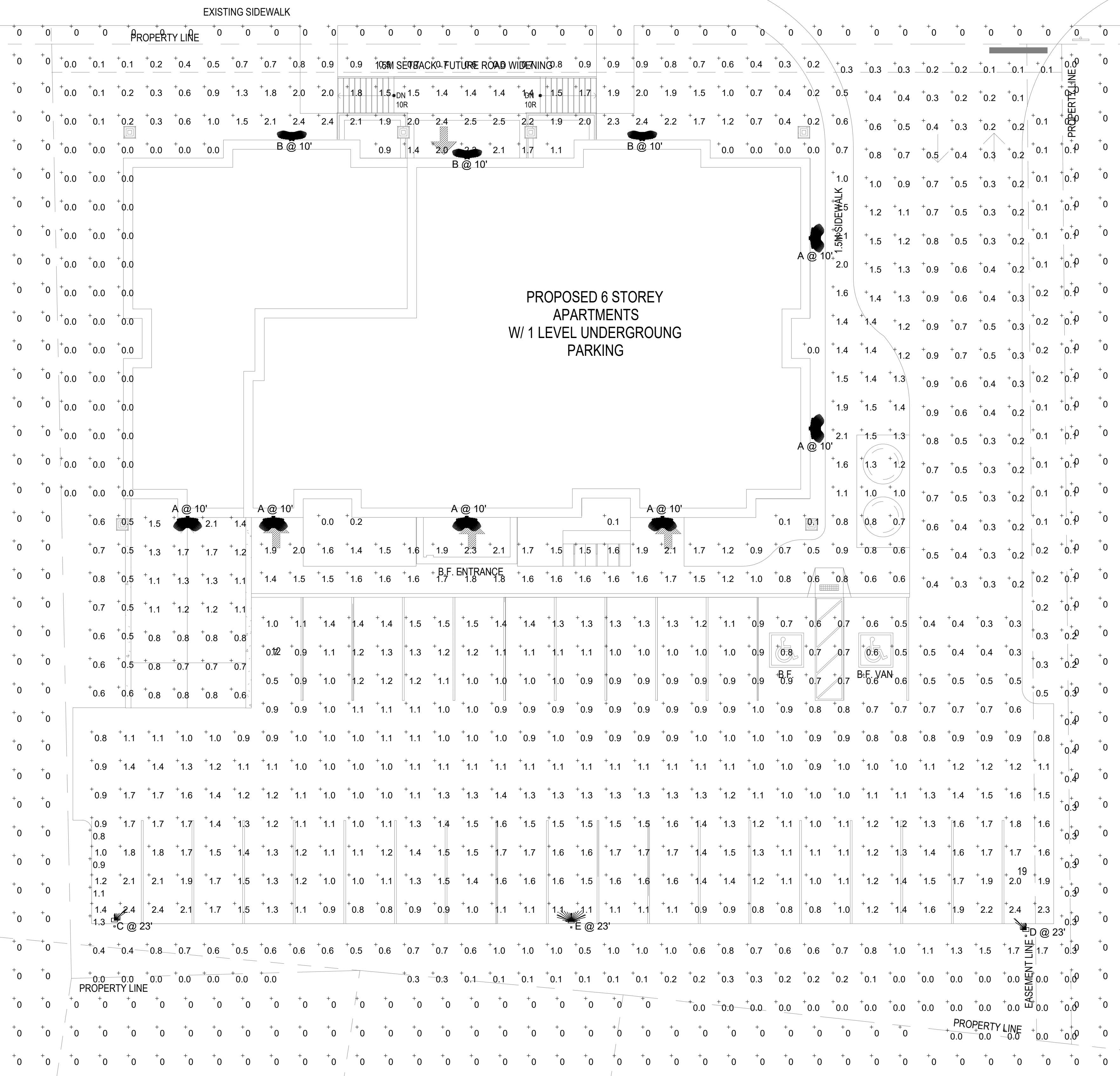


PENETANG STREET



PROPOSED 6 STOREY
APARTMENTS
W/ 1 LEVEL UNDERGROUND
PARKING

Ramp Lot Lighting Levels (fc)	
Average	1.1
Maximum	2.1
Minimum	0.6
Max/Min	3.5:1
Average/Min	1.8:1

Driveway Lighting Levels (fc)	
Average	0.5
Maximum	1.5
Minimum	0.1
Max/Min	15.0:1
Average/Min	5.0:1

Site Lot Lighting Levels (fc)	
Average	0.7
Maximum	2.5
Minimum	0
Max/Min	N/A
Average/Min	N/A

Parking Lot Lighting Levels (fc)	
Average	1.2
Maximum	2.4
Minimum	0.3
Max/Min	8.0:1
Average/Min	4.0:1

Spill Lot Lighting Levels (fc)	
Average	0
Maximum	0
Minimum	0
Max/Min	N/A
Average/Min	N/A

Lighting Fixture Schedule					
Fixture	Model Number	Watts per Fixture	Quantity	Voltage	Lamp Type
A	Lithonia Lighting DSXW1 LED 10C 530 30K T4M	19.1	6	TBD	LED
B	Lithonia Lighting DSXW1 LED 10C 350 40K T2S	13.3	3	TBD	LED
C	Lithonia Lighting DSXO LED P2 40K LCCO	49	1	TBD	LED
D	Lithonia Lighting DSXO LED P2 40K RCCO	49	1	TBD	LED
E	Lithonia Lighting DSXO LED P2 40K BLC	49	1	TBD	LED

DATE	NO.	DESCRIPTION	BY
SEP 04/19	2	ISSUED FOR PERMIT	JG
AUG 22/19	1	ISSUED FOR PERMIT	JG

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REVISIONS

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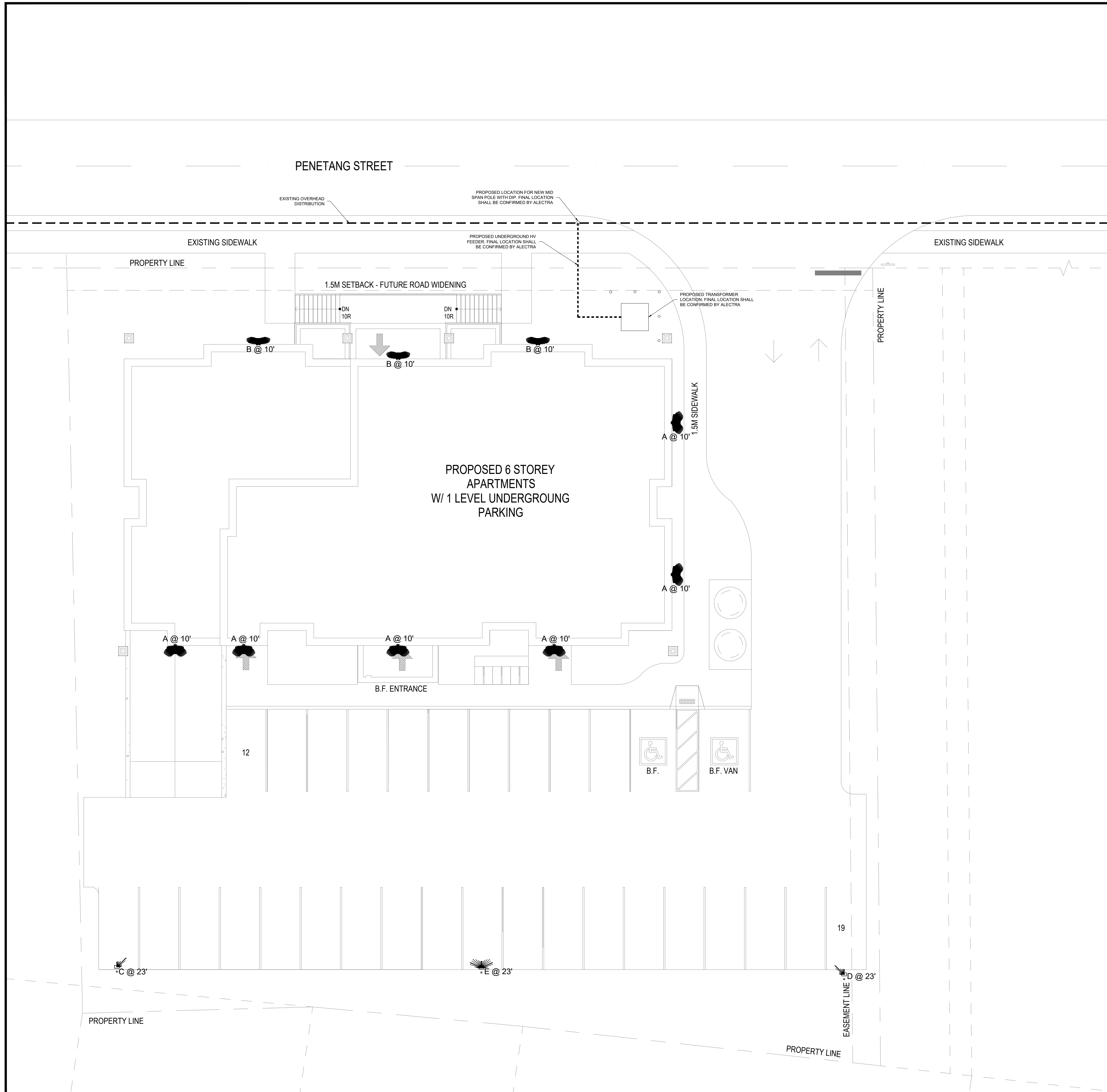


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PROJECT:
PENETANG STREET CONDO DEVELOPMENT
45 & 51 PENETANG STREET
BARRIE, ONTARIO

DRAWING TITLE:
SITE LIGHTING

DRAWN BY:	CHECKED BY:	SCALE:
JG	CL	3/32" = 1'0"
DATE:	PROJECT NUMBER:	DRAWING NUMBER:
AUG/2019	9-5735	E-101



DATE	NO.	DESCRIPTION	BY
SEP 04/19	2	ISSUED FOR PERMIT	JG
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 67 HIGH STREET BARRIE, ON L4N 1W5 TEL: (705) 735-1133

