution representative to confirm details of the location of Company facilities and the proposed blast.

Enbridge Gas Distribution pipelines shall not be excavated prior to blasting. If excavation is unavoidable, then the pipeline shall be properly supported according to current Enbridge Gas Distribution requirements as outlined in this booklet. The applicant shall take suitable precautions to protect the exposed pipeline from fly-rock. Blasting mats shall be used to minimize the risk of fly-rock.

Explosives shall be of a type that will not propagate between holes nor desensitize due to compression pressures. No explosives shall be left in the drill hole overnight.

For surface blasts located at distances of 10 meters or less from a pipeline and when the excavation of the first blast hole has attained a depth equal to the top of the buried natural gas pipeline, the vertical depth of subsequent blast holes shall be restricted to one half of the horizontal distance to the closest portion of the natural gas pipeline. The required independent blasting consultants' report shall specifically address the impact of these conditions. This condition is not applicable for tunnel blasting operations.

Horizontal stand-off distances for surface blasting and directs stand-off distances for tunnel blasting of less than 3 meters are not permitted.

- Type of advancement proposed and type of tunnel method proposed; full face, top of heading and bench, pilot tunnel
- Type of tunnel lining proposed.
- The use of preventative blasting techniques such as line drilling, cushion blasting, etc.
- Other pertinent information specific to tunneling techniques.

To assist with the preparation of the written request, locates to determine the location of the pipeline can be requested, or mark-ups of drawings can be obtained by contacting the Manager Distribution Planning, Enbridge Gas Distribution. Lists of Regional addresses and phone numbers are outlined at Appendix A.

4.3 EVALUATION BY ENBRIDGE GAS DISTRIBUTION

Enbridge Gas Distribution will conduct a record search on the facilities in the vicinity of the blast to determine the material, location and maintenance history.

Enbridge Gas Distribution will evaluate the impact of the blast on the facilities, assessing the charge weight to be detonated in relation to the stand off distance. If, in the opinion of Enbridge Gas Distribution, a hazardous condition may result if the charges are fired as outlined in the application, the applicant shall be notified in writing. The applicant shall not commence operations and shall retain the services of an independent blasting consultant to evaluate and validate the application. A copy of the required consultants' report shall be forwarded to Enbridge Gas Distribution Engineering Department for approval.

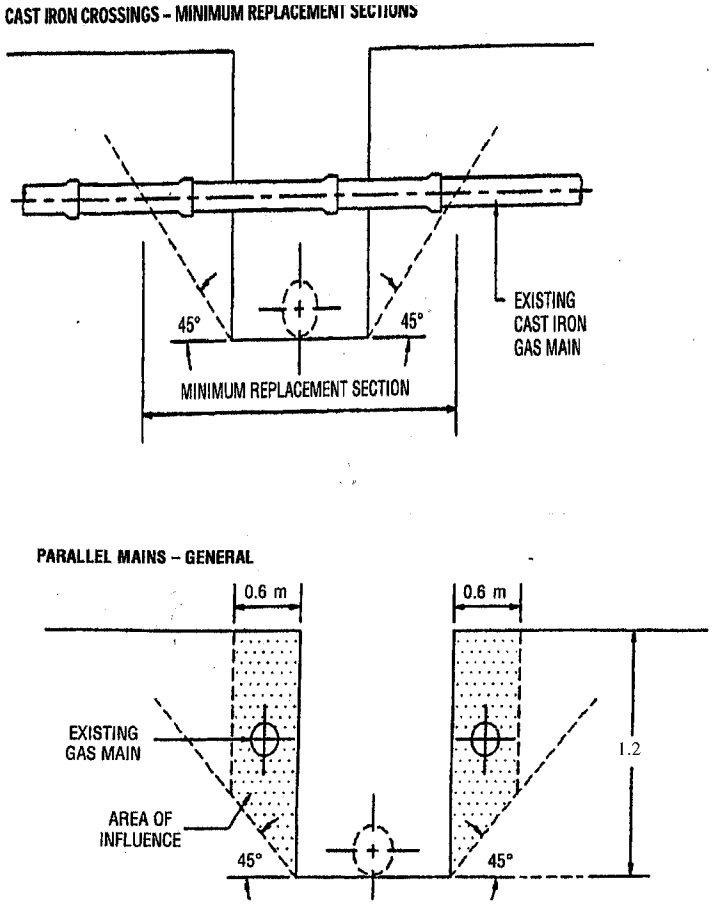
Enbridge Gas Distribution shall conduct a leak survey (flame ionization unit) of the pipeline prior, during and after the blasting and independently of its normal leak-monitoring program to establish satisfactorily that the pipeline is not leaking.

Enbridge Gas Distribution shall prepare a contingency plan to respond in the event that isolation of the pipeline becomes necessary. Blasting operations shall not commence until all Enbridge Gas Distribution procedures have been implemented and the applicant has received written notification of it.

Enbridge Gas Distribution shall locate all control valves within the vicinity of the approved blast area. Check all valves involved in the contingency plan to ensure accessibility and proper operability.

In the event a third party is affected as a result of the blasting operations, all expenses associated therewith incurred by Enbridge Gas Distribution shall also be at the applicant's expense

DWG NO. 3: Influence Lines for Gas Pipelines Adjacent to Excavations



NOTE: IF PIPE IS LOCATED IN THE SHADED AREA, IF SOIL IS UNSTABLE (TYPE 3 or 4), THE TRENCH IS REQUIRED TO BE SUPPORTED

4.0 BLASTING REQUIREMENTS

4.1 POLICY

Prior to any blasting operation in the vicinity of a gas pipeline, the hazard to Enbridge Gas Distribution Inc. plant will be evaluated to ensure the uninterrupted operation and long-term safety of its underground facilities. Responsibility for the design of the blast and any resultant damage is born entirely by the party using the explosives.

A recognized independent blasting consultant shall be retained at the applicants' expense to evaluate and validate the risks for blasting under any of the following conditions:

a) Explosive charge weight per delay in **Table 5, page 22**, is exceeded.

b) Blasting requirements less than 3 meters from Company facilities.

c) Blasting in the vicinity of cast iron and wrought iron pipelines.

d) Any tunnel blasting operation in the vicinity of Company facilities.

e) Surface blasts less than 10 meters from a Company pipeline where the excavation depth of the first blast hole is equal to the depth of the top of the pipeline and subsequent blast hole depths are greater than one half the horizontal distance to the closest portion of the pipeline.

f) Any time if in the opinion of Enbridge Gas Distribution Inc., it is felt the integrity of Company facilities may be affected by the blast.

The Independent Blasting Consultant shall be a Registered Professional Engineer and a holder of a Certificate of Authorization (C of A), specializing in blasting.

A copy of the consultant's report shall be forwarded to Enbridge Gas Distribution Inc. Engineering Department for review.

If in the opinion of Enbridge Gas Distribution Inc. or an independent blasting consultant, blasting cannot be carried out without affecting the facility's integrity, alternatives shall be considered, including the replacement or relocation of the affected facility at the applicants' expense. In these situations, additional time must be allowed to obtain the necessary permits and to complete the necessary construction work.

4.2 NOTIFICATION REQUIREMENTS

4.2.1 Surface Blasting Applications

The written request for surface blasting shall include the following information:

- Name of the owner of the project, general contractor and design engineer.
- Name of the blasting contractor and person in charge of the blast.
- Date for the blasting operation.
- A copy of a construction drawing or sketch drawn to scale indicating:
  - i Details of the proposed drilling and loading pattern for explosives.
  - ii Diameters of drilled holes, relative to Company facilities.
  - iii Location of other public utilities, i.e. Bell, hydro, water etc.
- Number and timing of delays.
- Total explosive weight to be detonated per delay.
- Specifications for the type of explosives to be used.
- Predicted vibration levels anticipated at the pipeline and controls to be used to confirm vibration levels (i.e. Seismographs).
- Potential stabilization of rock face and type of potential stabilization techniques i.e.: rock anchors, shot crete, ribs, etc.
- Geological parameters (Borehole logs or Geological reports) which indicate the design of the blast are acceptable.
- Written confirmation that the blasting operation will be carried out by qualified personnel with appropriate engineering supervision.

4.2.2 Tunnel Blasting Applications

The written request for tunnel blasting shall include all information required in the surface blasting application as set out above in 4.2.1. In addition, the required independent blasting consultant's report shall include:

- Location plans and profile views with construction drawing or sketch, drawn to scale.
- Evaluation of geo-technical data.
- Exact stand-off distances horizontal and direct (radial)

Noss, Melissa

From: Keen, Stephen
Sent: Wednesday, May 25, 2011 4:08 PM
To: Baudais, Nathalie
Cc: Sparham, Richard
Subject: FW: EGD 102010 - Class Environmental Assessment - Hwy 50 - Castlemore Rd to Rutherford Rd

fyi

From: Diana Beaulne [mailto:Diana.Beaulne@enbridge.com]
Sent: Wednesday, May 25, 2011 3:12 PM
To: Keen, Stephen
Subject: EGD 102010 - Class Environmental Assessment - Hwy 50 - Castlemore Rd to Rutherford Rd

Thank you for your letter informing us of your future planned work. Enbridge has buried plant in numerous locations throughout your planned work area. Currently the scope of your project is too general to determine if a conflict exists. During the engineering design of your project please send us copies of your plans per normal procedure so we may review.

Kind Regards,

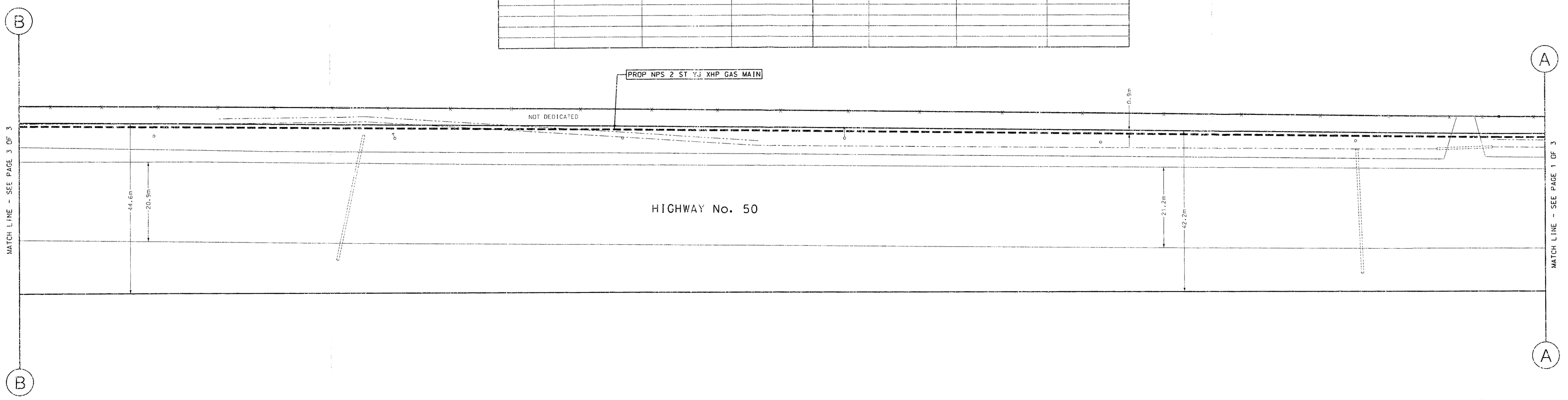
Diana Beaulne
Right of Way Approval Technician
Enbridge Gas Distribution Inc.
Distrubution Planning 4th Floor
500 Consumers Rd
North York, ON.
M2J 1P8

markups@enbridge.com

Tel: 416-495-5160
FAx: 416-758-4373

ASLAID NUMBER:

WELD TABLE				WELD TABLE			
WELD No.	WELD CHAINAGE	PIPE CHAINAGE	DESCRIPTION	WELD No.	WELD CHAINAGE	PIPE CHAINAGE	DESCRIPTION



STANDARD NOTES :

- ALL ASPHALT ROAD, DRIVEWAY & TREE CROSSINGS TO BE HORIZONTAL DIRECTIONAL DRILLED.
- ANY AUGERED, PLOWED, BORED OR DRILLED PIPE MUST USE 12 GAUGE TRACER WIRE AS PER SECTION 20.1.22 IN THE C&M MANUAL.
- PROPOSED GAS MAIN SHALL HAVE A MINIMUM COVER OF 1.2m FOR ALL ROAD CROSSINGS, 1.0m ALL OTHER LOCATIONS UNLESS NOTED OTHERWISE.
- ALL PROPOSED GAS MAINS ARE TO BE LOCATED ON STANDARD OFFSET OF 0.7m FROM S/L UNLESS OTHERWISE NOTED.
- ALL APPLICABLE PURGING PROCEDURES SHALL BE FOLLOWED AS OUTLINED IN THE C&M MANUAL.
- PIPELINE MARKERS TO BE PLACED ON ALL PURGE CAPS AND WELD CAPS.
- PIPELINE MARKERS TO BE INSTALLED AS THE O.D.R. AND THE C&M MANUAL.
- ANODES, TEST POINTS AND PIPELINE MARKERS TO BE INSTALLED WHERE SHOWN ON THE PLAN UNLESS APPROVED BY PLANNING AND/OR CORROSION.

YORK REGIONAL NOTE :

- MIN. COVER 1.5m OR 1.6m BELOW ℄ OF TRENCH OR 1.5m BELOW ℄ OF ROAD OR 0.9m BELOW ℄ OF DITCH WHICHEVER IS LOWER OR AS INDICATED ON PLAN.

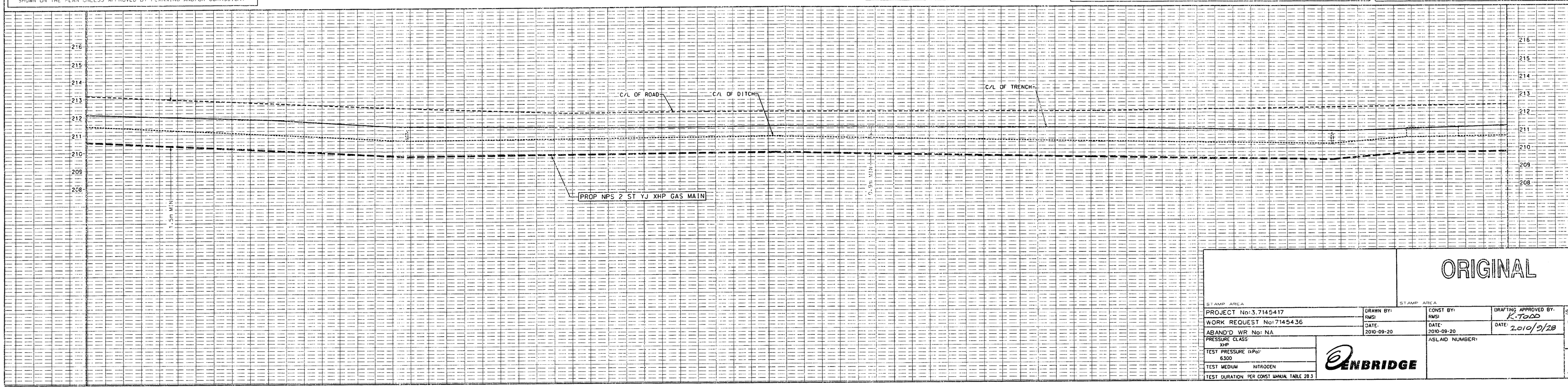
WELDING PROCEDURES

USE ONLY THE APPROVED WELDING PROCEDURES THAT APPLY:

- WITHIN THE REGULATORY JURISDICTION
- FOR THE SPECIFIC APPLICATION
- TO THE TYPE OF JOINT
- THE PIPE GRADE, CARBON EQUIVALENT, PRESSURE, DIAMETER AND WALL THICKNESS RANGE.

ENBRIDGE GAS DISTRIBUTION LEGEND

- PROP. ABANDONED GAS MAIN
- PROPOSED GAS MAIN
- EXISTING GAS MAIN



ORIGINAL

STAMP AREA

STAMP AREA

PROJECT No: 3.7145417	DRAWN BY: RMS	CONST BY: RMS	DRAFTING APPROVED BY: K. TODD
WORK REQUEST No: 7145436	DATE: 2010-09-20	DATE: 2010-09-20	DATE: 2010/09/28
ABAND'D WR No: NA		ASLAID NUMBER:	
PRESSURE CLASS: XHP			
TEST PRESSURE (kPa): 6300			
TEST MEDIUM: NITROGEN			
TEST DURATION PER CONST MANUAL TABLE 28.3			

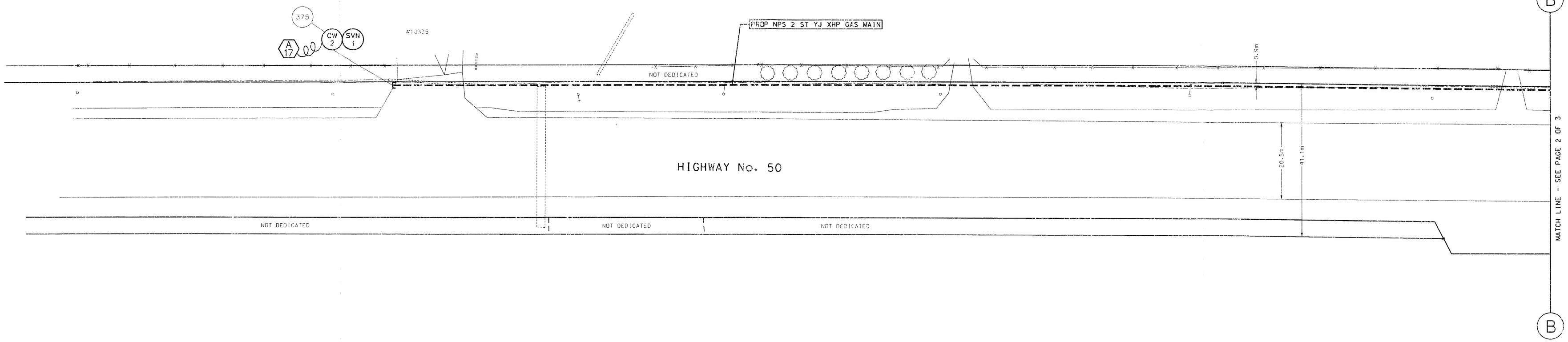
ENBRIDGE

SCALE: HORIZ: 1:500 VERT: 1:100

PAGE: 2 OF 3

ASLAID NUMBER:

WELD TABLE				WELD TABLE			
WELD No.	WELD CHAINAGE	PIPE CHAINAGE	DESCRIPTION	WELD No.	WELD CHAINAGE	PIPE CHAINAGE	DESCRIPTION



STANDARD NOTES :

- ALL ASPHALT ROAD, DRIVEWAY & TREE CROSSINGS TO BE HORIZONTAL DIRECTIONAL DRILLED.
- ANY AUGERED, PLOWED, BORED OR DRILLED PIPE MUST USE 12 GAUGE TRACER WIRE AS PER SECTION 29.1.22 IN THE C&M MANUAL.
- PROPOSED GAS MAIN SHALL HAVE A MINIMUM COVER OF 1.2m FOR ALL ROAD CROSSINGS, 1.0m ALL OTHER LOCATIONS UNLESS NOTED OTHERWISE.
- ALL PROPOSED GAS MAINS ARE TO BE LOCATED ON STANDARD OFFSET OF 0.7m FROM S/L UNLESS OTHERWISE NOTED.
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- PIPELINE MARKERS TO BE PLACED ON ALL PURGE CAPS AND WELD CAPS.
- PIPELINE MARKERS TO BE INSTALLED AS THE P.I.D.R. AND THE C&M MANUAL.
- ANODES, TEST POINTS AND PIPELINE MARKERS TO BE INSTALLED WHERE SHOWN ON THE PLAN UNLESS APPROVED BY PLANNING AND/OR CORROSION.

YORK REGIONAL NOTE :

- MIN. COVER 1.5m OR 1.5m BELOW ℄ OF TRENCH OR 1.5m BELOW ℄ OF ROAD OR 0.9m BELOW ℄ OF DITCH WHICHEVER IS LOWER OR AS INDICATED ON PLAN.

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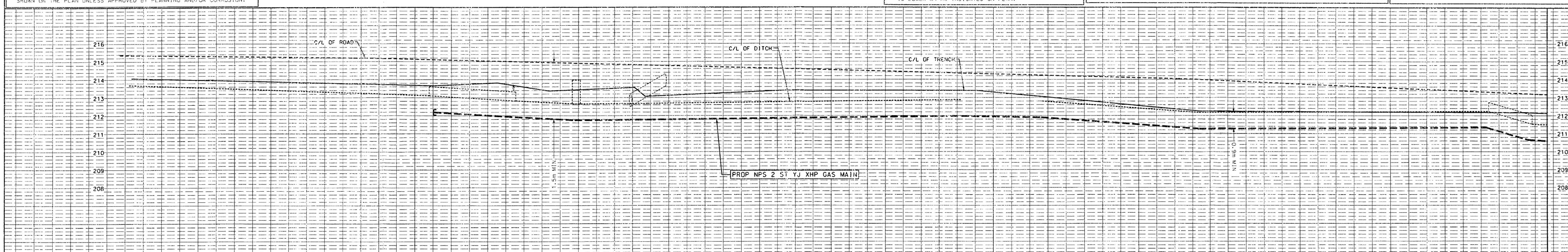
USE ONLY THE APPROVED WELDING PROCEDURES THAT APPLY:

- WITHIN THE REGULATORY JURISDICTION
- FOR THE SPECIFIC APPLICATION
- TO THE TYPE OF JOINT
- THE PIPE GRADE, CARBON EQUIVALENT, PRESSURE, DIAMETER AND WALL THICKNESS RANGE.

ENBRIDGE GAS DISTRIBUTION LEGEND

PROP. ABANDONED GAS MAIN
PROPOSED GAS MAIN
EXISTING GAS MAIN



ORIGINAL

STAMP AREA

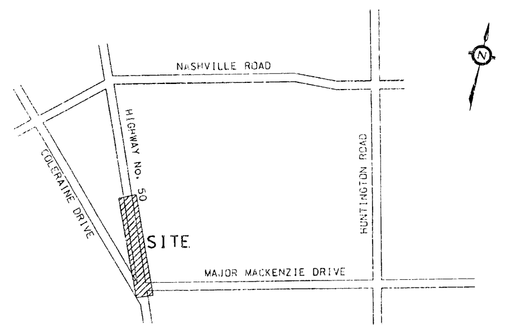
STAMP AREA

PROJECT No: 3.7145417	DRAWN BY: RMSI	CONST BY RMSI	DRAFTING APPROVED BY: K.TODD	SCALE: HORIZ: 1:500 VERT: 1:100
WORK REQUEST No: 7145436	DATE: 2010-09-20	DATE: 2010-09-20	DATE: 2010/9/28	
ABAND'D WR No: NA		ASLAID NUMBER:		PAGE: 3 OF 3
PRESSURE CLASS: XHP				
TEST PRESSURE (kPa): 6309				
TEST MEDIUM: NITROGEN				
TEST DURATION: PER CONST. MANUAL TABLE 28.3				

ENBRIDGE

ASLAID NUMBER:

LOCATION PLAN (N.T.S.)



