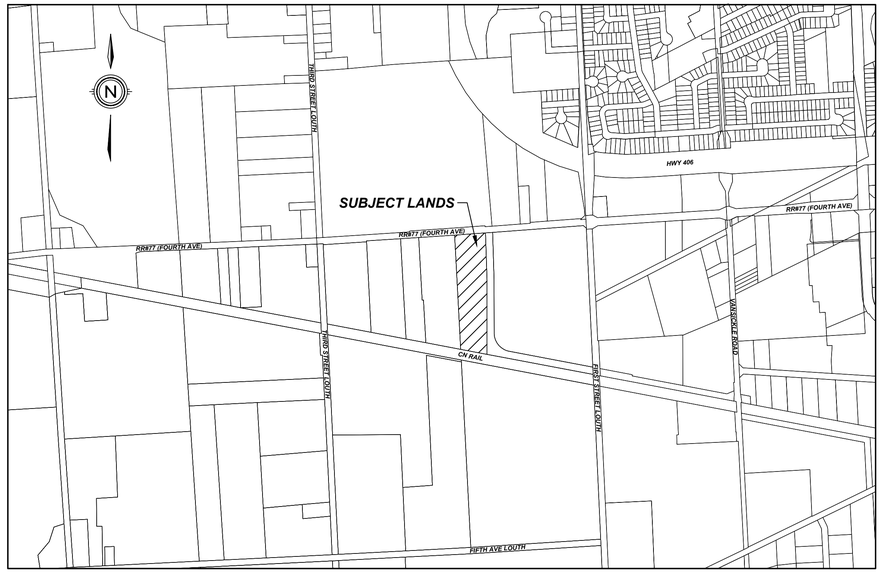
THE CORPORATION OF THE CITY OF ST.CATHARINES

St. Catharines
stcatharines.ca

CONTRACT NO. SCS 17-006

NIAGARA HEALTH SYSTEM PROPOSED PARKING LOT

AUGUST 2018



LOCATION PLAN (NTS)

DAN DILLON, P.ENG
DIRECTOR OF TRANSPORTATION AND ENVIRONMENTAL SERVICES

WALTER SENDZIK
MAYOR

SHEET LIST	
NUMBER	TITLE
	COVER
1731-SITE	SITE PLAN
1731-SSGP	SITE SERVICING & GRADING PLAN

UPPER CANADA CONSULTANTS
ENGINEERS / PLANNERS
30 Hanover Drive Unit 3
St. Catharines, Ontario
L2W 1A3
Phone: (905)688-9400
Fax: (905)688-5274

UCC PROJECT #1731

UPPER CANADA CONSULTANTS
ENGINEERS / PLANNERS
30 Hanover Drive Unit 3
St. Catharines, Ontario
L2W 1A3
Phone: (905)688-9400
Fax: (905)688-5274

SCS 17-006

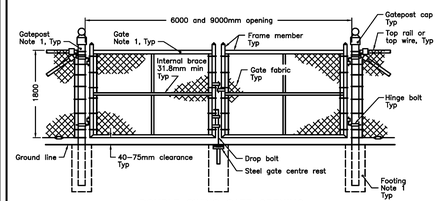
1731

NIAGARA HEALTH SYSTEM
PROPOSED PARKING LOT
ST.CATHARINES

#	REVISION	DATE	INIT
4	ISSUED FOR CONSTRUCTION	2018-08-24	AK
3	REVISED PER CITY COMMENTS	2018-04-27	AK
2	ISSUED FOR TENDER	2018-04-11	AK
1	REVISED PER CITY COMMENTS	2018-04-10	AK
0	ISSUED FOR SITE PLAN APPLICATION	2018-01-17	AK

LEGEND

- HP O — EX HYDRO POLE
- TRANS — PROP HYDRO TRANSFORMER
- SL PED — PROP STREET LIGHT PEDESTAL
- LS — EX LIGHT STANDARD
- LS — PROP LIGHT POLE
- PROP TACTILE WARNING PLATE
- PROP CURB
- PROP DEPRESSED CURB
- SILT FENCE
- PROP CHAIN-LINK FENCE
- PROP WOOD FENCE



DOUBLE SWING GATE OPENING

NOTES:
1 For footing details and Gate and Gatepost Details Table refer to OPSD 972.132.
A Gates as viewed from the roadway.
B All dimensions are in millimetres unless otherwise shown.

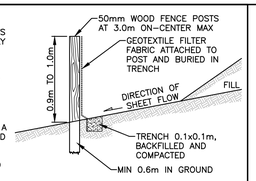
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
FENCE, CHAIN-LINK COMPONENT – GATE		OPSD 972.102

LAND USE / ZONING SCHEDULE

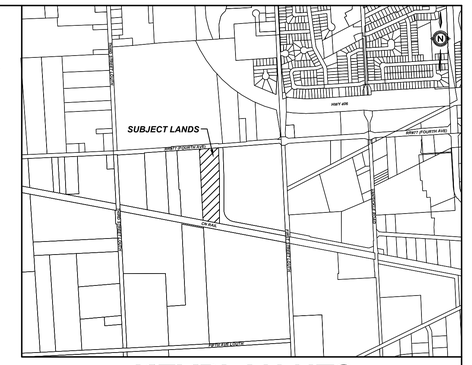
	REQUIRED	PROVIDED
MINIMUM LOT AREA	2000m²	9040m²
MINIMUM LOT FRONTAGE	30m	99.95m
MINIMUM ABUTTING GREEN SPACE	15m	15m
MINIMUM EXT. SIDE / FRONT YARD	12m	12m
MINIMUM LANDSCAPE BUFFER ALONG STREET	6m	6m
MINIMUM LANDSCAPE BUFFER ABUTTING GREEN SPACE	7.5m	15m
MINIMUM INTERNAL PARKING LANDSCAPE SPACE	10%	6%
MINIMUM LANDSCAPE BUFFER ADJACENT TO FOURTH AVENUE AND THIRD STREET LOUTH	10m	10m

NOTES:

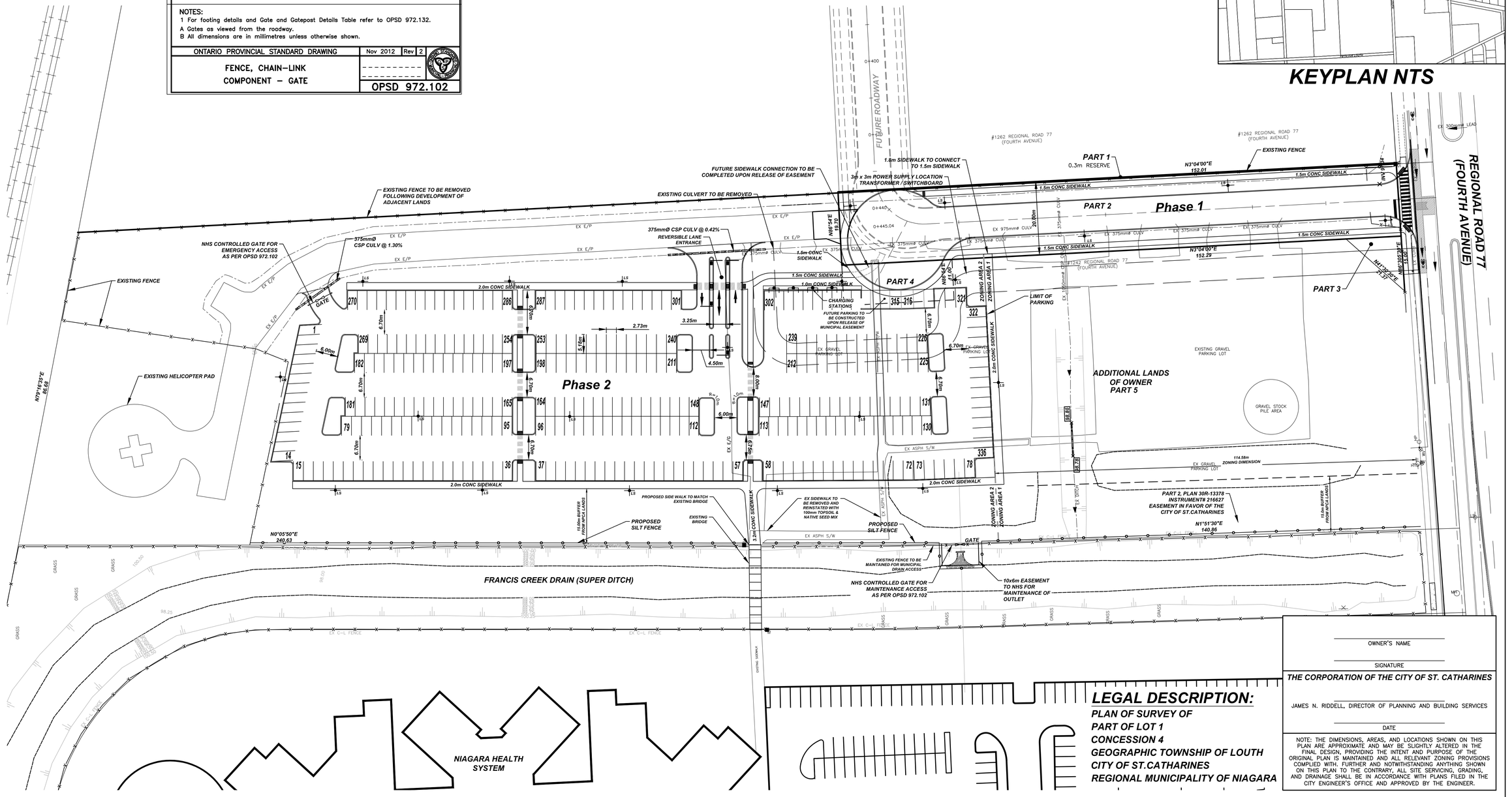
1. THIS TYPE OF FILTER BARRIER CONSISTS OF GEOTEXTILE FILTER FABRIC SECURELY ATTACHED ON THE UPSTREAM SIDE.
2. SILT FENCES SHOULD BE USED ONLY FOR INTERCEPTING SHEET FLOWS OF DRAINAGE AREA NO LONGER THAN 30m AND NO STEEPER THAN 2:1.
3. THE FENCE HEIGHT SHOULD BE 0.9m TO 1.0m AND THE LENGTH APPROX. 30m PER 1000m² OF DRAINAGE AREA.
4. THE FABRIC IS TO BE RECESSED INTO A TRENCH 0.1m x 0.1m, BACKFILLED, AND COMPACTED.
5. FENCE POST SHOULD BE SPACED NO MORE THAN 3.0m APART AND SET INTO THE GROUND AT LEAST 0.6m.



SILT FENCE DETAIL
N.T.S.



KEYPLAN NTS



OWNER'S NAME

SIGNATURE

THE CORPORATION OF THE CITY OF ST. CATHARINES

JAMES N. RIDDELL, DIRECTOR OF PLANNING AND BUILDING SERVICES

DATE

NOTE: THE DIMENSIONS, AREAS, AND LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE AND MAY BE SLIGHTLY ALTERED IN THE FINAL DESIGN, PROVIDING THE INTENT AND PURPOSE OF THE ORIGINAL PLAN IS MAINTAINED AND ALL RELEVANT ZONING PROVISIONS COMPLIED WITH. FURTHER AND NOTWITHSTANDING ANYTHING SHOWN ON THIS PLAN TO THE CONTRARY, ALL SITE SERVICING, GRADING, AND DRAINAGE SHALL BE IN ACCORDANCE WITH PLANS FILED IN THE CITY ENGINEER'S OFFICE AND APPROVED BY THE ENGINEER.

LEGAL DESCRIPTION:

PLAN OF SURVEY OF
PART OF LOT 1
CONCESSION 4
GEOGRAPHIC TOWNSHIP OF LOUTH
CITY OF ST.CATHARINES
REGIONAL MUNICIPALITY OF NIAGARA

#	REVISION	DATE	INIT
4	ISSUED FOR CONSTRUCTION	2018-08-24	AK
3	REVISED PER CITY COMMENTS	2018-04-27	AK
2	ISSUED FOR TENDER	2018-04-11	AK
1	REVISED PER CITY COMMENTS	2018-04-10	AK
0	ISSUED FOR SITE PLAN APPLICATION	2018-01-17	AK

NOTES:

1. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER, AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS 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 INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
2. PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD. TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.
3. ALL CONSTRUCTION MUST COMPLY WITH THE NIAGARA PENINSULA STANDARD CONTRACT DOCUMENT.