PROJECT:
PENETANG STREET CONDO DEVELOPMENT
 45 & 51 PENETANG STREET
 BARRIE, ONTARIO

DRAWING TITLE:
ELECTRICAL SITE PLAN

DRAWN BY: JG	CHECKED BY: CL	SCALE: 3/32" = 1'0"
DATE: AUG/2019	PROJECT NUMBER: 9-5735	DRAWING NUMBER: E-102



PowerStream Inc. Construction Standard

17-201

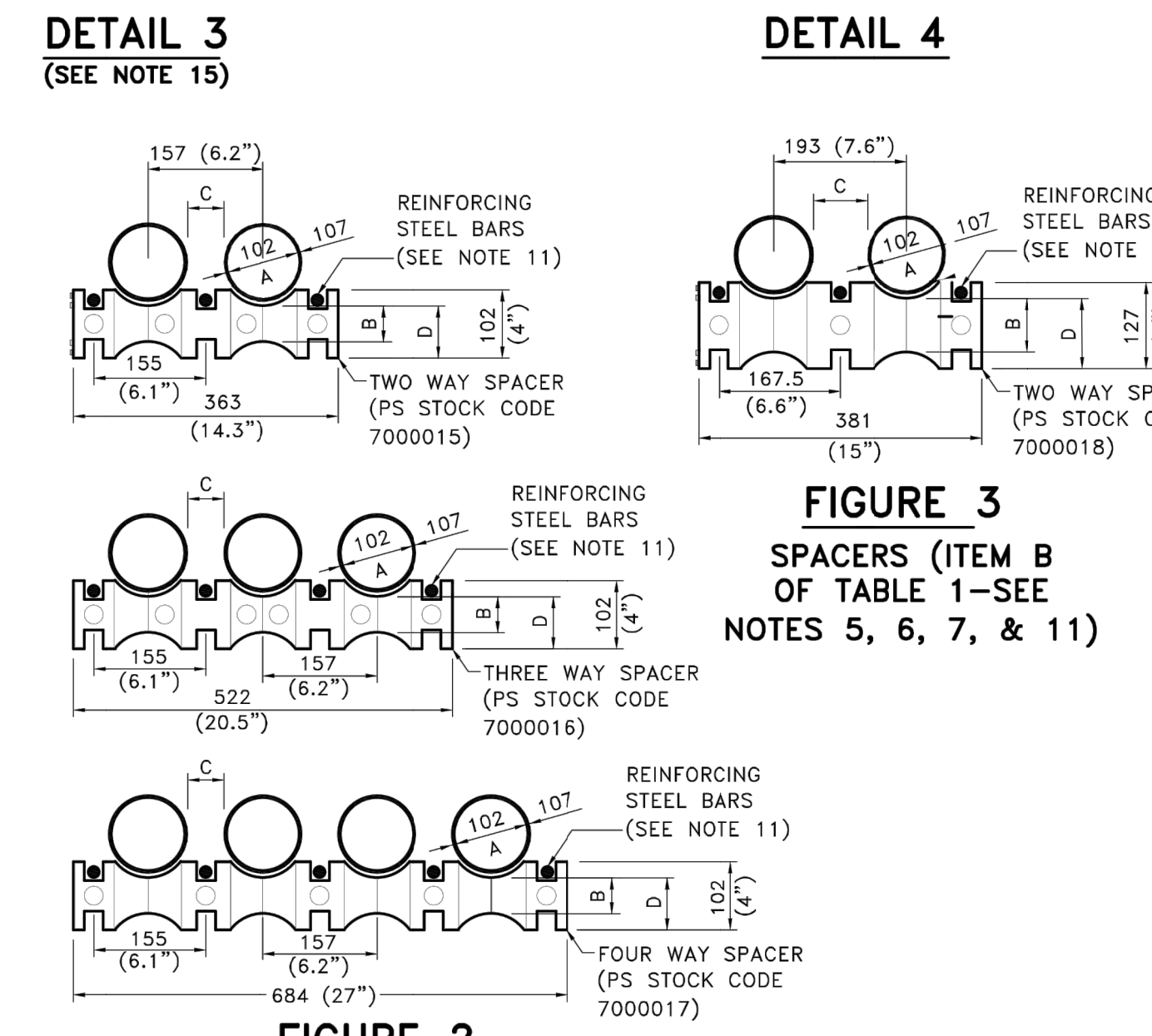
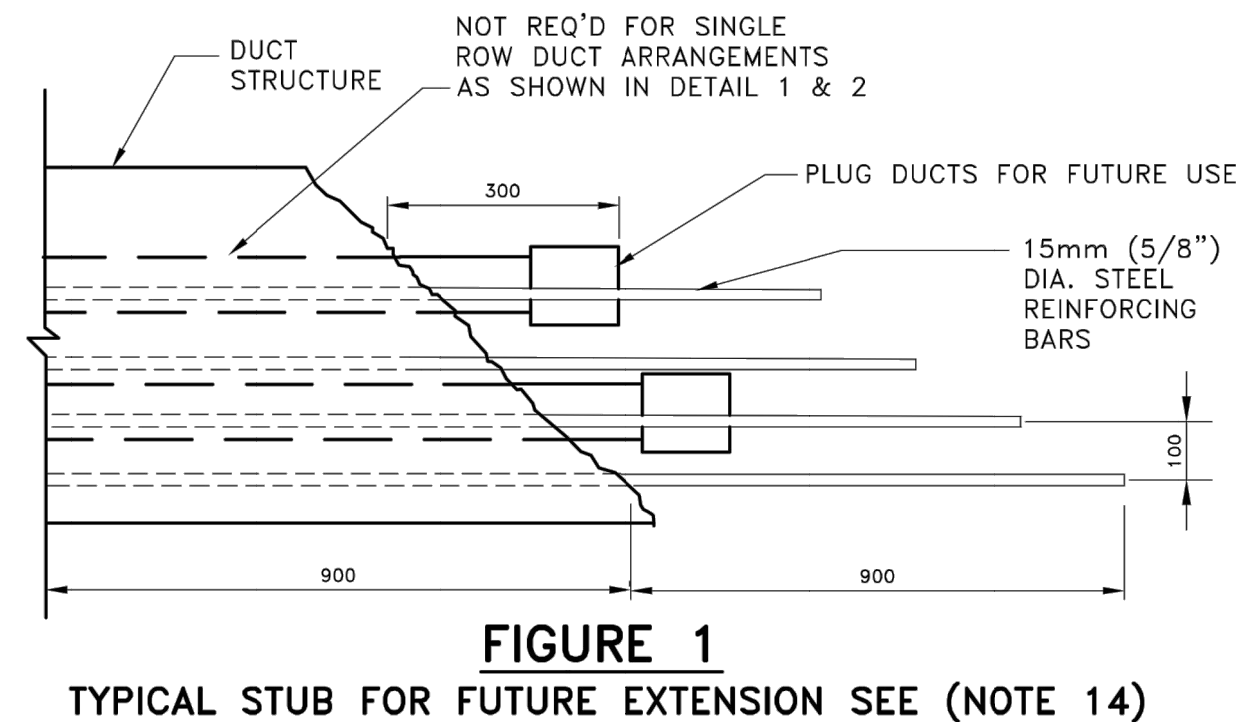
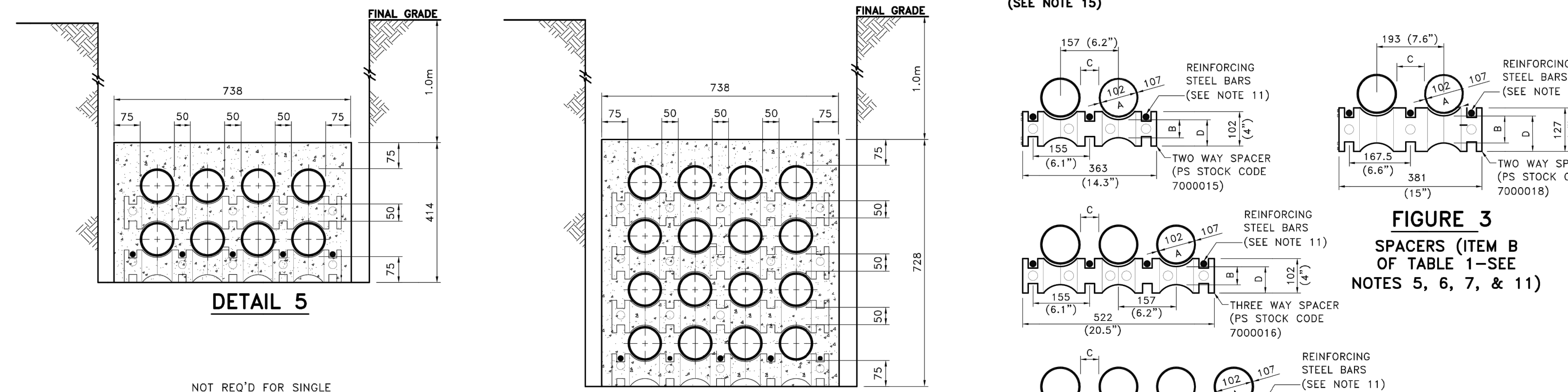
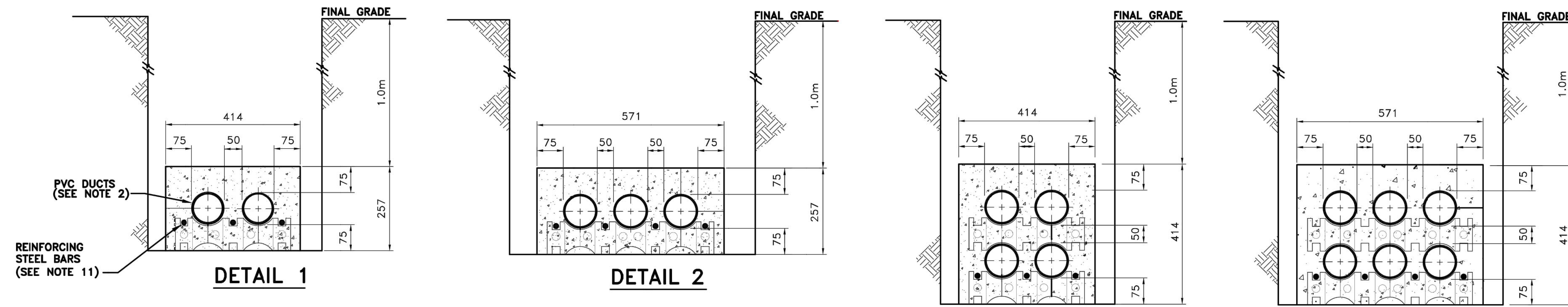