WELD TABLE				WELD TABLE			
WELD No.	WELD CHAINAGE	PIPE CHAINAGE	DESCRIPTION	WELD No.	WELD CHAINAGE	PIPE CHAINAGE	DESCRIPTION

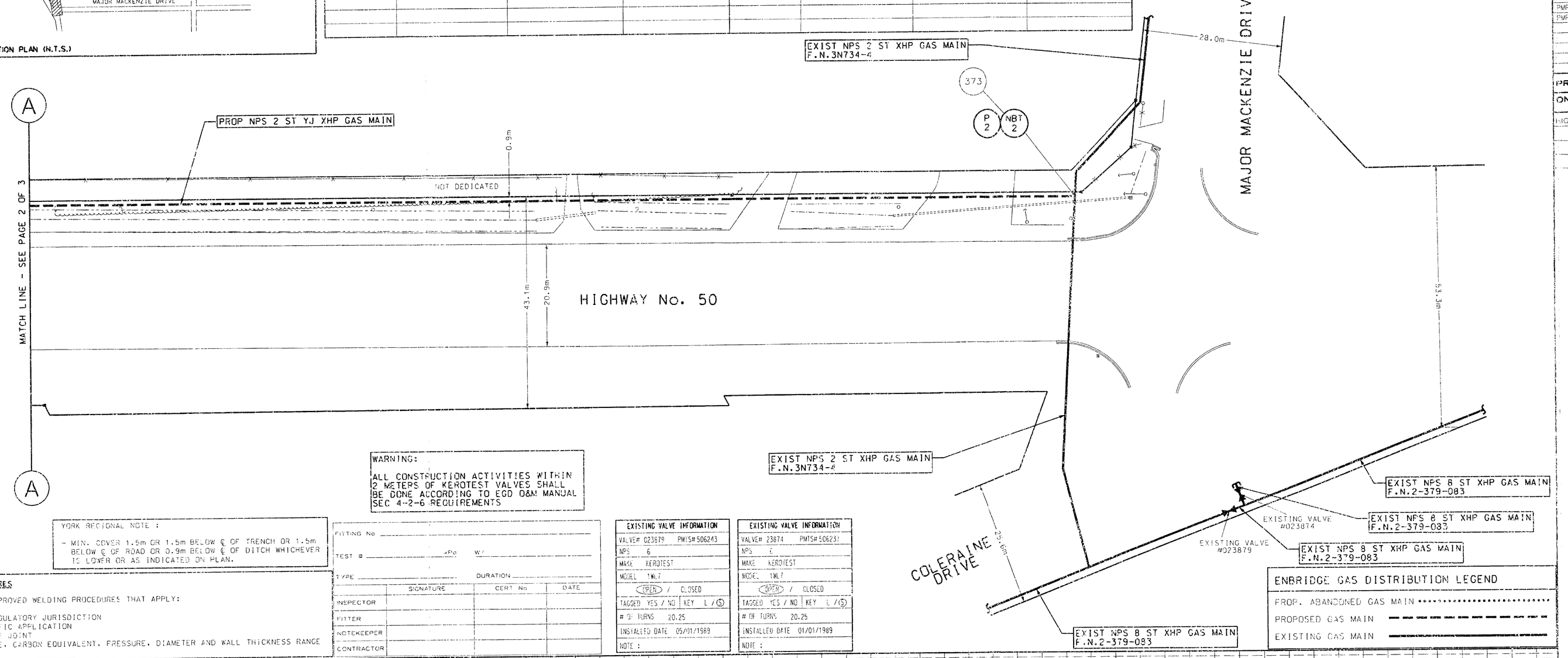
PROPOSED ENBRIDGE BILL OF MATERIALS

CREATED BY RMSI | 10335 HIGHWAY 50 | DATE 2010-09-20
CHECKED BY K.TODD | CITY OF VAUGHAN | PROJECT No 3 7145417
APPROVED BY _____ | REGION OF YORK | W R No 7145436

MARK	SIZE	STOCK No	REQ'D	DESCRIPTION
P	2	0912429	917m	PIPE STEEL GRADE 290 W T 3.9mm CSA Z245.1 CUT COATING TO CSA Z245.21 C.J.
CW	2	1107143	1	CAP WELDED GRADE WPB 240 MPa SYMS W T 3.9mm ANSI/B16.9 ASTM A234
NBT	2	1320830	1	NO-BLO TEE MUELLER H17501 WITH STEEL CAP MAXIMUM WORKING PRESSURE 9330 kPa
SVN	1	1186932	1	SAVE A VALVE NIPPLE MUELLER H17491 WITH STEEL CAP
A	17 LB	2213174	1	MAGNESIUM ANSI/A 17-51 HYNODE
PMT		2115017	AS REQ'D	PIPELINE MARKER 1.8m POLY-FLEX POST (TEMPORARY)
PMP		2116000	AS REQ'D	PERMANENT PIPELINE MARKER POST
PMP		2116500	AS REQ'D	PERMANENT PIPELINE MARKER SIGN

PROJECT SUMMARY DETAIL FOR PROPOSED

ON	NETWORK NUMBER	LOW NODE	HIGH NODE	NPS	PROPOSED LENGTH	PMTS ID NUMBER	ACTUAL LENGTH INSTALLED CREW 1	CREW 2	ENERGIZE DATE
HIGHWAY No. 50	2182	373	375	2 ST	917m	3408556			



WARNING:

ALL CONSTRUCTION ACTIVITIES WITHIN 2 METERS OF KEROTEST VALVES SHALL BE DONE ACCORDING TO EGD O&M MANUAL SEC 4-2-6 REQUIREMENTS

YORK REGIONAL NOTE :

- MIN. COVER 1.5m OR 1.5m BELOW ℄ OF TRENCH OR 1.5m BELOW ℄ OF ROAD OR 0.9m BELOW ℄ OF DITCH WHICHEVER IS LOWER OR AS INDICATED ON PLAN.

FITTING No _____
TEST @ _____ kPa W/ _____
TYPE _____ DURATION _____

	SIGNATURE	CERT No	DATE
INSPECTOR			
FITTER			
NOTEKEEPER			
CONTRACTOR			

EXISTING VALVE INFORMATION	
VALVE# 023879	PMT#506243
NPS 6	
MAKE KEROTEST	
MODEL 1M7	
(OPEN) / CLOSED	
TAGGED YES / NO KEY L / S	
# OF TURNS 20.25	
INSTALLED DATE 05/01/1989	
NOTE :	

EXISTING VALVE INFORMATION	
VALVE# 23874	PMT#506231
NPS 6	
MAKE KEROTEST	
MODEL 1M7	
(OPEN) / CLOSED	
TAGGED YES / NO KEY L / S	
# OF TURNS 20.25	
INSTALLED DATE 01/01/1989	
NOTE :	

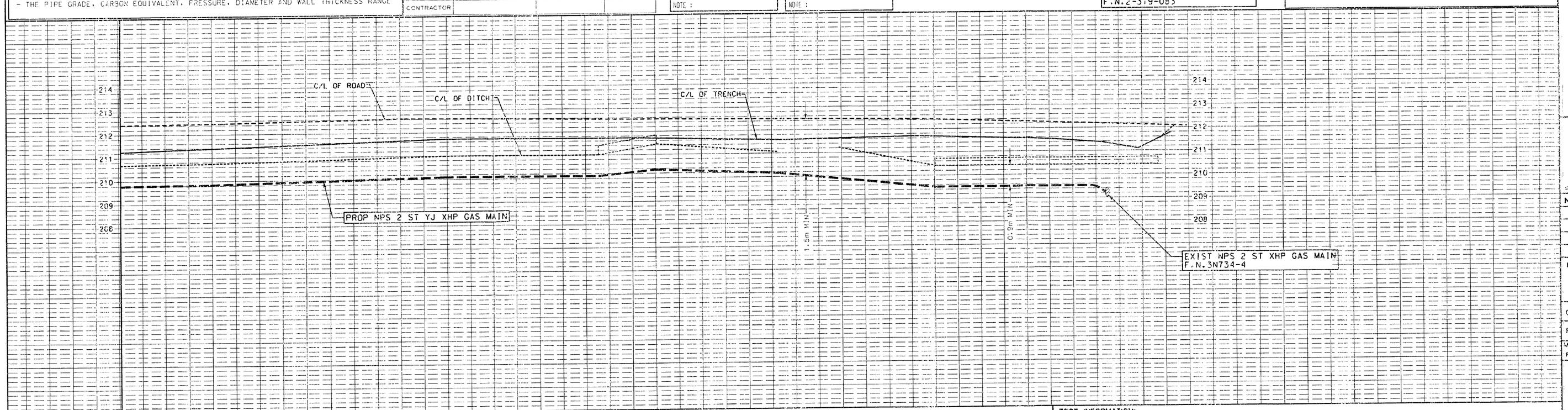
ENBRIDGE GAS DISTRIBUTION LEGEND

PROP. ABANDONED GAS MAIN ••••••••••••••••••••••••••••
PROPOSED GAS MAIN — — — — — — — — — —
EXISTING GAS MAIN ————————————

WELDING PROCEDURES

USE ONLY THE APPROVED WELDING PROCEDURES THAT APPLY:

- WITHIN THE REGULATORY JURISDICTION
- FOR THE SPECIFIC APPLICATION
- TO THE TYPE OF JOINT
- THE PIPE GRADE, CARBON EQUIVALENT, PRESSURE, DIAMETER AND WALL THICKNESS RANGE



STANDARD NOTES :

- ALL ASPHALT ROAD, DRIVEWAY & TREE CROSSINGS TO BE HORIZONTAL DIRECTIONAL DRILLED.
- ANY AUGERED, PLOWED, BORED OR DRILLED PIPE MUST USE 12 GAUGE TRACER WIRE AS PER SECTION 20.1.22 IN THE C&M MANUAL.
- PROPOSED GAS MAIN SHALL HAVE A MINIMUM COVER OF 1.2m FOR ALL ROAD CROSSINGS, 1.0m ALL OTHER LOCATIONS UNLESS NOTED OTHERWISE.
- ALL PROPOSED GAS MAINS ARE TO BE LOCATED ON STANDARD OFFSET OF 0.7m FROM S/L UNLESS OTHERWISE NOTED.
- ALL APPLICABLE PURGING PROCEDURES SHALL BE FOLLOWED AS OUTLINED IN THE C&M MANUAL.
- PIPELINE MARKERS TO BE PLACED ON ALL PURGE CAPS AND WELD CAPS.
- PIPELINE MARKERS TO BE INSTALLED AS THE P.O.R AND THE C&M MANUAL.
- ANCHORS, TEST POINTS AND PIPELINE MARKERS TO BE INSTALLED WHERE SHOWN ON THE PLAN UNLESS APPROVED BY PLANNING AND/OR CORROSION.

TEST INFORMATION:
TESTED @ _____ kPa DURATION: _____ h / min
WITH- AIR / NITROGEN / WATER TEST TYPE- SPRING GAUGE / TEST CHART / DRAGNET / OTHER
INSPECTOR: _____ CERT No: _____ DATE: _____
FITTER: _____ CERT No _____ DATE: _____
NOTEKEEPER: _____ CERT No: _____ DATE: _____
CONTRACTOR _____ CREW I.D. _____ DATE: _____

INSPECTION DETAILS:
START DATE: _____ COMPLETION DATE: _____ ENERGIZED DATE: _____
CONSTRUCTED BY: _____ ENERGIZED BY: _____ STAKED BY: _____

TEST INFORMATION:
TESTED @ _____ kPa DURATION: _____ h / min
WITH- AIR / NITROGEN / WATER TEST TYPE- SPRING GAUGE / TEST CHART / DRAGNET / OTHER
INSPECTOR _____ CERT No: _____ DATE: _____
FITTER: _____ CERT No: _____ DATE: _____
NOTEKEEPER: _____ CERT No: _____ DATE _____
CONTRACTOR _____ CREW I.D. _____ DATE: _____

INSPECTION DETAILS:
START DATE _____ COMPLETION DATE: _____ ENERGIZED DATE: _____
CONSTRUCTED BY: _____ ENERGIZED BY _____ STAKED BY: _____

ORIGINAL

STAMP AREA

No	REVISION FOR COMPLETE PROJECT	SIGNATURE	DATE

INSPECTION DETAILS:
START DATE: _____ COMPLETION DATE: _____ ENERGIZED DATE: _____
CONSTRUCTED BY: _____ ENERGIZED BY: _____ STAKED BY: _____

CONSULTANT: NA

PROJECT: 10335 HIGHWAY 50

MATERIAL: PE _____ ST ✓
ENGINEERING APPROVAL:

LOCATION CLASS: 1 2 (3) 4
PRESSURE CLASS: XHP
TEST PRESSURE (kPa): 6300
TEST MEDIUM: NITROGEN
TEST DURATION: PER CONST MANUAL TABLE 28.3
PLATE No: MV6 MV5
GRID No: E03
NETWORK No: 2182
CORROSION No: 20 L02D021
CORROSION APPROVAL/DATE: PENDING

MUNICIPALITY: CITY OF VAUGHAN
PROJECT No: 3.7145417
WORK REQUEST No: 7145436
ABAND'D WR No: NA
DRAWN BY: RMSI
DATE: 2010-09-20
PLANNER APPROVED BY: L.Chong
DATE: 2010-09-24
CONST BY: RMSI
DATE: 2010-09-20
DRAFTING APPROVED BY: K.TODD
DATE: 2010/9/28

PAGE: 1 OF 3
SCALE: HORIZ- 1:500 VERT 1:100

THE DESIGN OF AND THE CONSTRUCTION SPECIFICATIONS FOR THIS PIPELINE ARE IN COMPLIANCE WITH O.REG 210/01

ENBRIDGE

ASLAID NUMBER:

Noss, Melissa

From: Edgar Henriquez [Edgar.Henriquez@rci.rogers.com]
Sent: Friday, August 13, 2010 9:19 AM
To: Lamontagne, Larry
Subject: RE: HWY 50 Rogers Utility Markup Request
Attachments: M103726_Hwy 50 from Mayfield Rd to Rutherford Rd_HDR iTRANS.dwg; ATT00001..txt

Follow Up Flag: Follow up
Flag Status: Completed

Hi Larry,
Please find attached the mark-up drawing for the area under your study.
Rogers has aerial fiber TV plant in this area.
Rogers File M103726
Thanks

Edgar Henriquez
Mark-up Coordinator GTAW
OPE - GTA West
Rogers Cable System Inc
3573 Wolfedale Road
Mississauga, On. L5C 3T6
Tel: 905 897 6457
Fax: 905 273 5233

-----Original Message-----
From: Lamontagne, Larry [mailto:Laurent.Lamontagne@hdrinc.com]
Sent: Wednesday, May 19, 2010 10:37 AM
To: Edgar Henriquez
Cc: Keen, Stephen; Glofcheskie, Chris
Subject: HWY 50 Rogers Utility Markup Request

Hi Edgar

As per our conversation today please find attached the AutoCadd file of our EA study limits. Please markup all existing and future Rogers Cable plant.

Study limits:

- Hwy 50 (Mayfield Road to Rutherford Road)
- Mayfield Road (Hwy 50 to Coleraine Drive)

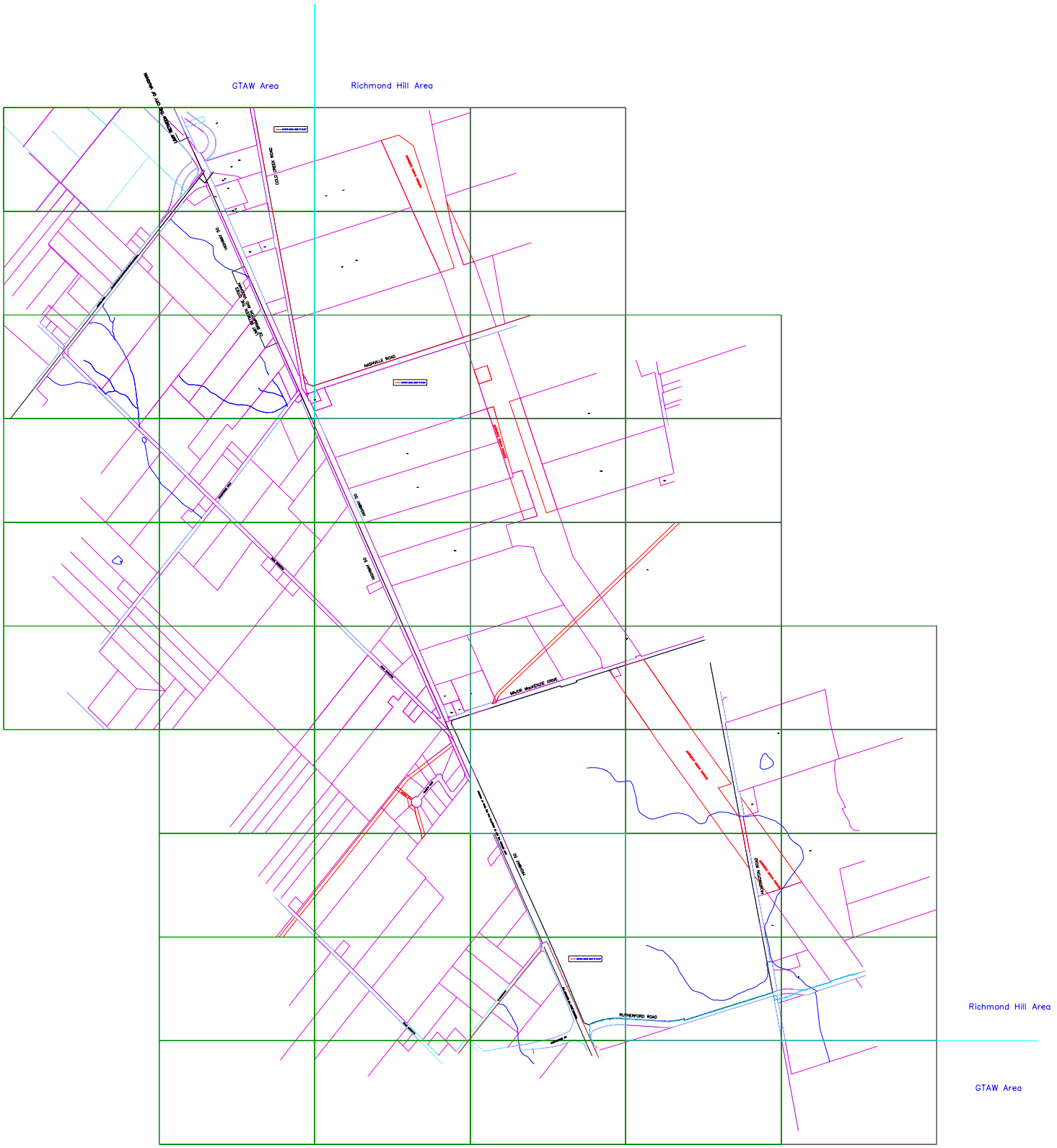
Could you please let me know the turnaround time for my request.

If you have any questions regarding my request please don't hesitate to contact me.

Thank you

Larry Lamontagne. Dipl.T.
Transportation Designer

HDR | iTRANS
100 York Boulevard, Suite 300 | Richmond Hill, ON | L4B 1J8
Phone: 905.882.4100 x 5348 | Fax: 905.882.1557 | Email: llamontagne@itransconsulting.com
www.hdrinc.com
www.itransconsulting.com


GTAW Area
Richmond Hill Area
NASHVILLE ROAD
MAJOR MACKENZIE DRIVE
RUTHERFORD ROAD
OLD CHERRY ROAD
HIGHWAY 50
Richmond Hill Area
GTAW Area

Noss, Melissa

From: Utility Circulations [Utility.Circulations@mtsallstream.com]
Sent: Tuesday, May 25, 2010 10:03 AM
To: Lamontagne, Larry
Subject: RE: HWY 50 Allstream Utility Markup Request

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning Larry,

Allstream has no existing plant in the area indicated in your submission. No mark-up & no objection.

Regards,

Utility Circulations
Utility.Circulations@mtsallstream.com

From: Lamontagne, Larry [mailto:Laurent.Lamontagne@hdrinc.com]
Sent: Wednesday, May 19, 2010 11:00 AM
To: Utility Circulations
Cc: Keen, Stephen; Glofcheskie, Chris
Subject: HWY 50 Allstream Utility Markup Request

Please find attached an AutoCadd file of our EA study limits. Please markup all existing and future Allstream plant.

Study limits:

- Hwy 50 (Mayfield Road to Rutherford Road)
- Mayfield Road (Hwy 50 to Coleraine Drive)

Could you please let me know the turnaround time for my request.

If you have any questions regarding my request please don't hesitate to contact me.

Thank you

Larry Lamontagne. Dipl.T.
Transportation Designer

HDR | iTRANS
100 York Boulevard, Suite 300 | Richmond Hill, ON | L4B 1J8
Phone: 905.882.4100 x 5348 | Fax: 905.882.1557 | Email: llamontagne@itransconsulting.com
www.hdrinc.com
www.itransconsulting.com

Noss, Melissa

From: Keen, Stephen
Sent: Monday, June 14, 2010 10:30 AM
To: McLaughlin, Barry
Subject: FW: Highway 50 and Mayfield Road Improvements Class EA

Follow Up Flag: Follow up
Flag Status: Completed

From: Zia, Solmaz [mailto:Solmaz.Zia@peelregion.ca]
Sent: Thursday, June 10, 2010 2:55 PM
To: Keen, Stephen
Subject: FW: Highway 50 and Mayfield Road Improvements Class EA

Steve,

fyi

Solmaz Zia, P.Eng.
Project Manager
Transportation Program Planning
Public Works, Region of Peel
Tel: (905) 791-7800 ext. 7845
Solmaz.Zia@peelregion.ca

From: Jennifer.Long@HydroOne.com [mailto:Jennifer.Long@HydroOne.com]
Sent: June 4, 2010 9:17 AM
To: Zia, Solmaz
Cc: ierullo@HydroOne.com
Subject: Highway 50 and Mayfield Road Improvements Class EA

Dear Ms. Zia,

In our initial review, we can confirm that there are no Hydro One Transmission Facilities in the subject area. Please find our response form in the attachment.

Please be advised that this is only a preliminary assessment based on current information. No further consultation with Hydro One Networks Inc. is required if no changes are made to the current information.

If you have any further questions or concerns, please feel free to contact me.

Regards,

Jen Long
Transmission Lines Sustainment
System Investment, Asset Management
Hydro One Networks Inc.
Tel: 416-345-4421
Jennifer.Long@HydroOne.com

Region of Peel
Working for you

Leadership
2008 Public Sector Leadership Awards IPAC•Deloitte
2008 Prix de leadership dans le secteur public IAPC•Deloitte

CANADA AWARDS FOR EXCELLENCE
GOLD RECIPIENT QUALITY 2006

November 26, 2010
Project No. 09-4390

Hydro One Networks Inc.
West Central Zone 2

40 Olympic Drive
Box 585
Dundas, On
L9H 7P5
Attn, Scheduling

Re: Highway 50 from Castlemore Road/Rutherford Road to Mayfield Road/Albion Vaughan Road, and Mayfield Road from Hwy 50 to Coleraine Drive in the City of Brampton, City of Vaughan and Town of Caledon, Region of Peel and Region of York

Dear Sir / Madam,

The Region of Peel along with York Region is undertaking a Class C Environmental Assessment (EA) Study for the above noted project.

Please be advised that HDR/ iTrans is undertaking the EA including the preliminary design on behalf of the Municipalities of Peel and York for the identification of utility relocations involved with this project.

As per the EA recommendation, widening of Highway 50 and Mayfield Road to 6 and 4 lanes respectively is proposed which requires a number of Hydro poles relocation.

We are at the third phase of the EA and the preliminary design for the noted corridor has been developed. We will mail 1 set of our preliminary design drawings under separate cover. Please review them and provide us with the existing plants along the noted road and your future plans for this corridor.

We request that you provide us with a preliminary estimate for the proposed relocation.

We would like to offer a meeting with you to review the conceptual relocation requirements. Please advise when your staff is available to meet with us.

The anticipated detailed design schedule is summer 2011 and utility relocation is 2015.

Your co-operation in providing the information required is anticipated and appreciated.

If you have any questions, do not hesitate to contact the undersigned.

Public Works
9445 Airport Road, 3rd Floor, Brampton, ON. L6S 4J3
Telephone: 905-791-7800 / www.peelregion.ca

Regards,

Solmaz Zia, P.Eng.
Project Manager
Transportation Program Planning
Public Works, Region of Peel
Tel: (905) 791-7800 ext. 7845
Fax: 905-791-1442
Solmaz.Zia@peelregion.ca

CC: Edward Chiu, York Region
Steve Keen, HDR/iTrans

Region of Peel
Working for you

Leadership
2008 Public Sector Leadership Awards IPAC•Deloitte
2008 Prix de leadership dans le secteur public IAPC•Deloitte

CANADA AWARDS FOR EXCELLENCE
GOLD RECIPIENT QUALITY 2006

March 15, 2011
Project No. 09-4390

Hydro One Networks Inc.
West Central Zone 2

40 Olympic Drive
Box 585
Dundas, On
L9H 7P5
Attn, Scheduling

Re: Highway 50 from Castlemore Road/Rutherford Road to Mayfield Road/Albion Vaughan Road, and Mayfield Road from Hwy 50 to Coleraine Drive in the City of Brampton, City of Vaughan and Town of Caledon, Region of Peel and Region of York

Dear Sir / Madam,

We provided, under separate cover, 1 set of plans of the above described work project, with existing utilities and anticipated conflicts based on our initial preliminary design review.

Please examine the noted plans for corrections or omissions, and conflicts with proposed construction. We also request to plot your proposed relocation and return sets of plans to Steve Keen's attention at HDR|iTrans office (144 Front Street W, Suite 655, Toronto, ON, M5H 2L7) giving existing and proposed depth of plant, where applicable.

Include in your submission, a preliminary cost estimate in order that we may establish a cost effective relocation strategy. It is anticipated the utility relocation to take place by 2014/2015.

Hydro One Brampton is notified of the utility relocation requirement.

Regards,

Solmaz Zia

Solmaz Zia, P.Eng.
Project Manager, Transportation Division

CC: Edward Chiu, York Region
Steve Keen, HDR|iTrans
Richard Sparham, Peel Region

Noss, Melissa

From: barbara.kolodziej@HydroOne.com
Sent: Wednesday, May 19, 2010 3:14 PM
To: Lamontagne, Larry
Cc: Rebecca.Fu@HydroOne.com; ian.mitchell@HydroOne.com
Subject: FW: HWY 50 Hydro One Utility Markup Request
Attachments: Castlemore - Hwy50 - 9HO05007P.dwg

Importance: High

Hello Larry,
Please find attached DWG file. Hydro One Telecom has fiber optic cable only between Rutherford Rd & Old Castlemore Rd on the East side of Hwy 50, then crossing to Old Castlemore Rd on the South side of the road. At the intersection is U/G fiber, otherwise Aerial. Look only at pages 12 to 15, which include this area.