DRAFTING	AK
DESIGN	AK
CHECKED BY	MH
APPROVED BY	MH

LICENSED PROFESSIONAL ENGINEER — A. S. KEANE — 100109861 — Aug 24/18 — PROVINCE OF ONTARIO

St. Catharines
stcatharines.ca

UPPER CANADA CONSULTANTS
ENGINEERS / PLANNERS
261 Martindale Road Unit #1
St. Catharines, ON L2W 1A1
Phone: (905)688-9400
Fax: (905)688-5274

NIAGARA HEALTH SYSTEM PROPOSED PARKING LOT
ST.CATHARINES SITE PLAN

CONSULTANT FILE No.	1731
DATE	2018-08-24
PRINTED	2018-08-24
SCALE	1:500 m
REF No.	SCS 17-006
DWG No.	1731-SITE
REV	4

DRAWING FILE: F:\1731\Engineering\1731-Parking Lot.dwg PLOTTED: Aug 24, 2018 – 2:23pm PLOTTED BY: Marcus

LEGEND

WV	EX WATER VALVE
WV	PROP WATER VALVE
WVC	EX WATER VALVE CHAMBER
WMC	PROP WATER METER CHAMBER
HYD	EX HYDRANT
HYD	PROP HYDRANT
CB	EX CATCHBASIN
CB	PROP CATCHBASIN
DCB	EX DOUBLE CATCHBASIN
DCB	PROP DOUBLE CATCHBASIN
CBMH	EX CATCHBASIN MANHOLE
CBMH	PROP CATCHBASIN MANHOLE
STM	EX STORM MANHOLE
MH	PROP STORM MANHOLE
SAN	EX SANITARY MANHOLE
MH	PROP SANITARY MANHOLE
PLUG	EX PLUG
PLUG	PROP PLUG
HP	EX HYDRO POLE
TRANS	PROP HYDRO TRANSFORMER
SL PED	PROP STREET LIGHT PEDESTAL
LS	EX LIGHT STANDARD
LS	PROP LIGHT POLE
	PROP TACTILE WARNING PLATE
100.00	EXISTING ELEVATION
100.00	PROPOSED ELEVATION
	EX WATERMAIN
WAT	PROP WATER LATERAL WITH CURBSTOP
	PROP WATERMAIN
	EX STORM SEWER
STM	PROPOSED STORM LATERAL
	PROP STORM SEWER
	EX SANITARY SEWER
SAN	PROP SANITARY LATERAL WITH CLEANOUT
	PROP SANITARY SEWER
	PROP CURB
	PROP DEPRESSED CURB
	SILT FENCE
	PROP CHAIN-LINK FENCE

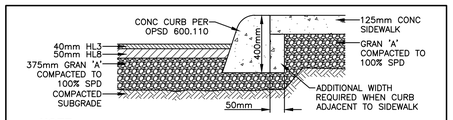
NOTES:

1. GENERAL:

a) ALL DRIVEWAYS TO BE ASPHALT 50mm THICK ON 250mm GRANULAR 'A'
b) ALL DRIVEWAY AND PARKING LOT GRADES REFER TO GUTTER LINE OR FINISHED ASPHALT GRADE.
c) ALL GRASSED AREAS, OUTSIDE THE LIMITS OF THE SITE, DISTURBED BY THE CONTRACTOR SHALL BE REINSTATED WITH 100mm TOPSOIL AND SOD
d) THE POSITION OF EXIST. POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONSTRUCTION DRAWINGS. WHERE SHOWN THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
e) BEFORE STARTING WORK, THE CONTRACTOR SHALL CHECK WITH ALL UTILITIES INVOLVED AND INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
f) SITE SERVICING TO BE CONSTRUCTED AS PER OPSS AND OPSD STANDARDS AND SPECIFICATIONS.
g) FINISHED LOT GRADING NOT TO ADVERSELY AFFECT DRAINAGE OF EXISTING LANDS.
h) ALL CURB AND GUTTER TO BE BACKFILLED WITH NATIVE MATERIAL COMPACTED TO 95% SPD. WHERE THE CURB IS HIGHER THAN THE EXISTING GROUND BACKFILL TO BE GRADED TO A 3:1 SLOPE OR FLATTER.
i) ALL UNITS REQUIRE SUMP PUMPS AND DISCHARGE OVER FOUNDATION TO STORM LATERALS.
j) PRIOR TO CONSTRUCTION A REGIONAL CONSTRUCTION PERMIT IS REQUIRED

2. STORM SYSTEM:

a) STORM SEWER SHALL BE PVC RIBBED, CSA B182.4
b) BEDDING FOR STORM SEWER AS PER OPSD 802.010
c) CATCHBASINS PER OPSD 705.010. FRAME & GRATE PER OPSD 400.100
d) ALL SINGLE CATCHBASIN LEADS TO BE 200mmØ PVC RIBBED, CSA B182.4
e) MANHOLES PER OPSD 701.010, FRAME & GRATE PER OPSD 401.010, AND BENCHING PER OPSD 701.021



NOTE:

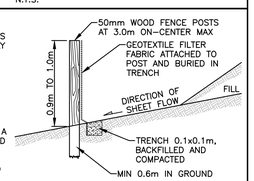
ALL CURB TO BE BACKFILLED WITH NATIVE MATERIAL COMPACTED TO 95% SPD. THIS WORK IS TO BE INCLUDED IN THE UNIT PRICE OF THE CURB. WHERE THE CURB IS HIGHER THAN EXISTING GROUND BACKFILL TO BE GRADED TO A MAXIMUM 3:1 SLOPE.

TYPICAL BARRIER CURB, SIDEWALK, AND ASPHALT CROSS SECTION

N.T.S.

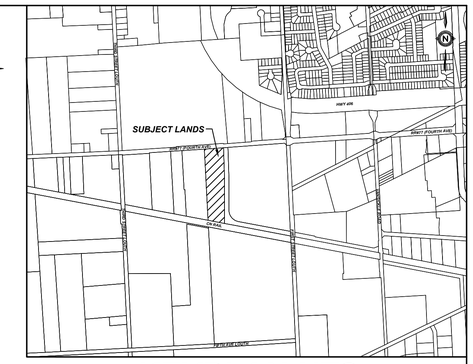
NOTES:

1. THIS TYPE OF FILTER BARRIER CONSISTS OF GEOTEXTILE FILTER FABRIC SECURELY ATTACHED ON THE UPSTREAM SIDE.
2. SILT FENCES SHOULD BE USED ONLY FOR INTERCEPTING SHEET FLOWS OF DRAINAGE AREA NO LONGER THAN 30m AND NO STEEPER THAN 2:1.
3. THE FENCE HEIGHT SHOULD BE 0.9m TO 1.0m AND THE LENGTH APPROX. 30m PER 1000m² OF DRAINAGE AREA.
4. THE FABRIC IS TO BE RECESSED INTO A TRENCH 0.1m x 0.1m, BACKFILLED, AND COMPACTED.
5. FENCE POST SHOULD BE SPACED NO MORE THAN 3.0m APART AND SET INTO THE GROUND AT LEAST 0.6m.

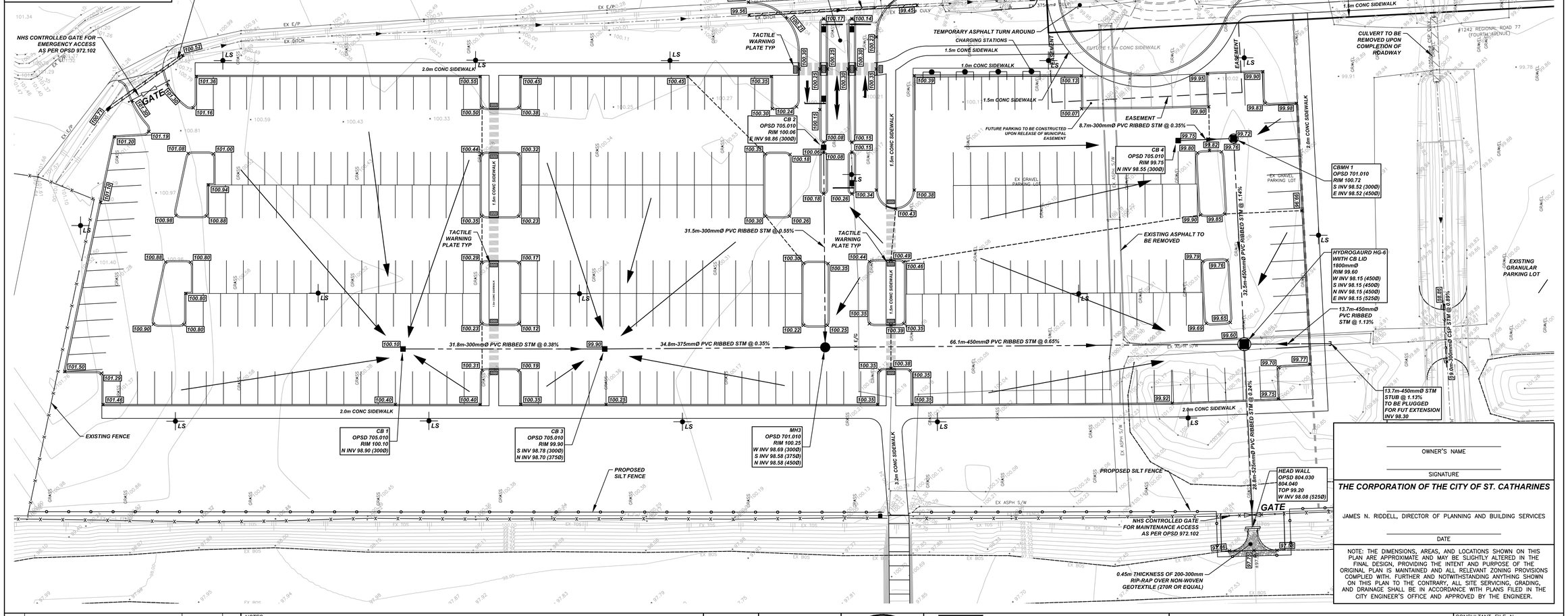


SILT FENCE DETAIL

N.T.S.



KEYPLAN NTS



OWNER'S NAME

SIGNATURE

THE CORPORATION OF THE CITY OF ST. CATHARINES

JAMES N. RIDDELL, DIRECTOR OF PLANNING AND BUILDING SERVICES

DATE

NOTE: THE DIMENSIONS, AREAS, AND LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE AND MAY BE SLIGHTLY ALTERED IN THE FINAL DESIGN, PROVIDING THE INTENT AND PURPOSE OF THE ORIGINAL PLAN IS MAINTAINED AND ALL RELEVANT ZONING PROVISIONS COMPLIED WITH. FURTHER AND NOTWITHSTANDING ANYTHING SHOWN ON THIS PLAN TO THE CONTRARY, ALL SITE SERVICING, GRADING, AND DRAINAGE SHALL BE IN ACCORDANCE WITH PLANS FILED IN THE CITY ENGINEER'S OFFICE AND APPROVED BY THE ENGINEER.

#	REVISION	DATE	INIT
5	REVISED CATCHBASIN RIMS	2018-09-05	AK
4	ISSUED FOR CONSTRUCTION	2018-08-24	AK
3	REVISED PER CITY COMMENTS	2018-04-27	AK
2	ISSUED FOR TENDER	2018-04-11	AK
1	REVISED PER CITY COMMENTS	2018-04-10	AK
0	ISSUED FOR SITE PLAN APPLICATION	2018-01-17	AK

NOTES:
1. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER, AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS 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 INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
2. PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD. TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.
3. ALL CONSTRUCTION MUST COMPLY WITH THE NIAGARA PENINSULA STANDARD CONTRACT DOCUMENT.

DRAFTING	AK
DESIGN	AK
CHECKED BY	MH
APPROVED BY	MH

LICENSED PROFESSIONAL ENGINEER
A. S. KEANE
100109861
Sept 5/18
PROVINCE OF ONTARIO

St. Catharines
stcatharines.ca

UPPER CANADA CONSULTANTS
ENGINEERS / PLANNERS
261 Martindale Road
Unit #1
St. Catharines, ON
L2W 1A1
Phone: (905)688-9400
Fax: (905)688-5274

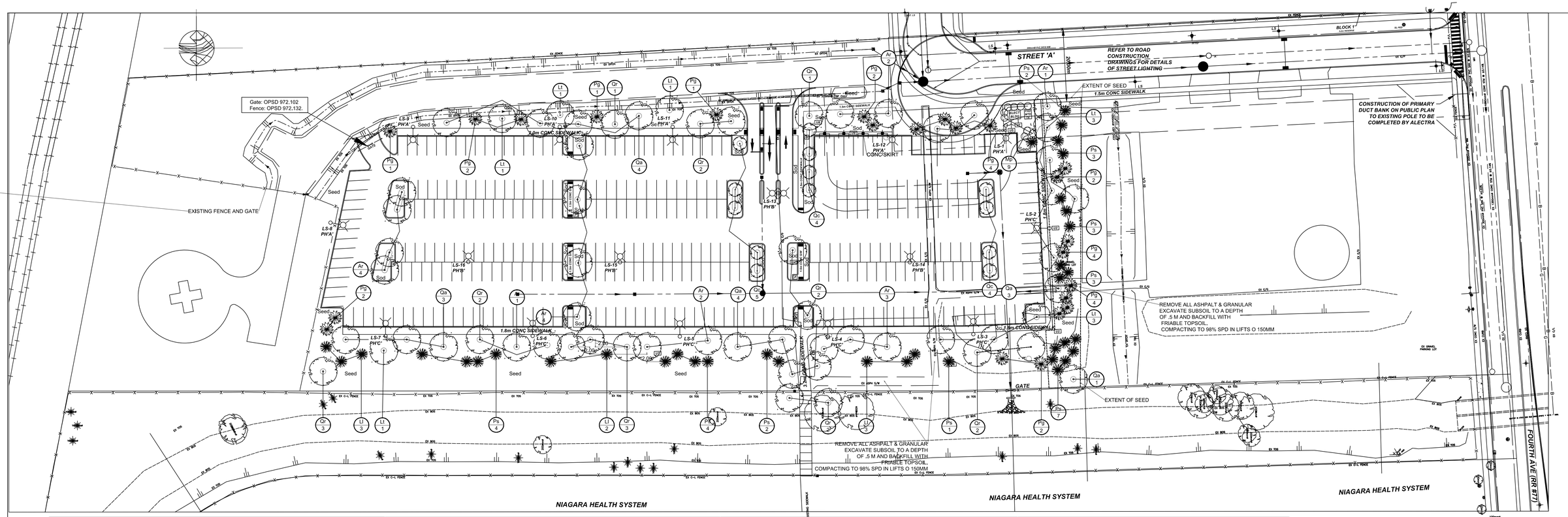
NIAGARA HEALTH SYSTEM PROPOSED PARKING LOT