FIGURE 3
SPACERS (ITEM B OF TABLE 1—SEE NOTES 5, 6, 7, & 11)

ITEM NO.	NOMINAL PIPE SIZE (A) mm (inch)	VERTICAL SPACING mm (inch)		HORIZONTAL SPACING mm (inch)		GROUND CLEARANCE (D) mm (inch)	NUMBER OF WAYS
		BETWEEN END OF DUCTS (B)	BETWEEN CENTRE OF DUCTS	BETWEEN END OF DUCTS (C)	BETWEEN CENTRE OF DUCTS		
A (FIGURE 2)	102 (4")	51 (2")	157 (6.2")	51 (2")	157 (6.2")	76 (3")	2, 3 or 4
B (FIGURE 3)	102 (4")	76 (3")	182 (7.2")	86 (3.4")	193 (7.5")	102 (4")	2

TABLE 1
ROYAL PIPE MONOBLOC SPACERS OR EQUIVALENT APPROVED BY POWERSTREAM (SEE NOTES 5, 6, 7, & 11)

Certificate of Approval
This construction Standard meets the safety requirements of Section 4 of Regulation 22/04
Joe Crozier, P.Eng. 2012-MAR-15
Name Date
P.Eng. Approval By: Joe Crozier

- NOTES:**
- THE CUSTOMER SHALL SUPPLY AND MAINTAIN APPROVED DUCTS TO PERMIT THE INSTALLATION OF THE CABLES BY POWERSTREAM.
 - ALL DUCTS SHALL BE CSA TYPE DB2/ES2 POLYVINYL CHLORIDE (PVC) WITH AN INTERNAL DIAMETER OF 102mm AND OUTER DIAMETER 107mm (POWERSTREAM STOCK CODE 1700202). THESE DUCTS SHALL COMPLY WITH C.S.A STANDARD C22.2 NO. 211.1 (CURRENT EDITION). ALL DUCTS SHALL BE TERMINATED WITH BELL FITTINGS AT EACH END UNLESS OTHERWISE SPECIFIED.
 - THE TOP SURFACE OF THE DUCT BANK SHALL BE AT LEAST 1.0m BELOW THE FINISHED GRADE.
 - THE DUCT RUN SHALL CONSIST OF PARALLEL DUCTS; THE NUMBER AND POWERSTREAM ARRANGEMENT OF DUCTS TO BE SPECIFIED BY
 - DUCTS TO BE SUPPORTED WITH POWERSTREAM APPROVED SPACERS (STOCK CODES 7000015, 7000016, 7000017, 7000018) AS SHOWN IN FIGURE 2 AND 3. THE SPACERS SHALL BE INSTALLED WITHIN 600mm ON BOTH SIDES OF EACH COUPLING USED. TWO SPACERS FOR 3.0m OF DUCT LENGTH SHALL BE USED.
 - THE SPACING BETWEEN EXTERIOR WALLS OF DUCTS SHALL BE 51 mm BOTH HORIZONTALLY AND VERTICALLY (ITEM A OF TABLE 1) OR AS SPECIFIED IN NOTE 7.
 - USE SPACER BLOCKS WITH 86mm HORIZONTAL AND 76mm VERTICAL SPACING BETWEEN EXTERIOR WALLS (ITEM B OF TABLE 1) FOR CONCRETE ENCASED DUCT BANKS AT TRANSFORMER STATIONS FEEDER EGRESS OR FOR HIGHER CABLE AMPACITY REQUIREMENTS.
 - THE DUCT LENGTHS SHALL BE JOINED TOGETHER WITH AN APPROVED COUPLING TO PROVIDE A SOUND AND WATERTIGHT JOINT. THE JOINTS IN ADJACENT DUCTS SHALL BE STAGGERED BY AT LEAST 200mm.
 - THE DUCTS SHALL HAVE AN EVEN SLOPE IN ONE DIRECTION OF NOT LESS THAN 75mm IN 30 METERS TO PROVIDE DRAINAGE. THE SLOPE SHOULD BE TOWARD THE STREET WHERE POSSIBLE.
 - THE DUCTS SHALL BE ENCASED WITH 20MPA GRADE CONCRETE WITH A MINIMUM COVER OF 75mm FROM EXTERIOR WALLS OF DUCTS ON ALL SIDES. THE CONCRETE SHALL BE WORKED BELOW AND BETWEEN PIPES TO PRODUCE A HOMOGENEOUS MASS. THE CONCRETE SHALL BE IN ACCORDANCE WITH CSA STANDARDS CAN3-A23.2, CAN3-A23.1, AND CAN3-A23.4 (CURRENT EDITIONS).
 - THE DUCT RUN SHALL BE REINFORCED. REINFORCING STEEL BARS 15mm (5/8") DIAMETER SHALL BE LAID LONGITUDINALLY ALONG THE TRENCH WITH 155mm (FIGURE 2) OR 157.5mm (FIGURE 3) LATERAL SPACING AND 75mm ABOVE THE BASE OF THE CONCRETE. AN OVERLAP OF 600mm OF THE REINFORCING BARS SHALL BE PROVIDED WHERE NECESSARY. THE REINFORCING BARS SHALL BE TIED TOGETHER WHERE THEY OVERLAP. THE DUCT RUNS SHALL ALSO BE REINFORCED AT ALL BUILDING AND MANHOLE ENTRIES WITH THE BARS BEING EMBEDDED IN THE WALLS.
 - WHEN COMPLETE, THE DUCTS SHALL BE CLEAN, WATERPROOF AND FREE FROM OBSTRUCTIONS AND THE ENDS PLUGGED WITH STANDARD PLASTIC DUCT PLUGS TO PREVENT THE INGRESS OF MOISTURE AND DIRT. THE DUCTS SHALL BE TESTED FOR CLEARANCE WITH 5mm MANDREL IN THE PRESENCE OF A REPRESENTATIVE. A NON-METALLIC, NON-DETERIORATING 10mm POWERSTREAM DIAMETER ROPE WITH MINIMUM FIVE HUNDRED POUNDS BREAKING STRENGTH SHALL BE INSTALLED IN EACH DUCT.
 - DUCTS LOCATED IN THE PRIMARY DUCT BANK, REQUIRED TO PROVIDE ELECTRICAL SERVICE TO THE CUSTOMER, THAT ARE CONSTRUCTED, OWNED AND MAINTAINED BY THE CUSTOMER, ARE FOR THE EXCLUSIVE USE OF FOR THE PROVISION OF DISTRIBUTION SERVICES. NO OTHER POWERSTREAM SERVICE PROVIDERS SHALL BE PERMITTED TO USE ANY DUCTS IN THE DUCT BANK.
 - WHERE IT IS REQUIRED THAT THE CUSTOMER'S DUCTS SHALL JOIN DIRECTLY DUCTS, THE CUSTOMER'S DUCTS SHALL BE LEFT POWERSTREAM WITH THE PROJECTING (MINIMUM 300mm) FROM THEIR CONCRETE ENVELOPE IN A STAGGERED PATTERN. THEY SHALL BE EQUIPPED WITH SUITABLE COUPLINGS AND PLUGGED UNTIL THE JOINTS ARE MADE. THE FACE OF THE CONCRETE ENVELOPE SHALL BE LEFT ROUGH TO KEY WITH THE EXTENSION ENVELOPE AND 15mm (5/8") DIAMETER STEEL REINFORCING BARS 1.8m IN LENGTH SHALL BE ENCASED LONGITUDINALLY IN THE ENVELOPE, 50mm INSIDE THE PERIMETER OF THE BANK AT 100mm CENTRES ALONG THE SIDES AND BOTTOM OF THE BANK. THE RODS SHALL PROJECT 900mm FROM THE CENTRE TO ANCHOR FIRMLY INTO THE CONCRETE OF THE EXTENSION WHEN THE LATTER IS POURED. (SEE FIGURE 1)
 - POWERSTREAM REPRESENTATIVE MUST APPROVE THE REQUIREMENT OF ALTERNATE FLAT CONFIGURATION USING FOUR WAY SPACERS FOR DETAIL 3.
 - CONCRETE ENCASED DUCT BANKS UNDER ROAD CROSSINGS MUST BE EXTENDED 1.0m OUTSIDE THE CURB ON BOTH SIDES OF THE ROAD.
 - THE CONTRACTOR SHALL APPLY TO POWERSTREAM CONSTRUCTION
 - DEPARTMENT 48 HOURS BEFORE DIGGING THE TRENCH. THE CONTRACTOR WILL THEN SCHEDULE CONSTRUCTION AND CONCRETE POURING INSPECTIONS WITH THE CONSTRUCTION DEPARTMENT.
 - ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED.
 - BACKFILL AND COMPACTION WITH MATERIALS AS PER MUNICIPAL, REGIONAL, AND/OR PROVINCIAL STANDARDS FOR ROAD CONSTRUCTION.
 - FOR CONSTRUCTION OF DUCT BANKS & JOINT-USE TRENCH (I.E. SUPPLY, COMMUNICATION, CIVIL, GAS ETC.) REFER TO UNDERGROUND SYSTEM STANDARD CSA 22.3.