Regards,

Barbara Kolodziej
Outside Plant Engineering
Hydro One Telecom
Tel: 416-240-6842
Fax: 416-240-6790

From: MITCHELL Ian
Sent: Wednesday, May 19, 2010 2:46 PM
To: HOT OUTSIDE PLANT
Subject: FW: HWY 50 Hydro One Utility Markup Request
Importance: High

Barbara/Rebecca,

Can you please review these drawings and mark up where our facilities are and send back to Larry by end of next week.

Thank you,

Ian Mitchell
Outside Plant Manager
Hydro One Telecom Inc.
P. 416-240-6701
F. 416-240-6790
C. 647-287-3007
ian.mitchell@hydroone.com

From: Lamontagne, Larry [mailto:Laurent.Lamontagne@hdrinc.com]
Sent: Wednesday, May 19, 2010 2:29 PM
To: MITCHELL Ian
Cc: Keen, Stephen; Glofcheskie, Chris
Subject: RE: HWY 50 Hydro One Utility Markup Request

Hi Ian

Thank you for the quick response.

Please find attached the DWG file showing the EA corridor and study limits for Hwy 50 and Mayfield Road . Please markup all existing and future Hydro One Utility plant.

Study limits:

- Hwy 50 (Mayfield Road to Rutherford Road)
- Mayfield Road (Hwy 50 to Coleraine Drive)

Could you please let me know the turnaround time for my request.

If you have any questions regarding my request please don't hesitate to contact me.

Thank you

Larry Lamontagne. Dipl.T.
Transportation Designer

HDR | iTRANS
100 York Boulevard, Suite 300 | Richmond Hill, ON | L4B 1J8
Phone: 905.882.4100 x 5348 | Fax: 905.882.1557 | Email: llamontagne@itransconsulting.com
www.hdrinc.com
www.itransconsulting.com

From: ian.mitchell@HydroOne.com [mailto:ian.mitchell@HydroOne.com]
Sent: Wednesday, May 19, 2010 12:48 PM
To: Lamontagne, Larry
Cc: Keen, Stephen; Glofcheskie, Chris
Subject: RE: HWY 50 Hydro One Utility Markup Request

Larry,

I am the contact for Hydro One Telecom and I would prefer all drawings sent in DWG but we can work with PDF or ZIP as well. If it's the electrical distribution information you are looking for then you need to contact Hydro One Brampton. I have provided Dave Robinson's information, if he is not the right person he will pass you on to who is.

D.Robinson, E.Tech.
Hydro One Brampton Networks Inc.
175 Sandalwood Pkwy, West
Brampton, ON
L7A 1E8

Engineering Technician
Tel: (905) 840-6300 ext. 3356
E-mail Address: drobinson@hydroonebrampton.com

Thank you,

Ian Mitchell
Outside Plant Manager
Hydro One Telecom Inc.
P. 416-240-6701
F. 416-240-6790
C. 647-287-3007
ian.mitchell@hydroone.com

From: Lamontagne, Larry [mailto:Laurent.Lamontagne@hdrinc.com]
Sent: Wednesday, May 19, 2010 11:14 AM
To: MITCHELL Ian
Cc: Keen, Stephen; Glofcheskie, Chris
Subject: HWY 50 Hydro One Utility Markup Request

Hi Ian

I am following up on the message I left you today (May 19, 2010) regarding a Utility Markup plan request for Hwy 50 (Mayfield Rd. to Rutherford) showing Hydro One's existing and future plant.

Could you please let me know if you are the contact person for the markup plans or direct me to who may be in charge. Also, I will need to know what format you require the drawings (DWG, PDF…)

Thank you

Larry Lamontagne. Dipl.T.
Transportation Designer

HDR | iTRANS
100 York Boulevard, Suite 300 | Richmond Hill, ON | L4B 1J8
Phone: 905.882.4100 x 5348 | Fax: 905.882.1557 | Email: llamontagne@itransconsulting.com
www.hdrinc.com
www.itransconsulting.com

CONSTRUCTION NOTES

1-2 OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2-3 INSTALL 2187.3m OF NEW 1/4" EHS STRAND, LASH 1-48 COUND FIBER OPTIC CABLE.

4-5 INSTALL 545.3m OF NEW 1/4" EHS STRAND, LASH 1-48 COUND FIBER OPTIC CABLE.

A INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B INSTALL NEW 10.0m LOOPBACK.

C INSTALL NEW DOWNGUY AND ANCHOR.

D INSTALL NEW RISER C/W U-GUARD.

E INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	3524.2m
NEW 1/4" EHS STRAND	2732.8m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
MMM GROUP LTD. OF PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 KELFIELD STREET
REXDALE, ONT. M9W 5A3
PHONE: (416) 240-8701
FAX: (416) 240-8780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydrone.com

ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12	46000lbs

CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON =20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES
AERIAL DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE
   - OCCUPATIONAL HEALTH AND SAFETY ACT.
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.

2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.

3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.

4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.

5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.

6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.

7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.

8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.

9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.

10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.

11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.

12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.

13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.

14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.

15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.

16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.

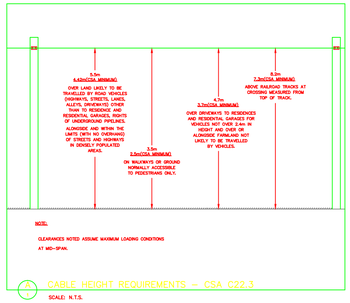
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.

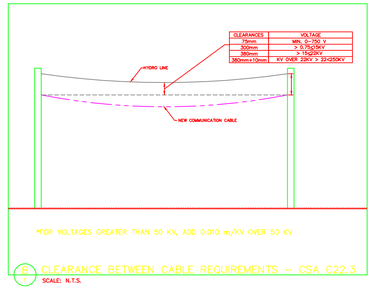
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.

20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.

21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

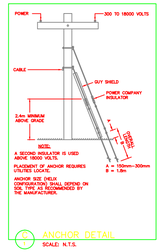


A CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.

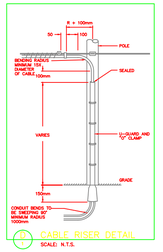


*FOR VOLTAGES GREATER THAN 50 KV, ADD 0.010 m/KV OVER 50 KV.

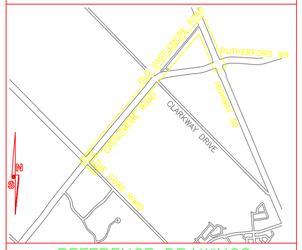
B CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



C ANCHOR DETAIL
SCALE: N.T.S.



D CABLE RISER DETAIL
SCALE: N.T.S.



REFERENCE DRAWINGS

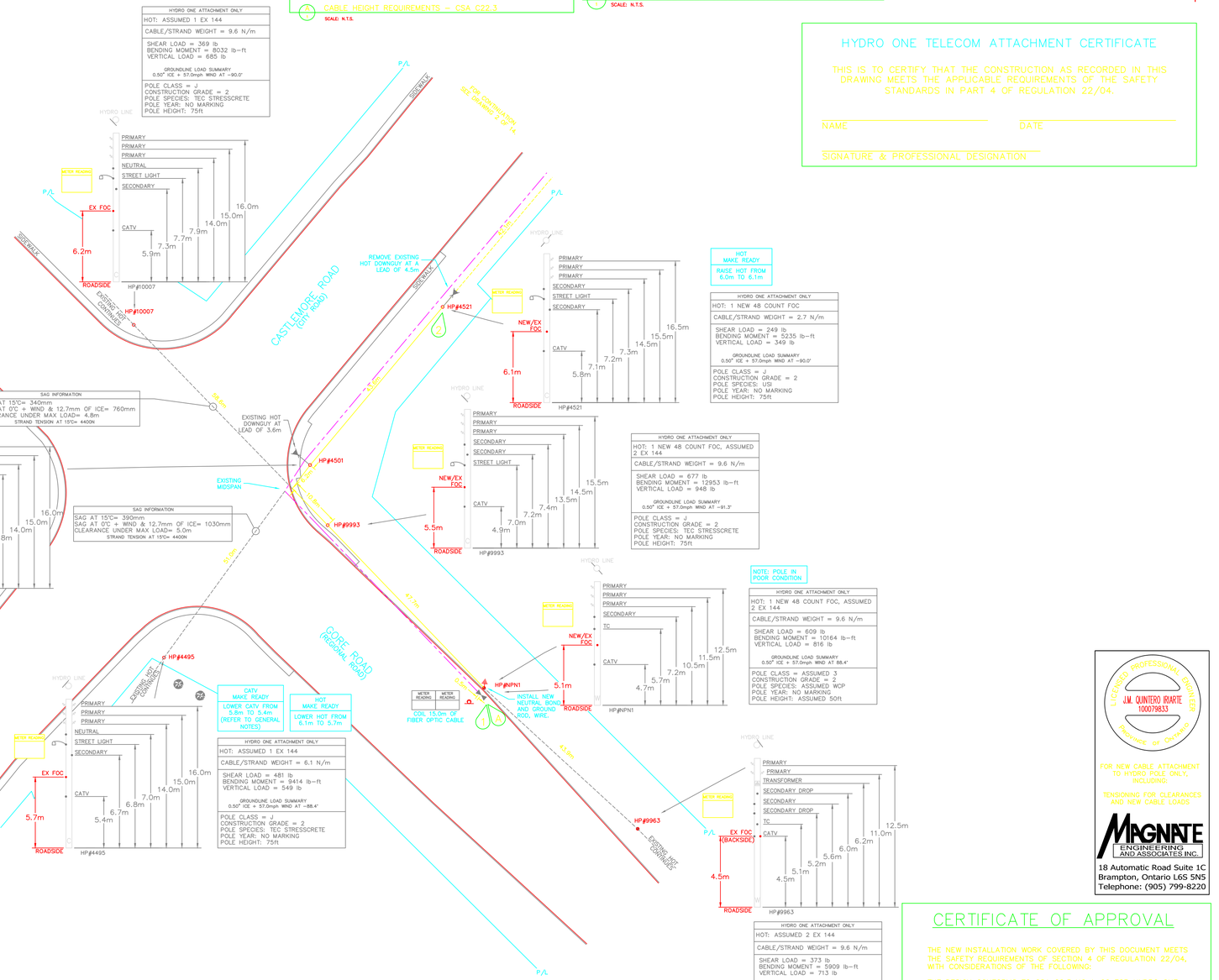
CITY OF BRAMPTON

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____



RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
☐ Aerial installation
☐ U/G installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

THE DESIGN CONFORMS TO CSA 22.3 NO. 1–06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)

LICENCED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:

TENSIONING FOR CLEARANCES AND NEW CABLE LOADS.

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications

Hydro One Telecom Inc.
65 Kelfield Street
Rexdale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #:	SCALE:
	9HO05007P	1:500
APPROVED BY:	DATE:	DWG 1 OF 14
	05/20/09	

DRAWING NUMBER:

CONSTRUCTION NOTES

1. OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.
2. INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.
3. INSTALL 545.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A. INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.
B. INSTALL NEW 10.0m LOOPBACK.
C. INSTALL NEW DOWNGUY AND ANCHOR.
D. INSTALL NEW RISER C/W U-GUARD.
E. INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.
F. INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
ENGINEERING OF PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 ROLFING STREET
REXDALE, ONT, M9W 5A3
PHONE: (416) 240-8701
FAX: (416) 240-8780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydrone.com

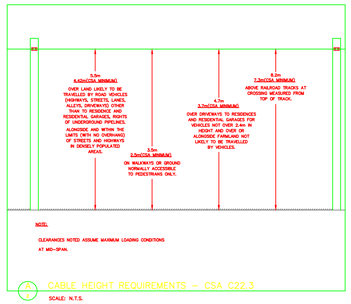
ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12"	46000lbs

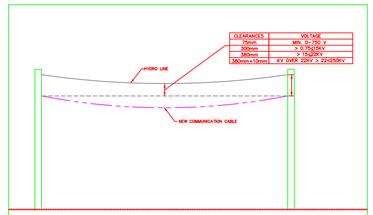
CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON =20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES
AERIAL DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE
   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES; CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

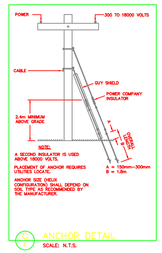


A CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.

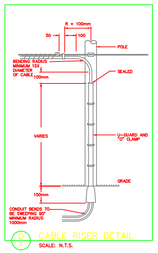


*FOR VOLTAGES GREATER THAN 50 KV, ADD 0.010 m/KV OVER 50 KV.

B CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.

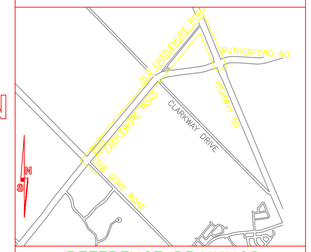


C ANCHOR DETAIL
SCALE: N.T.S.



D CABLE RISER DETAIL
SCALE: N.T.S.

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

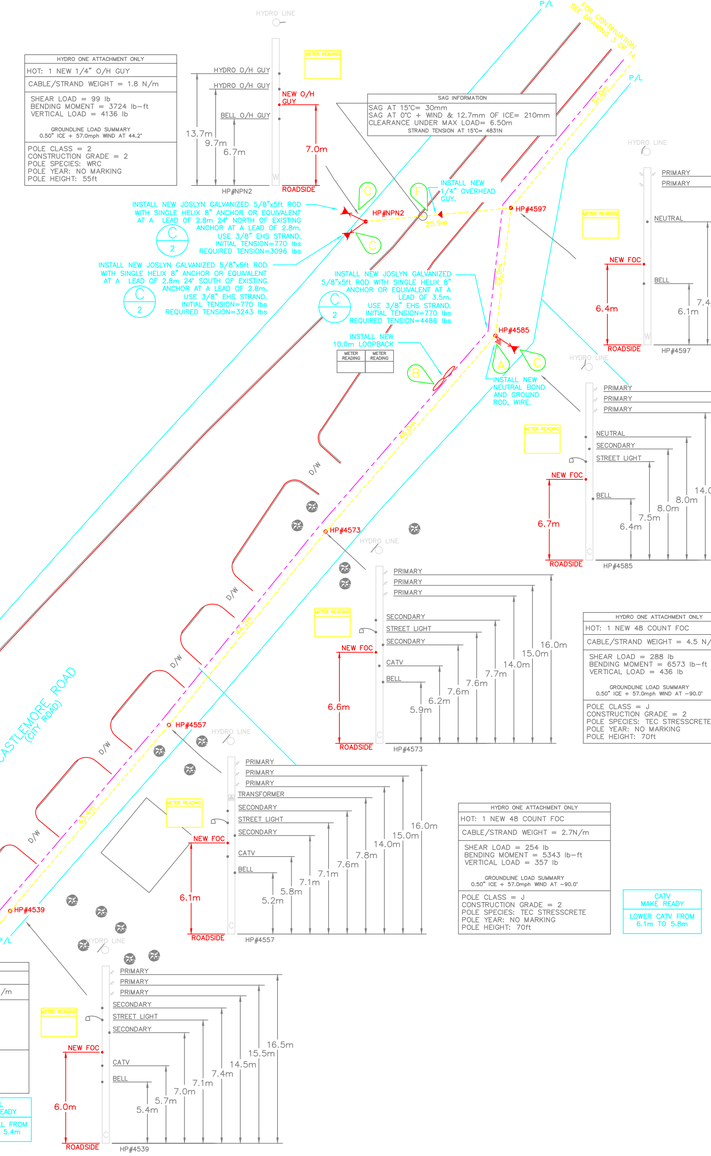
EXTERNAL

- NEW FIBER
- NEW STRAND
- OVERLASH
- EXISTING CONDUIT
- UNDERGROUND GAS LINE — G
- UNDERGROUND WATER — W
- UNDERGROUND HYDRO — BP
- UNDERGROUND BELL — BC
- UNDERGROUND CATV — BC
- STORM SEWER — ST
- SANITARY SEWER — SS
- PROPERTY LINE — P/L
- FENCE
- DITCH — E/P
- EDGE OF PAVEMENT
- CURB
- GRAVEL SHOULDER
- NEW SPLICE
- EXISTING SPLICE
- VAULT — V
- BELL PEDESTAL
- CATV PEDESTAL
- TRANSFORMER
- CATCH BASIN
- WATER VALVE
- FIRE HYDRANT
- EXISTING POLE TO BE REMOVED
- STREET SIGN
- HYDRO POLE
- MANHOLE COVER
- MANHOLE & COVER
- LARGE ROCK
- TREE
- DIP LOCATION
- NEW DOWNGUY AND ANCHOR
- NEW SIDEWALK GUY

INTERNAL

- NEW INTERIOR FIBER
- NEW BACKBOARD
- EXISTING BACKBOARD
- NEW PATCH PANEL
- EXISTING PATCH PANEL
- NEW EQUIPMENT RACK
- EXISTING EQUIPMENT RACK
- NEW FIBER COIL

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)



HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

THE DESIGN CONFORMS TO CSA 22.3 NO 1-06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

LICENCED PROFESSIONAL ENGINEER
J.M. QUINTERO RIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

Hydro One Telecommunications
Hydro One Telecom Inc.
65 Rolfind Street
Rexdale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #:	SCALE:
	9H005007P	1:500
APPROVED BY:	DATE: 05/20/09	DWG 2 OF 14
DRAWING NUMBER:		

CONSTRUCTION NOTES

1 2 — OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2 3 4 5 — INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

INSTALL 5405.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A — INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B — INSTALL NEW 10.0m LOOPBACK.

C — INSTALL NEW DOWNGUY AND ANCHOR. (6)

D — INSTALL NEW RISER C/W U-GUARD. (2)

E — INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F — INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
MARKHAM DIGITAL OF PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 ROLLING STREET
REVISDALE, ONT, M5W 5A3
PHONE: (416) 240-6701
FAX: (416) 340-6780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydrone.com

ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12"	46000lbs

CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON -20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES AERIAL DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE.
   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
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8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS, DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
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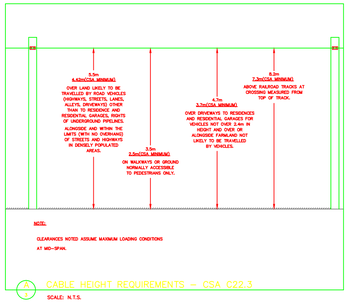
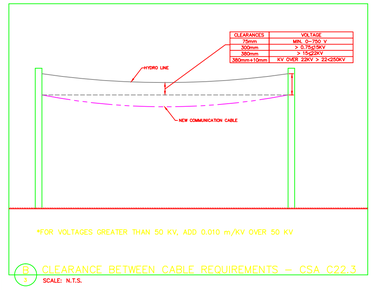
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

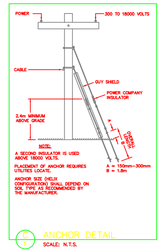


A — CABLE HEIGHT REQUIREMENTS — CSA C22.3
SCALE: N.T.S.

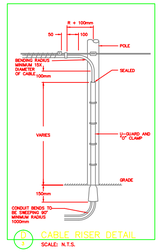


*FOR VOLTAGES GREATER THAN 50 KV, ADD 0.010 m/kV OVER 50 kV.

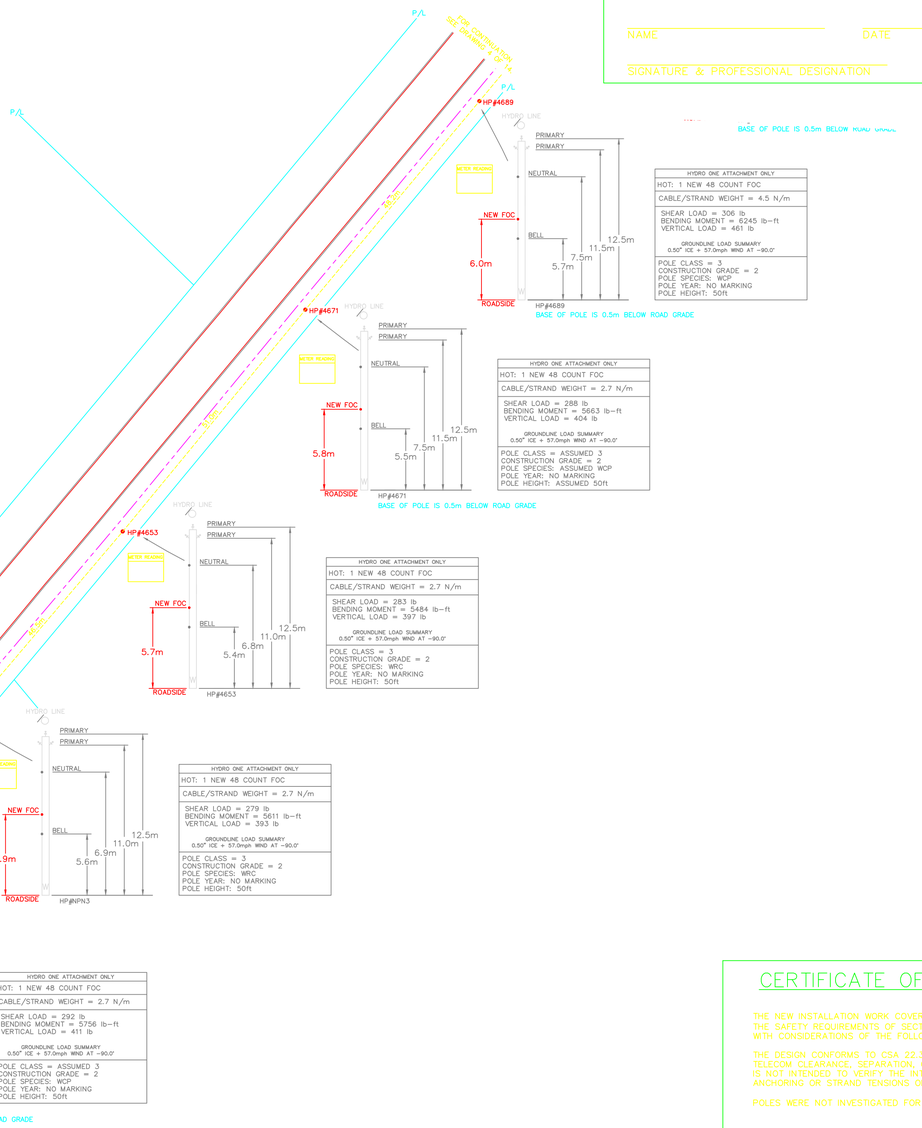
B — CLEARANCE BETWEEN CABLE REQUIREMENTS — CSA C22.3
SCALE: N.T.S.



C — ANCHOR DETAIL
SCALE: N.T.S.



D — CABLE RISER DETAIL
SCALE: N.T.S.



RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

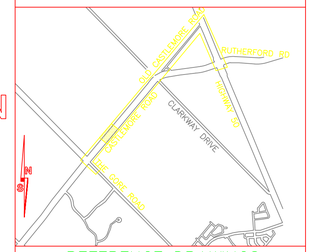
THE DESIGN CONFORMS TO CSA 22.3 NO.1-06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

- NEW FIBER
- NEW STRAND
- OVERLASH
- EXISTING CONDUIT
- UNDERGROUND GAS LINE — G
- UNDERGROUND WATER — W
- UNDERGROUND HYDRO — BP
- UNDERGROUND BELL — BC
- UNDERGROUND CATV — BC
- STORM SEWER — ST
- SANITARY SEWER — SS
- PROPERTY LINE — P/L
- FENCE
- DITCH
- EDGE OF PAVEMENT — E/P
- CURB
- GRAVEL SHOULDER
- NEW SPLICE
- EXISTING SPLICE
- VAULT (V)
- BELL PEDESTAL
- CATV PEDESTAL
- TRANSFORMER
- CATCH BASIN
- WATER VALVE
- FIRE HYDRANT
- EXISTING POLE TO BE REMOVED
- STREET SIGN
- HYDRO POLE
- MANHOLE COVER
- MANHOLE & COVER
- LARGE ROCK
- TREE
- DIP LOCATION
- NEW DOWNGUY AND ANCHOR
- NEW SIDEWALK GUY

INTERNAL

- NEW INTERIOR FIBER
- NEW BACKBOARD
- EXISTING BACKBOARD
- NEW PATCH PANEL
- EXISTING PATCH PANEL
- NEW EQUIPMENT RACK
- EXISTING EQUIPMENT RACK
- NEW FIBER COIL

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)

LICENSED PROFESSIONAL ENGINEER
J.M. QUINTERO IDARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications
Hydro One Telecom Inc.
65 Kolliall Street
Revisle, Ontario, M5W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #: 9H005007P	SCALE: 1:500
APPROVED BY:	DATE: 05/20/09	DWG 3 OF 14
DRAWING NUMBER:		

CONSTRUCTION NOTES

1. OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.
2. INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.
3. INSTALL 5455.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.
4. INSTALL 5455.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A. INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.
B. INSTALL NEW 10.0m LOOPBACK.
C. INSTALL NEW DOWNGUY AND ANCHOR.
D. INSTALL NEW RISER C/W U-GUARD.
E. INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.
F. INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
AERIAL PHOTOS OF PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REDION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 KOLFORD STREET
PETROLIA, ONT, N7M 5A3
PHONE: (416) 240-8701
FAX: (416) 240-8780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydroone.com

ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12	46000lbs

CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON -20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES AERIAL DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERWCES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE
   - OCCUPATIONAL HEALTH AND SAFETY ACT.
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS, DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES OR STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

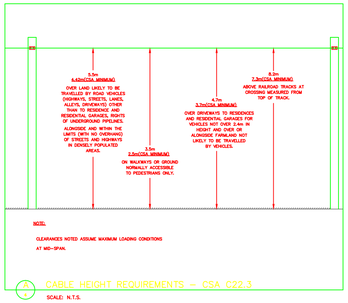
RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
- Aerial installation
- U/G installation

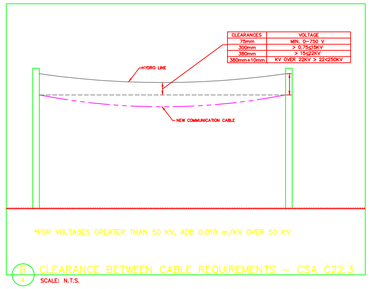
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

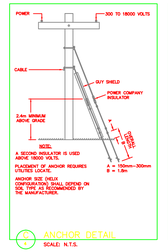
This is to certify that the construction as recorded in this drawing is consistent with the approved plan,Standard Designs, or work instruction and that approved equipment has been used.