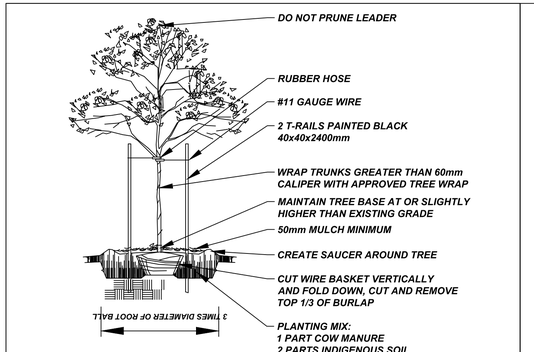
ST.CATHARINES

SITE SERVICING & GRADING PLAN

CONSULTANT FILE No.	1731
DATE	2018-09-05
PRINTED	2018-09-05
SCALE	1:300 m
REF No.	SCS 17-006
DWG No.	1731-SSGP
REV	5

DRAWING FILE: F:\1731\Engineering\1731-Parking Lot.dwg PLOTTED: Sep. 05, 2018 - 9:51am PLOTTED BY: BVanderValk



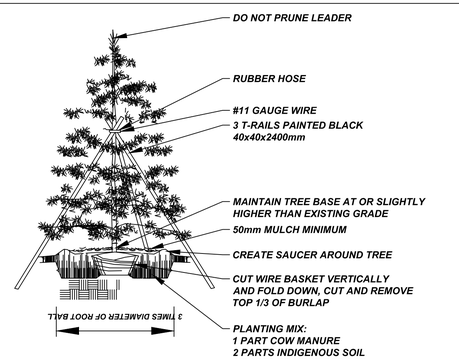


NOTE:

ALL TREES SHALL BE STAKED USING TWO NEW T-RAIL STAKES PAINTED BLACK. GUYS SHALL BE LOOSE ENOUGH TO PROVIDE ONE FINGER WIDTH OF SPACE. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE CONDITION OF STAKES AND GUYS A MINIMUM OF THREE TIMES PER YEAR. STAKES AND GUYS THAT ARE NOT CORRECTLY INSTALLED SHALL BE REPLACED/TIGHTENED. ALL GUY WIRES, RUBBER HOSES & STAKES TO BE REMOVED AFTER ONE YEAR.

DECIDUOUS TREE PLANTING DETAIL

N.T.S.



NOTE:

ALL TREES SHALL BE STAKED USING TWO NEW T-RAIL STAKES PAINTED BLACK. GUYS SHALL BE LOOSE ENOUGH TO PROVIDE ONE FINGER WIDTH OF SPACE. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE CONDITION OF STAKES AND GUYS A MINIMUM OF THREE TIMES PER YEAR. STAKES AND GUYS THAT ARE NOT CORRECTLY INSTALLED SHALL BE REPLACED/TIGHTENED. ALL GUY WIRES, RUBBER HOSES & STAKES TO BE REMOVED AFTER ONE YEAR.

N.T.S.

CONIFEROUS TREE PLANTING DETAIL

PLANT SCHEDULE:

KEY	BOTANICAL NAME	COMMON NAME	NO.	SIZE	CONDITION
TREES CONIFEROUS:					
Ll	LARIX LARICINIA	LARCH	8	150 CM	CONTAINER
Pg	PICEA GLAUCA	WHITE SPRUCE	22	150 CM	CONTAINER
Ps	PINUS STROBUS	WHITE PINE	21	150 CM	CONTAINER
TREES DECIDUOUS:					
Ar	ACER RUBRUM	RED MAPLE	17	60MM CAL	W.B.
Lt	LIRIODENDRON TULIPIFERA	TULIP TREE	10	50MM CAL	W.B.
Qa	QUERCUS ALBA	WHITE OAK	15	50MM CAL	W.B.
Qc	QUERCUS ALBA 'CRIMSCHMIDT'	CRIMSON SPIRE OAK	13	50MM CAL	W.B.
Qr	QUERCUS RUBRA	RED OAK	18	60MM CAL	W.B.
SHRUBS DECIDUOUS:					
Mp	MYRICA PENSYLVANICA	BAYBERRY	9	60CM	CONTAINER
GROUND COVER:					
Seed	20% KENTUCKY BLUE GRASS, 80% PERENNIAL RYE GRASS		4895	SQ M	HYDRAULICALLY SEEDED
Sod	100% KENTUCKY BLUE GRASS		495	SQ M	ROLLS

LEGEND:

PLANT SCHEDULE KEY

CONIFEROUS TREES

DECIDUOUS TREEES

SODDING
PART 1 - GENERAL

1.1 Description of Work	Includes the following but not limited to:	
	.1	For the supply and installation of new sod in those areas denoted as 'sod'.
1.2 Related Work	.1	Excavation, Backfilling & Compaction
	.2	Roadworks and Pavements
	.3	Hydraulic Seeding
1.3 Protection	.1	Protect sod and fertilizer from damage due to dryness, heat, dampness, etc.
1.4 Environmental	.1	Do not proceed until conditions of soil are entirely suitable for grading and sodding.

PART 2 - PRODUCTS

2.1 Materials	.1	Top soil to be of light sandy character with high content of organic material, free from clay, lumps, stones, roots, etc. and installed under this Section 02600. This contractor to inspect this top soil and to obtain Landscape Architect and Architect's approval.
	.2	Sod to be nursery sod, 25mm thick (minimum), 100% Kentucky blue grass, and freshly cut.
	.3	Mulch to be wheat or oat straw, clean and dry.

PART 3 - EXECUTION

3.1 Examination	.1	Examine areas to receive the work of this section and approve conditions prior to commencement of work.
3.2 Finish Grading	.1	Scarify all areas using appropriate equipment to a depth of not less than 80mm to eliminate any hard panning caused by grading machinery.
	.2	Distribute top soil to a depth not less than 80mm over all areas to receive sod. Remove all debris including rocks, stones, roots, and other debris.

HYDRAULIC SEEDING — **Section 02601, Page 1 NLES PN00914**

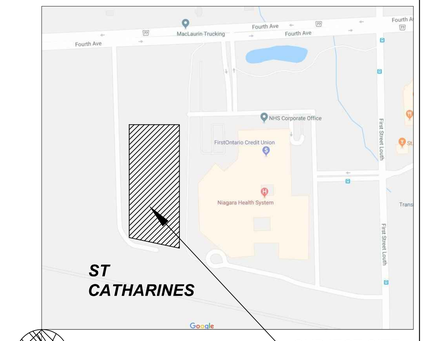
PART 1 - GENERAL

1.1 General	Division One, General Requirements is part of this section and shall apply as if repeated here.	
1.2 Description of Work	Includes the following, but not limited to:	
	.1	In the supply and installation of hydraulic seeding in those areas denoted as "hydraulic seeding" under this Contract.
1.3 Related Work	.1	Excavation, Backfilling & Compaction — Section 02220
	.2	Roadworks and Pavements — Section 02500
	.3	Topsoil, finish grading and soil test and Sod — Section 02600
1.4 Product Data	.1	Provide product data for: I) Seed II) Mulch III) Tackifier Iv) Fertilizer
1.5 Protection	.1	Protect seed and fertilizer from damage due to dryness, heat, dampness, etc.
1.6 Environmental	.1	Do not proceed until conditions of soil are entirely suitable for grading, and hydraulic seeding.
1.7 Measurement for	.1	Seeding will be measured in square metres of plan area.

PART 2 - PRODUCTS

2.1 Materials	.1	Grass seed: Canada Certified No. 1 Grade in accordance with Government of Canada Seeds Act and Regulations.
	.2	Mulch: I) Capable of dispersing in water to form homogeneous slurry. II) Capable of forming an absorptive mat ground cover allowing water precolation.
	.3	Tackifier: water dilutable liquid dispersion containing organic polysaccharide emulsion.
	.4	Water: free of impurities that would inhibit germination and growth.

See PART 3 - EXECUTION for SOD



ST CATHARINES

KEY PLAN (NOT TO SCALE) SUBJECT SITE

OWNER'S NAME

SIGNATURE

THE CORPORATION OF THE CITY OF ST CATHARINES

DIRECTOR OF PLANNING AND BUILDING SERVICES

DATE: _____ 20

NOTE: THE DIMENSIONS, AREAS AND LOCATION SHOWN ON THIS PLAN ARE APPROXIMATE AND MAY BE SLIGHTLY ALTERED IN THE FINAL DESIGN, PROVIDING THE INTENT AND PURPOSE OF THE ORIGINAL PLAN IS MAINTAINED AND ALL RELEVANT ZONING PROVISIONS COMPILED WITH. FURTHER AND NOTWITHSTANDING ANYTHING SHOWN ON THIS PLAN TO THE CONTRARY, ALL SITE SERVICING, GRADING AND DRAINAGE SHALL BE IN ACCORDANCE WITH PLANS FILED IN THE CITY ENGINEER'S OFFICE AND APPROVED BY THE ENGINEER.

No	REVISIONS	DATE	BY
.4	ISSUED FOR APPROVAL	04.26.18	DM
.3	ISSUED FOR APPROVAL	04.25.18	DM
.2	ISSUED FOR APPROVAL	04.12.18	DM
.1	ISSUED FOR APPROVAL	01.31.18	DM
0	ISSUED FOR DISCUSSION	01.29.18	DM

LANDSCAPE PLAN

1 : 500

DONALD MARTIN LANDSCAPE ARCHITECT
4655 Fifth Avenue . Niagara Falls . Ontario
phone . fax 905 . 357 . 1947

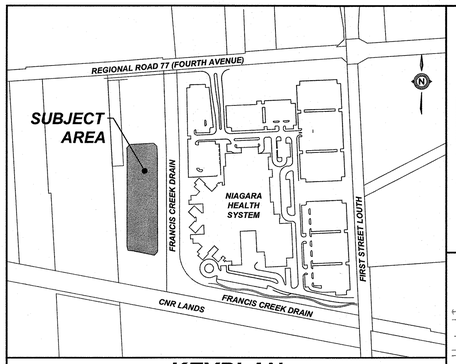
NHS PARKING LOT

St Catharines ONTARIO

OWNER:

LANDSCAPE PLAN

DESIGN: D.M.	DRAFTING: D.M.
DATE: 01.29.18	SCALE: 1:500
DRAWING No: 071117-LP	SHEET No. L-1 / REV. .4



KEYPLAN
NOT TO SCALE

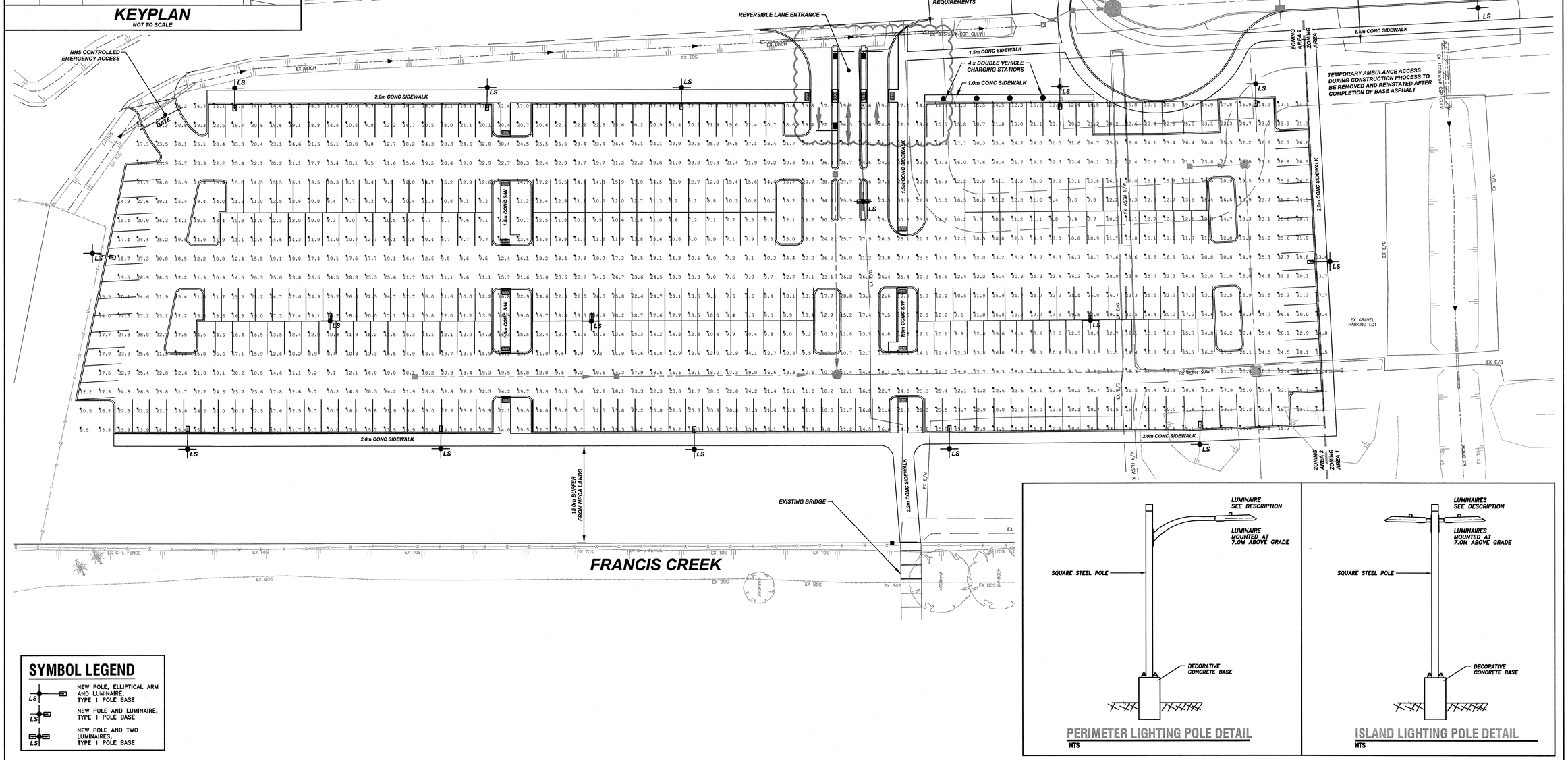
R088 1731 Niagara Health Services (Parking Lot)
Lighting Design REV2
Prepared by: R. Stasiak Engineering Inc.
20180412
Lighting Design Criteria:
Based on IES RP-20-14
E horizontal min 5 lux, Eavg/min 4, Emax/min 15

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Total Watts
	15	WP9L3P35-120L4K	SINGLE	0.900	WP9L3P35-120L4K	136.1	2041.5
	1	WP9L3P35-120L4K 1	BACK-BACK	0.900	WP9L3P35-120L4K	136.1	272.2

Concrete pole base with metal pole and 2.44 m long elliptical arm. Luminaire (Kim Lighting) mounted at 7 m above grade. Location of Transport Canada flight path warning lights to be determined.

Concrete pole base with metal pole and back to back mounted luminaires. Luminaires (Kim Lighting) mounted at 7 m above grade. Location of Transport Canada flight path warning lights to be determined.

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Ground Planar	Illuminance	Lux	17.42	36.6	6.9	2.52	5.30



SYMBOL LEGEND

LS — NEW POLE, ELLIPTICAL ARM AND LUMINAIRE, TYPE 1 POLE BASE

LS — NEW POLE AND LUMINAIRE, TYPE 1 POLE BASE

LS — NEW POLE AND TWO LUMINAIRES, TYPE 1 POLE BASE

PERIMETER LIGHTING POLE DETAIL
NTS

ISLAND LIGHTING POLE DETAIL
NTS

#	REVISION	DATE	INIT
2	REVISED PER COMMENTS	2018-04-27	RS
1	RE-ISSUED FOR PLANS REVIEW	2018-04-23	RS
0	ISSUED FOR PLANS REVIEW	2018-02-14	RS

NOTES:
1. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER, AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS 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 INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
2. PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD. TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.
3. ALL CONSTRUCTION MUST COMPLY WITH THE NIAGARA PENINSULA STANDARD CONTRACT DOCUMENT.

DRAFTING	TO
DESIGN	RS
CHECKED BY	RS
APPROVED BY	RS

REGISTERED PROFESSIONAL ENGINEER — R. J. STASIAK — 90870427 — PROVINCE OF ONTARIO

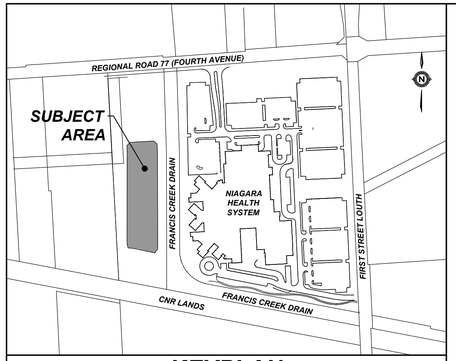
St. Catharines
stcatharines.ca

R. STASIAK ENGINEERING INC.
9 WHITE CREST CT., ST. CATHARINES, ONTARIO L2N 6Y1
905-931-3652 rstasiak@rseng.ca
R-088

NIAGARA HEALTH SYSTEM
PROPOSED PARKING LOT
ST.CATHARINES
PHOTOMETRIC PLAN

CONSULTANT FILE No.	1731
DATE	2018-04-27
PRINTED	2018-04-27
SCALE	1:300 m
REF No.	SCS 17-006
DWG No.	1731-PHOTO
REV	2

DRAWING FILE: F:\1731\Electrical-Parking Lot\1731-R088 Service Layout.dwg PLOTTED: Apr 27, 2018 - 1:56pm PLOTTED BY: BVanderValk



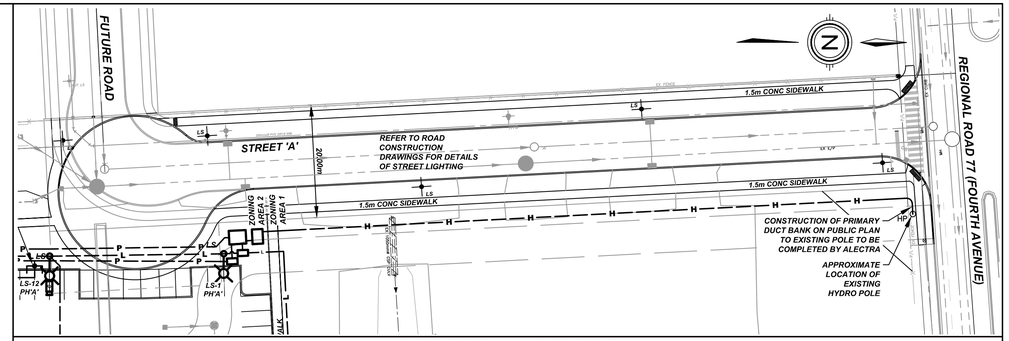
KEYPLAN
NOT TO SCALE

SYMBOL LEGEND

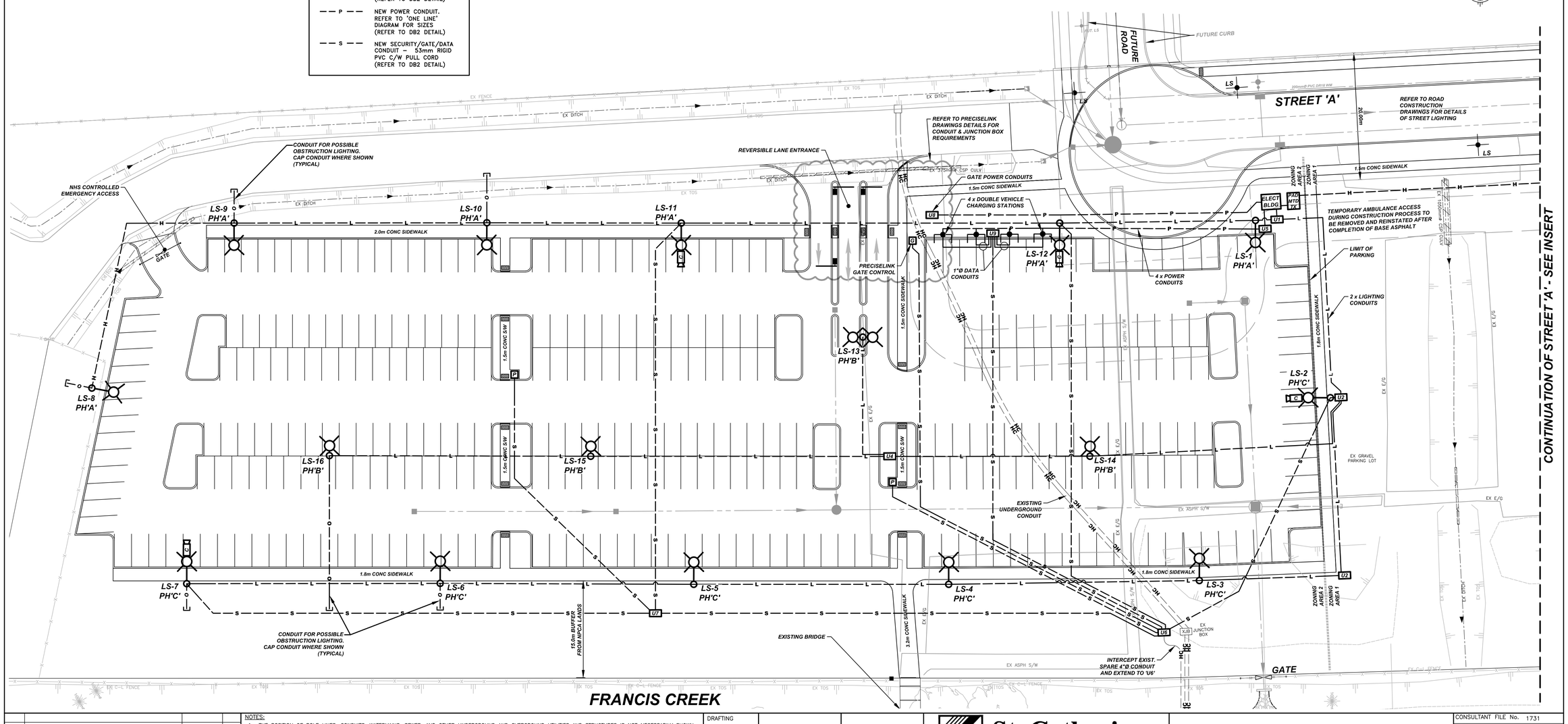
- NEW POLE, ELLIPTICAL ARM AND LUMINAIRE, TYPE 1 POLE BASE
- NEW POLE AND LUMINAIRE, TYPE 1 POLE BASE
- NEW POLE AND TWO LUMINAIRES, TYPE 1 POLE BASE
- U/1 — NEW URD CONDUIT BOX
- C — NEW SECURITY CAMERA MTD. OF LIGHTING POLE C/W CONDUIT
- P — NEW PANIC ALARM STATION C/W CONDUIT
- G — NEW GATE CONTROL BOX
- NEW ELECTRIC VEHICLE CHARGING STATION (REFER TO SPECIFICATION AND 'ONE LINE' DIAGRAM)
- — H — NEW HIGH VOLTAGE CONDUITS (REFER TO DB1 DETAIL)
- — L — NEW PARKING LOT LIGHTING CONDUIT – 53mm RIGID PVC C/W WIRING AS SPECIFIED (REFER TO DB2 DETAIL)
- — O — NEW OBSTRUCTION LIGHTING CONDUIT – 27mm RIGID PVC C/W PULL CORD (REFER TO DB2 DETAIL)
- — P — NEW POWER CONDUIT. REFER TO 'ONE LINE' DIAGRAM FOR SIZES (REFER TO DB2 DETAIL)
- — S — NEW SECURITY/GATE/DATA CONDUIT – 53mm RIGID PVC C/W PULL CORD (REFER TO DB2 DETAIL)

NOTES

1. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH ONTARIO ELECTRICAL SAFETY CODE. 26th EDITION AND THE LOCAL UTILITY



STREET 'A' INSERT
SCALE - 1:500m



#	REVISION	DATE	INIT
0	ISSUED FOR ADDENDUM 1	2018-04-20	RS

NOTES:

1. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER, AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS 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 INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
2. PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD. TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.
3. ALL CONSTRUCTION MUST COMPLY WITH THE NIAGARA PENINSULA STANDARD CONTRACT DOCUMENT.