STANDARD ARRANGEMENT FOR CONCRETE ENCASED DUCTS IN AN UNDISTURBED AREA

ORIGINAL ISSUE DATE: 2006-MAR-30

REVISION NO.: R2

REVISION DATE: 2012-MAR-15

DATE	NO.	DESCRIPTION	BY
SEP 04/19	2	ISSUED FOR PERMIT	JG
AUG 22/19	1	ISSUED FOR PERMIT	JG

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PROJECT:
PENETANG STREET CONDO DEVELOPMENT
45 & 51 PENETANG STREET
BARRIE, ONTARIO

DUCT BANK INSTALLATION SPECIFICATIONS

DRAWN BY:	CHECKED BY:	SCALE:
JG	CL	NTS
DATE:	PROJECT NUMBER:	DRAWING NUMBER:
AUG/2019	9-5735	E-103

Construction Standard

17-108

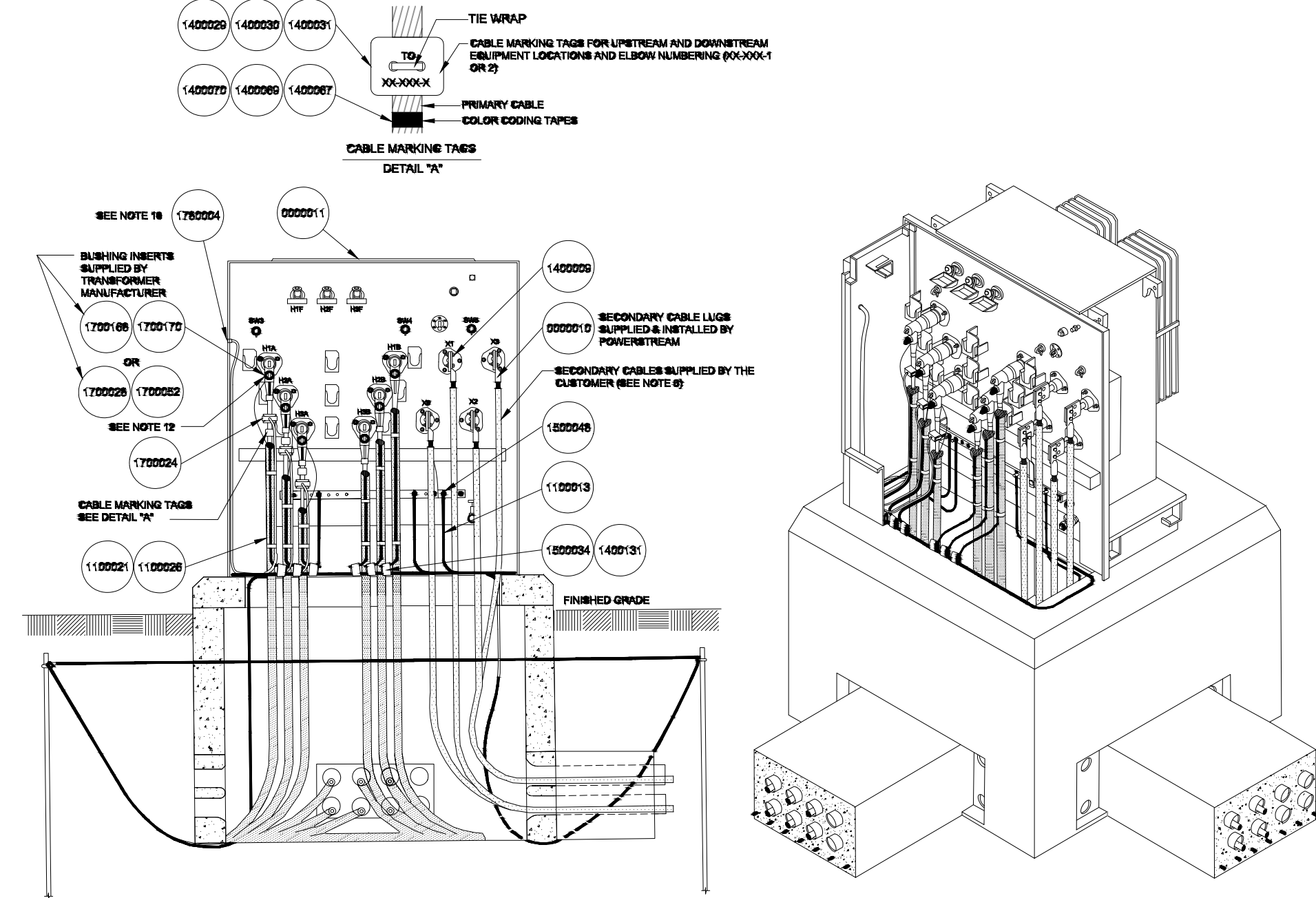
NOTES:

1. TRANSFORMER DOORS AND PARTIAL CABINET REMOVED FROM BOTH VIEWS FOR CLARITY.
2. DESIGN SHOWN IS FOR A LOOP-THROUGH SUPPLY ARRANGEMENT.
3. FOR RADIAL SUPPLY ARRANGEMENT, DELETE THREE LOAD BREAK ELBOWS AND ADD THREE ELBOW SURGE ARRESTERS IN THE BILL OF MATERIALS (SEE TABLE 1 BELOW FOR STOCK CODES). INSTALL ELBOW ARRESTERS ON UNARMED HTA, HSA & HSA OR HTB, HSB & HSB BUSHINGS (SEE TABLE 1 FOR STOCK CODES).
4. SURGE ARRESTERS MUST BE INSTALLED AT THE OPEN POINT IN THE LOOP BY USING THREE ELBOW SURGE ARRESTERS IN THE BILL OF MATERIALS (SEE TABLE 1 BELOW FOR STOCK CODES). INSTALL ELBOW ARRESTERS ON UNARMED HTA, HSA & HSA OR HTB, HSB & HSB BUSHINGS (SEE TABLE 1 FOR STOCK CODES).
5. PRIMARY CABLES TO BE INSTALLED IN SUCH A MANNER AS TO PROVIDE SLACK FOR THE REMOVAL AND PARKING OF LOADBREAK ELBOWS.
6. FOR MATERIAL REQUIREMENTS OF FOUNDATION INSTALLATION, CLEARANCES AND GROUNDING DETAILS, REFER TO STANDARD DRAWING 17-108A.
7. IT IS THE RESPONSIBILITY OF THE CUSTOMER TO RACK THE SECONDARY CABLES IN ACCORDANCE WITH ONTARIO ELECTRICAL SAFETY CODE (CURRENT EDITION) AND TO ENSURE NO UNLAME STRESSERS HAVE BEEN PLACED ON THE TRANSFORMER SECONDARY BUSHINGS. IN ADDITION, THE CUSTOMER SHALL HAVE THE APPROVAL OF POWERSTREAM'S CONSTRUCTION DEPARTMENT FOR THE INSTALLATION OF SECONDARY CABLES INSIDE THE FOUNDATION.
8. FOR MAXIMUM ALLOWABLE SECONDARY CABLE RUNS AND SECONDARY CABLE SIZES REFER TO STANDARD 17-208 & 17-208A.
9. MINIMUM BENDING RADIUS FOR PERMANENT TURNING OF PRIMARY CABLES SHALL BE EIGHT TIMES THE OUTER CABLE DIAMETER.
10. FIBRE OPTIC CABLE TO BE INSTALLED FROM THE FAULT INDICATORS AND BE WRAPPED ALONG THE PRIMARY CABLE CONCENTRIC NEUTRAL WIRES TO THE 8mm HOLES ON THE HIGH VOLTAGE OR LOW VOLTAGE SIDE OF THE HOOD.
11. USE OXIDE INHIBITOR STOCK CODE 1402027 FOR ALL TO ALU ELECTRICAL CONNECTIONS. FOR CU TO CU ELECTRICAL CONNECTIONS USE OXIDE INHIBITOR STOCK CODE 1402035.
12. BUSHING CAPS (STOCK CODES 1702185 FOR 27.5KV OR 1702021 FOR 13.8KV AND LESS) AND TECHSPEC ELBOWS (STOCK CODES 1702177 FOR 27.5KV OR 1702185 FOR 13.8KV AND LESS) MAY BE REQUIRED FOR TEMPORARY INSTALLATIONS.

DESCRIPTION	27.5KV KV	13.8KV KV	6.3/4.8 KV	1.192.4 KV
PARKING STAND SURGE ARRESTER	1702175	1702219	1702202	1702219
ELBOW SURGE ARRESTER	1702178	1702227	1702221	1702224

GUARD POSTS FOR PERES. PRCT.	17-109
GUARD POSTS FOR VEH. PRCT.	17-117
3PH FOUNDATION INST.	17-108A
PAD TRANSFORMER CLEARANCES	17-140
CONCRETE ENCASED DUCTS	17-201
3PH TRANSFORMER LAYOUT	17-208
FIBRING CHART	SECTION 02
MATERIALS	SECTION 15

Certificate of Approval
This construction Standard meets the safety requirements of Section 4 of Regulation 22/04
Joe Cozier, P.Eng. 2011-JUN-23
Name Date
P.Eng. Approval By: Joe Cozier