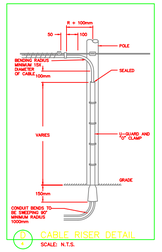
1 CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



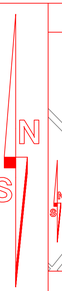
2 CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.

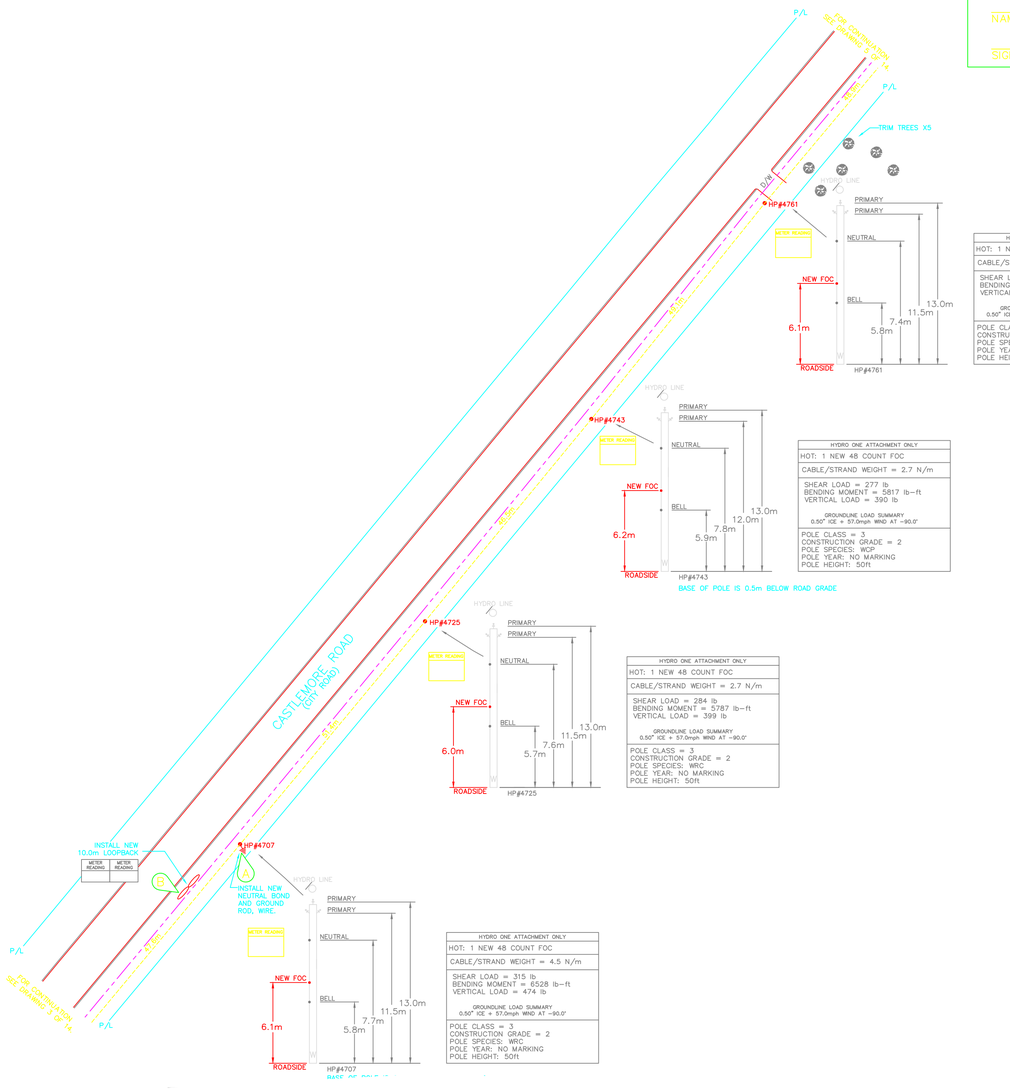


3 ANCHOR DETAIL
SCALE: N.T.S.



4 CABLE RISER DETAIL
SCALE: N.T.S.





HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 284 lb BENDING MOMENT = 5877 lb-ft VERTICAL LOAD = 399 lb GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT -90.0°
POLE CLASS = ASSUMED 3 CONSTRUCTION GRADE = 2 POLE SPECIES: WCP POLE YEAR: NO MARKING POLE HEIGHT: ASSUMED 50ft

HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 277 lb BENDING MOMENT = 5817 lb-ft VERTICAL LOAD = 390 lb GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT -90.0°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: WCP POLE YEAR: NO MARKING POLE HEIGHT: 50ft

HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 284 lb BENDING MOMENT = 5787 lb-ft VERTICAL LOAD = 399 lb GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT -90.0°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: WRC POLE YEAR: NO MARKING POLE HEIGHT: 50ft

HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 4.5 N/m
SHEAR LOAD = 315 lb BENDING MOMENT = 6528 lb-ft VERTICAL LOAD = 474 lb GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT -90.0°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: WRC POLE YEAR: NO MARKING POLE HEIGHT: 50ft

BASE OF POLE IS 0.5m BELOW ROAD GRADE

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

LICENSED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

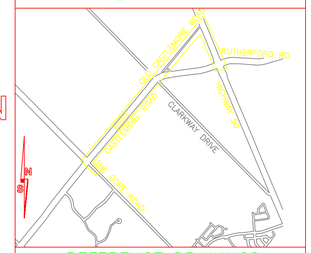
THE DESIGN CONFORMS TO CSA 22.3 NO 1-06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.#: BMTN-(CABLE I.D.)-(FIBRE COUNT)

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YG

hydro one
Hydro One Telecommunications

Hydro One Telecom Inc.
65 Kelfield Street
Rexdale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #:	SCALE:
	9H0D5007P	1:500
APPROVED BY:	DATE: 05/20/09	DWG 4 OF 14
DRAWING NUMBER:		

CONSTRUCTION NOTES

1 — 2 OVERLASH 108.8m OF 1–48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2 — 3 INSTALL 2187.3m OF NEW 1/4" EHS STRAND, LASH 1–48 COUND FIBER OPTIC CABLE.

2 — 5 INSTALL 545.3m OF NEW 1/4" EHS STRAND, LASH 1–48 COUND FIBER OPTIC CABLE.

A INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B INSTALL NEW 10.0m LOOPBACK.

C INSTALL NEW DOWNGUY AND ANCHOR. (E/F)

D INSTALL NEW RISER C/W U-GUARD. (3/F)

E INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
HYDRO ONE TELECOM, CITY OF PEEL AND TRAFFIC PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 ROUPELL STREET
PICKOALE, ONT, M1W 3A3
PHONE: (416) 240-4701
FAX: (416) 340-4780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydroone.com

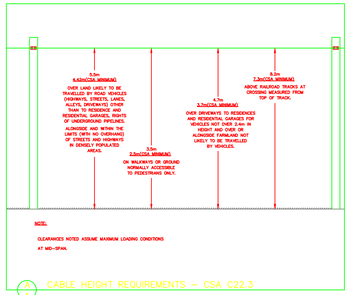
ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"–10"–12"	46000lbs

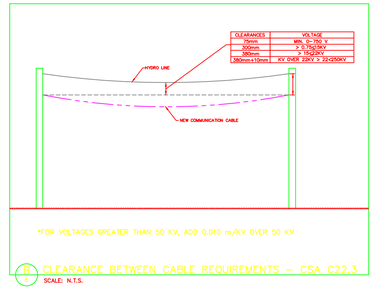
CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON -20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES AERIAL DESIGN AND CONSTRUCTION

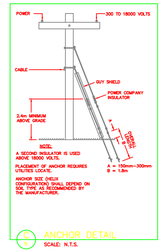
1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE.
   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1–06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS, DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7–WIRE ZINC COATED, OR 3/8" EHS STRAND, 7–WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.



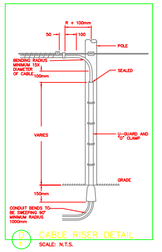
A CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



B CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.

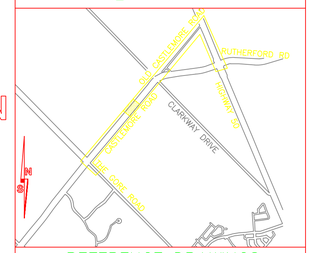


A ANCHOR DETAIL
SCALE: N.T.S.



B CABLE RISER DETAIL
SCALE: N.T.S.

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# BMTN–(CABLE I.D.)–(FIBRE COUNT)

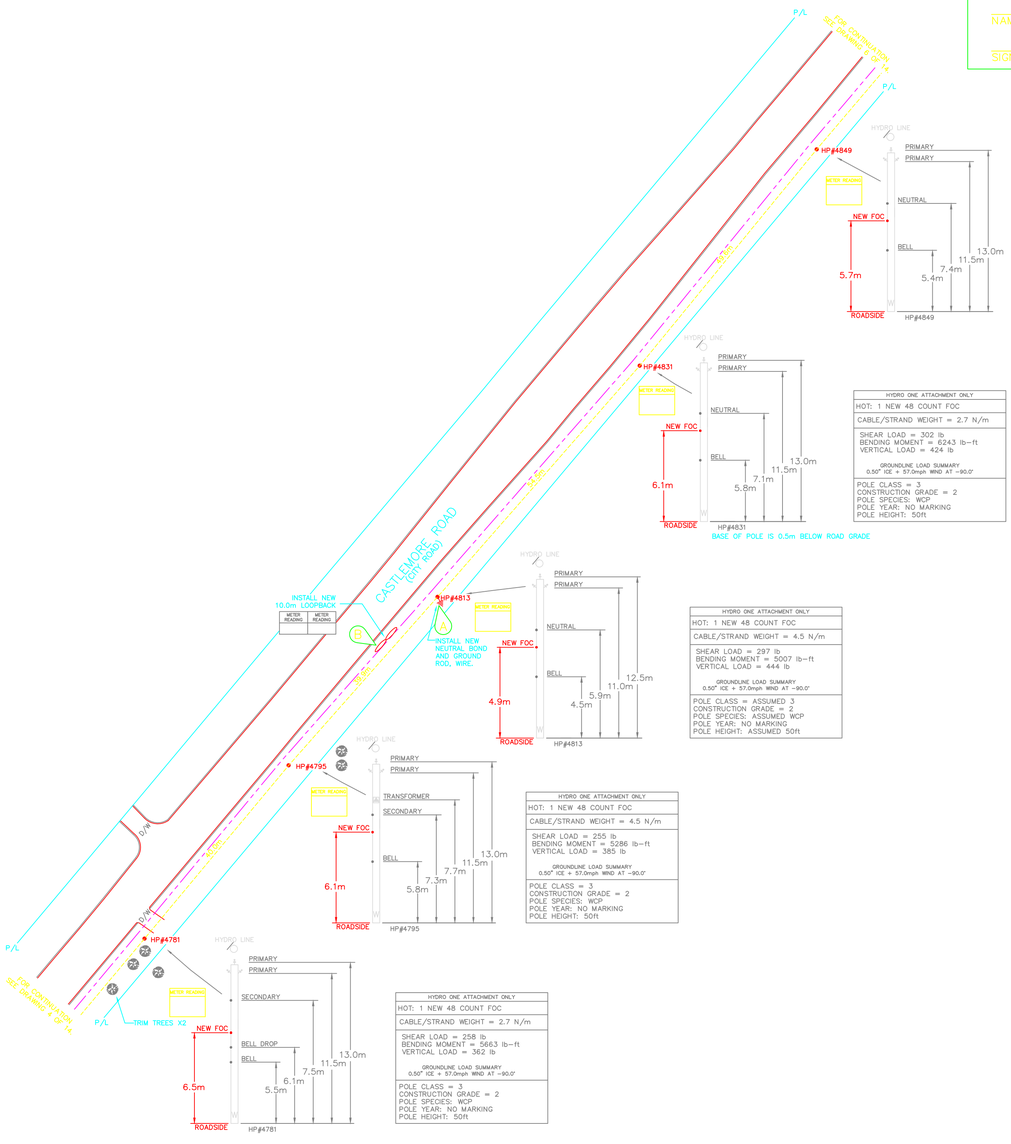
DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____



RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

THE DESIGN CONFORMS TO CSA 22.3 NO.1–06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

LICENSED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

hydro one
Hydro One Telecommunications

Hydro One Telecom Inc.
65 Koffskal Street
Rexdale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #: 9H005007P	SCALE: 1:500
APPROVED BY:	DATE: 05/20/09	DWG 5 OF 14
DRAWING NUMBER:		

CONSTRUCTION NOTES

1 2 — OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2 3 — INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

4 5 — INSTALL 545.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A — INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B — INSTALL NEW 10.0m LOOPBACK.

C — INSTALL NEW DOWNGUY AND ANCHOR.

D — INSTALL NEW RISER C/W U-GUARD.

E — INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F — INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
ENGINEERING DEPT. OF PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 KOUFANG STREET
PICKOALE, ONT, M1W 3A3
PHONE: (416) 240-4701
FAX: (416) 340-4780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydroone.com

ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12	46000lbs

CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON -20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES
AERIAL DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE
   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.

2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.

3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.

4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.

5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS.

6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.

7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.

8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.

9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.

10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.

11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.

12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.

13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.

14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.

15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.

16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.

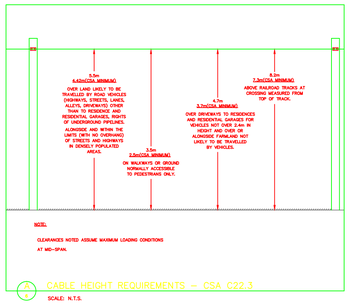
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.

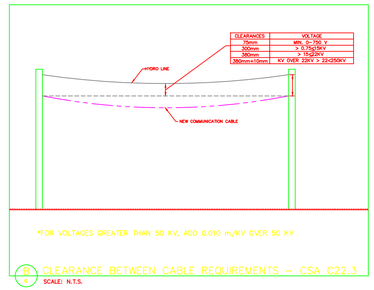
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.

20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.

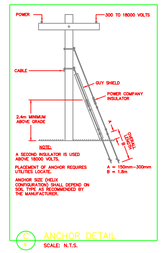
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.



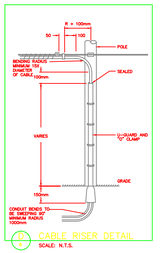
A — CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



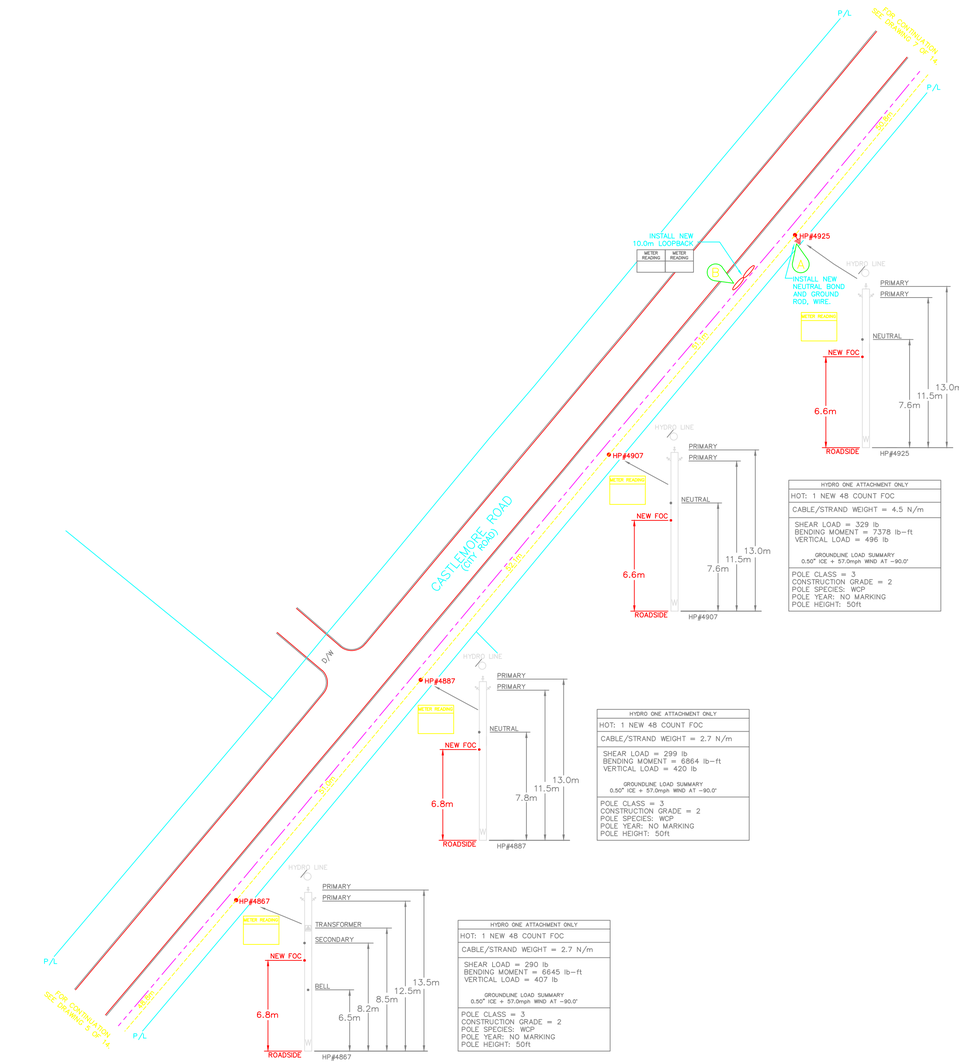
B — CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



C — ANCHOR DETAIL
SCALE: N.T.S.



D — CABLE RISER DETAIL
SCALE: N.T.S.



RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

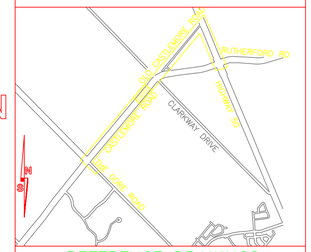
THE DESIGN CONFORMS TO CSA 22.3 NO 1-06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS, OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)

LICENCED PROFESSIONAL ENGINEER
J.M. QUINTERO RIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications
Hydro One Telecom Inc.
65 Kaofang Street
Pickdale, Ontario, M1W 3A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #:	SCALE:
	9H005007P	1:500
APPROVED BY:	DATE:	DWG 6 OF 14
	05/20/09	

DRAWING NUMBER:

CONSTRUCTION NOTES

1-2 OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2-3 INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

4-5 INSTALL 5465.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B INSTALL NEW 10.0m LOOPBACK.

C INSTALL NEW DOWNGUY AND ANCHOR.

D INSTALL NEW RISER C/W U-GUARD.

E INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
AERIAL SURVEY OF PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REDION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 KOUPING TERRECE
PEMSCALE, ONT, M9W 5A3
PHONE: (416) 240-8701
FAX: (416) 240-8780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydrone.com

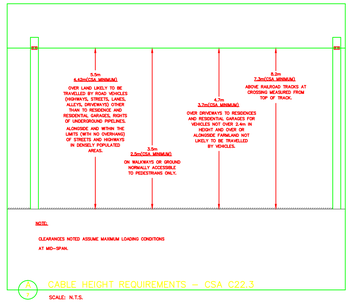
ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12	46000lbs

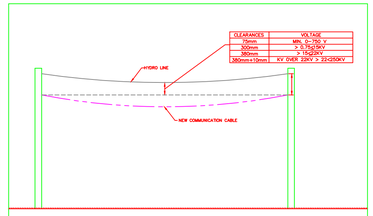
CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON =20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES
AERIAL DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE.
   - OCCUPATIONAL HEALTH AND SAFETY ACT.
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS, DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS; ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES, ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

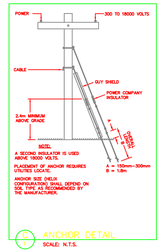


A CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.

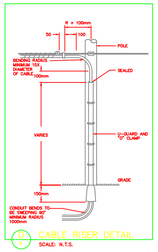


*FOR VOLTAGES GREATER THAN 50 KV, ADD 0.010 m/KV OVER 50 KV.

B CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



C ANCHOR DETAIL
SCALE: N.T.S.



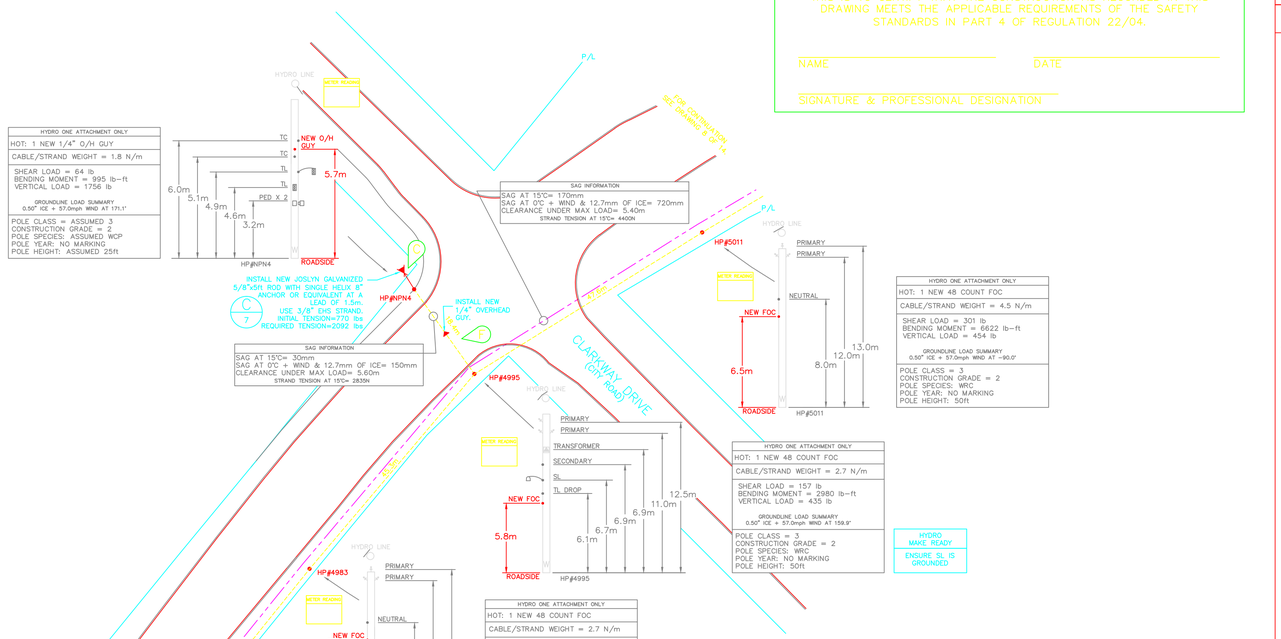
D CABLE RISER DETAIL
SCALE: N.T.S.