DRAFTING	TO/BV
DESIGN	RS
CHECKED BY	RS
APPROVED BY	RS

St. Catharines
stcatharines.ca

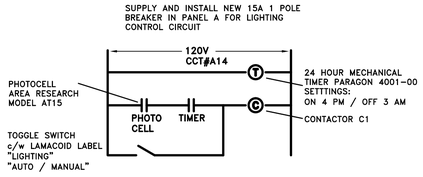
R. STASIAK ENGINEERING INC.
9 WHITE CREST CT., ST. CATHARINES, ONTARIO L2N 6Y1
905-931-3652
rstasiak@rseng.ca

R-088

NIAGARA HEALTH SYSTEM
PROPOSED PARKING LOT
ST.CATHARINES
ELECTRICAL SITE PLAN

CONSULTANT FILE No.	1731
DATE	2018-04-20
PRINTED	2018-04-23
SCALE	1:300 m
REF No.	SCS 17-006
DWG No.	1731-ELEC
REV	0

DRAWING FILE: F:\1731\Electrical-Parking Lot\1731-R088 Service Layout.dwg PLOTTED: Apr 23, 2018 - 11:55am PLOTTED BY: BVanderValk



PHOTOCELL SCHEMATIC

NOT TO SCALE

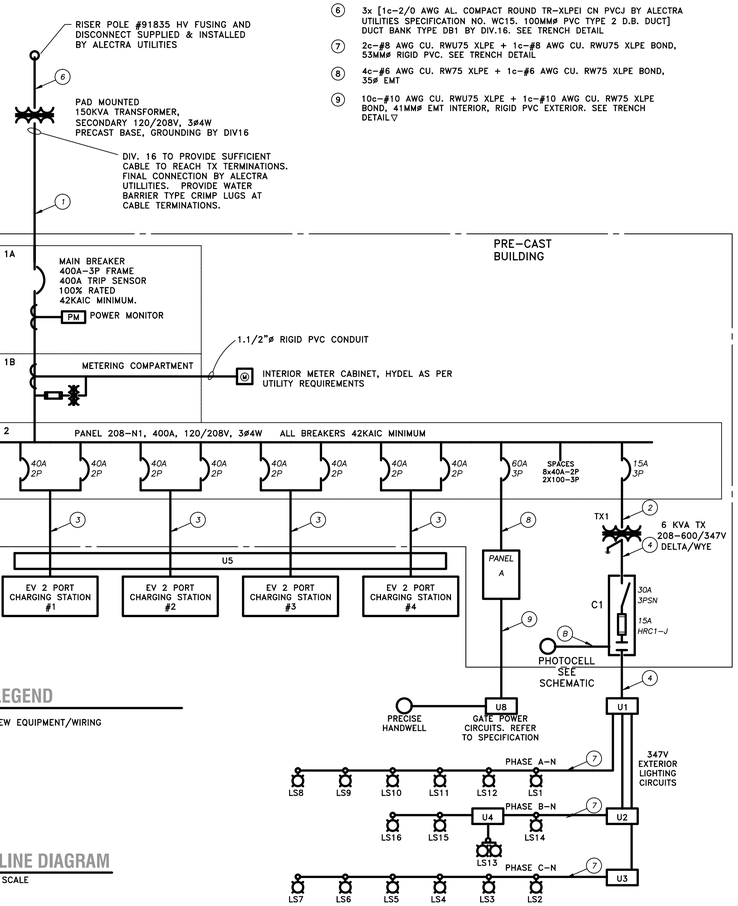
PANEL A — PRE-CAST BUILDING
120/208V, 3 PHASE, 4 WIRE, 100 A
CONNECTED LOAD= XX
ALL BREAKERS 25 KAIC MIN

BUILDING LTG	15	1	2	15	GATE POWER
REC	15	3	4	15	GATE POWER
SPARE	15	5	6	15	GATE POWER
SPARE	15	7	8	15	GATE POWER
.	–	9	10	15	GATE POWER
.	–	11	12	–	.
.	–	13	14	–	.
.	–	15	16	–	.

CABLE LEGEND

▽ DENOTES WIRE SIZE ADJUSTED FOR VOLTAGE DROP

1. 2x [4c–250 MCM CU. RWU75 XLPE, 78MMø RIGID PVC SCHED.40 CONDUIT] SEE TRENCH DETAIL
2. 3c–#12 AWG CU. RW75 XLPE + 1c–#6 AWG CU. RW75 XLPE BOND, 35ø EMT
3. 6c–#8 AWG CU. RWU75 XLPE + 1c–#8 AWG CU. RWU75 XLPE BOND, 53MMø RIGID PVC. SEE TRENCH DETAIL ▽
4. 4c–#8 AWG CU. RWU75 XLPE + 1c–#8 AWG CU. RW75 XLPE BOND, 27MMø EMT INTERIOR, RIGID PVC EXTERIOR. SEE TRENCH DETAIL▽
5. 2c–#12 AWG CU. T90 + 1c–#12 AWG CU. T90 BOND, 21MMø EMT
6. 3x [1c–2/0 AWG AL. COMPACT ROUND TR–XLPEI CN PVCJ BY ALECTRA UTILITIES SPECIFICATION NO. WC15. 100MMø PVC TYPE 2 D.B. DUCT] DUCT BANK TYPE DB1 BY DIV.16. SEE TRENCH DETAIL
7. 2c–#8 AWG CU. RWU75 XLPE + 1c–#8 AWG CU. RWU75 XLPE BOND, 53MMø RIGID PVC. SEE TRENCH DETAIL
8. 4c–#6 AWG CU. RW75 XLPE + 1c–#6 AWG CU. RW75 XLPE BOND, 35ø EMT
9. 10c–#10 AWG CU. RWU75 XLPE + 1c–#10 AWG CU. RW75 XLPE BOND, 41MMø EMT INTERIOR, RIGID PVC EXTERIOR. SEE TRENCH DETAIL▽

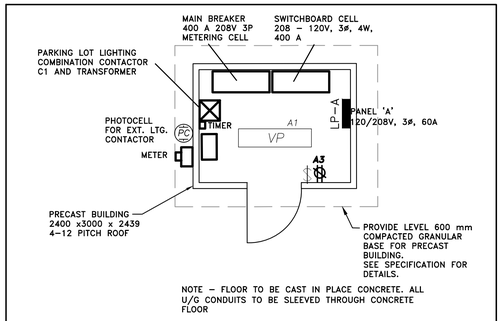


ONE LINE DIAGRAM

NOT TO SCALE

LEGEND

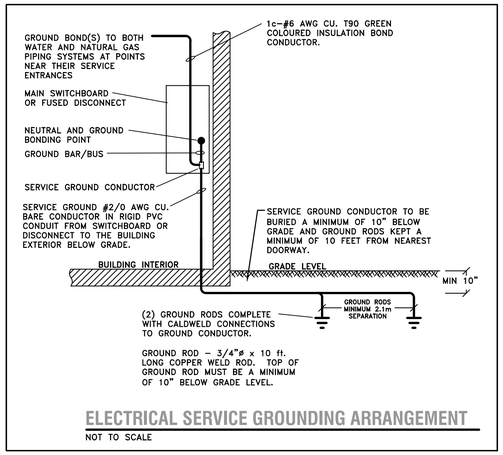
NEW EQUIPMENT/WIRING



NOTE – FLOOR TO BE CAST IN PLACE CONCRETE. ALL U/G CONDUITS TO BE SLEEVED THROUGH CONCRETE FLOOR

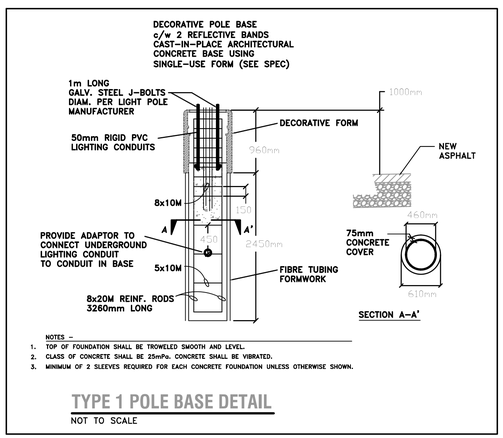
PLAN - ELECTRICAL BUILDING

NOT TO SCALE



ELECTRICAL SERVICE GROUNDING ARRANGEMENT

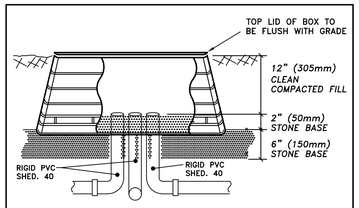
NOT TO SCALE



NOTES –
1. TOP OF FOUNDATION SHALL BE TROWELED SMOOTH AND LEVEL.
2. CLASS OF CONCRETE SHALL BE 25mPa. CONCRETE SHALL BE VIBRATED.
3. MINIMUM OF 2 SLEEVES REQUIRED FOR EACH CONCRETE FOUNDATION UNLESS OTHERWISE SHOWN.

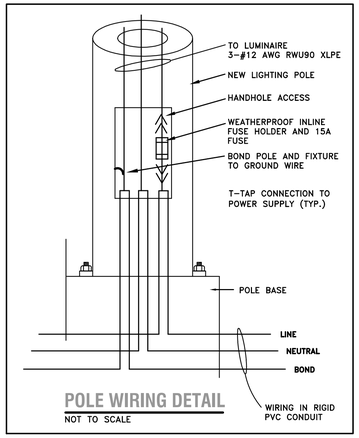
TYPE 1 POLE BASE DETAIL

NOT TO SCALE



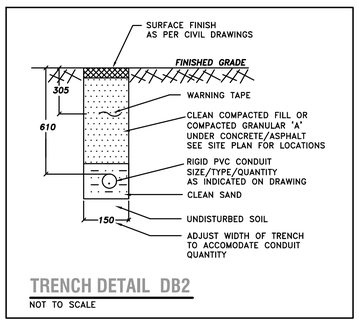
URD BOX DETAIL

NOT TO SCALE



POLE WIRING DETAIL

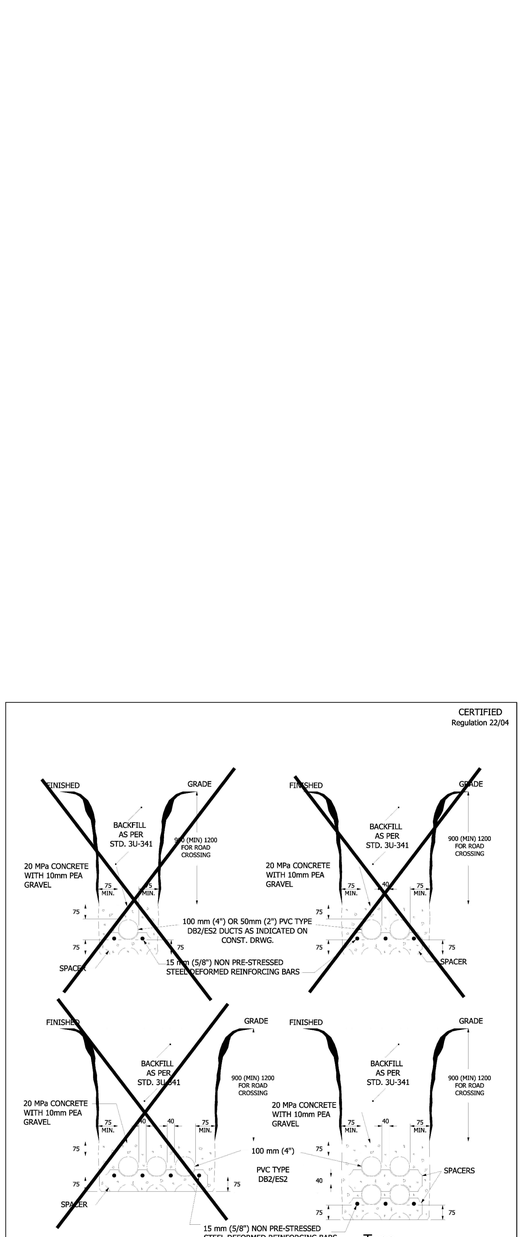
NOT TO SCALE



TRENCH DETAIL DB2

NOT TO SCALE

CERTIFIED
Regulation 22/04



NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

Type DB1 Duct Bank

DRAWING STATUS	BY	DATE DD/MM/YY	TYPICAL ARRANGEMENT FOR DUCTS ENCASED IN CONCRETE FOR 1,2,3,4 DUCTS	REFERENCE DRAWINGS: 3U-341	DRAWINGS NOT TO SCALE
REDRAWN:	JH	12/06/07			
CHECKED:	ND	25/05/05		DRAWING # 3U-343	SHEET# 1
APPROVED:	CR	25/05/05			REVISION# 0

horizon UTILITIES Looking beyond

#	REVISION	DATE	INIT
0	ISSUED FOR ADDENDUM 1	2018–04–20	RS

NOTES:
1. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER, AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS 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 INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
2. PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD. TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.
3. ALL CONSTRUCTION MUST COMPLY WITH THE NIAGARA PENINSULA STANDARD CONTRACT DOCUMENT.