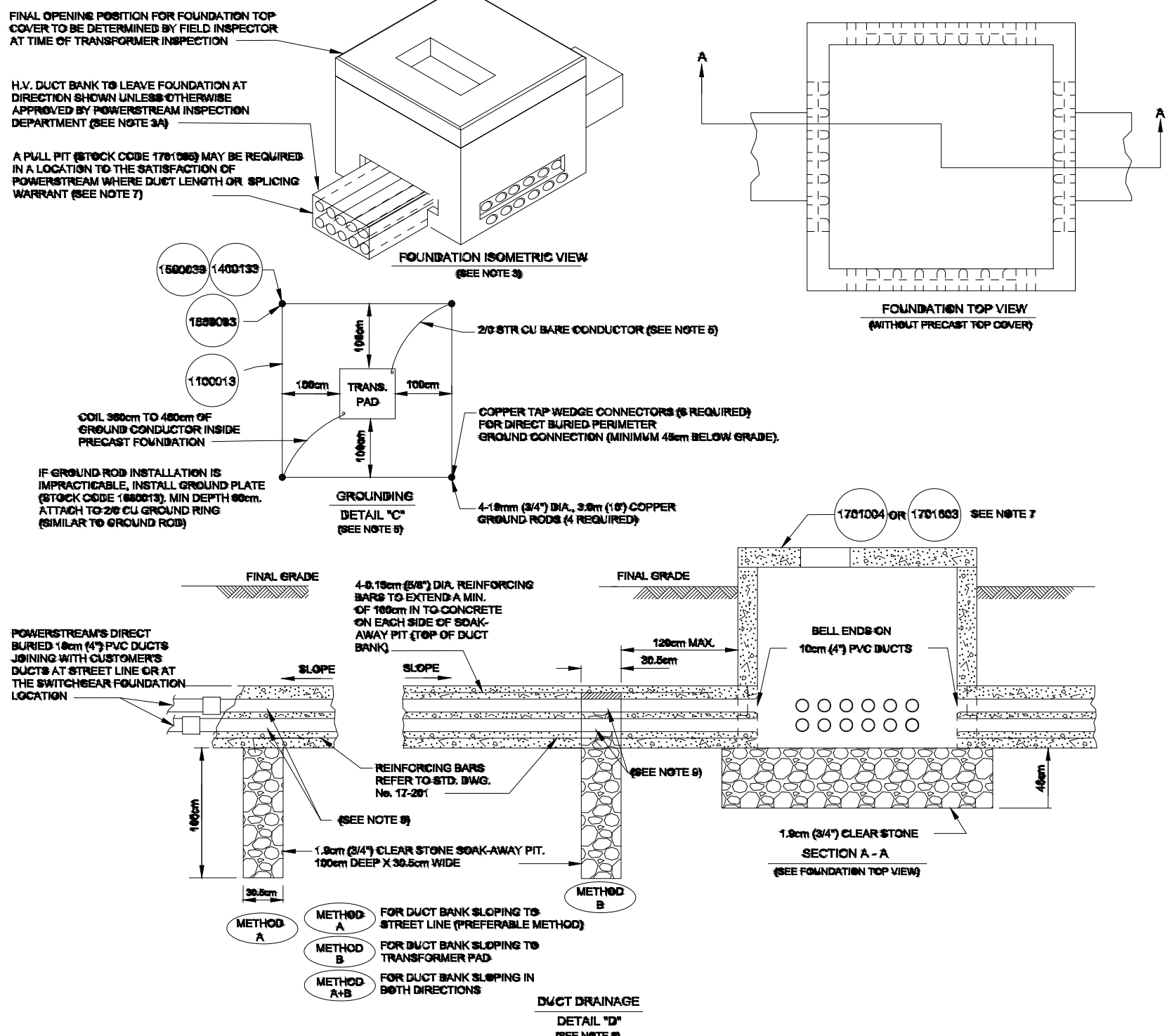


TYPICAL THREE PHASE PAD MOUNTED TRANSFORMER AND BASE WITH CABLE ARRANGEMENT

ORIGINAL ISSUE DATE: 2008-JAN-30 REVISION NO.: R2 REVISION DATE: 2014-MAR-25
SCALE: NTS

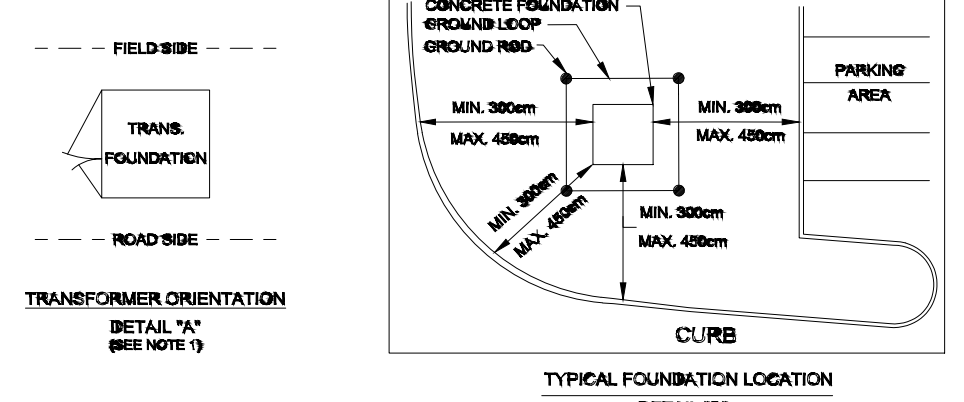
Construction Standard

17-108A



INSTALLATION OF PRECAST FOUNDATION AND GROUNDING FOR 3 PHASE TRANSFORMER

ORIGINAL ISSUE DATE: 2008-JAN-30 REVISION NO.: R7 REVISION DATE: 2017-FEB-16
SCALE: NTS



NOTES:

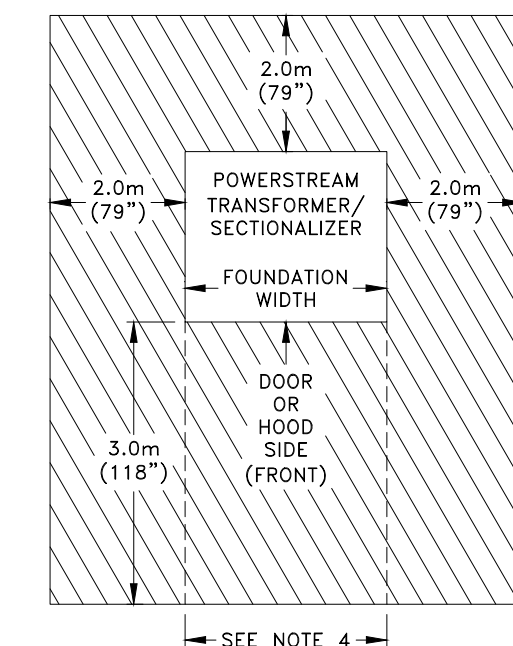
1. TRANSFORMER LOCATION (DETAIL "A" & "B") TO BE APPROVED BY POWERSTREAM WITH MINIMUM CLEARANCES AS SHOWN IN PAD TRANSFORMER CLEARANCES CONSTRUCTION STANDARD 17-140 AND DETAIL "B", AND IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE (CURRENT EDITION). TRANSFORMER SHALL BE ACCESSIBLE TO POWERSTREAM VEHICLES FROM PARKING AREA, DRIVEWAY, OR HARD SURFACE.
2. VEHICLE PROTECTION IN AREAS ACCESSIBLE TO VEHICLE TRAFFIC (DETAIL "B"), IF THE TRANSFORMER LOCATION CLEARANCES FROM THE CURB ARE LESS THAN THE MINIMUM DIMENSIONS SHOWN IN DETAIL "B" THEN THE CUSTOMER IS TO SUPPLY AND INSTALL THE REQUIRED NUMBER OF GUARD POSTS DETERMINED BY POWERSTREAM'S NEW SERVICES DEPARTMENT. REFER TO POWERSTREAM STANDARDS DWG. 17-107 FOR GUARD POSTS (BOLLARDS) INSTALLATION.
3. DUCT INSTALLATION: CUSTOMER TO SUPPLY AND INSTALL DUCTS AS FOLLOWS:
A) HIGH VOLTAGE (H.V.) DUCTS TO BE INSTALLED AS PER POWERSTREAM STANDARD DWG. 17-201. EXACT DUCT ROUTE AND NUMBER OF DUCTS WILL BE PROVIDED BY POWERSTREAM.
B) LOW VOLTAGE (L.V.) SECONDARY CABLES, MECHANICAL PROTECTION, AND NUMBER OF SPARE CONDUITS/DUCTS AS PER THE ONTARIO ELECTRICAL SAFETY CODE (CURRENT EDITION) AND INSPECTED BY ELECTRICAL SAFETY AUTHORITY.
4. SECONDARY CABLES MUST BE SUPPLIED AND INSTALLED BY THE CUSTOMER, AND SIZED TO FULL CAPACITY OF THE SERVICE INSTALLATION OR AS PER ELECTRICAL SAFETY CODE REQUIREMENTS. NUMBER AND SIZE OF CABLES ALONG WITH BUCKET BANK CONFIGURATION TO BE DETERMINED BY THE ELECTRICAL SAFETY AUTHORITY AND INDICATED ON CUSTOMER'S FINAL ELECTRICAL DRAWINGS.
5. GROUNDING (DETAIL "C") CUSTOMER TO SUPPLY AND INSTALL 4 COPPER GROUND RODS COMPLETE WITH COPPER TAP WEDGE CONNECTORS AND DIRECT BURIED PERIMETER GROUNDING AS PER POWERSTREAM STANDARD GROUNDING DETAIL "C". ALLOW SUFFICIENT SLACK FOR GROUNDING CONDUCTOR TO REACH TRANSFORMER GROUND BUS BARS. THE GROUNDING CONDUCTOR SHALL ENTER THE FOUNDATION THROUGH A DUCT FACE (DO NOT USE LIFTING HOLES).
6. INSPECTION: CUSTOMER TO SCHEDULE CONSTRUCTION AND POURING INSPECTIONS WITH POWERSTREAM INSPECTOR ASSIGNED TO THE PROJECT 48 HOURS PRIOR TO THE START OF ANY ON-SITE CIVIL WORK.
7. FOUNDATION: PRECAST UNIT FOR TRANSFORMERS TO BE INSTALLED AS PER POWERSTREAM STANDARDS DWG. 17-208 AND 17-208A. PRECAST UNIT FOR FULL PIT TO BE INSTALLED AS PER POWERSTREAM STANDARD DWG. 17-308.
8. THE CUSTOMER'S CONTRACTOR MUST FOLLOW DUCT DRAINAGE INSTALLATION PROCEDURE SHOWN IN DETAIL "D". IF THE PROCEDURE IS NOT FOLLOWED AS SHOWN, THE CONTRACTOR WILL BE LIABLE FOR ANY DAMAGES FROM WATER RUNNING IN TO THE ELECTRICAL ROOM/FOUNDATION.
9. DRILL 4 DRAINAGE HOLES IN BOTTOM OF EACH DUCT. 1.5mm DIA. AT 8cm CENTRE. FILL TO TOP OF DUCTS WITH 1.5mm (5/64") CLEAR STONE. TOP OFF WITH A LAYER OF POLY-FILM, OR GYPSOFORM, ETC., AND A FINAL LAYER OF CONCRETE.