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____



RECORD OF INSPECTION BY CONTRACTOR

AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

LICENCED PROFESSIONAL ENGINEER
J.M. QUINTERO KHARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:

TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

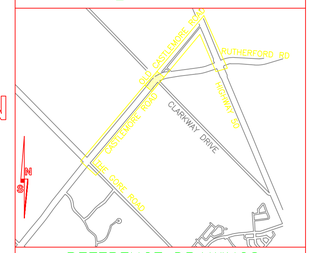
THE DESIGN CONFORMS TO CSA 22.3 NO.1-06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

- NEW FIBER
- NEW STRAND
- OVERLASH
- EXISTING CONDUIT
- UNDERGROUND GAS LINE — G
- UNDERGROUND WATER — W
- UNDERGROUND HYDRO — BP
- UNDERGROUND BELL — BC
- UNDERGROUND CATV — BC
- STORM SEWER — ST
- SANITARY SEWER — SS
- PROPERTY LINE — P/L
- FENCE
- DITCH
- EDGE OF PAVEMENT — E/P
- CURB
- GRAVEL SHOULDER
- NEW SPLICE
- EXISTING SPLICE
- VAULT
- BELL PEDESTAL
- CATV PEDESTAL
- TRANSFORMER
- CATCH BASIN
- WATER VALVE
- FIRE HYDRANT
- EXISTING POLE TO BE REMOVED
- STREET SIGN
- HYDRO POLE
- MANHOLE COVER
- MANHOLE & COVER
- LARGE ROCK
- TREE
- DIP LOCATION
- NEW DOWNGUY AND ANCHOR
- NEW SIDEWALK GUY

INTERNAL

- NEW INTERIOR FIBER
- NEW BACKBOARD
- EXISTING BACKBOARD
- NEW PATCH PANEL
- EXISTING PATCH PANEL
- NEW EQUIPMENT RACK
- EXISTING EQUIPMENT RACK
- NEW FIBER COIL

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications
Hydro One Telecom Inc.
65 Kolping Street
Kitchener, Ontario, N2M 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #:	SCALE:
	9H005007P	1:500
APPROVED BY:	DATE:	DWG 7 OF 14
	05/20/09	

DRAWING NUMBER:

CONSTRUCTION NOTES

1. OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.
2. INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.
3. INSTALL 5405.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.
4. INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.
5. INSTALL NEW 10.0m LOOPBACK.
6. INSTALL NEW DOWNGUY AND ANCHOR.
7. INSTALL NEW RISER C/W U-GUARD.
8. INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.
9. INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
THE CITY OF BRAMPTON GIS PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REDION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 YOUVILLE STREET
PERCEVALE, ONT, N5W 5A3
PHONE: (416) 240-8701
FAX: (416) 240-8780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydroone.com

ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12"	46000lbs

CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON =20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES
AERIAL DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE.
   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1–06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS, DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

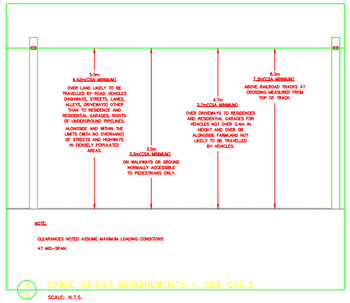
RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
- Aerial Installation
- U/G Installation

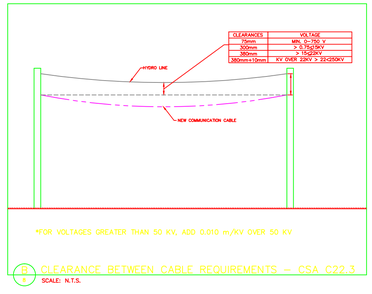
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

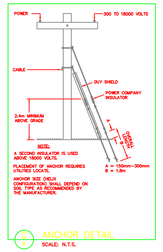
This is to certify that the construction as recorded in this drawing is consistent with the approved plan,Standard Designs, or work instruction and that approved equipment has been used.



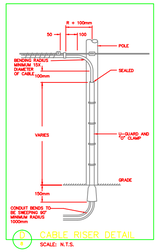
A CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



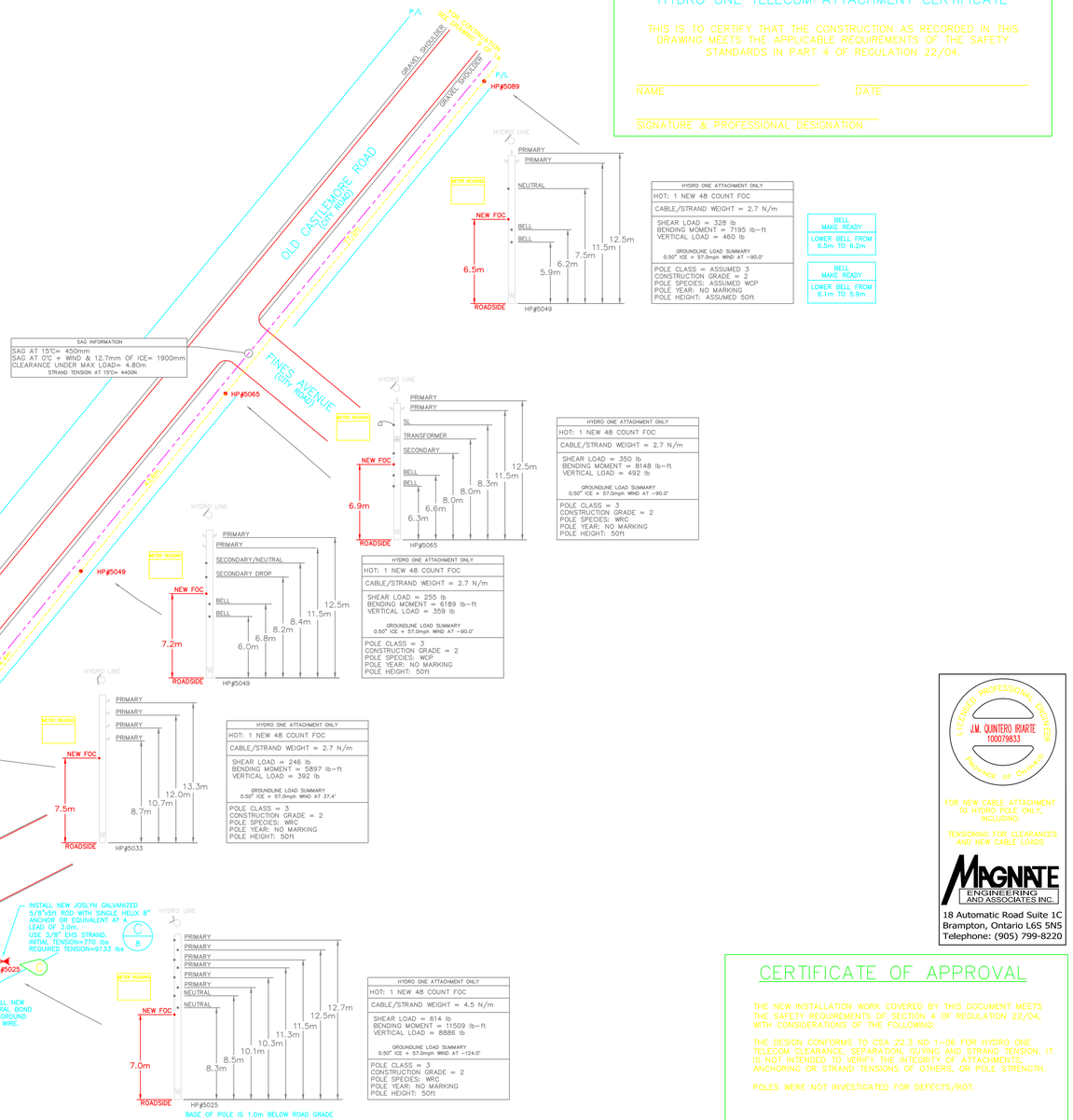
B CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



C ANCHOR DETAIL
SCALE: N.T.S.



D CABLE RISER DETAIL
SCALE: N.T.S.



HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

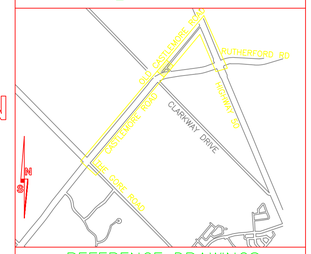
THE DESIGN CONFORMS TO CSA 22.3 NO 1–06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.#: BMTN–(CABLE I.D.)–(FIBRE COUNT)

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

LICENSED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

hydro one
Hydro One Telecommunications
Hydro One Telecom Inc.
65 Kortland Street
Kessler, Ontario, M5W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #:	SCALE:
	9H005007P	1:500
APPROVED BY:	DATE: 05/20/09	DWG 8 OF 14
DRAWING NUMBER:		

CONSTRUCTION NOTES

1 2 — OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2 3 — INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

4 5 — INSTALL 5405.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A — INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B — INSTALL NEW 10.0m LOOPBACK.

C — INSTALL NEW DOWNGUY AND ANCHOR.

D — INSTALL NEW RISER C/W U-GUARD.

E — INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F — INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
MARSHALL MACKLIN MONAGHAN LTD. FOR TOPO AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 YOUNG STREET
KEYSCALE, ONT. M5W 5A3
PHONE: (416) 240-6701
FAX: (416) 240-6780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydroone.com

ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12"	46000lbs

CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON =20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES
AERIAL DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE.
   - OCCUPATIONAL HEALTH AND SAFETY ACT.
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.

2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.

3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.

4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.

5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.

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7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.

8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.

9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.

10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.

11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.

12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.

13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.

14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.

15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.

16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.

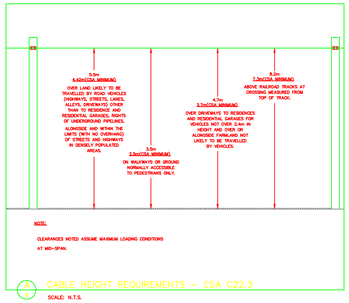
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.

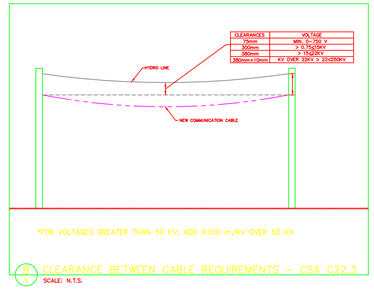
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.

20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.

21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

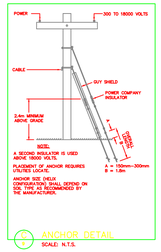


A — CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.

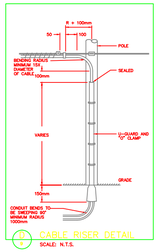


*FOR VOLTAGES GREATER THAN 50 KV, ADD 0.010 m/kV OVER 50 kV

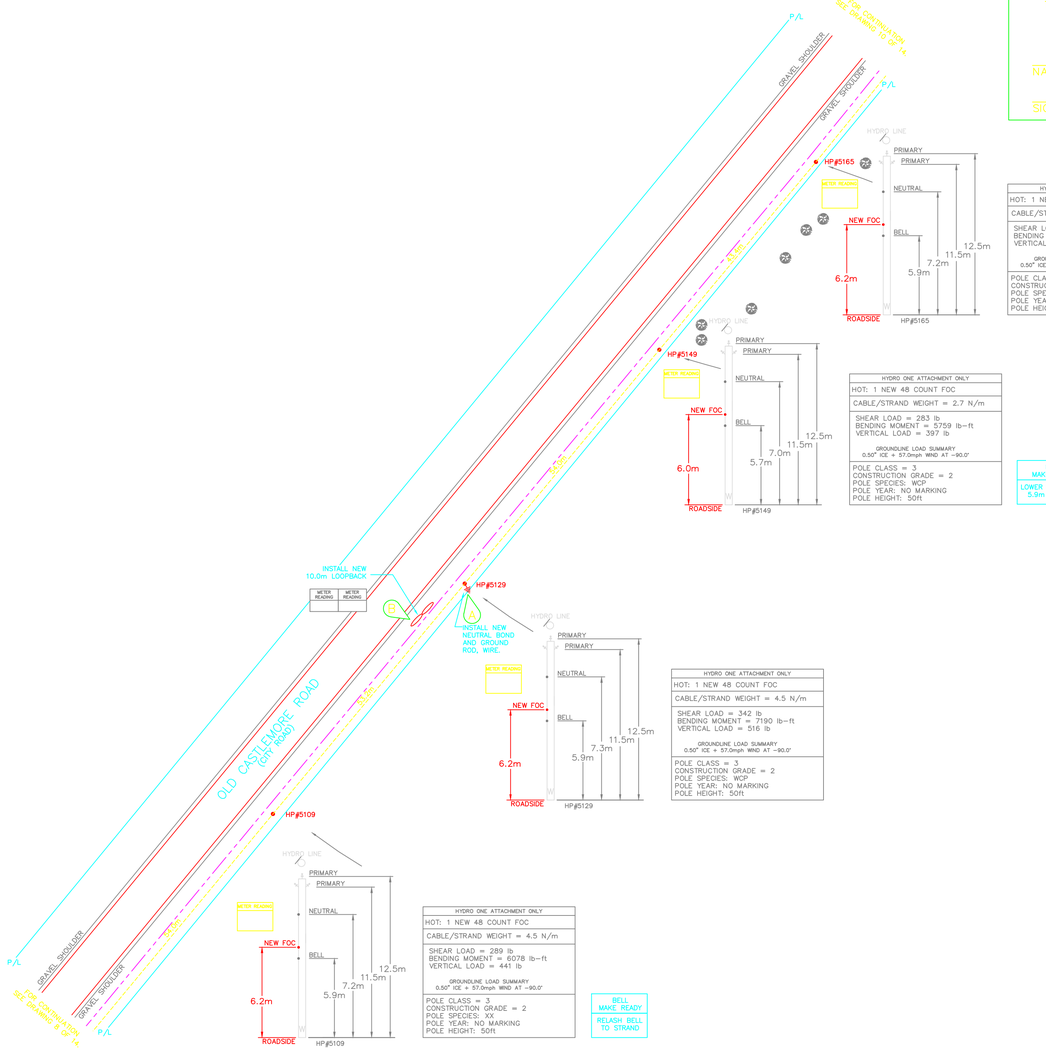
B — CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



C — ANCHOR DETAIL
SCALE: N.T.S.



D — CABLE RISER DETAIL
SCALE: N.T.S.



HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 278 lb BENDING MOMENT = 5834 lb-ft VERTICAL LOAD = 391 lb
GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT =90.0°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: WCP POLE YEAR: NO MARKING POLE HEIGHT: 50ft

HYDRO MAKE READY
RECONNECT NEUTRAL TO POLE ATTACHMENT

HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 283 lb BENDING MOMENT = 5759 lb-ft VERTICAL LOAD = 397 lb
GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT =90.0°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: WCP POLE YEAR: NO MARKING POLE HEIGHT: 50ft

BELL MAKE READY
LOWER BELL FROM 5.9m TO 5.7m

HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 4.5 N/m
SHEAR LOAD = 342 lb BENDING MOMENT = 7190 lb-ft VERTICAL LOAD = 516 lb
GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT =90.0°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: WCP POLE YEAR: NO MARKING POLE HEIGHT: 50ft

HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 4.5 N/m
SHEAR LOAD = 289 lb BENDING MOMENT = 6078 lb-ft VERTICAL LOAD = 441 lb
GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT =90.0°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: XX POLE YEAR: NO MARKING POLE HEIGHT: 50ft

BELL MAKE READY
RELASH BELL TO STRAND

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

RECORD OF INSPECTION BY CONTRACTOR

AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

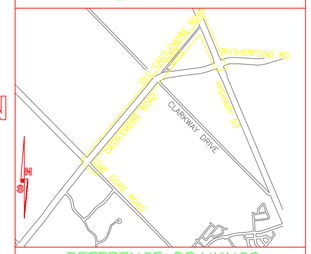
THE DESIGN CONFORMS TO CSA 22.3 NO.1-06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)

LICENSED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications
Hydro One Telecom Inc.
65 Keffield Street
Rexdale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #: 9H005007P	SCALE: 1:500
APPROVED BY:	DATE: 05/20/09	DWG 9 OF 14
DRAWING NUMBER:		

CONSTRUCTION NOTES

1 2 — OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2 3 4 5 — INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

INSTALL 5405.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A — INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B — INSTALL NEW 10.0m LOOPBACK.

C — INSTALL NEW DOWNGUY AND ANCHOR. (9)

D — INSTALL NEW RISER C/W U-GUARD. (12)

E — INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F — INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
THE CITY OF BRAMPTON OF PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 KELFIELD STREET
REXDALE, ONT. M9W 5A3
PHONE: (416) 240-6701
FAX: (416) 240-6780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydroone.com

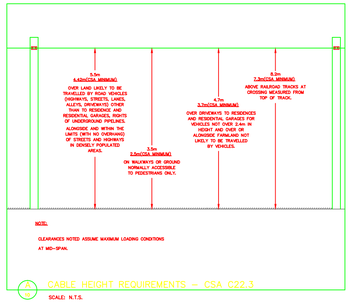
ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12	46000lbs

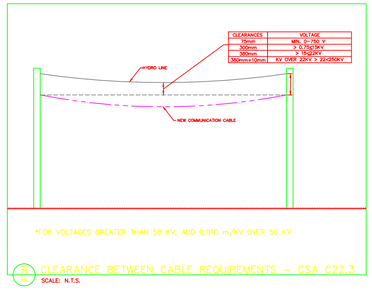
CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON -20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES AERIAL DESIGN AND CONSTRUCTION

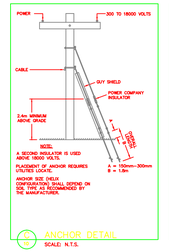
1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE
   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.



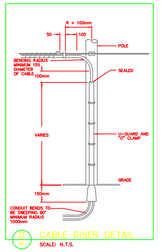
A — CABLE HEIGHT REQUIREMENTS — CSA C22.3
SCALE: N.T.S.



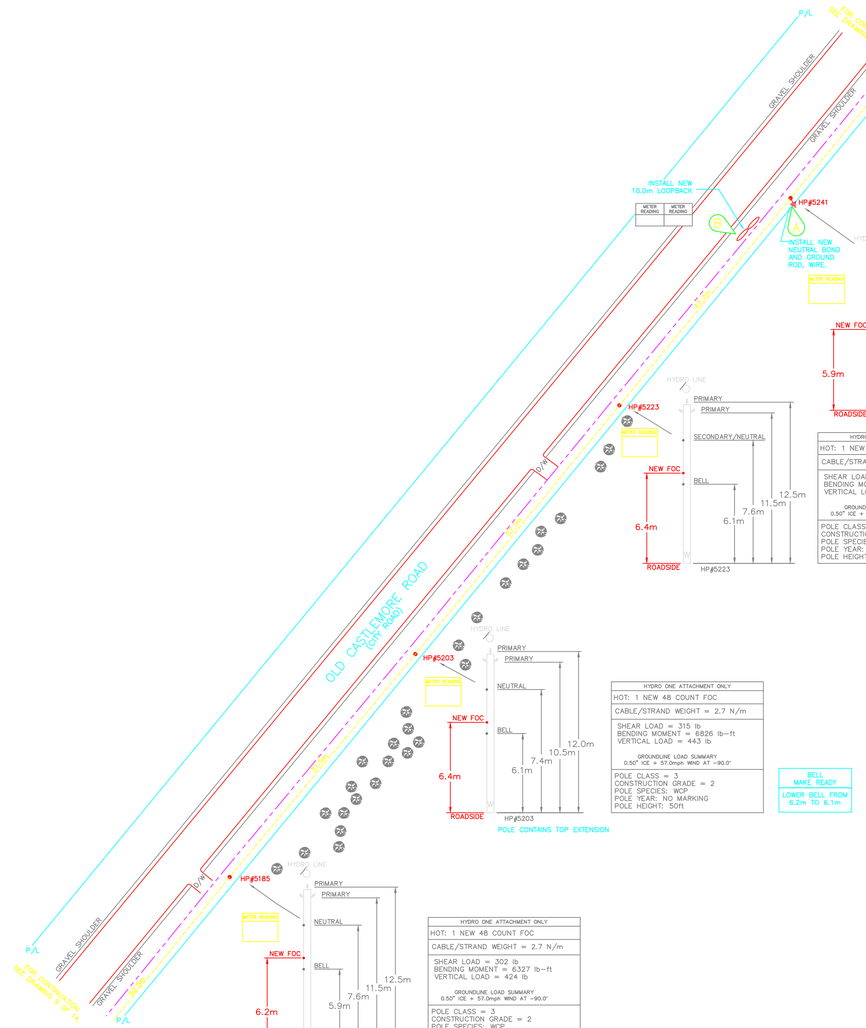
B — CLEARANCE BETWEEN CABLE REQUIREMENTS — CSA C22.3
SCALE: N.T.S.



C — ANCHOR DETAIL
SCALE: N.T.S.



D — CABLE RISER DETAIL
SCALE: N.T.S.



RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

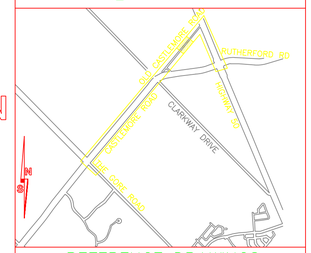
THE DESIGN CONFORMS TO CSA 22.3 NO 1-06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: DATE:

SIGNATURE OF APPROVAL:

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)

LICENSED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications

Hydro One Telecom Inc.
65 Kelfield Street
Rexdale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #:	SCALE:
	9H005007P	1:500
APPROVED BY:	DATE: 05/20/09	DWG 10 OF 14
DRAWING NUMBER:		

CONSTRUCTION NOTES

1 2 — OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2 3 4 5 — INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

4 5 — INSTALL 540.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A — INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B — INSTALL NEW 10.0m LOOPBACK.

C — INSTALL NEW DOWNGUY AND ANCHOR.

D — INSTALL NEW RISER C/W U-GUARD.

E — INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F — INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
THE CITY OF BRAMPTON AS PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 KELFIELD STREET
REXDALE, ONT. M9W 5A3
PHONE: (416) 240-8701
FAX: (416) 240-8780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydroone.com

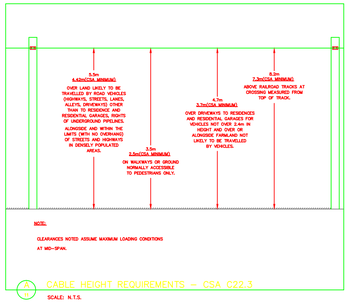
ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12"	46000lbs

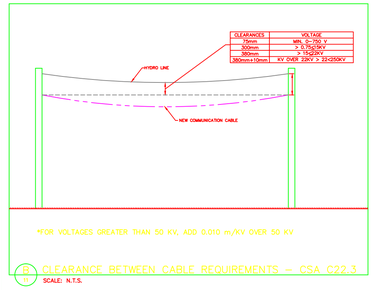
CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON -20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES AERIAL DESIGN AND CONSTRUCTION

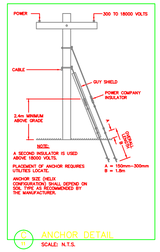
1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE
   - OCCUPATIONAL HEALTH AND SAFETY ACT.
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.



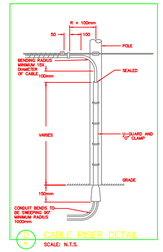
A — CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



B — CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



C — ANCHOR DETAIL
SCALE: N.T.S.



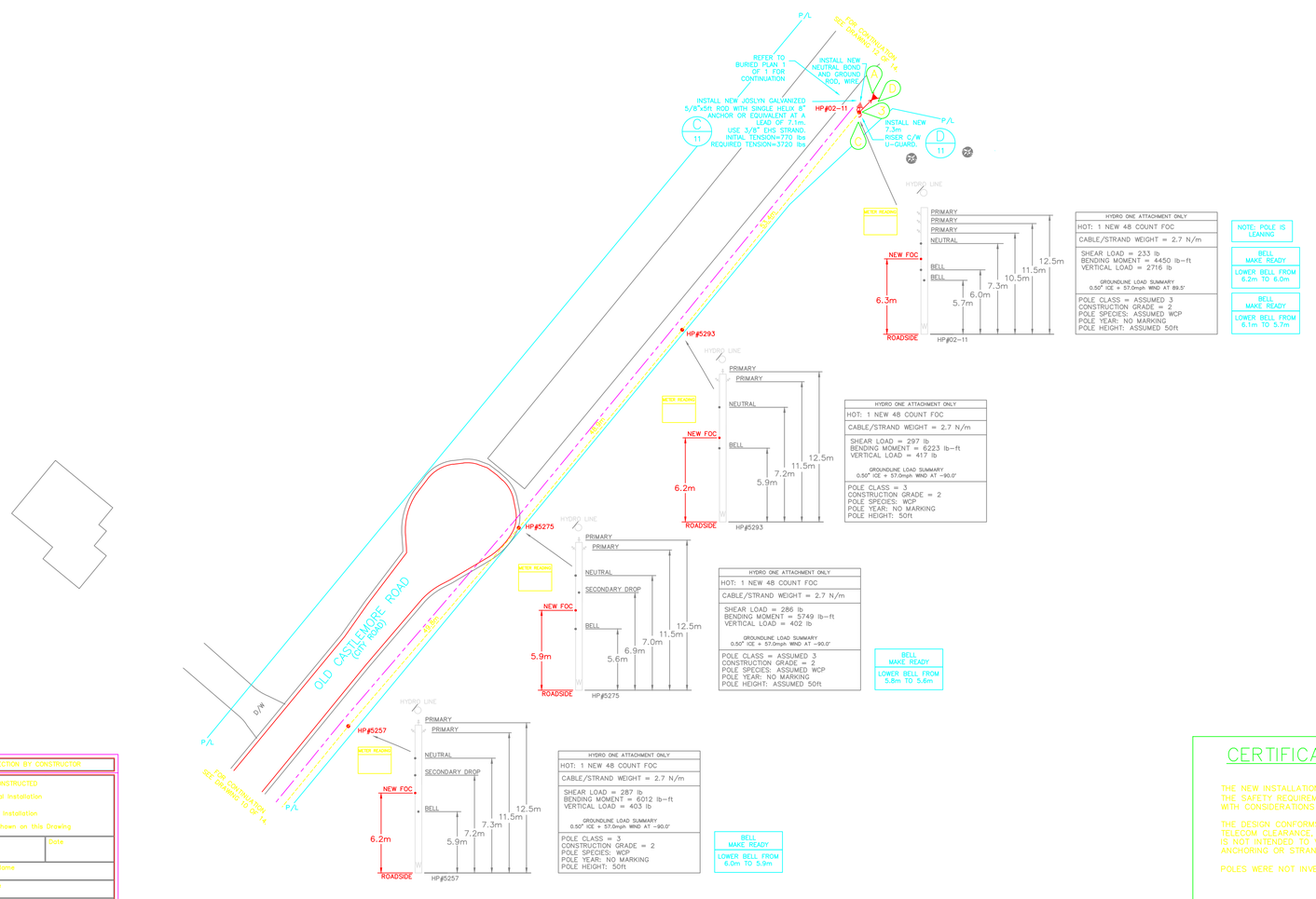
D — CABLE RISER DETAIL
SCALE: N.T.S.