DRAFTING	TO/BV
DESIGN	RS
CHECKED BY	RS
APPROVED BY	RS

St. Catharines
stcatharines.ca

R. STASIAK ENGINEERING INC.
9 WHITE CREST CT., ST. CATHARINES, ONTARIO L2N 6Y1
905–931–3652 rstasiak@rseng.ca
R-088

NIAGARA HEALTH SYSTEM
PROPOSED PARKING LOT
ST.CATHARINES
ELECTRICAL DETAILS 1

CONSULTANT FILE No.	1731
DATE	2018–04–20
PRINTED	2018–04–23
SCALE	1:300 m
REF No.	SCS 17-006
DWG No.	1731-DET1
REV	0

DRAWING FILE: F:\1731\Electrical–Parking Lot\1731–R088 Service Layout.dwg PLOTTED: Apr 23, 2018 – 11:39am PLOTTED BY: BVanderValk

CERTIFIED
Regulation 22/04

1. DESIGN CONSIDERATIONS

1.1. BENDS AND TURNS IN A DUCT RUN SHALL BE ACCOMPLISHED BY A GRADUAL SWEEP. ALL 90 DEGREE CHANGES IN DIRECTION SHALL BE MADE OF 1.5 METRE (60") RADIUS ELBOW AND BE LIMITED TO NO GREATER THAN THREE (3) PER RUN.
NOTE: DUCT RUN SHALL BE DESIGNED SUCH THAT CABLE PULLING TENSIONS DO NOT EXCEED SPECIFIED LIMITS.

1.2. DUCT BANKS SHALL BE BURIED WITH A MINIMUM COVER OF 900 MILLIMETRES, WITH THE EXCEPTION OF ROAD CROSSINGS WHICH SHALL BE BURIED WITH A MINIMUM COVER OF 1200 MILLIMETRES. RED CAUTION TAPE SHALL BE INSTALLED APPROX. HALFWAY BETWEEN THE INSTALLATION AND GRADE LEVEL.
TRENCH RESTORATION SHALL BE MADE UP OF CLEAN BACKFILL ON DUCT BANKS INSTALLED UNDER LAWNS AND PARKWAYS. DUCT BANKS ALONG BOULEVARDS OR ACROSS ROADS SHALL HAVE BACKFILL MATERIALS AND TRENCH RESTORATION TO CONFORM WITH THE MUNICIPAL OR REGIONAL AUTHORITY, AS REQUIRED.

1.3. CUSTOMER'S DUCT BANK SHALL HAVE A MINIMUM SLOPE OF 1% AWAY FROM THE BUILDING. CONSULT HORIZON UTILITIES CORP. INSPECTOR WHERE THE ABOVE REQUIREMENT CANNOT BE MET (ie. FRENCH DRAIN REQUIRED).

1.4. THE AREA WITHIN TWO METERS AT EACH END OF A DUCT BANK SHALL BE FREE OF ANY FOREIGN OBJECTS SUCH AS CABLES OR PIPES, FOR BACKHOE DIGGING.

1.5. DUCT BANK SHALL BE TERMINATED IN A LANDSCAPED AREA AT THE LOCATION GIVEN BY HORIZON UTILITIES CORP.

1.6. CONFIGURATIONS NOT COVERED BY HORIZON UTILITIES CORPORATION STANDARDS 3U-343 TO 3U-348 SHALL BE ARRANGED IN A SIMILAR MANNER SUBJECT TO HORIZON UTILITIES CORP. APPROVAL.

2. DUCT BANK CONSTRUCTION

2.1. THE DUCT SHALL BE 100 MILLIMETRES (4") OR 50 MILLIMETRES (2") DIAMETER, PVC TYPE DB2/ES2 (SOLID WALL ONLY) C/W BELL END AND BE APPROVED AS PER C.S.A. STANDARD C22.2 No. 211.1 (LATEST REVISION) AND HORIZON UTILITIES CORP.

2.2. ALL FITTINGS AND BENDS SHALL BE PVC TYPE DB2/ES2. APPROVED SOLVENT CEMENT SHALL BE USED TO JOIN ALL DUCTS, FITTINGS AND BENDS AT MINIMUM 30 MINUTES PRIOR TO POURING CONCRETE.

2.3. ALL DUCTS AT THE FACE OF THE DUCT BANK SHALL BE ORIENTED AND TERMINATED WITH EITHER BELL ENDS SUPPORTING CABLES OR PLUGS FOR SPARE DUCTS. BELL END MUST ENTER THE PAD/VAULT AND BE FLUSH WITH THE INTERIOR CONCRETE WALL.

2.4. DUCTS SHALL BE SUPPORTED WITH APPROVED SPACERS EVERY 1.5 METRES (5 ft) AND BE ANCHORED SO AS NOT TO FLOAT DURING CONCRETE POURING.

2.5. WHERE SPECIFIED ON CONSTRUCTION DRAWINGS, ALL DUCT BANKS SHALL BE REINFORCED WITH NON PRE-STRESSED 15 MILLIMETRE (5/8") DEFORMED STEEL REINFORCING BARS. - GRADE 400 AND CONFORMED WITH C.S.A. G30.12 (LATEST REVISION). STEEL REINFORCING BARS SHALL BE INSTALLED CONTINUOUSLY, MINIMUM 300 MILLIMETRES OVERLAP AND TIED, AND BE LOCATED AT THE BOTTOM OF THE DUCT BANK AS PER HORIZON UTILITIES CORPORATION STANDARD 3U-343 TO 3U-348.

horizon UTILITIES Looking beyond	DRAWING STATUS	BY	DATE DD/MM/YY	CONCRETE ENCASED DUCT BANK REQUIREMENTS	REFERENCE DRAWINGS: 3U-343 3U-348	DRAWINGS NOT TO SCALE
	DRAWN:	AESI	08/12/16		DRAWING # 3U-341	SHEET# 1 of 2 / REVISION# 1
	CHECKED:	FA	08/12/16			
	APPROVED:	RB	08/12/16			

CERTIFIED
Regulation 22/04

2. DUCT BANK CONSTRUCTION (CONT'D)

2.6. STEEL REINFORCING BARS SHALL BE EXTENDED BEYOND THE DUCT BANK FOR FUTURE DUCT BANK EXTENSION. REINFORCING BARS SHALL BE PASSED CONTINUOUSLY FROM ONE DUCT BANK TO THE OTHER.

2.7. DUCTS SHALL BE ENCASED IN 20MPa CONCRETE WITH 10 mm PEA GRAVEL AGGREGATE. SLUMP MUST NOT EXCEED 100 MILLIMETRES (4") UNDER STANDARD SLUMP TEST. EARTH UNDER DUCT BANK SHALL BE THOROUGHLY COMPACTED PRIOR TO DUCT BANK INSTALLATION TO ELIMINATE SETTLING OF FINISHED DUCT BANK.

2.8. ALL DUCTS SHALL BE MANDRELLED AND BE CLEANED AFTER DUCT BANK INSTALLATION.

2.9. ALL DUCTS SHALL BE EQUIPPED WITH 10 MILLIMETRES (3/8") DIAMETER POLYPROPYLENE ROPE. ALL DUCTS SHALL HAVE THE ENDS SEALED WITH AN APPROVED DUCT PLUG IMMEDIATELY AFTER DUCT BANK INSTALLATION.

2.10. END OF DUCT BANK AND ROAD CROSSING SHALL BE MARKED WITH A RED ELECTRONIC MARKER (LIST NO.: MAOR) AND A RED 2" X 4" STAKE.

2.11. WOOD POLES SHALL BE INSTALLED FROM ALL EQUIPMENT FOUNDATIONS, MANHOLES AND VAULTS TO 2.0m OUTSIDE THE FOUNDATIONS, MANHOLES AND VAULTS. WIDTHS TO CONFORM TO ALL TYPICAL ARRANGEMENTS OF DUCT INCASED IN CONCRETE.

3. DUCT BANK CONSTRUCTION

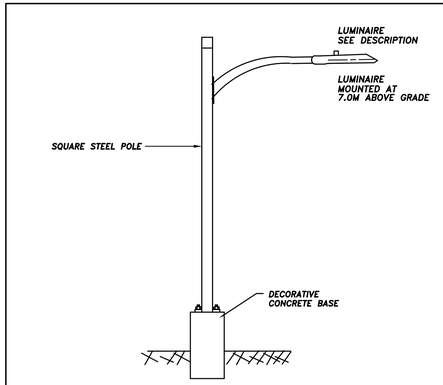
3.1. CUSTOMER'S DUCT BANK INSTALLATION SHALL BE SUBJECTED TO HORIZON UTILITIES CORP. INSPECTION AND ACCEPTANCE PRIOR TO POURING OF CONCRETE OR ANY BACKFILL MATERIAL, OR WILL NOT BE PASSED. CUSTOMER SHALL CONTACT HORIZON UTILITIES CORP., MANAGER OF OUTSIDE CONTRACTORS AT (905) 540-3234 TO ARRANGE FOR INSPECTION 48 HOURS IN ADVANCE OF POURING CONCRETE.

3.2. THE CUSTOMER SHALL FOLLOW DIRECTIONS GIVEN BY HORIZON UTILITIES CORP. INSPECTOR FOR ANY SITUATION NOT COVERED IN THIS SPECIFICATION.

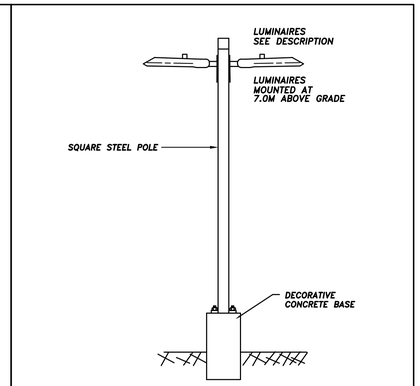
3.3. DUCTS SHALL BE PROBED PRIOR TO CABLE INSTALLATION. CABLE SHALL NOT BE INSTALLED IN DUCT WHICH DOES NOT ALLOW PASSAGE OF A TEST MANDREL SIZED TO 95 % OF THE DIAMETER OF THE PVC TYPE DB2/ES2 DUCT.

3.4. LANDSCAPING, PAVING AND CURBS SHALL NOT BE COMPLETED UNTIL HORIZON UTILITIES CORP. CABLE INSTALLATION IS COMPLETE. OTHERWISE, ALL RESTORATION SHALL BE DONE BY THE CUSTOMER AT THEIR EXPENSE.

horizon UTILITIES Looking beyond	DRAWING STATUS	BY	DATE DD/MM/YY	CONCRETE ENCASED DUCT BANK REQUIREMENTS	REFERENCE DRAWINGS: 3U-343 3U-348	DRAWINGS NOT TO SCALE
	DRAWN:	AESI	08/12/16		DRAWING # 3U-341	SHEET# 2 of 2 / REVISION# 1
	CHECKED:	FA	08/12/16			
	APPROVED:	RB	08/12/16			

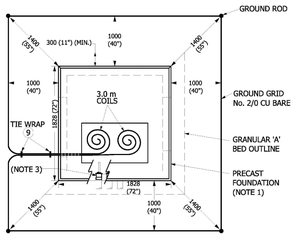


PERIMETER LIGHTING POLE DETAIL
NOT TO SCALE



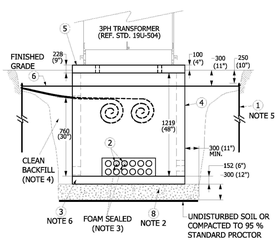
ISLAND LIGHTING POLE DETAIL
NOT TO SCALE

CERTIFIED
Regulation 22/04



PLAN VIEW

DETAIL 1



ELEVATION

NOTES:

1. THE FOUNDATION SHALL BE ORIENTED AS PER CONSTRUCTION DRAWING WITH TOP SURFACE HAVING A MAXIMUM 1% SLOPE.
2. GRANULAR 'A' BEDDING, FOUNDATION AND GROUND GRID INSTALLATION ARE ALL SUBJECT TO HORIZON UTILITIES CORPORATION INSPECTION.
3. DUCTS AND GROUND WIRE ENTRY HOLES SEALED WITH FOAM OR EQUIVALENT.
4. PLACE BACKFILL IN THOROUGHLY COMPACTED 300mm LAYERS.
5. REFER TO STD. 41U-110 (DETAIL 4) FOR GROUND ROD INSTALLATION.
6. FOUNDATION BASE TO BE SOLID TYPE, (NOT RING-TYPE).
7. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

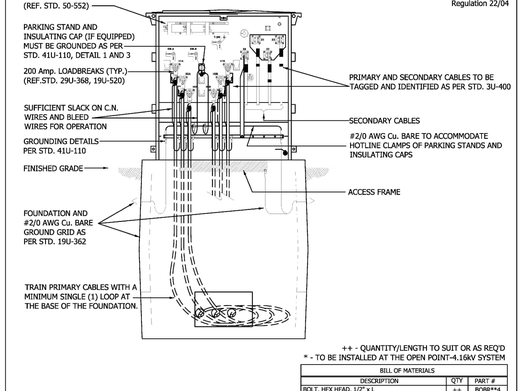
++ - QUANTITY/LENGTH TO SUIT

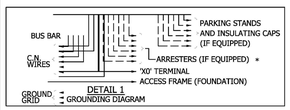
BILL OF MATERIALS

ITEM	DESCRIPTION	QTY	PART #
1	ROD, GROUND, 10' x 3/4"	4	ROG10
2	SEALANT, FOAM, DUCT	++	S201
3	FOUNDATION BASE 72" x 72" x 6"	1	SFB7272
4	FOUNDATION WALL 72" x 72" x 48"	1	SFW7272
5	FOUNDATION COVER 72" x 72" x 9"	1	SFT7272
6	WIRE, 2/0 AWG Cu	++	WCB20
7	CLAMP, GROUND ROD 3/4"	6	AMG275
8	GRANULAR 'A' 3/4" (20mm)	++	N01241
9	STRAP CABLE NYLON LRG	2	SCN527

horizon UTILITIES Looking beyond	DRAWING STATUS	BY	DATE DD/MM/YY	FOUNDATION AND GROUND GRID FOR THREE-PHASE PAD-MOUNTED TRANSFORMER	REFERENCE DRAWINGS: 19U-504 41U-110	DRAWINGS NOT TO SCALE
	DRAWN:	AESI	03/04/14		DRAWING # 19U-362	SHEET# 1 / REVISION# 1
	CHECKED:	BK	03/04/14			
	APPROVED:	BK	04/04/14			