GUARD POSTS FOR PERES. PRCT.	17-109
GUARD POSTS FOR VEH. PRCT.	17-117
3PH TRANSFORMER INST.	17-108
PAD TRANSFORMER CLEARANCES	17-140
CONCRETE ENCASED DUCTS	17-201
PRECAST FOUNDATIONS 3PH	17-208
TX & PULL PIT	17-308A
MATERIALS	SECTION 15

Certificate of Approval
This construction Standard meets the safety requirements of Section 4 of Regulation 22/04
Joe Cozier, P.Eng. 2017-FEB-16
Name Date
P.Eng. Approval By: Joe Cozier

Construction Standard

17-140



NOTES:

1. FINAL GRADE WITHIN THE RESTRICTED OPERATIONAL CLEARANCE ZONE (SHOWN AS "HATCHED ZONES" ABOVE) MUST NOT BE ALTERED.
2. HATCHED ZONES AROUND THE APPARATUS AND IN FRONT OF ACCESS DOORS/HOODS TO REMAIN CLEAR OF ALL SHRUBS AND TREES. WHEN THE APPARATUS IS POSITIONED WITHIN THE HATCHED ZONE, THE ZONE WITHIN OR ABOVE MUST REMAIN CLEAR OF, INCLUDING BUT NOT LIMITED TO, BUILDINGS, STRUCTURES, FENCES OR OBSTRUCTIONS INCLUDING ANY LANDSCAPING FEATURES.
3. PREFERRED SURFACE COATING WITHIN THE HATCHED ZONES IS LAWN (SEEDED OR SOD) AND WITH PRIOR WRITTEN CONSENT OF POWERSTREAM GRAVEL AND/OR PAVED.
4. ACCESS TO ALL EQUIPMENT DOORS/HOODS MUST REMAIN PERMANENTLY CLEAR OF ALL OBSTRUCTIONS.

UNDERGROUND	SECTION 17
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Certificate of Approval
This construction Standard meets the safety requirements of Section 4 of Regulation 22/04
Joe Cozier, P.Eng. 2011-JUN-23
Name Date
P.Eng. Approval By: Joe Cozier

PADMOUNT TRANSFORMER/SECTIONALIZER CLEARANCES

ORIGINAL ISSUE DATE: 2007-JAN-25 REVISION NO.: R2 REVISION DATE: 2011-JUN-23

Engineering Approval of Material/Equipment
Foundation c/w Lid for 3PH Padmount
Transformers up to 750KVA
PowerStream Stock Code: 1701004

Manufacturer	Manufacturer's Catalogue Number	Supplier Name	Approval Date (dd/mm/yyyy)
ARMTEC-BROOKLIN	BCP-114P C/W BCP 114T9P	ARMTEC-BROOKLIN	13/10/2016
INDUSTRIAL CAST STONE	130-3 C/W 130D-1 ICS	INDUSTRIAL CAST STONE	18/01/2006
UTILICON UA722P2		UTILICON	05/31/2010

Product / Technical Data:
Manufacturers are responsible for design and P. Eng certification of the lifting system for the foundation and lid. The foundation comes with 48 PowerStream approved 10cm (4") PVC sealed holes. Foundations are delivered by crane-equipped trucks and excavation must be ready, safe and accessible for unloading from the rear of the truck. Minimum overhead clearance of 5.5m (18ft) is required for delivery. All units must be handled with proper lifting equipment (i.e. Spreader Bar).
For Replacement Transformer Foundation 9" Lid refer to Stock Code: 1701012

Manufacturer	Test Reports Received:	Production Certified Test Reports Required Upon Receipt of Materials:
ARMTEC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
ICS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
UTILICON	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Prepared By:	R3 Revised By:	Reviewed by Lines:	Reviewed by Engineering:
Name: G. Walters	Alex Costra, CET		Joe Cozier, P. Eng.
Title: Eng. Sds. Co-op Student Technician, Standards			Engineer, Standards
Signature:			
Date: June 17, 2010	October 14, 2016		October 14, 2016

DATE	NO.	DESCRIPTION	BY
SEP 04/19	1	ISSUED FOR PERMIT	JG
AUG 22/19	2	ISSUED FOR PERMIT	JG

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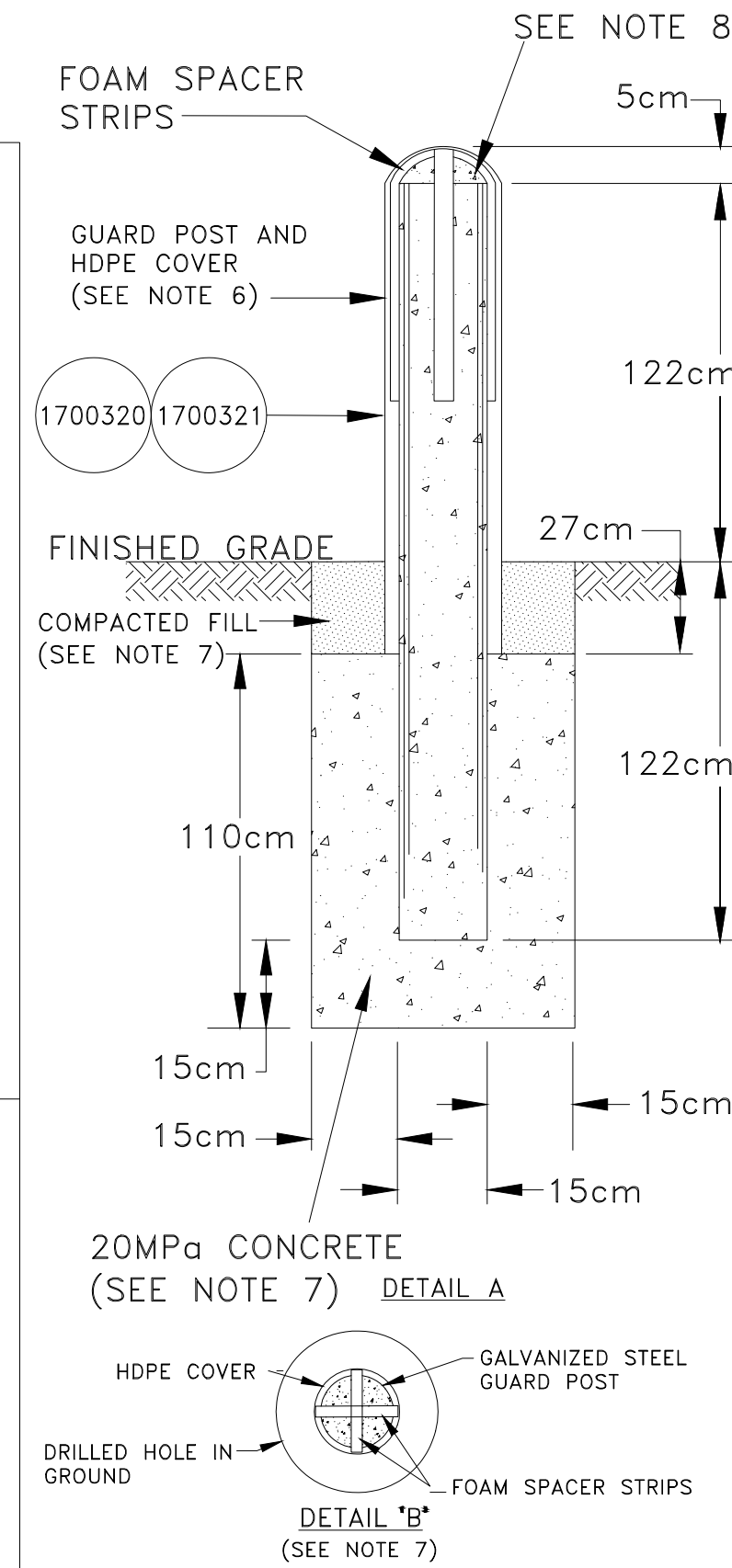
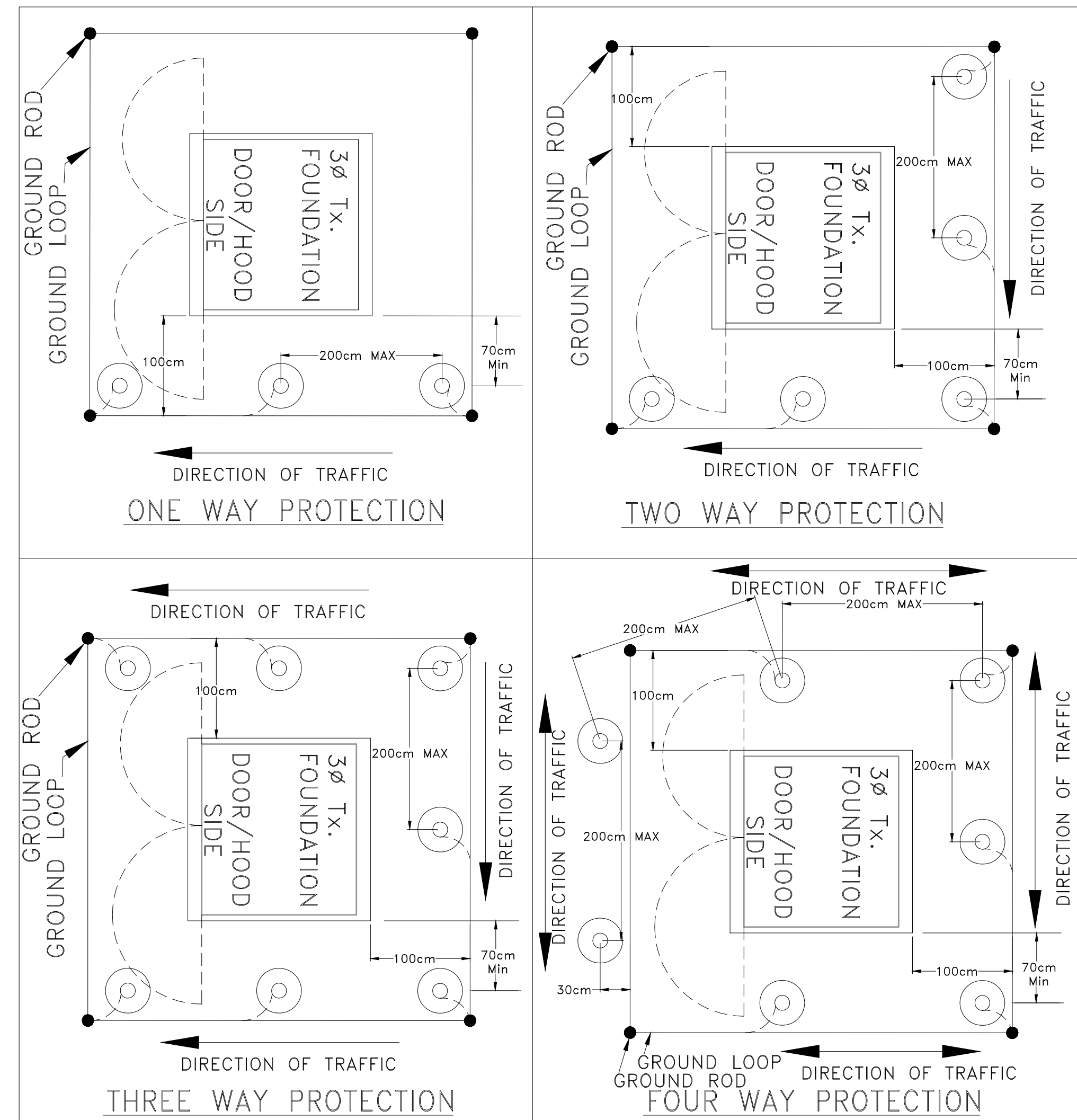
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PROJECT:
PENETANG STREET CONDO DEVELOPMENT
45 & 51 PENETANG STREET
BARRIE, ONTARIO