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____



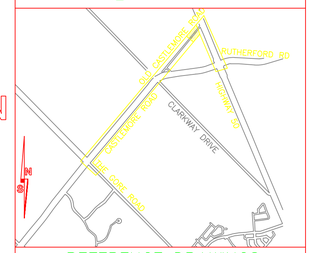
RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
☐ Aerial installation
☐ U/G installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YG

LICENCED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

THE DESIGN CONFORMS TO CSA 22.3 NO.1–06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

hydro one
Hydro One Telecommunications
Hydro One Telecom Inc.
65 Kelfield Street
Rexdale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #:	SCALE:
	9HOD5007P	1:500
APPROVED BY:	DATE:	DWG 11 OF 14
	05/20/09	

DRAWING NUMBER:

CONSTRUCTION NOTES

1 2 — OVERLASH 108.8m OF 1–48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2 3 4 5 — INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1–48 COUND FIBER OPTIC CABLE.

INSTALL 5465.3m OF NEW 1/4" EHS STRAND. LASH 1–48 COUND FIBER OPTIC CABLE.

A — INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B — INSTALL NEW 10.0m LOOPBACK.

C — INSTALL NEW DOWNGUY AND ANCHOR. (C 12)

D — INSTALL NEW RISER C/W U-GUARD. (D 12)

E — INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F — INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 KOLFIELD STREET
KENDALE, ONT, M9W 5A3
PHONE: (416) 240–8701
FAX: (416) 240–8780
CELL: (647) 287–3007
EMAIL: Ian.mitchell@hydrone.com

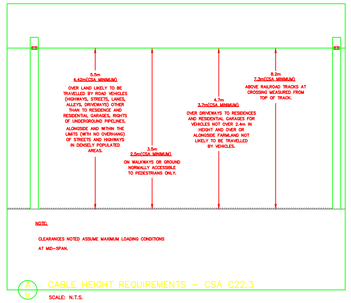
ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"–10"–12"	46000lbs

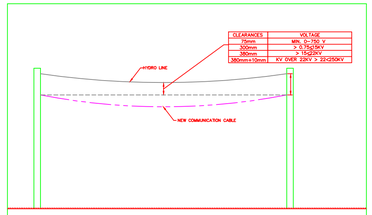
CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON −20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES AERIAL DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE
   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1–06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U–GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7–WIRE ZINC COATED, OR 3/8" EHS STRAND, 7–WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

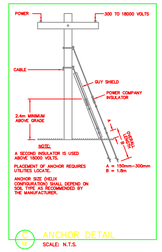


A — CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.

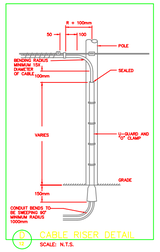


*FOR VOLTAGES GREATER THAN 50 KV, ADD 0.010 m/KV OVER 50 KV

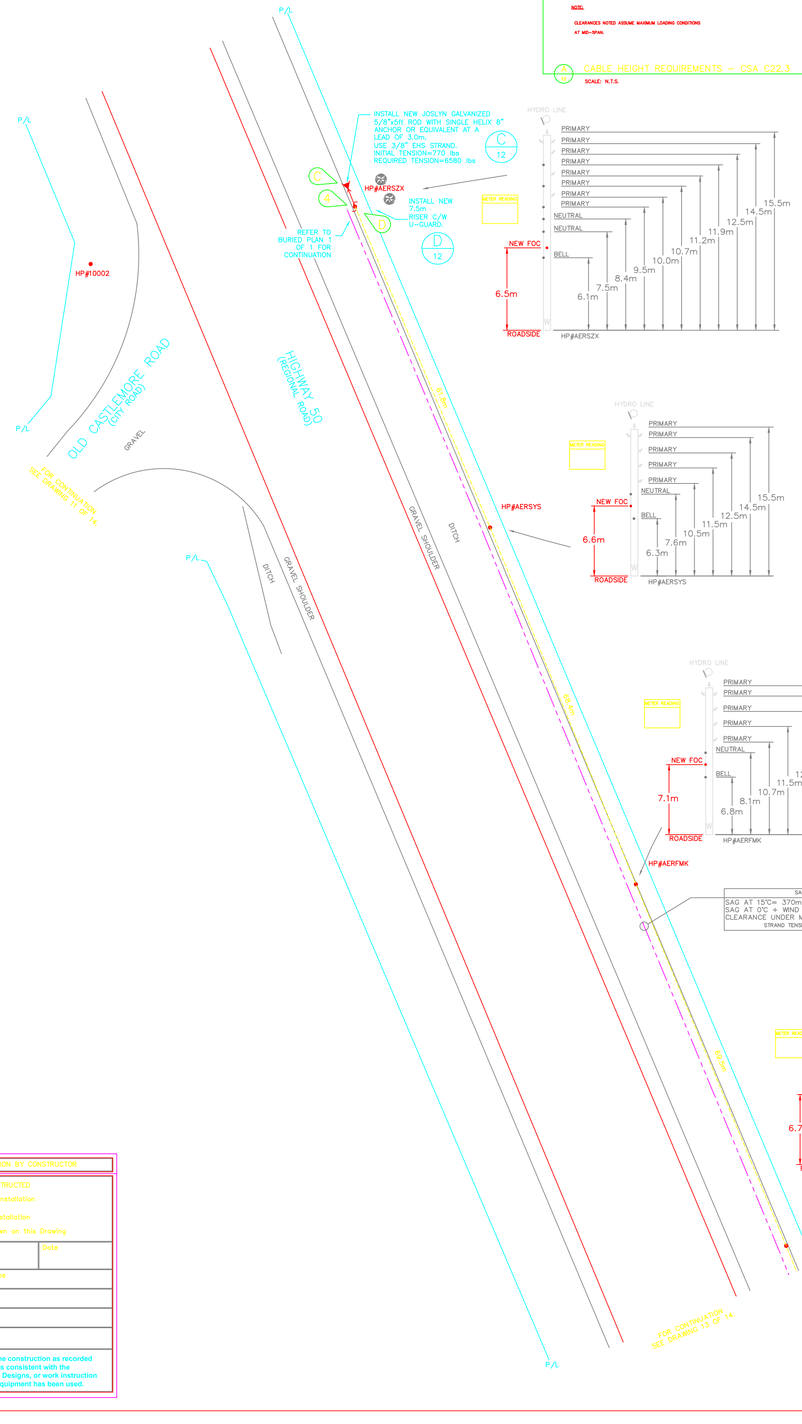
B — CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



A — ANCHOR DETAIL
SCALE: N.T.S.



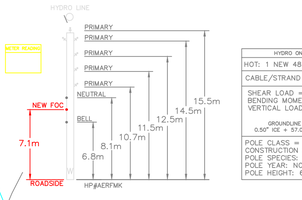
B — CABLE RISER DETAIL
SCALE: N.T.S.



HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 589 lb BENDING MOMENT = 10745 lb–ft VERTICAL LOAD = 6268 lb GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT 86.1°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: SPP 30 POLE YEAR: NO MARKING POLE HEIGHT: 60ft

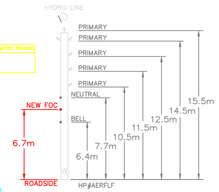
HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 379 lb BENDING MOMENT = 8483 lb–ft VERTICAL LOAD = 533 lb GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT −90.0°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: SPP POLE YEAR: NO MARKING POLE HEIGHT: 60ft

BELL MAKE READY
LOWER BELL FROM 6.6m TO 6.3m



HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 401 lb BENDING MOMENT = 9620 lb–ft VERTICAL LOAD = 564 lb GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT −90.0°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: SPP 30 POLE YEAR: NO MARKING POLE HEIGHT: 60ft

SAG INFORMATION
SAG AT 15°C= 370mm SAG AT 0°C + WIND & 12.7mm OF ICE= 1370mm CLEARANCE UNDER MAX LOAD= 5.5m STRAND TENSION AT 15°C= 4400N



HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 383 lb BENDING MOMENT = 8674 lb–ft VERTICAL LOAD = 538 lb GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT −90.0°
POLE CLASS = ? CONSTRUCTION GRADE = 2 POLE SPECIES: SPP POLE YEAR: NO MARKING POLE HEIGHT: 60ft

BELL MAKE READY
LOWER BELL FROM 6.7m TO 6.4m

RECORD OF INSPECTION BY CONSTRUCTOR

AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

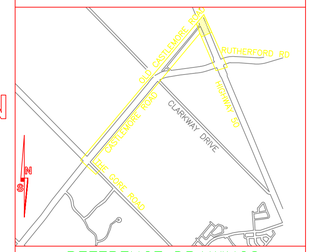
THE DESIGN CONFORMS TO CSA 22.3 NO 1–06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION; IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# BMTN–(CABLE I.D.)–(FIBRE COUNT)

LICENCED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications
Hydro One Telecom Inc.
65 Kolfield Street
Kendale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #: 9H005007P	SCALE: 1:500
APPROVED BY:	DATE: 05/20/09	DWG 12 OF 14
DRAWING NUMBER:		

CONSTRUCTION NOTES

1 2 — OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.

2 3 — INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

4 5 — INSTALL 5465.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A — INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.

B — INSTALL NEW 10.0m LOOPBACK.

C — INSTALL NEW DOWNGUY AND ANCHOR. (12)

D — INSTALL NEW RISER C/W U-GUARD. (13)

E — INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.

F — INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
THE CITY OF BRAMPTON, GIS PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REDION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 KOLFING STREET
RENDALE, ONT, M9W 5A3
PHONE: (416) 240-6701
FAX: (416) 240-6700
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydroone.com

ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12	46000lbs

CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON -20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES AERIAL DESIGN AND CONSTRUCTION

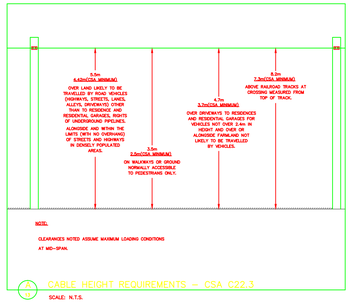
1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE, WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE
   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

RECORD OF INSPECTION BY CONSTRUCTOR

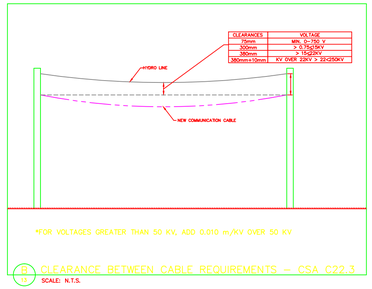
AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.



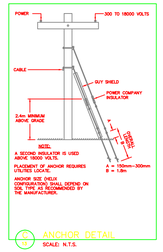
A1 CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



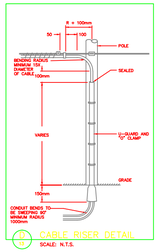
CLEARANCES	VOLTAGE
75mm	MIN. 0~750 V
300mm	> 0.75~5kV
750mm	> 5kV~50kV
300mm+10mm	KV OVER 50KV X 22=250KV

*FOR VOLTAGES GREATER THAN 50 KV, ADD 0.010 m/KV OVER 50 KV

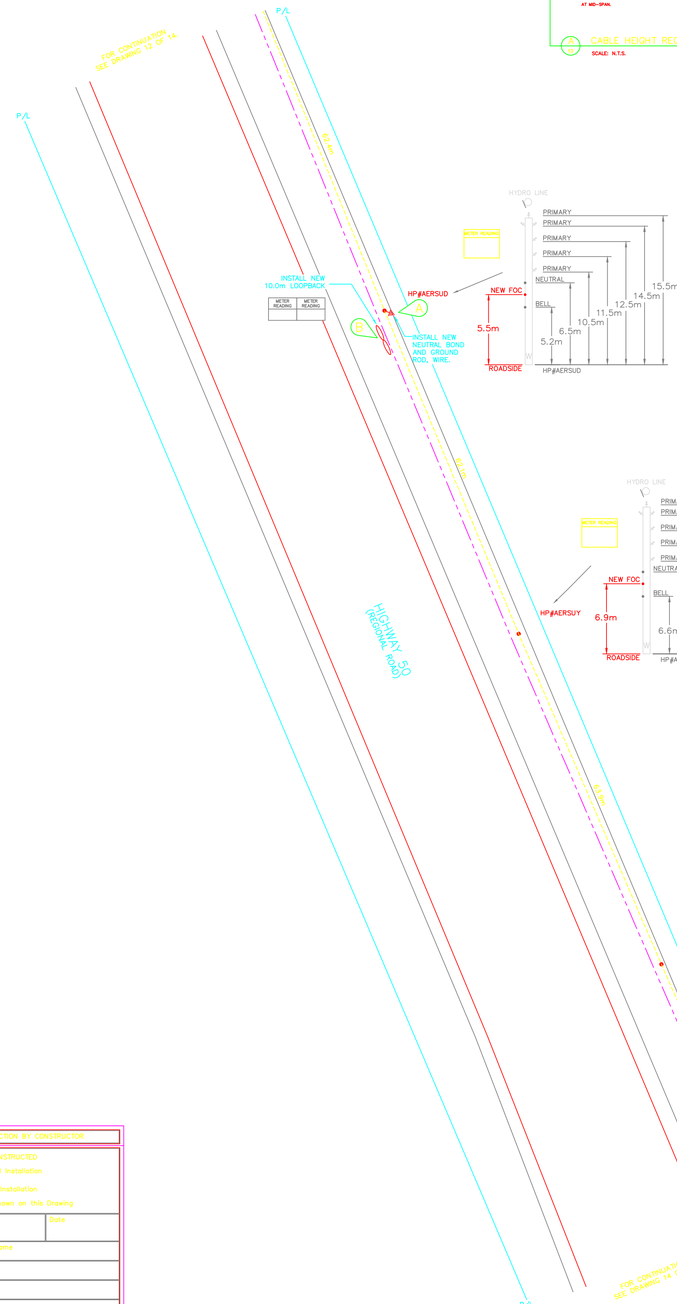
B1 CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



C1 ANCHOR DETAIL
SCALE: N.T.S.



D1 CABLE RISER DETAIL
SCALE: N.T.S.



HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

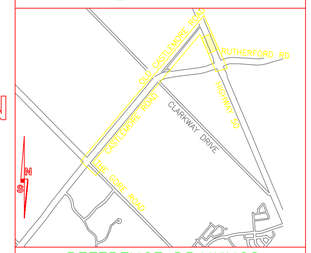
THE DESIGN CONFORMS TO CSA 22.3 NO.1-06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, GUYING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: DATE:

SIGNATURE OF APPROVAL:

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)

LICENSED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications
Hydro One Telecom Inc.
65 Kolfing Street
Rexdale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #:	SCALE:
	9H005007P	1:500
APPROVED BY:	DATE:	DWG 13 OF 14
	05/20/09	

DRAWING NUMBER:

CONSTRUCTION NOTES

1. OVERLASH 108.8m OF 1-48 COUNT FIBER OPTIC CABLE ON EXISTING ASSUMED 1/4" EHS HOT STRAND.
2. INSTALL 2187.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.
3. INSTALL 5405.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.
4. INSTALL 5405.3m OF NEW 1/4" EHS STRAND. LASH 1-48 COUND FIBER OPTIC CABLE.

A. INSTALL NEW NEUTRAL BOND AND GROUND ROD, AND WIRE.
B. INSTALL NEW 10.0m LOOPBACK.
C. INSTALL NEW DOWNGUY AND ANCHOR.
D. INSTALL NEW RISER C/W U-GUARD.
E. INSTALL NEW HYDRO ONE SPLICE ENCLOSURE.
F. INSTALL NEW 1/4" OVERHEAD GUY.

SCOPE OF WORK

NEW OVERHEAD GUY	3=61.5m
NEW DOWNGUY AND ANCHOR	9
NEW 48 COUNT FIBER OPTIC CABLE	2996.2m
NEW OVERLASH	108.8m
NEW LASHWIRE	8524.2m
NEW 1/4" EHS STRAND	2732.6m
NEW CATV MAKE READY	3
NEW HOT MAKE READY	1
NEW BELL MAKE READY	12
NEW HYDRO MAKE READY	2
NEW RISER C/W U-GUARD	2
NEW SPLICE ENCLOSURE	1
NEW GROUND ROD AND WIRE	11=110.0m

NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
THE CITY OF BRAMPTON AS-BUILT PLANS PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 ROUPELL STREET
PICKOALE, ONT, M1W 3A3
PHONE: (416) 240-4701
FAX: (416) 240-4780
CELL: (647) 287-3007
EMAIL: Ian.mitchell@hydroone.com

ANCHOR SPECIFICATIONS

ANCHOR TYPE	ANCHOR STRENGTH
SINGLE HELIX 8"	14000lbs
SINGLE HELIX 10"	20000lbs
SINGLE HELIX 12"	25000lbs
SINGLE HELIX 14"	31000lbs
TRIPLE HELIX, 8"-10"-12"	46000lbs

CALCULATION FOR REQUIRED STRENGTH OF ANCHOR IS BASED ON -20° WITH 0.5" OF ICE AND SOIL CLASS 4 (MEDIUM DENSE SANDY GRAVEL, VERY STIFF TO HARD SILTS AND CLAYS).

GENERAL NOTES
AERIAL DESIGN AND CONSTRUCTION

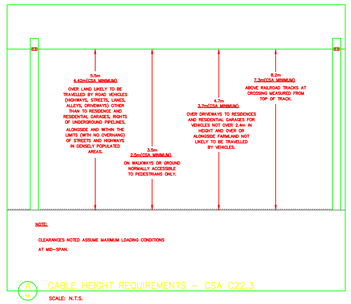
1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE.
   - OCCUPATIONAL HEALTH AND SAFETY ACT.
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 1-06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
4. ALL BOLTS MUST PROVIDE FOR 25mm OF EXPOSED THREAD.
5. ASSUME SOIL CONDITIONS AT ANCHOR POINT ARE AS FOLLOWS:
   - MEDIUM DENSE SANDY GRAVEL; VERY STIFF TO HARD SILTS AND CLAYS.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. SAGS & CLEARANCES ARE CHECKED AND CALCULATED FOR NEW ATTACHMENTS ONLY.
8. POLES NOT CHECKED FOR OVERALL LOADING. ADDITIONAL APPLIED LOADS ARE SHOWN ON THIS DRAWING DUE TO NEW ATTACHMENTS ONLY.
9. THE CONTRACTOR SHALL ENSURE THAT THE COMMUNICATION STRAND OR MESSENGER IS BONDED TO THE DISTRIBUTION SYSTEM NEUTRAL AT EVERY DIP LOCATION & EVERY 300 METRES.
10. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
11. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE, INCLUDING: DRIP LOOPS, ENDS OF LOOPBACKS & DIPS ABOVE U-GUARDS.
12. AERIAL STRAND SHALL BE 1/4" EHS STRAND, 7-WIRE ZINC COATED, OR 3/8" EHS STRAND, 7-WIRE ZINC COATED, UNLESS NOTED OTHERWISE.
13. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
14. POLES WERE NOT VERIFIED FOR DECAY, OR DEFICIENCIES DUE TO THE INSTALLATION OF EXISTING ATTACHMENTS.
15. CONTRACTOR TO CONTACT THE ENGINEER IF THE HYDRO LINE ABOVE THE NEW ATTACHMENT HAS A SAG LARGER THAN 1000mm OR IF THE VOLTAGE IS HIGHER THAN 750V.
16. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
17. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES, ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
18. ALL THE MATERIAL AND EQUIPMENT TO BE ESA AND CSA APPROVED.
19. CONTRACTOR TO USE DOWNGUY SPLITTERS AS REQUIRED IN ORDER TO AVOID CONTACT WITH POWER LINES.
20. ANALYSIS WAS PERFORMED USING THE DETERMINISTIC METHOD ASSUMING THAT THE HIGHEST VOLTAGE OF ANY OF THE EXISTING SUPPLY LINES IS LESS THAN 70 KV PHASE TO PHASE.
21. WHERE EXISTING COMMUNICATIONS ATTACHMENTS ARE SHOWN TO BE RELOCATED, THE THIRD PARTY OWNER OF THE ATTACHMENT MUST BE CONTACTED TO REVIEW AND ENSURE MINIMUM CLEARANCES ARE MAINTAINED IN ACCORDANCE WITH APPLICABLE STANDARDS.

RECORD OF INSPECTION BY CONSTRUCTOR

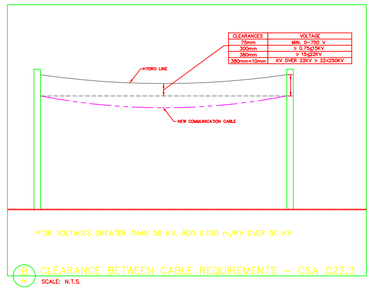
AS CONSTRUCTED
☐ Aerial Installation
☐ U/G Installation
With changes shown on this Drawing

Attachment Owner	Permit #	Date
	Company Name	
	Print Name	
	Position	
	Signature	

☐ 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 approved equipment has been used.



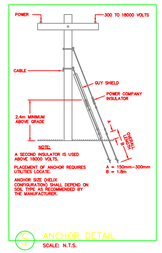
1 / 14 CABLE HEIGHT REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



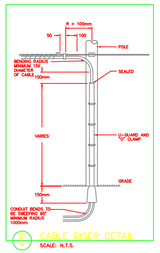
CLEARANCES	VOLTAGE
75mm	MIN. 0-750 V
300mm	> 0.75-15kV
760mm	> 15-22kV
300mm+10mm	KV OVER 22KV X 22=250KV

*FOR VOLTAGES GREATER THAN 50 KV, ADD 0.010 m/KV OVER 50 KV

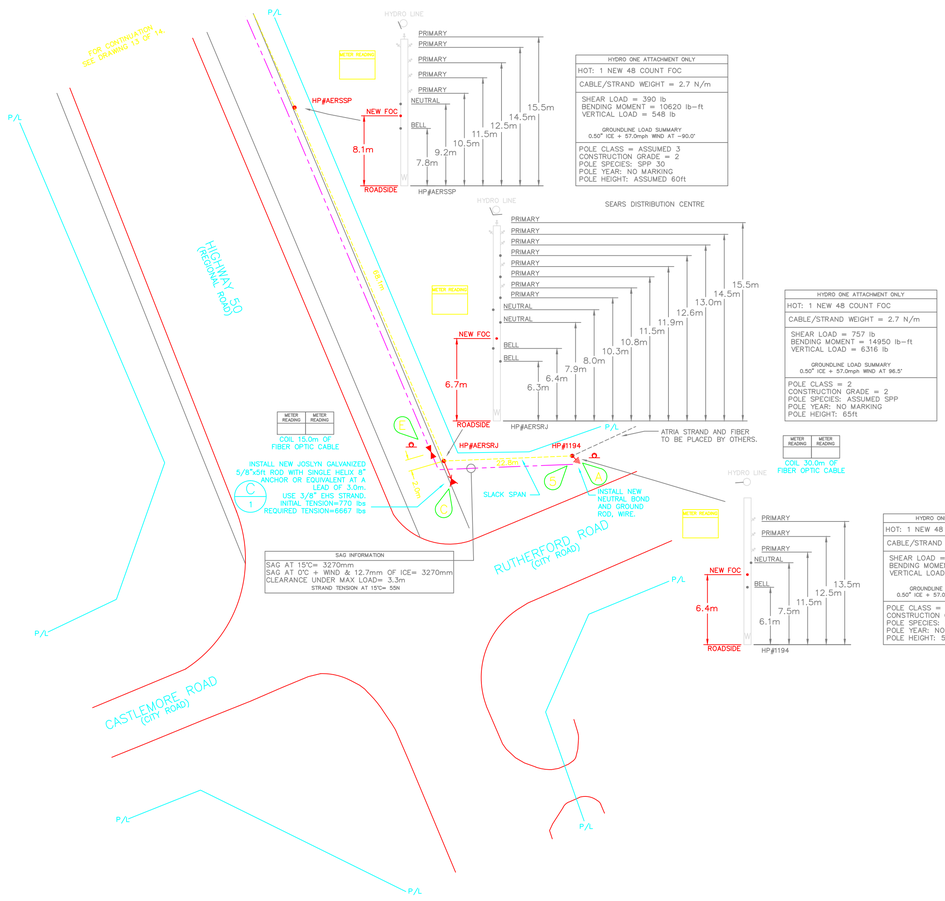
2 / 14 CLEARANCE BETWEEN CABLE REQUIREMENTS – CSA C22.3
SCALE: N.T.S.