CERTIFIED
Regulation 22/04





DETAIL 1
GROUNDING DIAGRAM

++ - QUANTITY/LENGTH TO SUIT OR AS REQ'D
* - TO BE INSTALLED AT THE OPEN POINT-4.16kV SYSTEM

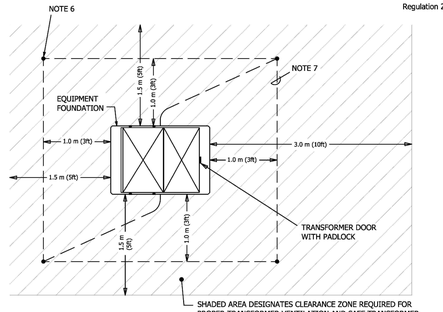
BILL OF MATERIALS

DESCRIPTION	QTY	PART #
BOLT, HEX HEAD, 1/2" x L	++	BOBR**4
CLAMP, HOT-LINE, #8 - 1/0	6*	CLHL10
WIRE, 2/0 AWG Cu	++	WCB20
WIRE, BLEED, Cu, #14 AWG	++	---
INSERT, BUSHING, 200A	6	STD. 29U-368
ELBOW, 200A	6	STD. 29U-368
STAND, PARKING, 200A	3*	STD. 29U-368
CAP, INSULATING, 200A	3*	STD. 29U-368
ARRESTER, BUSHING, ELBOW or PARKING STAND	Δ	STD. 19U-520
CONNECTOR, LUG, #2 AWG Cu, 1-HOLE	6	LGSC21
CONNECTOR, LUG, 2/0 AWG Cu, 1-HOLE	5	LGCW203
NUT, BRASS, FOR 1/2" BOLT	1/BOLT	NUB4014
WASHER, ROUND, FLAT, 1/2"	2/BOLT	WASF4014
LOCK WASHER FOR 1/2" BOLT	1/BOLT	WASL4014
PADLOCK - 50mm	1	PZPL1

Δ- ELBOW AND PARKING STAND ARRESTERS TO BE INSTALLED AT THE OPEN POINT - 13.8kV & 27.6kV SYSTEM. BUSHING ARRESTER TO BE INSTALLED AT THE MIDPOINT - 27.6kV SYSTEM.

horizon UTILITIES Looking beyond	DRAWING STATUS	BY	DATE DD/MM/YY	THREE-PHASE PAD-MOUNTED TRANSFORMER (UP TO 1500kVA)	REFERENCE DRAWINGS: 50-552 29U-368 19U-362 41U-110 19U-520	DRAWINGS NOT TO SCALE
	DRAWN:	AESI	07/05/15		DRAWING # 19U-504	SHEET# 1 / REVISION# 0
	CHECKED:	MM	07/05/15			
	APPROVED:	RB	07/05/15			

CERTIFIED
Regulation 22/04



SHADED AREA DESIGNATES CLEARANCE ZONE REQUIRED FOR PROPER TRANSFORMER VENTILATION AND SAFE TRANSFORMER SWITCHING OPERATION. NO PLANTS OR SHRUBS ALLOWED IN THIS AREA (SEE NOTES)

NOTES:

1. FOR ALL INSTANCES, A 3.0 METRE (10ft) CLEARANCE SHALL BE MAINTAINED FROM TREES, HYDRANTS, AND ABOVE GRADE UTILITY STRUCTURES.
2. ANY AND ALL OBJECTS WITHIN THE OBSTRUCTION FREE AREA, ARE SUBJECT TO REMOVAL WITHOUT ANY PRIOR NOTICE SHOULD OPERATIONAL OR EMERGENCY CONDITIONS EXIST.
3. HORIZON UTILITIES CORPORATION SHALL NOT BE HELD RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH THE REMOVAL OR RESULTING DAMAGE TO ANY OBJECTS WITHIN THE OBSTRUCTION FREE AREA (THE DEVELOPER/OWNER ASSUMES ALL RESPONSIBILITY FOR ENCROACHING WITHIN THE OBSTRUCTION FREE AREA).
4. CIVIL DRAWINGS TO BE REVIEWED TO ENSURE TRANSFORMER OR SWITCH PLACEMENT DOES NOT OVERLAP OR INTERFERE WITH DEEP SERVICES.
5. TRANSFORMERS SHALL BE A MINIMUM OF 3.0 METRES (10ft) FROM DOORS, WINDOWS OR VENTILATION INLETS/OUTLETS. TRANSFORMERS WITHIN THE 3.0 METRE (10ft) LIMIT SHALL BE PROTECTED BY AN INTERNAL CURRENT-LIMITING FUSE AND EQUIPPED WITH A PRESSURE RELIEF DEVICE OR REQUIRE A SUITABLE BARRIER (BLAST WALL) (OESC RULE 26-242).
6. GROUND ROD TO BE INSTALLED AT MINIMUM DEPTH 300 MILLIMETRES (1ft) BELOW GRADE.
7. GROUND GRID LOOP Cu WIRE TO BE INSTALLED AT MINIMUM DEPTH 300 MILLIMETRES (1ft) BELOW GRADE AND 1.0 METRE (3ft) AWAY FROM TRANSFORMER FOUNDATION.

horizon UTILITIES Looking beyond	DRAWING STATUS	BY	DATE DD/MM/YY	PAD MOUNTED TRANSFORMER CLEARANCES	REFERENCE DRAWINGS:	DRAWINGS NOT TO SCALE
	DRAWN:	AESI	04/03/15		DRAWING # 19U-525	SHEET# 1 / REVISION# 1
	CHECKED:	MM	06/03/15			
	APPROVED:	RB	09/03/15			

R088 NHS PARKING LOT LIGHTING SCHEDULE (REV 0)

POLE No.	DESCRIPTION	POLE TYPE	POLE LENGTH (m)	POLE BASE TYPE	NUMBER OF LUMINAIRES	LUMINAIRE	WATTS	BRACKET ARM LENGTH (m)	LUMINAIRE HEIGHT (m)	SECURITY CAMERA MOUNT ON POLE	VOLTAGE / PHASE
LS1	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	NO	347V/ PHASE A
LS2	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	YES	347V/PHASE B
LS3	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	NO	347V/PHASE C
LS3	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	NO	347V/PHASE C
LS3	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	NO	347V/PHASE C
LS5	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	NO	347V/PHASE C
LS6	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	NO	347V/PHASE C
LS7	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	YES	347V/PHASE C
LS8	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	NO	347V/ PHASE A
LS9	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	NO	347V/ PHASE A
LS10	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	NO	347V/ PHASE A
LS11	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	YES	347V/ PHASE A
LS12	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	5.88	CONCRETE BASE TYPE 1	1	TYPE A (SEE SPEC)	136	2.44	7.0	YES	347V/ PHASE A
LS13	NEW LIGHTING POLE AND 2 LUMINAIRES	SQUARE STEEL (SEE SPEC)	6.10	CONCRETE BASE TYPE 1	2	TYPE C (SEE SPEC)	272	NO BRACKET	7.0	NO	347V/PHASE B
LS14	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	6.10	CONCRETE BASE TYPE 1	1	TYPE B (SEE SPEC)	136	NO BRACKET	7.0	YES	347V/PHASE B
LS15	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	6.10	CONCRETE BASE TYPE 1	1	TYPE B (SEE SPEC)	136	NO BRACKET	7.0	YES	347V/PHASE B
LS16	NEW LIGHTING POLE AND LUMINAIRE	SQUARE STEEL (SEE SPEC)	6.10	CONCRETE BASE TYPE 1	1	TYPE B (SEE SPEC)	136	NO BRACKET	7.0	YES	347V/PHASE B

#	REVISION	DATE	INIT
0	ISSUED FOR ADDENDUM 1	2018-04-20	RS

NOTES:

1. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER, AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS 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 INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
2. PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD. TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.
3. ALL CONSTRUCTION MUST COMPLY WITH THE NIAGARA PENINSULA STANDARD CONTRACT DOCUMENT.

DRAFTING	TO/BV
DESIGN	RS
CHECKED BY	RS
APPROVED BY	RS

St. Catharines
stcatharines.ca

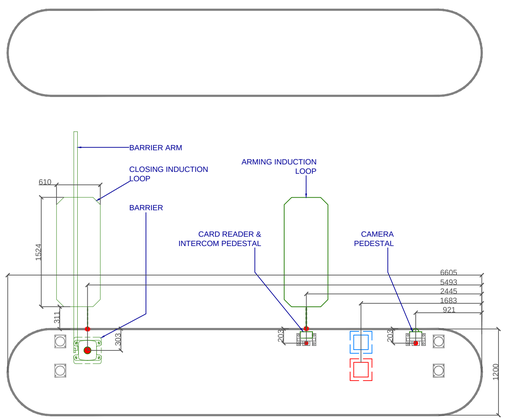
R. STASIAK ENGINEERING INC.
9 WHITE CREST CT., ST. CATHARINES, ONTARIO L2N 6Y1
905-931-3652 rstasiak@rseng.ca