TRANSFORMER INSTALLATION SPECIFICATIONS

DRAWN BY:	CHECKED BY:	SCALE:
JG	CL	NTS
DATE:	PROJECT NUMBER:	DRAWING NUMBER:
AUG/2019	9-5735	E-104

Construction Standard 17-107A



METRIC	IMPERIAL (APPROX.)
15cm	0'-6"
27cm	0'-11"
30cm	1'-0"
50cm	1'-8"
70cm	2'-4"
100cm	3'-3"
110cm	3'-7"
120cm	3'-11"
122cm	4'-0"
200cm	6'-7"

NOTES:

- CUSTOMER IS TO SUPPLY AND INSTALL GUARD POSTS (BOLLARDS) IF THE EQUIPMENT IS LESS THAN 300cm (120") FROM THE TRAVELED AREA OR ANYWHERE POWERSTREAM DEEMS NECESSARY.
- NUMBER OF GUARD POSTS AND LOCATIONS ABOVE ARE EXAMPLES ONLY. ACTUAL LOCATIONS TO BE DETERMINED BY POWERSTREAM ENGINEERING TECHNICIAN AND MODIFICATIONS CAN BE MADE BY POWERSTREAM INSPECTORS, WITH THE APPROVAL OF ENGINEERING TECHNICIAN, IN THE FIELD WITH THE FOLLOWING CRITERIA:
 - GUARD POST INSTALLATIONS SHALL ALLOW EQUIPMENT DOORS TO BE OPENED THROUGH THEIR FULL RANGE. GUARD POSTS ON THE DOOR SIDE MUST BE PLACED EVEN WITH THE EDGE OF THE VAULT.
 - GUARD POST INSTALLATIONS SHALL ALLOW POWERSTREAM PERSONNEL UNIMPEDED ACCESS TO THE EQUIPMENT.
- THE GUARD POSTS SHALL BE INSTALLED A MINIMUM OF 70cm (27.5") FROM THE VAULT.
- GUARD POSTS INSIDE GROUNDING GRID MUST BE BONDED TO THE GROUND GRID USING AN APPROVED MECHANICAL CONNECTOR OR A CALDWELD CONNECTION AND 2/0 CU BARE GROUND CONDUCTOR. TO AVOID POSSIBLE DAMAGE TO THE GROUND GRID THE BOLLARDS MUST BE INSTALLED BEFORE OR AT THE SAME TIME OF THE GROUNDING GRID.
- INSTALL GUARD POSTS AT THE CORNERS FIRST, THEN INSTALL THE INTERMEDIATE GUARD POSTS. THE DISTANCE BETWEEN TWO GUARD POSTS SHALL BE MAXIMUM OF 200cm (79").
- POWERSTREAM APPROVED GUARD POST SHALL BE 15cm (6") DIAMETER x 244cm (96") LONG 0.76cm (3/16") THICK GALVANIZED STEEL PIPE (MINIMUM GAUGE SCHEDULE 40) COVERED WITH A 18cm (7") DIAMETER x 152cm (60") LONG HIGH DENSITY POLYETHYLENE (HDPE) RESIN PIPE COVER.
- DIG 45cm (14") DIAMETER x 137cm (54") DEEP HOLE IN GROUND AND POUR 110cm (42") OF 20Mpa (2900 PSI) CONCRETE AROUND THE GUARD POST KEEPING 15cm (6") BELOW THE GUARD POST AS A BASE. FILL THE REMAINING 27cm (11") AROUND THE GUARD POST WITH FILL COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- STEEL GUARD POSTS SHALL BE FILLED WITH 20Mpa (2900 PSI) CONCRETE WITH THE TOP ROUNDED. TWO FOAM SPACER STRIPS ARE REQUIRED TO BE PLACED ACROSS THE TOP BETWEEN THE STEEL GUARD POST AND THE HDPE COVER.
- BOLLARDS, GROUNDING GRIDS, AND VAULTS MUST BE INSPECTED BY POWERSTREAM INSPECTIONS DEPARTMENT PRIOR TO THE ENERGIZATION TO THE TRANSFORMER. POWERSTREAM INSPECTION DEPARTMENT MUST BE CONTACTED 48HOURS PRIOR TO AN INSPECTION.
- ALL DIMENSIONS ARE IN CENTIMETERS.

GUARD POSTS (BOLLARDS) INSTALLATION EQUIPMENT PROTECTION 3Ø TX. UP TO 1500KVA (NON RESIDENTIAL)

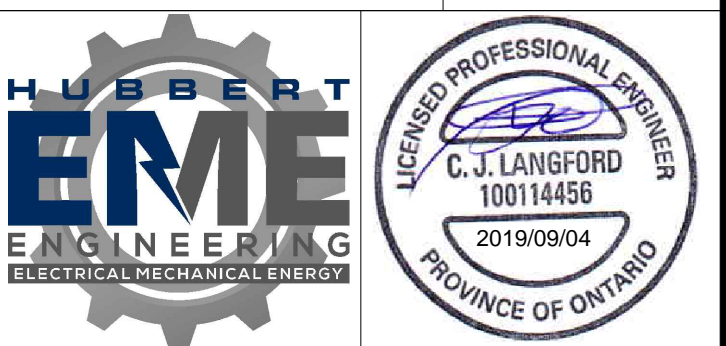
ORIGINAL ISSUE DATE: 2012-FEB-06 REVISION NO: 0 REVISION DATE:

Certificate of Approval
 This construction Standard meets the safety requirements of Section 4 of Regulation 22/04
 Joe Crozier, P.Eng. 2012-FEB-06
 Name Date
 P.Eng. Approval By: Joe Crozier

DATE	NO.	DESCRIPTION	BY
SEP 04/19	2	ISSUED FOR PERMIT	JG
AUG 22/19	1	ISSUED FOR PERMIT	JG

REVISIONS

CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
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 BARRIE, ONTARIO

BOLLARDS INSTALLATION SPECIFICATIONS

DRAWN BY:	CHECKED BY:	SCALE:
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DATE:	PROJECT NUMBER:	DRAWING NUMBER:
AUG/2019	9-5735	E-105