3 / 14 ANCHOR DETAIL
SCALE: N.T.S.



4 / 14 CABLE RISER DETAIL
SCALE: N.T.S.



HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 390 lb BENDING MOMENT = 10620 lb-ft VERTICAL LOAD = 548 lb
GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT -90.0°
POLE CLASS = ASSUMED 3 CONSTRUCTION GRADE = 2 POLE SPECIES: SPP 30 POLE YEAR: NO MARKING POLE HEIGHT: ASSUMED 60ft

HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 757 lb BENDING MOMENT = 14950 lb-ft VERTICAL LOAD = 6316 lb
GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT 96.5°
POLE CLASS = 2 CONSTRUCTION GRADE = 2 POLE SPECIES: ASSUMED SPP POLE YEAR: NO MARKING POLE HEIGHT: 65ft

HYDRO ONE ATTACHMENT ONLY
HOT: 1 NEW 48 COUNT FOC
CABLE/STRAND WEIGHT = 2.7 N/m
SHEAR LOAD = 150 lb BENDING MOMENT = 3157 lb-ft VERTICAL LOAD = 93 lb
GROUNDLINE LOAD SUMMARY 0.50" ICE + 57.0mph WIND AT 168.6°
POLE CLASS = 3 CONSTRUCTION GRADE = 2 POLE SPECIES: WCP POLE YEAR: NO MARKING POLE HEIGHT: 55ft

HYDRO ONE TELECOM ATTACHMENT CERTIFICATE

THIS IS TO CERTIFY THAT THE CONSTRUCTION AS RECORDED IN THIS DRAWING MEETS THE APPLICABLE REQUIREMENTS OF THE SAFETY STANDARDS IN PART 4 OF REGULATION 22/04.

NAME _____ DATE _____

SIGNATURE & PROFESSIONAL DESIGNATION _____

CERTIFICATE OF APPROVAL

THE NEW INSTALLATION WORK COVERED BY THIS DOCUMENT MEETS THE SAFETY REQUIREMENTS OF SECTION 4 OF REGULATION 22/04, WITH CONSIDERATIONS OF THE FOLLOWING:

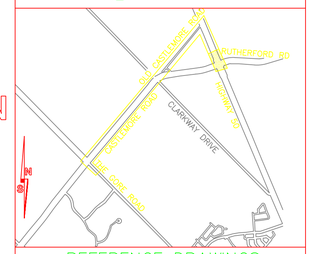
THE DESIGN CONFORMS TO CSA 22.3 NO.1-06 FOR HYDRO ONE TELECOM CLEARANCE, SEPARATION, SAGGING AND STRAND TENSION. IT IS NOT INTENDED TO VERIFY THE INTEGRITY OF ATTACHMENTS, ANCHORING OR STRAND TENSIONS OF OTHERS, OR POLE STRENGTH.

POLES WERE NOT INVESTIGATED FOR DEFECTS/ROT.

NAME: _____ DATE: _____

SIGNATURE OF APPROVAL: _____

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
EXISTING POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
NEW DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# BMTN-(CABLE I.D.)-(FIBRE COUNT)

LICENSED PROFESSIONAL ENGINEER
J.M. QUINTERO IRIARTE
100079833
PROVINCE OF ONTARIO

FOR NEW CABLE ATTACHMENT TO HYDRO POLE ONLY, INCLUDING:
TENSIONING FOR CLEARANCES AND NEW CABLE LOADS

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications
Hydro One Telecom Inc.
65 Roupell Street
Pickering, Ontario, M1W 3A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

CASTLEMORE RD – THE GORE RD TO HWY 50
CITY OF BRAMPTON

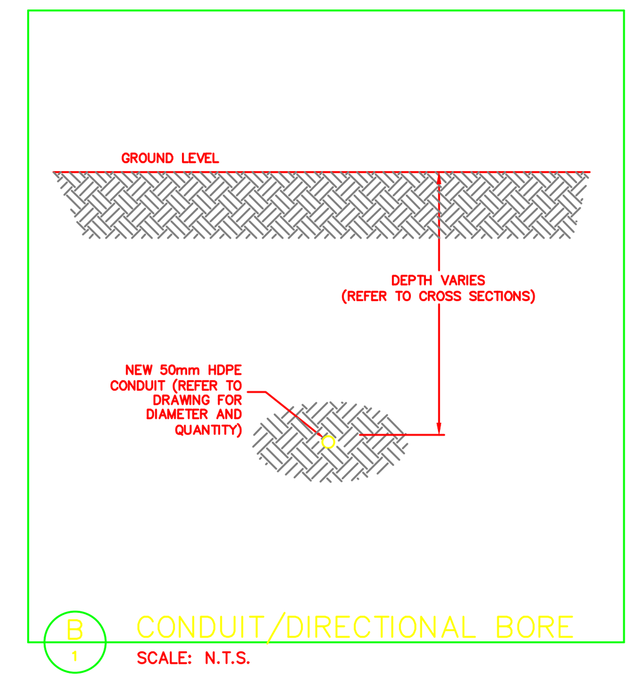
PROJECT #:	CONTRACTOR #:	SCALE:
	9H005007P	1:500
APPROVED BY:	DATE: 05/20/09	DWG 14 OF 14
DRAWING NUMBER:		

CONSTRUCTION NOTES

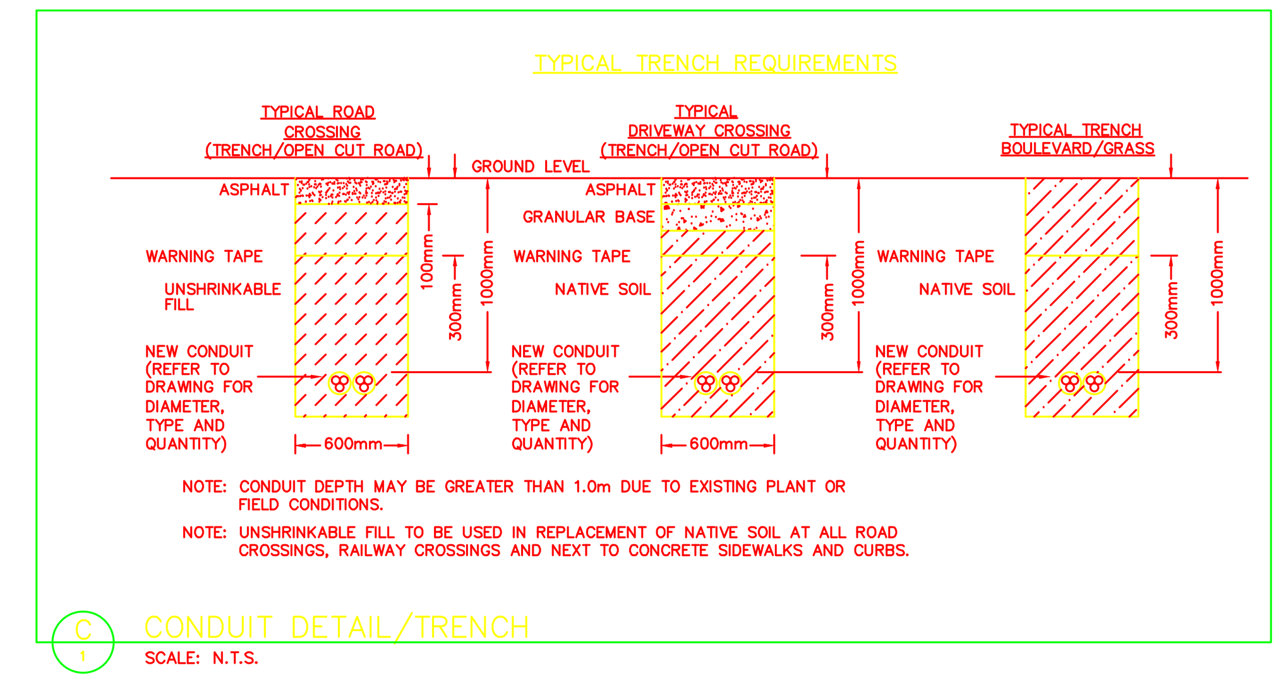
1–2: DIRECTIONAL BORE 100.2m AND INSTALL 1–38mm HDPE CONDUIT WITH 1–48 COUNT FIBER OPTIC CABLE. PLACE TRACE WIRE.

SCOPE OF WORK

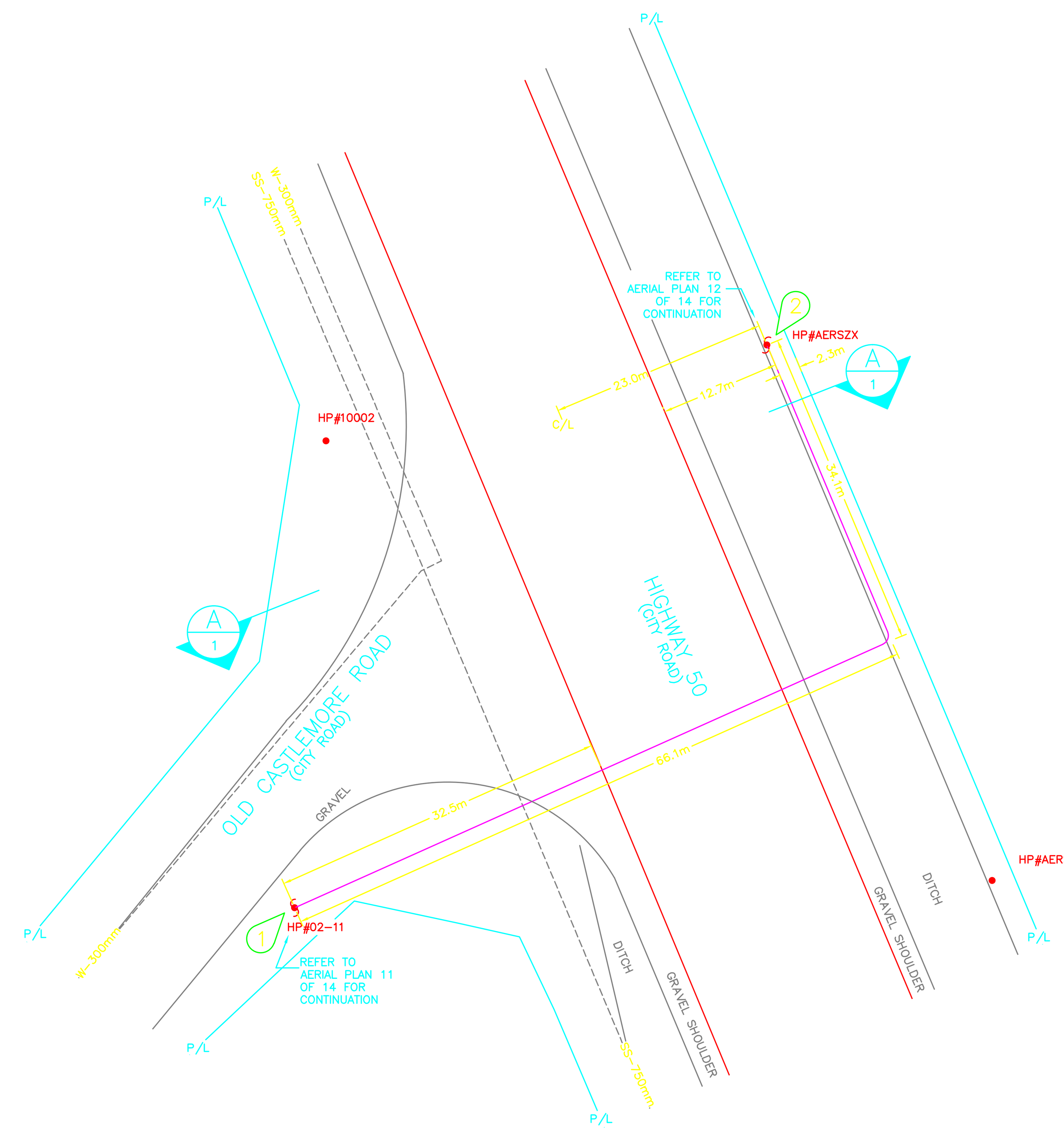
NEW 48 COUNT FIBER OPTIC CABLE	100.2m
NEW 38mm HDPE CONDUIT	100.2m
NEW DIRECTIONAL BORE	100.2m



B/1 CONDUIT/DIRECTIONAL BORE
SCALE: N.T.S.



C/1 CONDUIT DETAIL/TRENCH
SCALE: N.T.S.



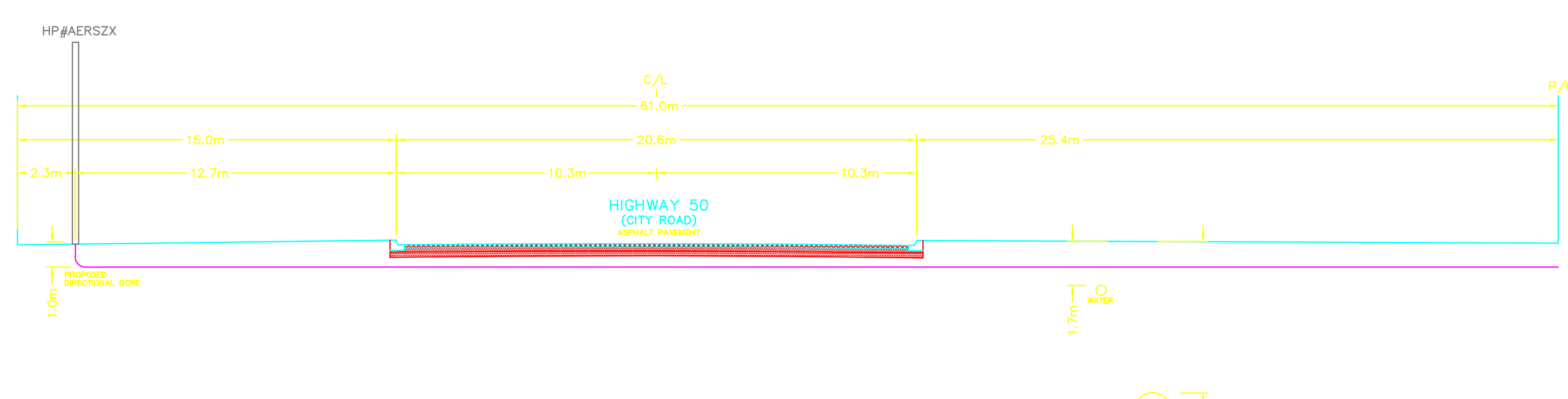
NOTE:
INFORMATION WAS OBTAINED FROM DRAWINGS SUPPLIED BY:
1. PHOTOCOPIES OF PLAN AND PROFILE PROVIDED BY THE CITY OF BRAMPTON AND REGION OF PEEL.

HYDRO ONE TELECOM CONTACT
IAN MITCHELL
HYDRO ONE TELECOM INC
65 KELFIELD STREET
REXDALE, ONT, M9W 5A3
PHONE: (416) 240-6701
FAX: (416) 240-6790
CELL: (647) 287-3007
EMAIL: ian.mitchell@hydroone.com

NOTE:
1. DO NOT EXCAVATE OR DISTURB EXISTING GROUND SURFACES PRIOR TO OBTAINING LOCATES AND CLEARANCES FOR ALL EXISTING SERVICES, INCLUDING SERVICES ON PRIVATE PROPERTY.
2. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.

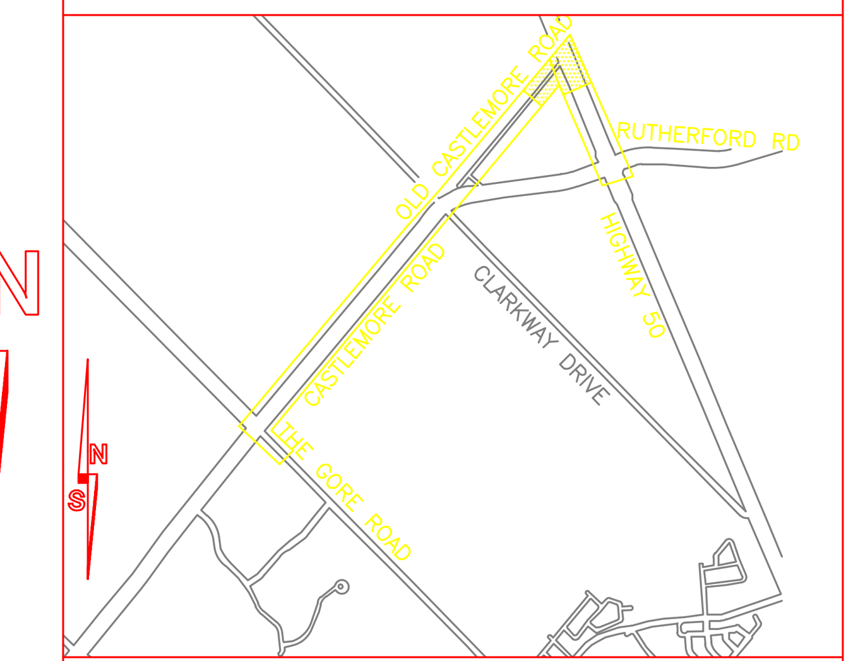
GENERAL NOTES UNDERGROUND DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
   - OHSC WORK PROTECTION CODE
   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 7-06.
2. TAKE THE NECESSARY PRECAUTIONS TO PROTECT THE EXISTING INSTALLATION FROM DAMAGE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL THE CLAIMS DUE TO DAMAGE.
3. ALL DIMENSIONS MUST BE VERIFIED ON SITE BEFORE WORK COMMENCES.
4. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS.
5. ALL REVISIONS MUST BE MADE PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE CONDITIONS, CLEARANCES AND DIMENSIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH WORK.
7. VISIT THE SITE TO CHECK ON AVAILABLE ACCESS, STORAGE AND WORKING AREAS. DETERMINE ANY INTERFERENCE WITH EXISTING SERVICES.
8. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE IN MANHOLES OR HANDHOLES.
9. ALL DUCT BENDS ARE SWEEP 90 DEGREES, MINIMUM RADIUS IS 300mm.
10. DO NOT EXCAVATE OR DISTURB EXISTING GROUND SURFACES PRIOR TO OBTAINING LOCATES AND CLEARANCES FOR ALL EXISTING SERVICES, INCLUDING SERVICES ON PRIVATE PROPERTY.
11. LOCATIONS AND DETAILS SHOWN ON THIS DRAWING ARE BASED ON THE BEST INFORMATION AVAILABLE AT TIME OF SURVEY. CONFIRM ALL LOCATIONS, CLEARANCES, AND INTERFERENCES ON SITE PRIOR TO BEGINNING WORK.
12. MAKE GOOD ALL EXISTING FINISHES WHEN WORK IS COMPLETE.
13. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVE GROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.



A/1 CROSS SECTION
SCALE 1:200

KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

- NEW FIBER
- NEW STRAND
- OVERLASH
- EXISTING CONDUIT
- UNDERGROUND GAS LINE — G
- UNDERGROUND WATER — W
- UNDERGROUND HYDRO — BP
- UNDERGROUND BELL — BC
- UNDERGROUND CATV — BC
- STORM SEWER — ST
- SANITARY SEWER — SS
- PROPERTY LINE — P/L
- FENCE
- DITCH
- EDGE OF PAVEMENT — E/P
- CURB
- GRAVEL SHOULDER
- NEW SPLICE
- EXISTING SPLICE
- VAULT
- BELL PEDESTAL
- CATV PEDESTAL
- TRANSFORMER
- CATCH BASIN
- WATER VALVE
- FIRE HYDRANT
- EXISTING POLE TO BE REMOVED
- STREET SIGN
- HYDRO POLE
- MANHOLE COVER
- MANHOLE & COVER
- LARGE ROCK
- TREE
- DIP LOCATION
- NEW DOWNGUY AND ANCHOR
- NEW SIDEWALK GUY

INTERNAL

- NEW INTERIOR FIBER
- NEW BACKBOARD
- EXISTING BACKBOARD
- NEW PATCH PANEL
- EXISTING PATCH PANEL
- NEW EQUIPMENT RACK
- EXISTING EQUIPMENT RACK
- NEW FIBER COIL

FIBER I.D.# BMTN–(CABLE I.D.)–(FIBRE COUNT)

DATE	REVISION	BY
05/20/2009	ISSUED FOR PERMIT	YC

Hydro One Telecommunications
Hydro One Telecom Inc.
65 Kelfield Street
Rexdale, Ontario, M9W 5A3

MAGNATE ENGINEERING AND ASSOCIATES INC.
18 Automatic Road, Suite 1C
Brampton, Ontario L6S 5N5
Telephone: (905) 799-8220

OLD CASTLEMORE RD & HWY 50
CITY OF BRAMPTON

PROJECT #:	CONTRACTOR #: 9H005007P	SCALE: 1:500
APPROVED BY:	DATE: 05/20/09	DWG 1 OF 1
DRAWING NUMBER:		

Hydro One Telecom Inc.
65 Kelfield Street
Rexdale, Ontario M9W 5A3
www.HydroOne.com

August 10, 2011

Attn: Nathalie Baudais, P.Eng.
Project Coordinator
HDR\iTRANS
100 York Blvd. Suite 300
Richmond Hill, ON L4B 1J8

RE: Notification of Potential Utility Impacts
Hwy 50, Castlemore Rd to Mayfield Rd
Mayfield Rd, Coleraine Dr to Hwy 50
Class Environmental Assessment Study

Hydro One Telecom has U/G fiber optic cable only at Castlemore Rd & Hwy 50 intersection, as per attached plans. No future work is planned in this area.

Please contact the undersigned should you have any questions or need additional information with regard to this project.

Yours truly,

B. Mahon

Barbara Mahon
PUCC Coordinator
Hydro One Telecom
Tel: 416-240-6842
Fax: 416-240-6790

GENERAL NOTES
UNDERGROUND DESIGN AND CONSTRUCTION

1. ALL CONSTRUCTION WORK SHALL BE IN CONFORMANCE WITH CANADIAN, PROVINCIAL AND ONTARIO HYDRO SERVICES COMPANY SAFETY REQUIREMENTS. THESE INCLUDE WITHOUT LIMITATION:
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   - OCCUPATIONAL HEALTH AND SAFETY ACT
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8. SPIRAL WRAP AND TAG ALL EXPOSED FIBER OPTIC CABLE IN MANHOLES OR HANDHOLES.

9. ALL DUCT BENDS ARE SWEEP 90 DEGREES, MINIMUM RADIUS IS 300mm.

10. DO NOT EXCAVATE OR DISTURB EXISTING GROUND SURFACES PRIOR TO OBTAINING LOCATES AND CLEARANCES FOR ALL EXISTING SERVICES, INCLUDING SERVICES ON PRIVATE PROPERTY.