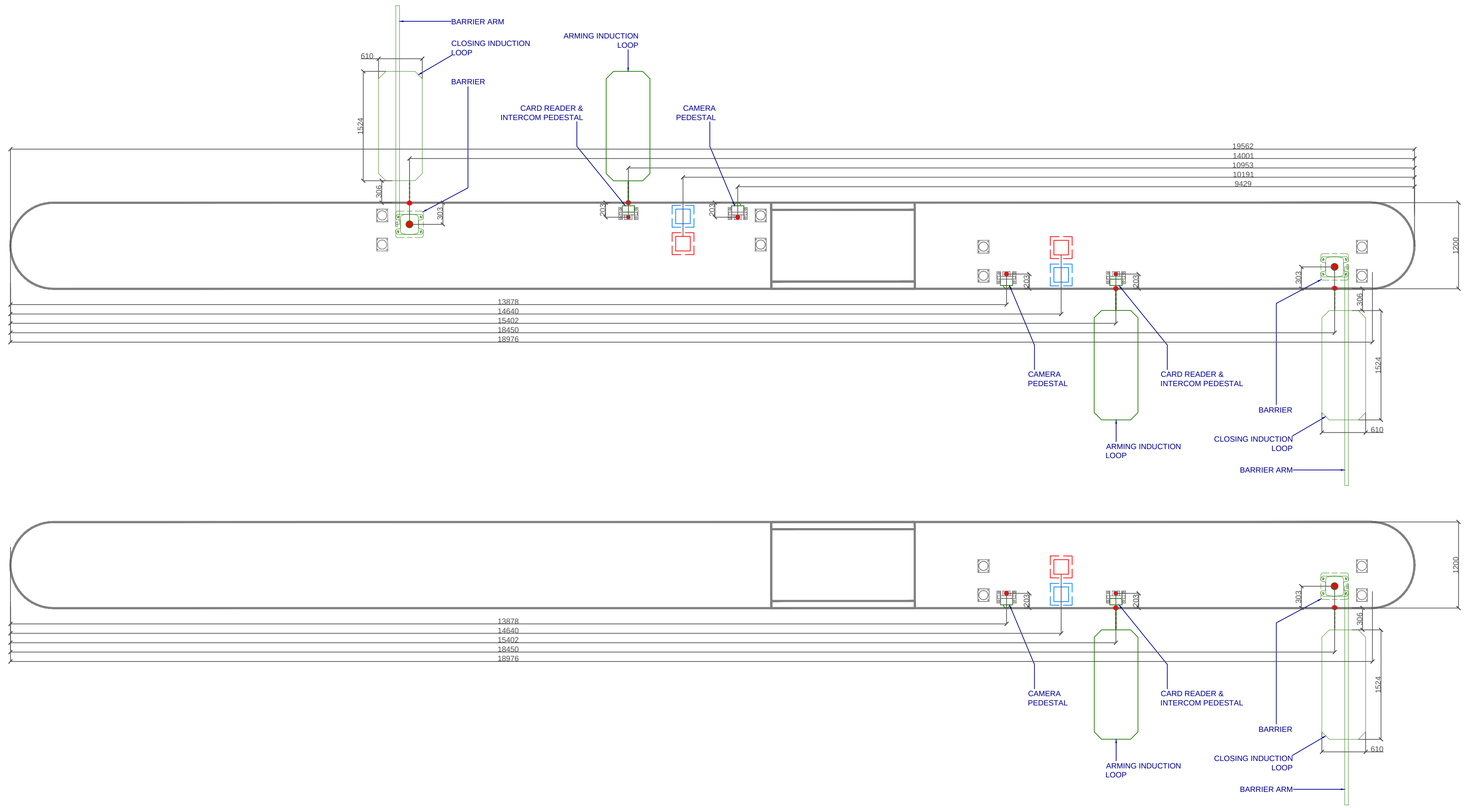
R-088

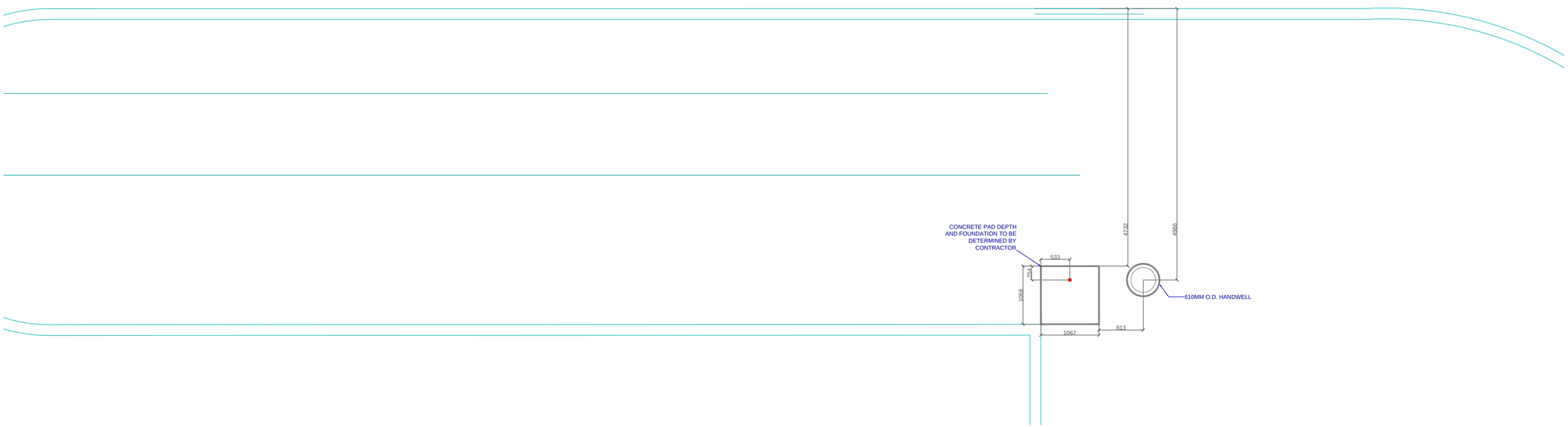
NIAGARA HEALTH SYSTEM
PROPOSED PARKING LOT
ST.CATHARINES
ELECTRICAL DETAILS 2

CONSULTANT FILE No.	1731
DATE	2018-04-20
PRINTED	2018-04-23
SCALE	1:300 m
REF No.	SCS 17-006
DWG No.	1731-DET2
REV	0

DRAWING FILE: F:\1731\Electrical-Parking Lot\1731-R088 Service Layout.dwg PLOTTED: Apr 23, 2018 - 12:18pm PLOTTED BY: BVanderValk







LEGEND

CONDUIT STUB LOCATION

POWER JUNCTION BOX

COMM. JUNCTION BOX

NOTES

MEASUREMENTS ARE APPROXIMATE, NOT TO SCALE

No.	Revision/Issue	Date
1	Issued for Approval	4/19/18

Andy Dass –
Precise Parklink
100 Floral Pkwy,
Ontario, Canada

NHS St. Catherines

1200 Fourth Ave.
St. Catherines. ON

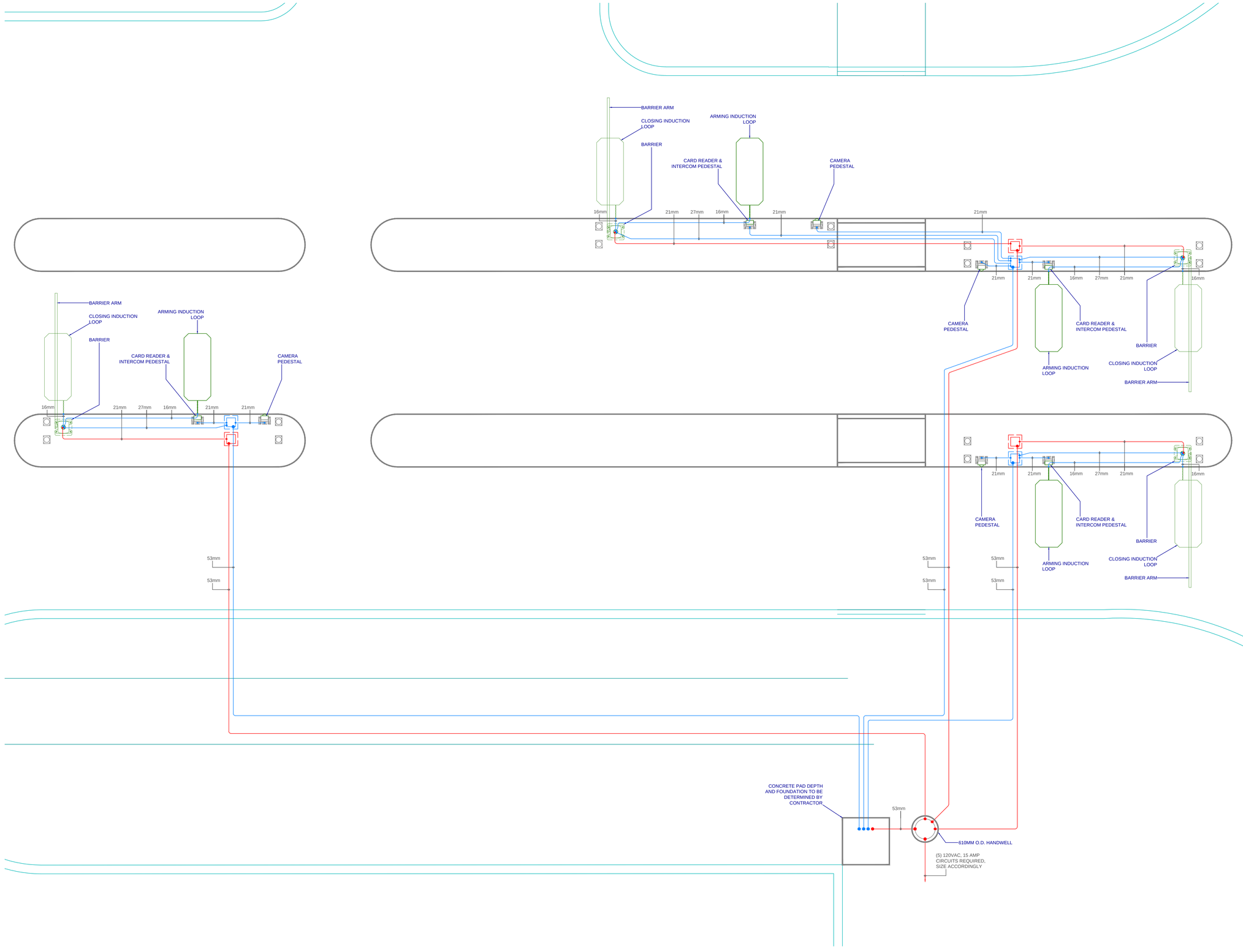
Staff Parking Expansion

Project	Sheet
N/A	2
Date	
4/19/18	

CONDUIT STUB LOCATIONS

11/01/2012

Andy Dass



LEGEND

- POWER CONDUIT
- COMM. CONDUIT
- POWER JUNCTION BOX
- COMM. JUNCTION BOX

NOTES

MEASUREMENTS ARE APPROXIMATE, NOT TO SCALE

No.	Revision/Issue	Date
1	Issued for Approval	4/19/18

Andy Dass –
Precise Parklink
100 Floral Pkwy,
Ontario, Canada

NHS St. Catherines

1200 Fourth Ave.
St. Catherines. ON

Staff Parking Expansion

Project	Sheet
N/A	3
Date	
4/19/18	

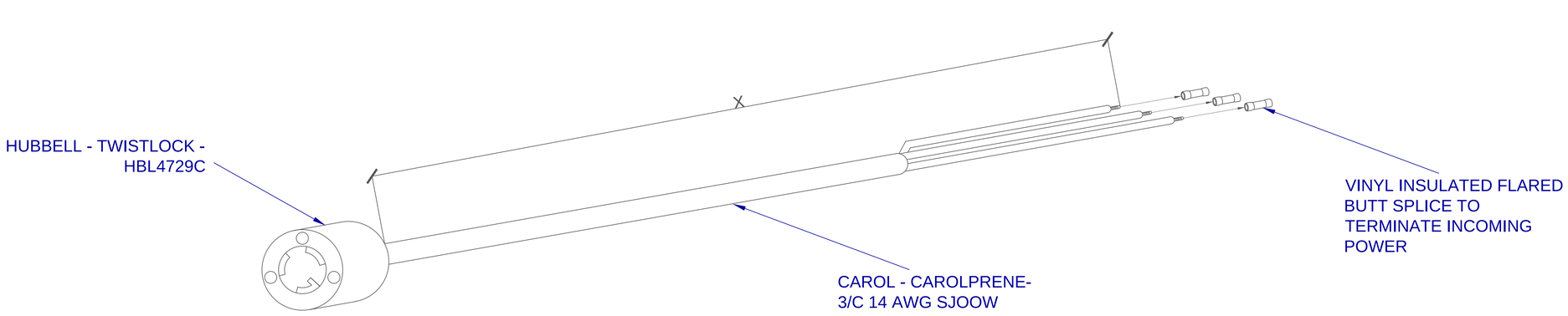
CONDUIT LAYOUT

11/01/2012

Andy Dass

ELECTRICAL TERMINATIONS

DEVICE	X
COLUMN	305mm
BARRIER	1219mm
PAYSTATION	1524mm



LEGEND

NOTES

MEASUREMENTS ARE APPROXIMATE, NOT TO SCALE

No.	Revision/Issue	Date
1	Issued for Approval	4/19/18

Andy Dass –
Precise Parklink
100 Floral Pkwy,
Ontario, Canada

NHS St. Catherines

1200 Fourth Ave.
St. Catherines. ON

Staff Parking Expansion

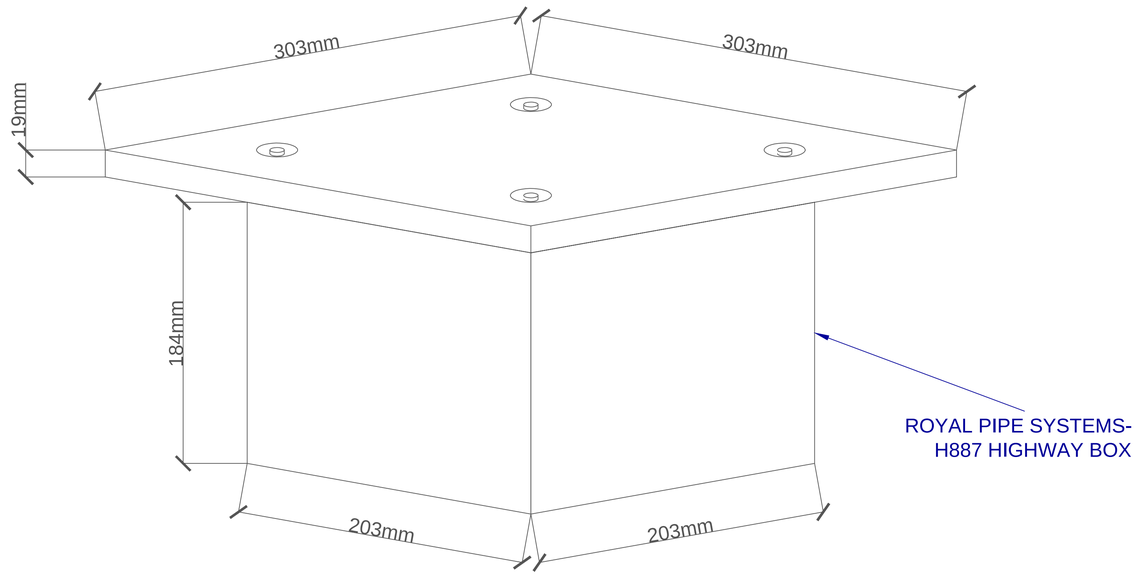
Project	Sheet
N/A	4
Date	
4/19/18	

ELECTRICAL TERMINATIONS

11/01/2012

Andy Dass

JUNCTION BOX SPECIFICATIONS



LEGEND

NOTES

MEASUREMENTS ARE APPROXIMATE, NOT TO SCALE

No.	Revision/Issue	Date
1	Issued for Approval	4/19/18

Andy Dass –
Precise Parklink
100 Floral Pkwy,
Ontario, Canada

NHS St. Catherines

1200 Fourth Ave.
St. Catherines. ON

Staff Parking Expansion

Project	Sheet
N/A	5
Date	
4/19/18	

JUNCTION BOX SPECIFICATIONS

Andy Dass 11/01/2012