Construction Standard

25-220

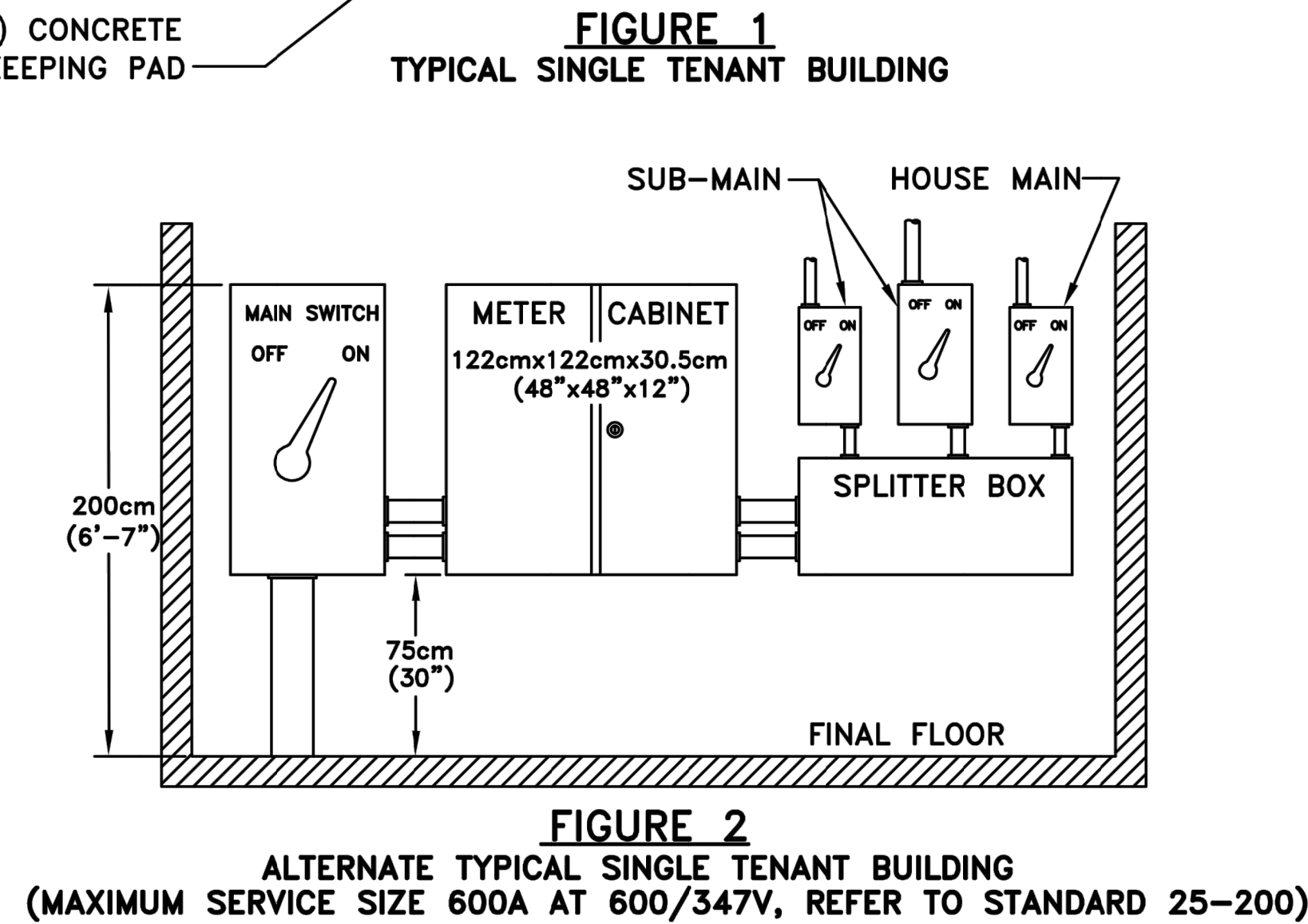
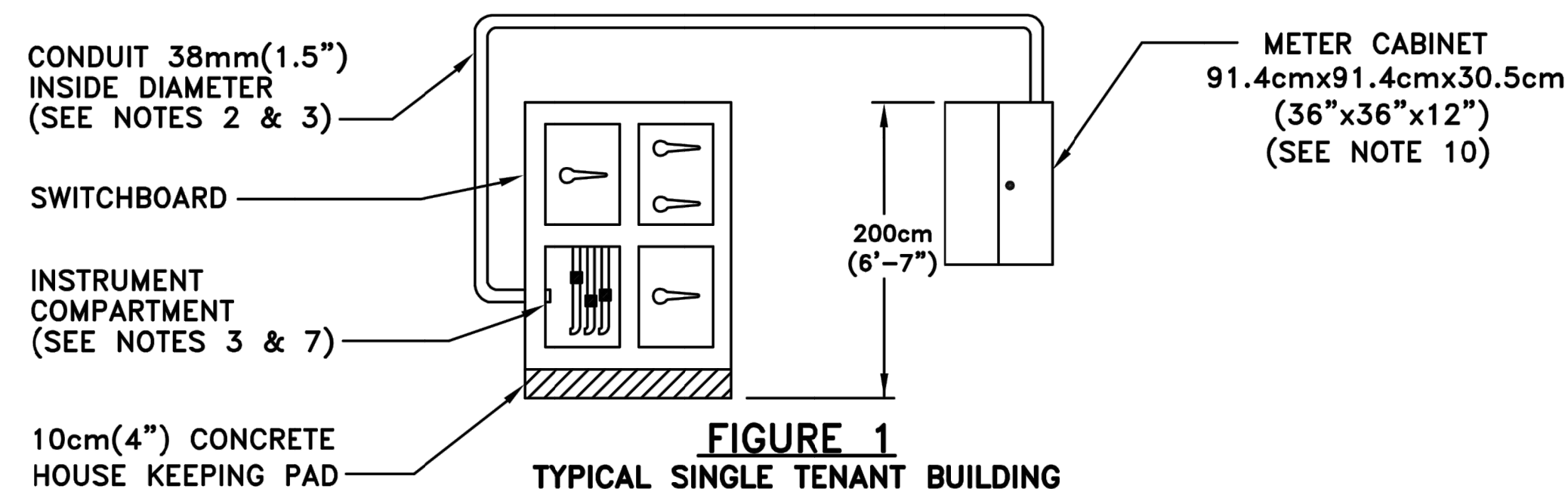


FIGURE 2
ALTERNATE TYPICAL SINGLE TENANT BUILDING
(MAXIMUM SERVICE SIZE 600A AT 600/347V, REFER TO STANDARD 25-200)

NOTES:

- DISTANCE TO TOP OF METER CABINET SHALL BE 200cm(6'-7") FROM FINISHED FLOOR.
- 38mm(1.5") CONDUIT LENGTH SHALL NOT EXCEED 8.0m(26'-3"). IF LENGTH IS GREATER THAN 8.0m(26'-3"), CONTACT POWERSTREAM METERING DEPARTMENT.
- CONDUIT TO RUN CONTINUOUS FROM INSTRUMENT COMPARTMENT TO METERING CABINET ABOVE FINISHED FLOOR.
- BUS TO BE DRILLED AND TAPPED, SIZE 10/24 THREAD.
- A CLEAR WORKING SPACE OF NOT LESS THAN 120cm(3'-11") IN FRONT OF EVERY METERING POINT MUST BE MAINTAINED.
- SWITCHBOARD DRAWINGS SUBJECT TO POWERSTREAM APPROVAL PRIOR TO FABRICATION.
- BOTH THE INSTRUMENT COMPARTMENT AND METERING CABINET MUST HAVE PROVISIONS TO BE LOCKED WITH A POWERSTREAM PADLOCK.
- ALL CABINET DOORS MUST BE ABLE TO OPEN A FULL 90° AND MUST NOT IMPEDE OR BLOCK THE EXIT TO THE ELECTRICAL ROOM.
- METER CABINETS REQUIRE A KNOCKOUT PROVISION OR REMOVABLE PLATE TO FACILITATE PHONE LINE INSTALLATION.
- MAIN DISCONNECT SWITCH MUST BE VISIBLE FROM METERING CABINET.
- METERING LABEL MUST BE VISIBLE AT ALL TIMES.

TYPICAL SINGLE TENANT METERING ARRANGEMENT FOR COMMERCIAL AND INDUSTRIAL BUILDINGS

ORIGINAL ISSUE DATE: 2007-JUNE-29 REVISION NO: R3 REVISION DATE: 2014-NOV-20

Certificate of Approval
This construction Standard meets the safety requirements of Section 4 of Regulation 22/04
Joe Crozier, P.Eng. 2014-NOV-20
Name Date
P.Eng. Approval By: Joe Crozier, P.Eng.



PowerStream Inc. Construction Standard

25-230

METER SOCKETS FOR GENERAL SERVICE (COMMERCIAL & INDUSTRIAL) CUSTOMERS

VOLTAGE	SERVICE SIZE	HYDEL	CUTLER-HAMMER	MICROELECTRIC	STELPRO
120/240V 1 PHASE, 3 WIRE 4 TERMINAL	100A SUBS	SE 400	K1M-N	BE-1TCVIN	DC14-PIN
120/240V 1 PHASE, 3 WIRE 4 TERMINAL	200A SUBS	SLC 400 RW	LM2	BS2L-TCV-IN	SC24-EXPIN
120/208V NETWORK 3 PHASE, 3 WIRE 5 TERMINAL	100A	SE 400 IN 5	KLM-IN1-FN1-2	BE1-TCV-5	SCP17-IN
120/208V 3 PHASE, 4 WIRE 7 TERMINAL SC(SELF CONTAINED)	100A		P17-0-IN1	PL17-TCV-IN	
120/208V 3 PHASE, 4 WIRE 7 TERMINAL	200A	STC 703-RW	P27-IN2 OVERHEAD	PL270IN-TCV	SOP27-IN
600/347V 3 PHASE, 4 WIRE 7 TERMINAL	100A	SFC 70 INSULATED NEUTRAL 3-PW	P17-0-IN1 INSULATED NEUTRAL	PL17-TCVIN INSULATED NEUTRAL	SCP17-IN
600/347V 3 PHASE, 4 WIRE 7 TERMINAL	200A	STC 703-PW INSULATED NEUTRAL	P27-IN2	PL27-IN-TCV INSULATED NEUTRAL	SOP27-IN
600V 5 TERMINAL	100A	SE 400	K1M-N 5 JAW 9:00 POSITION	BE1-5TCINV 5 JAW 9:00 POSITION	SC14-PIN515J 5 JAW 9:00 POSITION

APPROVED METER SOCKETS FOR COMMERCIAL & INDUSTRIAL CUSTOMERS

ORIGINAL ISSUE DATE: 2007-JUNE-29 REVISION NO: R1 REVISION DATE: 2008-JULY-15

Certificate of Approval
This construction Standard meets the safety requirements of Section 4 of Regulation 22/04
Debbie Dadwani, P.Eng. 2007-JULY-15
Name Date
P.Eng. Approval By: D. Dadwani

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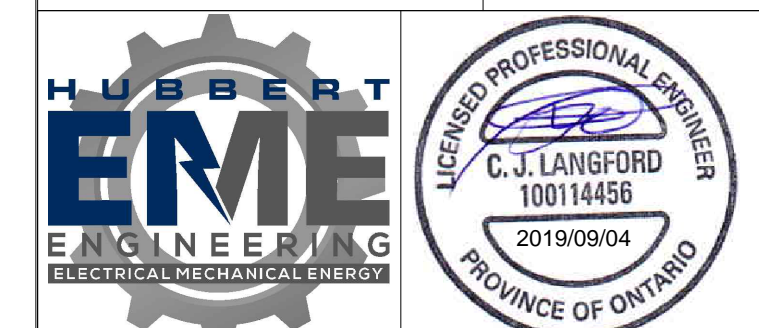
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JG	CL	NTS
DATE:	PROJECT NUMBER:	DRAWING NUMBER:
AUG/2019	9-5735	E-106