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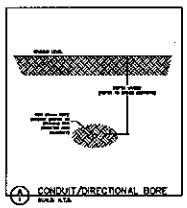
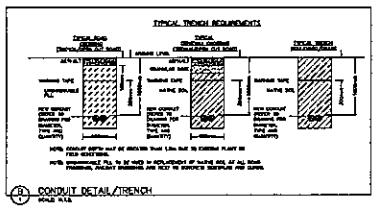
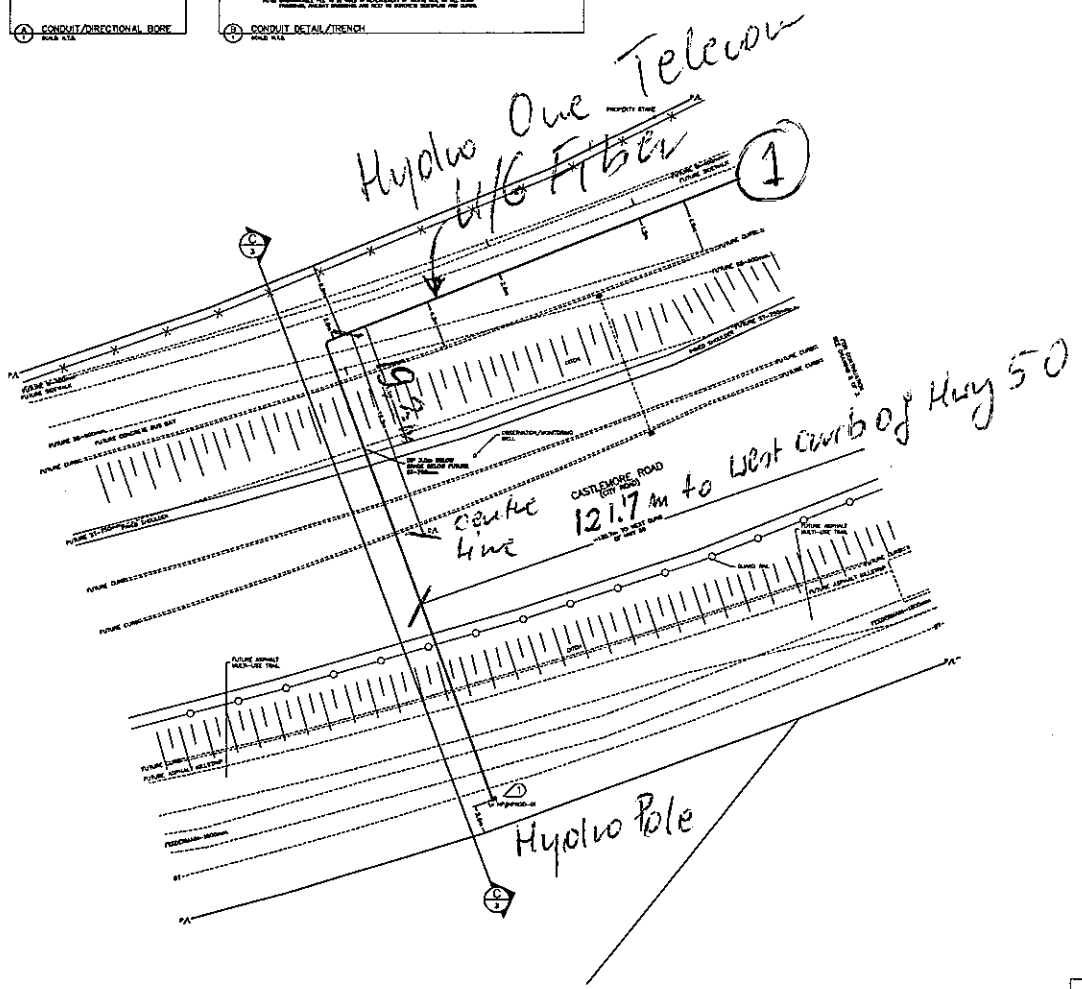


A CONDUIT/DIRECTIONAL BORE
SCALE: N.T.S.



B CONDUIT DETAIL/TRENCH
SCALE: N.T.S.



N
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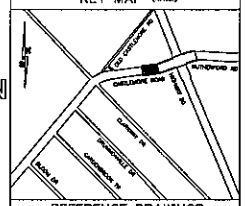
KEY MAP (N.T.S.)



REFERENCE DRAWINGS

CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	HP
UNDERGROUND BELL	BC
UNDERGROUND CATV	BC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	PA
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
DOWNGUY AND ANCHOR	
NEW SIDEWALK CUT	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER CBL	

FIBER I.D.# PATH-(CABLE I.D.)-(FIBRE COUNT)

DATE	REVISION	BY
04/05/11	MARKUPS	AS
10/19/10	MARKUPS	AS
09/23/10	REVISED DORC LOCATION	YC
09/03/10	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications

MAGNITE
GENIVAR

CASTLEMORE RD AND HWY 50
CITY OF BRAMPTON

PROJECT #	CONTRACT #	SCALE
	10400406R2	1:200
APPROVED BY:	DATE: 04/05/11	DWG 1 OF 3
DRAWING NUMBER:		

CONSTRUCTION NOTES

1 2 DIRECTIONAL BORE 227.0m AND INSTALL 1-36 HDPE CONDUIT WITH 1-48 COUNT FIBER OPTIC CABLE. PLACE RACK MKR.

SCOPE OF WORK

NEW 48 COUNT FIBER OPTIC CABLE	227.0m
NEW 36mm HDPE CONDUIT	227.0m
NEW DIRECTIONAL BORE	227.0m

NOTE:
THIS DRAWING WAS PREPARED BASED ON THE FOLLOWING INFORMATION:
1. PHOTOCOPIES OF PLAN AND PROFILE PROVIDED BY THE REGION OF PEEL. PLAN AND PROFILES NOT AVAILABLE FOR WHOLE WORK AREA.
2. ALL OTHER UTILITY DEPTHS ARE ASSUMED. CONTRACTOR TO VERIFY DEPTHS PRIOR TO CONSTRUCTION.

GENERAL NOTES
UNDERGROUND DESIGN AND CONSTRUCTION

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   - OCCUPATIONAL HEALTH AND SAFETY ACT
   - THIS DESIGN CONFORMS TO CSA STANDARD C22.3 NO. 7-10.
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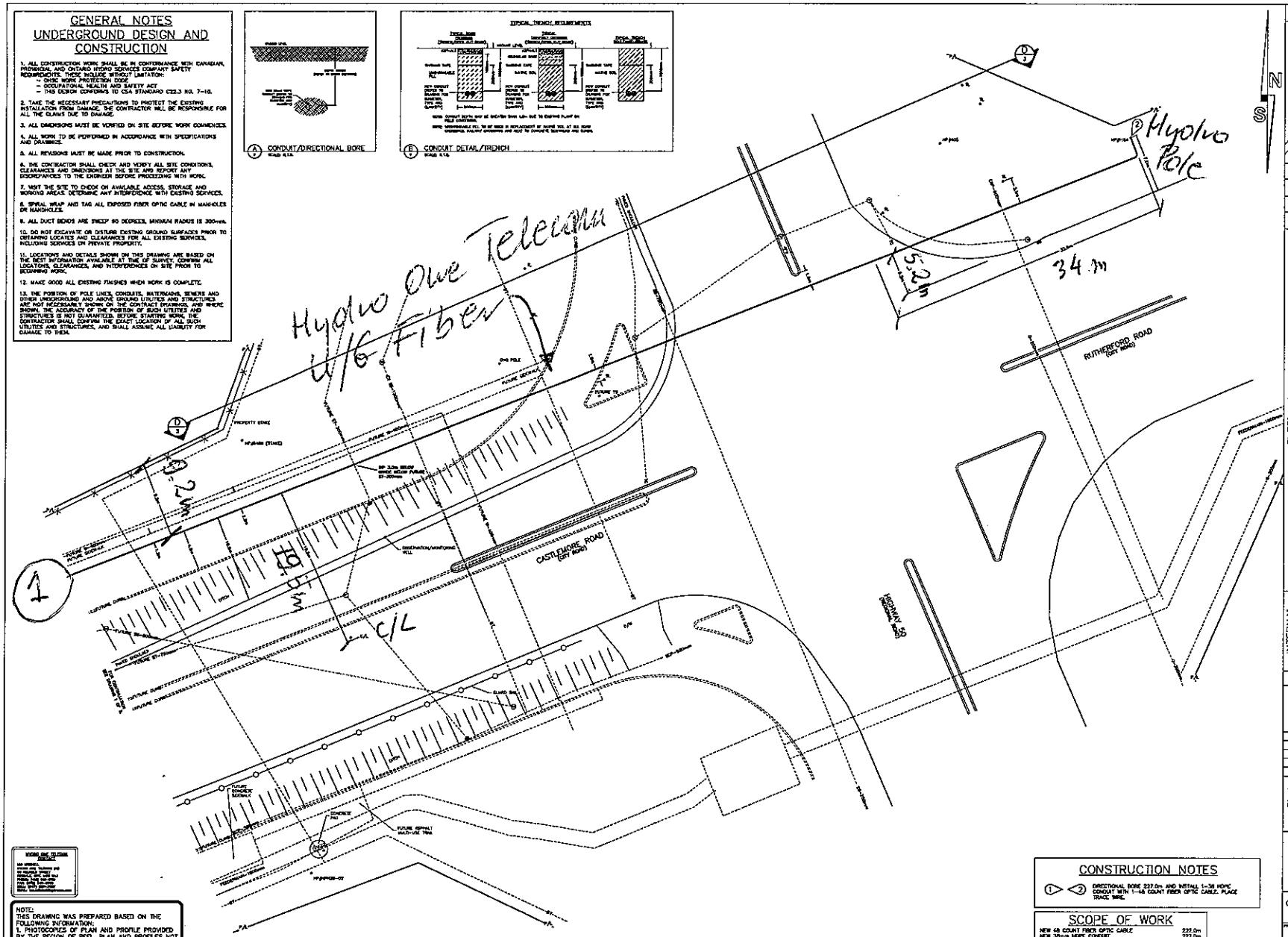
(A) CONDUIT/DIRECTIONAL BORE
SCALE: N.T.S.

(B) CONDUIT DETAIL/TRENCH
SCALE: N.T.S.



CONSTRUCTION NOTES

1 > 2 DIRECTIONAL BORE 227.0m AND INSTALL 1-36 HDPE CONDUIT WITH 1-48 COUNT FIBER OPTIC CABLE. PLACE TRACE WIRE.

SCOPE OF WORK

NEW 48 COUNT FIBER OPTIC CABLE	227.0m
NEW 36-mm HDPE CONDUIT	227.0m
NEW DIRECTIONAL BORE	227.0m

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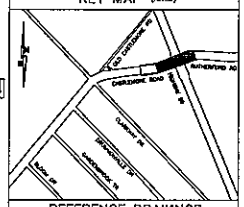
KEY MAP (N.T.S.)



REFERENCE DRAWINGS
CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	HP
UNDERGROUND BELL	BC
UNDERGROUND CATV	RC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	V
BELL PEDESTAL	B
CATV PEDESTAL	R
TRANSFORMER	T
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	MH
LARGE ROCK	
TREE	
DIP LOCATION	
DOWNGUY AND ANCHOR	
NEW SIDEWALK GUY	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# 6MTH-(CABLE I.D.)-(FIBRE COUNT)

DATE	REVISION	BY
04/05/11	MARKUPS	AS
10/18/10	MARKUPS	AS
09/23/10	REVISED BORE LOCATION	YC
09/03/10	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications

MIGNAULT
GENIVAR

CASTLEMORE RD AND HWY 50
CITY OF BRAMPTON

PROJECT #	CONTRACT #	SCALE
	10H00400592	1:200
APPROVED BY	DATE	DWG 2 OF 3
	04/05/11	

DRAWING NUMBER

GENERAL NOTES
UNDERGROUND DESIGN AND CONSTRUCTION

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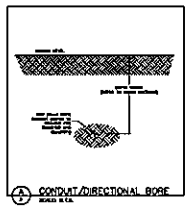
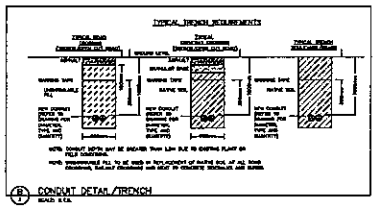
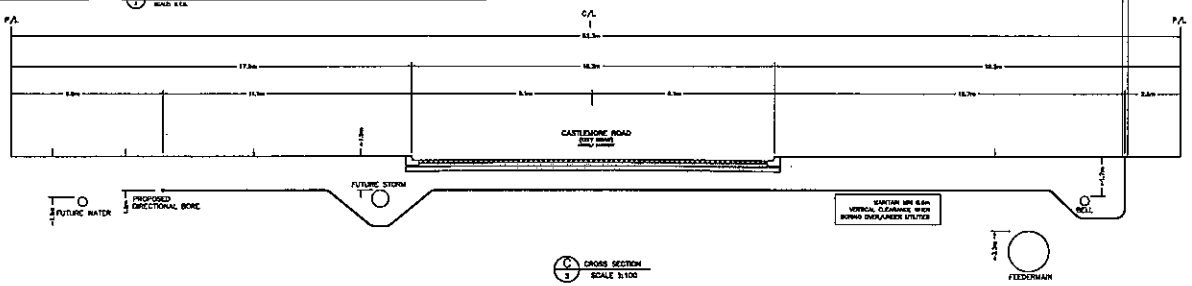


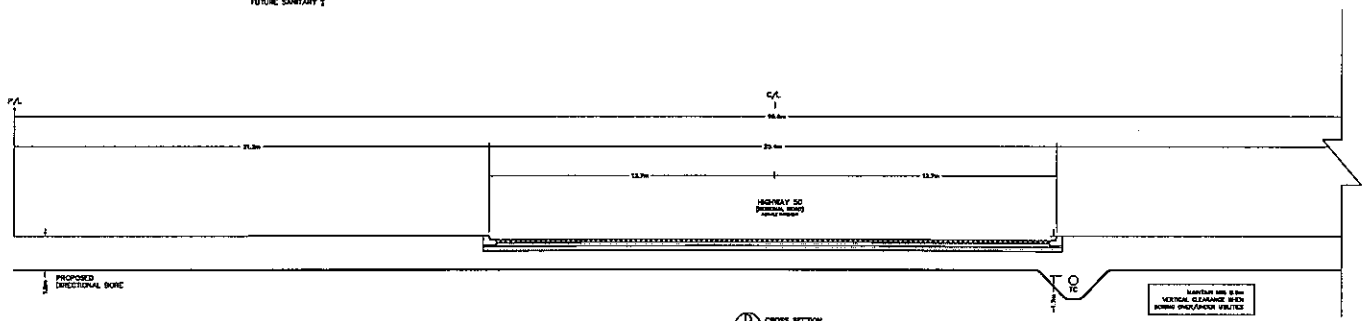
A CONDUIT/DIRECTIONAL BORE
SCALE: N.T.S.



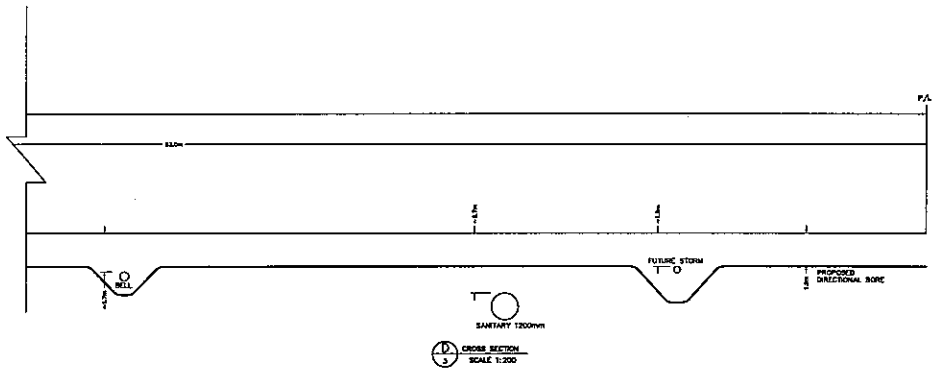
B CONDUIT DETAIL/TRENCH
SCALE: N.T.S.



C CROSS SECTION
SCALE 1:100



D CROSS SECTION
SCALE 1:100



D CROSS SECTION
SCALE 1:200

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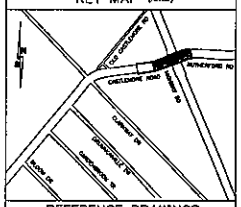

REFERENCE DRAWINGS
CITY OF BRAMPTON

LEGEND

EXTERNAL

NEW FIBER	
NEW STRAND	
OVERLASH	
EXISTING CONDUIT	
UNDERGROUND GAS LINE	G
UNDERGROUND WATER	W
UNDERGROUND HYDRO	BP
UNDERGROUND BELL	BC
UNDERGROUND CATV	RC
STORM SEWER	ST
SANITARY SEWER	SS
PROPERTY LINE	P/L
FENCE	
DITCH	
EDGE OF PAVEMENT	E/P
CURB	
GRAVEL SHOULDER	
NEW SPLICE	
EXISTING SPLICE	
VAULT	
BELL PEDESTAL	
CATV PEDESTAL	
TRANSFORMER	
CATCH BASIN	
WATER VALVE	
FIRE HYDRANT	
POLE TO BE REMOVED	
STREET SIGN	
HYDRO POLE	
MANHOLE COVER	
MANHOLE & COVER	
LARGE ROCK	
TREE	
DIP LOCATION	
DOWNGUY AND ANCHOR	
NEW SIDEWALK CUT	

INTERNAL

NEW INTERIOR FIBER	
NEW BACKBOARD	
EXISTING BACKBOARD	
NEW PATCH PANEL	
EXISTING PATCH PANEL	
NEW EQUIPMENT RACK	
EXISTING EQUIPMENT RACK	
NEW FIBER COIL	

FIBER I.D.# (WITH-(CABLE I.D.)-(FIBRE COUNT))

DATE	REVISION	BY
04/05/11	MARKUPS	AS
10/19/10	MARKUPS	AS
09/23/10	REVISED BORE LOCATION	YC
09/03/10	ISSUED FOR PERMIT	YC

hydro one
Hydro One Telecommunications

MAGNINE
GENIVAR

CASTLEMORE RD AND HWY 50
CITY OF BRAMPTON

PROJECT #	DRAWING #	SCALE
	10HD04006R2	1:100
APPROVED BY:	DATE: 04/05/11	DWG 3 OF 3
DRAWING NUMBER:		

Noss, Melissa

From: Keen, Stephen
Sent: Monday, June 14, 2010 10:30 AM
To: McLaughlin, Barry
Subject: FW: Highway 50 and Mayfield Road Improvements Class EA

Follow Up Flag: Follow up
Flag Status: Completed

From: Zia, Solmaz [mailto:Solmaz.Zia@peelregion.ca]
Sent: Thursday, June 10, 2010 2:55 PM
To: Keen, Stephen
Subject: FW: Highway 50 and Mayfield Road Improvements Class EA

Steve,

fyi

Solmaz Zia, P.Eng.
Project Manager
Transportation Program Planning
Public Works, Region of Peel
Tel: (905) 791-7800 ext. 7845
Solmaz.Zia@peelregion.ca

From: Jennifer.Long@HydroOne.com [mailto:Jennifer.Long@HydroOne.com]
Sent: June 4, 2010 9:17 AM
To: Zia, Solmaz
Cc: ierullo@HydroOne.com
Subject: Highway 50 and Mayfield Road Improvements Class EA

Dear Ms. Zia,

In our initial review, we can confirm that there are no Hydro One Transmission Facilities in the subject area. Please find our response form in the attachment.

Please be advised that this is only a preliminary assessment based on current information. No further consultation with Hydro One Networks Inc. is required if no changes are made to the current information.

If you have any further questions or concerns, please feel free to contact me.

Regards,

Jen Long
Transmission Lines Sustainment
System Investment, Asset Management
Hydro One Networks Inc.
Tel: 416-345-4421
Jennifer.Long@HydroOne.com

Region of Peel
Working for you

Leadership
2008 Public Sector Leadership Awards IPAC•Deloitte
2008 Prix de leadership dans le secteur public IAPC•Deloitte

CANADA AWARDS FOR EXCELLENCE
GOLD RECIPIENT QUALITY 2006

November 26, 2010
Project No. 09-4390

Hydro One Networks Inc.
West Central Zone 2

40 Olympic Drive
Box 585
Dundas, On
L9H 7P5
Attn, Scheduling

Re: Highway 50 from Castlemore Road/Rutherford Road to Mayfield Road/Albion Vaughan Road, and Mayfield Road from Hwy 50 to Coleraine Drive in the City of Brampton, City of Vaughan and Town of Caledon, Region of Peel and Region of York

Dear Sir / Madam,

The Region of Peel along with York Region is undertaking a Class C Environmental Assessment (EA) Study for the above noted project.

Please be advised that HDR/ iTrans is undertaking the EA including the preliminary design on behalf of the Municipalities of Peel and York for the identification of utility relocations involved with this project.

As per the EA recommendation, widening of Highway 50 and Mayfield Road to 6 and 4 lanes respectively is proposed which requires a number of Hydro poles relocation.

We are at the third phase of the EA and the preliminary design for the noted corridor has been developed. We will mail 1 set of our preliminary design drawings under separate cover. Please review them and provide us with the existing plants along the noted road and your future plans for this corridor.

We request that you provide us with a preliminary estimate for the proposed relocation.

We would like to offer a meeting with you to review the conceptual relocation requirements. Please advise when your staff is available to meet with us.

The anticipated detailed design schedule is summer 2011 and utility relocation is 2015.

Your co-operation in providing the information required is anticipated and appreciated.

If you have any questions, do not hesitate to contact the undersigned.

Public Works
9445 Airport Road, 3rd Floor, Brampton, ON. L6S 4J3
Telephone: 905-791-7800 / www.peelregion.ca

Regards,

Solmaz Zia, P.Eng.
Project Manager
Transportation Program Planning
Public Works, Region of Peel
Tel: (905) 791-7800 ext. 7845
Fax: 905-791-1442
Solmaz.Zia@peelregion.ca

CC: Edward Chiu, York Region
Steve Keen, HDR/iTrans

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March 15, 2011
Project No. 09-4390

Hydro One Networks Inc.
West Central Zone 2

40 Olympic Drive
Box 585
Dundas, On
L9H 7P5
Attn, Scheduling

Re: Highway 50 from Castlemore Road/Rutherford Road to Mayfield Road/Albion Vaughan Road, and Mayfield Road from Hwy 50 to Coleraine Drive in the City of Brampton, City of Vaughan and Town of Caledon, Region of Peel and Region of York

Dear Sir / Madam,

We provided, under separate cover, 1 set of plans of the above described work project, with existing utilities and anticipated conflicts based on our initial preliminary design review.

Please examine the noted plans for corrections or omissions, and conflicts with proposed construction. We also request to plot your proposed relocation and return sets of plans to Steve Keen's attention at HDR|iTrans office (144 Front Street W, Suite 655, Toronto, ON, M5H 2L7) giving existing and proposed depth of plant, where applicable.

Include in your submission, a preliminary cost estimate in order that we may establish a cost effective relocation strategy. It is anticipated the utility relocation to take place by 2014/2015.

Hydro One Brampton is notified of the utility relocation requirement.

Regards,

Solmaz Zia

Solmaz Zia, P.Eng.
Project Manager, Transportation Division

CC: Edward Chiu, York Region
Steve Keen, HDR|iTrans
Richard Sparham, Peel Region

Noss, Melissa

From: Lamontagne, Larry
Sent: Monday, October 31, 2011 1:10 PM
To: Baudais, Nathalie
Cc: Keen, Stephen
Subject: FW: Hwy 50 / Mayfield Road Utility Conflict Plan

- Utility contact tacking log has been updated as per below.
- Still waiting on Hydro One Brampton for both Hwy 50 and Sandalwood plans. I will contract Emil and see when he will be delivering his design.

LARRY LAMONTAGNE, DIPL. T.

HDR Corporation
Sr. Transportation Designer

100 York Blvd., Suite 300 | Richmond Hill, ON L4B 1J8
905.882.4100 x 5348
larry.lamontagne@hdrinc.com | hdrinc.com

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From: Telus Utility Markups [mailto:telusutilitymarkups@prestigetel.com]
Sent: Monday, October 31, 2011 12:11 PM
To: Lamontagne, Larry
Subject: RE: Hwy 50 / Mayfield Road Utility Conflict Plan

TELUS has no infrastructure along the proposed route or area within a radius of 2.0m. Prestige File No. 2735545-3555.

Thanks & Regards,
Prathibha Parameswaran
MOC CAD TECH
Prestige Telecom Inc.
200 Town Centre Blvd, Suite 300, Markham, Ontario L3R 8G5
Ph: (905) 470-2112 Ext: 40257
Fax: (905) 470-8956
Email: telusutilitymarkups@prestigetel.com **(TELUS MARKUPS)**
Email: prathibha.parameswaran@prestigetel.com

Man has infinite power within himself & he can realise it - Swami Vivenkananda

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From: Lamontagne, Larry [mailto:Laurent.Lamontagne@hdrinc.com]
Sent: Wednesday, October 12, 2011 2:11 PM
To: Telus Utility Markups
Cc: Baudais, Nathalie; Keen, Stephen
Subject: Hwy 50 / Mayfield Road Utility Conflict Plan

Telus Utility Markup Personel,

HDR requested utility conflict mark-up plans by letter and CD on July 29, 2011 for Hwy 50 and Mayfield Road and to this day we have not received the requested plans.

I have tried to contact Stephen Hoy but with no success.

I have attached PDF's of HDR's design for your reference.

Please advise on the status of our request.

Your immediate attention to this matter is greatly appreciated.

Thank you

LARRY LAMONTAGNE, DIPL. T.

HDR Corporation
Sr. Transportation Designer

100 York Blvd., Suite 300 | Richmond Hill, ON L4B 1J8
905.882.4100 x 5348
larry.lamontagne@hdrinc.com | hdrinc.com

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